

DIRECT TESTIMONY

OF

SALVATORE FALCONE

ON BEHALF OF ITC GREAT PLAINS, LLC

1 I. INTRODUCTION

2 Q. Please state your name and business address.

3 A. Salvatore Falcone, and I work at 11401 Lamar in Overland Park, Kansas.

4 Q. By whom and in what capacity are you employed?

5 A. I work for Black & Veatch as a senior environmental engineer and permitting
6 manager. I also perform routing studies for our transmission line clients.

7 Q. Please describe your educational background and professional experience.

8 A. I have a bachelor's degree in engineering science, majoring in mechanical
9 engineering and a master's degree in business administration, majoring in finance.
10 I am a registered professional engineer in Kansas and Missouri. I have worked as
11 an environmental engineer for twenty-six years.

12 Q. Have you provided testimony in prior regulatory proceedings?

13 A. Yes, I have. I have testified before the Kansas Corporation Commission ("KCC")
14 on behalf of ITC Great Plains. Specifically, I appeared before the KCC in Docket
15 No. 09-ITCE-729-MIS, testifying on transmission routing.

16 Q. What is the purpose of your testimony?

17 A. I will describe the process used to determine the proposed route for the transmission
18 line from the planned new Post Rock Substation north of Hays, Kansas to the
19 Kansas-Nebraska state border in Smith County. ("Phase II of the KETA Project" or
20 "Phase II").
21

II. ROUTE SELECTION PROCESS

Q. Please describe the process used to select the preliminary routes for the transmission line.

A. Black & Veatch Corporation was hired by ITC Great Plains to develop routes for Phase II of the KETA Project and assist ITC Great Plains with the siting process. The Route Selection Study is attached to my testimony as Exhibit 1. The corridor within the study area used for Phase II is shown in Figure 1-1 of Exhibit 1. The study area covers approximately 1,200 square miles and includes parts of Ellis, Rooks, Osborne, Phillips and Smith Counties in Kansas.

The first step in the routing process was to gather and evaluate information concerning land uses, environmental features, historic and cultural resources, and other concerns that may be relevant to the construction of an overhead electric transmission line. We did a desktop review of public domain aerial photography, project-specific aerial photography, topographical maps, land use databases and agency environmental resource sites. Our goal was to provide at least three technically and environmentally feasible preliminary routes.

In developing the preliminary routes, we used the following objectives: (1) avoid proximity of the line to residences, businesses and public facilities; (2) avoid crossing over center pivot irrigation systems; (3) parallel existing utilities, roads or railroads when practical; (4) avoid wetlands, riparian areas and conservation lands; (5) avoid placing the line directly over oil wells or tanks; and (6) maintain reasonable length with as few angles as possible to minimize costs. The overall

1 goal of the routing process was to develop alternatives that would provide
2 economical routes with minimal adverse social and environmental impacts.

3 Following the identification of potential route alternatives, the next step was
4 to drive the routes. I accompanied a transmission line design engineer and senior
5 biologist on the trip and we drove approximately 500 miles in the Phase II study
6 area. We evaluated the preliminary route locations, noted where residences,
7 buildings and sensitive habitats were located, observed and noted the wildlife in the
8 study area, and adjusted our routes accordingly.

9 At the end of the growing season, we hired a contractor to fly each of the
10 alternative routes and take photographs. This ensured that we had the latest data
11 possible and served as a check on the work we had done to date. After review of
12 the aerial photographs, more adjustments were made.

13 Black & Veatch also sent letters with study area maps covering both Phase I
14 and Phase II projects to The University of Kansas - Kansas Biological Survey
15 ("KBS"), Kansas Department of Agriculture, Kansas Department of Health and
16 Environment, Kansas Department of Transportation, Kansas Department of
17 Wildlife and Parks, Kansas State Historical Society, United States Corps of
18 Engineers, USDA Natural Resources Conservation Service ("USDA"), United
19 States Department of the Interior - Fish and Wildlife Service. These letters asked
20 for the agencies' input and comments on resources or concerns (such as threatened
21 or endangered species) within the study areas. These agencies were also asked to
22 provide information on federal, state or local permits that may be required to

1 construct the line. A summary of the responses received is provided in Section C of
2 Exhibit 1.

3 **Q. Did you receive feedback from the state and federal agencies?**

4 A. Yes, we did, and we used that feedback to inform our subsequent route selection
5 work. For example, the response we received from the Kansas Biological Survey
6 warned against placing the line too close to playas as these attract migratory birds
7 during certain times of the year. This prompted us to obtain a map of playa lake
8 locations, which we used to help us avoid all playas when we modified our
9 preliminary routes.

10 **Q. What were the route alternatives that were offered to the public for comment?**

11 A. Appendix A to Exhibit 1 is the map of the route alternatives on which ITC Great
12 Plains sought comment at public open houses in western Kansas. It has since been
13 updated and the most recent route alignments are provided in the Route Selection
14 Study report, which is contained in the filing to the Commission.

15 **Q. How were landowners informed of ITC Great Plains' intent to construct a new**
16 **line?**

17 A. Once the revised preliminary routes were determined, ITC Great Plains used
18 property ownership data from each county to identify the landowners within 1,000
19 feet of the center line of each of the potential routes. ITC Great Plains sent a letter
20 to each landowner to advise that ITC was proposing to construct a new high voltage
21 line near his/her property and inviting each of them to one of two open houses. The
22 dates, times and locations of the open houses were identified in the letter. ITC also

1 issued news releases prior to the open houses. A copy of the form invitation letter
2 is attached to my testimony as Exhibit 2.

3 **Q. Did public input have any bearing on the siting process?**

4 A. Yes. The information obtained from the landowners was very important and helped
5 identify issues that had not been identified through the field reconnaissance, agency
6 contacts and aerial mapping. Public input resulted in more revisions to the routes.
7 For example, modifications to the preliminary routes were required to address:

- 8 • Homes in the study area that were not identified and located initially;
- 9 • Future residential and commercial development;
- 10 • New oil or gas wells that were not installed as of the date of aerial
11 photography;
- 12 • Center pivot irrigation structures that did not show on aerial photos or were
13 not observed initially during the field reconnaissance.

14 As a result of this input and our follow-up activities, Black & Veatch refined the
15 routing options for Phase II of the KETA Project..

16 A quantitative analysis of land use data, public input and engineering
17 criteria were employed in the final evaluation of the route alternatives. The
18 evaluation resulted in the selection of ITC Great Plains' preferred route for the
19 project. All routes are addressed in detail in Section 4.0 of the Route Selection
20 Study.

21 **Q. Please provide more detail regarding the selection of the preferred route.**

1 A. ITC Great Plains and Black & Veatch had established and refined criteria for
2 evaluating routing alternatives during the Phase I process. We used the same
3 methodology for Phase II. The specific alignment of potential routes was based in
4 large part on avoiding sensitive resources that might be adversely affected by the
5 construction, maintenance and operation of a transmission line. The primary
6 routing concerns were residences, businesses, wells (gas, oil or water), center pivot
7 irrigation systems, parks, burial grounds, protected species and their habitat, and
8 wind farms, if turbine locations were known.

9 In most of the study area, there were several routing alternatives available.
10 Much of the study area is sparsely populated and it afforded many options for siting
11 new transmission lines. The selection of specific routes was made to provide a
12 manageable basis for the discussion of route characteristics and preferences. Black
13 & Veatch developed a comparative resource inventory for the alternative routes
14 developed for Phase II. The comparative resource inventory contains inventories of
15 features and characteristics identified within and along each of the routes.

16 The weighted score values at the bottom of Table 4-3.2 in Exhibit 1
17 represent the result of efforts to quantify land use along each route using land data
18 embedded in the state of Kansas GIS maps of the area and factoring in cost-related
19 data by counting the number of angle structures and crossings. Low scores are
20 better than higher scores in the Table and the preferred route is the route which
21 scored the lowest, or best. The length of each type of land use or a number of angle
22 structures is multiplied by its assigned weight and the products are added to arrive

1 at a weighted score for the route. The weights used for land use, angle structures
2 and crossings are shown in Table 4-3.1 in Exhibit 1.

3 The assignment of weights in the Table is based on the desirability of types
4 of land for construction of transmission lines. Therefore areas which are the most
5 barren and have the fewest obstacles are generally the best prospects for
6 construction and have the lowest scores. With respect to residences, the nearness of
7 the routes to residences has been addressed in three ways in the Route Selection
8 Study. The first way was accomplished through desktop work with online aerial
9 photography, direct observations in the field between August 2008 and January
10 2010, and subsequent confirmation from new aerial photographs taken specifically
11 for this project. These efforts confirm that no residence should be nearer than 500
12 feet to any of the proposed lines. The second way, which is reflected in the scoring,
13 is contained in the “developed” land use categories, which are defined as areas
14 characterized by varying percents of constructed materials (e.g. asphalt, concrete,
15 buildings, etc.). The third way, also reflected in the scoring, is in the number of
16 angles. On the routes contained in the Route Selection Study, nearly all the angles
17 placed in the lines were done so for avoidance of residences, businesses,
18 institutional buildings, or environmentally sensitive areas.

19 **Q. Which route was selected as the Preferred Route?**

20 A. Route 4 was selected as the Preferred Route, and is attached to my testimony as
21 Exhibit 3. It is a combination of two of the three initial preliminary routes
22 identified, and was developed after the public meetings and in consideration of the
23 input we received from landowners.

1 **Q. How wide will the right-of-way be for the proposed line?**

2 A. The nominal width of the right-of-way will be 150 feet. This width would
3 accommodate any of the structures and spans being considered for this project. The
4 structures and conductors would normally be located in the center of the right-of-
5 way.

6 **Q. Will landowners be able to use the land in which the line will be constructed?**

7 A. Yes. The landowners' use of the land will be subject to the easement granted to
8 ITC Great Plains. Typically, the landowners will be able to use the line right-of-
9 way for any agricultural or other purpose that does not interfere with the rights
10 granted to ITC Great Plains under the easement. No new structures will be
11 permitted in any part of the right-of-way. In non-agricultural areas, trees and brush
12 in the right-of-way will be trimmed and removed.

13 **Q. Will ITC Great Plains obtain easements for the right-of-way in which the line**
14 **will be constructed?**

15 A. Yes. Easements will be obtained from the landowners prior to the construction of
16 the proposed line. Landowners will also be compensated for all damages, including
17 crop losses, that are directly attributable to the construction of the proposed line.

18 **Q. Please describe the environment in which the line was sited.**

19 A. A description of the soils, climate, hydrological resources, biological resources, and
20 land uses are included the Route Selection Study as Exhibit 1. At least 90% of each
21 route is in either agricultural land or in grassland, most of which is suitable for
22 pasture. Most of the streams and rivers in the study area are small and flow from
23 west to east. Large stands of trees are rare, with most trees found near streams and

1 rivers. The study area is home to many species of plants and animals and these are
2 described in the report.

3 **Q. Is there any other information you would like to provide?**

4 A. I'd like to conclude by stating that ITC Great Plains, in addition to directing Black
5 & Veatch to find routes with the least impact to residents and the environment, has
6 made a concerted effort to inform landowners in the study area, ask for their
7 comments and concerns, and then respond to those concerns with route changes
8 wherever they are technically and economically feasible. I believe that we have
9 defined preferred and alternative routes that adequately address the environmental
10 objectives of the project.


11 **Q. Does this complete your testimony?**

12 A. Yes, it does.

VERIFICATION

STATE OF KANSAS)
) ss.
COUNTY OF JOHNSON)

I, Salvatore Falcone, of lawful age, and being first duly sworn upon my oath state that I am a senior environmental engineer and permitting manager at Black & Veatch, that I have read the above and foregoing Testimony and, upon information and belief, state that the matters therein appearing are true and correct.



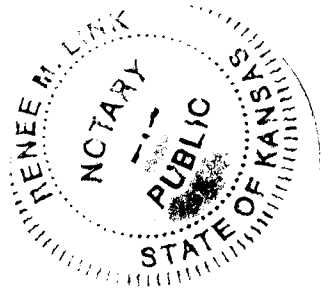
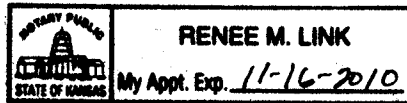
Salvatore Falcone

SUBSCRIBED AND SWORN to before me on this 25th day of February 2010.



Notary Public

My commission expires:





Route Selection Study

KETA 345 kV Transmission Line Project Phase II (Post Rock Substation to Nebraska Line)

Prepared by:

**Black & Veatch Corporation
Overland Park, Kansas**

And

**ITC Great Plains
Topeka, Kansas**

March 2010

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1.0 Introduction

ITC Great Plains, LLC (ITC), a subsidiary of ITC Holdings Corporation, is proposing the construction of a new 345,000 volt (345 kV) transmission line between Spearville, Kansas and Axtell, Nebraska. The entire project is approximately 225 miles in length, with approximately 175 miles in Kansas and the remaining 50 miles in Nebraska. ITC will be responsible for design, construction, and operation of the portion of the line in Kansas and Nebraska Public Power District (NPPD) will be responsible for design, construction, and operation of the Nebraska portion of the line. This route selection study addresses the north half of the Kansas portion of the project. NPPD is responsible for routing the line in Nebraska.

The Kansas portion of the Spearville to Axtell transmission line project is commonly known as the Kansas Electric Transmission Authority, or “KETA”, project and it is divided into two phases. Phase I consists of the expansion of an existing 345 kV substation at Spearville, construction of a new 345/230 kV substation near Hays, and the construction of a new 345 kV transmission line between Spearville and Hays, Kansas. The existing Sunflower Electric Cooperative, Inc. Spearville Substation north of Spearville, Kansas will be expanded to include a new 345 kV line terminal which will serve as the southern terminus of Phase I. The new Post Rock substation will be located near the existing Midwest Energy, Inc Knoll Substation north of Hays and will serve both as the northern terminus of Phase I and the southern terminus of Phase II. The Phase II transmission line route distance between the new Post Rock Substation and the Kansas-Nebraska border (state line) is approximately 85 miles.

Phase II will consist of the construction of a new 345 kV transmission line between the Post Rock Substation and the Nebraska state line in Smith County, Kansas. This Phase II line will be designed, built, and operated at 345 kV. The exact location of the connection between the ITC and NPPD lines was determined as a result of routing analyses and inputs from the public. During the routing analysis process, close coordination between ITC and NPPD ensured that both parties were aware of the issues each was facing in the ultimate selection of the routes.

Figure 1-1 shows the Phase II routing study area and locations of the substations. This route selection study report addresses only Phase II, hereafter referred to as “the Project”. The Phase I route selection study report was submitted to the Kansas Corporation Commission (KCC) as part of ITC’s Phase I filing in March 2009. ITC received approval of the Phase I route in July 2009.

The proposed Phase II transmission line will be a single circuit line designed for an initial capacity of 1,800 MVA. The substation equipment ratings will be 3,000

amperes. The Phase II line will be built primarily with self supporting tubular steel monopole in a delta braced post configuration (Figure 1-2). Other structure types may be utilized for special situations, such as long-span crossings. The transmission line conductors will be arranged in a two conductor bundle per phase. One overhead ground wire will be located at the top of the structures. The structures will utilize horizontal braced post insulator assemblies for tangent and small angle structures. Typical span lengths will be approximately 900 feet. Structure placement and span lengths will be adjusted in cultivated fields to minimize interference with the operation of existing or proposed center pivot irrigation systems. A new 150 foot wide easement will be required for the Project.

ITC retained the services of Black & Veatch Corporation (Black & Veatch) as an independent consultant to provide the following services:

- Assist ITC in developing a preferred route and alternate routing options between the Post Rock Substation and the Kansas-Nebraska border.
- Conduct a general environmental and engineering review of the potential routing options.
- Identify permits and formal approvals required for the routes.

