

**2013 Dakota Skipper Survey Report
(*Hesperia dacotae*)**

**Montana-Dakota Utilities Co. and
Otter Tail Power Company**

Big Stone South to Ellendale Project



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Summary

Montana-Dakota Utilities Co., a division of MDU Resources Group Inc. (Montana-Dakota) and Otter Tail Power Company (Otter Tail) propose to construct the Big Stone South to Ellendale Project (Project). The Project consists of a 345-kilovolt (kV) transmission line approximately 160-170 miles long in North Dakota and South Dakota and the Ellendale 345-kV Substation near Ellendale, North Dakota.

HDR Engineering, Inc., (HDR) was retained to evaluate the presence of the Dakota skipper (*Hesperia dacotae*) and the Poweshiek skipperling (*Oarisma poweshiek*) and their suitable habitat along the Project.

The survey area included a 250-foot-wide corridor, centered on the centerline of the entire transmission line route.

The survey objective was to determine the presence/absence of these butterflies during the peak flight period on tracts that exhibited characteristics consistent with their habitat requirements.

No Dakota skippers or Poweshiek skipperlings were observed during the 2013 surveys along the Project. Butterfly numbers were generally low for all butterfly species. Figure 1 shows the areas surveyed by HDR and its subcontractor Ecological and GIS Services.

Dakota skipper and Poweshiek skipperling surveys were conducted in areas that harbor grassland tracts containing an abundance of native plant species within the survey area.

Suitable habitat capable of supporting the presence of the Dakota skipper and Poweshiek skipperling include native prairie areas adjacent to wetlands and native prairie remnants on slopes where agricultural conversion was minimized due to topography constraints.

The Project in North Dakota is entirely in Dickey County and the Dakota skipper strongholds in McHenry and Ransom counties of North Dakota are avoided. The Project route also avoids South Dakota strongholds in Day and Roberts counties. The Project route does however, cross suitable habitat in Grant County, South Dakota.

Biologists conducted ground surveys between July 9 and July 17, 2013. The survey dates were between the earliest reports of adult Dakota skipper emergence on July 2, 2013 (Skadsen pers. comm.) and the last reported observation of July 18, 2013 (Selby pers. comm.).

Introduction

Montana-Dakota Utilities Co. (Montana-Dakota) and Otter Tail Power Company (Otter Tail) propose to construct, operate, and maintain a 345-kilovolt (kV) transmission line and a new substation. The new transmission line will extend from the new Ellendale 345 kV Substation in Dickey County, North Dakota to the Big Stone South Substation in Grant County, South Dakota. The project is called the Big Stone South to Ellendale Project (Project).

To address regulatory agency concerns about potential impacts to Dakota skippers (*Hesperia dacotae*) and Poweshiek skipperlings (*Oarisma poweshiek*), HDR was retained to conduct presence/absence and habitat surveys for these species. Survey methods were developed with United State Fish and Wildlife Service (USFWS) oversight to identify the extent of risk posed to these candidate species from the Project.

Presence/absence surveys were conducted within the survey area, which is a 250-foot-wide buffer of the route centerline extending from the new Ellendale 345 kV Substation in North Dakota to the Big Stone South Substation in South Dakota. Study sites containing potentially suitable habitat within the survey area were designated as Environmentally Sensitive Areas (ESA) and were used to identify specific locations for targeted surveys.

HDR biologists are experienced in the survey methodology and identification of the Dakota skipper and other prairie obligate butterflies. They have conducted surveys in western Minnesota, eastern South Dakota, and North Dakota and have recorded previously undocumented locations for Dakota skippers in 2006 and 2012. In addition, HDR sub-contracted to Ecological and GIS Services, which is owned by Dr. Gerald Selby who is an established expert and author of studies conducted for prairie obligate butterflies such as the Dakota skipper, Ottoe skipper (*Hesperia ottoe*), Arogos skipper (*Atrytone arogos iowa*), and regal fritillary (*Speyeria idalia*). He has authored the *Status Assessment and Conservation Guidelines for the Poweshiek Skipperling (Oarisma poweshiek) (Parker) (Lepidoptera: Hesperiiidae)*, 2005. Dr. Selby was one of three biologists employed to conduct surveys along the survey area.

The butterfly surveys focused on grassland habitats that exhibit native plant assemblages used by the prairie obligate butterflies such as the Dakota skipper, Ottoe skipper, Arogos skipper, Poweshiek skipperling, and regal fritillary. Surveys collected information on butterfly communities and habitats within the survey area.

Surveyors conducted transect surveys on the ground at sites where the Project crosses suitable grassland habitat. Surveys were designed to document the occurrence of the Dakota skipper or Poweshiek skipperling and other prairie obligate butterfly occurrences and to evaluate habitat crossed by the Project that may be important to the continued presence of these species. Detailed descriptions of 2013 observations are summarized in this report.

Regulatory Framework

Currently, Dakota skippers and Poweshiek skipperlings are candidate species under the Endangered Species Act and are afforded no legal protection. Recent declines in Dakota skipper and Poweshiek skipperling populations noted by biologists and agencies across its range have caused the USFWS to initiate new rules that could list the Dakota skipper as a threatened species and the Poweshiek skipperling as endangered. The proposed rule was published on October 24, 2013 with a public comment period ending on December 23, 2013. It is likely that the USFWS will list the Dakota skipper as a threatened species and Poweshiek skipperlings as endangered with regulatory protection afforded under the Endangered Species Act in 2014.

Dakota Skipper and Poweshiek Skipperling Biology

Dakota Skipper

Dakota skippers complete one generation per year and pass through four developmental stages. The four stages consist of egg, larva, pupa, and adult. The Dakota skipper lives a majority of its life cycle in the larval stage and is dependent upon abundant native grasses for food and shelter. The adult butterflies develop through six or seven larval stages (Dana 1991; McCabe 1981) and spend the winter in ground level or subsurface shelters during either the fourth or the fifth instar (Dana 1991; McCabe 1979, 1981). Larvae resume feeding and undergo two additional molts before they pupate. During the last two instars, larvae of this species shift from buried shelters to horizontal shelters at the soil surface (Dana 1991) in the spring. Adult Dakota skippers emerge from its larval form from mid-June to early July depending upon weather conditions. Males emerge as adults about five days earlier than females (Dana 1991). The adult flight period at a specific location lasts between two to four weeks with mating and egg-laying occurring throughout the period (McCabe 1979, Dana 1991). The average life span or time present at a specific site before emigration is three to 10 days in Minnesota (Dana 1991).

Grassland fire, grass species composition, soil pH, humidity, and extreme low temperatures may be important in determining survival of larva (McCabe 1979, 1981). Dakota skippers occupy high quality prairie, ranging from wet-mesic tallgrass prairie to dry-mesic mixed grass prairie dominated by mid-height grasses (Dana 1991). High quality prairie is defined as sites containing assemblages of native plant species, including native grasses used by larvae for food and shelter and forbs used by adults for nectaring. Low quality prairie and grasslands dominated by invasive or non-native grasses are not used by this species. Swengel and Swengel (1999) reported a significant negative relationship between habitat degradation and Dakota skipper abundance. Changes in vegetation, hydrology, or soil structure adversely affect one or more of the life stages of the Dakota skipper on degraded sites. Fewer native plants, particularly nectar plants, occur on degraded sites, reducing survival of adults that rely on nectar for water and for supplemental fat reserves used to meet energy demands (Dana 1991). In North Dakota, Royer (2004) describes Dakota skipper habitat as low (wet) prairie that occurs on glacial lake deposits where bluestem (*Andropogon*) species are dominant and wood lily (*Lilium philadelphicum*), bluebell bellflower (*Campanula rotundifolia*), and camas (*Zigadenus elegans*) occur in abundance. Other habitat types occupied by this species occur on rolling terrain over glacial moraine deposits that are dominated by grasses of the genus *Stipa* and big or little bluestem. *Echinacea* (coneflower) is a

dominant forb with other species, such as common gaillardia (*Gaillardia aristata*), wood lily, and bellflowers on these sites.

Dakota skippers have been reported at 83 sites in 11 South Dakota counties and possibly have been extirpated from 22 sites and two counties since the 1990's (Cochran and Delphy, 2002). The Project passes through three counties within which the Dakota skipper has previously been reported: Brown, Day, and Grant.

Poweshiek Skipperling

The Poweshiek skipperling was first described in 1870 from a specimen collected near Grinnell, Iowa. Poweshiek skipperling is a small butterfly that is a member of the family Hesperidae and subfamily Hesperinae (grass skippers). The Poweshiek skipperling inhabits high quality native wet-mesic to dry tall-grass prairie from north-central Iowa through Minnesota and the eastern portions of North Dakota and South Dakota, and more disjunct wet-mesic prairie habitats in Wisconsin and fen habitats in Michigan (Selby 2005). The species is presumed to be extirpated from Indiana and Illinois and from many sites within occupied states. Recent surveys (2005-2012) have documented widespread population declines in every state where the Poweshiek skipperling occurs.

Poweshiek skipperlings complete one generation per year and pass through four developmental stages. The four stages consist of egg, larva, pupa, and adult. The Poweshiek skipperling lives a majority of its life cycle in the larval stage and is dependent upon abundant native sedges, rushes, and grasses for food and shelter. The adult butterflies develop through possibly nine larval stages before developing a chrysalis and imago stages (McAlpine 1972). No studies of larval food plants have been conducted for the Poweshiek skipperling. However, the most recent observations have suggested that some populations prefer prairie dropseed (*Sporobolus heterolepis*), little bluestem (*Schizachyrium scoparium*), porcupine grass (*Stipa spartea*) (Dana 1989). Other cursory observations include oviposition on unidentified sedge and spike-rushes. The adult Poweshiek skipperling emerges from its larval form from mid-June through July depending upon weather conditions. The flight period varies across the Poweshiek skipperling range and from year to year. Males emerge as adults earlier than females. In Iowa and Minnesota adult Poweshiek skipperling flights are highly synchronous with the Dakota skipper (*Hesperia dacotae*), regal fritillary (*Speyeria idalia*), and wood nymph (*Cercyonis pegala*) where they occur together (Selby 2005). Nectar plant use varies across the geographic range of the Poweshiek skipperling. Swengel and Swengel (1999) noted that yellow ox-eye (*Heliopsis helianthoides*) and purple coneflower (*Echinacea angustifolia*) were favorite nectar plants during surveys they conducted in Iowa, Minnesota, and North Dakota from 1990-1997. On dry prairie habitats in Iowa, Minnesota, and South Dakota, purple coneflower is used to the exclusion of other species (Selby 2005).

