Environmental Assessment

PROPOSED CONSTRUCTION OF COMMUNICATION TOWERS ON THE SANTEE SIOUX NATION RESERVATION

November 2023

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List of Acronyms and Abbreviations

ADA	American with Disabilities Act
APE	Area of Potential Effect
AQI	Air Quality Index
BMPs	Best Management Practices
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CTAS	Coordinated Tribal Assistance Solicitation
dBA	Decibels
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMS	Emergency Medical Services
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	Findings of No Significant Impact
gpm	gallons per minute
IT	information technology
NAAQS	National Ambient Air Quality Standards
NCA	Noise Control Act
NCPPD	North Central Public Power District
NDEQ	Nebraska Department of Environmental Quality
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NGPC	Nebraska Game and Parks Commission
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NTIA	National Telecommunications and Information Administration
NWI	National Wetlands Inventory
OEP	Office of Environmental Protection-Santee Sioux Nation (SSN)
RCRA	Resource Conservation and Recovery Act
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Officer
SSN	Santee Sioux Nation
SWDA	Solid Waste Disposal Act
THPO	Tribal Historic Preservation Officer
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WOTUS	Waters of the United States

Executive Summary

The Environmental Assessment (EA) evaluates the potential environmental effects that may result from the proposed construction of the Nebraska Indian Community College (NICC) Communication Towers project (Proposed Action). Specifically, the EA evaluates the significance of potential direct, indirect, and cumulative environmental impacts, positive and negative, that the Proposed Action and alternatives may have on the environment, considering natural, social, and economic aspects. Furthermore, the assessment ensures that NICC and its partners consider the ensuing environmental consequences prior to deciding on whether to proceed with the Proposed Action or alternatives.

The Santee Sioux Nation of Nebraska's Office of Environmental Protection (OEP) prepared this Environmental Assessment (EA) in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, (42 United States Code [USC] 4321-4347), CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500-1508) and the U.S. Department of Commerce, Federal Communications Commission (47 CFR, §1.1307-1.1319).

In 2022, NICC applied and received funding from the National Telecommunications and Information Administration's (NTIA) Tribal Broadband Connectivity Program. The Tribal Broadband Connectivity Program is a nearly $3 billion grant program and part of the Biden-Harris Administration's Internet for All Initiative. The funds are made available from President Biden's Bipartisan Infrastructure Law ($2 billion) and the Consolidated Appropriations Act, 2021 ($980 million). The initiative is consistent with President Biden's Justice 40 mission to provide 40% of federal funding to environmental justice communities that need it most.

This funding will be used to construct three communication towers throughout the Santee Sioux Nation Reservation (SSN). The Proposed Action will strengthen internet services to reach all households on the SSN Reservation and attending NICC so that all K-14 students will have access to the internet and its resources. This project not only extends the reach of the current network but should also enhance bandwidth to increase speeds above the 25 Mbps limit that classifies this as broadband. Three 195 ft self-supporting 3-legged towers will be constructed on three different SSN lands to provide new or enhanced coverage of internet services to NICC students and Tribal members living within the boundaries of the SSN reservation. They are a necessity for reliable and resourceful internet service to underserved and unserved community. They will also be a vital tool for students of NICC continuing education needs of remote learning.

Three alternative concepts were developed. These alternatives included:

1. No Action Alternative
2. Tower Construction
3. Third Party Contracting

Two concepts were carried forward for detailed analysis: Alternative 1- No-Action Alternative; and Alternative 2- Tower construction. Inclusion of a No-Action Alternative is prescribed by the Council on Environmental Quality (CEQ) regulations and serves as a benchmark against which proposed Federal actions are evaluated.

Table ES-1 Environmental Consequences of the Proposed Action Summary

Resources	No-Action Alternative	Proposed Action
Visual	No change from current conditions	No significant long-term negative impacts expected. Short-term negative impacts may result during construction.
Air Quality	No change from current conditions	No significant long-term negative impacts expected. Short-term temporary increases in emissions expected during construction. Short-term negative impacts would be mitigated with the implementation of Best Management Practices (BMPs) to limit dust and engine exhaust.
Cultural Resources	No change from current conditions	No significant short-term or long-term impacts. No impact to historic properties
Geology and Soils	No change from current conditions	No significant long-term negative impacts expected. Construction will cause soil modifications to site topography which will cause short-term negative impacts. Soil erosion and/or contamination would be controlled by implementing standard BMPs for erosion and sediment control, equipment refueling and fuel and chemical spill clean-up.
Hydrology and Water Quality	No change from current conditions	No significant short-term or long-term negative impacts expected.

Resources	No-Action Alternative	Proposed Action
Wildlife, Habitat and Threatened and Endangered Species	No change from current conditions	No significant long-term negative impacts. Short-term negative impacts would be wildlife displacement and loss of habitat. The site would be revegetated following construction. No trees will be removed.
Noise	No change from current conditions	No significant long-term negative impacts. Short-term noise impacts due to construction would be minor and mitigated by implementing time-of-day limitations and equipment BMPs as needed.
Land Use	No change from current conditions	No significant long-term or short-term negative impacts.
Floodplains and Wetlands	No change from current conditions	No significant long-term or short-term negative impacts.
Socioeconomics	No change from current conditions	Long-term positive impact expected as NICC services improve. Short-term impacts would have a positive effect due to temporary employment of local and/or out- of-state construction contractors. Contractors would utilize businesses on the Reserve (i.e. lodging, eating, fuel) which would increase the Tribe's economy, temporarily.
Transportation and Parking	No change from current conditions	No significant negative short-term or long-term impacts.

Resources	No-Action Alternative	Proposed Action
Solid and Hazardous Materials	No change from current conditions	No significant long-term negative impacts. Short-term negative impacts to solid and hazardous waste due to construction. BMPs would be implemented for waste disposal and spill containment during construction. Solid waste would be managed according to NICC's current procedures.
Utilities	No change from current conditions	No significant negative long-term or short-term impacts.
Environmental Justice	No change from current conditions	Significant positive short and long-term effects anticipated due to the availability of reliable broadband throughout the SSN Reservation.

Table ES-1 summarizes the environmental consequences of the No-Action Alternative and the Proposed Action. As previously discussed, inclusion of the No-Action Alternative serves as a benchmark against which potential impacts of the Proposed Action are evaluated.

1.0 INTRODUCTION

The Environmental Assessment (EA) evaluates the potential environmental effects that may result from the proposed construction of the NICC Communication Towers in partnership with the Santee Sioux Nation (Proposed Action). Specifically, the EA evaluates the significance of potential direct, indirect, and cumulative environmental impacts, positive and negative, that the Proposed Action and alternatives may have on the environment, considering natural, social, and economic aspects. Furthermore, the assessment ensures that NICC considers the ensuing environmental consequences prior to deciding on whether to proceed with the Proposed Action or alternatives.

The Santee Sioux Nation of Nebraska's Office of Environmental Protection (OEP) prepared this Environmental Assessment (EA) in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, (42 United States Code [USC] 4321-4347), CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500-1508) and the U.S. Department of Commerce, Federal Communications Commission (47 CFR, §1.1307-1.1319).

2.0 PURPOSE AND NEED

People living on Tribal lands are among the hardest to reach in the United States with broadband service. Tribal lands experience lower rates of both fixed and mobile broadband deployment as compared to non-tribal areas, particularly in rural areas. These areas are expensive to serve with broadband. There is typically rugged terrain, complex permitting processes governing access to tribal lands, lack of necessary infrastructure and typically more residential than business customers. When you factor in high poverty and low income, the widespread availability of broadband to Tribal residents is cost prohibitive.

In March of 2020, the majority of NICC's student body did not have technology access or reliable internet access at their residence other than a smart phone from month to month. More than 80% of the college's students qualify for federal student aid. The Santee Nation's reservation was served by at least two internet providers; however, costs were prohibitive. Affordability and lack of basic broadband access are a significant deterrent for low-income learners on the Santee Sioux Nation reservation. NICC transitioned to remote learning as did most of the K-12 institutions. NICC serves Native Americans living in communities with a median poverty rate near or above 50%, Our educational opportunities offer a critically needed avenue to work in fields that can break the cycle of poverty and lack the knowledge or resources of how to apply to more prestigious institutions, such as how to navigate financial aid.

NICC, Omaha Tribe of Nebraska, Santee Sioux Nation, Umonhon Nation Public School, Santee Public School, Walthill Public School, Bancroft Rosalie Public School, and Pender Public Schools have created a Tribal Broadband Wireless Network. Currently, the network offers speeds of 20 Mbps down and 5 Mbps up. The transmission equipment is located at each school. The students, K-14, who live and reside within the boundaries of the Santee Sioux Nation Reservation and are located within near line of sight of a transmission site 5 to 7 miles away, can access free internet for educational purposes. This project will provide internet access to a grossly underserved and unserved community and a vital tool for NICC students needing to use home internet to access school curriculum from home for continuing education.

NICC requested $1,243,000 to expand its broadband system and applied for and received the Tribal Broadband Connectivity Program funding. The Tribal Broadband Connectivity Program (as part of the Biden-Harris Administration's Internet for All Initiative) is a nearly $3 billion grant program for Tribal Nations to be used for broadband deployment and for other services such as telehealth, distance learning, affordable broadband, and digital inclusion. The funds are made available from President Biden's Bipartisan Infrastructure Law ($2 billion) and the Consolidated Appropriations Act, 2021 ($980 million). The initiative is consistent with President Biden's Justice 40 mission to provide 40% of federal funding to environmental justice communities that need it most.

3.0 ALTERNATIVES

Three initial alternatives were developed and analyzed to address the project's purpose and need.

3.1 ALTERNATIVE 1- NO ACTION ALTERNATIVE

Under Alternative 1, the No-Action Alternative, there would be no construction taking place and the communication towers would not be built. Inclusion of a No-Action Alternative is prescribed by the CEQ regulations and serves as a benchmark against which proposed Federal actions are evaluated.

3.2 ALTERNATIVE 2- TOWER CONSTRUCTION

Under Alternative 2, three communication towers would be constructed throughout various locations within the boundaries of the Santee Sioux Nation Reservation.

3.3 ALTERNATIVE 3- THIRD PARTY CONTRACTING

Under Alternative 3, internet services provided by a third-party telecommunications company within the boundaries of the Santee Sioux Nation Reservation.

ALTERNATIVE CONSIDERED AND DISMISSED

Alternative 3 was eliminated from consideration.

Alternative 3 was eliminated from consideration. Alternative 3 would meet the project purpose because Great Plains Communications, located in Blair, Nebraska, could provide services; however, they would provide underground fiber optic options which would cause more disturbances of natural habitats and possibly impact threatened or endangered species. Also, this alternative would not be economically feasible as it would require NICC and the residents of the SSN to pay monthly subscriptions for the service. Separate agreements would also be required with numerous different landowners to secure rights-of-way and leases to accommodate deploying a buried cable network. This alternative would have a significant negative impact, economically and environmentally, for NICC, which makes this concept less desirable.

3.4 NICC COMMUNICATION TOWER ALTERNATIVE CONCEPTS RETAINED FOR DETAIL ANALYSIS

Two concepts were carried forward for detailed analysis: Alternative 1- No-Action Alternative; and Alternative 2- Tower construction.

3.6.1 NO-ACTION ALTERNATIVE

Under the No-Action Alternative, there would be no change in the unreliable and limited internet service at NICC and for the Santee Sioux Nation. This alternative would not address the growing needs of NICC. Both entities would continue to function with limited or no internet capabilities.

3.6.2 PROPOSED ACTION ALTERNATIVE

The project includes the construction of three, 195-foot direct embedded, three-legged, self-support towers and associated equipment as a Transmission and Receiving Site for microwave broadband. Microwave Internet or Wireless Access (WLA) is a fixed wireless broadband connection delivered by high-capacity microwave radio link, which does not require any other infrastructure other than power, and a clear or near line of sight.

These sites were selected over other sites because they provide the best “line of sight”, meaning that the microwaves can pass between the tower and buildings to be served without obstruction from trees or hills. The proposed tower sites are as follows: Tower 1 is located at Latitude 42.794474 and Longitude at -97.784320 (Figure 3-1a), Tower 2 is located at Latitude 42.741719 and Longitude -97.906551 (Figure 3-1b), and Tower 3 is located at Latitude 42.68401 and Longitude -97.779723 (Figure 3-1c). A gravel access road will be used for site access for construction and operational maintenance. Total construction time will be less than 30 days for all three towers. The areas surrounding the proposed three tower sites are all dominated by agricultural land. Tower 1 has one wetland located less than 1 mile from the proposed tower site; compared to Towers 2 and 3 both have three wetlands less than 1 mile from their proposed tower sites. Total ground disturbance will be less than 300 square feet for all three towers.

Specifications

● MiFi hot spots will again be used to bring the signal into a household or school. They are a low cost, low requirement option to providing the service. We also restrict their use to educational purposes. Mifis reach within one mile of a tower. While they are mobile, the infrastructure needed to use them is permanent and an investment in the community. NICC and the partner high schools have nearly 400 units checked out to current K-14 students.
● The towers will be 195 Ft Self-Supporting 3-Legged Tower at the four planned sites: 1 in Bancroft and 3 on the Santee Reservation.
Tower Specifications (included in tower cost)

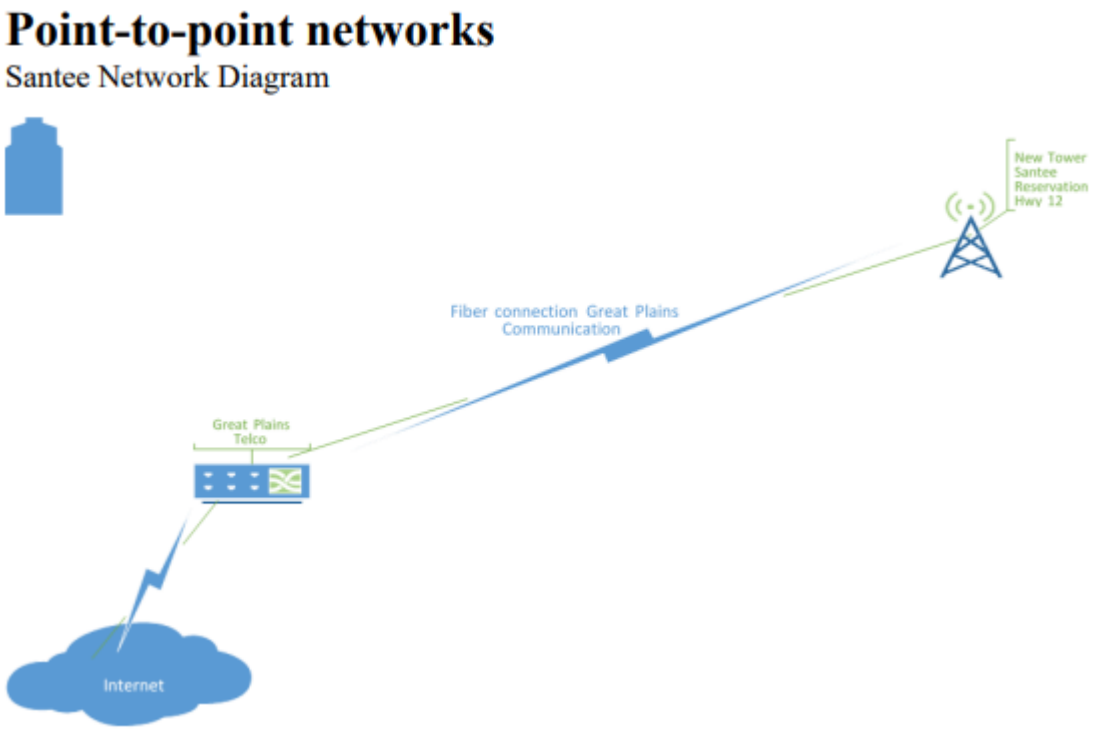
1. SABRE MODEL S3T-L SELF SUPPORT, 195 Ft Tower
2. Materials to be provided include: Complete tower steel and hardware, Anchor bolts and templates, Leg-to-Leg templates, Construction step bolts (see notes), Climbing step bolts (one leg only), One (1) waveguide support ladder (to support all lines), Required lighting mounts, Safety cable kit and leg brackets without harness (200'), One (1) 4' x 5/8" lightning rod copper clad, TIA standard grounding kit, P.E. certified tower profile and foundation drawings, Final erection drawings
3. The following is included in the erection price: Offload tower materials from truck and inventory, Erect tower steel complete, Install Climbing step bolts (one leg only), Install One (1) waveguide support ladder (to support all lines), Install Safety cable kit and leg brackets without harness (200'), Install One (1) 4' x 5/8" lightning rod copper clad, Install TIA standard grounding kit.

4. Install foundations based on presumptive clay soil, per TIA-222-H.
5. TIA Grounding

All planned locations will be within 1,000 feet of Great Plains Fiber. Fiber construction using 2 fibers. The fiber will be buried and use 1 ¼" conduit. Average cost is $8 per foot to bury fiber to each needed tower location is $8,000 - $10,000.

Great Plains Communications and local high schools are the backhaul providers with 200 Mbps fiber to new tower locations. The local high school provides internet backhaul through their current K-12 e-rate internet access.

Frequencies. to be utilized in the network will be 2502-2665 MHz currently used for the wireless LTE. The 2.5 GHz band, which extends from 2496 to 2690 MHz, is comprised of 20 channels designated for Educational Broadband Service (EBS), which will make latency: 50 to 70ms when pinging 8.8.8.8



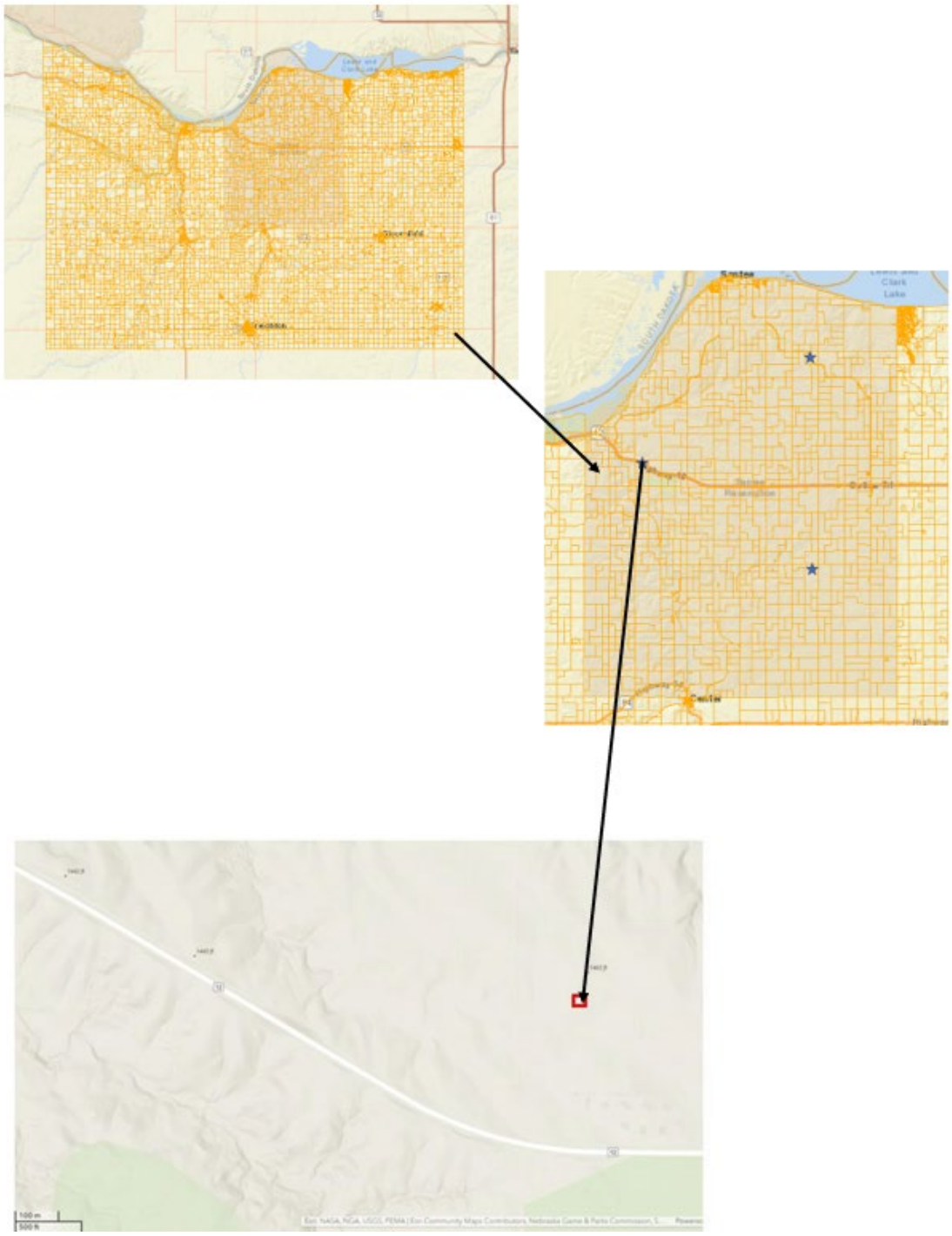
Legend

Proposed Project Site

Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 3-1a
Vicinity Map Tower 1

Santee Sioux Nation
Office of Environmental Protection



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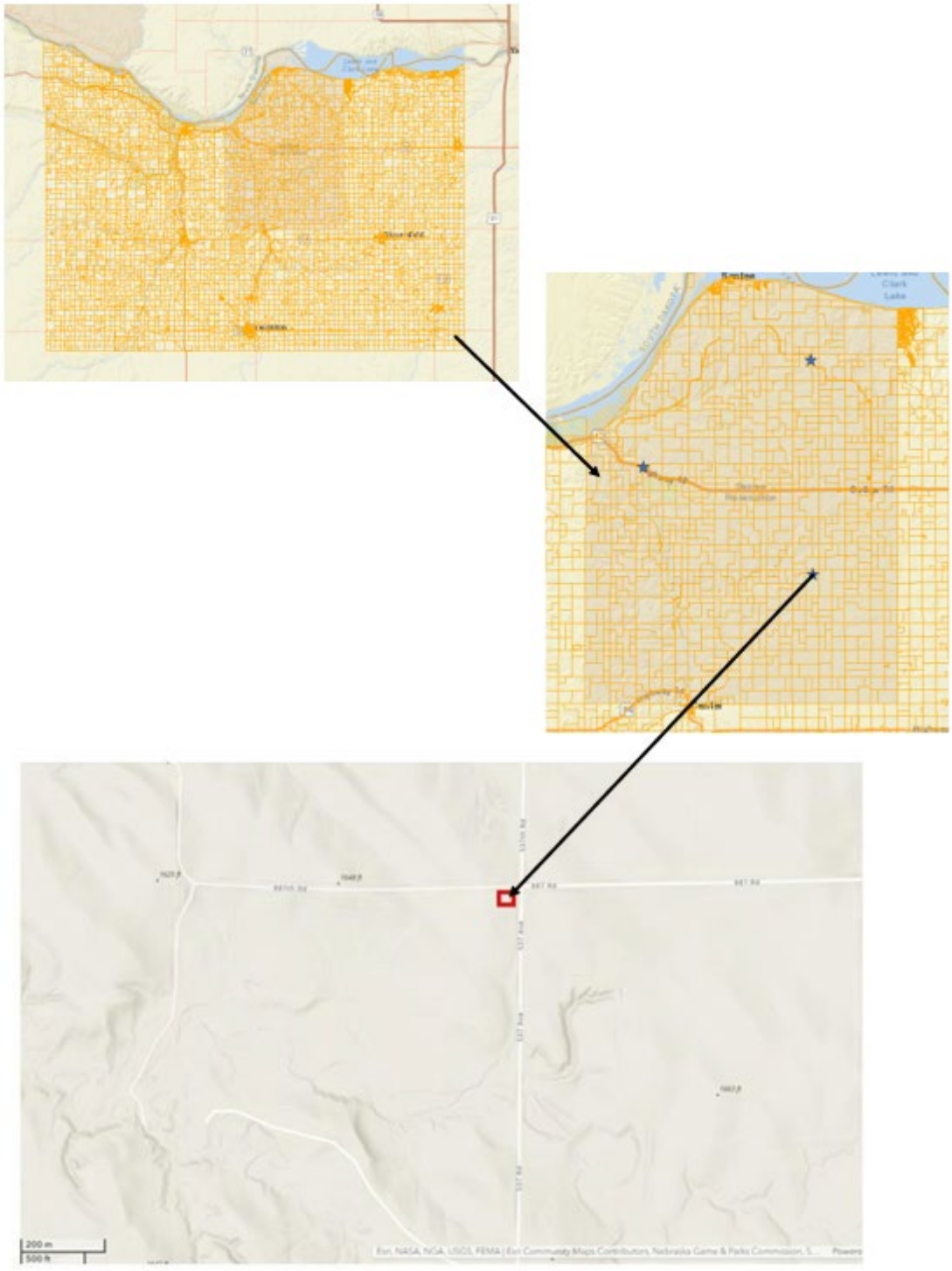
Proposed Project Site

Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 3-1b
Vicinity Map Tower 2

Santee Sioux Nation
Office of Environmental Protection



Legend

Proposed Project Site

Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 3-1c
Vicinity Map Tower 3

Santee Sioux Nation
Office of Environmental Protection

4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section contains a description of the area potentially impacted by the Proposed Action. The extent of the affected environment may not be the same for all potentially affected resource areas. Discussion of the existing setting in this document is limited to existing environmental information that directly relates to the location and scope of the Proposed Action and alternatives analyzed.

4.1 PHYSICAL RESOURCES

This section describes the land use designations of the proposed project areas in which all three towers will be located as well as any natural or man-made aesthetic features that give a landscape its character and value.