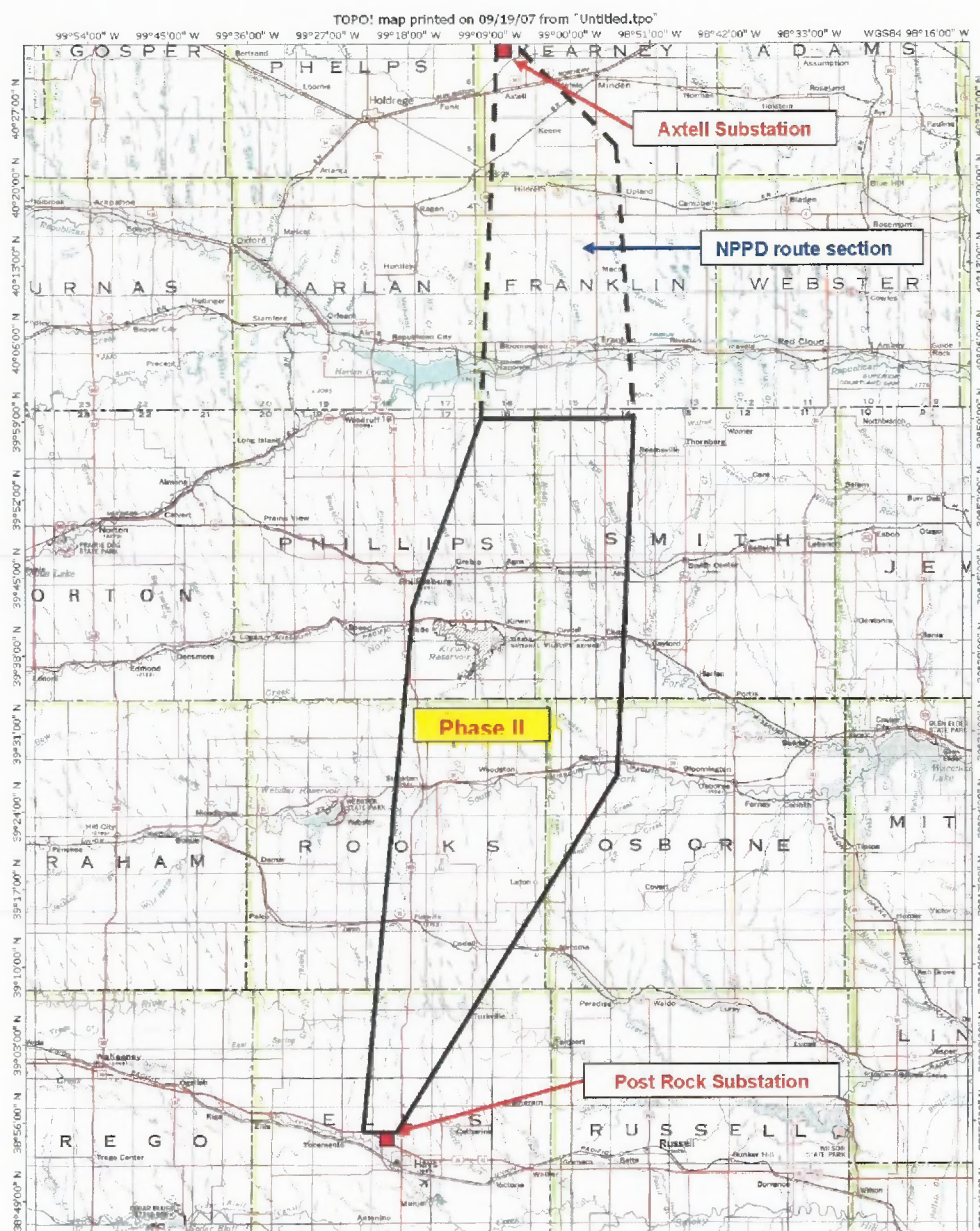


Figure 1-1
Phase II Study Area

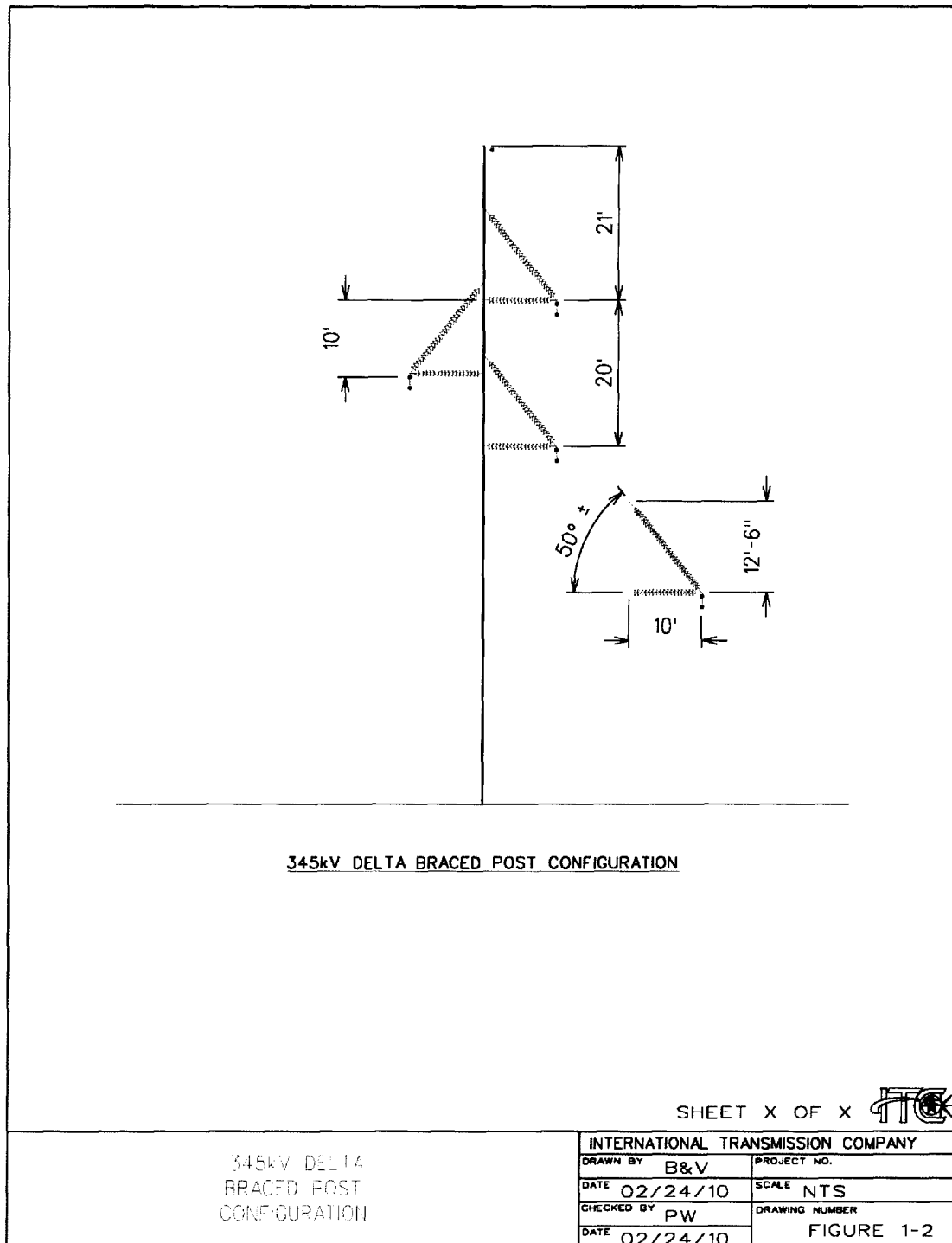


Figure 1-2
345 kV Braced Post Delta Configuration

2.0 Project Purpose and Need

KETA conducted a study to identify potential transmission expansions that have the greatest benefit to the state of Kansas. KETA contracted with the Southwest Power Pool (SPP) to perform analyses that would ultimately determine which projects were of sufficient value to meet KETA's statutory requirements for pursuing construction. The goal of the study was to determine the "best fit" projects that would provide economic benefits to the state of Kansas and allow for future wind development within the state. The study report was published in April 2007.

Four proposed transmission projects were addressed in the study. The first option was a Spearville to central Kansas 345 kV project to terminate either at the Reno Co. 345 kV bus or at the Wichita 345 kV bus. The second option was the Project, including both Phases of the ITC portion and the NPPD portion in Nebraska. The third option was Summit to Concordia to Pauline 345 kV, and the fourth option was Mooreland to Wichita 345 kV. The fourth option connects the state of Kansas to the state of Oklahoma, whereas the second and third options connect the state of Kansas to the state of Nebraska. The first option was the only option that did not consider ties outside the state of Kansas.

The SPP study and supplemental KETA analysis concluded that the overall project (including ITC's Phase I and the NPPD portion in Nebraska) produced benefits exceeding costs and met KETA's statutory requirements for announcing intent to construct. As such, KETA approved a notice of intent to construct both Phases of the project on July 25, 2007. Subsequently, as per the KETA enabling statute, ITC Great Plains notified KETA of its intent to construct in lieu of KETA. ITC Great Plains has therefore proceeded with development of both Phases of the overall project. On July 31, 2007, ITC Great Plains notified SPP of its commitment to construct, own, and operate both Phases of the project, including constructing at 765 kV capability if directed by SPP, and requested that SPP study the overall project for inclusion in the SPP Transmission Expansion Plan ("STEP"). The overall project was subsequently endorsed for inclusion in the STEP in October, 2007 and included in the STEP approved by the SPP Board of Directors January 29, 2008. Additionally, the overall project was identified in the SPP EHV Overlay Study report issued March 3, 2008 for construction at 765 kV as part of SPP's EHV Overlay Plan for interconnecting and exporting renewable resources from the western half of the SPP footprint. The design voltage was subsequently changed to 345 kV by SPP.

In conclusion, the overall project will provide an economic benefit to the state of Kansas by providing enhanced access to markets for the wind generation in the western third of the state, both existing and proposed. It will also provide economic benefits to

Kansas and the region by reducing constraints on the interface between Nebraska and Kansas, allowing for more efficient usage of economical generation. The overall project is also an approved part of an SPP expansion plan to improve the transmission grid in the SPP service area.

3.0 Route Selection Process

Black & Veatch has performed or participated in several activities associated with the development of routing options for the Project. These include:

- Preliminary desktop route mapping
- Field examination of the proposed routes
- Environmental evaluation
- Revised desktop route mapping
- Route modifications.
- Agency contacts and data collection.
- Local stakeholder and landowner contacts
- Public meetings

Using the information obtained from these activities, final route delineations were determined and are presented in this report.

3.1 Preliminary Desktop Route Mapping

Preliminary routing options were determined using online aerial photograph sites including, but not limited to, MapQuest® and Google™ Earth. For any one portion of the route, the site with the better photographic quality or the more recent image was used. The desktop work began at the Post Rock Substation site and continued north-northeast to the Nebraska border. The desktop examination of routing options was done by centering approximately one square mile of area at a time on the computer screen, searching the photograph for the presence of houses, businesses, cemeteries, center pivot irrigation systems, and other items to avoid, and zooming in to get more details when necessary. Handwritten notes and preliminary route alignments from the on-screen review of aerial photographs were placed on copies of large aerial photographs of the routing area provided by Black & Veatch's Geographic Information Systems (GIS) Department. These copies are generated from the ESRI® ArcGIS mapping services and when printed in Size D format (22" x 34") have a scale of 1"= 1 mile.

Black & Veatch's GIS personnel used the marked up copies to generate new maps that contained the preliminary routing alignments. Large maps containing these alignments were taken to the field during the field examination of the proposed routes.

3.2 Agency Contacts and Data Collection

Environmental data that could be pertinent to the location and environmental evaluation of the preliminary routing options were gathered for the following:

- Federal and state threatened and endangered plant and animal species and habitats.
- Wetlands and navigable waters of the United States.
- State park locations.
- Known and recorded historic and archaeological sites.

Black & Veatch contacted federal, state and local agencies as part of data collection and environmental consultation. The objective of making the contacts is the identification of issues of concern for the agencies after their review of the Project and the determination of the permits and approvals that will be required. The results of the phone and electronic mail contacts are summarized in Section 5.5 of this report. Copies of the letters received from the agencies are contained in Appendix D, Agency Responses to Requests for Consultation.

3.3 Field Investigations

Black & Veatch performed its initial environmental field review of the preliminary routing options, from Spearville all the way to the Nebraska state line, on August 18 through 21, 2008. Three Black & Veatch professionals: a transmission line engineer, an environmental route selection specialist, and a biologist, performed these field reviews. The team reviewed the routes for constructability potential, avoidance areas, and for the presence of wetlands and species habitats. Observations were made primarily by vehicle and occasionally on foot at accessible road crossings, public access points, and from roads, railroads and pipelines that parallel or cross the routing options. A second field survey was conducted on January 19 through 21, 2010, after feedback from Phase II public meetings had been reviewed.

Field observations were made to verify information previously interpreted from the aerial photography, satellite imagery and Project composite topographic maps or to call attention to areas where new alignments were needed. The field observations also provided updated information relative to new land use activity in recent months. Handwritten notes of areas of possible concern were placed on hard copies of the aerial photographs in the field and then transcribed for clarity before being presented to Black & Veatch GIS personnel for development of the route maps that accompany this report.

3.4 Environmental Evaluations

Black & Veatch conducted an environmental evaluation of the Project area and each of the preliminary routing options. Consideration was given to potential impacts from construction and operation of the proposed 345 kV transmission line to the observed existing environment.

The Project (Phase II) area covers parts of Ellis, Osborne, Rooks, and Smith counties in Kansas (see Figure 1-1). The southern terminus is the proposed Post Rock Substation near Hays, Kansas and the northern terminus is at the Kansas-Nebraska border.

Using aerial photography coupled with field observations, Black & Veatch conducted an environmental evaluation of each of the preliminary routing alternatives. Areas of possible concern were noted on copies of the aerial photography to improve the alternative routes and aid in determining a preferred route. This initial evaluation focused on extant natural resources in the Project area, primarily crossings of surface waters (streams, canals and ditches) and wetlands, plant communities, observed wildlife species, and possible listed species habitat. While not strictly under legal protections, species listed as Candidate or Proposed species at the federal level or species in need of conservation (SINC) at the state level also were evaluated. Consideration for potential impacts from construction and operation of the proposed 345 kV transmission line to wetlands and endangered or threatened species (listed species) at state and federal levels was the primary concern.

The Project area lies in the Rolling Plains and Breaks ecoregion of the Central Great Plains (Chapman et al., 2001). The Central Great Plains were once vast grasslands, dominated by a mixture of shortgrass and tallgrass prairie with scattered low trees and shrubs. Much of this region is now cropland, marking the eastern limit of the major winter wheat growing area of the United States. High salinity from subsurface salt deposits and leaching is present in some streams, ponds or wetlands.

The Rolling Plains and Breaks ecoregion historically was a mixed grass prairie. The region has been converted to a mosaic of cropland agriculture and rangeland throughout the region. Soils in this ecoregion formed in loess on uplands and tend to be silty, deep and moderately permeable. Dissected plains with broad, undulating to rolling ridgetops are characteristic landforms in this region. Weathered limestone (chert) and loosely cemented sandstone bluffs are frequent. In Kansas, this region contains extensive oil deposits. Oil wells with associated access roads, storage tanks and other oil extraction infrastructure are evident throughout the region.

Most of the Project area is a broad mix of grassland (range, pasture, and fallow) and agricultural fields. The agricultural crops are primarily corn (*Zea mays*), wheat (*Triticum aestivum*), hay and straw, grain sorghum (*Sorghum* spp.), soybeans (*Glycine max*), sunflowers (*Helianthus* spp.), and canola (*Brassica napus*). Some fields appear to be fallow and are inhabited by a variety of old-field species, such as ragweed (*Ambrosia* spp.), pigweed (*Amaranthus* spp.), Canadian Horseweed (*Conyza canadensis*), Lamb's Quarters (*Chenopodium album*), Pinkweed (*Polygonum pensylvanicum*), Yellow Foxtail (*Setaria pumila*) and Green Foxtail (*Setaria viridis*). These and other old-field, weedy or ruderal species also are abundant along road edges, fencelines between fields, and other disturbed or neglected areas.

Wetlands in the Project area generally are present in level areas associated with bluffs, along streams, and in low-lying areas with poor drainage. Many were dry during the site reconnaissance and probably are seasonal wetlands that are inundated during the spring thaw,

drying out by mid-summer to fall. Specific wetland types observed in the Project area consist of emergent, wet meadow or sedge meadow, open water, forested, and scrub-shrub wetlands. In most cases, because of the requirement for line construction to avoid sharp elevation changes over short distances, wetlands will be spanned without any direct impacts because they are in low-lying locations, often below ridgelines that are more desirable for pole locations. However, location of construction access roads must consider wetlands because these areas can be disturbed by construction equipment. Based on this initial review, none of the wetlands observed will be impacted by construction access because better alternative access routes are available. Furthermore, additional detailed investigation during the siting process will aid in developing access routes that avoid sensitive natural resources, such as wetlands.

Woodlots occur mainly in wet areas (e.g., riparian) or slopes too steep for farm machinery. Few are dense enough to ecologically qualify as forest and none is large enough to represent habitat for wildlife species requiring a deep interior (generally roadless woodland with a minimum distance from any edge of 300 feet). Some small stands are in low areas and a few of these may be in wetlands, but all were dry during the site reconnaissance. Most are small (less than 40 acres) and may not provide noteworthy wildlife habitat quality unless a corridor to other woodlots is available. In most cases the only migratory pathway is not a corridor (i.e., woodlots generally are isolated from each other by farmland or rangeland), requiring wildlife to traverse fields or other open areas, which may represent an obstacle for some species (e.g., salamanders). Additional study to evaluate local and migratory wildlife use, particularly birds and bats, may be needed for those few locations where larger woodlots are crossed.

Wildlife habitat associated with the Project area principally consists of open mixed grassland and agricultural land. Urbanized areas are few and development generally is limited to farmsteads with a residence, barn or sheds and other outbuildings. Portions of the Project area are located adjacent to or across riparian areas associated with streams. Most streams appear to be ephemeral or intermittent and were dry during the site reconnaissance. Streambeds in most of these dry streams were fully vegetated, further confirming the infrequent flows. Many streams have associated wetlands within the stream floodplain including riparian woods, but none is large enough to support a diverse resident wildlife assemblage except near the larger rivers (e.g., Saline River). Constructed ponds dot the landscape, many with associated wetland downstream of the pond outfall. Most of these ponds were constructed for livestock watering, but they are likely to be used by some wildlife species as well even though most ponds are relatively small (less than 1 acre). Many of the ponds were dry during the site reconnaissance.

Wildlife observed during the site reconnaissance was primarily generalist species, those capable of exploiting disturbed habitats and able to meet their needs. The dominant plant communities are mixed grass prairie (rangeland) and agricultural lands, which are heavily disturbed by cultivation. The tables below present wildlife and the dominant plant species

observed during the site reconnaissance. The number of days a wildlife species was observed is a rough estimate of encounter rates (i.e., a species seen on many days' means a common species observed in many locations, while those observed on a few days are an occasional species). Because wildlife encounters are dependent on time of day, weather conditions, available cover, season and availability and quality of forage, this table should not be considered a comprehensive determination of the wildlife present. However, the table is representative of the species present in the Project area.

Table 3.4-1
Wildlife Species Observed, August 18 to August 21, 2008.

English Name	Latin Name	Days Observed			
Birds					
American Crow	<i>Corvus brachyrhynchos</i>		8/19		
Barn Swallow	<i>Hirundo rustica</i>	8/18			
European Starling	<i>Sturnus vulgaris</i>			8/20	
Great Blue Heron	<i>Ardea herodias</i>			8/20	
Green Heron	<i>Butorides virescens</i>			8/20	
House Sparrow	<i>Passer domesticus</i>			8/20	
Killdeer	<i>Charadrius vociferous</i>			8/20	8/21
Mallard	<i>Anas platyrhynchos</i>			8/20	
Mourning Dove	<i>Zenaida macroura</i>	8/18	8/19	8/20	8/21
Northern Harrier	<i>Circus cyaneus</i>	8/18		8/20	8/21
Peregrine Falcon	<i>Falco peregrinus</i>			8/20	8/21
Prairie Falcon	<i>Falco mexicanus</i>	8/18			
Red-headed Woodpecker	<i>Malanerpes erythrocephalis</i>		8/19	8/20	8/21
Red-tailed Hawk	<i>Buteo jamaicensis</i>	8/18	8/19	8/20	
Ring-necked Pheasant	<i>Phasianus colchicus</i>	8/18	8/19	8/20	
Turkey Vulture	<i>Cathartes aura</i>			8/20	
Eastern Kingbird	<i>Tyrannus tyrannus</i>			8/20	8/21
Western Meadowlark	<i>Sturnella neglecta</i>		8/19	8/20	8/21
Wild Turkey	<i>Meleagris gallopavo</i>	8/18			
Reptiles					
Ornate Box Turtle	<i>Terrapene ornate</i>				8/21
Western Hognose Snake	<i>Heterodon nasicus</i>				8/21*
Amphibians					
Northern Leopard Frog	<i>Rana pipiens</i>				8/21*

* Species identification not confirmed.

This table includes species listed or observed in either or both Phases of the overall project.

Table 3.4-2
Vegetation Observed

English Name	Latin Name	English Name	Latin Name
Sugar Maple	<i>Acer saccharinum</i>	Crops	
Green Amaranth	<i>Amaranthus retroflexus</i>	Soybean	<i>Glycine max</i>
Common Ragweed	<i>Ambrosia artemisiifolia</i>	Corn	<i>Zea mays</i>
Big Bluestem	<i>Andropogon gerardii</i>	Sorghum	<i>Sorghum vulgare</i>
Purple Three-awn	<i>Aristida purpurea</i>	Wheat	<i>Triticum sativa</i>
Side-oats Gramma	<i>Bouteloua curtipendula</i>	Sunflower	<i>Helianthus sp.</i>
Smooth Brome	<i>Bromus inermis</i>	Canola	<i>Brassica napus</i>
Buffalo grass	<i>Buchloë gracilis</i>	Hay and straw	misc. grass spp.
Lamb's Quarters	<i>Chenopodium album</i>		
Snow-on-the-Mountain	<i>Euphorbia marginata</i>		
Black Walnut	<i>Juglans nigra</i>		
Western Wheatgrass	<i>Pascopyrum smithii</i>		
Reed Canary Grass	<i>Phalaris arundinacea</i>		
Common Reed	<i>Phragmites australis</i>		
Eastern Cottonwood	<i>Populus deltoides</i>		
Black Willow	<i>Salix nigra</i>		
Little Bluestem	<i>Schizachyrium scoparia</i>		
American Elm	<i>Ulmus americana</i>		
Broad-leaved Cattail	<i>Typha latifolia</i>		
Narrow-leaved Cattail	<i>Typha angustifolia</i>		
Pinkweed	<i>Polygonum pensylvanicum</i>		
Yellow Foxtail	<i>Setaria glauca</i>		
Green Foxtail	<i>Setaria viridis</i>		
Canadian Horseweed	<i>Conyza canadensis</i>		

This table includes species listed or observed in either or both Phases of the overall project.

In the table below are the species listed as threatened or endangered at federal or state levels, federal candidate species or Species in Need of Conservation at the state level. Many of these species are at the extreme limits of their range in central Kansas, which is one explanation for their listing status. Many are affected by conversion of grassland to row crops, while others require grassland of a particular height or density (e.g., Bobolink). While these habitats are present, most are small in extent, which limits population size. Distance between patches or absence of an appropriate movement corridor may prevent re-colonization of some areas after a local extinction event, resulting in the local extirpation of that species.

Two of the listed species (Western Hognose Snake and Peregrine Falcon) were observed in the study area during the initial site reconnaissance. Based on the site reconnaissance, suitable habitat is present in the Project area for Western Hognose Snake (all counties in the Project and Phase I areas), Peregrine Falcon (mostly the Project area counties of Rooks, Osborne, Phillips, and Smith), Golden Eagle (mostly the Project area counties of Rooks, Osborne, Phillips, and Smith), Ferruginous Hawk (all Project and Phase I counties), Short-eared Owl (all Project and Phase I counties), Plains Minnow (perennial streams in Project and Phase II areas) and Franklins' Ground Squirrel (Phillips County). Habitat for the other listed species is not present, is not suitable (extent, quality, level of disturbance, fragmentation, etc.) or is isolated without a nearby colonization source or movement pathway. In most cases, avoidance of wildlife habitat, mainly wetlands, ponds and streams or rivers, should be reasonably accomplished by spanning the area. In addition to pole placement, consideration for construction access needs to be made, which cannot be accurately evaluated at this level of investigation. Further investigation may be desirable once continued review results in a preferred route.

Table 3.4-3
Listed Wildlife and Plant Species Protected by Legislation.