Opler and Krizek (1984) describe Poweshiek skipperling habitat as native tallgrass prairie. Other habitat preferences across its range include fens, grassy lake and stream margins, moist meadows, and wet-mesic to dry tallgrass prairie. Prior to recent population declines, Poweshiek skipperlings were recorded on a full range of prairie vegetation including; degraded, semi-

degraded, and high quality prairie types. Some authors note that its abundance is higher at topographically diverse sites that support wet and dry prairie. In Minnesota where almost half of the Poweshiek records occur, sites that have harbored the highest Poweshiek skipperling densities during the 1990's and early 2000 were characterized as large sites with a variety of topographic influence on habitat types. These sites harbor a variety of habitats that include wet-meadow, mesic, dry-mesic, and dry habitats.

Survey Area

The Project from west to east starts at the new Ellendale 345 kV Substation in Dickey County, North Dakota to the Big Stone South Substation in Grant County, South Dakota (Figure 1). The Project is approximately 160 to 170-miles-long. The survey area included areas of potentially suitable habitat (ESAs) within a 250-foot-wide buffer centered along the Project route.

Land use within the survey area, include cropland, pasture, and rural residential development. Most of the residential development occurs near cities and towns. Most roads within in the survey area are secondary highways, rural gravel roads, or section roads. Common crops on agricultural lands include corn and soybeans.

Methods

The methods discussed in this section were developed by HDR and approved by the USFWS.

Survey Timing and Location

Royer, 2001, Marrone, 2002, Schlicht, 1997, and Dana, 1991 indicate that the flight period for adult Dakota skippers occurs between mid-June and early July. HDR utilized Dr. Selby's degree-day model, communication with other biologists conducting surveys, and plant phenology to predict when Dakota skippers and Poweshiek skipperlings would emerge from pupae and begin the adult flights. Royer and Marrone (1992) noted that the following plants are almost always present and blooming during the Dakota skipper flight period: wood lily (*Lilium philadelphicum*), harebell (*Campanula rotundifolia*), alkali grass (*Zigadenus elegans*), upright coneflowers (*Echinacea* spp.), and blanket flower (*Gaillardia aristiata*).

HDR selected Dakota skipper and Poweshiek skipperling ESAs to be surveyed by using information collected during October 2012 prairie and grassland surveys. Sites exhibiting heavy anthropogenic disturbance such as grazing, wetland drainage, haying, fire suppression, moderate herbicide exposure, siltation, invasive species dominance, a lack of native forbs, or tree planting did not meet the characteristics of an ESA as defined below.

Grassland sites exhibiting minimum characteristic including the following three field conditions were flagged for further review during 2013 Dakota skipper/Poweshiek skipperling surveys:

1. Sites dominated by native graminoids or co-dominant with shrubs, throughout unshaded portions of the site, but overall plant species diversity is low because of the loss of sensitive species.
2. Invasive species may be moderately abundant, including *Bromus inermis*, *Poa pratensis*, *P.compressa*, *Phleum pretense*, *Medicago lupulina* *Trifolium repens*, or *Agrostis stolonifera*, but the site is still recognizable as harboring native graminoids and forbs as dominant species.
3. On sites grazed by cattle, the ground surface may have undergone moderate compaction and have terraced slopes but native graminoids and forbs are present as dominant species.

Sites exhibiting this minimum level of site alteration or that exhibited plant community characteristics indicative of native prairie were mapped on aerial photographs. Polygons were then digitized around these land areas using Geographic Information System (GIS). These areas were termed ESA for the purposes of this Project. HDR surveyed these parcel areas as well as areas that appeared to be native grassland on aerial photographs, and on USFWS grassland or wetland easements.

Figure 1 includes an overview of each ESA included in the survey.

Transect Surveys

Surveyors used a straight-line-transect method (Boyce/Brown Method, Brown and Boyce 1998) on areas identified as ESAs during prior land use assessments. Transects were oriented along the centerline of the Project and 125 feet to each side of and parallel to the centerline. Transects were walked at a steady pace in areas identified for survey. Biologists focused on sites where other butterflies were observed and on suitable habitat where native grasses and an abundance of nectar sources including *Echinacea* sp. occurred; more time was allotted to higher quality habitats than to areas degraded by plowing, overgrazing or where non-native grasses, trees or shrubs dominated the landscape. Species were identified using the following three methods of verification:

- (1) Visual identification through close-focus binoculars
- (2) Visual identification through photography
- (3) Capture, identification, and release

Total time walking the transect was recorded using the tracklog function of a hand-held GPS; all butterflies observed were recorded as point locations with this same data logging function to correlate with the number of butterflies counted. Searches incorporated observation windows up to 5 meters ahead, 5 meters to each side of the observer and 5 meters above the ground (Selby, 1990) within the larger 250-foot survey area. Transect counts were continuous, even when crossing ravines or other areas of poor quality habitat.

Results

Transect Surveys

Surveys for Dakota skipper were conducted between July 9, 2013 and July 17, 2013. Weather during surveys for the Dakota skipper was generally seasonal to cool with some surveys being conducted during overcast periods. Generally, the temperatures did not appear to affect butterfly activity. Surveys conducted by other expert lepidopterists in Minnesota, South Dakota, and North Dakota noted the same conditions and the same butterfly responses during 2013. Dakota skippers were observed beginning July 2, 2013, until July 17, 2013, at sites in Grant County, South Dakota, by Dennis Skadson and Clay County, Minnesota by Dr. Gerald Selby, respectively. The presence of Dakota skippers at sites evaluated by others conducting surveys for the same species indicate that surveys conducted by HDR fell within suitable detection limits for the Dakota skipper in 2013.

HDR conducted surveys at 11 ESAs in 2013 and no Dakota skippers or Poweshiek skipperlings were observed. Prairie obligate butterfly observations included three records of regal fritillary (*Speyeria idalia*) at ESAs 3 and 7. ESAs 3 and 7 exhibit an abundance of native grasses, but no forbs. It appeared that the absence of forbs is related to management techniques employed by a majority of landowners in the area. HDR biologists observed native forbs in some road ditches or in areas where wetlands prevented access. Observations of tawny-edged (*Polites themistocles*), Peck's skippers (*P. peckius*), long-dash (*P. mystic*), and regal fritillaries were all associated with roadside prairies where forbs were available as a nectar source.

The Site Survey Summaries provides a detailed description of each ESA surveyed by HDR in 2013.

Site Survey Summaries

ESA 3 – Grant County, South Dakota

Date: July 12, 2013

Surveyor(s): Scott Krych, Jon Schubbe

Time: 10:15 a.m. – 12:13 p.m.

Weather: Temp = 85° F Wind = 4-7 mph W Sky = 95% clear

Dakota Skippers Observed: None

Prairie Obligate Butterflies Observed: *Speyeria idalia* (regal fritillary) - 2 observation in road ditches

Site Notes:

These expansive grasslands appear to be suitable habitat from the road, but are devoid of nectar sources or any forb upon close inspection. Butterfly activity was absent except near isolated road ditches where nectar was present. Two regal fritillaries were observed in road ditches near the area surveyed. Surveys were conducted under clear skies and a temperature of 85° Fahrenheit

(F). Most of these sites are lightly grazed and the majority of the sites could be considered good quality mesic or dry hill prairie if forbs were present. The lack of nectar resources precludes the possibility of rare butterfly presence occurring on these parcels in the near future. Although larval forms of the target species rely on grasses for maturation and life-phase development, adults need the nectar sources for re-hydration and energy. Absence of these vital resources eliminates a site's usefulness to the targeted butterflies. Native grasses dominate these areas and include species such as porcupine grasses (*Stipa sativa*, *S. comata*), side oats grama (*Bouteloua cirtipendula*), and little bluestem (*Schizachyrium scoparium*).

Plant Phenology:

Rudbeckia hirta (black-eyed Susan) – ray florets mid; disk florets early

Ratibida columnifera (prairie coneflower) – ray florets full; disk florets mid



Photo 1. Characteristic view of ESA 3 showing expansive prairie habitat that is absent of nectar sources.

ESA 7 – Grant County, South Dakota

Date: July 12, 2013

Surveyor(s): Scott Krych, Jon Schubbe

Time: 9:50 a.m. – 9:55 a.m.

Weather: Temp = 82° F Wind = 5-7 mph S Sky = 85% clear

Dakota Skippers Observed: None

Prairie Obligate Butterflies Observed: None

Site Notes:

Some of this site showed signs of gravel extraction and some non-native forbs with a very small component of vervain (*Verbena stricta*) occurred near the road. Most of this area is pastured grassland dominated by side-oats grama (*Bouteloua cirtipendula*), big bluestem (*Andropogon gerardii*), and cool season grasses such as *Bromus inermis*, *Agropyron repens*, *Poa pratensis*, with weedy forbs such as *Melilotus* spp.

Plant Phenology:

No forbs present

ESA 9 – Grant County, South Dakota

Date: July 12, 2013

Surveyor(s): Scott Krych, Jon Schubbe

Time: 9:30 a.m. – 9:45 a.m.

Weather: Temp = 82° F Wind = 4-7 mph NW Sky = 90% clear

Dakota Skippers Observed: None

Prairie Obligate Butterflies Observed: None

Site Notes:

This site is a heavily grazed area adjacent to the Big Sioux River. There is grassland habitat adjacent to the river, but it shows signs of grazing and trampling from cattle. Forbs were absent from most of this area. Butterfly activity was absent, despite some nectar producing forbs. Much of this site is heavily grazed and areas adjacent to the river are dominated by prairie cord grass (*Spartina pectinata*).