4.1.1 GEOLOGY AND SOILS

This section describes the geology and soils surrounding the proposed project sites.

Tower 1 The proposed site is approximately 1,824 feet above mean sea level.

Tower 2 The proposed site is approximately 1,449 feet above mean sea level.

Tower 3 The proposed site is approximately 1,642 feet above mean sea level.

Sandstone, chalk, and shale of the Cretaceous age make up most of the bedrock in Knox County. The Niobrara Formation which consists of chalk, calcareous shale and shaley limestone is over lain by the Pierre Shale formation which is composed of bentonitic shale, calcareous shale, shaley chalk and claystone (U.S. Department of Agriculture (USDA) 1997) (Figures 4-2a,b,c).

The three towers all will be located within the Nebraska/Kansas Loess Hills Level IV Ecoregion of the Western Corn Belt Plains (EPA, 2018). These areas include dissected hills with deep, silty, well drained soils that support a potential natural vegetation of tallgrass prairie with scattered oak-hickory forests along stream valleys (Figure 4-1). Agriculture is a common practice in this area with only a few areas requiring irrigation (Figures 4-3a, 4-3b, 4-3c).

According to USDA Web Soil Survey, Tower 1 predominantly has the soil type, Crofton silt loam, six to 11 percent slopes and covers approximately 100 percent of the proposed site. The Crofton series consists of very deep, well drained, soils that formed in calcareous loess on uplands. Loam is an ideal surface for foundations. Typically, loam is a combination of sand, silt and clay which is crumbly/soft to the touch. Loam handles moisture in a balanced way and will generally not expand or shrink enough to cause damage (Figure 4-3a).

Tower 2, according to the USDA Web Soil Survey, has predominantly Thurman fine sandy loam, two to 11% slopes that covers 100 percent of the proposed site area. This very deep, gently sloping to strongly sloping, somewhat excessively drained soil is on ridges and side slopes in uplands. It is formed in sandy eolian material (4-3b).

Crofton-Nora Complex, six to 11 percent slopes, eroded makes up 100 percent of Tower 3 location's soil according to the USDA Web Soil Survey. These very deep, strongly sloping, well drained soils formed in loess on uplands. The Crofton soil is on the upper parts of hillsides or ridgetops. The Nora soil is on the lower hillsides and side slopes. These areas are 50 to 70 percent Crofton soil and 30 to 50 percent Nora soil (4-3c).

As defined by the U.S. Department of Agriculture, prime farmland is land that has the best combinations of physical and chemical characteristics for producing food, feed, forage, fib, and oilseed crops and is available for these uses. According to the U.S.D.A. Web Soil Survey, all three tower sites (Figures 4-3a, 4-3 b, 4 3c) are not situated on prime farmland.

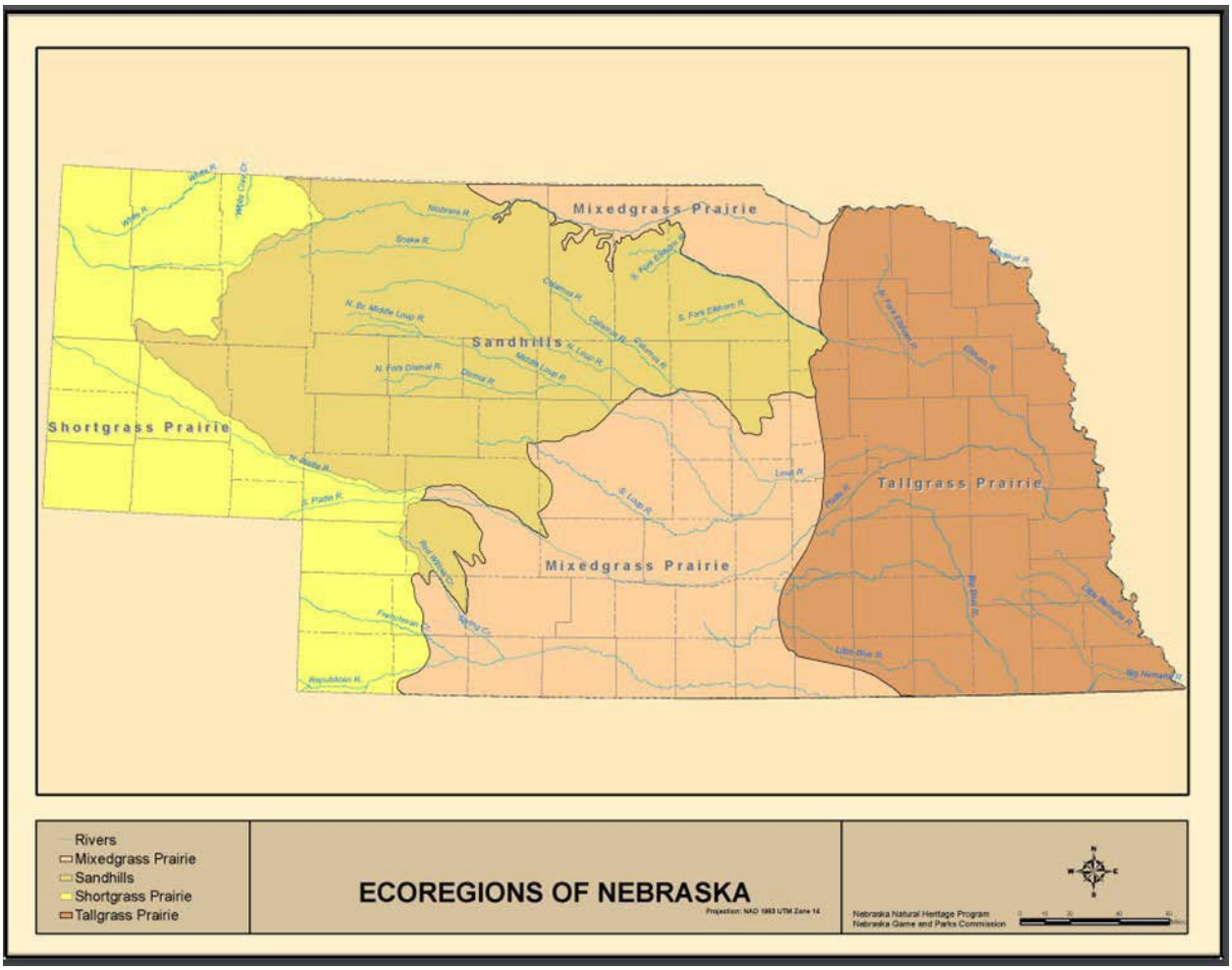
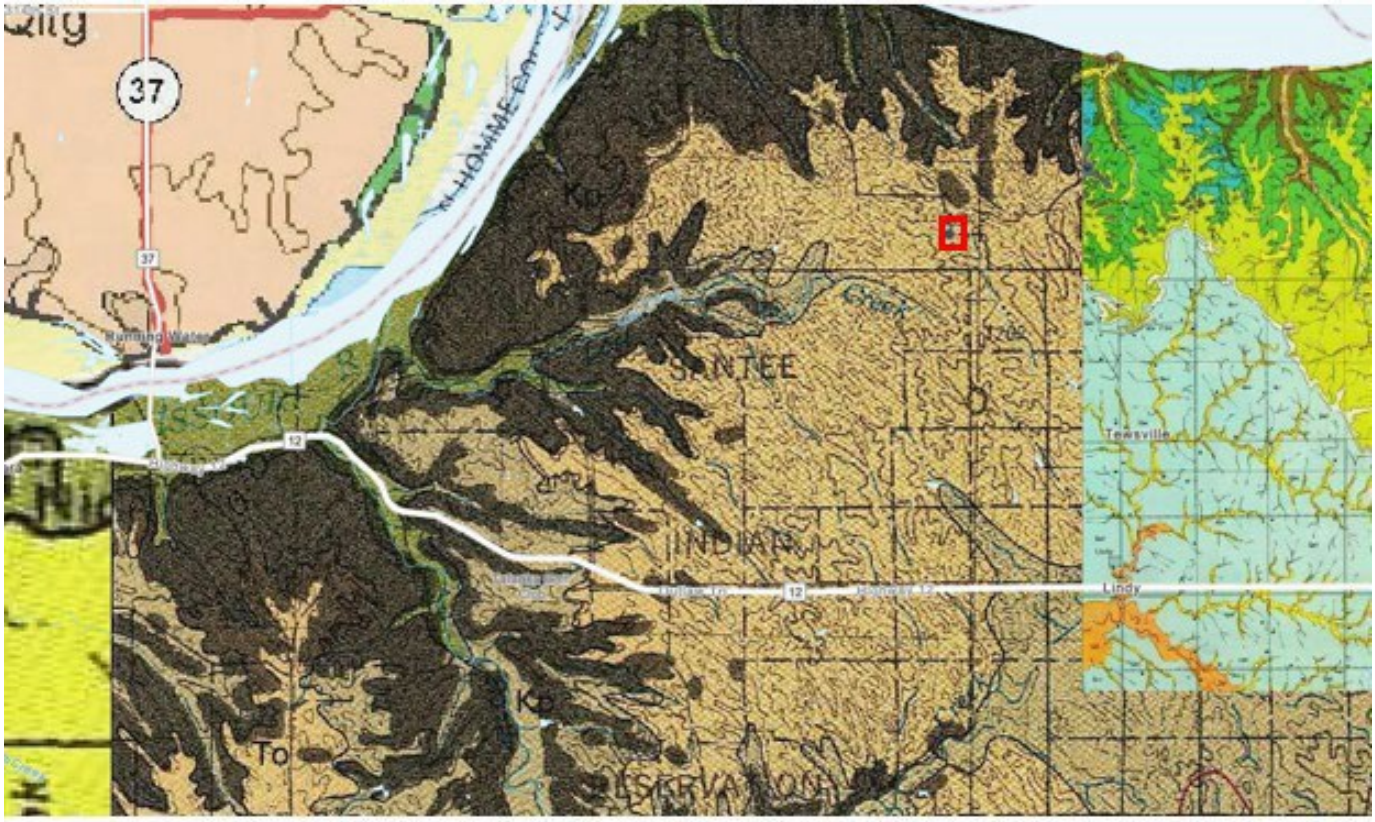


Figure 4 1. Ecoregions of Nebraska Showing the Santee Sioux Nation Tribal Court in Red (NGPC NHP 2017).

Proposed Action: Implementation of the Proposed Action would require soil excavation for installation of concrete foundations to support the new towers. Disturbance at each proposed tower site would be limited to less than 100 square feet. Total ground disturbance at all three tower sites (combined) would be approximately less than 300 square feet. Excavation of up to 2 cubic yards of earth will be required to install the footers for the towers. Where feasible, excavated earth would be used as backfill.

The Proposed Action would result in earth-moving and excavation activities limited to the immediate vicinity of the construction work area. During earthmoving activities, soil would be subject to erosion.



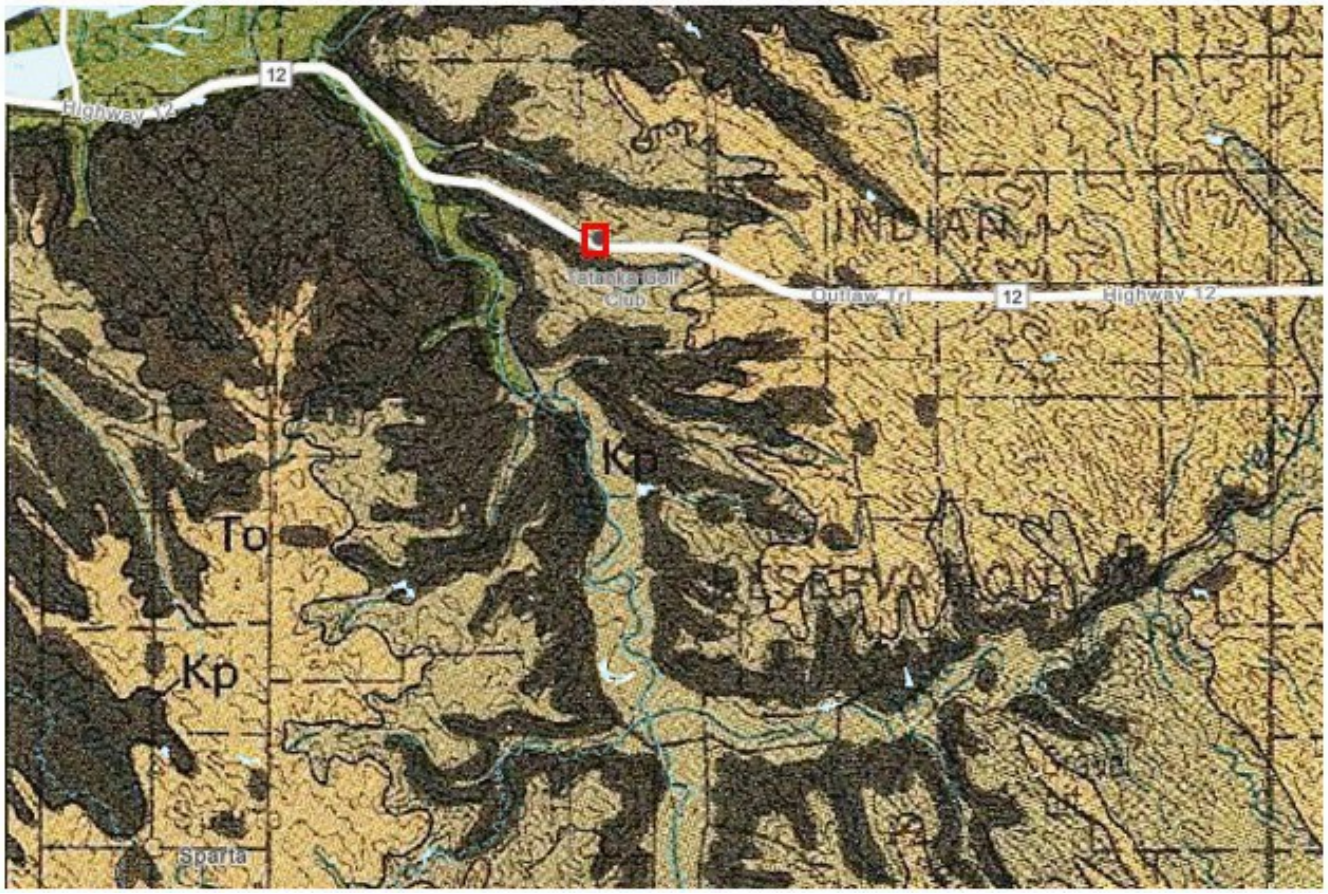
Legend

Proposed Project Site-
Tower 1

Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 4-2a
Geological Map Tower 1

Santee Sioux Nation
Office of Environmental Protection



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Scale 1:144,448
2 mi

Proposed Project Site-Tower 2

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Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 4-2b
Geological Map Tower 2

Santee Sioux Nation
Office of Environmental Protection

Legend

Proposed Project Site- Tower 3

N
W
E
S

Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 4-2c
Geological Map Tower 3

Santee Sioux Nation
Office of Environmental Protection

BMPs for erosion control would be implemented during construction to mitigate the potential for soil erosion during earthmoving and excavation activities. Options for erosion control would include silt fencing, straw bales, and mulch.

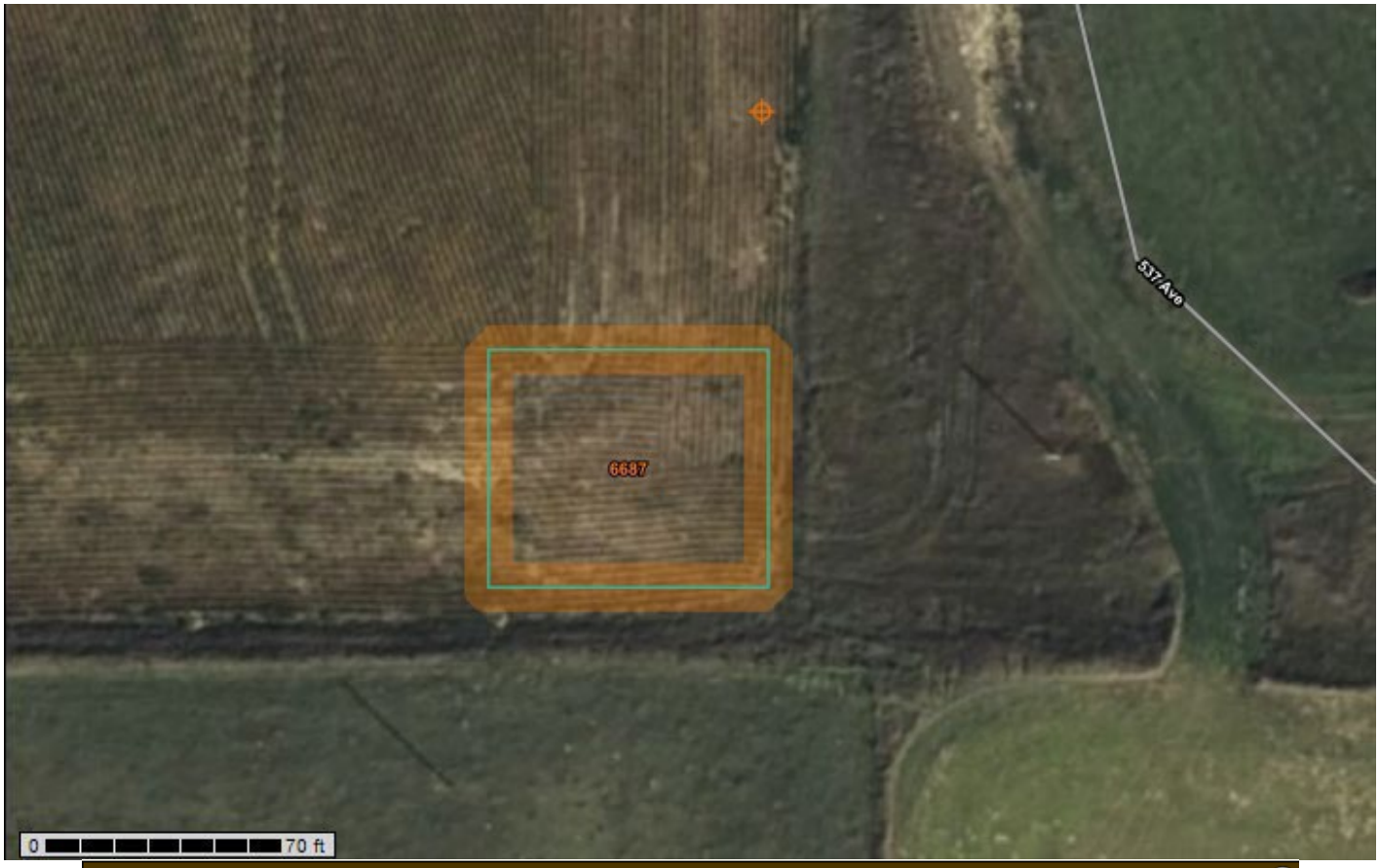
Specifically, placing silt fencing around any disturbed areas, placing mulch on all exposed slopes, and staking hay bales in drainages. In addition, limiting the amount of area that is disturbed and revegetating disturbed soil as soon as construction is completed can reduce impacts. BMPs will be the responsibility of the construction contractors. To ensure that BMPs are in place, oversight will be conducted by the SSN Tribal Response Program Manager on a weekly basis or as needed until the construction is completed.

As with almost any construction project involving the use of heavy equipment, there is some risk of an accidental fuel or chemical spill, and the potential contamination of soil. To reduce the potential for soil contamination, fuels would be stored and maintained in a designated equipment staging area. A person(s) designated as being responsible for equipment fueling would closely monitor the fueling operation and an emergency spill kit containing absorption pads, absorbent material, a shovel or rake, and other cleanup items, would be readily available onsite in the event of an accidental spill. Following these precautions, the potential for an accidental chemical or fuel spill occurring and resulting in adverse impacts to soils would be minimal. No significant soil erosion, sedimentation, or contamination is expected to result from the Proposed Action due to the implementation of BMPs, erosion control measures.

An action would cause a significant impact if soil erosion produced gullying, damage to vegetation, or a sustained increase in sedimentation in streams. This includes a substantial loss of soil, and/or a substantial decrease in soil stability and permeability. Also, significant impacts can occur when soils are substantially disrupted, displaced, compacted, or covered over. An action would also constitute a significant impact if the action caused ground fracturing, folding, subsidence, or instability. Impacts associated with soil contamination would be significant if the affected area was no longer able to support its current function or vegetative cover. No significant long-term negative impacts expected. Construction will cause soil modifications to the site topography which will cause short-term negative impacts. Soil erosion and/or contamination would be controlled by implementing standard BMPs for erosion control, equipment refueling and fuel and chemical spill cleanup.

The proposed project is not subject to Farmland Protection Policy Act requirements as there is no soil in the area applicable to this Act. No significant short or long-term impacts to prime farmland would occur.

The most recent United States Geologic Survey (USGS) long-term seismicity model (2018) shows northeast Nebraska as a low-hazard area with respect to future earthquake activities (Figure 4-4). All three potential project sites lie within the two to four percent ground acceleration probability or low hazard range. This means that over a 50-year time span there is a two percent probability that an earthquake capable of creating light to moderate shaking and none to very light damage could occur. Because of the low hazard range, the extent of shaking and the degree of damage, there would be no significant impact to the geology of all three tower sites because of the Proposed Action.



Tables — Farmland Classification — Summary By Map Unit

Summary by Map Unit — Knox County, Nebraska (NE107)

Summary by Map Unit — Knox County, Nebraska (NE107)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
6687	Crofton silt loam, 6 to 11 percent slopes, eroded	Not prime farmland	0.1	100.0%
Totals for Area of Interest			**0.1**	**100.0%**

Legend

Proposed Project Site-Tower 1

N
W
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Nebraska Indian Community College,
Santee, Knox County, Nebraska

Figure 4-3a
Soil Map

Santee Sioux Nation
Office of Environmental Protection

Tables — Farmland Classification — Summary By Map Unit

Summary by Map Unit — Knox County, Nebraska (NE107)

Summary by Map Unit — Knox County, Nebraska (NE107)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
6727	Thurman fine sandy loam, 2 to 11 percent slopes	Not prime farmland	0.1	100.0%
Totals for Area of Interest			**0.1**	**100.0%**

Legend

Proposed Project Site-Tower 2

N W E S

Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 4-3b
Soil Map

Santee Sioux Nation
Office of Environmental Protection

Tables — Farmland Classification — Summary By Map Unit

Summary by Map Unit — Knox County, Nebraska (NE107)

Summary by Map Unit — Knox County, Nebraska (NE107)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
6674	Crofton silt loam, coarse, 8 to 17 percent slopes, eroded	Not prime farmland	0.4	46.1%
6694	Crofton-Nora complex, 6 to 11 percent slopes, eroded	Not prime farmland	0.4	53.9%
Totals for Area of Interest			**0.8**	**100.0%**

Legend

Proposed Project Site- Tower 3

N W E S

Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 4-3c
Soil Map

Santee Sioux Nation
Office of Environmental Protection

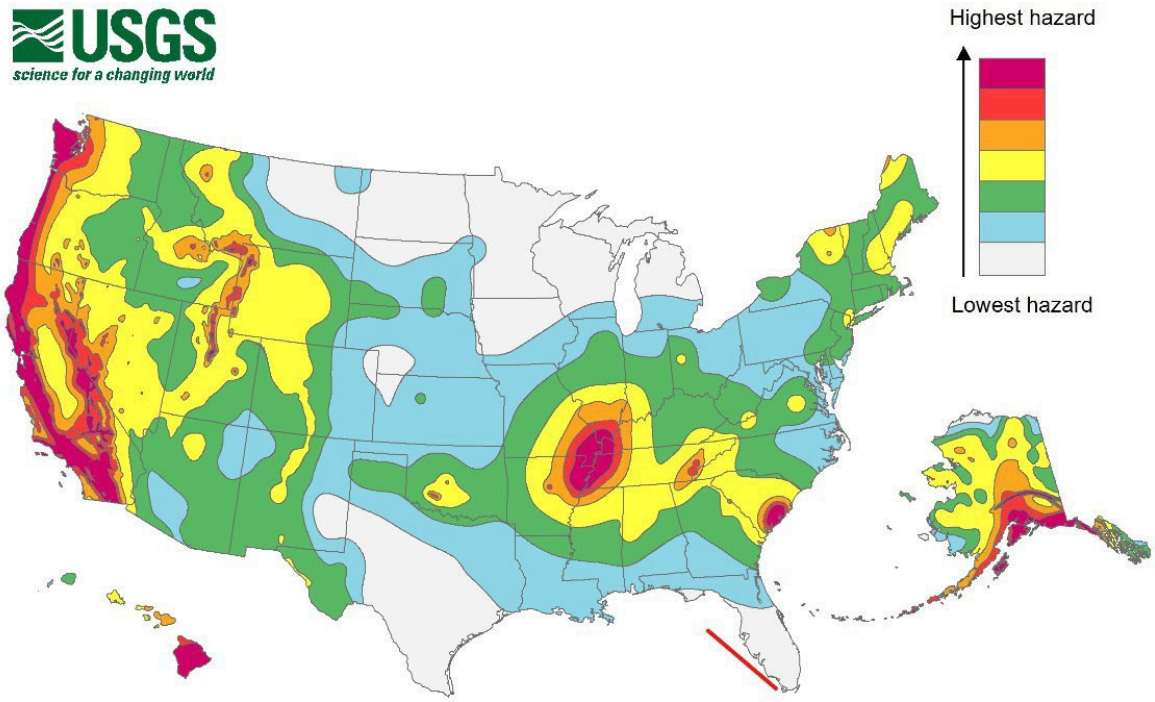


Figure 4-4 USGS 2018 Long-Term Seismic Hazard Map.