English name	Latin Name	Federal Status*	State Status	Location**
Birds				
Bald Eagle	<i>Haliaeetus leucocephalus</i>	DO	T	ED, EL, FO, HO, OS, PA, PH, RO, RU, SM
Black Tern	<i>Chlidonias niger</i>	--	SINC	EL, FO, PA, PH, RO, RU
Bobolink	<i>Dolichonyx oryzivorus</i>	--	SINC	EL, PA, RO, RU
Chihuahuan Raven	<i>Corvus cryptoleucus</i>	--	SINC	ED, FO, HO, PA
Curve-billed Thrasher	<i>Toxostoma curvirostre</i>	--	SINC	EL, FO
Eskimo Curlew	<i>Numenius borealis</i>	LE	E	ED, EL, OS, PA, PH, RO, RU, SM
Ferruginous Hawk	<i>Buteo regalis</i>	--	SINC	ED, EL, FO, HO, OS, PA, PH, RO, RU, SM
Golden Eagle	<i>Aquila chrysaetos</i>	--	SINC	ED, EL, FO, HO, OS, PA, PH, RO, RU

Table 3.4-3
Listed Wildlife and Plant Species Protected by Legislation.

English name	Latin Name	Federal Status*	State Status	Location**
Least Tern	<i>Sterna antillarum</i>	LE	E	ED, EL, FO, HO, OS, PA, PH, RO, RU, SM
Long-billed Curlew	<i>Numenius americanus</i>	--	SINC	EL, FO, PA, PH, RO, RU
Mountain Plover	<i>Charadrius montanus</i>	--	SINC	EL
Peregrine Falcon	<i>Falco peregrinus</i>	--	E	ED, EL, FO, HO, OS, PA, RO, RU, SM
Piping Plover	<i>Charadrius melodus</i>	LT	T	ED, EL, FO, HO, OS, PA, PH, RO, RU, SM
Short-eared Owl	<i>Asio flammeus</i>	--	SINC	EL, FO, HO, OS, PA, PH, RO, RU, SM
Snowy Plover	<i>Charadrius alexandrinus</i>	--	T	ED, EL, FO, HO, OS, PA, PH, RO, RU, SM
Whip-poor-will	<i>Caprimulgus vociferus</i>	--	SINC	EL, PA
Whooping Crane	<i>Grus americana</i>	LE	E	ED, EL, HO, OS, PA, PH, RO, RU, SM
Yellow-throated Warbler	<i>Dendroica dominica</i>	--	SINC	EL, RU
Reptiles				
Eastern Hognose Snake	<i>Heterodon platirhinos</i>	--	SINC	ED, EL, FO, HO, PA, PH, RO, SM
Glossy Snake	<i>Arizona elegans</i>	--	SINC	FO
Longnose Snake	<i>Rhinocheilus lecontei</i>	--	T	FO
Western Hognose Snake	<i>Heterodon nasicus</i>	--	SINC	ED, EL, FO, HO, OS, PA, PH, RO, RU, SM
Fish				
Arkansas Darter	<i>Etheostoma cragini</i>	Candidate	T	ED
Plains Minnow	<i>Hybognathus placitus</i>	--	SINC	ED, EL, FO, OS, PH, RO
Topeka Shiner	<i>Notropis topeka</i>	LE	T	EL, PH
Mammals				
Eastern Spotted Skunk	<i>Spilogale putorius</i>	--	T	ED, EL, FO, HO, OS, PA, PH, RO, RU, SM
Franklin's Ground Squirrel	<i>Spermophilus franklinii</i>	--	SINC	PH
Plants				
Mead's Milkweed	<i>Asclepias meadii</i>	LT	--	Kansas (statewide)
Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	LE	--	Kansas (statewide)
Running Buffalo Clover	<i>Trifolium stoloniferum</i>	LE	--	Kansas (statewide)

* LE-Listed Endangered; LT-Listed Threatened; DO-Delisted, recovered; C-Candidate; E-Endangered; T-Threatened; SINC-Species in Need of Conservation.

** Phase I counties are Edwards (ED); Ellis (EL); Ford (FO); Hodgeman (HO); Pawnee (PA); and Rush (RU). Project (Phase II) counties are Ellis (EL); Osborne (OS); Phillips (PH); Rooks (RO), and Smith (SM).

On December 10, 2008, the Federal Register published updated information on the status of many candidate species and the Lesser prairie chicken (LPC) was among them. A candidate species is one for which the U.S. Fish and Wildlife Service has sufficient information to propose it for listing as a threatened or endangered species. The LPC has been a candidate species since 1999 and the recent Federal Register posting

elevated its listing priority from 8 to 2. Species are assigned a listing priority from 1 to 12 based on the magnitude of the threats they face, the immediacy of the threats, and taxonomic uniqueness. The listing priority dictates the relative order in which proposed listing rules are prepared, with the species at greatest risk, at priorities 1 through 3, being proposed first.

After nearly ten years on a candidate list, the LPC will receive a higher priority for rule promulgation. Because the Project routes traverse some LPC habitat, this situation will need to be monitored. The future rules may prescribe actions that will need to be taken by those constructing permanent facilities in the area.

Cultural resources in the Project area were not reviewed before or during the August site reconnaissance. Historic, archaeological and traditional cultural properties will be reviewed in consultation with the Kansas State Historic Society.

Evaluation of human resources included consideration of existing and future land uses, proximity to residences, schools, churches, subdivisions and other population concentrations, industrial developments, other existing utilities and linear rights-of-way, visual impacts, and irrigated farmlands.

For the environmental evaluation, the source reference document was Chapman, S. S., Omernik, J.M., Freeouf, J.A., Huggins, D.G., McCauley, J.R., Freeman, C. C., Steinauer, Gerry, A., R.T., and Schlepp, R.L., 2001, Ecoregions of Nebraska and Kansas (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,950,000). It was accessed on the Internet at ftp://ftp.epa.gov/wed/ecoregions/ks_nc/ksne_front.pdf on September 2, 2008.

3.5 Local Stakeholders

ITC has actively informed stakeholders about the Project and engaged them in the consultation process. The principal methods of engagement have consisted of public workshops, smaller meetings with landowners, and the formation of a Community Action Group (CAG).

Two public workshops were held, the first conducted at the Elementary School Auditorium in Plainville on November 30, 2009, and the second at the National Guard Armory in Smith Center on December 1, 2009. These workshops were held to inform potentially affected landowners and to seek their comments. Landowners owning property within 1,000 feet of the center line of any of the proposed routes were invited to attend the open house, to visit with ITC employees, and to learn more about ITC and the project. Notice of the public workshops was provided three ways: postcard invitations mailed directly to affected landowners, personal letters mailed to each landowner, and print advertisements which ran in local papers for two weeks before the event.

The public workshops featured five information stations that landowners could visit at their convenience: corporate information about ITC, the need for new transmission lines in Kansas, details of the proposed routes of the Project and how they impact landowners, environmental considerations for the Project, and a feedback booth where landowners could ask additional questions, revisit points of discussion raised earlier, and submit their feedback on the information presented. This feedback was entered into a landowner database and utilized by ITC to provide a qualitative context for the technical considerations involved in selecting a preferred route.

The booth addressing the proposed routes of the Project featured four large maps showing the sections of land affected by the Project, but ITC also provided two geographic information system (GIS) stations that allowed landowners to see how the proposed routes specifically crossed their properties. By providing section, township, and range, landowners could zoom in using aerial photography to determine where a proposed route would be in relation to their homes or other owned structures. The booth addressing environmental considerations addressed the Project's impacts not only on wildlife and humans, but on other considerations such as land use and agriculture.

Both public workshops were well attended, drawing more than 200 visitors each night. Landowners provided contact information to facilitate future conversations, and provided written feedback on the proposed routes and any other message they wished to convey. Every question posed to ITC received an answer in the manner requested – most often e-mail.

Prior to the public workshops, ITC also organized a Community Action Group (CAG) as a collection of citizens from communities along the Project route who act as advisers and counselors to ITC. The CAG would also help ITC communicate with citizens by serving as liaisons throughout the life of the Project. CAG was designed to represent a cross-section of the community.

The CAG meeting was held on August 26, 2009 at the Public Library in Plainville and was attended by 27 local business and community leaders. ITC maintained contact with members of the CAG throughout the routing process to learn about planned business developments in the Project area and to get information regarding local reaction to the Project.

Community relations and stakeholder engagement has been an ITC Great Plains priority since it began operations in July 2006 and will always be so. ITC will continue to nurture relationships with affected landowners and communities based on transparency and open communication throughout the planning and construction process, and throughout its stewardship of transmission assets in Kansas.

3.6 Route Modifications

As a result of field investigations, subsequent desktop data collection, and public outreach efforts, Black & Veatch made several modifications to the preliminary routing options. Such modifications resulted in the identification of updated potential routes for the proposed transmission line. Modifications to the preliminary routes addressed the following avoidance areas not identified in the initial desktop work:

- Homes throughout the study area.
- Parcels of land subdivided for future residential and commercial development.
- Center pivot irrigation structures.
- Technically challenging creek and stream crossing locations.
- Existing high-voltage transmission lines and structures in the area immediately surrounding the Post Rock Substation.
- Cemeteries.
- Wetlands.
- Communication towers.
- Existing power lines running parallel to north-south roads.
- Other existing or planned construction near any of the potential routes.

On January 19 through 21, 2010, two Black & Veatch engineers revisited much of the study area to follow up on comments received from landowners from the public meetings and to determine if portions of the proposed routes should be modified. After presentation of the findings to ITC, several route modifications were made.

3.7 Proposed Routing Options

As a result of desktop research, field reviews, public meetings, and other inputs, Black & Veatch refined the routing options between the Post Rock Substation and the Nebraska border. These are described in detail in Section 4.0 of this report. The four maps provided in Appendix A to this report contain the most recent alignments of all these routing options. All of the routes shown on the maps are technically feasible and environmentally viable options for the new transmission line.

The maps in Appendix A were produced from the USDA's Natural Agriculture Imagery Program (NAIP). All maps for Kansas are based on aerial photography taken in 2005. Additional aerial photography of all three routes was taken in November 2008 and used to refine the route selections.

3.8 Coordination with Nebraska Public Power District

Concurrent with the ITC routing activities for the Project, NPPD developed its routes for the Nebraska portion of the overall project. They, too, identified preliminary routes, met with regulatory agencies, held public meetings, and made route revisions in response to agency and public inputs. It was important that ITC and NPPD conduct these activities concurrently so that if one party encountered issues that might affect the connecting point (at the state line) between the two utilities, the other party could be notified quickly and both ITC and NPPD could discuss ways to address those issues.

ITC and NPPD worked very closely throughout their routing processes, holding bi-weekly conference calls and meeting face to face every two months. This level of coordination resulted in the identification of a connecting point at the state line that satisfies the needs to of both utilities and addresses the concerns of environmental agencies at the federal and state levels.

4.0 Description of Alternate Routes

For most of the distance between the Post Rock Substation site and the Nebraska border, three distinct routes were studied. A fourth route resulted from early discussions with NPPD after their meetings with regulatory agencies indicated that more route options in the central and eastern portions of the study area may be needed. A fifth route resulted from the inclusion of a two-mile crossover segment between routes 2 and 3 near the southern end of the study area in Ellis County. All of these routes are shown on the maps in Appendix A to this report.

On those maps, each route is color coded, with the western route (Route 1) represented by a solid green line, the central route (Route 2) a solid gold line, the central route alternate (Route 2A) with a dashed gold line north of U.S. Highway 36, the eastern route (Route 3) with the solid red line, and route ultimately selected (Route 4) as a combination of Route 2 (yellow) at the south end, the short crossover in Ellis County (blue), and Route 3 (red) north of the crossover. All five routes—1, 2, 2A, 3, and 4--were scored during the routing analysis.

Starting at the south end of the routes, at the site of the proposed Post Rock substation, all five routes start to the north for a short distance and then head east to 230th Avenue, where all but Route 3 turn to the north (Route 3 takes a unique path to the east). One-half mile to the north, Route 1 turns to the west to follow a unique path all the way to Nebraska. Six miles to the northeast is the Route 2 to Route 3 crossover which creates Route 4. Figure 4-1 contains a diagram that clearly illustrates the differences between each route.

It should be noted that in most of the Project area, more than four or five viable routes would be available. Much of the Project area is sparsely populated, affording many options for siting new transmission lines. The selection of five specific routes was made to provide a manageable basis for discussion of route characteristics and preferences. Identifying and analyzing many more routes would provide little or no net benefit from either an environmental or engineering standpoint.

4.1 Preferred Route (Route 4)

The preferred route (Route 4) is shown in maps contained in Appendix B to this report. Route 4 exits the Post Rock Substation to the north for a short distance, turns east to 230th Avenue, runs to the north for four miles and then to the northeast for two miles where it crosses U.S. Highway 183. It continues to the northeast for another half-mile, leaving Route 2 for the Route 2-to-3 crossover. After two miles on the crossover, Route

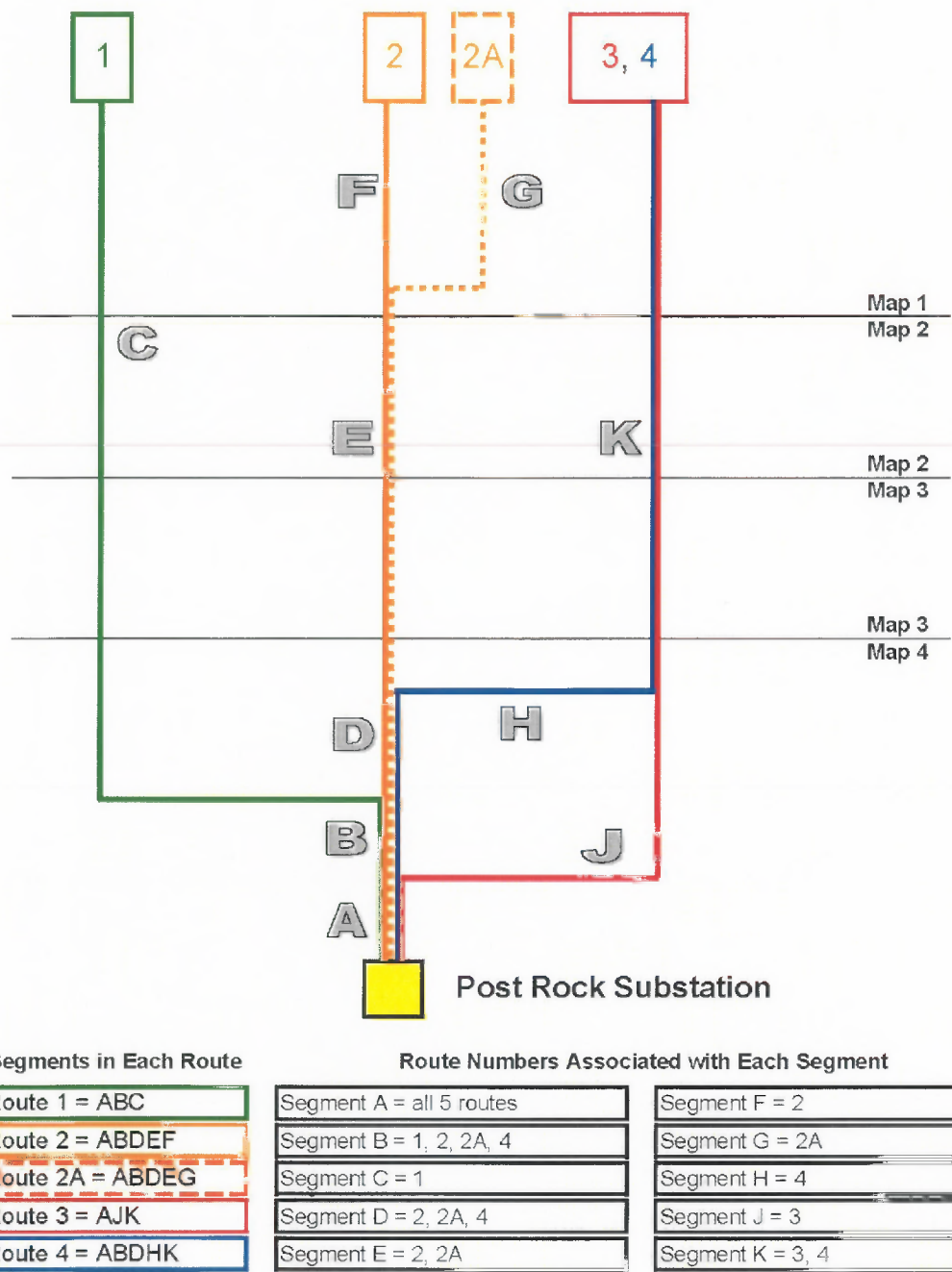


Figure 4-1
Phase II Routes Diagram

4 joins Route 3 and the two are identical all the way to the Nebraska line. In the rest of the route description, we refer only to Route 4.

Route 4 continues to the northeast for approximately 15 miles, entering Rooks County in the process, before crossing Kansas Highway 18 and turning to the north for three miles. After a one mile turn to the northeast, Route 4 resumes a mostly northerly path for 11 miles, entering Osborne County in the process. The route then runs primarily in a north-northeasterly direction for eight miles, crossing U.S. Highway 24. After a one-mile turn to the northeast, Route 4 runs north for three miles and enters Smith County. It turns to the northeast for five miles, then to the north for six miles, crossing Kansas Highway 9, and then to the northeast for two miles. It finishes its path to the border with Nebraska by running primarily in a northerly direction for the last 18 miles, crossing U.S. Highway 36 in the process. It reaches the border at a point six miles east of Route 2A, Route 4 measures approximately 85 miles in length.

Proposed commercial development on the west side of U.S. Highway 183 north of Hays, brought to ITC's attention during the CAG meeting in August 2009, caused the crossing of the highway to be moved further north than originally planned. Other than that, all route revisions from the original alignment were made in response to landowner comments received before, during, and after the public meetings.

The preferred route scored the best in the routing analysis, though it is the next to longest route. It has the fewest angle structures and the second lowest number of combined transmission line, highway, railroad, and river crossings. It has the added advantage of being in alignment with the NPPD line coming from the north in Nebraska, though this factor was not a consideration in the scoring methodology.

4.2 Alternate Routes (Routes 1, 2, 2A, and 3)

Like the preferred Route 4, Routes 1, 2, 2A, and 3 were evaluated and scored. Information pertinent to the results of the scoring process is summarized in Table 4-3.2. Detailed route descriptions are provided here.

4.2.1 Western Route (Route 1)

The western route, Route 1, exits the Post Rock Substation to the north for a short distance, turns east to 230th Avenue, runs to the north for one-half mile, crosses Feedlot Road, then turns 90 degrees to the west, leaving Routes 2, 2A, and 4 behind. It is a unique route for the rest of its path to the Nebraska border.

For 2.5 miles along and on the north side of Feedlot Road, Route 1 follows the alignment of Phase I route coming into Post Rock Substation from the south. It then

turns north for 8.5 miles before heading in a north-northeast direction for six miles, crossing into Rooks County in the process. It then turns to the northeast for 1.5 miles, to the north for four miles, crossing Kansas Highway 18, and then to the northeast for 1.5 miles before running in a primarily northerly direction for the next 15 miles, crossing U.S. Highway 24.

Route 1 then turns northeast for four miles, crossing U.S. 183 Highway in the process, then heads in a generally northern direction for three miles, crossing into Phillips County. From there, Route 1 continues north for seven miles, passes west of Kirwin Reservoir by two miles, and continues to the north for another 17 miles, crossing both Kansas Highway 9 and U.S. Highway 36 in the process. It then turns to the northeast for seven miles and finishes its path by turning north for the final 2.5 miles to the Nebraska border. Route 1 measures approximately 83 miles in length.

Route 1 scored last among the alternate routes, though it is only the third longest route and is two miles shorter than the preferred route and contains the fewest number of transmission line, highway, railroad, and river crossings. The number of large-angle structures needed, twice as many as any of the other routes, accounted for its poorer score. It has the added disadvantage of being the furthest from the NPPD line coming from the north in Nebraska, though this factor was not a consideration in the scoring methodology.

4.2.2 Central Routes (Routes 2 and 2A)

Starting at the proposed Post Rock Substation site, the central routes, Route 2 and Route 2A, are identical up to a point within 15 miles of the Nebraska border, where Route 2A splits to the east. For their first 7.5 miles north from Post Rock, the two routes are also identical to Route 4, the preferred route.