Plant Phenology:

Verbena stricta (vervain) – bloom mid



Photo 2. Characteristic view of ESA 9 showing effects of grazing and lack of nectar sources.

ESA 15 – Day County, South Dakota

Date: July 12, 2013

Surveyor(s): Scott Krych, Jonathan Schubbe

Time: 8:04 a.m.

Weather: Temp = 80° F Wind = 10-15 MPH: W Sky = 75% clear

Dakota Skippers Observed: None

Prairie Obligate Butterflies Observed: None

Site Notes:

This site is dominated by smooth brome and has no available prairie obligate habitat. No pedestrian searches conducted.



Photo 3. Portion of ESA 15 showing *Bromus* and *Phalaris* dominated grassland.

ESA 18 – Day County, South Dakota

Date: July 11, 2013

Surveyor(s): Scott Krych, Jon Schubbe

Time: 4:04 p.m.

Weather: Temp = 81° F Wind = 10-15 MPH: W Sky = 75% clear

Dakota Skippers Observed: None

Prairie Obligate Butterflies Observed: None

Site Notes:

This site was inaccessible due to landowner permission. Observations from 0.25 mile away indicate that the site may harbor some habitat that could support prairie obligate butterflies.

ESA 22 – Day County, South Dakota

Date: July 11, 2013

Surveyor(s): Scott Krych, Jon Schubbe

Time: 3:31 p.m.

Weather: Temp = 85° F Wind = 5-7 mph W Sky = 65% clear

Dakota Skippers Observed: None

Prairie Obligate Butterflies Observed: None

Site Notes:

This site is dominated by smooth brome and has no available prairie obligate habitat. No pedestrian searches conducted.

ESA 32 – Brown County, South Dakota

Date: July 11, 2013

Surveyor(s): Scott Krych, Jon Schubbe

Time: 8:40 a.m. – 9:12 a.m.

Weather: Temp = 79° F Wind = 10-15 mph Sky = 90% clear

Dakota Skippers Observed: None

Prairie Obligate Butterflies Observed: None

Site Notes:

The most northerly parcel in this group harbors some native prairie grasses and forbs. This parcel shows evidence of moderate to heavy grazing. No butterfly activity was documented during the survey. The remaining parcels designated as ESA 32 are dominated by smooth brome, reed canary grass (*Phalaris arundinacea*), and cattails (*Typha* spp.) or other non-native grasses and have no available prairie obligate habitat. No pedestrian searches were conducted on these parcels.



Photo 4. Portion of ESA 32 showing grazed nature of grasslands evaluated for Dakota skipper and Poweshiek skipperling presence.



Photo 5. ESA 32 parcels dominated by *Bromus* and *Phalaris*.

ESA 45 – Brown County, South Dakota

Date: July 10, 2013

Surveyor(s): Scott Krych, Jon Schubbe

Time: 5:40 p.m.

Weather: Temp = 75° F Wind = 0 mph Sky = 90% clear

Dakota Skippers Observed: None

Prairie Obligate Butterflies Observed: None

Site Notes:

This site is dominated by smooth brome and has no available prairie obligate habitat. No pedestrian searches conducted.

ESA 46 – Brown County, South Dakota

Date: July 10, 2013

Surveyor(s): Jon Schubbe

Time: 5:00 p.m.

Weather: Temp = 80° F Wind = 0 mph Sky = 90% clear

Dakota Skippers Observed: None

Prairie Obligate Butterflies Observed: None

Site Notes:

This site is dominated by smooth brome and has no available prairie obligate habitat. No pedestrian searches conducted.

ESA 47 – Brown County, South Dakota

Date: July 10, 2013

Surveyor(s): Jon Schubbe

Time: 4:30 p.m.

Weather: Temp = 80° F Wind = 0 mph Sky = 90% clear

Dakota Skippers Observed: None

Prairie Obligate Butterflies Observed: None

Site Notes:

This site is dominated by smooth brome and has no available prairie obligate habitat. No pedestrian searches conducted.

Conclusions

Surveyors evaluated 11 ESAs for the presence or absence of Dakota skippers and the Poweshiek skipperlings. Surveys were conducted by HDR and its subcontractor between July 9 and July 12, 2013. No Dakota skippers or Poweshiek skipperlings were observed during the 2013 surveys along the Project. Low butterfly numbers across the survey area were observed and documented. The low numbers are likely due to the limited amount of suitable habitat required by these butterfly species. Of the suitable habitat that was present in the survey area, important nectar sources and forb species were lacking due to land spraying practices. Four other suitable habitat areas that could harbor Dakota skippers and Poweshiek skipperlings were viewed from public rights-of-way in Brown and Day counties because they were inaccessible due to landowner permission. These four ESAs contain suitable habitat and should be surveyed after landowner access granted. HDR documented regal fritillaries in road ditches where native prairie habitats occur in Grant County along the survey area near ESA 3.

To determine when surveys should be conducted, HDR contacted other professionals conducting Dakota skipper surveys in Minnesota and North Dakota, observed plant phenology, and modeled the predicted emergence of adult skippers. Degree-day models predicted the emergence of adults to take place during the first week in July with the peak flights anticipated as mid-July. The emergence of Dakota skippers across its range during 2013 was limited to one known site in South Dakota and one in northwestern Minnesota. The first documented sighting in South Dakota was on July 3rd and was not within the Project.

The protocol used to survey for these butterflies on this Project is consistent with those used by other lepidopterists searching for Dakota skippers and Poweshiek skipperling in the Midwest. Due to the lack of suitable habitat that these butterfly species require found within the survey area, their presence is not likely.

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Figure 1: Overview and Detailed Survey Area

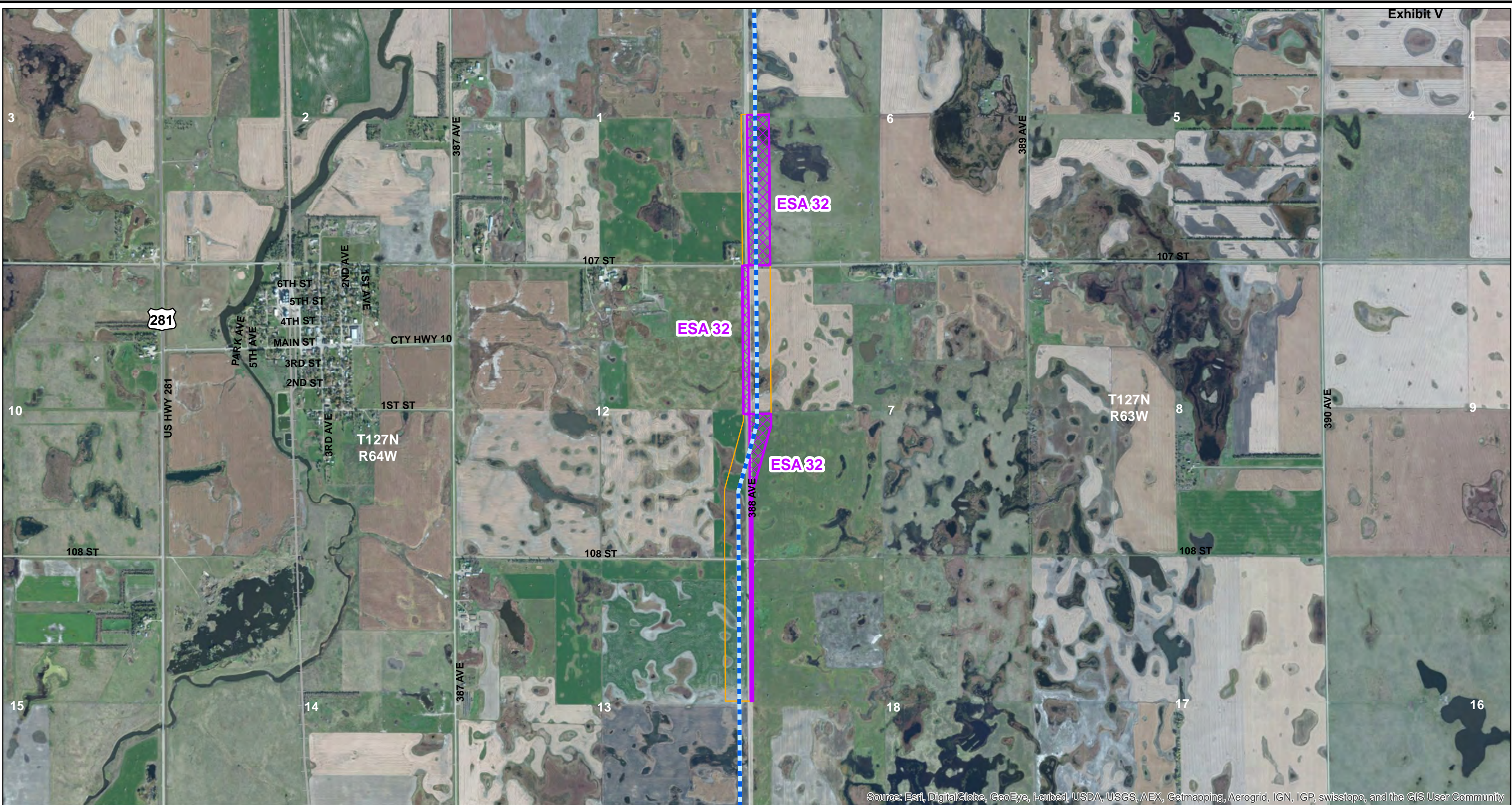
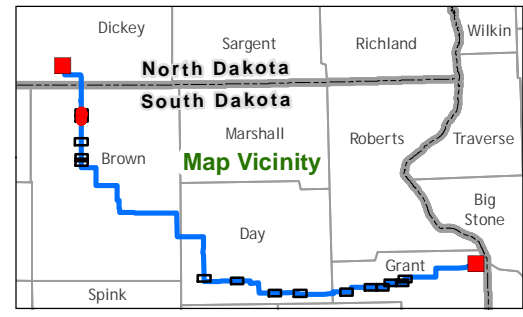
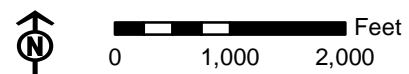