This map displays earthquake ground motions for various probability levels across the United States. These probabilities are applied in seismic provisions of building codes, insurance rate structures, risk assessments and other public policy. All three proposed action sites lie within the two to four percent ground acceleration probability or low hazard range (USGS 2023).

No-Action Alternative: Under the No-Action Alternative, the geology and soil of the area would continue to exist in their current condition.

4.1.2 AIR QUALITY

The AQI or Air Quality Index is an index for reporting daily air quality, which shows how clean or polluted the air is and explains what associated health effects might be of concern. The AQI focuses on health effects that may be experienced within a few hours or days after breathing polluted air. The United States Environmental Protection Agency (EPA) calculates the AQI for five major pollutants regulated by the Clean Air Act (CAA): ground level ozone, particulate pollution (also known as particulate matter), carbon monoxide, sulfur dioxide, and nitrogen dioxide. For each of these pollutants, EPA has established national air quality standards to protect public health. Ground level ozone and airborne particles are the two pollutants that pose the greatest threat to human health in the United States. The AQI is divided into six categories: good, moderate, unhealthy for sensitive groups, unhealthy, very unhealthy, and hazardous. Each category corresponds to a different level of health concern. The six levels of health concern and their descriptions are:

- Good: AQI is 0 to 50; air quality is considered satisfactory and air pollution poses little or no risk.

- Moderate: AQI is 51 to 100; air quality is acceptable. However, for some pollutants there may be a moderate health concern for a very small number of people. For example, people who are unusually sensitive to ozone may experience respiratory symptoms.

- Unhealthy for Sensitive Groups: AQI is 101 to 150; although the general public is not likely to be affected at this AQI range, people with lung disease, older adults, and children are at a greater risk from exposure to ozone, whereas people with heart and lung disease, older adults, and children are at greater risk from the presence of particles in the air.

- Unhealthy: AQI is 151 to 200; everyone may begin to experience some adverse health effects and members of the sensitive groups may experience effects that are more serious.

- Very Unhealthy: AQI is 201 to 300; this would trigger a health alert signifying that everyone may experience more serious health effects.

- Hazardous: AQI is greater than 300; this would trigger a health warning of emergency conditions. The entire population is more than likely to be affected.

Criteria Air Pollutants

The CAA requires EPA to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants (40 CFR 50). These commonly found air pollutants are located all over the United States and include particulate matter, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. These pollutants can harm human health and the environment, or cause property damage. The EPA calls these pollutants “criteria” air pollutants because it regulates them by developing human, health based, and/ or environmentally based criteria for setting permissible levels. Table 4-1 provides the NAAQS set by the EPA.

Table 4-1. National Ambient Air Quality Standards

Pollutant [links to historical tables of NAAQS reviews]		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		primary and secondary	Rolling 3 month average	0.15 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)		primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb (2)	Annual Mean
Ozone (O_3)		primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	$PM_{2.5}$	primary	1 year	12.0 µg/m^3	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m^3	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Source: EPA 2023. Data as of March 15, 2023.

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.

(2) The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O_3 standards.

(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2)any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

Knox County air quality is generally good, with no unhealthy AQI value recorded in 2022 (EPA 2022). Table 4-2 display the AQI for Knox County, Nebraska. Furthermore, Knox County is currently attaining all NAAQS pollutant levels (EPA 2023).

Table 4-2. AQI for Knox County in 2022

County	#Days with AQI	#Days Good	#Days Moderate	#Days Unhealthy for Sensitive Groups	#Days Unhealthy	#Days Very Unhealthy	#Days Hazardous	AQI Max	AQI 90th %ile	AQI Median	#Days CO	#Days NO2	#Days O3	#Days PM2.5
Knox County, NE	355	319	36	.	.	.	.	100	51	37	.	.	355	.

Source: EPA 2018. Data as of July 21, 2023.

Proposed Action: Construction and operation of the Proposed Action would be expected to produce localized temporary effects on air quality due to construction activities. An impact would be considered significant if pollutant emissions result in exposure of people, wildlife, or vegetation to ambient air that does not meet the standards established under the Clean Air Act or interfere with state ambient air quality standards. No permanent or long-term impacts to air quality are anticipated.

Construction activities associated with the Proposed Action are expected to result in temporary increases in localized particulate emissions. Operation of construction vehicles such as dump trucks, bulldozers, cranes, earth-moving activities, and waste-disposal actions would produce temporary and localized emissions of particulate matter, volatile organic compounds, nitrogen oxides, and carbon monoxide.

Fugitive emissions from construction activities would be mitigated through Best Management Practices (BMPs). BMPs that would be implemented include:

- Machinery and other construction vehicle engines would not be left to idle unnecessarily; and
- Standard dust suppression procedures would be used to control fugitive dust.

Upon completion of the proposed action, there would be no impacts to air quality due to the operation of the new towers.

No-Action Alternative: Under the No-Action Alternative, air quality conditions at the three sites would remain unchanged.

4.1.3 LAND USE

Land use refers to natural land uses, and land uses that reflect human modification. Natural land use classifications include wildlife areas, forests, and other open or undeveloped areas. Human land uses include residential, commercial, industrial, utilities, agricultural, recreational, and other developed uses.

Management plans, policies, ordinances, and regulations determine the types of uses that are allowable or protect specially designated or environmentally sensitive uses.

As part of the Santee Sioux Nation Reservation, land use is determined by the Santee Sioux Nation Tribal Council and the Bureau of Indian Affairs (BIA). This project has been approved by the SSN Tribal Council. Towers 1 and 2 are located on fee land and are owned by the SSN. Fee land is under the complete control of its owner who holds the title to it. Tower 3 is located on trust land. Trust land is property held in Trust by the United States Government for the benefit of the Tribe. BIA has some jurisdiction over trust land. However, because the Tribe owns and operates the internet company, BIA does not have to give authorization for the proposed project.

Proposed Action: The Proposed Action would not result in any short or long-term negative impacts to land use within the project sites or adjacent areas. Land use would generally remain unchanged. The impact would be significant if a proposed action conflicts with any Federal, regional, State, or local land use plans. If land use patterns are changed in the immediate project area due to the proposed action, the impact would also be considered significant. The construction of the three towers will have minimal impact on the land use. The three towers will take less than 100 square feet of land to construct. Land use adjacent to the three towers would be unaffected by the projects.

No-Action Alternative: The No-Action Alternative would have no effect on land use. The project sites would remain unchanged.

4.1.4 VISUAL RESOURES

A visual resource is usually defined as an area of unique beauty that is a result of the combined characteristics of the natural aspects of land and human aspects of land use. Wild and scenic rivers, unique topography, and geologic landforms are examples of the natural aspects of land. Examples of human aspects of land use include scenic highways and historic districts.

Visual resources can be regulated by management plans, policies, ordinances, and regulations that determine the types of uses that are allowable or protect specially designated or visually sensitive areas.

All the sites are in agricultural fields where there are no applicable policies, plans or ordinances for them. The three sites are surrounded by agricultural land uses (see Figures 4 3a,b,c).

Proposed Action: Visual resources would not be significantly affected by the implementation of the Proposed Action, as all construction activities would take place within areas that are already disturbed by agricultural practices. An action would be considered significant if it had substantial, adverse effects on a scenic vista or damages to scenic resources, including, but not limited to, trees, rock outcropping and historic buildings within view from a scenic highway. Substantial degradation of existing visual character or quality of a site and its surrounds along with a creation of a new source of substantial light or glare that would adversely affect day or nighttime views in the area would also be considered significant. No significant long-term negative impacts expected.

The construction of the three towers would have minimal impact on visual resources as the towers will be made from a lattice structure which is easily seen through. The three sites will have short-term negative impacts to visual resources from site preparation and construction. Impacted vegetation would be reseeded and replanted as needed.

No-Action Alternative: Under the No-Action Alternative, the visual resources at all three proposed project sites would remain unchanged. The three sites would remain as they currently exist.

4.2 WATER RESOURCES

Water resources are sources of water that are useful or potentially useful to humans. Fresh water resources are essential for many agricultural, industrial, recreational, household, and environmental activities. Fresh water resources are generally divided into ground water or surface water sources.

4.2.1 GROUNDWATER

Groundwater is the water located beneath the surface of the earth, within soil pore spaces, and in the fractures of geologic formations. Groundwater is naturally replenished by surface water from precipitation, streams, and rivers. Groundwater is often used for agricultural, municipal, and industrial uses through the construction of wells.

The three proposed tower locations are located within the Great Plains Aquifer System. This aquifer underlies most of Nebraska, about one-half of Kansas, the eastern one-third of Colorado, and small parts of New Mexico, Oklahoma, Texas, South Dakota, and Wyoming. The rocks that compose the aquifer system extend northward where they mostly contain saline water along with some brine, oil and gas. The water- yielding rocks of the aquifer system are sandstone; confining units in the system consist of siltstone and shale.

Within the Great Plains Aquifer System water moves generally eastward and northeastward from recharge areas in southeastern Colorado toward discharge areas in central Kansas, eastern Nebraska and along the Missouri River in northeastern Nebraska. Much of the recharge to the aquifer system is from precipitation that falls directly on aquifer outcrop areas in southern and southeastern Colorado and east-central Kansas.

In addition to the Great Plains Aquifer system, there are several additional aquifers that reside in and around the project sites. These aquifers include: The Dakota Aquifer, Quaternary alluvial aquifers and the Codell Aquifer. These aquifers are the sole water supply for more than 4,000 active wells across Nebraska. Specifically, the Quaternary alluvial aquifers supply most of the groundwater in this area. These aquifers are mainly composed of unconsolidated sand and gravel deposits with interbedded silt and clay. They are associated with major stream deposits and buried stream channels (U.S.B.R., 2015).

Proposed Action: Impacts on water resources would be considered significant if effluent or pollutant emissions result in exposure of people, wildlife, or vegetation to surface waters that do not meet the standards established under the Clean Water Act or interfere with state water quality standards. Long-term impacts to water quality are not anticipated. Construction activities associated with the Proposed Action would not have a significant long-term negative impact on ground water. Short-term negative impacts would include ground disturbance due to construction activities. BMPs will be in place to limit the impacts to the three proposed sites. Impacts to the water of the area will be limited to the areas where the footings will be placed and where standing water is encountered. Minor field adjustments will be made to reduce impacts to standing water and to avoid disturbing local hydrology and water conditions.

However, during construction, hazardous materials would be identified and controlled. Any accidental spills would be contained (See Section 4.5.2 for a more detailed discussion regarding hazardous materials). Spills from construction activity that may infiltrate the soil, although unlikely, could degrade groundwater quality. If such a spill should occur, the affected area would be attended to immediately and the soil would be removed and disposed of according to EPA guidelines.

No-Action Alternative: No Action-Alternative would have no effect on groundwater. Existing conditions would be maintained.

4.2.2 SURFACE WATER

Surface water is any water that has collected on the ground or is contained in a stream, river, lake, wetland, or ocean. Surface water is replenished through precipitation and is naturally depleted through evaporation and subsurface seepage into the groundwater. Storm water is surface water from precipitation events. Runoff is created when storm water cannot be rapidly absorbed by the ground, or falls on impervious surfaces (parking lots, roads, buildings, compacted soils, etc.). Runoff can cause many problems, including the erosion of watercourses and flooding. When storm water creates runoff, pollutants are introduced into surface water and transported.

The Clean Water Act (CWA) (33 USC 1251) regulates discharges of pollutants into the Waters of the United States (WOTUS) by establishing quality standards for surface waters. The CWA makes it unlawful to discharge any pollutant from a point source into navigable waters, unless a permit is obtained. The EPA's National Pollutant Discharge Elimination System (NPDES) controls discharges. NPDES regulates the discharge of point (pipe, manufactured ditch, etc.) and nonpoint (storm water) sources of water pollution.

Proposed Action: There could be minor, short-term impacts to surface water due to construction. To help minimize impacts, BMP's would be implemented to reduce these impacts. These BMP's would be adjusting routes into the proposed project site to reduce the impact to standing water and to avoid disturbing any water conditions within the area. With the implementation of the BMP's discussed above, construction activities associated with the Proposed Action would not have a significant effect on surface water.

No-Action Alternative: No-Action Alternative would have no effect on surface water. Existing conditions would be maintained.

4.2.3 WETLANDS

A wetland is an area with sufficient hydrology to support hydrophytic (water-loving) vegetation and the development of hydric soils by creating anoxic (without oxygen) below-ground conditions. Wetlands include swamps, marshes, bogs, etc. Wetlands are extremely biologically diverse and can support a wide variety of plant and animal life. Wetlands are beneficial in that they improve water quality, store floodwater, provide fish and wildlife habitat, are aesthetically pleasing, and are biologically productive.

Section 404 of the Clean Water Act (CWA) established a program to regulate the discharge of dredged or fill in WOTUS, including wetlands. Activities in WOTUS regulated under this program include fill for development, water resource projects, and infrastructure development. Section 404 requires a permit before dredged or fill material may be discharged into WOTUS (33 USC 1344). EO 11990, Protection of Wetlands, requires federal agencies to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. It also requires that agencies avoid construction in wetlands, to the extent practicable (44 CFR 26951).

The U.S. Fish and Wildlife Service (USFWS) maintains a National Wetlands Inventory (NWI) that provides information on the characteristics, extent and status of the nation's wetlands and deep-water habitats (USFWS 2023). According to this data, there are wetlands located less than 1 mile from each proposed tower site (Figure 4-5a, 4-5b, 4-5c).

Tower 1- There is one wetland located less than 1 mile from the proposed tower site.

Tower 2- There are three wetlands located less than 1 mile from the proposed tower site.

Tower 3- There are three wetlands located less than 1 mile from the proposed tower site.

Proposed Action: The Proposed Action would not involve any dredge or fill activities in wetlands and would have no direct or indirect impact on federal or state jurisdictional waters. An action would cause a significant impact on wetlands if the soil structure, hydrology, or the vegetation of more than one-fourth acre of a wetland would be altered enough to cause the the degradation or loss of habitat for populations indigenous to the wetlands. Pursuant to Section 404 of the CWA, the Proposed Action would not require a permit. There will be no significant long or short-term negative impacts because the wetlands are located within an area that will not be affected byconstruction.

No-Action Alternative: The No-Action Alternative would have no impact on any wetlands in the vicinity. Existing conditions would be maintained.

4.2.4 FLOODPLAINS

According to Executive Order (EO) 11988, Floodplain Management, a floodplain is defined as: "the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including a minimum, that area subject to a one percent or greater chance of flooding in any given year." EO 11988 requires federal agencies to avoid the long and short-term adverse effects associated with the occupancy and modification of floodplains. In addition, this EO requires agencies to avoid direct and indirect support of floodplain development whenever there is a practicable alternative (44 CFR 26951).

LEGEND

Wetlands
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Riparian
- Forested/Shrub
- Herbaceous

Legend

Proposed Project Site

N
W
E
S

Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 4-5a
Wetland Map-Tower 1

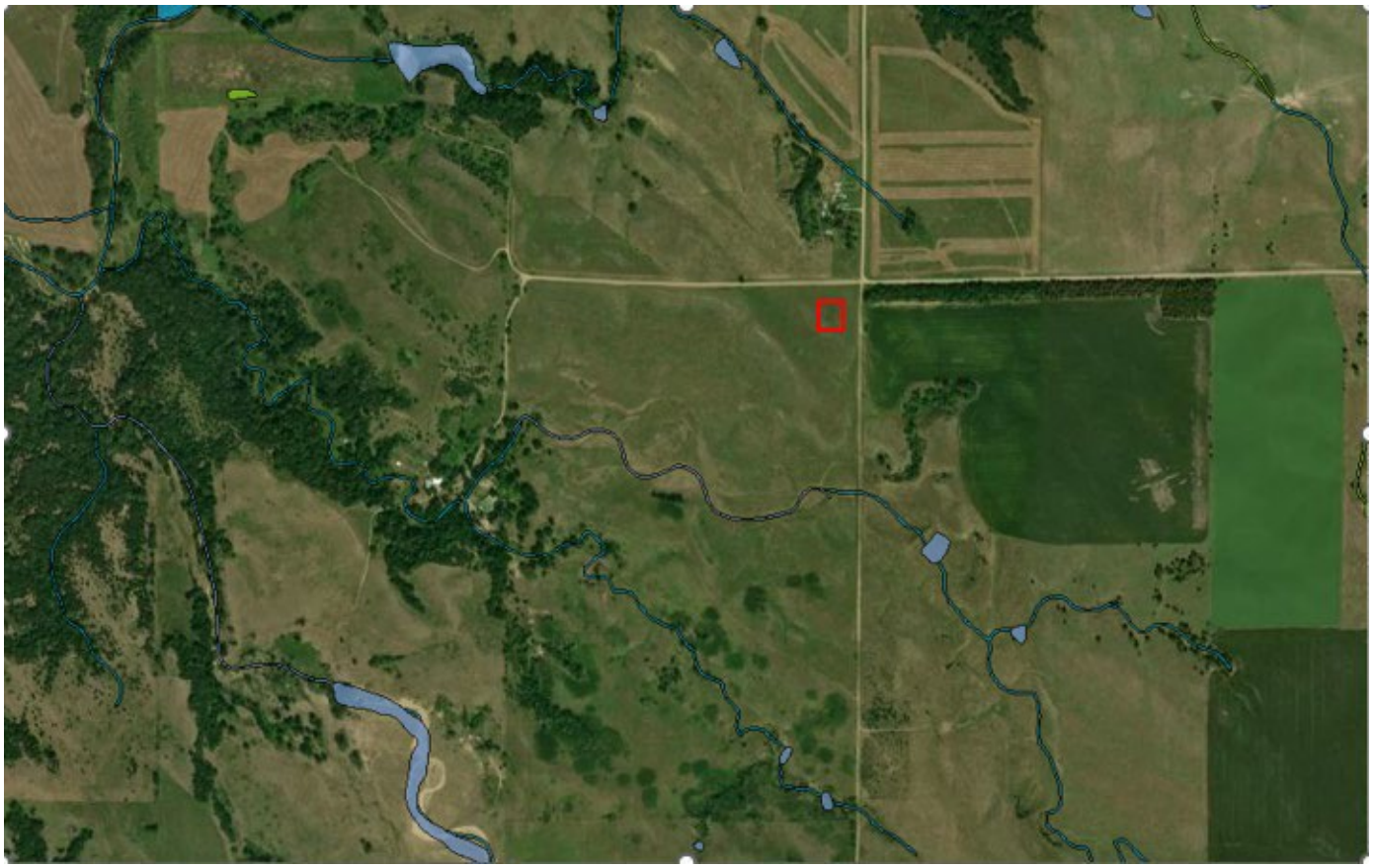
Santee Sioux Nation
Office of Environmental Protection

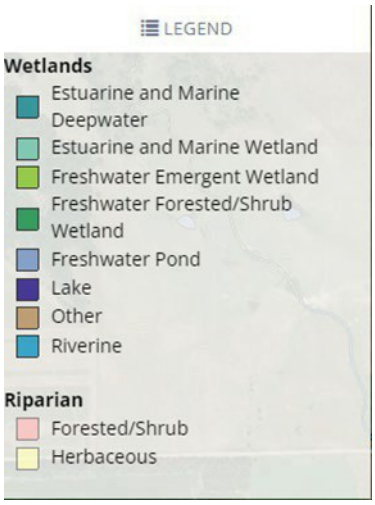
LEGEND

Wetlands
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Riparian
- Forested/Shrub
- Herbaceous

Legend Proposed Project Site N W E S	Nebraska Indian Community College Santee, Knox County, Nebraska Figure 4-5b Wetland Map-Tower 2 Santee Sioux Nation Office of Environmental Protection





Legend

Proposed Project Site

Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 4-5c
Wetland Map- Tower 3

Santee Sioux Nation
Office of Environmental Protection

The three proposed tower sites are not located within a known mapped floodplain or floodway (Federal Emergency Management Agency [FEMA], 2023). FEMA indicates that the vicinity of all three project areas have not been mapped for flooding potential (Figures 4-6a,b,c).

Proposed Action: The Proposed action would have no impact to floodplains. An action would cause significant impact on a floodplain area if the area were altered enough to present a reasonable flood danger to the area, causes the degradation or loss of habitat for populations indigenous to the floodplain area or prohibits farming activities. The three tower project sites are located within areas that have not been mapped for flooding potential. (FEMA, 2023).

No-Action Alternative: The No-Action Alternative would have no impact on floodplains.

4.3 BIOLOGICAL RESOURCES

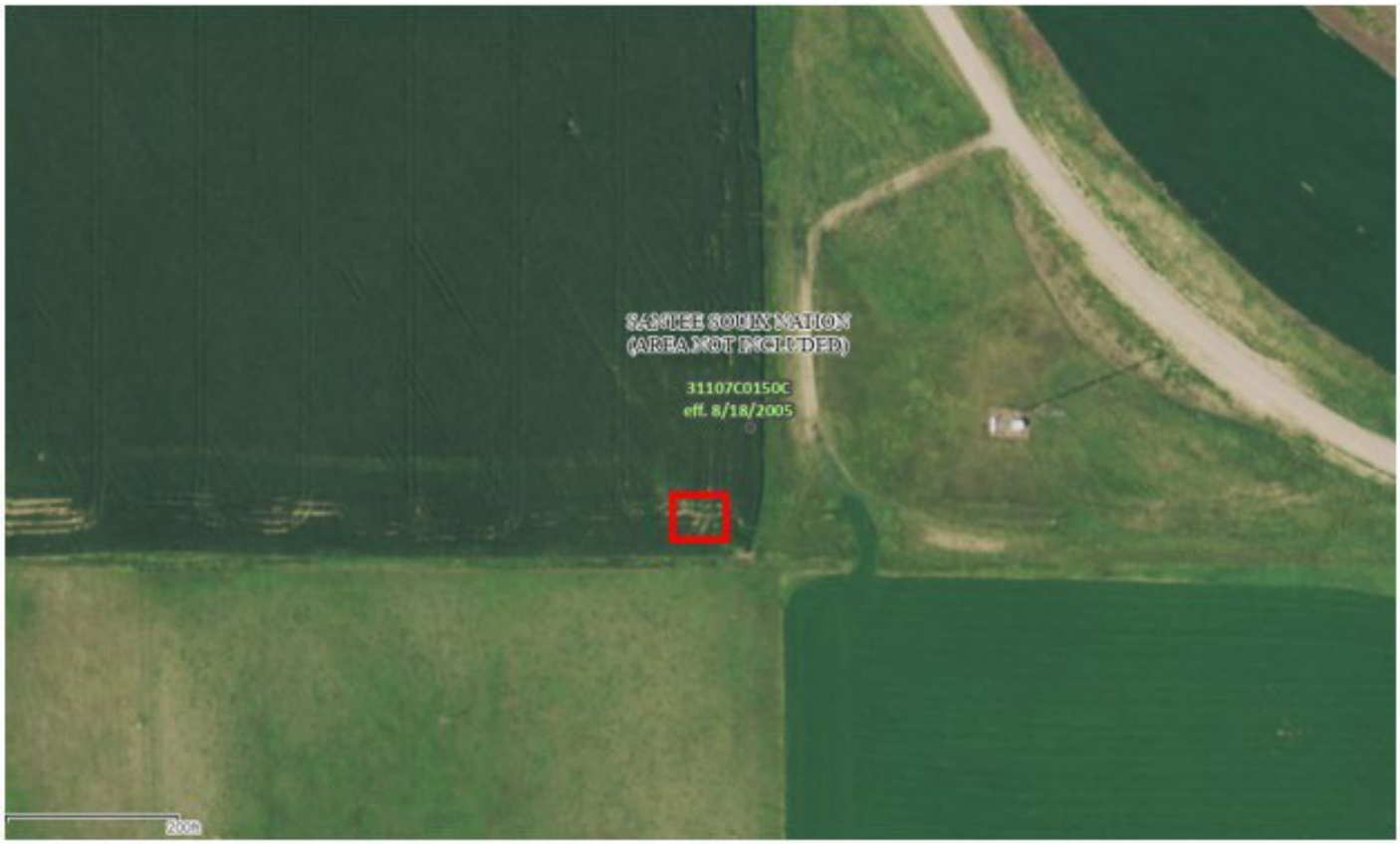
This section describes biological resources, including plants, wildlife, threatened and endangered species and critical habitat.

Extensive surveys were performed at all three proposed tower sites which assessed the presence of species listed as threatened or endangered under the federal Endangered Species Act (ESA) or the Nebraska Nongame and Endangered Species Conservation Act. These surveys also noted the presence of native species of plants, amphibians, reptiles, and mammals with other special status such as Nebraska species of special concern. This section summarizes the existing biological resources found in the Proposed Action area.

4.3.1 THREATENED AND ENDANGERED SPECIES

The Endangered Species Act of 1973 (16 USC 1531) prohibits actions that endanger the critical habitat or species of fish, wildlife or plant that is in danger of extinction. The Endangered Species Act also forbids the “taking” (i.e. killing, harming, harassing) of any such species. Threatened and endangered species are listed, and certain rules and regulations restrict actions that will adversely affect such species and their habitats.

Table 4-3 provides a summary of the federal and state-listed species provided by the United States Fish and Wildlife Service (USFWS) and the Nebraska Game and Parks Commission (NGPC) that are known to be present or could potentially be present in Knox County. This table includes six species, including Northern Long-Eared Bat (Myotis septentrionalis), Pallid Sturgeon (Scaphirhynchus albus), Piping Plover *(Charadrius melodus)*, Whooping Crane *(Grus americana),* Tricolored bat (*Perimyotis subflavus*), and Monarch (*Danus plexippus*).