Both routes (2 and 2A) exit the Post Rock Substation site to the north for a short distance, turn east to 230th Avenue, and then run four miles to the north. For the last 1.5 miles of this four-mile run, the routes are parallel to and about 400 feet west of an existing high-voltage transmission line running north from the existing Knoll substation owned by Midwest Energy.

The routes then turn northeast for three miles, crossing the existing transmission line and U.S. Highway 183 in the process. Routes 2 and 2A then split with Route 4 and continue in a north-northeastern direction for 17 miles, entering Rooks County, crossing Kansas Highway 18, and passing approximately two miles east of Plainville. The route then turns to the northeast for two miles, then north for two miles, and northeast for another 10 miles. From that point, Routes 2 and 2A turn north for five miles, crossing U.S. Highway 24, then northeast for seven miles, entering Phillips County in the process.

From here, Route 2 follows an almost true northern direction for the last 30 miles to the Nebraska border, crossing both Kansas Highway 9 and U.S. Highway 36. In the course of these 30 miles, Route 2 crosses the north-south border between Phillips and Smith Counties twice before reaching the border in Smith County, one-half mile east of the Phillips County line. At this point, Route 2 is five miles east of Route 1. Route 2 measures approximately 80 miles in length.

Route 2 scored next to last among the alternate routes, though it is the shortest route of the five and more than four miles shorter than the preferred route. The fact that Route 2 contains more angle structures than any of the other routes was the primary reason for its relatively poor score.

Route 2A splits from Route 2 approximately 1.5 miles north of U.S. Highway 36, runs northeast for seven miles, then turns north for its final nine miles to the Nebraska border. At this point, Route 2A is four miles east of Route 2 and nine miles east of Route 1. Route 2A measures approximately 81 miles in length.

Route 2A scored second among the alternate routes, behind only the preferred route, though the latter is more than three miles longer. The primary differences in the scores of the two routes are that Route 2A has two more large-angle structures and one more transmission line crossing than does Route 4. It has the added disadvantage of being six miles too far west of the NPPD line coming from the north in Nebraska, though this factor was not a consideration in the scoring methodology.

4.2.3 Eastern Route (Route 3)

Starting at the proposed Post Rock Substation site, the eastern route, Route 3, exits the Post Rock Substation site to the north for a short distance and then turns east and southeast for 4.5 miles. It is the only route that leaves the substation property to the east. In the course of its run to the east, it parallels an existing high-voltage transmission line for 2.5 miles and crosses U.S. Highway 183 at Catharine Road before turning north at 270th Avenue. It then runs north for seven miles to the east end of the Route 2-to-3 crossover where it joins Route 4. It is identical to Route 4 for the rest of its path to the Nebraska border.

Route 3 continues to the northeast for approximately 15 miles, entering Rooks County and crossing Kansas Highway 18 in the process, before turning to the north for three miles. After a one mile turn to the northeast, Route 3 resumes a mostly northerly path for 11 miles, entering Osborne County in the process. The route then runs primarily in a north-northeasterly direction for eight miles, crossing U.S. Highway 24. After a one-mile turn to the northeast, Route 3 runs north for three miles and enters Smith County. It turns to the northeast for five miles, then to the north for six miles, crossing Kansas

Highway 9, and then to the northeast for two miles. It finishes its path to the border with Nebraska by running primarily in a northerly direction for the last 18 miles, crossing U.S. Highway 36 in the process. It reaches the border at a point six miles east of Route 2A, 10 miles east of Route 2, and 15 miles east of Route 1. Route 3 measures approximately 87 miles in length.

Route 3 scored third among the alternate routes and is the longest of all the routes, at more than two miles longer than the preferred route. It has two more large-angle structures than the preferred route, one more transmission line crossing, and has the disadvantage of crossing U.S. Highway 183 at least six miles closer to Hays than any of the other routes.

4.3 Comparative Resource Inventory

Table 4-3.2 provides a comparative resource inventory for the preferred route and the alternate routes developed for the Project. It contains inventories of features and characteristics identified within and along each of the routes.

The composite score values at the bottom of the table represent, in part, the results of efforts to quantify land use along each route using land use data embedded in state of Kansas GIS maps of the area and factoring in cost considerations due to angle structures. Lower scores are better than higher scores. The length of each type of land use or other route feature is multiplied by its assigned value and the products are added to arrive at a composite score for the route. The values used for land use, number of angle structures, and proximity to wind turbines are shown in Table 4-3.1.

With respect to land use, the assignment of values is based on the desirability of types of land for construction of transmission lines: the more barren the land, the fewer the obstructions, and the better its prospects for construction. With respect to residences, the nearness of the routes to residences has been addressed in three ways. The first way, not reflected directly in the scoring, was accomplished through direct observations in the field in August 2008 and January 2010, along with subsequent confirmation from aerial photographs. These efforts confirmed that no residence is nearer than 500 feet to any of the proposed lines, assuming the transmission line would be constructed in the center of its 150-foot right-of-way throughout the entire route. The second way, reflected in the scoring, is contained in the “Developed” land use categories, definitions of which can be found in Appendix C. The third way, also reflected in the scoring, is in the number of angles. On the routes contained in this project, nearly all of the angles placed in the lines are for avoidance of residences, businesses, or institutional buildings.

Table 4-3.1 Assigned Values for Types of Land Use and Technical Issues	
Type of Land Use and Construction Factors	Assigned Value
Barren Land	1
Cultivated Crops	3
Deciduous Forest	6
Developed, Low Intensity	4
Developed, Open Space	3
Emergent Herbaceous Wetlands	7
Grassland/Herbaceous	2
Open Water	9
Road Crossings and Encroachments	3
Woody Wetlands	7
Angle Structure, at least 30 degrees	5
Angle Structure, greater than 5 and less than 30 degrees	3
High-Voltage Transmission Line Crossing	5
Federal or State Highway Crossing	4
Railroad Crossing	5
River Crossing	7
Sited Wind Turbines within 500 Feet	2

Table 4-3.2
Comparative Resource Inventory
Post Rock Substation Site to Nebraska Border 345 kV Transmission Line

Routes	Route 1, Western Route	Route 2, Central Route	Route 2A, Central Alternate Route	Route 3, Eastern Route	Route 4, Preferred Route
Total Length (miles)	82.87	80.08	81.18	86.89	84.67
Land Use Factors:					
Barren Land (miles)	0.08	0.00	0.00	0.09	0.09
Cultivated Crops (miles)	33.20	37.87	38.79	33.42	35.23
Deciduous Forest (miles)	0.72	0.30	0.32	0.53	0.53
Developed, Low Intensity (miles)	0.93	0.38	0.40	0.75	0.70
Developed, Open Space (miles)	1.01	0.66	0.69	0.75	0.36
Emergent Herbaceous Wetlands	0.00	0.02	0.02	0.00	0.00
Grassland/Herbaceous (miles)	45.20	37.29	37.73	49.77	46.18
Open Water (miles)	0.23	0.16	0.13	0.18	0.20
Road Crossings and Encroachment (miles)	0.92	2.87	2.57	1.23	1.23
Woody Wetlands (miles)	0.59	0.52	0.53	0.17	0.15
Construction Factors:					
Number of Angle Structures ≥ 30 degrees	27	12	12	13	12
Number of Angle Structures < 30 degrees	16	34	25	25	23
Number of High-Voltage Transmission Line Crossings	8	10	10	10	9
Number of Federal or State Highway Crossings	5	5	5	5	5
Number of Railroad Crossings	1	2	2	2	2
Number of River Crossings	3	3	3	3	3
Number of Sited Wind Turbines within 500 feet	0	0	0	0	0
Parallel with T-Lines (miles)*	0.43	1.93	1.93	2.46	0.43
Composite Score	479.06	470.41	446.15	455.82	436.74
<p>* For information only; not used in scoring. Sources: Satellite Imagery, ESRI ArcGIS Map Service; NLCD 2001 Land Use Maps; Google Earth Aerial Photography, 2008; MapQuest Aerial Photography; Kansas GIS Catalog Maps; Field Observations, August 18-21, 2008 and January 19-21, 2010.</p>					

5.0 Permitting Requirements

A preliminary search of regulatory requirements identified those federal, state, and local permits or formal approvals that will or might be required for the construction, and in some cases operation, of the Spearville to Axtell 345 kV transmission line, for both Phases of the overall project. These permits and approvals are described in Sections 5.1, 5.2, and 5.3. Formal consultations with several of the involved agencies were also conducted and these are addressed in Section 5.5.

The need for the following permits and approvals will not be conclusively determined until route approval is granted and engineering design work begins. Once details of design are known, this permitting assessment will be updated and the process of applying for and obtaining permits will begin.

5.1 Federal

The following reviews, permits and approvals may be required from federal regulatory agencies for the construction and operation of the proposed transmission line and substations:

- U. S. Department of Agriculture, Natural Resources Conservation Service (NRCS, formerly the U. S. Soil Conservation Service)
 - Review of the final preferred route for the presence of land designated as “Prime Farmland.”
 - Review of the final preferred route for the presence of land designated as “Farmed Wetlands” (regulated by COE Section 404 permitting).
- U. S. Department of Defense, Army Corps of Engineers (COE)
 - Clean Water Act Section 404 Permit – required for work in “Waters of the United States,” including wetlands. Such work includes the need for fill material and the installation of transmission line structures and permanent access roads (considered as fill). Required permit may be a Nationwide Permit or an Individual Permit.
- U. S. Department of the Interior, Fish and Wildlife Service (USFWS)
 - Endangered Species Act Section 7 Consultation – review of designated Threatened and Endangered (T&E) species (plant and animal and habitats) for any required federal and state permits.
 - Endangered Species Act Section 10 Survey and Permit – field survey of designated T&E species and incidental take permit if construction will harm the affected species or destroy its habitat. A habitat conservation plan may also be needed.

- U. S. Department of Transportation, Federal Aviation Administration (FAA)
 - Notice of Proposed Construction – for objects that have heights that could be considered obstructions to navigable airspace, project notification to the FAA will be required.
- U. S. Environmental Protection Agency (EPA)
 - Spill Prevention Control and Countermeasure (SPCC) Plan – only if the project will have petroleum products in storage during construction and/or operation in excess of 1,320 gallons. This would apply to transformers at the new or expanded substations and to fuel tanks for construction vehicles and equipment.

5.2 State

The following permits and approvals may be required from various state regulatory agencies for construction and operation of the proposed transmission line and substations:

- Kansas State Historical Society
 - National Historic Preservation Act Section 106 Review – a review of cultural resources (archaeological and historic resources) required as a general condition for authorization of COE Section 10 and Section 404 permits and the National Pollutant Discharge Elimination System (NPDES) General Permit.
- Kansas Department of Health and Environment
 - NPDES General Storm Water Permit for Construction – required for land disturbances greater than or equal to one acre.
 - Construction Storm Water Pollution Prevention Plan – required to design, implement, manage, and maintain Best Management Practices to reduce the amount of pollutants in storm water discharges.
 - Above Ground Storage Tank System Permitting and Registration – required for storage of flammable and combustible liquids.
 - Temporary or Minor Source Construction Permit – required for the installation of generators
 - Water Quality Protection Plan – required with the submittal of a Clean Water Act Section 404 permit application, if the proposed project will traverse an exceptional state water.
 - Section 401 Water Quality Certification – approval is required as a general condition for authorization of the COE Section 10 and Section 404 permits.

- Kansas Department of Wildlife and Parks
 - Threatened and Endangered Species Evaluation – review of designated Threatened and Endangered (T&E) species (plant and animal and habitats) for any required federal and state permits.
- Kansas Department of Agriculture
 - Floodplain Fill Approval – required for the installation of structures within the 100-year flood plain.
- Kansas Department of Transportation
 - Highway Use Permit – required for the crossing of highway crossings, including K-156, K-96, K-4, US-40, and I-70.

5.3 Local

The following permits and approvals may be required from Ellis, Rooks, Osborne, Phillips, or Smith Counties for construction of the proposed transmission line and new substation. The need for each of these has not yet been confirmed, but each will be investigated with the appropriate permitting agency upon approval of construction of the Project and the development of more engineering design details.

5.3.1 *Ellis County*

- Floodplain Development Permit.
- Airport Overlay Zone Future Use Permit.
- Conditional Use Permit.
- Building Permit and Certificate of Occupancy.
- Construction Permits.
- County Road Crossing Approval.
- Design Review and Approval.

5.3.2 *Rooks County*

- Building Permit.
- Construction Permit.
- County Road Crossing Approval.
- Design Review and Approval.
- Flood Zone Determination and Compliance.
- Zoning Review/Conditional Use Permit.

5.3.3 Osborne County

- Building Permit.
- Construction Permit.
- County Road Crossing Approval.
- Design Review and Approval.
- Flood Zone Determination and Compliance.
- Zoning Review/Conditional Use Permit.

5.3.4 Phillips County

- Building Permit.
- Construction Permit.
- County Road Crossing Approval.
- Design Review and Approval.
- Flood Zone Determination and Compliance.
- Zoning Review/Conditional Use Permit.

5.3.5 Smith County

- Building Permit.
- Construction Permit.
- County Road Crossing Approval.
- Design Review and Approval.
- Flood Zone Determination and Compliance.
- Zoning Review/Conditional Use Permit.

5.4 Other Permits

Because all of the routes cross railroads, permits or approvals from each railroad company will be needed. Railroads crossed by the proposed transmission line include the Kansas and Oklahoma Railroad and the MSPA/Kyle Railroad.

5.5 Agency Consultations

Black & Veatch contacted federal, state and local agencies as part of data collection and environmental consultation. The objective of making the contacts is the identification of issues of concern for the agencies after their review of the Project and the determination of the permits and approvals that will be required. The results of the phone and electronic mail contacts are summarized in this section and copies of the

letters received from the agencies are contained in Appendix D, Agency Responses to Requests for Consultation.

5.5.1 *Contacts with Agencies*

Black & Veatch contacted several federal and state agencies seeking consultation and input regarding their environmental concerns with the Project. This consultation process helped ITC and its representatives address those concerns with route modifications where needed and where feasible.

On August 10, 2009, Project team members from ITC and Black & Veatch met with U. S. Fish & Wildlife Service representatives in Manhattan, Kansas. Service staff stated that their greatest concerns regarded migratory birds in general and whooping cranes in particular. Because the entire study area is in the Aransas/Wood Buffalo Population Migration Route for whooping cranes, it was not possible to avoid the migration route. Therefore, in the routing process, ITC and Black & Veatch looked for routes that avoided bodies of water that might attract migratory birds, the Kirwin Reservoir in particular. Ultimately, the route selected is the one that achieved this goal and is furthest from that waterbody. Route 4 is more than 12 miles east of the east end of Kirwin Reservoir.

5.5.2 *Summary of Agency Responses*

Letters requesting consultation were sent to the following agencies:

- U.S. Department of Agriculture, Natural Resources Conservation Service
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- Kansas State Historical Society
- Kansas Department of Health and Environment, Division of Environment
- Kansas Department of Wildlife and Parks
- Kansas Department of Agriculture
- Kansas Department of Transportation (four letters, included one for each of three districts)
- Kansas Biological Survey, Kansas Natural Heritage Inventory
- The Nature Conservancy

The following is a summary of the responses from those agencies that did respond. They appear in the order received from the agency. Certain of the information contained in these responses pertains to Phase I of the overall project, but it was included here for the sake of completeness.

5.5.2.1 Kansas Department of Health and Environment, Bureau of Environmental Remediation. In a letter dated October 20, 2008, the respondent stated that Bureau's Landfill Remediation Unit has one Permitted Closed Landfill, and three City Dump sites in the vicinity of the Project. The Pawnee County - Burdett Landfill is located in the southwest quarter of the northeast quarter of Section 35, Township 21 S, Range 20 W. The Alexander City Dump is located in the southwest quarter of the southeast quarter of Section 24, Township 18 S, Range 20 W. Fort Hays City Dump #2 is located in the southwest quarter of the southeast quarter of Section 01, Township 14 S, Range 19 W. Glade City dump is located northwest quarter of the southwest quarter of Section 29, Township 14 S, Range 17 W.

The respondent stated that her agency recommends that any construction be located outside of the limits of the buried solid wastes whenever possible. Should the construction expose any wastes, the wastes exposed must be transported to and disposed of in a KDHE approved landfill. The Bureau does not allow construction through the sites of Closed Municipal Solid Waste Landfills. Any transmission line towers constructed must avoid disturbing the buried solid waste or the landfill cap material.

5.5.2.2 Kansas State Historical Society. In a letter dated October 21, 2008, the respondent stated that the agency had reviewed its cultural resource files for the proposed project area. South of I-70, the three routes cross river valleys. From north to south they are the Smoky Hill River, Walnut Creek, and the Pawnee River. Recorded sites are present all along these valleys as well in the project area, and high potential for additional archeological sites may be expected. Between the Pawnee River and Spearville, the study corridors cross an upland area with few large streams and little surface water. In this area, shallow playas are the main water sources and are often where archeological sites are found. In terms of standing structures, the respondent noted that numerous farmsteads and early buildings are present within the study area and that he will likely request that basic ground-level photographs of structures in and near the chosen routes be submitted in order that their historic significance (if any) may be assessed.

5.5.2.3 Kansas Department of Transportation. In a letter dated October 23, 2008, the respondent stated that he had reviewed proposed locations in Ford and Hodgeman counties as depicted on the maps and did not see any adverse impacts to the State-owned and maintained transportation system in those counties. A highway permit will be needed where the line crosses over a State or U.S. route in other Districts.

5.5.2.4 United States Army Corps of Engineers. In a letter dated October 24, 2008, the respondent stated that the Corps of Engineers has jurisdiction over all waters of

the United States. Discharges of dredged or fill material in waters of the United States, including wetlands, require prior authorization from the Corps under Section 404 of the Clean Water Act (33 USC 1344). The implementing regulation for this Act is found at 33 CFR 320-330.

The respondent stated that he had reviewed the information furnished and determined that the proposed project will not involve a discharge of dredged or fill material in waters of the United States. Therefore, Department of the Army permit authorization is not required. Should any phase of this project require work to occur in any wetlands or streams, Department of Army (DA) authorization will be required and an application should be submitted.

5.5.2.5 United States Department of Agriculture, Natural Resources Conservation Service. In a letter dated October 27, 2008, the respondent stated that the proposed line routes and locations of substations appear to be mostly on privately owned agricultural land and recommends giving private landowners an opportunity to comment on this project.

The respondent stated that lines have the potential and probably will cross easements, streams, wetlands, migration routes for migratory birds, habitat for fish and wildlife, cultural resource sites, human transportation routes, pipeline facilities, and potentially impact rural farmstead locations.

5.5.2.6 Kansas Department of Health and Environment, Bureau of Water. In a letter dated October 27, 2008, the respondent stated that he had no objection to the proposal but offered a comment for review and consideration. Any construction activity which disturbs one acre or more is required to file a National Pollutant Discharge Elimination System (NPDES) permit application for stormwater runoff resulting from construction activities. The project owner (party responsible for the project) must obtain authorization from KDHE to discharge stormwater runoff associated with construction activities prior to commencing construction.

5.5.2.7 University of Kansas, Kansas Biological Survey. In a letter dated October 29, 2008, the respondent provided an ESRI shapefile showing locations of rare species and natural communities (i.e. unique habitats) within approximately 10 miles of the proposed project area after review of the Kansas Natural Heritage Inventory database for records of state and federal threatened, endangered, and special concern species at the referenced site.

The respondent stated that (1) most of Kansas has not been surveyed for rare species and unique habitats and absence of records should not be interpreted as an

indication that rare species and unique habitats do not occur in any particular area; (2) the Hays to Axtell line falls almost entirely within the range of the Greater prairie chicken (*Tympanuchus cupido*) and sections of the Spearville to Hays line fall within the range of the Lesser prairie chicken (*Tympanuchus pallidicinctus*), (3) critical habitat has been designated for the Eastern spotted skunk (*Spilogale putorius*) in parts of Ellis County, including the proposed site of the new substation near Hays; and (4) if playas occur in the project area, the applicant should be aware that bird use in these habitats could be high at certain times of the year.