Exhibit V

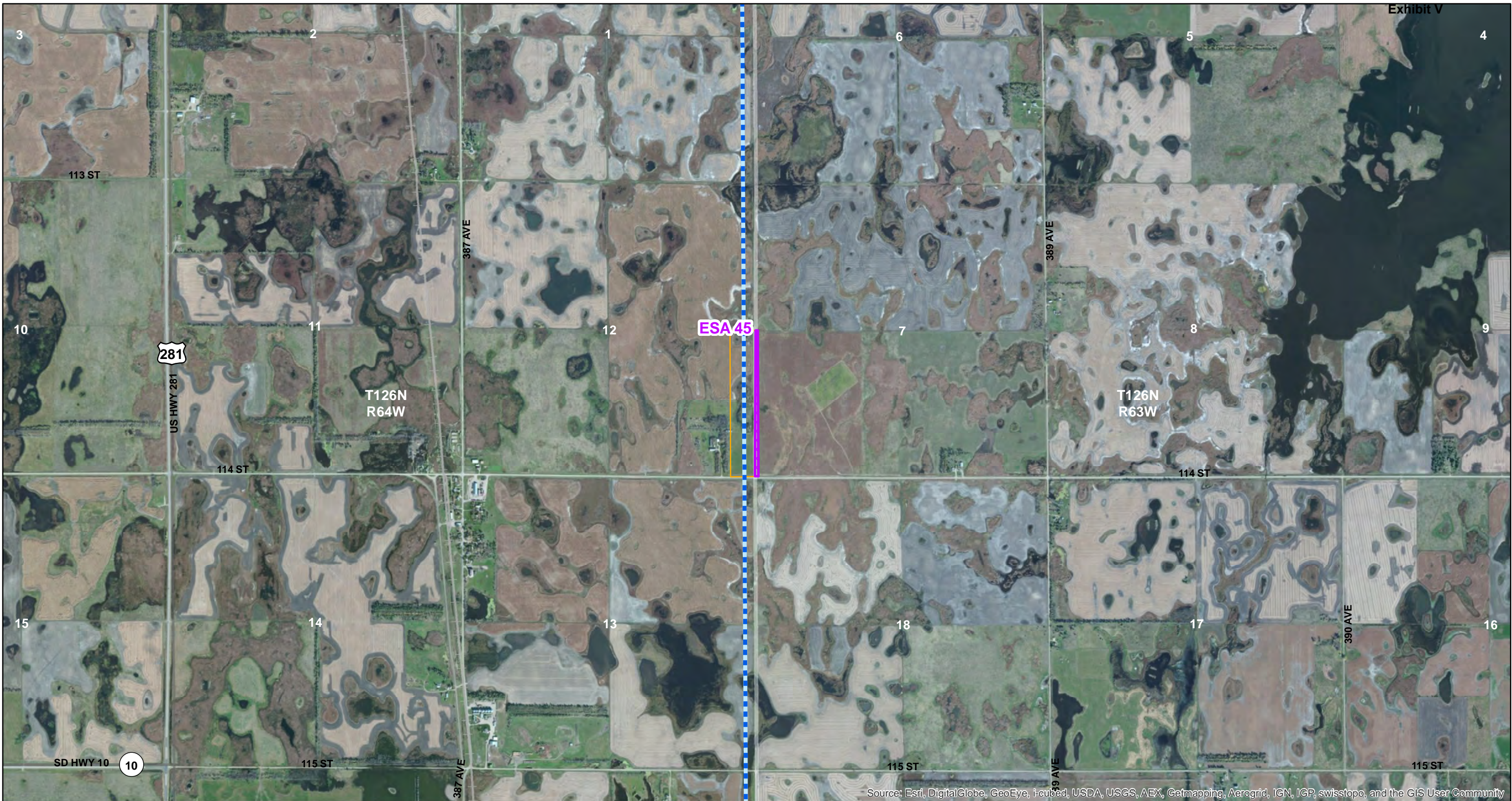


- Project End Point
- Project Centerline
- Environmentally Sensitive Area Survey (potentially suitable habitat)**
- 2013 Pedestrian Survey
- 2013 Windshield Survey

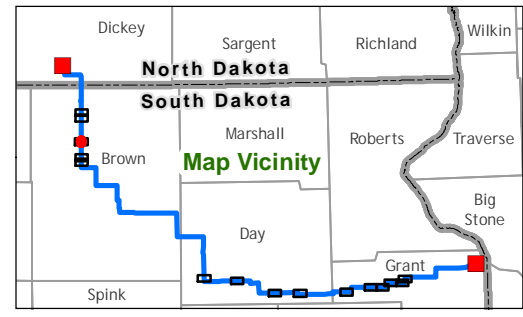
Figure 1: Page 1 of 11
Dakota Skipper Survey Area
Big Stone South to Ellendale
345 kV Transmission Line Project



BSS+E
 Big Stone South to Ellendale
 Scale 1:20,000

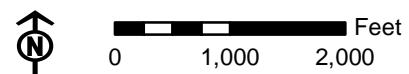


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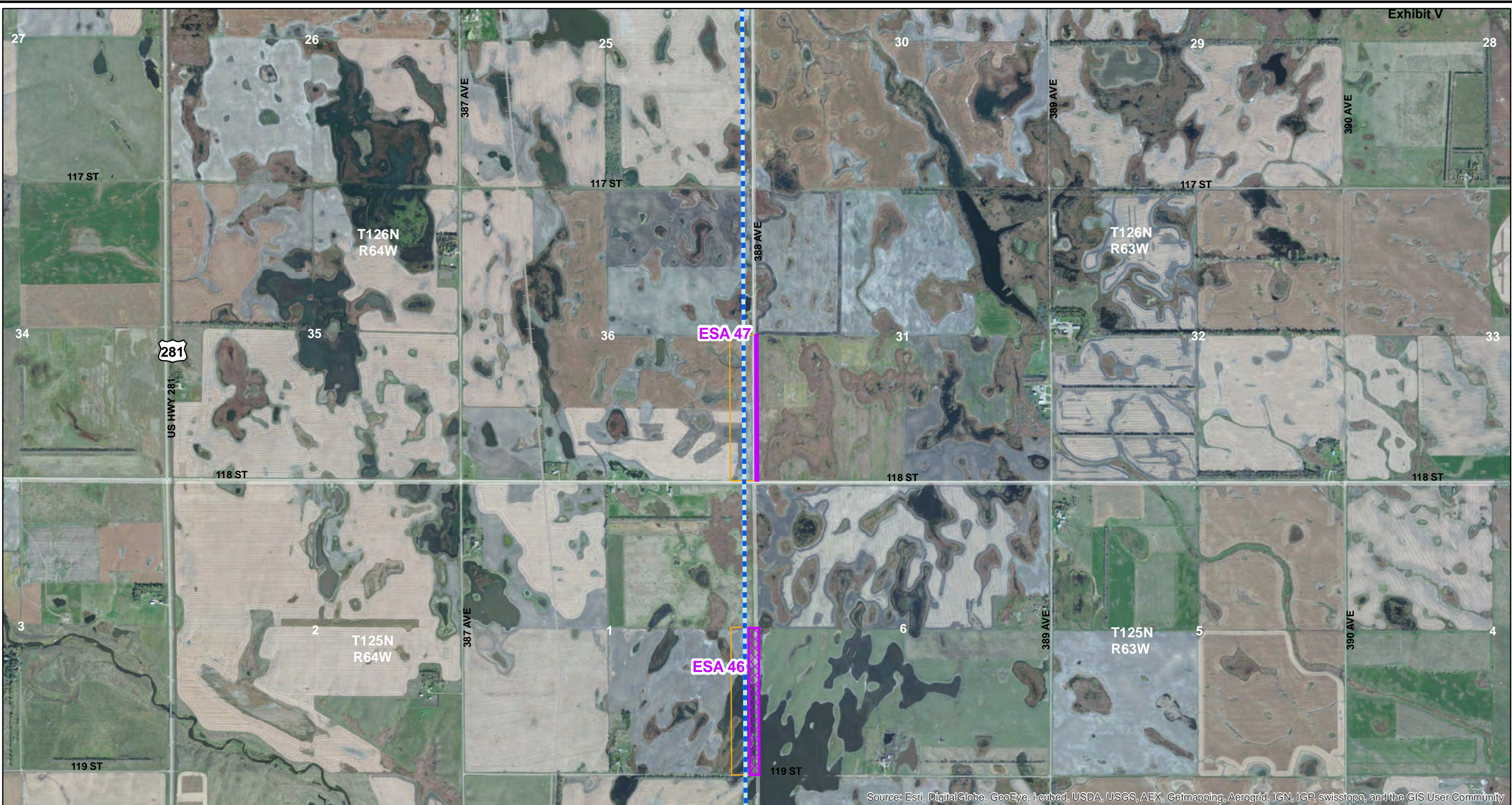


- Project End Point
 - Project Centerline
 - 2013 Pedestrian Survey
 - 2013 Windshield Survey
- Environmentally Sensitive Area Survey (potentially suitable habitat)**

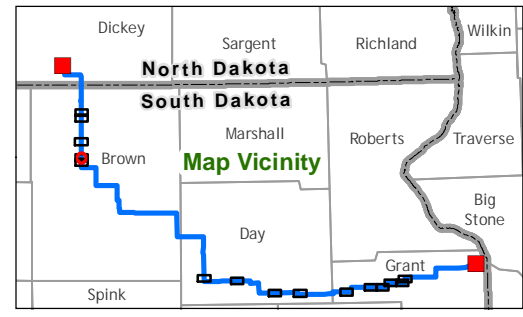
Figure 1: Page 2 of 11
Dakota Skipper Survey Area
Big Stone South to Ellendale
345 kV Transmission Line Project