Legend

Proposed Project Site

N
W
E
S

Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 4-6a
FEMA Flood Map- Tower 1

Santee Sioux Nation
Office of Environmental Protection

Legend

Proposed Project Site

N
W
E
S

Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 4-6b
FEMA Flood Map- Tower 2

Santee Sioux Nation
Office of Environmental Protection

Legend

Proposed Project Site

N
W
E
S

Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 4-6c
FEMA Flood Map- Tower 3

Santee Sioux Nation
Office of Environmental Protection

Table 4-3. Federal and State Listed Species in Knox County

Common Name	Scientific Name	Federal Status	State Status
Northern Long-eared Bat	*Myotis septentrionalis*	Threatened	Threatened
Pallid Sturgeon	*Scaphirhynchus albus*	Endangered	Endangered
Piping Plover	*Charadrius melodus*	Threatened	Threatened
Whooping Crane	*Grus americana*	Endangered	Endangered
Monarch Butterfly	*Danaus plexippus*	Candidate	-
Tricolored Bat	*Perimyotis subflavus*	Proposed	

Source: USFWS (2023) and NGPC (2023)

Piping Plover- Is a migratory shorebird with a length of about 7 inches and wingspan of 19 inches. They are found along shorelines, on mud flats and sand flats. Piping plovers are sand-colored birds with white undersides and orange legs. They are often mistaken for killdeer. Pipers arrive in Nebraska in mid-to late- April. By early August, the Pipers fly to the wintering grounds along the Gulf of Mexico and southern Atlantic Coast. The Piping Plover is within species range of the three tower sites; however, it is highly unlikely they will be impacted by the construction as their typical habitat is river sandbars and gravel sandpits, thus, the project will have no effect on this species (Appendix A, Figure 1A).

Pallid Sturgeon- The pallid sturgeon is within species range of all three tower locations; however, it is a freshwater species, and its main habitat is the Missouri River. Construction activities at any of the three tower location sites will not affect this species (Appendix A, Figure 2A).

Northern Long-eared Bat- The northern long-eared bat is a medium-sized bat with a body length of 3 to 3.7 inches but a wingspan of 9 to 10 inches. Their fur color can be medium to dark brown on the back and tawny to pale brown on the underside. As its name suggests, this bat is distinguished by its long ears, particularly as compared to other bats in its genus, *Myotis*. Appendix A, Figure 3A provides a distribution map for the Northern Long-eared Bat within Nebraska. This species does have the potential to be present at all three tower locations due to being within the species range and having trees near the sites to provide potential maternity roosting habitat. The project may affect but is not likely to adversely affect the northern long-eared bat (Appendix A, Figure 3A).

Whooping Crane- The whooping crane is the tallest bird in North America with the males approaching 5 feet tall when standing upright and weighing 16 pounds. Females also reach 5 feet in height and weigh an average 14 pounds. Their wingspan is over 7 feet. It is estimated that less than 600 individuals exist worldwide. More than half of these birds migrate through Nebraska. They prefer shallow braided riverine habitat and wetlands for roosting. They use agricultural fields, wet meadows, marsh habitats and shallow rivers for feeding. They typically select sites with wide, open views and those areas that are isolated from human disturbance. Due to this, it is highly unlikely the Whooping crane would be near or around construction at the three tower locations. The proposed project will not affect this species. (Appendix A, Figure 4A).

Monarch Butterfly- The monarch butterfly is one of the most recognizable butterfly species in North America due to its distinguishing colors of orange and black. Their wingspan is three to four inches and is bright orange surrounded by a black border with black veins. They are dimorphic with the males having scent patches and narrower wing veins. They have no specific habitat as any habitat will do that has milkweed and flowering plants. They feed on nectar of flowering plants but need milkweed to lay their eggs. The monarch butterfly does have the potential to be at all sites due to their flying abilities and suitable habitat around the three tower sites. At Tower 1 site, the habitat is disturbed due to agricultural practices. Towers 2 and 3 sites are pastureland with primarily brome at these sites. The proposed project will not have an effect on the monarch butterfly (Appendix A, Figure 5A).

Tricolored Bat- Being one of the smallest bats in North America, they have tricolored fur where it appears dark at the base, lighter in the middle and dark at the tip. Average body length is three to three and a half inches. They are found in forested habitats, roosting in trees among the leaves in the spring, summer, and fall. They primarily roost among live and dead leaf clusters of live or recently dead deciduous hardwood trees. They have also been known to reside in pine needles of the eastern red cedar, barns, porch roofs, bridges, concrete bunkers, and caves. Females tend to return year after year to same roosting locations. Due to their primary habitat and none of the three tower sites having trees, it is highly unlikely the tricolored bat will be at all three locations. The proposed action will not affect this species (Appendix A, Figure 6A).

Proposed Action: The Proposed Action would have no long-term negative impacts on threatened and endangered species at the three tower location sites or adjacent properties (See Appendix D, SSN OEP letter dated July 28, 2023, and USFWS response dated August 19, 2023). Any effects to a federally listed species or its critical habitat would be so small that it would not be of any measurable or perceptible consequence to the protected individual or its population. This effect would equate to a "no effect" or "not likely to adversely affect" determination in U.S. Fish and Wildlife Service terms. Anything else would be considered significant. NICC will continue consultation with the USFWS as needed to ensure the Proposed Action will not jeopardize the continued existence of any threatened or endangered species, or adversely modify critical habitat.

Short-term negative impacts would be wildlife displacement and loss of habitat. Tree removal is not expected. Monitoring during construction will be done to ensure the Proposed Action will not jeopardize the continued existence of any threatened or endangered species or adversely modify critical habitat. The site would be revegetated following construction.

No-Alternative Action: The No-Action Alternative would have no effect on any threatened or endangered species. Construction activities would not occur, and site conditions would remain unchanged.

4.3.2 WILDLIFE

Wildlife includes all non-domesticated plants (flora), animals (fauna) and other organisms.

Common wildlife species of Knox County include songbirds, rabbits, skunks, squirrels, coyote, red fox, raccoon, deer, and opossum. At the three tower sites, various wildlife species have the potential to be present. Wildlife species likely to be present at the sites are typically small mammals, deer, birds, reptiles, and amphibians that are accustomed to living in rural environments. Impacts to wildlife would be considered significant if the proposed activity permanently disrupts or disturbs nearby wildlife populations or violates state, territory, or Tribal regulations which protect wildlife and their habitats.

Proposed Action: Under the Proposed Action, the three tower locations would be constructed on previously disturbed ground. This will limit direct and indirect impacts to nearby habitats that support local, non-listed, wildlife species and migratory birds.

The three tower location sites may be used to a limited degree by small mammals, reptiles, amphibians, and various songbirds; however, displacement due to construction will be minimal and vegetation will be replanted to return the habitat to pre-construction. Impacts to wildlife due to the loss of these areas would be minimal. Furthermore, most species that would use the area (if not all) are highly mobile. Individuals that feel threatened or bothered by any of the proposed activities would likely relocate to adjacent areas. Therefore, potential impacts to wildlife and migratory birds due to implementing the Proposed Action would be minimal and short-term. No significant long-term impacts expected.

No-Alternative Action: Under the No-Action Alternative, the Proposed Action would not be implemented at the three tower location sites. Therefore, no construction would take place and there would be no impacts to wildlife species, migratory birds, or their habitats. Animals inhabiting buildings, such as bats, rodents, insects, and small mammals would continue to remain mostly undisturbed. There would be no new effects on wildlife or wildlife habitat.

4.3.3 HABITAT

Habitat is the natural environment of a given species. Habitat can include the physical, biological, and climatic characteristics required for an organism's survival and reproduction.

Knox County is found within the Tallgrass Prairie Ecoregion of Nebraska. Most tallgrass prairie has been heavily grazed or converted for agricultural use in Knox County. Common tree species of Knox County include maple, burr oak, mulberry, dogwood, hickory, willow, cottonwood, and elm. Typical native and non-native grasses include side-oats gramma, smooth brome, big and small blue stem, foxtail, Indian grass and ryegrass. At all three tower site locations, the sites have been previously disturbed due to farming and agricultural practices. Like wildlife, impacts to habitat would be considered significant if the proposed activity permanently disrupts or disturbs wildlife habitats or will violate state, territory, or Tribal regulations protecting special or critical habitats.

Proposed Action: Construction activities would entail the use of heavy machinery, trucks and trailers. Construction activities would necessitate removal of vegetation surrounding the construction areas. Impacts would occur in previously disturbed areas and adverse impacts to habitat would be minimal and short-term. Following completion of all construction activities, all disturbed areas would be reseeded, or re-vegetated and erosion control would be maintained until the vegetation is fully reestablished. No significant long-term impacts expected.

No-Alternative Action: Under the No-Action Alternative, construction activities would not occur and there would be no additional impacts to any habitat at all three tower locations. Existing disturbances due to agricultural and farming practices would continue.

4.4 CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act (NHPA), as amended, and implementing regulations found at 36 CFR 800, require that federal agencies consider any effect a proposed action may have on historic properties. This is generally accomplished through the Section 106 compliance process, as follows:

- Identify consulting parties;
- Identify and evaluate historic properties located within the Area of Potential Effect (APE) established for an undertaking;
- Assess adverse effects on properties listed, or eligible for listing, on the National Register of Historic Places (NRHP); and
- Consult with the State Historic Preservation Officer (SHPO) and, as appropriate, the Advisory Council on Historic Preservation, and other interested parties to resolve adverse effects.

Four main criteria determine if a property is eligible for inclusion on the NRHP. A property is considered eligible if it meets one or more of those criteria listed below:

- Criterion A: Associated with events that have made a significant contribution to the broad pattern of our history.
- Criterion B: Associated with the lives of persons significant in our past.
- Criterion C: Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or that possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction.
- Criterion D: Has yielded, or may be likely to yield, information important in history or prehistory.

Cultural resources generally include archaeological sites, historic properties, traditional cultural places, and other places where significant historic activities have taken place. These sites are often considered valuable to the human environment, and measures must be taken to ensure that they are treated appropriately.

Congress also passed the American Indian Religious Freedom Act of 1978 (PL 95-341, 42 USC 1996) to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise their traditional religions including, but not limited to, access to sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional sites. Therefore, the law requires that the effects of a federal undertaking on Native American sites or places (prehistoric or historic) that have religious, ceremonial, or sacred aspects be evaluated within the context of this law. Consultation with the appropriate Tribal Historic Preservation Officer (THPO) should be conducted to determine if Native American resources have the potential to be affected, and to develop appropriate avoidance or mitigation measures if needed.

Because the site is located within the jurisdictional boundaries of the Santee Sioux Reservation, the Santee Sioux Nation THPO was consulted in lieu of the Nebraska State Historical Preservation Officer (SHPO). According to the SSN's THPO, there are no historical sites or ceremonial sites near the vicinity of all three proposed tower locations. The SSN THPO provided a determination of *no historic properties affected* (Appendix C).

Proposed Action: No short-term or long-term negative impacts on Cultural Resources are anticipated due to the Proposed Action. An impact would be significant if an effect occurs that may diminish the integrity of, cause a substantial adverse change in the significance of, or directly or indirectly destroy a cultural resource. This effect would equate to an "adverse effect" determination for purposes Section 106. Coordination with the SSN THPO indicates that activities associated with the Proposed Action will not impact any prehistoric or historic cultural resource and provided a determination of *no historic properties affected* (Appendix C).

The SSN THPO indicated that none of the three tower locations have been previously surveyed by a professional archeologist and that buried or obscured cultural or human remains may be discovered due to construction activities associated with the Proposed Action. Should artifacts or human remains be discovered due to the Proposed Action, work would be immediately halted and remains left in place. The SSN THPO and appropriate authorities would be immediately notified.

It is also recommended that on-site personnel closely monitor excavation of soil and any other ground disturbing activities that may unearth or reveal cultural materials throughout the course of construction. In the event of an inadvertent discovery, the THPO should be consulted, and work immediately halted.

No-Action Alternative: Under the No-Action Alternative, there would be no impact to Cultural Resources. There would be no modification to any existing land and no excavation activities that would potentially unearth cultural artifacts.

4.5 SOCIOECONOMIC RESOURCES

This section describes the demographic and economic variables associated with community growth and development that have the potential to be directly or indirectly affected by the proposed project.

All three tower locations are located within the Santee Sioux Nation Reservation in Knox County. According to the 2017-2021 American Community Survey (ACS) 5-year estimates, the SSN Reservation has a population of 904. The median population age is 26.7 years with 58 percent of the population aged 18 years and older.

As of 2022, the SSN Reservation has an unemployment rate of 14 percent compared to Knox County at 2.4 percent, Nebraska at 1.9 percent and national at 3.6 percent (dol.nebraska.gov 2023). The median household income is $53,438 and is eight percent less than Knox County, 22 percent less than the state median, and 28 percent less than the national median household income. According to the 2017-2021 ACS, there are 348 total housing units on the SSN Reservation. The average household size was 3.27 people. Tribal government provides the largest source of employment on the SSN in 2022, with the Santee Public School coming in second (census.gov 2023).

NICC is a 2-year public college which offers in-person and online classes. Seventy-three percent of students attending NICC are Native American. As of fall of 2022, there were approximately 474 students enrolled. NICC employs 65 full-time staff and faculty. Approximately 73% of the students are Native American.

Proposed Action: Project construction would have a minor short-term beneficial impact on the economy and employment on the Santee Sioux Reservation due to temporary employment of local and/or out-of-state construction contractors. The Proposed Action will employ via contracted positions an electrician and five contracted tower installers. The college intends to hire a Tribal Wireless Installer/Coordinator through another funding source that will help maintain the project. Growth may be seen with the ability for students to attain degrees through distance education and the ability to seek better paying jobs or entrepreneurial activities.

Long-Term positive impacts of the Proposed Action would be beneficial, allowing for an increase in MiFi units distributed and additional households able to receive a signal from the Tribal Broadband Wireless Network, as well as an increase in broadband speeds. The primary beneficiaries are those who live within the boundaries of the SSN reservation, which the majority is Native American. In addition, the Proposed Action would increase distance learning capabilities, increased capabilities to use telehealth and telemedicine, and it is expected that there will also be an emergency service enhancement later as well.

A change of more than two percent of the previously project level of local employment, population, or gross domestic product would be considered a significant impact on socioeconomics. Also, if school populations decrease by more than two percent, revenues decrease by more than two percent, and if vacancy rate increases by more than two percent, that would constitute a significant impact.

No reduction of services provided by the NICC would result from the implementation of the Proposed Action. Alternatively, construction would enhance the community services provided by NICC as well as increase the efficiency of these services.

No-Action Alternative: The no-action alternative would preserve the status quo, which does not benefit NICC or the Santee Sioux Nation. Effectively, the no action alternative would have a negative impact on the community, as it would not remedy the lack of Internet access, access to healthcare, education, and business opportunities.

4.5.1 ENVIRONMENTAL JUSTICE

According to the EPA's Office of Environmental Justice, environmental justice is defined as follows: "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. EPA has this goal for all communities and people across this Nation. It will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work."

In 1994, EO 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, was issued. This EO requires that federal agencies make achieving environmental justice part of their mission. In addition, the EPA has identified environmental justice as a key priority. EO 12898 was issued to ensure the fair treatment of all individuals, regardless of their race, national origin, or income, with respect to the development and enforcement of environmental laws, regulations, and policies.

To adequately evaluate environmental justice issues, information on race and poverty characteristics was obtained. This information can be found in Table 4-4 for Knox County, SSN Reservation and Nebraska.

Table 4-4. Race and Poverty Characteristics

Characteristics	Nebraska	Knox County	SSN Reservation
Total Population	1,967,923	8,336	904
% White	87.5%	86.0%	23.0%
% Black or African American	5.4%	0.5%	0.2%
% American Indian, Eskimo or Aleut	1.6%	10.7%	71.0%
% Asian	2.8%	0.5%	0.1%
% Native Hawaiian and Other Pacific Islander	0.1%	0.1%	0.1%
% Hispanic or Latino	12.3%	3.7%	1.0%
% Other	0.1%	1.3%	2.0%
% Two or More Races	2.5%	2.3%	5.0%
% Families Below Poverty	29.2%	12.3%	23.7%
Median Household Income	$66,644	$58,043	$53,438

Source: U.S. Census Bureau 2022

SSN Reservation population consists primarily of American Indian, Eskimo or Aleut race at 71% compared to Knox County of 10.7%. Families below poverty level on the SSN Reservation are doubled compared to people who live in Knox County and comparable to the entire state of Nebraska.

Proposed Action: There would be no adverse impacts to environmental justice under implementation of the Proposed Action. The three constructed towers would benefit the overall community by improving access to internet services for those who seek a higher education. There will be a positive impact on the local economy, temporarily. A significant impact on environmental justice would occur if a disproportionate amount of minority and/or low-income populations were adversely affected by the project. The Proposed Action would have a significant positive impact due to enhanced broadband services. It is proposed that with the construction of the three towers, more Native Americans will be able to attend online classes to obtain degrees from NICC. Table 4-5 provides an environmental impact checklist for some of the more common social concerns that could result.

No-Action Alternative: Under the No-Action Alternative, negative impacts to local communities will be had.

Table 4-5. Common Social Concerns Potentially Affected by the Proposed Action

Social Concern	Potential Effect	Comments
Impacts to minority and low-income populations	Positive Effect	Positive effect on enrolled minority and low-income populations at NICC and those who want to attend
Changes in ethnic or racial composition	No	There would be no changes to ethnic or racial composition
Influx or outflow of temporary workers	Positive Effect	Positive effect on the local economy Job creation
Community disruption or disintegration	No	No community disruption or disintegration due to tower locations
Changes in land use	No	No changes in land use
Changes in lifestyle	No	No changes in lifestyle
Changes in social interactions, family ties, kinship	No	No changes in social interactions, family ties, and kinship
Displacement/relocation of businesses	No	No displacement/relocation of businesses
Changes in aesthetics or perceived environmental quality	Temporary Negative minimal to minor	Construction activities are not aesthetically pleasing. Minor negative effects from dust and noise.
Changes in public health, safety or perceived well-being	No	No changes to public health, safety or perceived well-being.
Displacement of community facilities	No	No community facilities displaced
Changes in public vehicular access	No	Construction and demolition projects will not change public vehicular access
Changes in public pedestrian access	No	There are no public pedestrian accesses at the proposed tower locations
Changes in recreation	No	No changes to recreation
Changes in leisure-time activities	No	No changes to leisure-time activities
Changes in local employment opportunities	Positive Effect	Positive effect on local employment opportunities
Changes in community tax base	Temporary Positive Effect	Temporary positive effect on local economy
Changes in commerce, recreation, or related services	No	No changes to commerce, recreation, or related services

4.6 HUMAN HEALTH AND SAFETY

The Resource Conservation and Recovery Act (RCRA) (42 USC 6901) created the framework for hazardous and non-hazardous waste management programs in the United States. Materials regulated by RCRA are known as “solid wastes.” Only materials that meet the definition of solid waste under RCRA can be classified as hazardous wastes, which are subject to additional regulation. EPA developed detailed regulations that define what materials qualify as solid wastes and hazardous wastes (EPA 2017c).

RCRA defines "solid waste" as any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, resulting from industrial, commercial, mining, and agricultural operations. Solid waste is not limited to waste that is physically solid. Many solid wastes are liquid, semi-solid, orcontain gases.

The terms “hazardous materials” and “hazardous waste” refer to substances defined as hazardous by Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Solid Waste Disposal Act (SWDA), as amended by the RCRA. In general, hazardous materials include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health or the environment when released into the environment.

Hazardous wastes that are regulated under RCRA are defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that either exhibit one or more of the hazardous characteristics of ignitability, corrosivity, toxicity, or reactivity, or are listed as a hazardous waste under 40 CFR 261.

The Proposed Project will contract with the SSN’s Utilities Commission for the collection, transportation and disposal of solid waste generated at the sites. The solid waste is collected and transported once a week to a landfill that is in Yankton, South Dakota.

According to Nationwide Environmental Title Research Radius Map Report (2023) for all three tower locations, there are no sites listed under CERCLA or RCRA and no state or tribal Superfund equivalent sites, hazardous waste facilities, landfills, and solid waste disposal facilities, leaking underground storage tanks, voluntary cleanup sites or brownfield sites within a one-mile radius of all three tower sites.

Proposed Action: The Proposed Action would require the handling of construction material and disposal of waste from construction activities, which would affect waste management resources in the area. The following waste types are anticipated to increase during implementation of the Proposed Action:

- Solid waste (office wastes, material packaging, glass, etc.); and
- Construction and demolition solid wastes (concrete, steel, lumber,etc.)

Construction debris primarily comprised of metal would be the typical waste expected to be generated during the various construction projects. This solid waste would be disposed of either at the local landfill or at another appropriate municipal solid waste landfill. All solid waste would be disposed of appropriately as required by RCRA Solid Waste regulations. Additionally, the project would generate excess soil from excavation activities. This soil would be stockpiled at an approved material management area for future use.

Construction activities associated with the Proposed Action are not expected to generate hazardous waste. Spills from construction related activities could cause hazardous materials to be released into the environment. These may include solvents, oil, grease, gasoline, caulk, or hydraulic fluids. Any spills from construction-related activities would be cleaned up and contaminated soil would be excavated. Further testing may be necessary depending on the extent and volume of the spill.

If contaminated soils and/or water or hazardous materials are encountered, then all work within the immediate area of the discovered hazardous material would stop until SSN OEP, NDEE, and appropriate agencies could be notified and a plan to dispose of the hazardous materials has been developed.

No significant long-term negative impacts expected. Short-term negative impacts to solid waste are expected due to construction activities. Waste will likely increase, but not significantly, until construction is completed. An action would have a significant impact if it would increase the generation of solid or hazardous waste beyond the capacity to safely handle and dispose of that waste.

No-Action Alternative: Under the No-Action Alternative, there would be no waste generated. There would be no impact to either waste management or hazardous materials management from this alternative.

4.6.1 NOISE

Noise pollution is typified by distracting, irritating, or damaging sounds that are freely audible. Sounds are generally considered noise pollution if they adversely affect wildlife, natural processes, human activity, or health, or are capable of damaging physical structures.

The prevailing source of artificial noise pollution is from transportation. In rural areas, train, airplane, and vehicle noise can disturb wildlife habits, potentially affecting hunting, mating, and social behaviors. In urban areas, traffic noise can cause sleep disruption in humans and animals, hearing loss, increases in stress, and decreases in productivity. Construction activities, entertainment districts, and industrial facilities are additional sources of noise pollution commonly found in urban settings.

The Noise Control Act (NCA) of 1972 established a national policy to promote an environment for all citizens that is free from noise that jeopardizes their health and welfare (42 USC 4901). The NCA established mechanisms of setting emission standards for sources of noise, including motor vehicles, aircraft, certain types of Heating, Ventilation, and Air Conditioning (HVAC) equipment, and major appliances. The EPA has established noise guidelines to protect citizens from potential hearing damage and other adverse physiological, psychological, and social effects associated with noise; however, noise is typically regulated at the state and local level. In general, the NCA established that noise levels in exceedance of 55 decibels (dBA) outdoors and 45 dBA indoors are likely to cause interference and annoyance. Furthermore, continued exposure to noise levels exceeding 70 dBA can cause hearing loss. Currently, no noise is generated from the three tower sites.

Proposed Action: Implementation of the Proposed Action would not involve the long-term operation of significant noise-generating sources. However, due to construction-related activities, there would be a temporary increase in localized noise generated during construction of the three towers. Wildlife that feels threatened or bothered by any of the proposed activities would likely relocate to adjacent areas. Therefore, potential impacts to wildlife and migratory birds due to implementing the Proposed Action would be minimal and short-term.

Noise effects to workers may require the use of hearing protection equipment. The Proposed Action would require the use of heavy equipment for clearing, leveling, and construction. Heavy equipment commonly produces noise levels ranging from 70 to 95 dBA at 50 feet. Noise impacts to nearby residents are expected to occur only during daylight hours and are expected to be minor as they are located at a distance over 50 feet from the construction activities. Measures would be implemented if needed to mitigate noise impacts during construction activities. These measures may include limiting specific construction activities to certain times of day, designating construction access areas and roads, and using barriers or noise dampening mats, among other methods. Construction noise levels would be reduced to low or none during nighttime hours. Sound levels of 65 dBA are considered annoying to most individuals, while constant or repeated exposure to sounds of 90 dBA or higher can lead to significant impacts. Noise levels are significant if they exceed ambient noise level standards determined by the federal, state, and/or local governments. An impact would be considered significant if there is sustained exposure of sensitive receptors of greater than 65 dBA.

No-Action Alternative: Under the No-Action Alternative, the towers would not be constructed so no noise would be generated.

4.6.2 TRANSPORTATION AND PARKING

Transportation is the movement of people and goods from one location to another. The field can be divided into:

4.6.2.1 Infrastructure – the fixed installations necessary for transport, such as roads, railways, airways, waterways, canals, pipelines, and terminals (airports, railway stations, bus stations, warehouses, trucking terminals, etc). Terminals may be used for both the interchange of passengers and cargo and for maintenance.

4.6.2.2 Vehicles – automobiles, bicycles, buses, trains, trucks, people, helicopters, and aircraft.

- Operations – the manner in which vehicles are operated, and the procedures set for this purpose including financing, legalities, and policies. In the transport industry, operations and ownership of infrastructure can be either public or private, depending on the country and mode.

Parking is the act of stopping or standing of a vehicle whether occupied or not. Parking infrastructure is constructed in combination with most major and minor destinations, to facilitate the coming and going of the destination's users.

Proposed Action: Transportation or parking will not be affected by the Proposed Action. No significant long-term impacts are expected. A significant impact to transportation would be a traffic increase which is predicted to upset the normal flow of traffic, create the need for major road repair as a result of the action, or generate traffic levels requiring the expansion of existing roadways or facilities.

No-Action Alternative: The No-Action Alternative would have no significant impact on transportation or parking at the proposed three tower sites.