5.5.2.8 United States Department of the Interior, Fish and Wildlife Service.

In a letter dated October 30, 2008, the respondent stated that the federally listed whooping crane (*Gus Americana*), the least tern (*Sterna antillarum*) and the Arkansas River shiner (*Notropis girardi*) may occur in the project area. The least tern also nests at Kirwin National Wildlife Refuge, near Phillipsburg, Kansas. Preferred habitat sites are wetlands (including playa lakes), open fields, and grasslands in areas of low relief with short vegetation. Federally-designated critical habitat for the whooping crane includes both the Cheyenne Bottoms Wildlife Area (WA) and Quivera National Wildlife Refuge, near Great Bend, Kansas. This project is located in the migratory path between multiple water bodies which provide important feeding/resting areas for the two bird species.

The respondent stated that the lesser prairie-chicken (*Tympanuchus pallidicinctus*), a candidate species, may occur in the project area and recommends that native prairie, including shortgrass and sandsage prairies, be avoided to the maximum extent possible.

The respondent stated that construction and operational activities should avoid wetlands, streams, and riparian woodlands to the maximum extent possible. All construction rights-of-way should be surveyed for the presence of marshes and other wetland habitat types. All disturbed riparian areas should be revegetated with native plants as soon as possible after the disturbance occurs. Species composition following revegetation should parallel that which existed prior to the disturbance.

The respondent stated that the applicant should provide for enhanced visibility of the static lines on any overhead line segment within one mile of a stream or wetland.

5.5.2.9 Kansas Department of Agriculture. In a letter dated November 3, 2008, the respondent stated that the route of the transmission line as depicted in the maps provided will encounter the following surface water stream courses: From South to North, Buckner Creak, Walnut Creek, the Smoky Hill River, the Saline River, the South fork of the Solomon River, the North fork of the Solomon river, and will traverse Webster and Kirwin Reservoirs. He further stated that he has no reason to believe that

the installation of the transmission line will negatively impact these water resources, if normal industry practices are employed.

5.5.2.10 Kansas Department of Wildlife and Parks. In a letter dated November 20, 2008, the respondent stated that the agency has few concerns with the proposed Preferred Route, but suggests that the substations be constructed on cultivated land to avoid native grasslands. The respondent emphasized that he did not review all alternate routes and if it becomes necessary to use an alternate route, further consultation will be needed. Although a minor concern, several playa lakes are present along the routes and careful attention should be taken not to disturb or alter the hydrology to these ephemeral wetlands.

From Spearville to Hays, the respondent concluded that the Preferred Route poses the least environmental impacts with respect to wildlife and crucial wildlife habitat. He did have some concern for the portion of the line that is proposed through a relatively large tract of native grassland where both Lesser and Greater Prairie chickens have been documented. To mitigate for this concern, he suggested that the line deviate from the "Preferred Route" at a point south of Antonino Road in Ellis County and then follow the Alternate Route #3 concluding near the Post Rock substation.


Additionally, the respondent noted that Big Creek, near Hays, is considered Designated Critical Habitat for the eastern spotted skunk, *Spilogale putorius*. Any right-of-way clearing of brush or trees on Big Creek will require an Action Permit and mitigation plan.


**Appendix A
Maps of Alternate Routes**


ITC Great Plains
Spearsville-Axtell 345kV
Routing Study
Phase 2


Map 3

Legend

- 


Post Rock Substation
- 


Route 1
- 


Route 2
- 


Route 2A
- 


Route 3
- 


Route 4
- 


Preferred Route
- 


Railroads
- 


Limited Access
- 


Highway
- 


Major Road
- 

Minor Road
- 


Sections
- 


Counties
- 


States
- 


Urban Areas
- 


Lakes and Ponds


- 


60 kV
- 


69 kV
- 


115 kV
- 


138 kV
- 

161 kV
- 

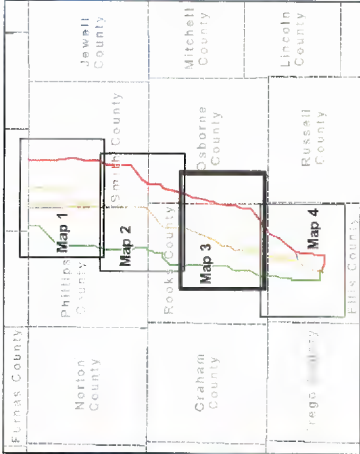
230 kV
- 

345 kV
- 

400 kV
- 

500 kV
- 

765 kV



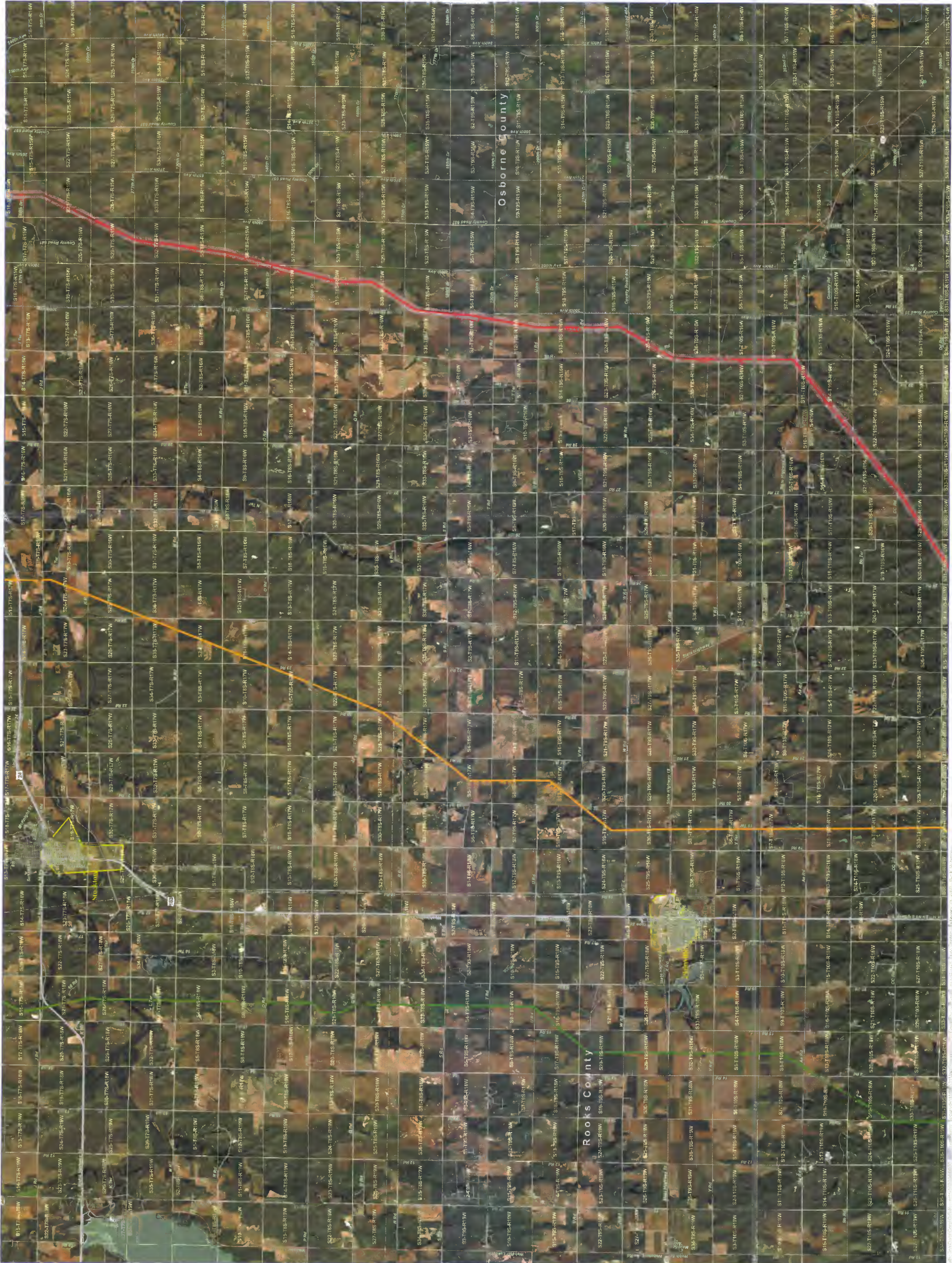
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1 0 1 2
Miles

Source: ESRI ArcGIS map service
USGS Quads - scanned image of a US Geological Survey (USGS)
KS Highway Authority
NE Interchangeway, Inc. data.gov
Land Use - The NCD 2011 land cover layer was produced through a cooperative project conducted by the NCD Consortium



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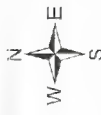
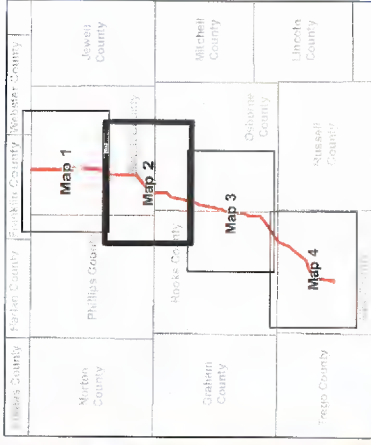
**Appendix B
Maps of Preferred Route**

Map 2

Post Rock Substation	Transmission Lines
Preferred Route	60 kV
Railroads	69 kV
Limited Access	115 kV
Highway	138 kV
Major Road	161 kV
Minor Road	230 kV
Parcels	345 kV
Sections	400 kV
Counties	500 kV
States	765 kV

Urban Areas

Lakes and Ponds



Sources:
Aerial - ESRI ArcGIS map. Service
ESRI ArcGIS Map/Service: <http://services.arcgisonline.com/ArcGIS/MapServer/0>
USGS Quads - Scanned image of a U.S. Geological Survey (USGS) standard series <http://pubs.usgs.gov/of/1983/1983-1000/>
NE <http://www.usgs.gov/of/1983/1983-1000/>
KSC <http://data.gis.wisc.edu/gis/>
Land Use: The M.C.O. 2001 Land cover layer was produced through a cooperative project conducted by the MRLC Consortium.



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**ITC Great Plains
Spearville-Axtell 345kV
Routing Study
Phase 2**

Map 3

Legend



Post Rock Substation



60 kV



69 kV



115 kV

138 kV



161 kV

230 kV



345 kV

400 kV



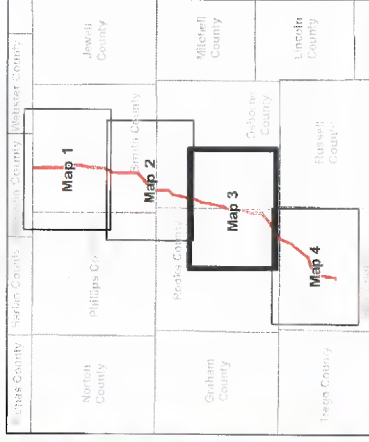
500 kV



765 kV

Urban Areas

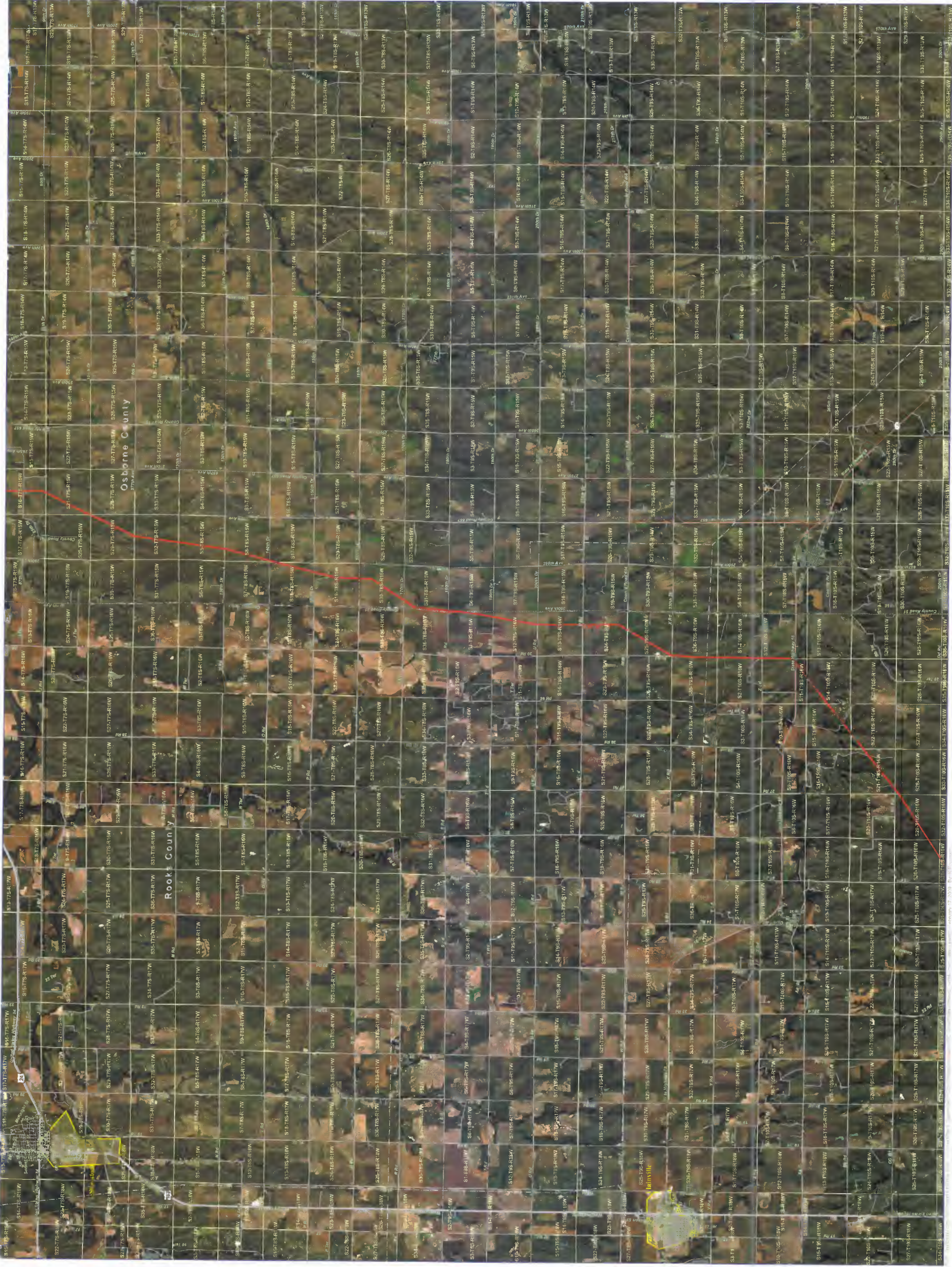
Lakes and Ponds



Sources

- Aerial – ESR ArcGIS map Service
- ESRI ArcIMS <http://services.arcointline.com/w2>
- USGS Quads – scanned image of a US Geological Survey (USGS) standard series topographic map.
- KS <http://www.karsageis.org/catalog/cfm?aster>
- NE <http://data.gaw.usgs.usda.gov/>

Land Use – The NLC0 2007 land cover layer was produced through a cooperative project conducted by the MRLC Consortium.


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ITC Great Plains
Spearville-Axtell 345KV
Routing Study
Phase 2

Map 4

Legend

- 

Post Rock Substation
- 

Preferred Route
- 

Railroads
- 

Limited Access
- 

Highway
- 

Major Road
- 

Minor Road
- 

Parcels
- 


Sections
- 


Counties
- 


States
- 


Urban Areas
- 


Lakes and Ponds


- 


Transmission Lines
- 


60 KV
- 


69 KV
- 


115 KV
- 


138 KV
- 

161 KV
- 

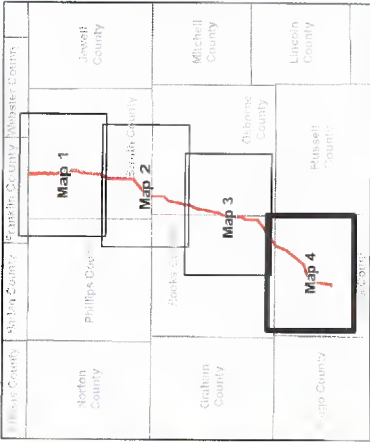
230 KV
- 

345 KV
- 

400 KV
- 

500 KV
- 

765 KV



Source: ESRI ArcGIS map Service
Aerial: ESRI ArcGIS map Service
USGS Quads - scanned image of a US Geological Survey (USGS)
KDOT - Kansas Department of Transportation
US Census Bureau - 2010 Census
Land Use - The NCD 2001 and other data was produced
by the MRC Consortium.



Appendix C

Land Use Category Definitions

Multi-Resolution Land Characteristics Consortium (MRLC) National Land Cover Data (NLCD) 2001 Land Cover Class Definitions

DEFINITIONS OF TERMS USED IN STUDY:

Barren Land (Rock/Sand/Clay) - Barren areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.

Cultivated Crops - Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Deciduous Forest - Areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75 percent of the tree species shed foliage simultaneously in response to seasonal change.

Developed, High Intensity - Includes highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80 to 100 percent of the total cover.

Developed, Low Intensity - Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20-49 percent of total cover. These areas most commonly include single-family housing units.

Developed, Medium Intensity - Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50-79 percent of the total cover. These areas most commonly include single-family housing units.

Developed, Open Space - Includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20 percent of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes. This category also includes paved and unpaved roadways.

Emergent Herbaceous Wetlands - Areas where forest or shrubland vegetation accounts for greater than 20 percent of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

Grassland/Herbaceous - Areas dominated by graminoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling, but can be utilized for grazing.

Open Water - All areas of open water, generally with less than 25% cover of vegetation or soil.

Road Crossing - Locations where route crosses roads of all kinds. Minimum width of crossing in database is 100 feet, the width of one pixel.

Woody Wetlands - Areas where forest or shrubland vegetation accounts for greater than 20 percent of vegetative cover and the soil or substrate is periodically saturated with or covered with water (also broad category--see below).

BROAD CATEGORY DEFINITIONS:

Water - All areas of open water or permanent ice/snow cover.

Developed - Areas characterized by a high percentage (30 percent or greater) of constructed materials (e.g. asphalt, concrete, buildings, etc).

Barren - Areas characterized by bare rock, gravel, sand, silt, clay, or other earthen material, with little or no "green" vegetation present regardless of its inherent ability to support life. Vegetation, if present, is more widely spaced and scrubby than that in the "green" vegetated categories; lichen cover may be extensive.

Forested Upland - Areas characterized by tree cover (natural or semi-natural woody vegetation, generally greater than 6 meters tall); tree canopy accounts for 25-100 percent of the cover.

Herbaceous Upland - Upland areas characterized by natural or semi-natural herbaceous vegetation; herbaceous vegetation accounts for 75-100 percent of the cover.

Planted/Cultivated - Areas characterized by herbaceous vegetation that has been planted or is intensively managed for the production of food, feed, or fiber; or is maintained in developed settings for specific purposes. Herbaceous vegetation accounts for 75-100 percent of the cover.

Woody Wetlands - Areas where forest or shrubland vegetation accounts for greater than 20 percent of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

**Appendix D
Agency Responses to Requests for Consultation**



October 13, 2008

Eric Banks, State Conservationist
USDA, NRCS
760 South Broadway
Salina, KS 67401
US Department of Agriculture, NRCS

RE: Transmission Line, Spearville, KS to Axtell, NE

Dear Mr. Banks:

ITC Great Plains (ITC) proposes to construct a new transmission line from the existing Spearville, Kansas substation to the Axtell, Nebraska substation. ITC requested that Black & Veatch conduct an environmental review of this project. Your agency's assistance and input will assist with the project's environmental review.

The proposed project area is approximately 180 miles long, beginning in Ford County, Kansas and ending in Harlan County, Nebraska. The proposed project consists of:

- A new substation near Hays, Kansas
- A new substation near Spearville, Kansas
- 765 kV line from Spearville, Kansas to Hays, Kansas
- 345 kV line from Hays, Kansas to Axtell Kansas

For purposes of the environmental review, it is assumed that the new substations near Spearville and Hays, Kansas will be built within a three-mile radius of the existing substations. The specific location of the new substations has not been determined. The new transmission line will require a right-of-way width of approximately 250 feet for the 765 kV segment and 150 feet for the 345 kV segment.

Please refer to the enclosed maps for reference. These maps illustrate three alternative route alignments. These alternatives are currently under investigation and a preferred route with minimal environmental impacts has not yet been determined.

Information from your agency regarding the natural resources within the Kansas portion of the study area is requested to assist in the identification of an environmentally preferable route.