BSS+E
 Big Stone South to Ellendale
 Scale 1:20,000

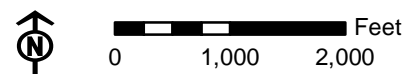


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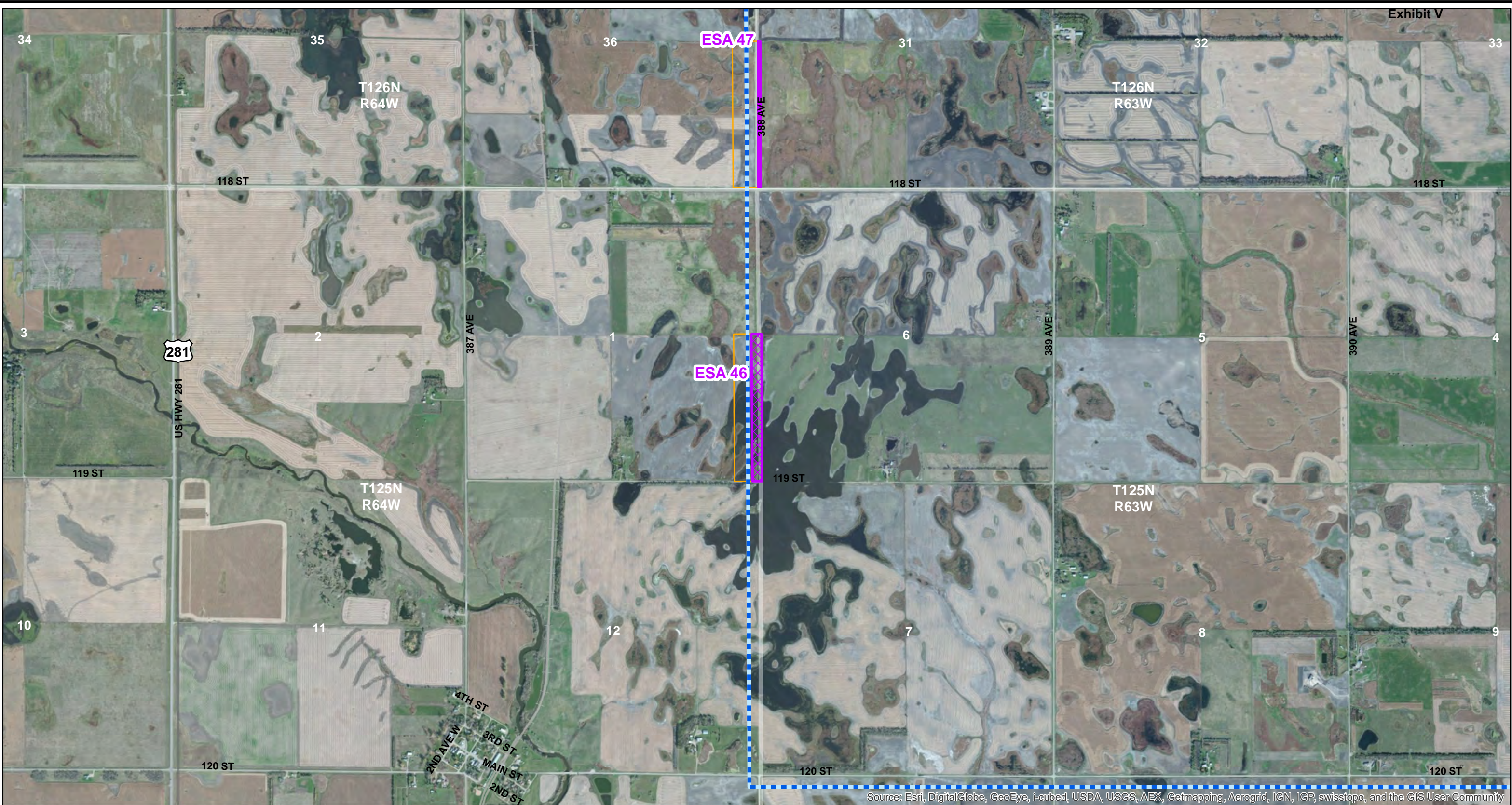


- Project End Point
- Project Centerline
- Environmentally Sensitive Area Survey (potentially suitable habitat)
- 2013 Pedestrian Survey
- 2013 Windshield Survey

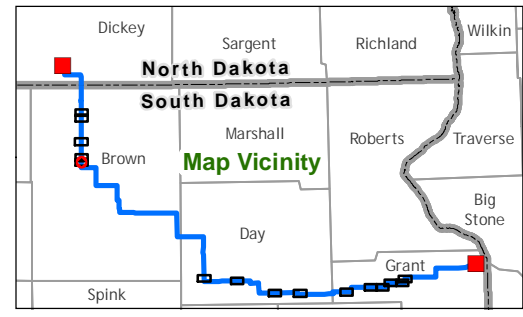
Figure 1: Page 3 of 11
Dakota Skipper Survey Area
Big Stone South to Ellendale
345 kV Transmission Line Project



BSS+E
 Big Stone South to Ellendale
 Scale 1:20,000

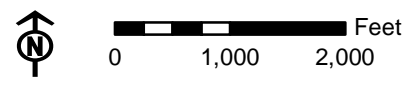


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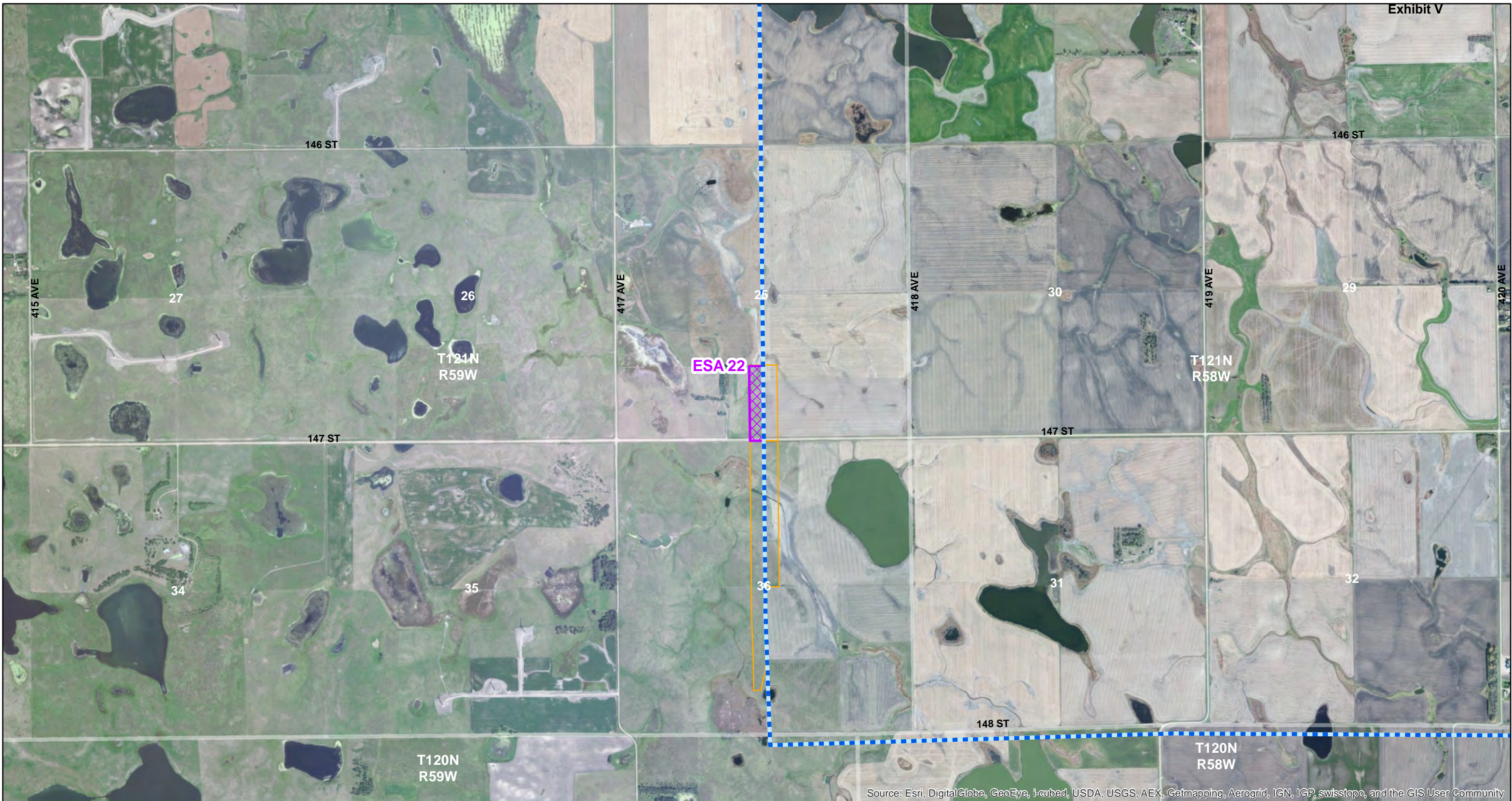


- Project End Point
- Project Centerline
- Environmentally Sensitive Area Survey (potentially suitable habitat)
- 2013 Pedestrian Survey
- 2013 Windshield Survey

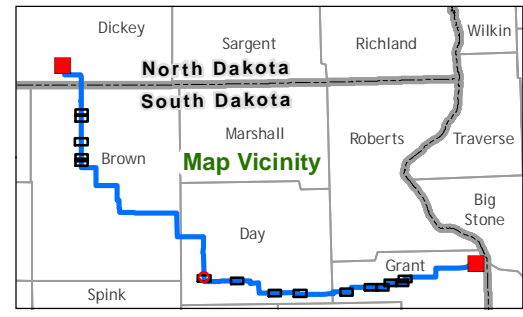
Figure 1: Page 4 of 11
Dakota Skipper Survey Area
Big Stone South to Ellendale
345 kV Transmission Line Project