4.6.3 UTILITIES

Utilities refer to the set of services provided by public utility organizations consumed by the public, such as electricity, natural gas, water, sewage, and telephone services.

Due to the rural location of the three tower sites, it is not likely any existing gas, treated water or wastewater pipelines will be affected during construction, however, NICC will confirm the absence of any such utilities with an Underground Service Alert prior to the start of any construction. NICC will coordinate with the local power company to extend electricity to the sites without interrupting service to its current customers. How the power will be coordinated will depend on the local power company and they will obtain the needed documents to move forward. No long-term impacts to public services are anticipated because of the three tower sites.

Proposed Action: No significant negative long-term or short-term impacts expected. Long-term positive impacts of the Proposed Action would benefit individuals who live on the reservation by extending the reach of the current network and enhance bandwidth to increase speeds above the 25 Mbps limit that classifies this as broadband.

No-Action Alternative: Under the No-Action Alternative, the three sites would remain unchanged, and the current wireless network would remain insufficient.

4.6.4 PUBLIC HEALTH AND SAFETY

It is the policy of NICC and SSN OEP to operate in a manner that protects the health and safety of employees and the public, preserves the quality of the environment, and prevents property damage. NICC and SSN OEP comply with directives promulgated by OSHA regarding occupational safety and health.

The Santee Police Department provides crime prevention, law enforcement and public safety services for the Village of Santee. The Village does not have its own Fire Department and relies on local volunteer responders located 15 miles south and then west, in Niobrara, Nebraska, for emergency responses to fires and hazardous materials response. Santee Emergency Medical Services provide medical services and transportation.

Santee Health and Wellness Center offers outpatient medical, dental, mental health and substance abuse services. The Center also houses the health administration offices, a wellness center, physical therapy room, a therapy pool with large adjacent whirlpool, an employee training/emergency shelter area, an optometry suite, and Emergency Medical Services (EMS) quarters and ambulance bay.

The three towers will emit 2.5 MHz Radio Frequency (RF) at each site. Human health effects of these frequencies are controversial as some studies suggest there are biological effects from low exposure to RF energy; however, some other studies have not been able to replicate these effects. Most of the research is not conducted on the whole body and so there can be no determination that such effects establishes a human health hazard.

Proposed Action: During the Proposed Action, public health and safety would not be impacted due to the location of the three towers sites being rural. However, to ensure that the sites remain safe when construction activities are completed for the day, a temporary fence will be placed around the site.

An action would cause a significant impact to public health and safety if the proposed project were to give off emissions from hazardous substances, cause changes in community demographics, involuntary displacement of residents or businesses, changes in industry actions or practices, employment, government revenues, land-use patterns, changes in modes or safety of transportation, reduction in natural resources and changes in food and agricultural resources.

No-Action Alternative: The No-Action Alternative would not change any community services provided by the Santee Police Department, local fire departments and the Santee Health and Wellness Center.

5.0 CUMULATIVE IMPACTS

In compliance with the NEPA, potential secondary and cumulative impacts on the environment were assessed for the Proposed Action. This analysis was performed using existing, readily available data. These regulations require the discussion of cumulative impacts include a list of past, present, and reasonably foreseeable anticipated future projects producing related or cumulative impacts. The discussions of cumulative impacts should consider the likelihood that impacts would occur and reflect the severity of the anticipated impacts.

According to NEPA, secondary (indirect) impacts are those that are "caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable" (40 CFR 1508.8). Generally, these impacts are induced by the initial action.

Cumulative impacts are impacts that result from the incremental consequences of an action when added to other past and reasonably foreseeable future actions, regardless of which agency (Federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period (40 CFR 1508.7).

A reasonably foreseeable future action is a potential future action used to help predict impacts. The reasonably foreseeable future actions are not actual allocations or decisions and are not speculative, but they are likely to occur based on reliable sources.

Proposed construction projects at the three tower sites may have minor impacts for aesthetics, air quality, geology and soils, hydrology and water quality, noise, and socioeconomics to the implementation of the Proposed Action.

5.1 Past, Present and Future Actions

Past, present, and future actions expected to directly or indirectly affect resources in the vicinity of the Proposed Action include:

- There are no past actions that have affected resources in the vicinity of the Proposed Action.

Present actions include:

- There are currently no actions being undertaken in the vicinity of the Proposed Action.

Future actions include:

- There are no known future actions being planned in the vicinity of the Proposed Action.
- There are currently no future development projects planned in the vicinity of the Proposed Action.

Past, present, and future actions described above would not result in negative cumulative impacts on the Proposed Action. The three new communication towers will extend the reach of the current network and will enhance bandwidth to increase speeds above the 25 Mbps limit that classifies this as broadband. Some fewer tangible effects will be increased distance learning capabilities, increased capabilities to use telehealth and telemedicine, and it is expected that there will also be an emergency service enhancement later. Economic growth is also a possibility as more Tribal Members can get degrees through distance education where they could put their newly learned skill sets to use for their respective tribes and bring in new entrepreneurial activities.

The planned Proposed Action would not result in negative cumulative impacts for the area. Implementation of the Proposed Action will lead to temporary construction related impacts to resources such as aesthetics, air quality, noise, and construction impacts. These impacts would be expected to be resolved upon the completion of the Proposed Action. Based on the above evaluation of potential impacts from the Proposed Action and in consideration of other past, present, and foreseeable projects potentially affecting the same resources and area, no significant cumulative impacts are anticipated as a result of the Proposed Action.

5.2 Secondary Impacts

The CEQ definition states indirect (or secondary) impacts "may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR 1508.8).

The key consideration is whether the project would encourage growth at NICC and a higher graduation rate. With respect to indirect growth-inducing impacts, the Proposed Action – construction of the three towers would not create the need for any new community service or facilities and would fulfill an identified need for NICC. The Proposed Action would serve the existing community and is not anticipated to accelerate the current rate of population growth or development within the region.

6.0 MITIGATION

In compliance with applicable federal, state, and local legislation, as well as any general or special conditions required by pending permits, mitigation measures have been incorporated into the project as needed based upon specific activities associated with the Proposed Action. As defined in Section 1508.20 of the CEQ regulations, the proposed mitigation measures have been designed to:

- Avoid the impact altogether by not taking a certain action or parts of an action,

• Minimize impacts by limiting the degree or magnitude of the action and itsimplementation,

• Rectify the impact by repairing, rehabilitating, or restoring the affectedenvironment,

• Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action, or

• Compensate for the impact by replacing or providing substitute resources or environments.

Future actions proposed as part of this project would employ the following mitigation measures to ensure that environmental impacts from the Proposed Action are minimized to the greatest extent practicable. Adherence to the following mitigation measures, in conjunction with all applicable and appropriate local, state, and federal regulations and permit conditions, would ensure that the environmental impacts resulting from the Proposed Action are minimized to the greatest extent feasible.

The mitigation measures are presented in association with the resource(s) for which they are most directly associated. Although some of the listed mitigation measures apply to multiple resources, they may only be listed once.

Visual Resources

The Proposed Action may cause temporary impacts to aesthetics at the three tower sites due to site preparation and construction activities. The following mitigation measure is recommended:

- Construction zones would be fenced and screened from public access.
- Disturbed areas would be revegetated and landscaped as soon as feasible following construction.

Air Quality

The Proposed Action would likely cause short-term and localized impacts to air quality due to construction of the three communication towers. No permanent or long-term impacts to air quality are anticipated.

The contractor would employ BMPs to control dust and other fugitive emissions during construction. These measures include, but are not limited to:

- Machinery and other construction vehicle engines would not be left to idle unnecessarily, in accordance with state or local regulations.
- An adequate and readily available water source would be available prior to the start of construction or grading activities. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.
- Haul roads would be kept wet. Water would also be applied to exposed soil during grading and to waste materials during demolition activities.

Work site roads would be cleaned regularly and maintained, unsurfaced roads would be restricted to essential construction traffic only, and vehicles exiting the site would be cleaned as needed making use of wheel wash facilities. Soil that is deposited on nearby paved roads by vehicles would be removed from the roads and returned to the site or to an appropriate disposal area.

- Construction would be phased to minimize concurrent dust-generating activities.
- On-site construction traffic routes would be centralized within the work zone.
- Bare areas, including slopes, starting from the initial grading phase would be rapidly reseeded and landscaped.
- Material handling systems and site stockpiling of materials would be designed and laid out to minimize exposure to wind.

Cultural Resources

Impacts to Cultural Resources are not anticipated due to the Proposed Action; however, the following mitigation measures apply:

- On-site personnel should closely monitor mechanical excavation of soils, and any other ground disturbing activities that may occur, for cultural materials that might be revealed or unearthed throughout the course of construction.

- Should artifacts or human remains be discovered due to the Proposed Action, work would be immediately halted and remains left in place. The Santee Sioux THPO and appropriate authorities would be immediately notified. In coordination with the Santee Sioux THPO, the services of a professional archaeologist would likely be retained to evaluate the findings prior to commencing work.

Geology and Soils

The Proposed Action is not expected to impact geology or soil resources. BMPs would be applied to any construction activity that would remove vegetation or cause soil disturbance. BMPs include:

- Application of erosion and sediment control measures such as silt fences, straw bales, and other temporary measures to be placed in low-lying areas and along portions of the site perimeter. These measures would be applied to control erosion and trap transported sediments onsite during activities that could cause soil to be exposed and displaced. Erosion and sediment control measures would be inspected on a regular schedule, as well as after any storm event.
- All disturbed areas would be stabilized and re-vegetated with native plant vegetation following commencement of project implementation activities. Proper seed selection would result in native plants with deep root systems, which would stabilize soils, foster greater infiltration and reduce runoff from the site.
- All fuels would be stored and maintained in a designated equipment staging area to reduce the potential for soil contamination. A person(s) would be designated as being responsible for equipment fueling, who closely monitors the fueling operation and has an emergency spill kit containing absorption pads, absorbent material, a shovel or rake, and other cleanup items readily available onsite in the event of an accidental spill.

Hydrology and Water Quality

The Proposed Action is not expected to impact hydrology or water quality.

- Spills from construction activity that may infiltrate the soil, although unlikely, could degrade groundwater quality. If such a spill should occur, the affected area should be attended to immediately and the soil would be removed and disposed of according to EPA guidelines.

Wildlife, Habitat and Threatened and Endangered Species

The Proposed Action is not expected to impact wildlife, habitat or threatened and endangered species with implementation of the following mitigation measures:

- Before construction begins, existing features such as trees, walls, and hedges, which are to be retained, will be identified in the contract documentation (specifications) and strict instructions issued so that they are protected during the construction process. Special regard would be given to mature trees that do not have to be removed as part of the project and they would receive protection. In the event of accidental damage to a tree, proper remedial measures would be taken to minimize the damage and ensure the survival of the tree. Following completion of construction activities, all disturbed areas would be reseeded or re-vegetated and erosion control BMPs would be maintained until the vegetation is fully reestablished.
- The contractor would control the growth and spread of weeds on the project site. The application of herbicides would be allowed according to manufacturer's recommendation. Herbicides would not be applied within the vicinity of known wetlands, waterbodies, or streams.

Noise

Implementation of the Proposed Action may cause a temporary increase in localized noise generated during construction of the three towers. The following mitigation measures would be implemented as needed:

- Enclosures, temporary noise barriers, noise dampening maps, and other similar methods would be used to shield construction noise.
- Construction staging activities and access roads would be isolated and located as far from noise sensitive areas as feasible.
- Noisy equipment would be replaced when possible.
- Construction activities would be scheduled to avoid sensitive times of the day. Operation of any pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist or other appliance causing loud or unusual noise would not be allowed between the hours of 10:00pm and 7:00am.

- Workers would use hearing protection equipment when needed.

Land Use

- No proposed mitigation

Floodplains and Wetlands

- No proposed mitigation

Socioeconomics

- No proposed mitigation

Solid and Hazardous Materials

The Proposed Action would not result in impacts due to solid and hazardous waste with the implementation of the following mitigation measures:

- Solid waste would be disposed of either at the local landfill or at another appropriate municipal solid waste landfill. Materials would be recycled and/or reused during building construction or demolition activities, to minimize the amount of waste generated by the project if feasible.
  - Excess soil would be stockpiled at an approved material management area for future use.
  - Fuels, lubricants, hydraulic fluids and other and chemicals used on the construction site would be carefully handled to avoid spillage, properly secured against unauthorized access or vandalism, and provided with spill containment according to codes of practice.
  - Waste oils, hydraulic fluids, and other chemical substances would be collected in leakproof containers and removed from the site for disposal or recycling.
  - Any spills from construction-related activities would be cleaned up with absorbent blankets and storage containers in a timely manner to minimize the potential for overland flow into the storm water.
  - If contaminated soils and/or water or hazardous materials are encountered, then all work within the immediate area of the discovered hazardous material would stop until SSN OEP, and appropriate agencies could be notified and a plan to dispose of the hazardous materials have been developed.

Utilities

- No proposed mitigation

Environmental Justice

- No proposed mitigation

The Santee Sioux Nation of Nebraska's Office of Environmental Protection (OEP) prepared this Environmental Assessment (EA) in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, (42 United States Code [USC] 4321-4347), CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500-1508) and the U.S. Department of Justice, Office of Justice Program (28 CFR, Part 61).

7.0 CONCLUSION

NICC has determined that the document adequately and accurately discusses the environmental issues and impacts of the Proposed Action. Based on the analysis to-date, adverse impacts are considered minor and can be mitigated (Table 7-1).

7.1 PUBLIC COMMENT

NTIA conducted a public comment period for the EA. Public notice was placed in the Niobrara Tribune, a local newspaper of general circulation. The notice of the proposal and EA was also posted on NTIA's website for national exposure. The notice described the proposed project and comment process and provided guidance on where to view the document and federal points of contact. The comment period began on November 23, 2023, and concluded on December 22, 2023. No comments were received by the NTIA.

Table 7-1. Environmental Consequences of the Proposed Action Summary

Resources	No-Action Alternative	Proposed Action
Visual	No change from current conditions	No significant long-term negative impacts expected. Short-term negative impacts may result during construction.
Air Quality	No change from current conditions	No significant long-term negative impacts expected. Short-term temporary increases in emissions expected during construction. Short-term negative impacts would be mitigated with the implementation of Best Management Practices (BMPs) to limit dust and engine exhaust.
Cultural Resources	No change from current conditions	No significant short term or long-term impacts. No impact to historic properties

Resources	No-Action Alternative	Proposed Action
Geology and Soils	No change from current conditions	No significant long-term negative impacts expected. Construction will cause soil modifications to site topography which will cause short-term negative impacts. Soil erosion and/or contamination would be controlled by implementing standard BMPs for erosion and sediment control, equipment refueling and fuel and chemical spill clean-up.
Hydrology and Water Quality	No change from current conditions	No significant short-term or long-term negative impacts expected.
Wildlife, Habitat and Threatened and Endangered Species	No change from current conditions	No significant long-term negative impacts. Short-term negative impacts would be wildlife displacement and loss of habitat. The site would be revegetated following construction. No trees will be removed.
Noise	No change from current conditions	No significant long-term negative impacts. Short-term noise impacts due to construction would be minor and mitigated by implementing time-of-day limitations and equipment BMPs as needed.
Land Use	No change from current conditions	No significant long-term or short-term negative impacts.

Resources	No-Action Alternative	Proposed Action
Floodplains and Wetlands	No change from current conditions	No significant long-term or short-term negative impacts.
Socioeconomics	No change from current conditions	Long-term positive impact expected as NICC services improve. Short-term impacts would have a positive effect due to temporary employment of local and/or out- of-state construction contractors. Contractors would utilize businesses on the Reserve (i.e. lodging, eating, fuel) which would increase the Tribe's economy, temporarily.
Transportation and Parking	No change from current conditions	No significant negative short-term or long-term impacts
Solid and Hazardous Materials	No change from current conditions	No significant long-term negative impacts. Short-term negative impacts to solid and hazardous waste due to construction. BMPs would be implemented for waste disposal and spill containment during construction. Solid waste would be managed according to NICC's current procedures.
Utilities	No change from current conditions	No significant negative long-term or short-term impacts.
Environmental Justice	No change from current conditions	Significant positive short and long-term effects anticipated due to the availability of reliable broadband throughout the SSN Reservation.

8.0 PREPARER

Page Hingst, Tribal Response Program Manager (CERCLA 128(a))

Office of Environmental Protection

Santee Sioux Nation

9.0 REFERENCES

16 United States Code 1531

33 United States Code 1251

33 United States Code 1344

28 Code of Federal Regulations 61

36 Code of Federal Regulations 800

40 Code of Federal Regulations 50

40 Code of Federal Regulations 261

40 Code of Federal Regulations 1500-1508

40 Code of Federal Regulations 1508.7

40 Code of Federal Regulations 1508.8

42 United States Code 1996

42 United States Code 4321-4347

42 United States Code 4901

42 United States Code 6901

44 Code of Federal Regulations 26951- Executive Order 11988 Floodplain Management and EO 11990 Protection of Wetlands

Executive Order 12898- Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

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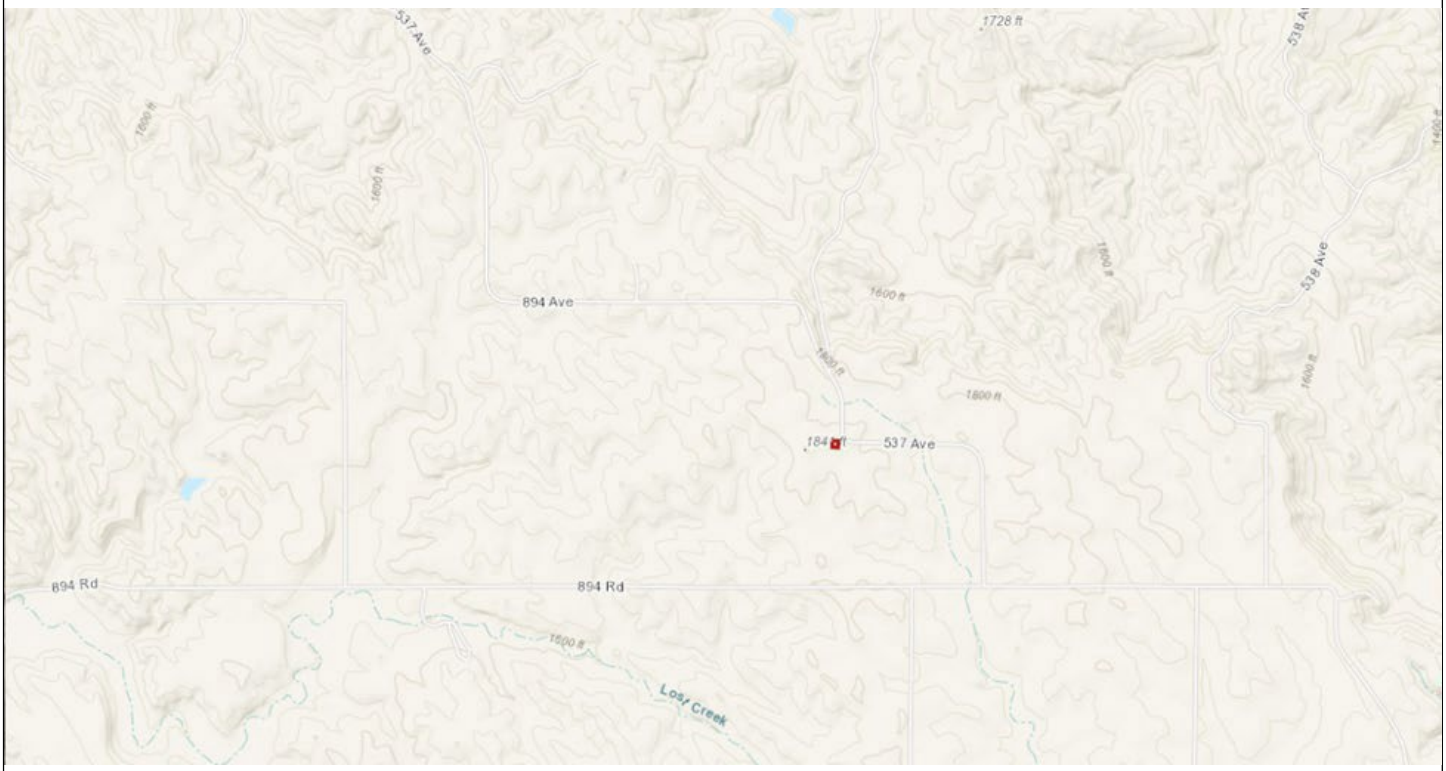
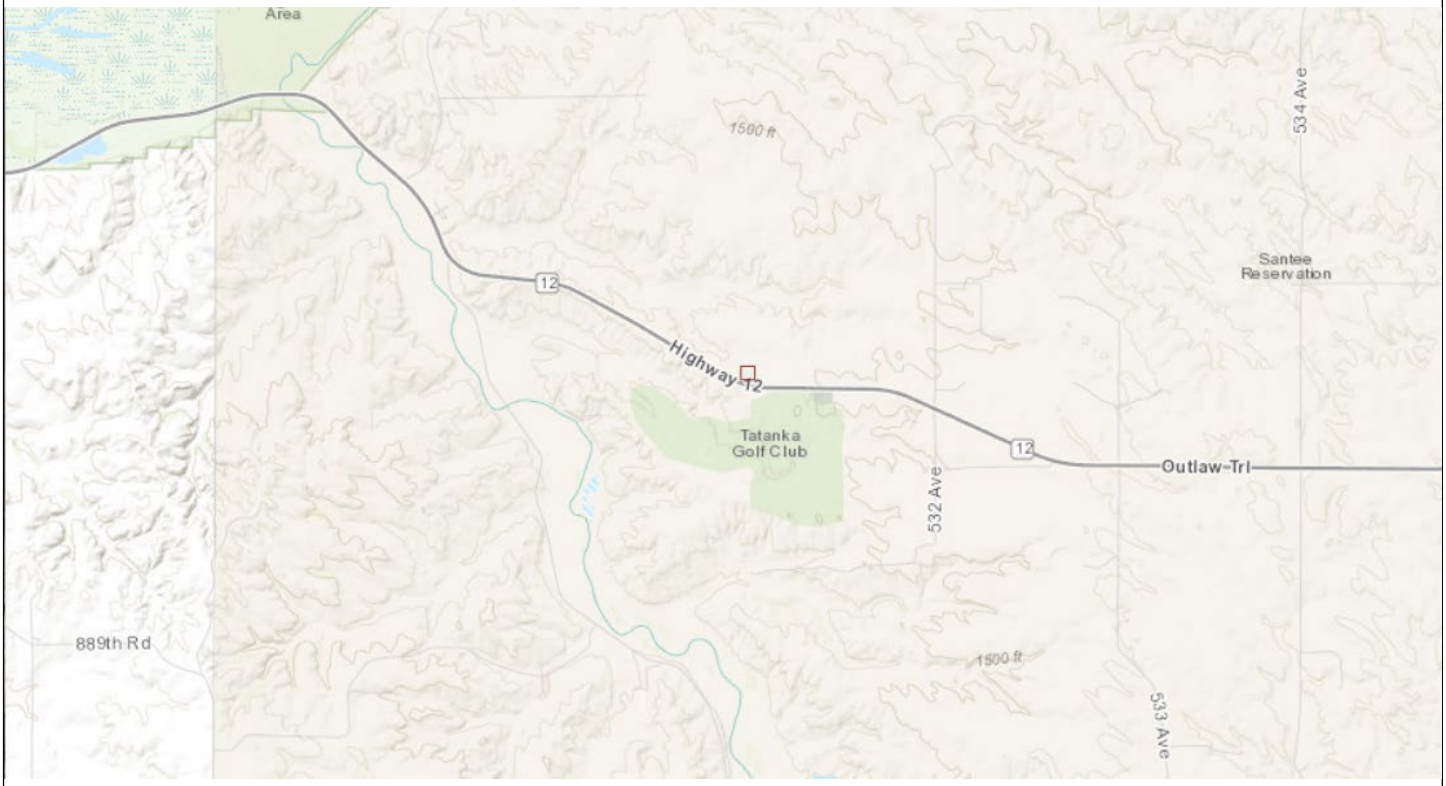
Appendix A