U.S. Department of Agriculture, NRCS
Eric Banks

B&V Project – 162034
October 13, 2008

Black & Veatch requests a written response of your findings for the project record, within 30 days of your receipt of this letter if possible. If you have any questions during your review or require additional information, please contact me at (913) 458-3380 or at FalconeSJ@bv.com. Thank you in advance for your effort in completing this request.

Sincerely,

A handwritten signature in black ink, reading "Salvatore Falcone". The signature is fluid and cursive, with a long horizontal line extending from the end.

Salvatore Falcone
Environmental Project Manager
Black & Veatch Corporation

Cc: B&V ITC file (with enclosures)

United States Department of Agriculture



Natural Resources Conservation Service
760 South Broadway
Salina, Kansas 67401-4604

Phone: 785-823-4500
FAX: 785-823-4540
www.ks.nrcs.usda.gov

October 27, 2008

Mr. Salvatore Falcone
Environmental Project Manager
Black and Veatch Corporation
11401 Lamar Avenue
Overland Park, Kansas 66211

Dear Mr. Falcone:

The Kansas Natural Resources Conservation Service (NRCS) received your request for natural resource information on proposed construction of ITC Great Plains (ITC) new transmission line from Spearville, Kansas, to Harlan County, Nebraska. Three alternative routes are proposed for the transmission line; however, no preferred alternative is identified. Two new substations will be within three miles of proposed transmission lines that will be located near Hays, Kansas and Spearville, Kansas.

The proposed line routes and locations of substations appear to be mostly on privately owned agricultural land. We recommend giving private landowners an opportunity to comment on this project. Land uses impacted would include cropland, rangeland, hay land, and wildlife land.

Lines have the potential and probably will cross easements, streams, wetlands, migration routes for migratory birds, habitat for fish and wildlife, cultural resource sites, human transportation routes, pipeline facilities, and potentially impact rural farmstead locations. The Kansas Department of Wildlife and Parks and the U.S. Fish and Wildlife Service are your contacts for fish, wildlife, and Threatened and Endangered Species issues. The Kansas State Historical Society is responsible for cultural resource issues. The U.S. Army Corps of Engineers is responsible for Clean Water Act jurisdictional issues.

These items are provided to you as cursory observations from our experience in farm planning in west central Kansas.

If you have any questions, contact Terry M. Conway, State Resource Conservationist at 785-823-4547 or by e-mail at terry.conway@ks.usda.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric B. Banks".

ERIC B. BANKS
State Conservationist

cc:

Terry M. Conway, State Resource Conservationist, NRCS, Salina, Kansas
Kenneth A. Kuiper, State Biologist, NRCS, Salina, Kansas

Helping People Help the Land

An Equal Opportunity Provider and Employer.



October 13, 2008

Luke Cory
Regulatory Project Manager, Kanapolis Office
U.S. Corps of Engineers
107 Riverside Drive
Marquette KS 67464

RE: Transmission Line, Spearville, KS to Axtell, NE

Dear Mr. Cory:

ITC Great Plains (ITC) proposes to construct a new transmission line from the existing Spearville, Kansas substation to the Axtell, Nebraska substation. ITC requested that Black & Veatch conduct an environmental review of this project. Your agency's assistance and input will assist with the project's environmental review.

The proposed project area is approximately 180 miles long, beginning in Ford County, Kansas and ending in Harlan County, Nebraska. The proposed project consists of:

- A new substation near Hays, Kansas
- A new substation near Spearville, Kansas
- 765 kV line from Spearville, Kansas to Hays, Kansas
- 345 kV line from Hays, Kansas to Axtell Kansas

For purposes of the environmental review, it is assumed that the new substations near Spearville and Hays, Kansas will be built within a three-mile radius of the existing substations. The specific location of the new substations has not been determined. The new transmission line will require a right-of-way width of approximately 250 feet for the 765 kV segment and 150 feet for the 345 kV segment.

Please refer to the enclosed maps for reference. These maps illustrate three alternative route alignments. These alternatives are currently under investigation and a preferred route with minimal environmental impacts has not yet been determined.

Information from your agency regarding the natural resources within the Kansas portion of the study area is requested to assist in the identification of an environmentally preferable route.

U.S. Corps of Engineers
Luke Cory

B&V Project – 162034
October 13, 2008

Black & Veatch requests a written response of your findings for the project record, within 30 days of your receipt of this letter if possible. If you have any questions during your review or require additional information, please contact me at (913) 458-3380 or at FalconeSJ@bv.com. Thank you in advance for your effort in completing this request.

Sincerely,

A handwritten signature in black ink, reading "Salvatore Falcone". The signature is fluid and cursive, with a long horizontal line extending from the end of the name.

Salvatore Falcone
Environmental Project Manager
Black & Veatch Corporation

Cc: B&V ITC file (with enclosures)



DEPARTMENT OF THE ARMY
KANSAS CITY DISTRICT, CORPS OF ENGINEERS
REGULATORY BRANCH - KANOPOLIS SATELLITE OFFICE
107 RIVERSIDE DRIVE
MARQUETTE, KANSAS 67464

REPLY TO
ATTENTION OF:

24 October, 2008

Kanopolis Satellite Office
(NWK-2008-01936)
(Ellis Co., KS, NPR)

Mr. Salvatore Falcone
Black & Vetch Corporation
11401 Lamar Ave.
Overland Park, KS 66211

Dear Mr. Falcone:

This is in response to your letter dated 13 October, 2008, requesting comments on a proposed overhead transmission line. The transmission line would be approximately 180 miles long and would consist of a 765 kV line from Spearville, Kansas to Hays Kansas and a 345 kV line from Hays Kansas to Axtell Nebraska. As indicated by your plans, the Hays Kansas substation would be located in Section 21, Township 13 south, Range 18 west in Ellis County, Kansas.

The Corps of Engineers has jurisdiction over all waters of the United States. Discharges of dredged or fill material in waters of the United States, including wetlands, require prior authorization from the Corps under Section 404 of the Clean Water Act (33 USC 1344). The implementing regulation for this Act is found at 33 CFR 320-330.

We have reviewed the information furnished and have determined that the proposed project will not involve a discharge of dredged or fill material in waters of the United States. Therefore, Department of the Army permit authorization is not required. Should any phase of this project require work to occur in any wetlands or streams, Department of Army (DA) authorization will be required and an application should be submitted. However, other Federal, state and/or local permits may be required and you should verify this yourself.

Mr. Steven M. Whetzel, Regulatory Specialist, reviewed the information furnished and made this determination. If you have any questions concerning this matter, please feel free to contact Mr. Whetzel at 785-546-2130 (FAX 785-546-2050).

Enclosure

Copies Furnished:

**Environmental Protection Agency,
Watershed Planning and Implementation Branch wo/enclosure
Kansas Department of Wildlife
and Parks wo/enclosure
Kansas Department of Agriculture wo/enclosure**



October 13, 2008

Jennie Chinn
Executive Director
State Historic Preservation Officer
Kansas State Historical Society
6425 SW Sixth Avenue
Topeka KS 66615-1099

RE: Transmission Line, Spearville, KS to Axtell, NE

Dear Ms. Chinn:

ITC Great Plains (ITC) proposes to construct a new transmission line from the existing Spearville, Kansas substation to the Axtell, Nebraska substation. ITC requested that Black & Veatch conduct an environmental review of this project. Your agency's assistance and input will assist with the project's environmental review.

The proposed project area is approximately 180 miles long, beginning in Ford County, Kansas and ending in Harlan County, Nebraska. The proposed project consists of:

- A new substation near Hays, Kansas
- A new substation near Spearville, Kansas
- 765 kV line from Spearville, Kansas to Hays, Kansas
- 345 kV line from Hays, Kansas to Axtell Kansas

For purposes of the environmental review, it is assumed that the new substations near Spearville and Hays, Kansas will be built within a three-mile radius of the existing substations. The specific location of the new substations has not been determined. The new transmission line will require a right-of-way width of approximately 250 feet for the 765 kV segment and 150 feet for the 345 kV segment.

Please refer to the enclosed maps for reference. These maps illustrate three alternative route alignments. These alternatives are currently under investigation and a preferred route with minimal environmental impacts has not yet been determined.

Information from your agency regarding the natural resources within the Kansas portion of the study area is requested to assist in the identification of an environmentally preferable route.

Kansas State Historical Society
Jennie Chinn

B&V Project – 162034
October 13, 2008

Black & Veatch requests a written response of your findings for the project record, within 30 days of your receipt of this letter if possible. If you have any questions during your review or require additional information, please contact me at (913) 458-3380 or at FalconeSJ@bv.com. Thank you in advance for your effort in completing this request.

Sincerely,

A handwritten signature in black ink, reading "Salvatore Falcone". The signature is fluid and cursive, with a long horizontal line extending from the end of the name.

Salvatore Falcone
Environmental Project Manager
Black & Veatch Corporation

Cc: B&V ITC file (with enclosures)

KANSAS

KSR&C No. 08-10-204

Kansas State Historical Society
Jennie Chinn, *Executive Director*

KATHLEEN SEBELIUS, GOVERNOR

October 21, 2008

Salvatore Falcone
Environmental Project Manager
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211

RE: Transmission Line Routing Study
Spearville, KS to Axtell, NE
Edwards, Ellis, Ford, Hodgeman, Osborne, Pawnee, Phillips, Rooks, Rush, and Smith Counties

Dear Mr. Falcone:

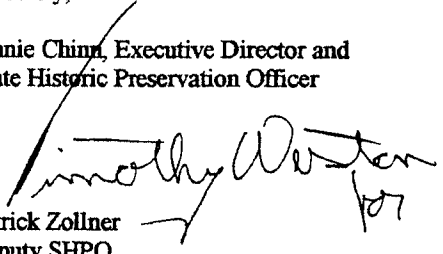
The Kansas State Historic Preservation Office has reviewed its cultural resources files for the area of the proposed project as described in your letter of October 13, 2008 in accordance with 36 CFR 800. It is difficult to provide definitive comments for such a large area, but our office can offer some direction at this time. We do so with the expectation that a thorough Phase I records search will be conducted and submitted for review once transmission line routes have been chosen.

Between the Nebraska border and I-70, the three study corridors cross several major river valleys. From north to south they are the North Fork of the Solomon River, the South Fork of the Solomon River, the upper reaches of Paradise Creek, and the Saline River. Recorded sites are present all along these valleys in the project area, and high potential for additional archeological sites may be expected. South of I-70, the three project corridors cross other river valleys. From north to south they are the Smoky Hill River, Walnut Creek, and the Pawnee River. Recorded sites are present all along these valleys as well in the project area, and high potential for additional archeological sites may be expected. Between the Pawnee River and Spearville, the study corridors cross an upland area with few large streams and little surface water. In this area, shallow playas are the main water sources and are often where archeological sites are found. In terms of standing structures, we note that numerous farmsteads and early buildings are present within the study area. Our office will likely request that basic ground-level photographs of structures in and near the chosen routes be submitted in order that their historic significance (if any) may be assessed.

This information is provided at your request to assist you in identifying historic properties, as specified in 36 CFR 800 for Section 106 consultation procedures. If you have questions or need additional information regarding these comments, please contact Tim Weston at 785-272-8681 (ext. 214) or Kim Norton at 785-272-8681 (ext. 225). Please refer to the Kansas Review & Compliance number (KSR&C#) above on all future correspondence relating to this project.

Sincerely,

Jennie Chinn, Executive Director and
State Historic Preservation Officer


Patrick Zollner
Deputy SHPO



October 13, 2008

Donna Fisher
Kansas Department of Health and Environment
Division of Environment
1000 SW Jackson, Suite 400
Topeka, Ks. 66612-1367

RE: Transmission Line, Spearville, KS to Axtell, NE

Dear Ms. Fisher:

ITC Great Plains (ITC) proposes to construct a new transmission line from the existing Spearville, Kansas substation to the Axtell, Nebraska substation. ITC requested that Black & Veatch conduct an environmental review of this project. Your agency's assistance and input will assist with the project's environmental review.

The proposed project area is approximately 180 miles long, beginning in Ford County, Kansas and ending in Harlan County, Nebraska. The proposed project consists of:

- A new substation near Hays, Kansas
- A new substation near Spearville, Kansas
- 765 kV line from Spearville, Kansas to Hays, Kansas
- 345 kV line from Hays, Kansas to Axtell Kansas

For purposes of the environmental review, it is assumed that the new substations near Spearville and Hays, Kansas will be built within a three-mile radius of the existing substations. The specific location of the new substations has not been determined. The new transmission line will require a right-of-way width of approximately 250 feet for the 765 kV segment and 150 feet for the 345 kV segment.

Please refer to the enclosed maps for reference. These maps illustrate three alternative route alignments. These alternatives are currently under investigation and a preferred route with minimal environmental impacts has not yet been determined.

Information from your agency regarding the natural resources within the Kansas portion of the study area is requested to assist in the identification of an environmentally preferable route.

Kansas Department of Health and Environment
Donna Fisher

B&V Project – 162034
October 13, 2008

Black & Veatch requests a written response of your findings for the project record, within 30 days of your receipt of this letter if possible. If you have any questions during your review or require additional information, please contact me at (913) 458-3380 or at FalconeSJ@bv.com. Thank you in advance for your effort in completing this request.

Sincerely,

A handwritten signature in black ink, reading "Salvatore Falcone". The signature is fluid and cursive, with a long horizontal line extending to the right.

Salvatore Falcone
Environmental Project Manager
Black & Veatch Corporation

Cc: B&V ITC file (with enclosures)



Kathleen Sebelius, Governor
Roderick L. Bremby, Secretary

DEPARTMENT OF HEALTH
AND ENVIRONMENT

www.kdheks.gov

Division of Environment
Comments by: KDHE

Transmittal Date: October 27, 2008

This form provides notification and the opportunity for your agency to review and comments on this proposed project as required by Executive Order 12372. Review Agency, please complete Parts II and III as appropriate and return to contact person listed below. Your prompt response will be appreciated.

RETURN TO: Mr. Salvatore Falcone, Environmental Project Manager
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211

PART I

REVIEW AGENCIES/COMMISSION

<input type="checkbox"/> Aging	<input type="checkbox"/> Education	<input type="checkbox"/> State Forester
<input type="checkbox"/> Agriculture	<input type="checkbox"/> Geological Survey, KS	<input type="checkbox"/> Transportation
<input type="checkbox"/> Biological Survey	<input checked="" type="checkbox"/> Health & Environment	<input type="checkbox"/> Water Office, KS
<input type="checkbox"/> Conservation Commission	<input type="checkbox"/> Historical Society	<input type="checkbox"/> Wildlife & Parks
<input type="checkbox"/> Corporation Commission	<input type="checkbox"/> Social & Rehabilitation	<input type="checkbox"/> Commerce

PART II

AGENCY REVIEW COMMENTS

COMMENTS: (Attach additional sheet if necessary) Transmission Line for Spearville, KS to Axtell, NE
Please see the enclosed comments submitted by Kathleen Bleach, Bureau of Environmental Remediation and Mr. Don Carlson, Bureau of Water regarding this project.

PART III

RECOMMENDED ACTION COMMENTS

<input checked="" type="checkbox"/> Clearance of the project should be granted.	<input type="checkbox"/> Clearance of the project should not be delayed but the Applicant should (in the final application) address and clarify the question or concerns indicated above.
<input type="checkbox"/> Clearance of the project should not be granted.	
<input type="checkbox"/> Clearance of the project should be delayed until the issues or questions above have been clarified.	<input type="checkbox"/> Request the opportunity to review final application prior to submission to the federal funding agency.
<input type="checkbox"/> Request a State Process Recommendation in concurrence with the above comments.	

DIVISIONS/ AGENCY/ COMMISSION

Reviewer's Name: John W. Mitchell
Organization: John W. Mitchell
Director, Division of Environment
Kansas Department of Health & Environment
1000 S.W. Jackson Street, Suite 400
Topeka, KS 66612-1637

Date: October 27, 2008



Kathleen Sebelius, Governor
Roderick L. Bremby, Secretary

DEPARTMENT OF HEALTH
AND ENVIRONMENT

www.kdheks.gov

Division of Environment

MEMORANDUM

TO: Donna Fisher

CC: Bob Jurgens, File → Pawnee County – Burdett Landfill (C1-073-71113-2),
Alexander City Dump (083-ALE-2), Fort Hays City Dump #2 (026-FTH#2-2),
Glade City Dump (074-GLA-2)

FROM: Kathleen Bleach

DATE: October 20, 2008

RE: Environmental Audit requested by Black & Veatch for a Transmission Line
starting in Spearville, Kansas.

The Kansas Department of Health and Environment (KDHE), Bureau of Environmental Remediation (BER), Assessment and Restoration Section, Landfill Remediation Unit has one Permitted Closed Landfill, and three City Dump sites in the vicinity of the Transmission Line Routing Study. The Pawnee County – Burdett Landfill is located in the southwest quarter of the northeast quarter of Section 35, Township 21 S, Range 20 W. The Alexander City Dump is located in the southwest quarter of the southeast quarter of Section 24, Township 18 S, Range 20 W. Fort Hays City Dump #2 is located in the southwest quarter of the southeast quarter of Section 01, Township 14 S, Range 19 W. Glade City Dump is located northwest quarter of the southwest quarter of Section 29, Township 04 S, Range 17 W

KDHE-BER does not oppose the construction of on the sites of former city dumps. However, KDHE-BER recommends that any construction be located outside of the limits of the buried solid wastes whenever possible. Should the construction expose any wastes, the wastes exposed must be transported to and disposed of in a KDHE approved landfill.

KDHE-BER does not allow construction through the sites of Closed Municipal Solid Waste Landfills. Any transmission line towers constructed must avoid disturbing the buried solid waste or the landfill cap material.

Staff from Black & Veatch are welcome to come view the KDHE-BER files in accordance with the Freedom of Information Act. If you have any questions, please contact me at (785) 296-6377 or email kbleach@kdhe.state.ks.us.



Kathleen Sebelius, Governor
Roderick L. Bremby, Secretary

DEPARTMENT OF HEALTH
AND ENVIRONMENT

www.kdheks.gov

Division of Environment

October 27, 2008

Mr. Salvatore Falcone
Environmental Project Manager
Black & Veatch Corporation 111401 Lamar Avenue
Overland Park, KS 66211

Re: Transmission Line, Spearville, KS to Axtell, NE

Dear Mr. Falcone:

Mr. Don Carlson, Bureau of Water has offered the following comments:

I have no objection to the proposal but offer the following comment for review and consideration.

Any construction activity which disturbs one acre or more is required to file a National Pollutant Discharge Elimination System (NPDES) permit application for stormwater runoff resulting from construction activities. The project owner (party responsible for the project) must obtain authorization from KDHE to discharge stormwater runoff associated with construction activities prior to commencing construction. The Kansas construction stormwater general permit, a Notice of Intent (application form), a frequently asked questions file and supplemental materials are on-line on the KDHE Stormwater Program webpage at www.kdhe.state.ks.us/stormwater.

Answers to questions regarding or additional information concerning construction stormwater permitting requirements can be obtained by calling (785) 296-5549.

Sincerely,

Donna Fisher
Division of Environment
Director's Office

DC/df



October 13, 2008

Adrian J. Polansky, Secretary of Agriculture
Kansas Department of Agriculture
109 S.W. 9th Street, 4th Floor
Topeka, KS 66612-1280

RE: Transmission Line, Spearville, KS to Axtell, NE

Dear Mr. Polansky:

ITC Great Plains (ITC) proposes to construct a new transmission line from the existing Spearville, Kansas substation to the Axtell, Nebraska substation. ITC requested that Black & Veatch conduct an environmental review of this project. Your agency's assistance and input will assist with the project's environmental review.

The proposed project area is approximately 180 miles long, beginning in Ford County, Kansas and ending in Harlan County, Nebraska. The proposed project consists of:

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For purposes of the environmental review, it is assumed that the new substations near Spearville and Hays, Kansas will be built within a three-mile radius of the existing substations. The specific location of the new substations has not been determined. The new transmission line will require a right-of-way width of approximately 250 feet for the 765 kV segment and 150 feet for the 345 kV segment.

Please refer to the enclosed maps for reference. These maps illustrate three alternative route alignments. These alternatives are currently under investigation and a preferred route with minimal environmental impacts has not yet been determined.

Information from your agency regarding the natural resources within the Kansas portion of the study area is requested to assist in the identification of an environmentally preferable route.