BSS+E
 Big Stone South to Ellendale
 Scale 1:20,000

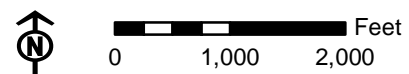


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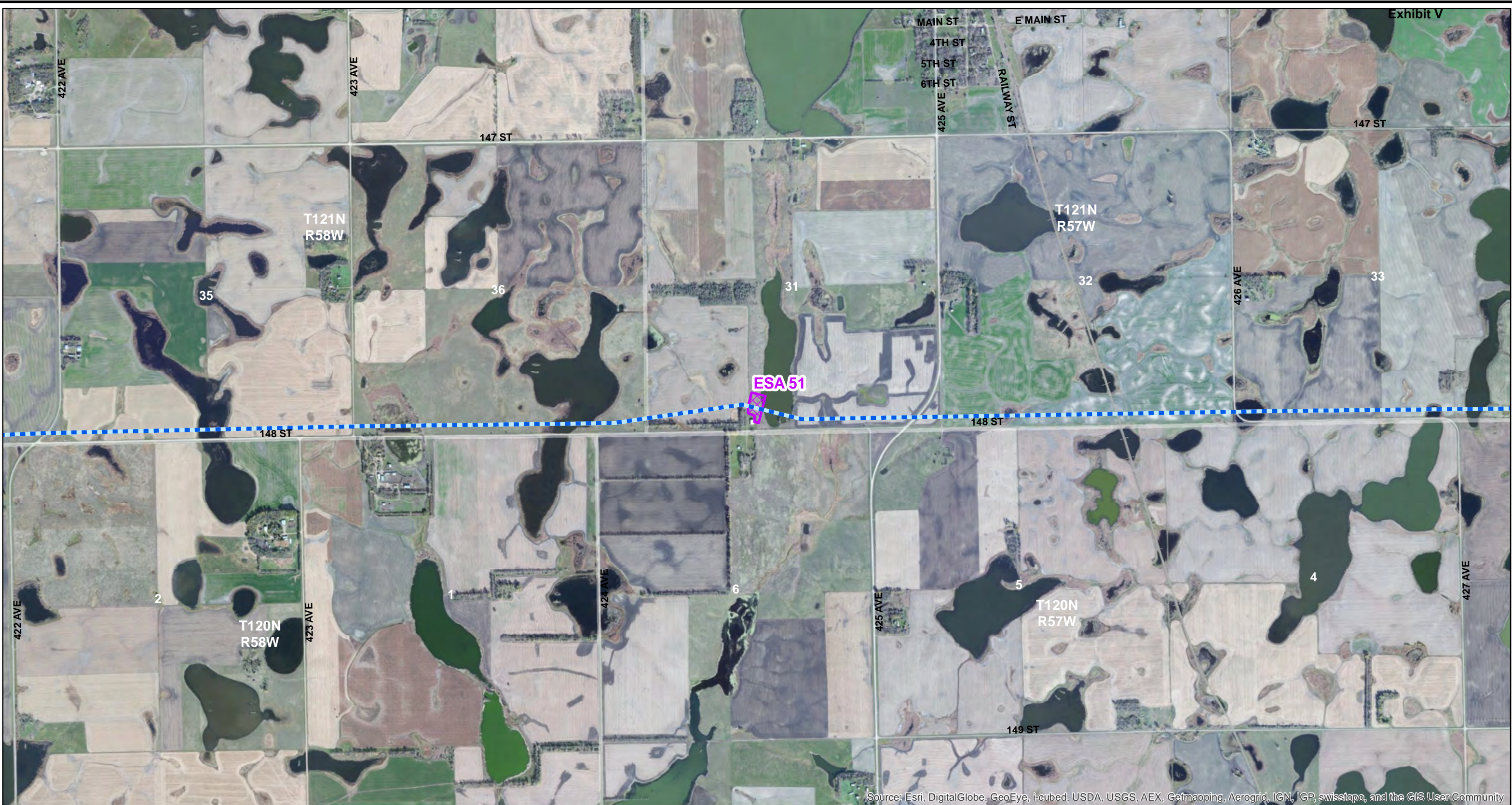


- Project End Point
 - Project Centerline
 - 2013 Pedestrian Survey
 - 2013 Windshield Survey
- Environmentally Sensitive Area Survey (potentially suitable habitat)**

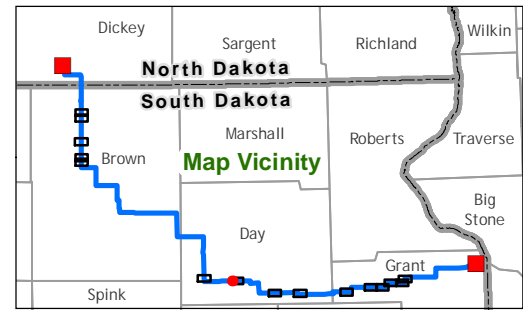
Figure 1: Page 5 of 11
Dakota Skipper Survey Area
Big Stone South to Ellendale
345 kV Transmission Line Project



BSS+E
 Big Stone South to Ellendale
 Scale 1:20,000

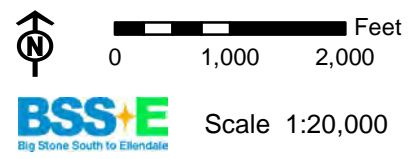


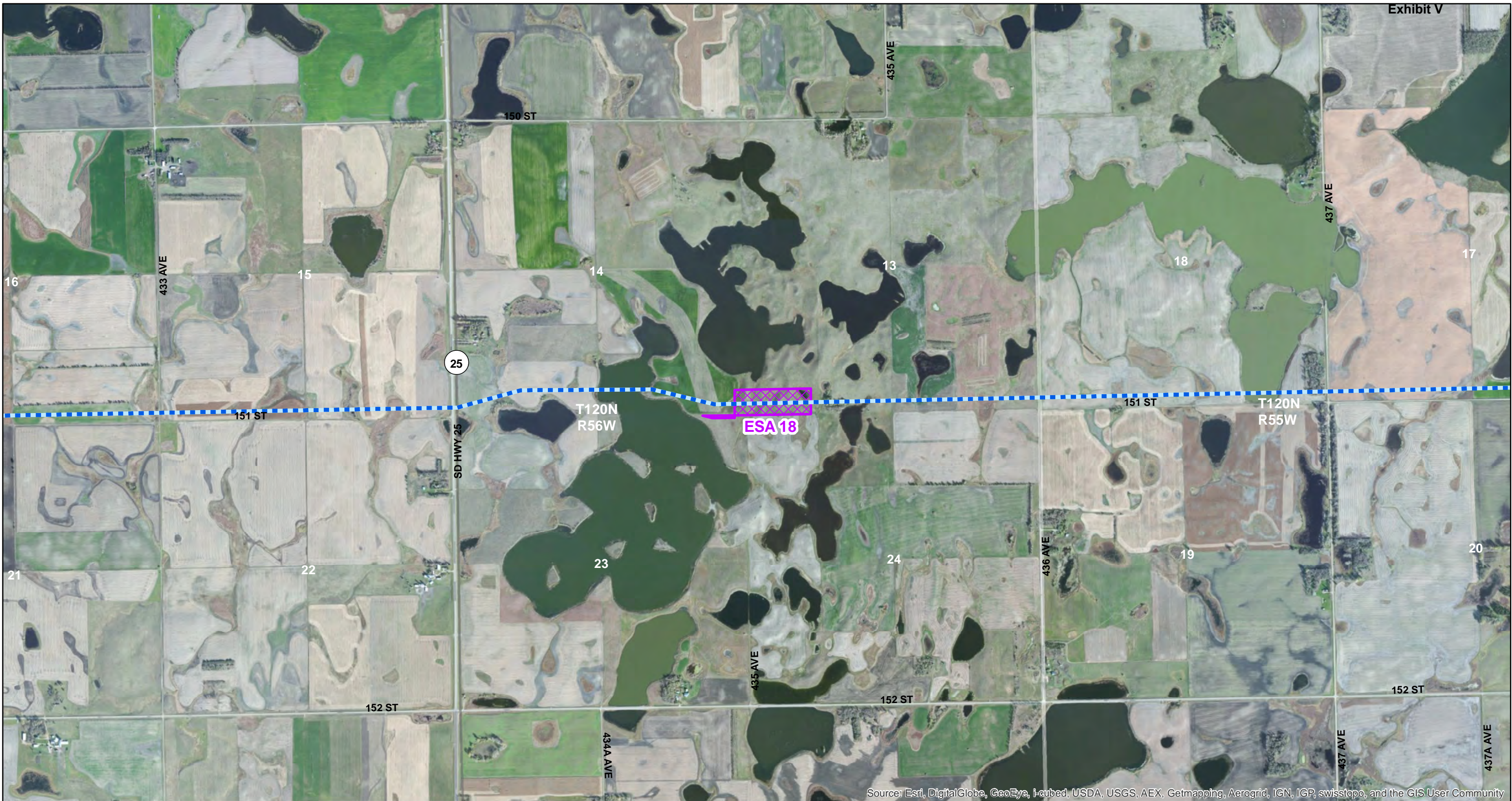
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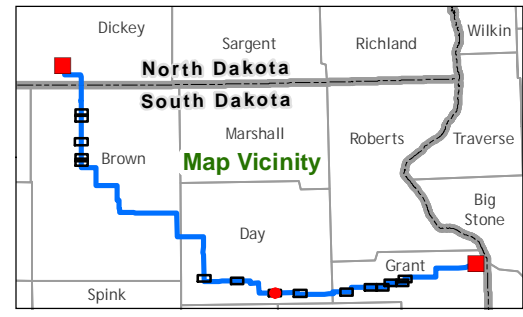
- Project End Point
 - Project Centerline
 - 2013 Pedestrian Survey
 - 2013 Windshield Survey
- Environmentally Sensitive Area Survey (potentially suitable habitat)**

Figure 1: Page 6 of 11
Dakota Skipper Survey Area
Big Stone South to Ellendale
345 kV Transmission Line Project



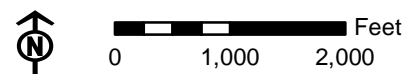


Source: Esri, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



- Project End Point
 - Project Centerline
 - 2013 Pedestrian Survey
 - 2013 Windshield Survey
- Environmentally Sensitive Area Survey (potentially suitable habitat)**