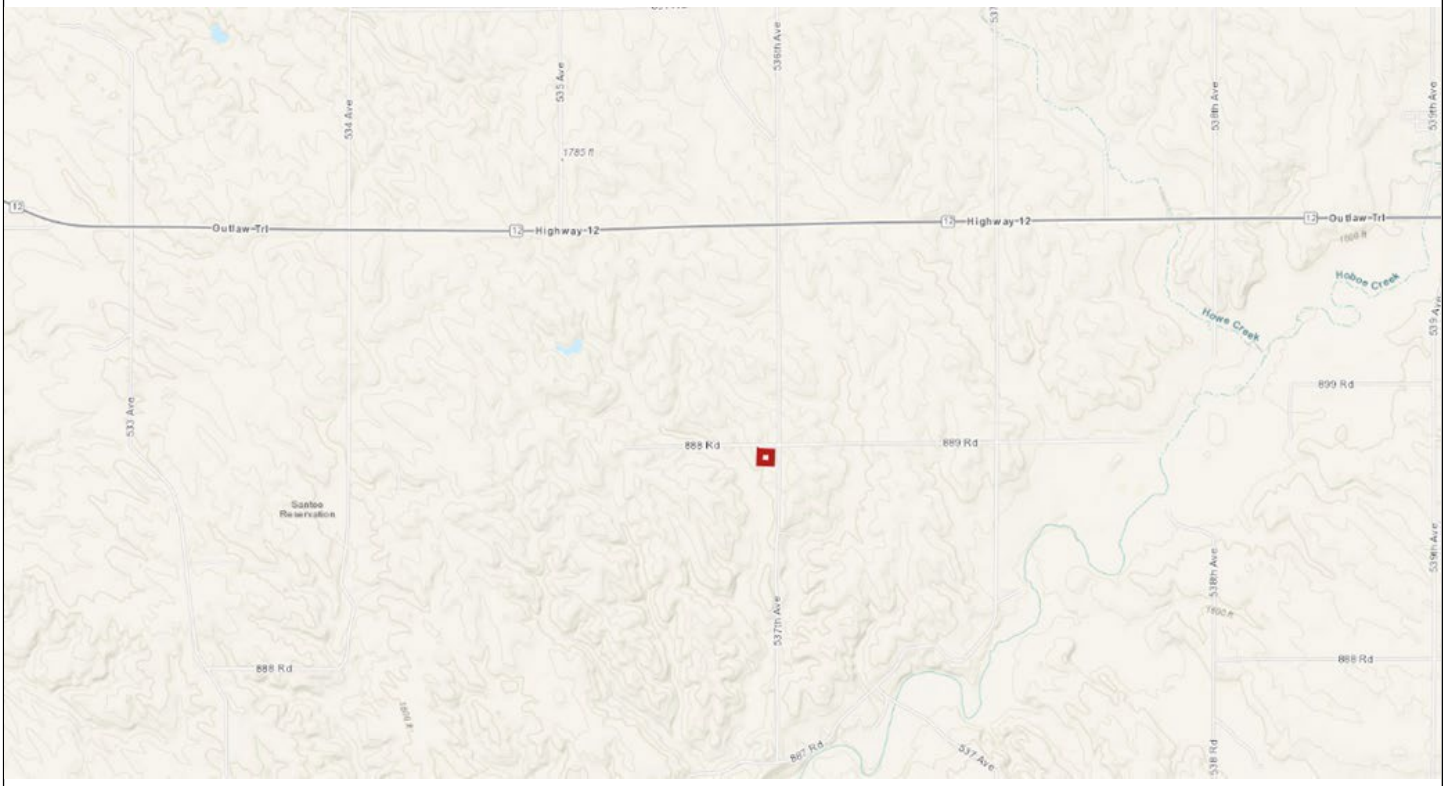
MAPS



Legend Proposed Project Site N W E S	Nebraska Indian Community College Santee, Knox County, Nebraska Figure 3-6a Topo Map- Tower 1 Santee Sioux Nation Office of Environmental Protection



Legend Proposed Project Site N W E S	Nebraska Indian Community College Santee, Knox County, Nebraska Figure 3-6b Topo Map- Tower 2 Santee Sioux Nation Office of Environmental Protection



Legend

Proposed Project Site

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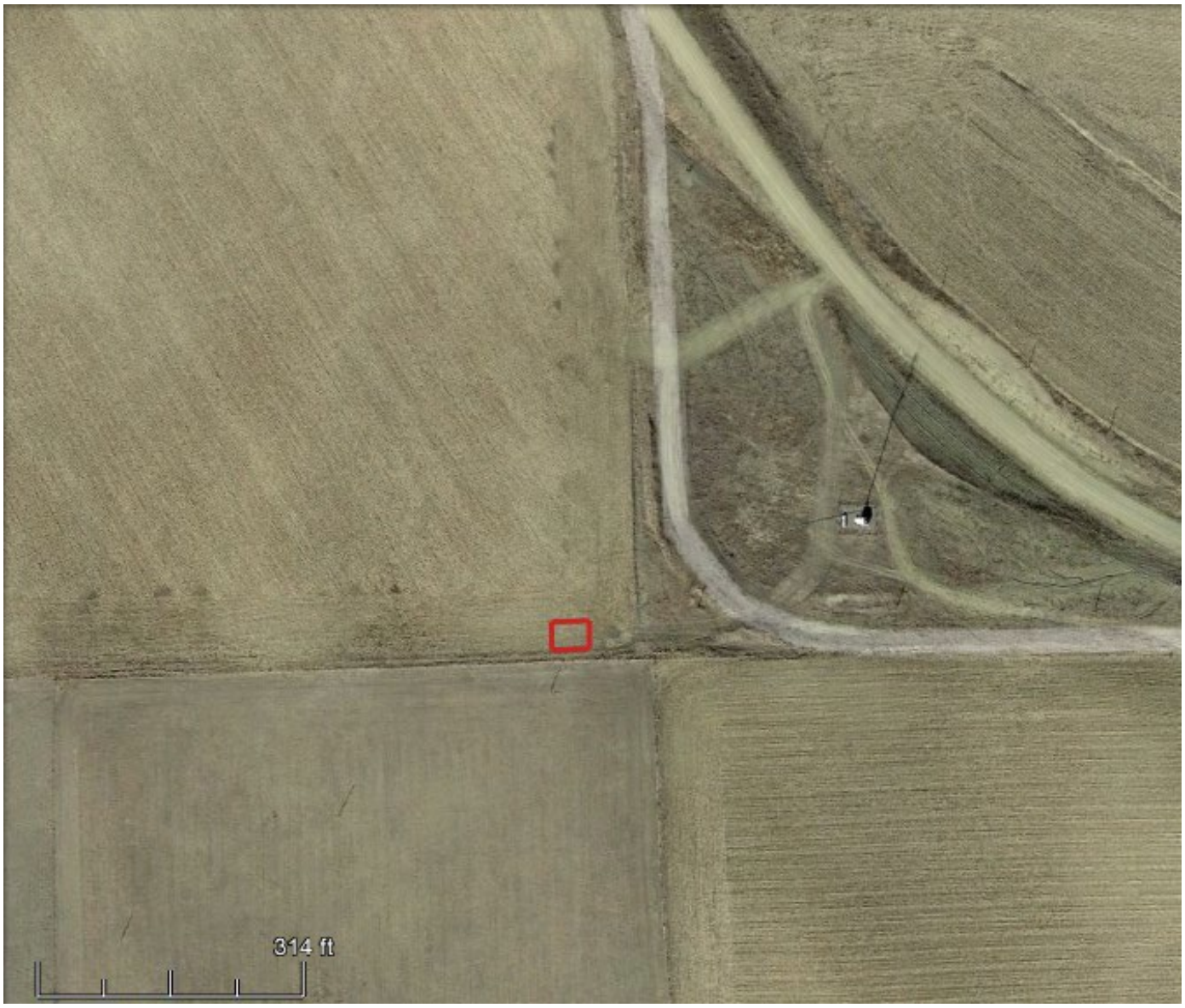
Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 3-6c
Topo Map- Tower 3

Santee Sioux Nation
Office of Environmental Protection



Legend

Proposed Project Site-
Tower 1

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Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 3-7a
Aerial

Santee Sioux Nation
Office of Environmental Protection

Legend

Proposed Project Site-
Tower 2

Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 3-7b
Aerial

Santee Sioux Nation
Office of Environmental Protection

Legend

Proposed Project Site-
Tower 3

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Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 3-7c
Site Map

Santee Sioux Nation
Office of Environmental Protection

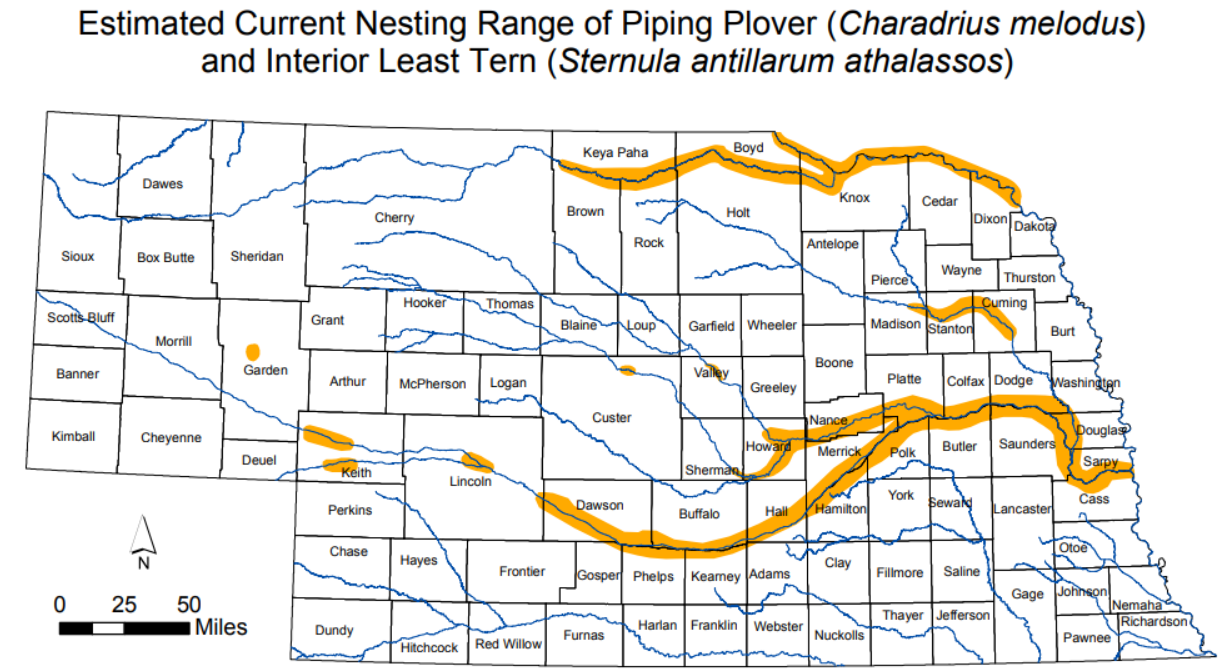


Figure 1A- Estimated current nesting range of the Piping Plover

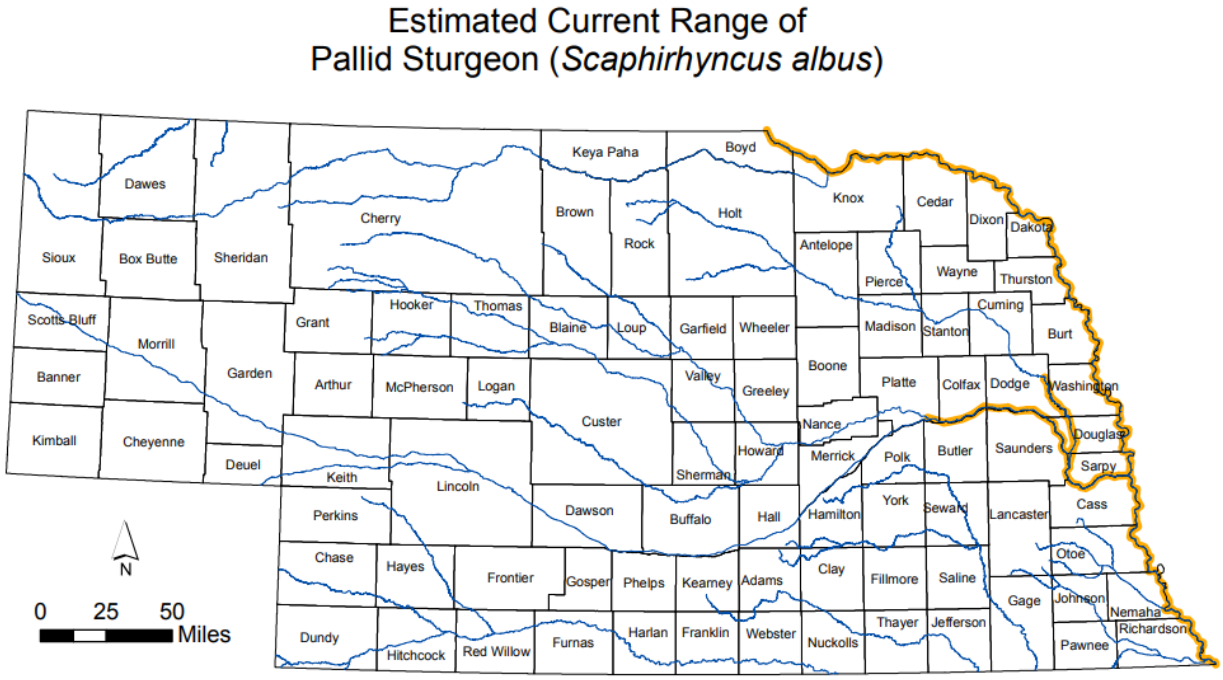


Figure 2A- Estimated current range of the Pallid Sturgeon

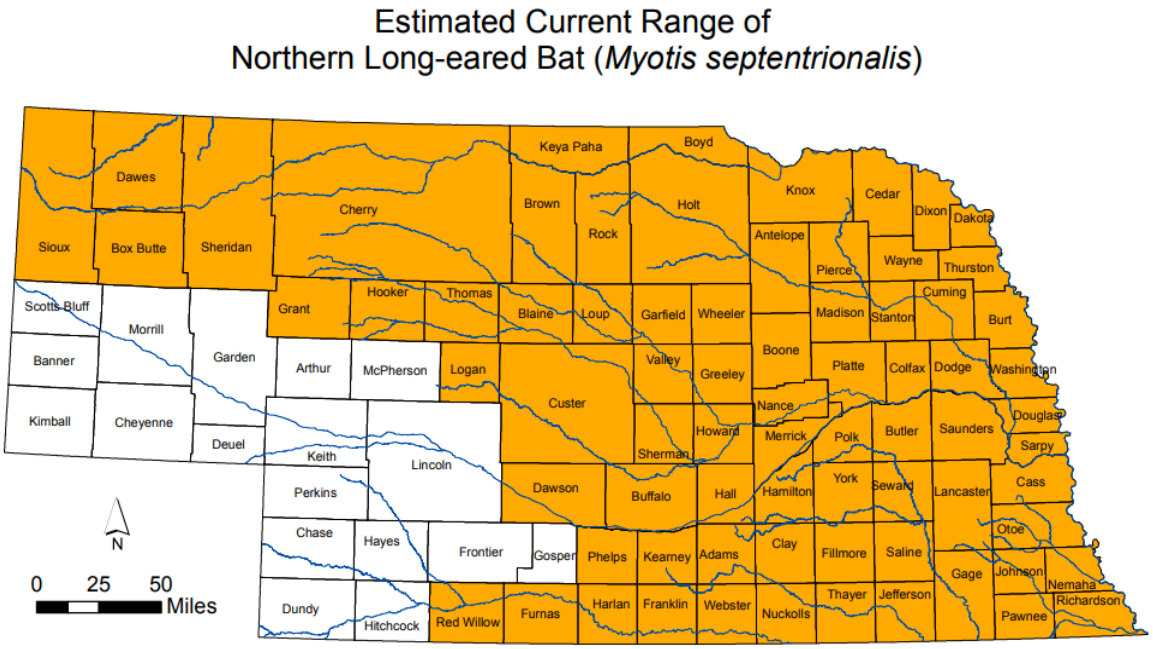


Figure 3A- Range Map of the Northern Long-eared Bat

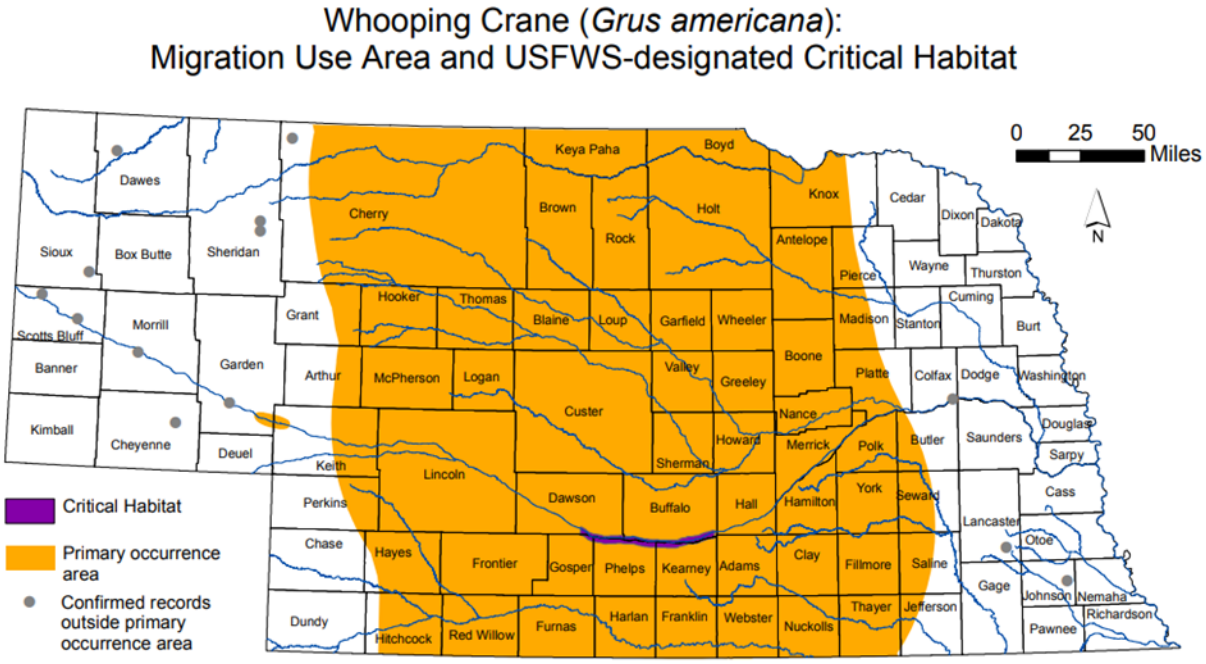


Figure 4A- Migration Use Area and USFWS-designated Critical Habitat for the Whooping Crane

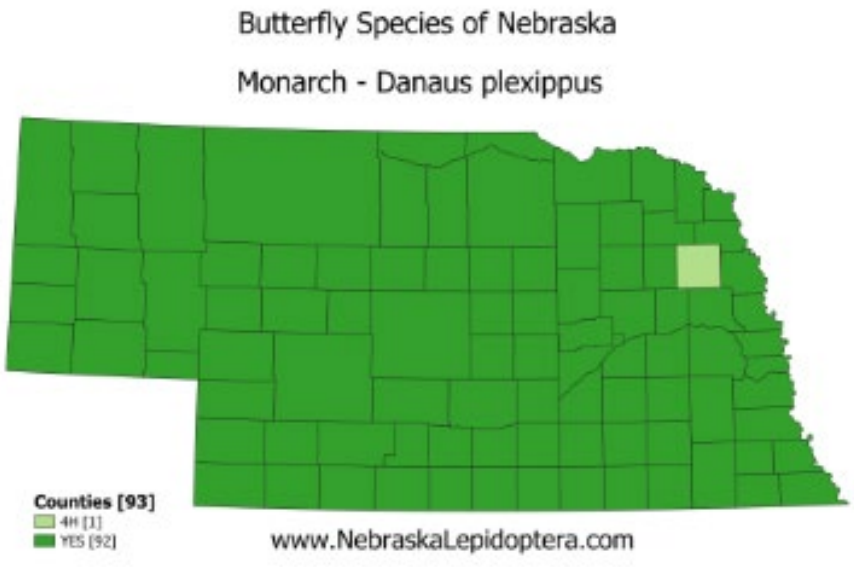


Figure 5A- Range map of the Monarch Butterfly

Tricolored Bat – Perimyotis subflavus
Species Range Map

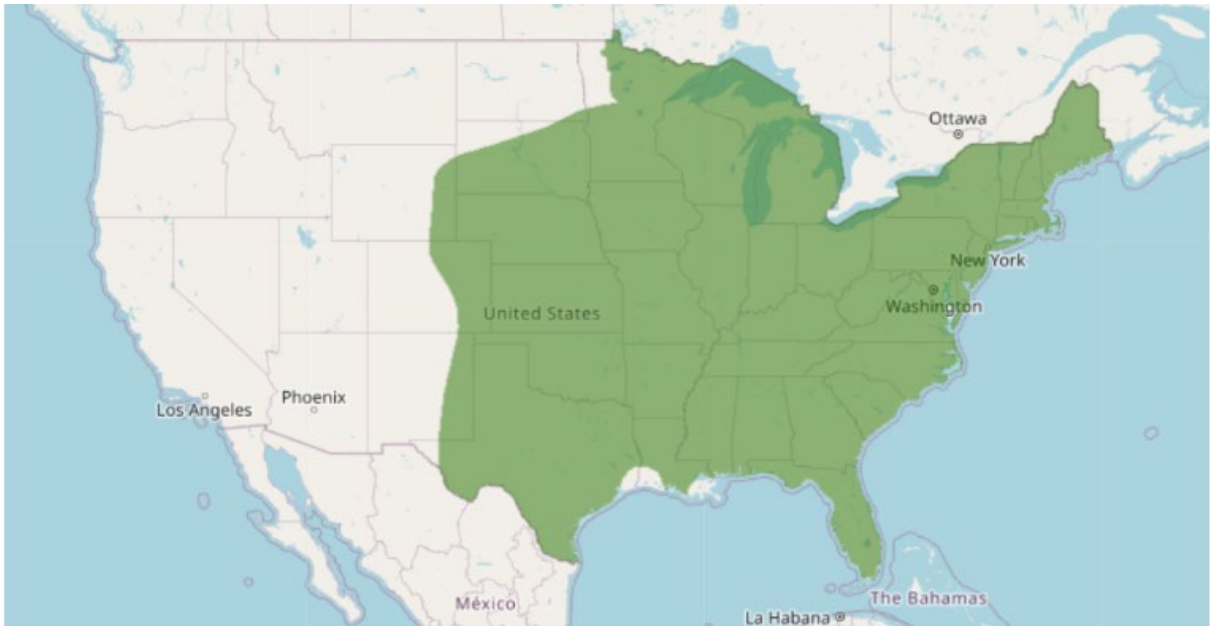
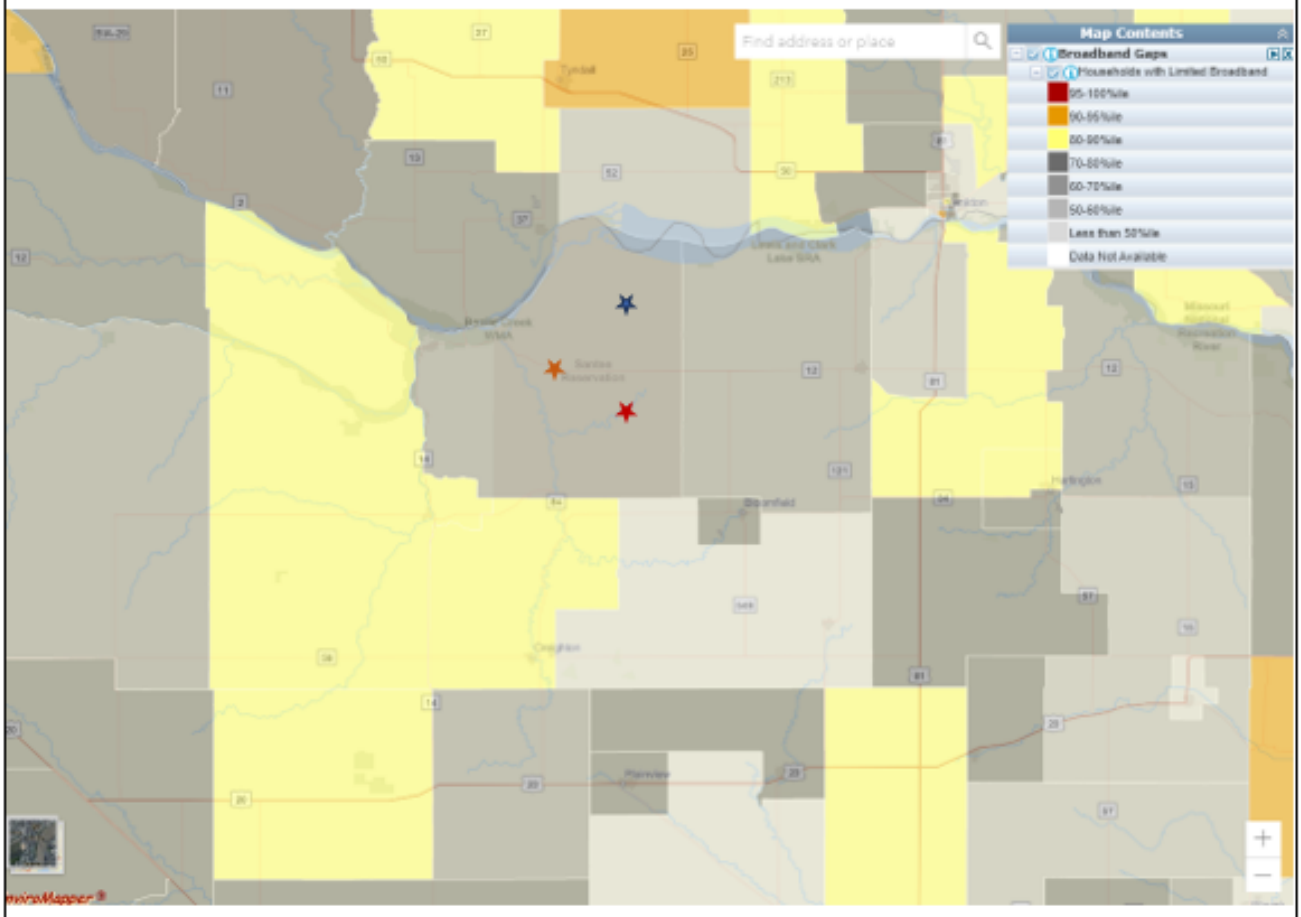


Figure 6A- Range Map of the Tricolored Bat



Legend

- Tower 1
- Tower 2
- Tower 3

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Nebraska Indian Community College
Santee, Knox County, Nebraska

Figure 7A
Broadband Gaps
Environmental Justice Map

Santee Sioux Nation
Office of Environmental Protection

Appendix B

NETROnline Report

Tower1

prepared for:
Ref:

2023-08-24

Environmental Radius Report

NETRONLINE

2055 E. Rio Salado Pkwy
Tempe, AZ 85381
480-967-6752

Summary

Federal

	< 1/4	1/4 - 1/2	1/2 - 1
Lists of Federal NPL (Superfund) sites	0	0	0
Lists of Federal Delisted NPL sites	0	0	-
Lists of Federal sites subject to CERCLA removals and CERCLA orders	0	0	-
Lists of Federal CERCLA sites with NFRAP	0	0	-
Lists of Federal RCRA facilities undergoing Corrective Action	0	0	0
Lists of Federal RCRA TSD facilities	0	0	-
Lists of Federal RCRA generators	0	-	-
Federal institutional control/engineering control registries	0	-	-
Federal ERNS list	0	-	-

State

	< 1/4	1/4 - 1/2	1/2 - 1
Lists of state and tribal Superfund equivalent sites	0	0	0
Lists of state and tribal hazardous waste facilities	0	0	-
Lists of state and tribal landfills and solid waste disposal facilities	0	0	-
Lists of state and tribal leaking storage tanks	0	0	-
Lists of state and tribal registered storage tanks	0	-	-
State and tribal institutional control/engineering control registries	0	-	-
Lists of state and tribal voluntary cleanup sites	0	0	-
Lists of state and tribal brownfields sites	0	0	-

Other

	< 1/4	1/4 - 1/2	1/2 - 1

prepared for:
Ref:

2023-08-25

Environmental Radius Report

NETRONLINE

2055 E. Rio Salado Pkwy
Tempe, AZ 85381
480-967-6752

Summary

Federal

	< 1/4	1/4 - 1/2	1/2 - 1
Lists of Federal NPL (Superfund) sites	0	0	0
Lists of Federal Delisted NPL sites	0	0	-
Lists of Federal sites subject to CERCLA removals and CERCLA orders	0	0	-
Lists of Federal CERCLA sites with NFRAP	0	0	-
Lists of Federal RCRA facilities undergoing Corrective Action	0	0	0
Lists of Federal RCRA TSD facilities	0	0	-
Lists of Federal RCRA generators	0	-	-
Federal institutional control/engineering control registries	0	-	-
Federal ERNS list	0	-	-

State

	< 1/4	1/4 - 1/2	1/2 - 1
Lists of state and tribal Superfund equivalent sites	0	0	0
Lists of state and tribal hazardous waste facilities	0	0	-
Lists of state and tribal landfills and solid waste disposal facilities	0	0	-
Lists of state and tribal leaking storage tanks	0	0	-
Lists of state and tribal registered storage tanks	0	-	-
State and tribal institutional control/engineering control registries	0	-	-
Lists of state and tribal voluntary cleanup sites	0	0	-
Lists of state and tribal brownfields sites	0	0	-

Other

	< 1/4	1/4 - 1/2	1/2 - 1
State and/or tribal lists of permitted facilities	0	-	-

prepared for:
Ref:

2023-08-25

Environmental Radius Report

NETRONLINE

2055 E. Rio Salado Pkwy
Tempe, AZ 85381
480-967-6752

Summary

Federal

	< 1/4	1/4 - 1/2	1/2 - 1
Lists of Federal NPL (Superfund) sites	0	0	0
Lists of Federal Delisted NPL sites	0	0	-
Lists of Federal sites subject to CERCLA removals and CERCLA orders	0	0	-
Lists of Federal CERCLA sites with NFRAP	0	0	-
Lists of Federal RCRA facilities undergoing Corrective Action	0	0	0
Lists of Federal RCRA TSD facilities	0	0	-
Lists of Federal RCRA generators	0	-	-
Federal institutional control/engineering control registries	0	-	-
Federal ERNS list	0	-	-

State

	< 1/4	1/4 - 1/2	1/2 - 1
Lists of state and tribal Superfund equivalent sites	0	0	0
Lists of state and tribal hazardous waste facilities	0	0	-
Lists of state and tribal landfills and solid waste disposal facilities	0	0	-
Lists of state and tribal leaking storage tanks	0	0	-
Lists of state and tribal registered storage tanks	0	-	-
State and tribal institutional control/engineering control registries	0	-	-
Lists of state and tribal voluntary cleanup sites	0	0	-
Lists of state and tribal brownfields sites	0	0	-

Other

	< 1/4	1/4 - 1/2	1/2 - 1

Appendix C

THPO Correspondence

Santee Sioux Nation

Chairman: Alonzo Denney
Vice-Chairman: Kameron Runnels
Treasurer: David Henry Sr.
Secretary: Stuart Redwing

425 Frazier Ave. N. Suite 2
Niobrara, NE 68760-7219
Phone: (402) 857-2302
Fax: (402) 857-2367

THPO

September, 11TH, 2023

Rick Noonan:

Pursuant to Section 106 of the National Historic Preservation Act of 1966 (as amended) the Tribal Historic Preservation Office offers this letter of clearance of said location Tower 1 Longitude-42.794474, Latitude- 97.784320, Knox County, NEBRASKA.

We have reached a determination of "No Historic Properties Affected" provided the project is of the nature stated and takes place in the location plotted in the report and correspondence.

Santee Sioux Nation THPO
Larry Thomas
Ssn.thpo@gmail.com

9-21-23

SANTEE SIOUX NATION / THPO

LAND DISTURBANCE PERMIT

Tower 1

FEE – $150.00

PERMIT NUMBER: 9123

NAME OF APPLICANT (INDIVIDUAL OR ENTITY): Rick Noonan

PLEASE CIRCLE ONE: LAND OWNER LESSEE CONTRACTOR

OTHER: _____ Title

PHYSIAL ADDRESS:
500 West 10th
Sioux Falls, SD 57104

MAILING ADRESS:

CONTACT INFORMATION:
TELEPHONE: 605-360-4132
WORK PHONE: 605-360-4132
FAX #:
EMAIL: Rick.NOONAN@long-line.com

Nature of Activity: Constructing Communication Tower to enhance broadband services within the SSN Reservation boundaries

Beginning Date: Oct 1st, 2023 End Date: Dec 1st, 2023

Location of Work: Longitude – 42.794474, Latitude – -97.784320

Legal Description (attach a copy of lease, deed, and map): See attached

The SSN retains all rights to intellectual property information obtained and is subject to review and/or change at our discretion. The Santee Sioux Nation requires our own Tribal Monitors to be present before and during all land disturbance activities at the cost of the requestor.

I attest that all above information is correct and true.

Applicant Signature: [signature] Date: 8-5-2023

OFFICE USE ONLY

(APPROVAL) (DENIAL) granted on this 11th day, of Sept, 20 23

PAID BY: Cash___ ___CHECK (Payable to the SSN Cemetery Board) – Check number 6385

THPO Personal [signature] Date 8-11-2023

Santee Sioux Nation of Nebraska

TRIBAL HISTORIC PRESERVATION OFFICE

Interim Director

email: ssn-thpo@gmail.com

52946 Hwy 12 Suite 2
Niobrara, NE 68760

THPO CULTURAL RESOURCE PROTECTION PERMIT APPLICATION

Date: 9/5/23 THPO Permit No. 91123 BIA Permit NO. _____

INSTRUCTION: This form needs to be completed completely by the Principal Investigator and returned to the Tribal Cultural Preservation Office. (A Permit Fee will be paid when this application is returned) Please include all of the following information:

Name of Firm/Institution: NICC

Principal Investigator Name: Rick Noonan

Address: 500 West 10th SiouxFalls, SD 57104

Telephon : 605-360-4132 Fax: _____

Email: Rick.Noonan@long-line.com

Location map, including legal description (attach maps):
See attached

Project Title and the purpose of the project and project description:
Tower 1 - Communication Towers Construction - Constructing tower to enhance broadband services within the SSN Reservation boundaries.

Date Fieldwork to Begin: Oct 1st, 2023 Date Fieldwork to End: Dec 1st, 2023

Name, Title, Education and year of experience of Individuals working on the Field Crew:
TBD by Justin Kocian of NICC

I have reviewed the application and do certify that it is correct and factual. I will be responsible for submitting any changes to the above information 24 hours prior to the change. I hereby agree that this Firm/Institution will abide by any and all conditions set forth in this permit and the Santee Sioux Nation

of Nebraska's Cultural Resource Protection Code. In accordance with the Cultural Resources Protection Code of the Santee Sioux Nation of Nebraska, the Cultural Preservation Director/Tribal Historic Preservation Officer and/or their Appointee (Administrative Assistant THPO) shall receive Permit Applications and Permit Application Fee prior to the issuance of the THPO permit and prior to the start of any survey work within the exterior boundaries of the Santee Sioux Nation Reservation. Terms and Conditions of the Permit: Any permit may contain such terms and conditions that the THPO deems necessary on a case-by-case basis to carry out the purposes of this Code. Each permit shall identify the Principal Investigator as to who will be responsible for carrying out the terms and conditions of the permit and for otherwise complying with this Code and other laws applicable to the permitted activity. The permittee is required to have a Santee Sioux Nation Tribal Monitor on site during the investigation/study. Every permit shall be issued in the name of the Principal Investigator. No permit shall be transferable; nor shall the holder of any permit allow any other person to use the permit. The sensitivity of the location of the undertaking and any other criteria knowledge that is determined by the THPO is going to be treated as confidential. Upon completion of the investigation/study a final report must be submitted to the Santee Sioux Nation Tribal Historic Preservation Officer and the Bureau of Indian Affairs Regional Office in Aberdeen SD. to the Division of Environment, Safety and Cultural Resources Management. Providing that the Individual and/or Firm/Institution is qualified, permission is granted under this Permit to the Applicant named herein to conduct Survey Work on Tribal Lands. The Permit Holder must abide by all the following conditions.

* _____ 9-5-2023

Principal Investigator — Date

_____ 9-11-23

Issuing Officer (THPO Office) — Date

Santee Sioux Nation

Chairman: Alonzo Denney
Vice-Chairman: Kameron Runnels
Treasurer: David Henry Sr.
Secretary: Stuart Redwing

425 Frazier Ave. N. Suite 2
Niobrara, NE 68760-7219
Phone: (402) 857-2302
Fax: (402) 857-2367

THPO

September, 14TH, 2023

Rick Noonan:

Pursuant to Section 106 of the National Historic Preservation Act of 1966 (as amended) the Tribal Historic Preservation Office offers this letter of clearance of said location Tower 2 Longitude- 42.734411 , Latitude- -97.89679, Knox County, NEBRASKA.

We have reached a determination of "No Historic Properties Affected" provided the project is of the nature stated and takes place in the location plotted in the report and correspondence.

Santee Sioux Nation THPO
Larry Thomas
Ssn.thpo@gmail.com

9-21-23

SANTEE SIOUX NATION / THPO
LAND DISTURBANCE PERMIT

Tower 2

FEE – $150.00

PERMIT NUMBER: 9/4/23

NAME OF APPLICANT (INDIVIDUAL OR ENTITY): Rick Noonan

PLEASE CIRCLE ONE: LAND OWNER LESSEE CONTRACTOR

OTHER: _____ Title

PHYSIAL ADDRESS:
500 West 10th
Sioux Falls, SD 57104

MAILING ADRESS:

CONTACT INFORMATION:
TELEPHONE: 605-360-4132
WORK PHONE: 605-360-4132
FAX #: _____
EMAIL: Rick.Noonan@long-line.com

Nature of Activity: Constructing communication tower to enhance broadband services within the boundaries of the SSN Reservation

Beginning Date: Oct 1, 2023 End Date: Dec 1, 2023

Location of Work: Long → 42.734411 Lat → -97.896679

Legal Description (attach a copy of lease, deed, and map): See attached

The SSN retains all rights to intellectual property information obtained and is subject to review and/or change at our discretion. The Santee Sioux Nation requires our own Tribal Monitors to be present before and during all land disturbance activities at the cost of the requestor.

*

I attest that all above information is correct and true.

Applicant Signature: Rick N Date: 9-5-2023

OFFICE USE ONLY

(APPROVAL) (DENIAL) granted on this 14 day, of Sept, 20 23

PAID BY: Cash___ ✓CHECK (Payable to the SSN Cemetery Board) – Check number 6355

THPO Personal_____ Date. 9-14-2023

Santee Sioux Nation of Nebraska

TRIBAL HISTORIC PRESERVATION OFFICE

Interim Director

email: ssn-thpo@gmail.com

52946 Hwy 12 Suite 2
Niobrara, NE 68760

THPO CULTURAL RESOURCE PROTECTION PERMIT APPLICATION

Date: 9/5/23 THPO Permit No. 91423 BIA Permit NO. _____

INSTRUCTION: This form needs to be completed completely by the Principal Investigator and returned to the Tribal Cultural Preservation Office. (A Permit Fee will be paid when this application is returned) Please include all of the following information:

Name of Firm/Institution: NICC

Principal Investigator Name: Rick Noonan

Address: 500 West 10th Sioux Falls, SD 57104

Telephon : 605-360-4132 Fax: _____

Email: Rick.Noonan@long-line.com

Location map, including legal description (attach maps):
See attached

Project Title and the purpose of the project and project description:
Tower 2 - Communication Tower Construction - Constructing tower to enhance broadband services within the SSN Reservation

Date Fieldwork to Begin: Oct. 1, 2023 Date Fieldwork to End: Dec 1, 2023

Name, Title, Education and year of experience of Individuals working on the Field Crew:
TBD by Justin Kocian (NICC)

I have reviewed the application and do certify that it is correct and factual. I will be responsible for submitting any changes to the above information 24 hours prior to the change. I hereby agree that this Firm/Institution will abide by any and all conditions set forth in this permit and the Santee Sioux Nation

of Nebraska's Cultural Resource Protection Code. In accordance with the Cultural Resources Protection Code of the Santee Sioux Nation of Nebraska, the Cultural Preservation Director/Tribal Historic Preservation Officer and/or their Appointee (Administrative Assistant THPO) shall receive Permit Applications and Permit Application Fee prior to the issuance of the THPO permit and prior to the start of any survey work within the exterior boundaries of the Santee Sioux Nation Reservation. Terms and Conditions of the Permit: Any permit may contain such terms and conditions that the THPO deems necessary on a case-by-case basis to carry out the purposes of this Code. Each permit shall identify the Principal Investigator as to who will be responsible for carrying out the terms and conditions of the permit and for otherwise complying with this Code and other laws applicable to the permitted activity. The permittee is required to have a Santee Sioux Nation Tribal Monitor on site during the investigation/study. Every permit shall be issued in the name of the Principal Investigator. No permit shall be transferable; nor shall the holder of any permit allow any other person to use the permit. The sensitivity of the location of the undertaking and any other criteria knowledge that is determined by the THPO is going to be treated as confidential. Upon completion of the investigation/study a final report must be submitted to the Santee Sioux Nation Tribal Historic Preservation Officer and the Bureau of Indian Affairs Regional Office in Aberdeen SD, to the Division of Environment, Safety and Cultural Resources Management. Providing that the individual and/or Firm/Institution is qualified, permission is granted under this Permit to the Applicant named herein to conduct Survey Work on Tribal Lands. The Permit Holder must abide by all the following conditions.

* _____ 9-5-2023

Principal Investigator — Date

_____ 9-14-23

Issuing Officer (THPO Office) — Date

Santee Sioux Nation

Chairman: Alonzo Denney
Vice-Chairman: Kameron Runnels
Treasurer: David Henry Sr.
Secretary: Stuart Redwing

425 Frazier Ave. N. Suite 2
Niobrara, NE 68760-7219
Phone: (402) 857-2302
Fax: (402) 857-2367

THPO

September, 15TH, 2023

Rick Noonan:

Pursuant to Section 106 of the National Historic Preservation Act of 1966 (as amended) the Tribal Historic Preservation Office offers this letter of clearance of said location Tower 3 Longitude- 42.68401 , Latitude- -97.779723, Knox County, NEBRASKA.

We have reached a determination of "No Historic Properties Affected" provided the project is of the nature stated and takes place in the location plotted in the report and correspondence.

Santee Sioux Nation THPO
Larry Thomas
Ssn.thpo@gmail.com

9-21-23

SANTEE SIOUX NATION / THPO

LAND DISTURBANCE PERMIT

Tower 3

FEE – $150.00

PERMIT NUMBER: 9523

NAME OF APPLICANT (INDIVIDUAL OR ENTITY): Rick NOONAN

PLEASE CIRCLE ONE: LAND OWNER LESSEE (CONTRACTOR)

OTHER: _____ Title

PHYSIAL ADDRESS:
500 West 10th
Sioux Falls, SD 57104

MAILING ADRESS:

CONTACT INFORMATION:
TELEPHONE: 605-360-4132
WORK PHONE: 605-360-4132
FAX #:
EMAIL: Rick.NOONAN@long-line.com

Nature of Activity: Constructing communication towers to enhance broadband services within the boundaries of the SSN Reservation

Beginning Date: Oct 1, 2023 End Date: Dec 1, 2023

Location of Work: Long → 42.68401 , Lat → -97.779723

Legal Description (attach a copy of lease, deed, and map): See attached

The SSN retains all rights to intellectual property information obtained and is subject to review and/or change at our discretion. The Santee Sioux Nation requires our own Tribal Monitors to be present before and during all land disturbance activities at the cost of the requestor.

I attest that all above information is correct and true.

Applicant Signature: Rick Noonan Date: 9-5-2023

OFFICE USE ONLY

(APPROVAL) (DENIAL) granted on this 15th day, of Sept, 20 23

PAID BY: Cash ___ ✓ CHECK (Payable to the SSN Cemetery Board) – Check number 6395

THPO Personal _____ Date 9-15-23

Santee Sioux Nation of Nebraska

TRIBAL HISTORIC PRESERVATION OFFICE

Interim Director

email: ssn-thpo@gmail.com

52946 Hwy 12 Suite 2
Niobrara, NE 68760

THPO CULTURAL RESOURCE PROTECTION PERMIT APPLICATION

Date: 9/5/23 THPO Permit No. 91523 BIA Permit NO. _____

INSTRUCTION: This form needs to be completed completely by the Principal Investigator and returned to the Tribal Cultural Preservation Office. (A Permit Fee will be paid when this application is returned) Please include all of the following information:

Name of Firm/Institution: NICC

Principal Investigator Name: Rick Noonan

Address: 500 West 10th Sioux Falls, SD 57104

Telephon : 605-360-4132 Fax: _____

Email: Rick.Noonan@long-line.com

Location map, including legal description (attach maps):
See attached

Project Title and the purpose of the project and project description:
Tower 3 - Communication Tower Construction - Construction of tower to enhance broadband service within the boundaries of the SSN Reservation.

Date Fieldwork to Begin: Oct 1, 2023 Date Fieldwork to End: Dec 1, 2023

Name, Title, Education and year of experience of Individuals working on the Field Crew:
TBD by Justin Kocian (NICC)

I have reviewed the application and do certify that it is correct and factual. I will be responsible for submitting any changes to the above information 24 hours prior to the change. I hereby agree that this Firm/Institution will abide by any and all conditions set forth in this permit and the Santee Sioux Nation

of Nebraska's Cultural Resource Protection Code. In accordance with the Cultural Resources Protection Code of the Santee Sioux Nation of Nebraska, the Cultural Preservation Director/Tribal Historic Preservation Officer and/or their Appointee (Administrative Assistant THPO) shall receive Permit Applications and Permit Application Fee prior to the issuance of the THPO permit and prior to the start of any survey work within the exterior boundaries of the Santee Sioux Nation Reservation. Terms and Conditions of the Permit: Any permit may contain such terms and conditions that the THPO deems necessary on a case-by-case basis to carry out the purposes of this Code. Each permit shall identify the Principal Investigator as to who will be responsible for carrying out the terms and conditions of the permit and for otherwise complying with this Code and other laws applicable to the permitted activity. The permittee is required to have a Santee Sioux Nation Tribal Monitor on site during the investigation/study. Every permit shall be issued in the name of the Principal Investigator. No permit shall be transferable; nor shall the holder of any permit allow any other person to use the permit. The sensitivity of the location of the undertaking and any other criteria knowledge that is determined by the THPO is going to be treated as confidential. Upon completion of the investigation/study a final report must be submitted to the Santee Sioux Nation Tribal Historic Preservation Officer and the Bureau of Indian Affairs Regional Office in Aberdeen SD. to the Division of Environment, Safety and Cultural Resources Management. Providing that the Individual and/or Firm/Institution is qualified, permission is granted under this Permit to the Applicant named herein to conduct Survey Work on Tribal Lands. The Permit Holder must abide by all the following conditions.

✳ [signature] 9-5-2023

Principal Investigator — Date

[signature] 9-15-23

Issuing Officer (THPO Office) — Date

Appendix D

USFWS CORRESPONDENCE LETTERS

SANTEE SIOUX NATION

OFFICE OF ENVIRONMENTAL PROTECTION
52948 HWY 12, NIOBRARA NE. 68760
PHONE (402)857-3347 FAX (402)857-3339

ENVIRONMENTAL DIRECTOR
ALISHA BARTLING

ENVIRONMENTAL SPECIALIST
JEROME PROCTOR

WATER QUALITY MANAGER
JUSTIN AVERY

128(A) TRIBAL RESPONSE
MANAGER
PAGE HINGST

July 28, 2023

To: Mark Porath
U.S. Fish and Wildlife Service, Nebraska Field Office
9325 South Alda Road, Wood River, Nebraska 68883

Matt Rabbe
Fish and Wildlife Biologist
Platte River Recovery Team, ESA consultations, Terns, Plover
Matt_rabbe@fws.gov
(308) 382-6468 ext: 205

Thank you for contacting us to assist with a review of your project or activity. Based on the information provided and acceptance of the conservation measures described in the attachment(s), you may consider this project in compliance with the Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 et seq. This project should be reanalyzed by our office if any new information indicates there may be effects to protected species or their habitats.

MARK PORATH Digitally signed by MARK PORATH Date: 2023.08.19 09:23:13 -05'00'

Project Leader, Nebraska Field Office Supervisor

From: Santee Sioux Nation Office of Environmental Protection
Tribal Response Program
c/o Page Hingst
Tribal Response Program Manager

Re: Proposed construction of three communication towers in Santee, Nebraska, Not likely to Adversely Affect the Northern long-eared bat (*Myotis septentrionalis*) Concurrence Request

Dear Mr. Mark Porath,

I am requesting concurrence from the U.S. Fish and Wildlife Service that the proposed construction of three communication towers located around rural, Santee, Nebraska is *not likely to adversely affect* the Northern long-eared bat (*Myotis septentrionalis*). The proposed projects are located at the following coordinates: Tower 1(42.794082, -97.784638), Tower 2 (42.741719, -97.906551), and Tower 3 (42.68401, -97.779723) in Santee, Nebraska. The Nebraska Indian Community College (NICC) is seeking funding from the National Telecommunication and Information Administration (NTIA) to address a need to provide internet services to students at NICC and the Santee Public School. The project will entail constructing three 195 ft self-supporting 3-legged lattice towers on three different locations within the boundaries of the Santee Sioux Reservation. These towers are inline with the agency's Recommended Best Practices for Communication Tower Design, Siting, Construction, Operation, Maintenance, and Decommissioning.

There are four (4) other threatened or endangered species identified on your agency's Information for Planning and Consultation (IPaC) website (reviewed on July 28, 2023) that have critical habitats within the project areas but "may be present" within the project area: Piping Plover (*Charadrius melodus*), Whooping Crane (*Grus americana*), Pallid Sturgeon (*Scaphirhynchus albus*), and Monarch Butterfly (*Danaus plexippus*).

All three project locations are in areas that have been previously disturbed by agricultural activities. To ensure minimal impact, NICC outlined the following measures: monitoring during construction will be done to ensure the proposed project will not jeopardize the continued existence of any threatened or endangered species or adversely modify critical habitat, including migratory birds. There is the possibility of reseeding and replanting as needed for any damaged landscaping from the construction. Best Management Practices (BMP's) will be implemented during construction for any type of spill to ensure impacts are minimal. As there are no water bodies, streams or wetlands on all three proposed project sites, I have determined that there will be no effect on the Piping Plover and Pallid Sturgeon. As all three proposed project areas are in already disturbed areas where there is a lack of available habitat sites, there will be no effect on the Whooping Crane. The Monarch Butterfly will not be impacted by the proposed projects as all three sites have been previously used for agricultural purposes.

The proposed project is, while within the northern long-eared bat's range, not in or near the species critical habitat. Similarly, the other four (4) identified species have no critical habitats within the proposed sites. Thus, I anticipate the proposed projects will not lead to adverse effects on threatened or endangered species in the area as the proposed projects will not destroy or adversely affect the species' critical habitat and BMPs will be in place if a species is present in the project area. For this reason, I conclude that the construction of the three NICC communication towers is *not likely to adversely affect* the Northern long-eared bat (*Myotis septentrionalis*) and will have no effect on the four (4) other identified threatened and endangered species. I request your concurrence with my determination. Please contact me at page.hingst@santeeoep.com or (402) 644-1627 with any questions.