Kansas Department of Agriculture
Adrian J. Polansky

B&V Project – 162034
October 13, 2008

Black & Veatch requests a written response of your findings for the project record, within 30 days of your receipt of this letter if possible. If you have any questions during your review or require additional information, please contact me at (913) 458-3380 or at FalconeSJ@bv.com. Thank you in advance for your effort in completing this request.

Sincerely,

A handwritten signature in black ink, reading "Salvatore Falcone". The signature is fluid and cursive, with the first name "Salvatore" and last name "Falcone" clearly distinguishable.

Salvatore Falcone
Environmental Project Manager
Black & Veatch Corporation

Cc: B&V ITC file (with enclosures)

November 3, 2008

BLACK & VEATCH
SALVATORE FALCONE
11401 LAMAR AVE
OVERLAND PARK KS 66211

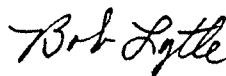
RE: DWR A-95 2008.258

Dear Mr. Falcone:

This will acknowledge receipt of your letter and attachments dated October 13, 2008 regarding the Spearville, KS to Axtell, NE Transmission Line, and your request for information on water resources that may be impacted.

The route of the transmission line as depicted in the maps provided will encounter the following surface water stream courses: From South to North, Buckner Creek, Walnut Creek, the Smoky Hill River, the Saline River, the South fork of the Solomon River, the North Fork of the Solomon River, and will traverse between Webster and Kirwin Reservoirs. This office has no reason to believe that the installation of the transmission line will negatively impact these water resources if normal industry practices are employed.

Sincerely,



Bob Lytle
Environmental Scientist
Technical Services Section

RFL:ssc

pc: Stafford Field Office
Stockton Field Office
Lyndsey Douglas



October 13, 2008

Rick Kreider
Bureau Chief of Materials and Research
Kansas Department of Transportation
Dwight D. Eisenhower State Office Bldg.
700 SW Harrison
Topeka KS 66603-3754

RE: Transmission Line, Spearville, KS to Axtell, NE

Dear Mr. Kreider:

ITC Great Plains (ITC) proposes to construct a new transmission line from the existing Spearville, Kansas substation to the Axtell, Nebraska substation. ITC requested that Black & Veatch conduct an environmental review of this project. Your agency's assistance and input will assist with the project's environmental review.

The proposed project area is approximately 180 miles long, beginning in Ford County, Kansas and ending in Harlan County, Nebraska. The proposed project consists of:

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Please refer to the enclosed maps for reference. These maps illustrate three alternative route alignments. These alternatives are currently under investigation and a preferred route with minimal environmental impacts has not yet been determined.

Information from your agency regarding the natural resources within the Kansas portion of the study area is requested to assist in the identification of an environmentally preferable route.

Kansas Dept. of Transportation
Rick Kreider

B&V Project – 162034
October 13, 2008

Black & Veatch requests a written response of your findings for the project record, within 30 days of your receipt of this letter if possible. If you have any questions during your review or require additional information, please contact me at (913) 458-3380 or at FalconeSJ@bv.com. Thank you in advance for your effort in completing this request.

Sincerely,

A handwritten signature in dark ink, reading "Salvatore Falcone". The signature is fluid and cursive, with a long horizontal line extending to the right.

Salvatore Falcone
Environmental Project Manager
Black & Veatch Corporation

Cc: B&V ITC file (with enclosures)

October 23, 2008

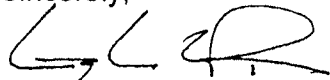
Salvatore Falcone
Environmental Project Manager
Black & Veatch
11401 Lamar
Overland Park KS 66211

Re.: Transmission Line, Spearville, KS to Axtell, NE

Mr. Falcone:

I have reviewed the conceptual maps of this project provided with your letter of October 21, 2008. Specifically, I looked at the proposed locations in Ford and Hodgeman counties as depicted on sheets 7 and 8. At this stage of your project development, I do not see any adverse impacts to the State owned and maintained transportation system in Ford and Hodgeman counties. A highway permit will be needed where the line crosses over a State or US route in other Districts.

Sincerely,



Larry L. Thompson, P.E.
District Six Engineer

DISTRICT SIX

Larry L. Thompson, P.E., District Engineer

121 North Campus Drive, Garden City, KS 67846 • (620) 276-3241 • Fax: (620) 276-2333

TTY (Hearing Impaired): (785) 296-3585 • e-mail: publicinfo@ksdot.org



BLACK & VEATCH
Building a world of difference.

October 2, 2008

Jennifer Delisle
Kansas Natural Heritage Inventory
Kansas Biological Survey
University of Kansas, Takeru Higuchi Bldg
2102 Constant Avenue
Lawrence, KS 66047

RE: Transmission Line, Spearville, KS to Axtell, NE

Dear Ms. Delisle:

Our client, ITC Great Plains (ITC), is proposing to construct a new transmission line between the existing Spearville, Kansas switching station and the Axtell, NE switching station. The project area is approximately 180 miles long, beginning in Edwards County, KS and ending in Harlan County, NE. Maps are enclosed for reference, illustrating three alternative route alignments. These alternatives are currently under investigation and a preferred route with minimal environmental impacts has not yet been determined.

Black & Veatch has been retained by ITC to conduct an environmental review for the project. ITC expects the project to enhance the reliability of power resources by providing for more energy imports and exports while promoting development of renewable resources in west-central Kansas, like wind power. The following is a description of the proposed project work.

The Spearville to Axtell transmission project consists of the installation of a new 345 Kv transmission line from vicinity of the existing Victory Electric Cooperative, Inc. Spearville 345 Kv substation, terminating in Nebraska Public Power District's existing Axtell 345 Kv substation. The project will include the construction of a new substation near Hays, Kansas and a new substation near Spearville, Kansas. The line route will be generally north to the termination points near Hays and Axtell and it is presently estimated at 168 miles in Kansas and 34 miles in Nebraska, a combined total of 185 miles. The proposed transmission line will be constructed for 765 kV between Spearville and Hays and 345 kV between Hays and Axtell. However, the entire line will initially be operated at 345 kV. For purposes of the environmental review, it is assumed that the new substations near Spearville and Hays will be built within a three mile radius of the existing substations. The specific location of the new substations has not been determined. The right-of-way (ROW) width will be approximately 250 feet for the 765 kV segment and 150 feet for the 345 kV segment.

The project can be further broken down as follows:

Spearville Substation. ITC Great Plains will construct a new 345 kV substation near the existing Spearville 345 kV substation owned by Victory Electric Cooperative, Inc. The location of the new substation has not been determined, but is expected to be built within a three mile radius of the existing Spearville Substation. The substation will be constructed for operation at 345 kV with provisions for future expansion to 765 kV.

Kansas Natural Heritage Inventory
Jennifer Delisle

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October 2, 2008

Hays Substation. ITC Great Plains will construct a new 345 kV substation near the existing Midwest Energy, Inc Knoll Substation north of Hays, Kansas. The location of the new substation has not been determined, but is expected to be built within a three mile radius of the existing Knoll Substation. The substation will be constructed for operation at 345 kV with provisions for future expansion to 765 kV.

Spearville to Hays Transmission Line. The Spearville to Hays section of the new transmission line will include construction of a new 765 kV transmission line between the new ITC Great Plains Substations near Spearville and Hays, Kansas. The transmission line routing is currently under evaluation with three different alternative routes as depicted on the enclosed maps. This route is likely to undergo small adjustments as the routing study continues towards a final design.

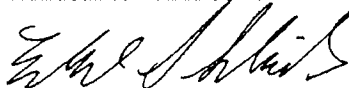
Hays to Axtell Transmission Line. The Hays to Axtell section of the new transmission line will include construction of a new 345 kV transmission line between the new ITC Great Plains substation near Hays, Kansas, and the Axtell Substation in Nebraska. The transmission line routing is currently under evaluation with three different alternative routes as depicted on the enclosed maps. This route is likely to undergo small adjustments as the routing study continues towards a final design.

The routing of the proposed transmission line will require right-of-way land acquisition once a preferred route has been determined, which includes landowner permissions, cultural, socioeconomic, and environmental considerations. The proposed transmission line will be built primarily with self-supporting steel lattice towers and/or tubular steel H-frame structures.

A portion of the environmental review process includes a review of the project lands for the occurrence of federal or state protected plants and animals. We hereby request a review of the project vicinity for known or potential occurrences of protected plants and animals, and their habitats. Comments can be mailed to me at the letterhead address or if more convenient for you, emailed to me at ShadrickEJ@bv.com. Please provide your comments by November 2, 2008, if possible. I can be reached at (913) 458-4129 or by e-mail if you have questions regarding the project or this request.

Very truly yours,

BLACK & VEATCH CORPORATION



Ed Shadrick
Senior Ecologist
Environmental Management Services

Cc: Salvatore Falcone, Black & Veatch (without enclosures)
B&V ITC file (with enclosures)

The University of Kansas

Kansas Biological Survey

October 29, 2008

Ed Shadrick
Senior Ecologist
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211

RE: Transmission Line, Spearville, KS to Axtell, NE

Dear Mr. Shadrick:

I have reviewed the Kansas Natural Heritage Inventory database for records of state and federal threatened, endangered, and special concern species at the referenced site. I am providing you with an ESRI shapefile showing locations of rare species and natural communities (i.e., unique habitats) within approximately 10 miles of the proposed project area. These data are for your internal use only and should not be distributed to any other person or agency. The data should not be displayed in maps or documents distributed outside your company.

You will notice that the records of rare species are depicted as polygons, some as rather large circles. Each polygon represents the location of the species plus a measure of the uncertainty of that location. The actual location of the species could occur anywhere within the polygon. Many of the plant records come from herbarium specimens that provide only general information about where the collection was made.

Most of Kansas has not been surveyed for rare species and unique habitats and absence of records should not be interpreted as an indication that rare species and unique habitats do not occur in any particular area. For a complete list of protected animal species known or likely to occur in the counties in which the project occurs please go to http://www.kdwp.state.ks.us/news/other_services/threatened_and_endangered_species/threatened_and_endangered_species/county_lists.

The Hays to Axtell line falls almost entirely within the range of the Greater prairie chicken (*Tympanuchus cupido*). Sections of the Spearville to Hays line fall within the range of the Lesser prairie chicken (*Tympanuchus pallidicinctus*). Both species have experienced dramatic range reductions in North America over the past century and are listed as top priority species by Partners in Flight. As birds of open grasslands, prairie chickens do not tolerate tall, vertical structures in their habitats and may not nest within 1+ miles of transmission line supports, and may avoid power lines and improved roads as well. To protect the habitat of prairie chickens as well as other native wildlife, I strongly recommend that project development occurs in areas that previously have been disturbed by cultivation or other development.

The University of Kansas

If playas occur in the project area, please be aware that bird use in these habitats could be high at certain times of the year. Please contact the U.S. Fish and Wildlife Service for guidelines on ways to minimize impacts to birds.

Critical habitat has been designated for the Eastern spotted skunk (*Spilogale putorius*) in parts of Ellis County, including the proposed site of the new substation near Hays. Please contact the KDWP if habitat for this species will be impacted by the project. Species and critical habitat descriptions can be found at

<http://www.kdwp.state.ks.us/news/Other-Services/Threatened-and-Endangered-Species/Threatened-and-Endangered-Species/Species-Information/EASTERN-SPOTTED-SKUNK>.

Thank you for providing the Kansas Biological Survey with the opportunity to comment on this proposed project. Please give me a call at 785-864-1538 if I can be of further assistance.

Sincerely,

Jennifer M. Delisle
Information Manager
Kansas Natural Heritage Inventory



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Building a world of difference.

October 13, 2008

The Nature Conservancy in Kansas
700 SW Jackson, Suite 804
Topeka, KS 66603

RE: Transmission Line, Spearville, KS to Axtell, NE

Dear Sir/Madam:

ITC Great Plains (ITC) proposes to construct a new transmission line from the existing Spearville, Kansas substation to the Axtell, Nebraska substation. ITC requested that Black & Veatch conduct an environmental review of this project. Your agency's assistance and input will assist with the project's environmental review.

The proposed project area is approximately 180 miles long, beginning in Ford County, Kansas and ending in Harlan County, Nebraska. The proposed project consists of:

- A new substation near Hays, Kansas
- A new substation near Spearville, Kansas
- 765 kV line from Spearville, Kansas to Hays, Kansas
- 345 kV line from Hays, Kansas to Axtell Kansas

For purposes of the environmental review, it is assumed that the new substations near Spearville and Hays, Kansas will be built within a three-mile radius of the existing substations. The specific location of the new substations has not been determined. The new transmission line will require a right-of-way width of approximately 250 feet for the 765 kV segment and 150 feet for the 345 kV segment.

Please refer to the enclosed maps for reference. These maps illustrate three alternative route alignments. These alternatives are currently under investigation and a preferred route with minimal environmental impacts has not yet been determined.


Information from your agency regarding the natural resources within the Kansas portion of the study area is requested to assist in the identification of an environmentally preferable route.

The Nature Conservancy in Kansas

B&V Project – 162034
October 13, 2008

Black & Veatch requests a written response of your findings for the project record, within 30 days of your receipt of this letter if possible. If you have any questions during your review or require additional information, please contact me at (913) 458-3380 or at FalconeSJ@bv.com. Thank you in advance for your effort in completing this request.

Sincerely,

A handwritten signature in black ink that reads "Salvatore Falcone". The signature is fluid and cursive, with a long horizontal line extending from the end of the name.

Salvatore Falcone
Environmental Project Manager
Black & Veatch Corporation

Cc: B&V ITC file (with enclosures)



Salvatore Falcone Testimony Exhibit 2

1100 SW Wanamaker Road, Suite 103
Topeka, KS 66604
phone: 785.783.2226
www.itcgreatplains.com

November 9, 2009

Name
Address
City, ST Zip

Dear Sir or Madam:

Creating long-term solutions that will provide the energy to power our lives is one of the great challenges facing Kansas and the nation. ITC Great Plains, a proud Kansas utility company, is honored to play a part in developing solutions to our energy challenges both in Kansas and across the country.

A critical element of our state's energy strategy is building the next generation of high-voltage transmission lines that will increase the reliability, quality, and supply of low-cost electricity for all Kansans and also unlock the economic potential of our growing wind energy economy.

To those ends, ITC Great Plains has begun the process of developing the second segment of a much-needed transmission line called the Spearville to Knoll to Axtell (SKA) line, also known as the KETA Project. This new transmission line is a critical infrastructure project for the state of Kansas and the region. It will provide access to more reliable, efficient and affordable electricity in Kansas and the Midwest, serving as a critical link to allowing Kansas to regain its position as a net exporter of energy while providing access to reliable and affordable energy across the state and region.

ITC Great Plains has developed several potential routes for Segment II of the project, running from Knoll (near Hays) to the Nebraska border. These routes are intended to minimize adverse impacts to residents, land and the natural environment while providing a technically viable and cost-effective transmission line. A portion of one of the potential routes may intersect, or pass within 1,000 feet of, your property. We have included a full map of the potential route, in addition to a more detailed map of where the line may fall in relation to your land.

building the *future*

November 9, 2009

Page Two

Our relationship with landowners and community members is important. We are committed to working respectfully with you throughout the siting, design and construction process to minimize impacts to your properties.

We are now seeking community input on topics such as the final proposed route and the types of structures to be used on the project. Our first opportunity to discuss Segment II of the SKA Project together is coming soon. ITC Great Plains will host an open house at the **Plainville Grade School Cafeteria on November 30th from 5:30 p.m. to 8 p.m.**, and at the **Smith Center Armory on December 1st from 5:30 p.m. to 8 p.m.** We will have representatives from ITC Great Plains on hand to discuss the SKA Project. Food and refreshments will be provided. We hope you can join us.

If you have any questions about the open house or the SKA Project, don't hesitate to contact us at (785) 783 – 2226 or SKAfeedback@itctransco.com.

We look forward to meeting you soon.

Sincerely,

Alan K. Myers
Vice President of Technical Services, ITC Great Plains
Manager of Grid Development, ITC Great Plains

AKM:jm
Enclosure(s) 2
























EXHIBIT 3

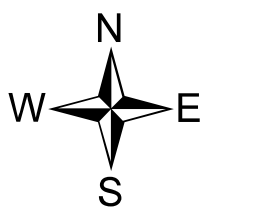
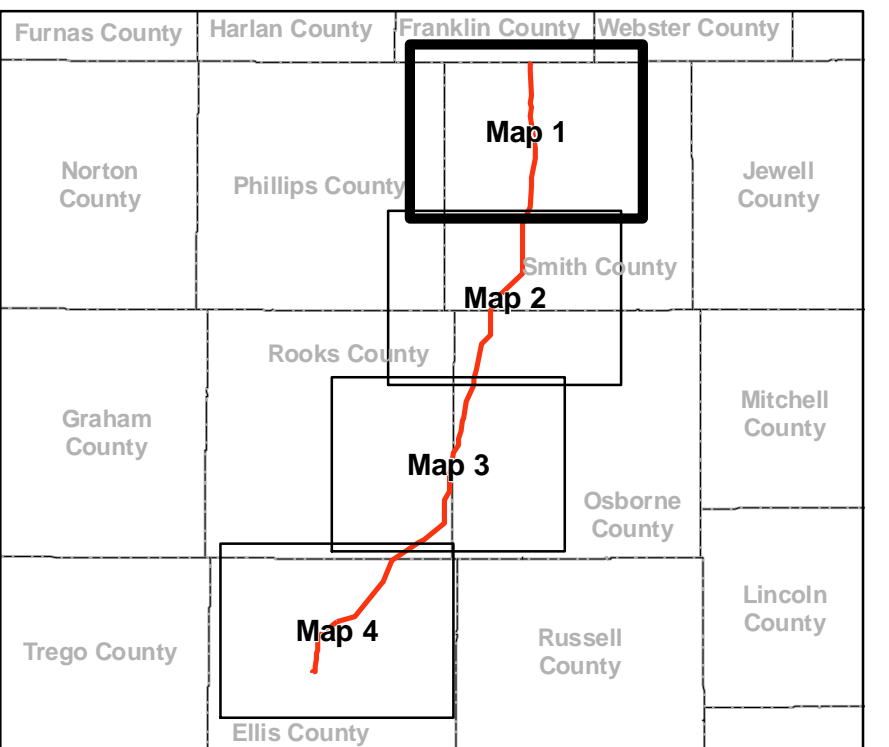
**DIRECT TESTIMONY OF
SALVATORE FALCONE
ON BEHALF OF
ITC GREAT PLAINS, LLC**

ITC Great Plains
Spearville-Axtell 345kV
Routing Study
Phase 2

Map 1

Legend

-  Post Rock Substation
-  Preferred Route
-  Railroads
-  Limited Access
-  Highway
-  Major Road
-  Minor Road
-  Parcels
-  Sections
-  Counties
-  States
-  Urban Areas
-  Lakes and Ponds
- Transmission Lines**
-  60 kV
-  69 kV
-  115 kV
-  138 kV
-  161 kV
-  230 kV
-  345 kV
-  400 kV
-  500 kV
-  765 kV



1 0 1 2
Miles














Sources:
Aerial - ESRI ArcGIS map Service
ESRI ArcIMS <http://services.arcgis.com/v92>
USGS Quads - scanned image of a US Geological Survey (USGS)
standard series topographic map.
KS <http://www.kansasgis.org/catalog/catalog.cfm> (raster)
NE <http://data.gawley.nrcs.usda.gov/>
Land Use - The NLCD 2001 land cover layer was produced
through a cooperative project conducted by the MRLC Consortium.