Figure 1: Page 7 of 11
Dakota Skipper Survey Area
Big Stone South to Ellendale
345 kV Transmission Line Project



BSS+E
 Big Stone South to Ellendale
 Scale 1:20,000

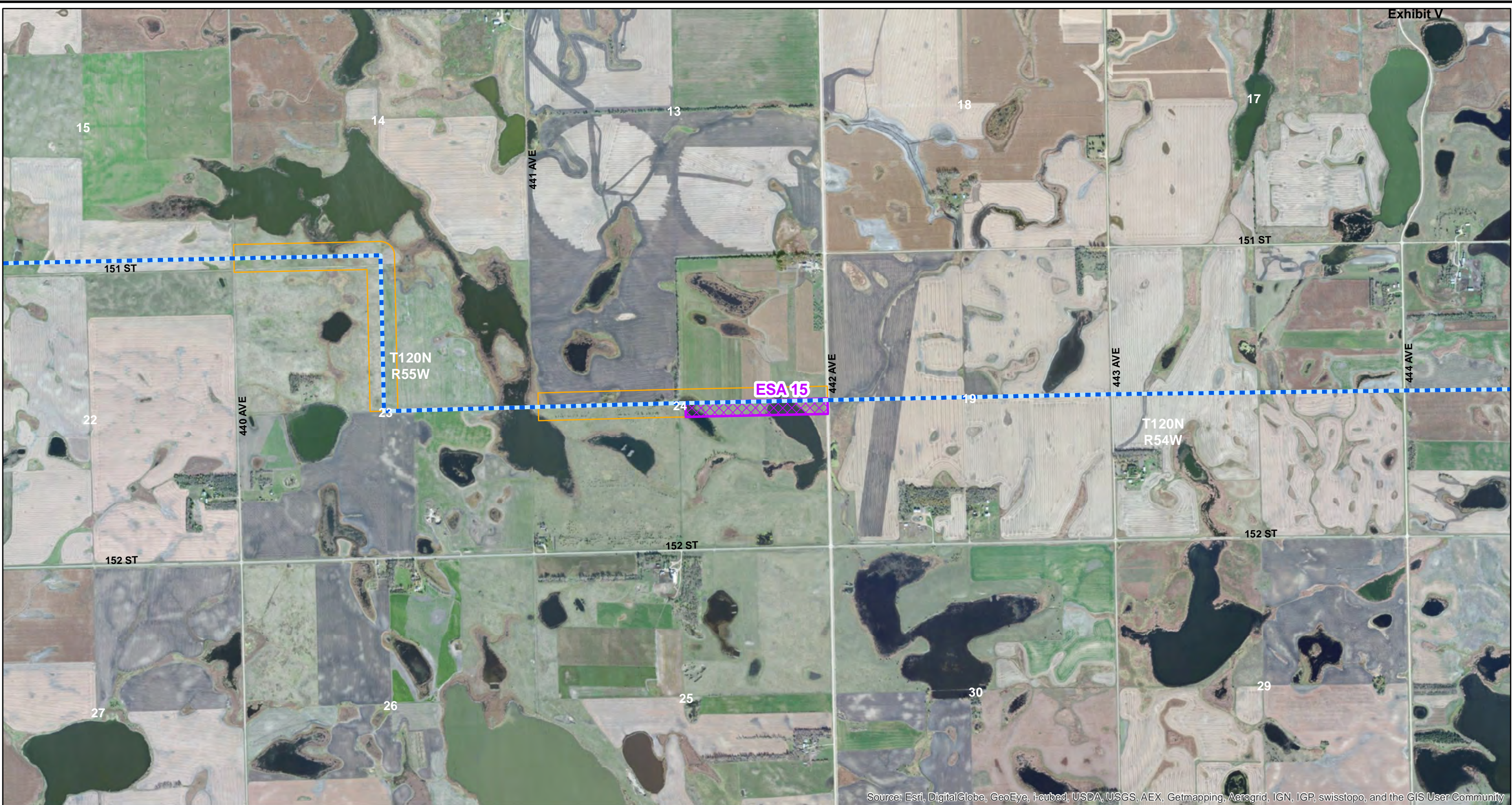
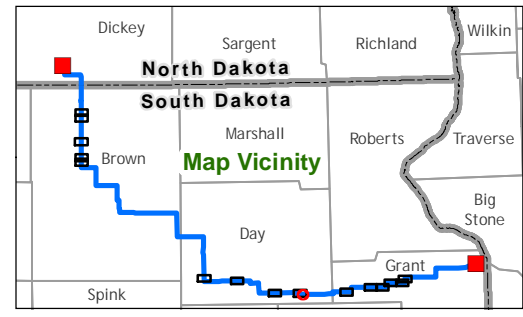


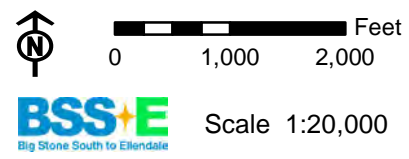
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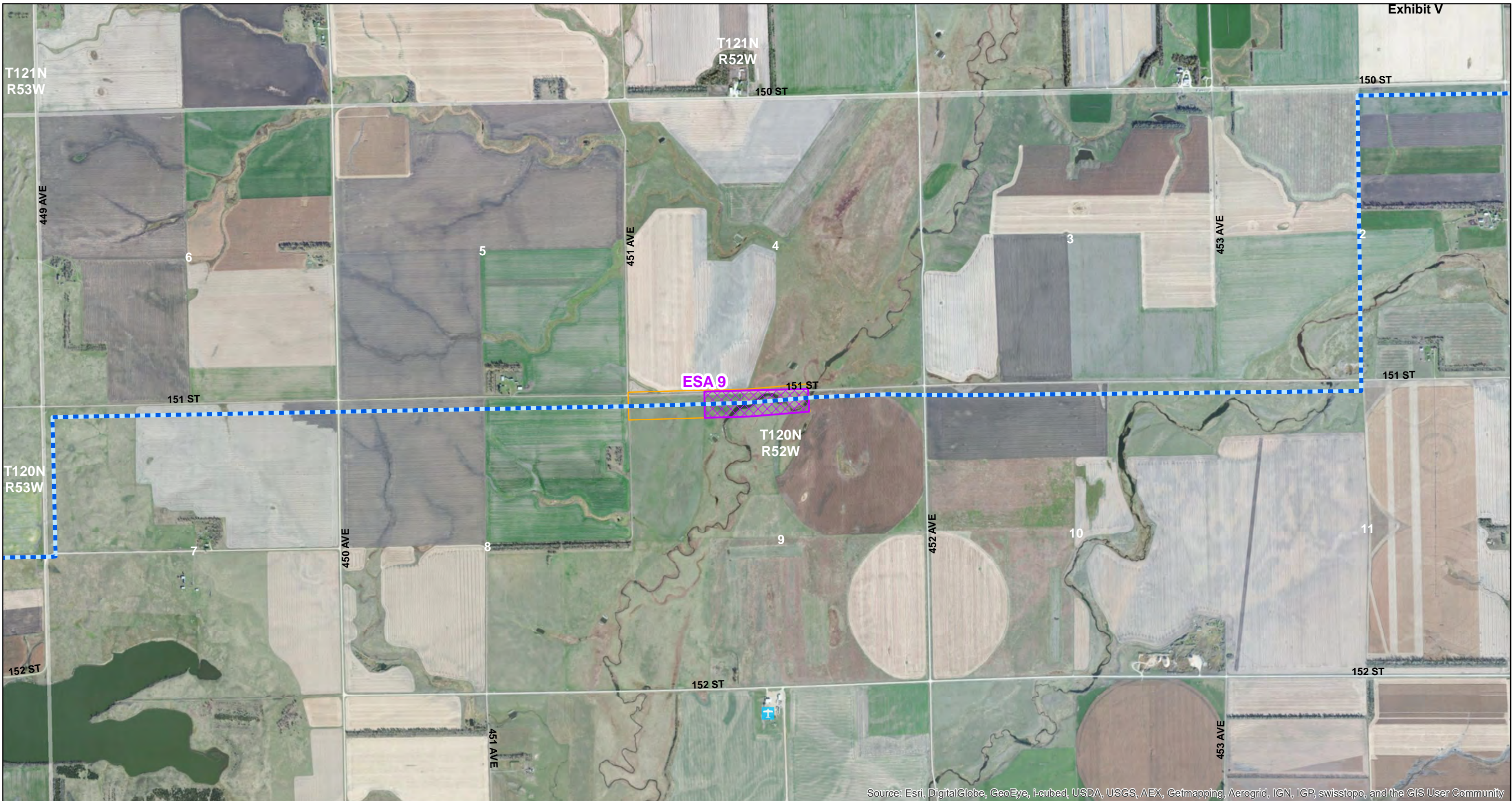
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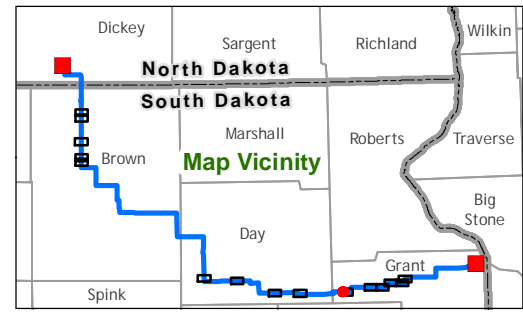
- Project End Point
 - Project Centerline
 - 2013 Pedestrian Survey
 - 2013 Windshield Survey
- Environmentally Sensitive Area Survey (potentially suitable habitat)**

Figure 1: Page 8 of 11
Dakota Skipper Survey Area
Big Stone South to Ellendale
345 kV Transmission Line Project