Sincerely,

Page Hingst
Santee Sioux Nation
Tribal Response Program Manager

Appendix E

Site Pictures

Santee Sioux OEP Project No. (EA-072023) Direction: North	Description	Tower 3 proposed site	1
	Client	NICC	Date 08/2/2023
	Photographer	Page Hingst	

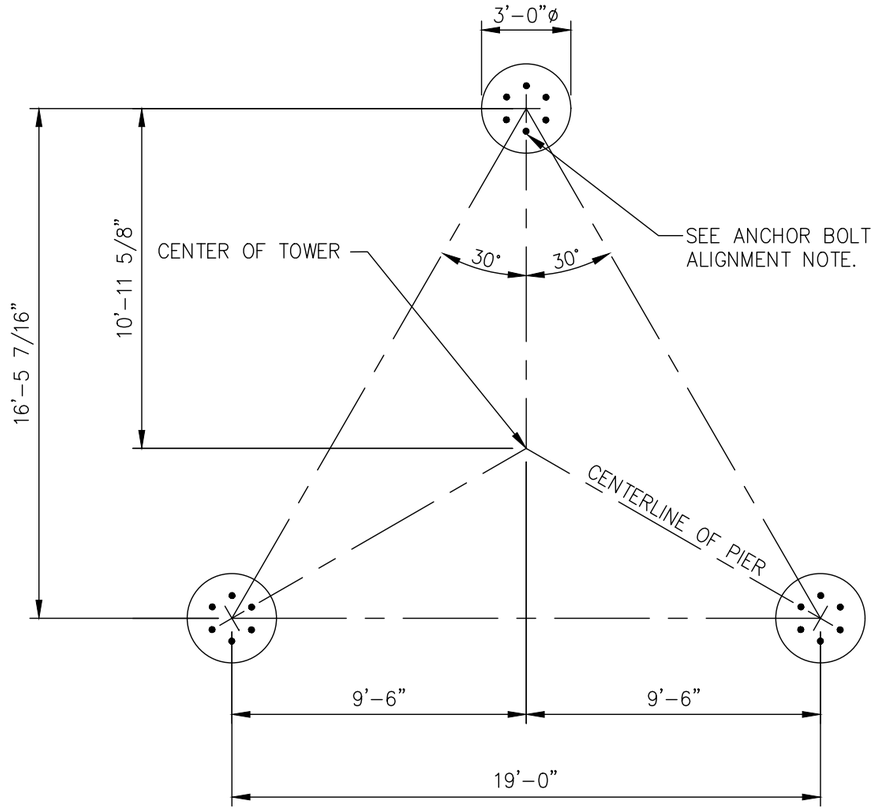
Santee Sioux OEP Project No. EA-072023 Direction: Northwest	Description	Tower 3 proposed site	2
	Client	NICC	Date 08/02/2023
	Photographer	Page Hingst	

Santee Sioux OEP Project No. EA-072023 Direction: West	Description	Tower 1 proposed location	3
	Client	NICC	Date 08/02/2023
	Photographer	Page Hingst	

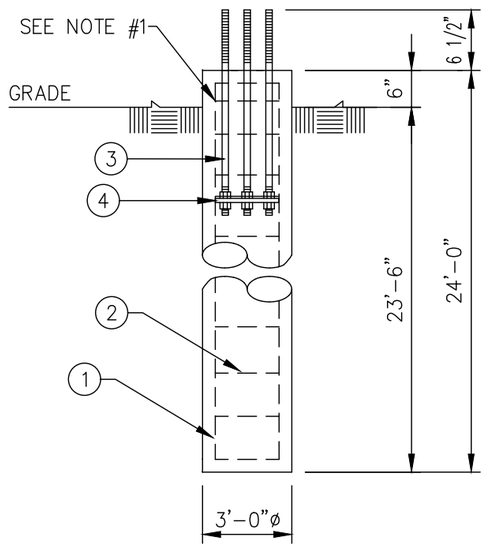
Santee Sioux OEP Project No. EA-072023 Direction: North	Description	Tower 2 proposed location	4
	Client	NICC	Date 08/02/23
	Photographer	Page Hingst	

Appendix F

TOWER PLANS



PLAN VIEW



ELEVATION VIEW

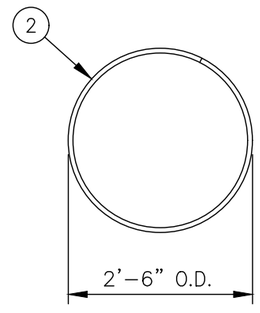
REINFORCING STEEL SCHEDULE								
ITEM	LOCATION	NO. REQ'D.	BAR SPC'G.	SIZE	CUT LGTH.	TOTAL LGTH.	TOTAL WT.	SHAPE
①	PIER VERTICAL REINFORCING	24	EQUALLY SPACED	#8	23'-6"	564'-0"	1506 LBS.	STRAIGHT
②	PIER TIES	75	SPACED 12" C/C	#4	9'-1"	681'-3"	455 LBS.	◯
						TOTAL REBAR WT.	1961 LBS.	

ANCHOR BOLT SCHEDULE				
ITEM	PART NO.	NO. REQ'D.	ANCHOR BOLT SIZE	SPACING
③	C40041058	18	1"ø X 4'-3"	EQUALLY SPACED

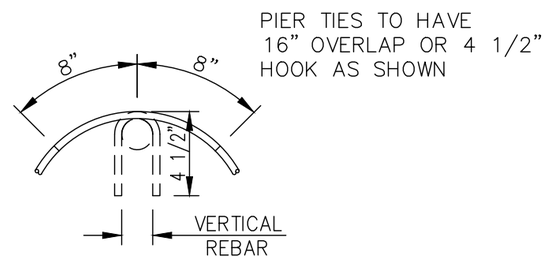
TEMPLATE SCHEDULE			
ITEM	PART NO.	NO. REQ'D.	BOLT CIRCLE
④	C30139103	6	9"

CONCRETE REQ'D	
PER PIER	6.28 CU. YDS.
TOTAL	18.84 CU. YDS.

SEE PAGE 2 FOR GENERAL NOTES



REBAR DETAIL
(PIER TIES)



PIER TIE HOOK DETAIL

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"

MATERIAL:

TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION

Sabre Industries™ INNOVATION DELIVERED

FOUNDATION: 195 FT. MODEL S3TL-HD1

SITE: BANCROFT, NE

CUSTOMER: CALHOUN COMMUNICATIONS INC

JOB NO. 512567		SIZE	DRAWING NO.	REV
DATE	10/14/22	B	512567-F1	0
DRAWN BY	CK			
CHECKED BY	KC		SCALE NONE	PAGE 1 OF 2

GENERAL NOTES

1. CONCRETE SHALL HAVE A MINIMUM 28–DAY COMPRESSIVE STRENGTH OF 4,500 PSI, IN ACCORDANCE WITH ACI 318–14. (2 REBAR TIES REQ'D IN THE TOP 5")
2. REBAR TO CONFORM TO ASTM SPECIFICATION A615 GRADE 60.
3. ALL REBAR TO HAVE A MINIMUM OF 3" CONCRETE COVER.
4. ALL EXPOSED CONCRETE CORNERS TO BE CHAMFERED 3/4".
5. THE FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL REPORT BY CERTIFIED TESTING SERVICES, INC. PROJECT NO. G6813, DATED: 9/29/22.
6. SEE THE GEOTECHNICAL REPORT FOR DRILLED PIER INSTALLATION REQUIREMENTS, IF SPECIFIED.
7. THE BOTTOM ANCHOR BOLT TEMPLATE SHALL BE POSITIONED AS CLOSELY AS POSSIBLE TO THE BOTTOM OF THE ANCHOR BOLTS.
8. DISTANCE BETWEEN CENTER OF ANCHOR BOLT CAGE AND THE CENTER OF THE PIER NOT TO EXCEED 1/2" WITHOUT APPROVAL FROM ENGINEER OF RECORD.
9. ONE ANCHOR BOLT MUST BE ALIGNED DIRECTLY WITH THE CENTER OF THE TOWER (TYPICAL).

BASE REACTIONS – ANSI/TIA–222–H (WIND/ICE)

TOTAL FOUNDATION		INDIVIDUAL FOOTING	
SHEAR (KIPS)	18.42	SHEAR (KIPS)	11.12
AXIAL (KIPS)	35.8	COMPRESSION (KIPS)	111
MOMENT (FT–KIPS)	1745	UPLIFT (KIPS)	91

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS INCLUDE
FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16"
ANGLES ± 1/2 DEG.
DECIMALS ± .010"

MATERIAL:

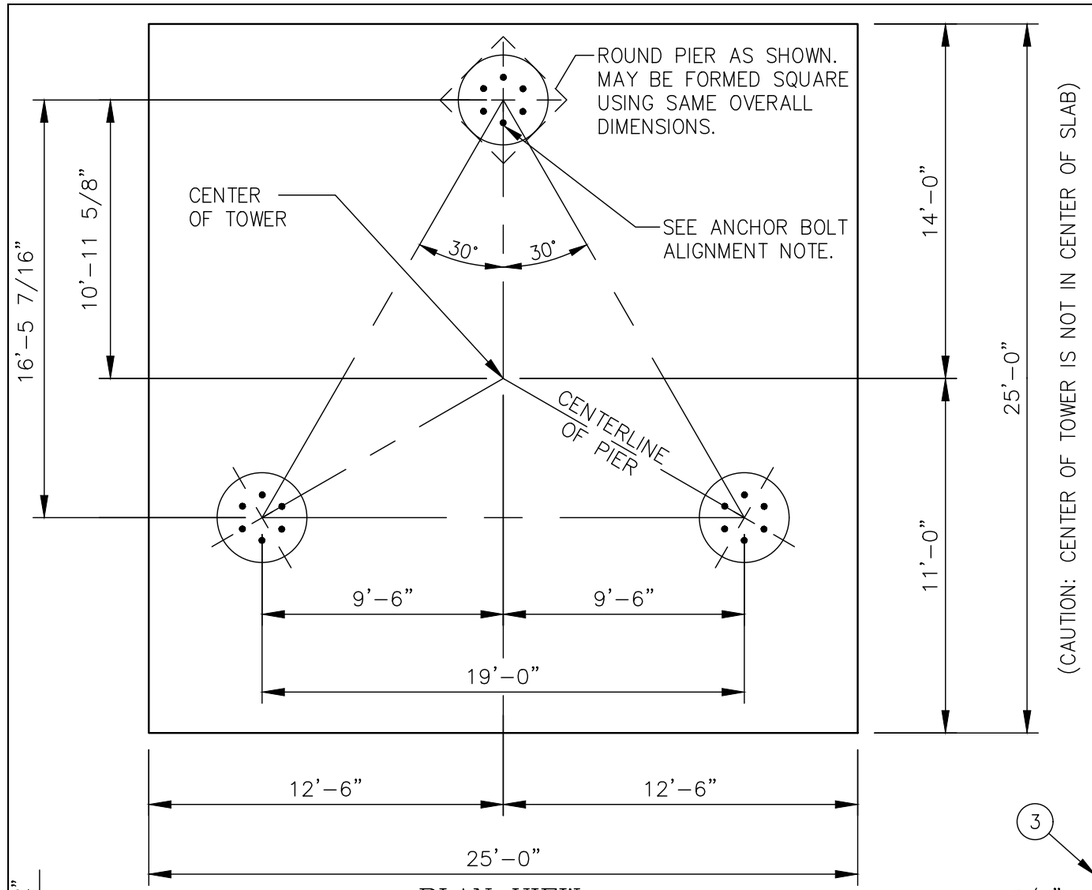
TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION

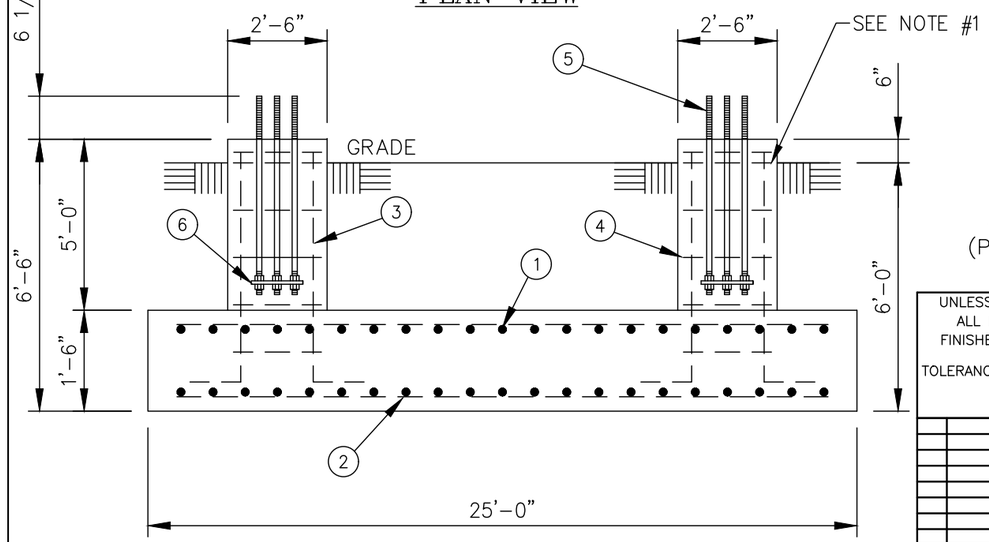
Sabre Industries™
INNOVATION DELIVERED

FOUNDATION: 195 FT. MODEL S3TL–HD1
SITE: BANCROFT, NE
CUSTOMER: CALHOUN COMMUNICATIONS INC

JOB NO. 512567		SIZE	DRAWING NO.	REV
DATE	10/14/22	B	512567–F1	0
DRAWN BY	CK			
CHECKED BY	KC		SCALE NONE	PAGE 2 OF 2



PLAN VIEW



ELEVATION VIEW

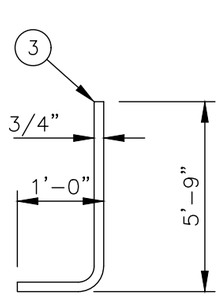
REINFORCING STEEL SCHEDULE								
ITEM	LOCATION	NO. REQ'D.	BAR SPC'G.	SIZE	CUT LGTH.	TOTAL LGTH.	TOTAL WT.	SHAPE
①	PAD TOP REINFORCING	52	EQUALLY SPACED	#5	24'-6"	1274'-0"	1329 LBS.	STRAIGHT
②	PAD BOTTOM REINFORCING	52	EQUALLY SPACED	#5	24'-6"	1274'-0"	1329 LBS.	STRAIGHT
③	PIER VERTICAL REINFORCING	30	EQUALLY SPACED	#6	6'-9"	202'-6"	304 LBS.	
④	PIER TIES	21	SPACED 12" C/C	#4	7'-6"	157'-6"	105 LBS.	
						TOTAL REBAR WT.	3067 LBS.	

ANCHOR BOLT SCHEDULE				
ITEM	PART NO.	NO. REQ'D.	ANCHOR BOLT SIZE	SPACING
⑤	C40041058	18	1"ø X 4'-3"	EQUALLY SPACED

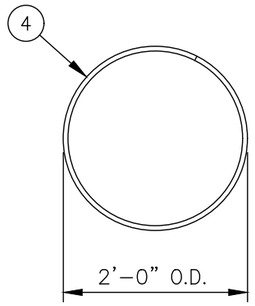
TEMPLATE SCHEDULE			
ITEM	PART NO.	NO. REQ'D.	BOLT CIRCLE
⑥	C30139103	6	9"

CONCRETE REQ'D	ROUND PIERS	SQUARE PIERS
PAD	34.72 CU. YDS.	34.72 CU. YDS.
PIERS	2.73 CU. YDS.	3.47 CU. YDS.
TOTAL	37.45 CU. YDS.	38.19 CU. YDS.

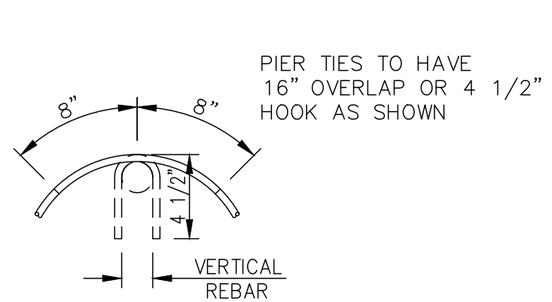
SEE PAGE 2 FOR GENERAL NOTES



REBAR DETAIL
(PIER VERTICAL REBAR)



REBAR DETAIL
(PIER TIES)



PIER TIE HOOK DETAIL

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"

MATERIAL:

TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION

Sabre Industries™ INNOVATION DELIVERED

CONFIDENTIAL

FOUNDATION: 195 FT. MODEL S3TL-HD1

SITE: BANCROFT, NE

CUSTOMER: CALHOUN COMMUNICATIONS INC

JOB NO. 512567		SIZE	DRAWING NO.	REV
DATE	10/14/22	B	512567-F2	0
DRAWN BY	CK			
CHECKED BY	KC		SCALE NONE	PAGE 1 OF 2

GENERAL NOTES

1. CONCRETE SHALL HAVE A MINIMUM 28–DAY COMPRESSIVE STRENGTH OF 4,500 PSI, IN ACCORDANCE WITH ACI 318–14. (2 REBAR TIES REQ'D IN THE TOP 5")
2. REBAR TO CONFORM TO ASTM SPECIFICATION A615 GRADE 60.
3. ALL REBAR TO HAVE A MINIMUM OF 3" CONCRETE COVER.
4. ALL EXPOSED CONCRETE CORNERS TO BE CHAMFERED 3/4".
5. THE FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL REPORT BY CERTIFIED TESTING SERVICES, INC. PROJECT NO. G6813, DATED: 9/29/22.
6. SEE THE GEOTECHNICAL REPORT FOR COMPACTION REQUIREMENTS, IF SPECIFIED.
7. 4.5' OF SOIL COVER IS REQUIRED OVER THE ENTIRE AREA OF THE FOUNDATION SLAB.
8. THE BOTTOM ANCHOR BOLT TEMPLATE SHALL BE POSITIONED AS CLOSELY AS POSSIBLE TO THE BOTTOM OF THE ANCHOR BOLTS.
9. DISTANCE BETWEEN CENTER OF ANCHOR BOLT CAGE AND THE CENTER OF THE PIER NOT TO EXCEED 1/2" WITHOUT APPROVAL FROM ENGINEER OF RECORD.
10. ONE ANCHOR BOLT MUST BE ALIGNED DIRECTLY WITH THE CENTER OF THE TOWER (TYPICAL).

BASE REACTIONS – ANSI/TIA–222–H (WIND/ICE)

TOTAL FOUNDATION		INDIVIDUAL FOOTING	
SHEAR (KIPS)	18.42	SHEAR (KIPS)	11.12
AXIAL (KIPS)	35.8	COMPRESSION (KIPS)	111
MOMENT (FT–KIPS)	1745	UPLIFT (KIPS)	91

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS INCLUDE
FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16"
ANGLES ± 1/2 DEG.
DECIMALS ± .010"

MATERIAL:

TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION

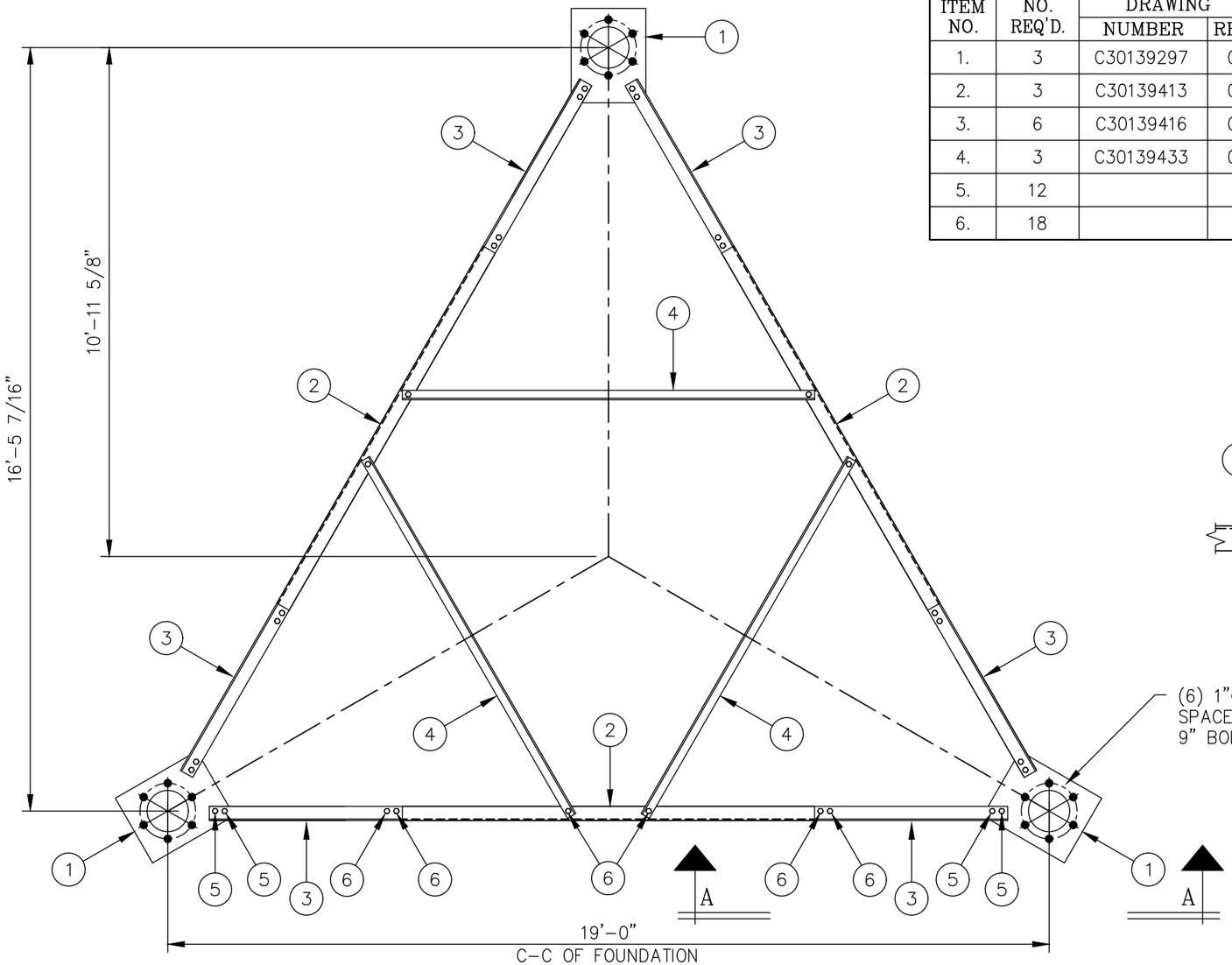
Sabre Industries™
INNOVATION DELIVERED

FOUNDATION: 195 FT. MODEL S3TL–HD1
SITE: BANCROFT, NE
CUSTOMER: CALHOUN COMMUNICATIONS INC

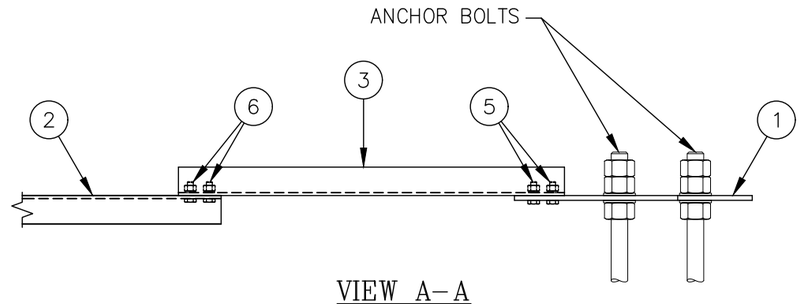
JOB NO. 512567		SIZE	DRAWING NO.	REV
DATE	10/14/22	B	512567–F2	0
DRAWN BY	CK			
CHECKED BY	KC		SCALE NONE	PAGE 2 OF 2

C30400031 LEG TO LEG TEMPLATE

ITEM NO.	NO. REQ'D.	DRAWING NUMBER	DRAWING REV	PART NO.	DESCRIPTION	WEIGHT LBS.	PAINT
1.	3	C30139297	0	C30139297	PLATE, ANCHOR BOLT TEMPLATE, 1"ø A.B. ON A 9"ø B.C.	99	N/R
2.	3	C30139413	0	C30139413	ANGLE, TEMPLATE SUPPORT, 3 X 3 X 3/16 X 10'-0	111	N/R
3.	6	C30139416	0	C30139416	ANGLE, TEMPLATE SUPPORT, 3 X 3 X 3/16 X 4'-1 3/4	92	N/R
4.	3	C30139433	0	C30139433	ANGLE, TEMPLATE SUPPORT, 2 1/2 X 2 1/2 X 3/16 X 9'-0	83	N/R
5.	12			C40026023	BOLT ASSEMBLY, 5/8 ø X 2 A325	6	
6.	18			C40026022	BOLT ASSEMBLY, 5/8 ø X 1 3/4 A325	8	
					TOTAL WEIGHT IN LBS.	399	



PLAN VIEW



VIEW A-A

NOTE:

1. ALWAYS COMPARE THE DIMENSIONS SHOWN ON THIS DRAWING WITH THE PROPER CONCRETE FOUNDATION DRAWING, PRIOR TO PLACING CONCRETE.
2. ONE ANCHOR BOLT MUST BE ALIGNED DIRECTLY WITH THE CENTER OF THE TOWER (TYPICAL AT ALL (3) LEGS).
3. VERIFY ANCHOR BOLT CIRCLE CENTER-TO-CENTER SPACING ON ALL (3) FACES AND ALIGNMENT OF ANCHOR BOLTS WITH THE CENTER OF THE TOWER AT ALL (3) LEGS PRIOR TO PLACING CONCRETE.
4. PROVIDE NECESSARY SUPPORT TO ELIMINATE ANY MOVEMENT DURING CONCRETE PLACEMENT AND CURING.

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"

MATERIAL:

TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION
1	10/13/17	RWM	MWR	REVISED NOTES.

Sabre Industries™
INNOVATION DELIVERED

LEG TO LEG TEMPLATE INSTALLATION FOR MODEL S3TL-HD1 SECTION 13 BASE SPREAD 19'-0" C-C OF FOUNDATION (6) 1"ø A.B. ON A 9"ø B.C.

REF. 9031041		SIZE	DRAWING NO.	REV
DATE	8/15/16	B	C30400031	1
DRAWN BY	DJB			
CHECKED BY	KTW		SCALE None	PAGE 1 OF 1