ITC Great Plains
Spearville-Axtell 345kV
Routing Study
Phase 2

Map 2

Legend

-  Post Rock Substation
-  Preferred Route
-  Railroads
-  Limited Access
-  Highway
-  Major Road
-  Minor Road
-  Parcels
-  Sections
-  Counties
-  States
-  Urban Areas
-  Lakes and Ponds

Transmission Lines

 60 kV

 69 kV

 115 kV

 138 kV

 161 kV

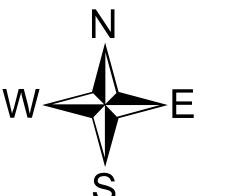
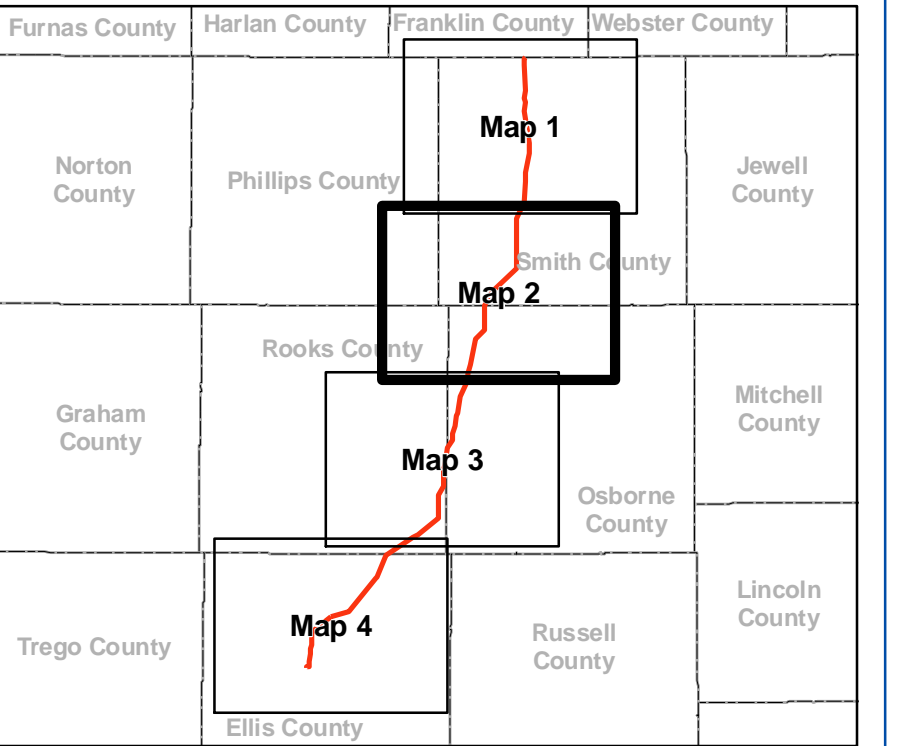
 230 kV

 345 kV

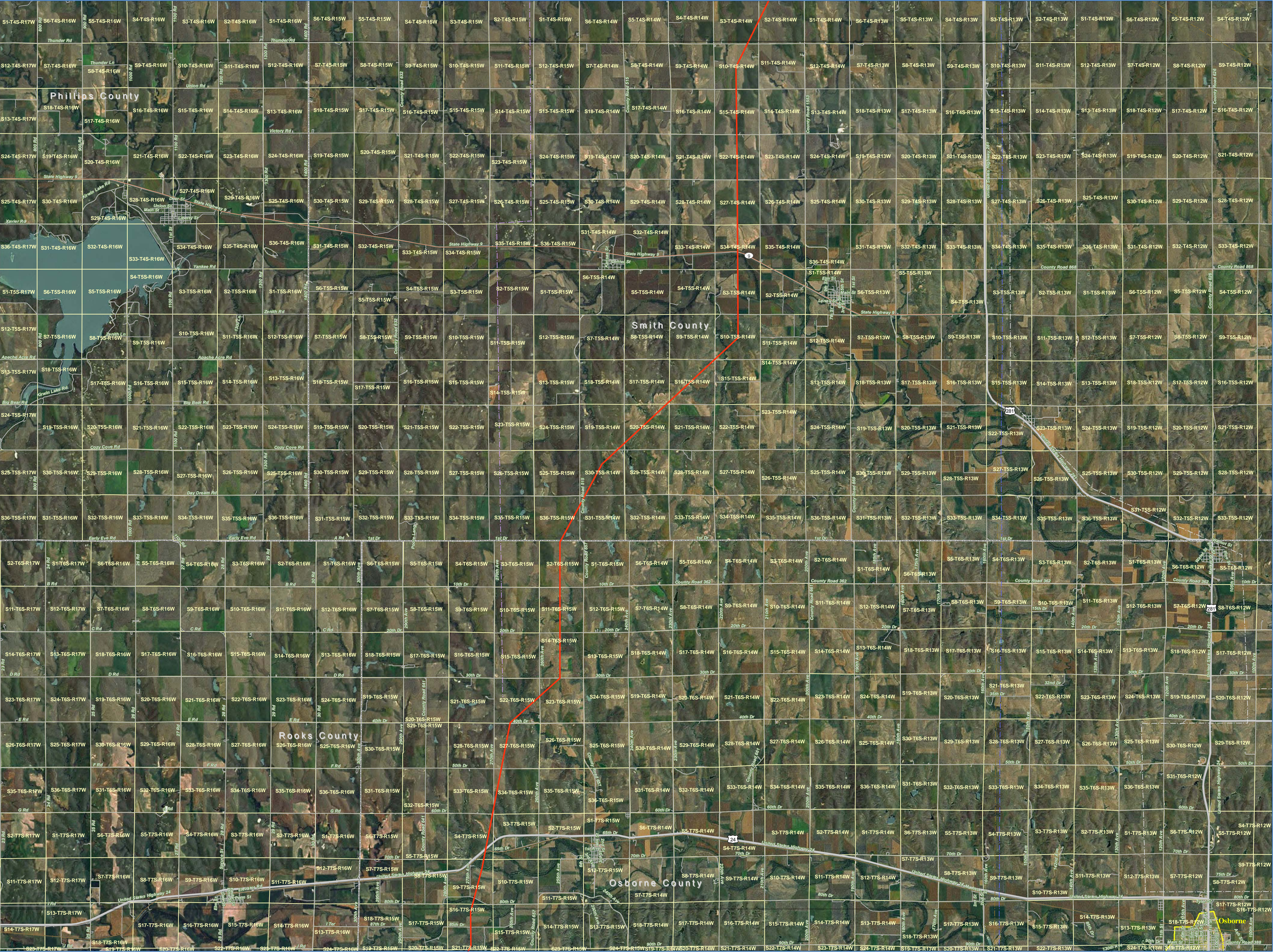
 400 kV

 500 kV

 765 kV




Sources:
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ESRI ArcIMS <http://services.arcgis.com/v92>
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NE <http://data.gawley.mcs.usde.gov>
Land Use - The NLCD 2001 land cover layer was produced
through a cooperative project conducted by the MRLC Consortium.





ITC Great Plains Spearville-Axtell 345kV Routing Study Phase 2


Map 3


Legend


-  Post Rock Substation


 Preferred Route


 Railroads


 Limited Access


 Highway


 Major Road


 Minor Road



 Parcels


 Sections


 Counties


 States


 Urban Areas


 Lakes and Ponds
-  60 kV


 69 kV


 115 kV


 138 kV


 161 kV

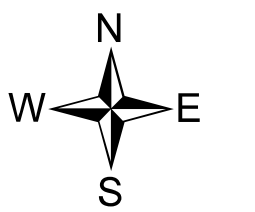
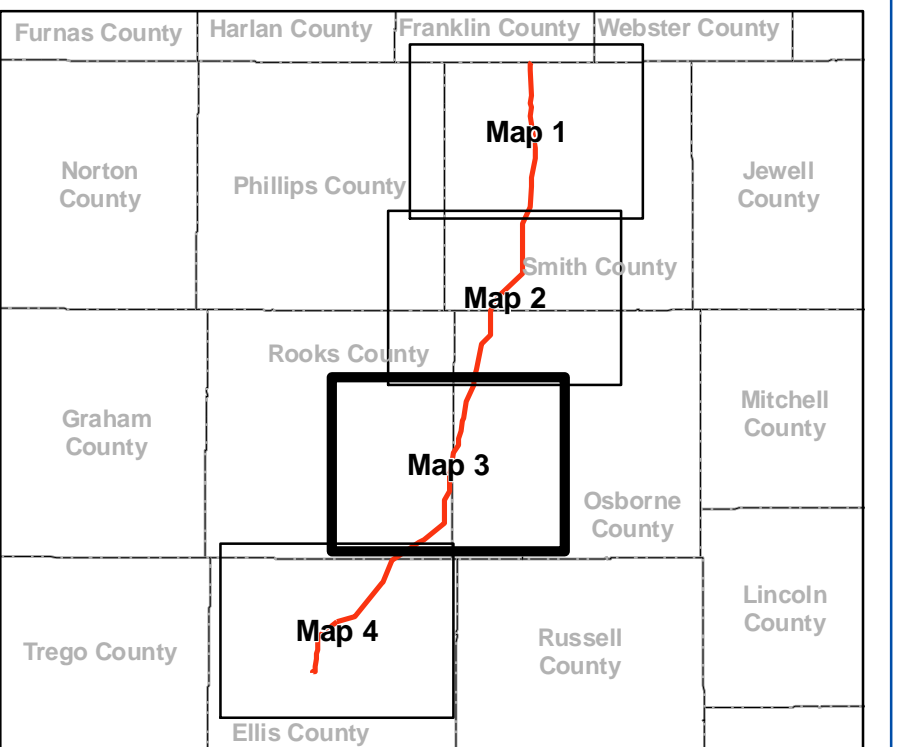
 230 kV

 345 kV

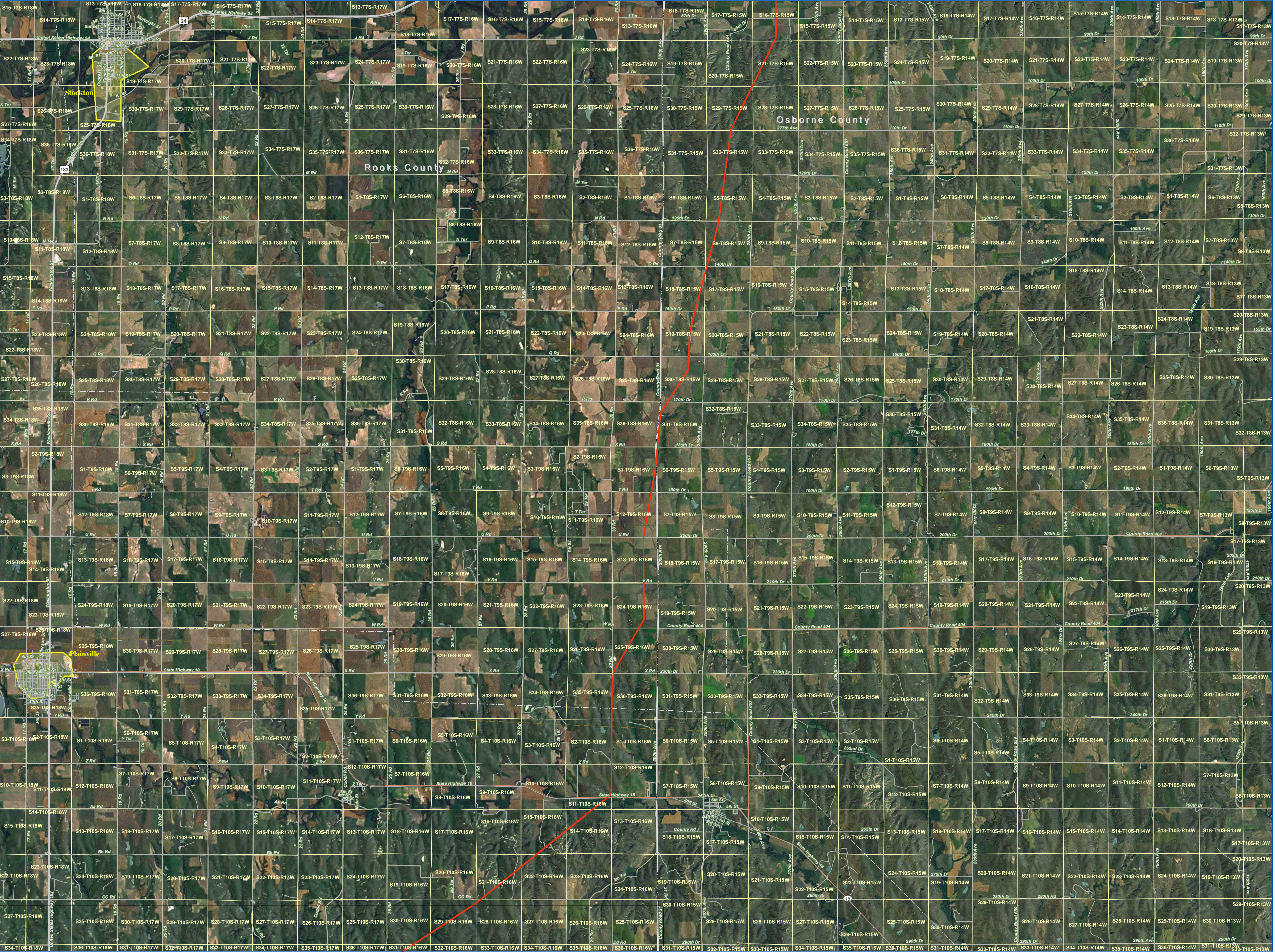
 400 kV

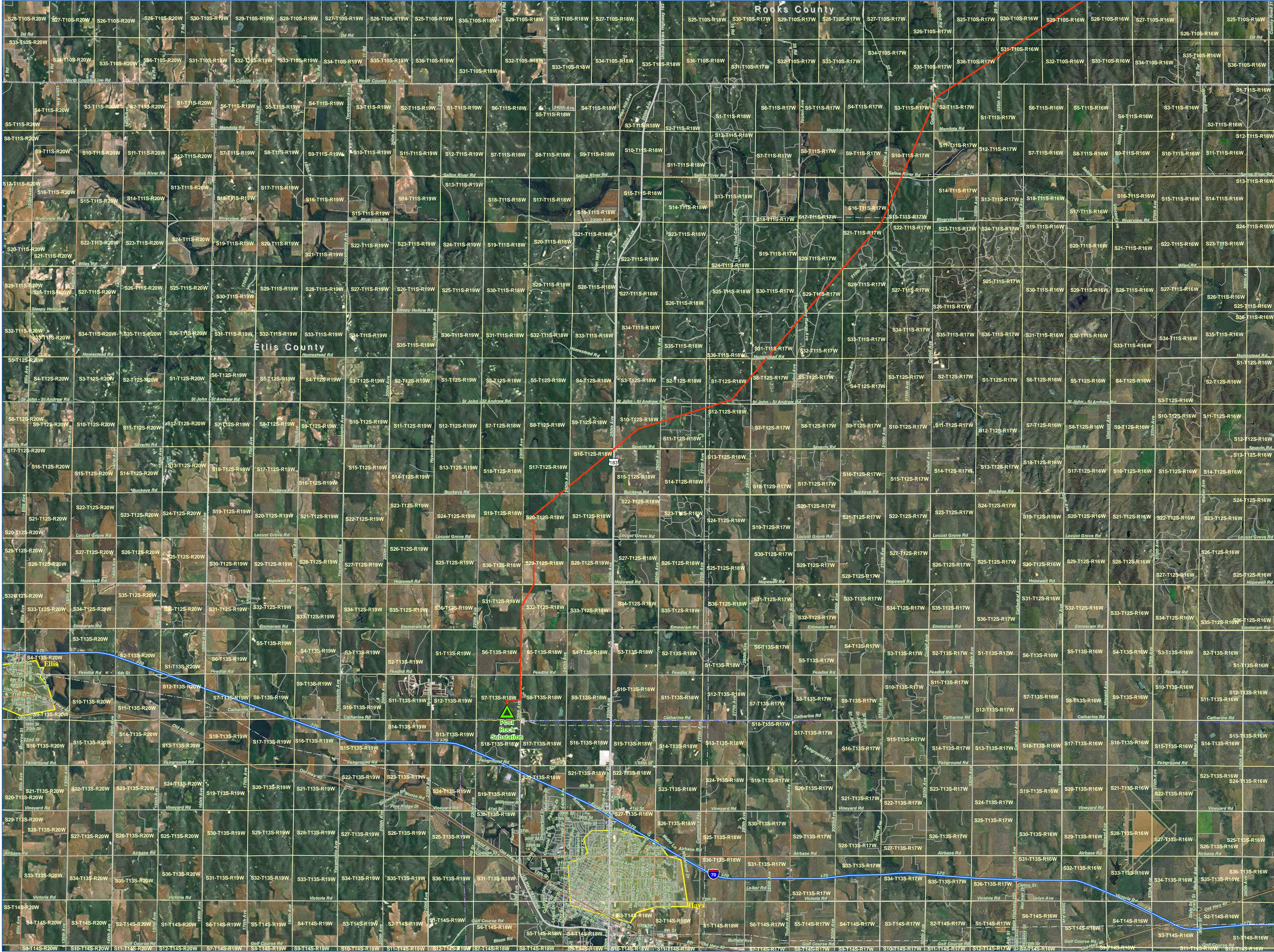
 500 kV

 765 kV



Sources:
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ESRI ArcGIS <http://services.arcgis.com/v92>
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ITC Great Plains Spearville-Axtell 345kV Routing Study Phase 2

Map 4

▲ Post Rock Substation

— Preferred Route

— Railroads

— Limited Access

— Highway

— Major Road

— Minor Road

□ Parcels

□ Sections

□ Counties

□ States

□ Urban Areas

□ Lakes and Ponds

Transmission Lines

— 60 kV

— 69 kV

— 115 kV

— 138 kV

— 161 kV

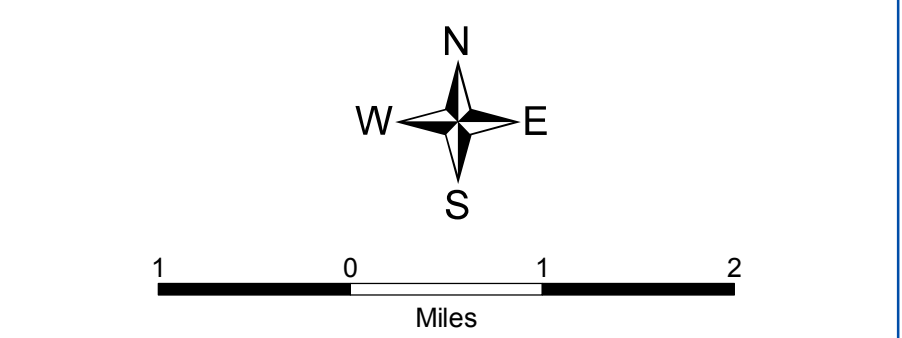
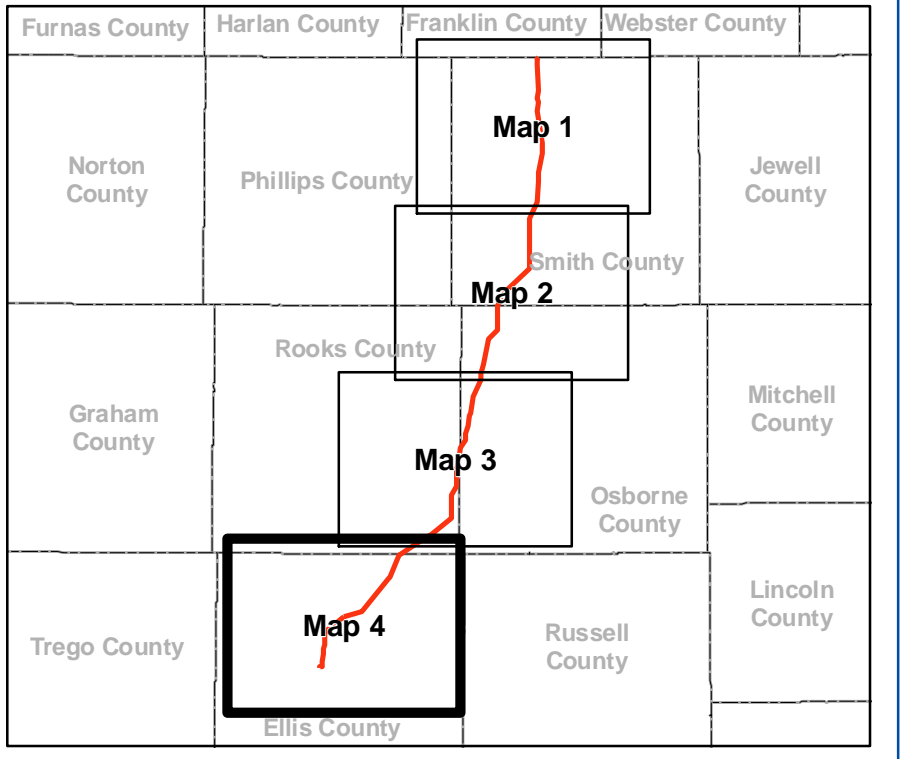
— 230 kV

— 345 kV

— 400 kV

— 500 kV

— 765 kV



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