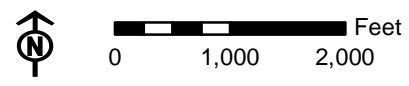


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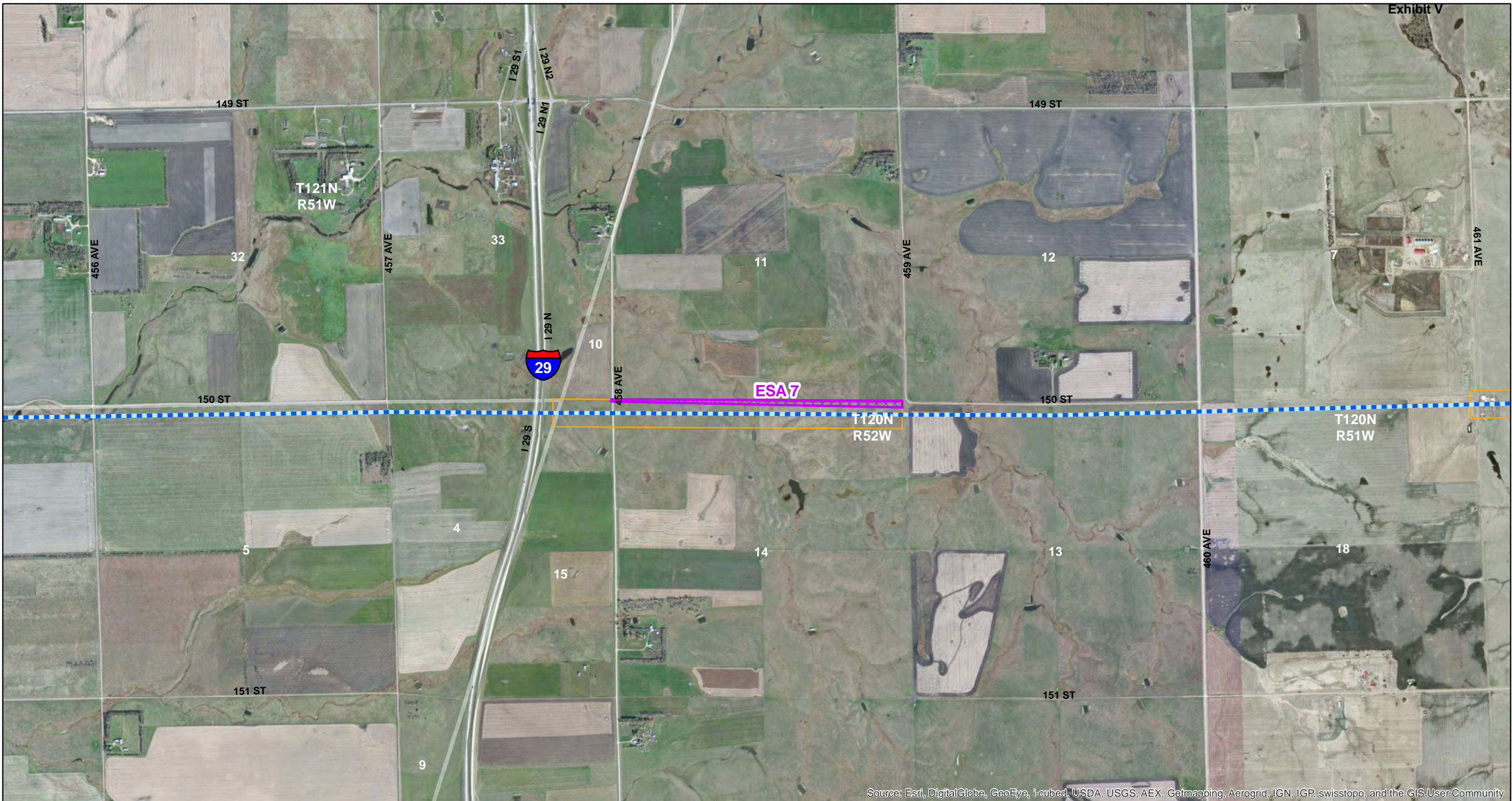


- Project End Point
 - Project Centerline
 - 2013 Pedestrian Survey
 - 2013 Windshield Survey
- Environmentally Sensitive Area Survey (potentially suitable habitat)**

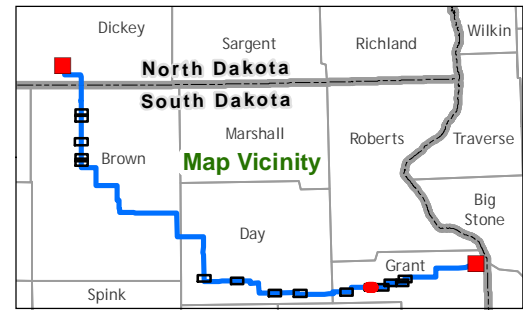
Figure 1: Page 9 of 11
Dakota Skipper Survey Area
Big Stone South to Ellendale
345 kV Transmission Line Project



BSS+E
 Big Stone South to Ellendale
 Scale 1:20,000

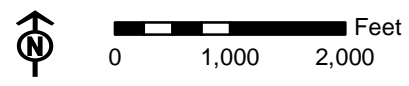


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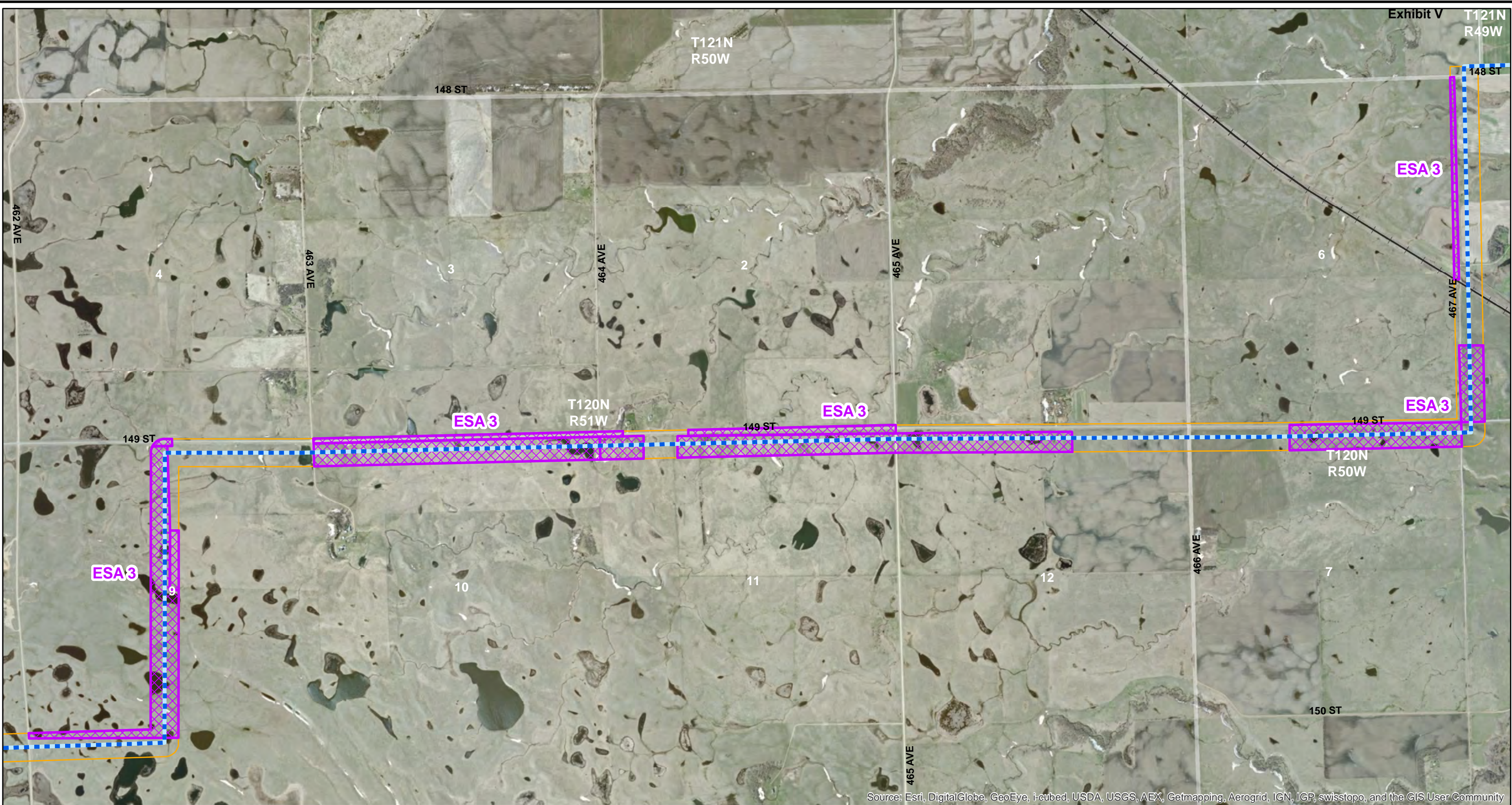


- Project End Point
 - Project Centerline
 - 2013 Pedestrian Survey
 - 2013 Windshield Survey
- Environmentally Sensitive Area Survey (potentially suitable habitat)**

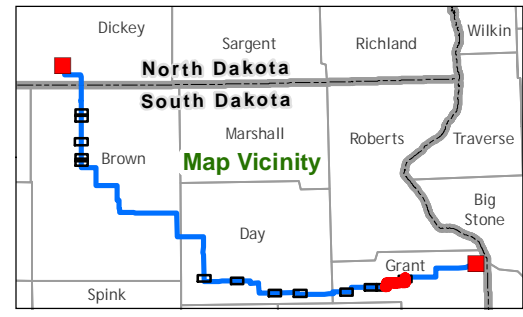
Figure 1: Page 10 of 11
Dakota Skipper Survey Area
Big Stone South to Ellendale
345 kV Transmission Line Project



BSS+E
 Big Stone South to Ellendale
 Scale 1:20,000

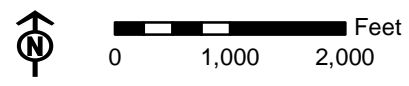


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- Project End Point
 - - - Project Centerline
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Figure 1: Page 11 of 11
Dakota Skipper Survey Area
Big Stone South to Ellendale
345 kV Transmission Line Project



BSS+E
 Big Stone South to Ellendale
 Scale 1:20,000