May 2015

XCEL ENERGY, INC.

Yoakum to Texas State Line 345-kV Transmission Line Project

Environmental Assessment and Alternative Routing Analysis
Gaines and Yoakum Counties, Texas

Docket No. 44726

PROJECT NUMBER:
135607

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YOAKUM TO TEXAS STATE LINE 345-KV TRANSMISSION LINE PROJECT

PREPARED FOR: *XCEL ENERGY, INC.*

PREPARED BY: *POWER ENGINEERS, INC. (AUSTIN, TEXAS)*

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ACRONYMS AND ABBREVIATIONS

AM	amplitude modulation
amsl	above mean sea level
ANWR	Aransas National Wildlife Refuge
ASR	Antenna Structure Registration
ATLAS	Texas Archeological Sites Atlas
BEG	Bureau of Economic Geology
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practices
CCN	Certificate of Convenience and Necessity
CFR	Code of Federal Regulations
CHAT	Southern Great Plains Crucial Habitat Assessment
CLF	civilian labor force
CLS	Contract Land Staff, LLC
CR	County Road
CWA	Clean Water Act
EA	Environmental Assessment and Alternative Route Analysis
EOR	estimated occupied range
ERCOT	Electric Reliability Council of Texas
ESA	Endangered Species Act
Esri	Environmental Systems Research Institute
ESSS	Ecologically Significant Stream Segments
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FM road	farm-to-market road
FM	frequency modulation
GIS	Geographic Information Systems
GLO	Texas General Land Office
HPA	high probability area
HPLIS	High Priority Incremental Load Study
HTC	Historic Texas Cemeteries
IH	Interstate Highway
IP	Individual Permit
ISD	Independent School District
kV	kilovolt
LPC	Lesser prairie-chicken
MBTA	Migratory Bird Treaty Act
NAIP	National Aerial Imagery Program
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NHPA	National Historic Preservation Act
NFHL	National Flood Hazard Layer
NMED	New Mexico Environmental Department
NOI	Notice of Intent
NOT	Notice of Termination
NPS	National Park Service

NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
NWP	Nationwide Permit
OTHM	Official Texas Historical Marker
PEM	palustrine emergent
Pf	palustrine farmed
PFO	palustrine forested
POWER	POWER Engineers, Inc.
PSS	palustrine shrub/scrub
PU	palustrine open water ponds with unconsolidated bottoms
PUC	Public Utility Commission of Texas
PURA	Public Utility Regulatory Act
ROW	right-of-way
RRC	Railroad Commission of Texas
RWP	Range-wide Conservation Plan
SAL	State Antiquities Landmark
SH	State Highway
SHPO	State Historic Preservation Office
SPS	Southwestern Public Service Company
SWPPP	Stormwater Pollution Prevention Plan
TAC	Texas Administrative Code
TARL	Texas Archeological Research Laboratory
TCEQ	Texas Commission on Environmental Quality
THC	Texas Historical Commission
THSA	Texas Historical Site Atlas
TLTC	Texas Land Trust Council
TNRIS	Texas Natural Resource Information System
TPWD	Texas Parks and Wildlife Department
TPWC	Texas Parks and Wildlife Code
TSS	Texas Speleological Survey
TWDB	Texas Water Development Board
TX150000	Texas Pollution Discharge Elimination System General Construction Permit
TxDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
US	United States
USACE	United States Army Corps of Engineers
USBOC	United States Bureau of the Census
U.S.C.	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
US Hwy	United States Highway
WAFWA	Western Association of Fish and Wildlife Agencies
Xcel Energy	Xcel Energy, Inc.

1.0 DESCRIPTION OF THE PROJECT

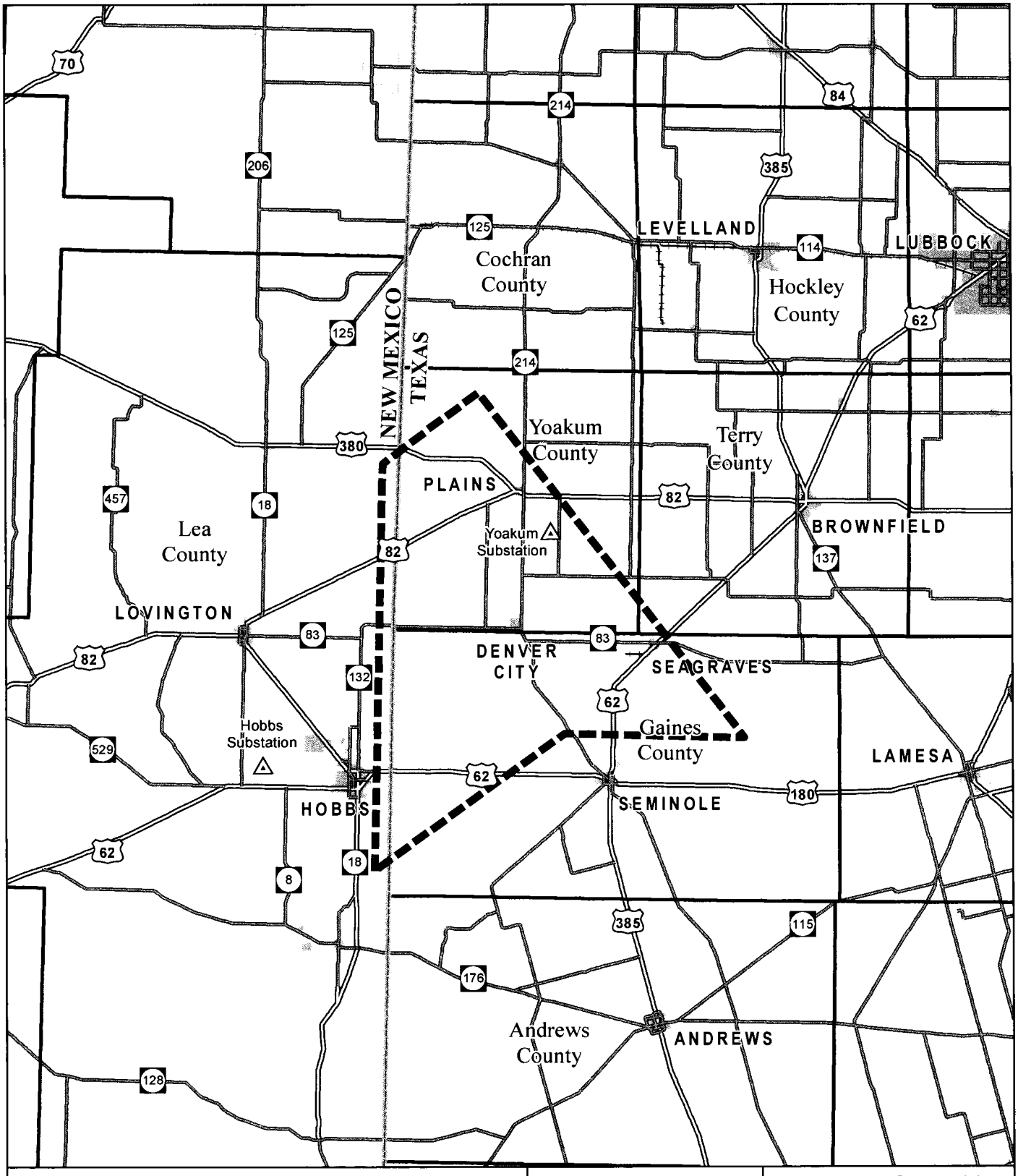
1.1 SCOPE OF THE PROJECT

Southwestern Public Service Company (SPS), a subsidiary Xcel Energy, Inc. (Xcel Energy) proposes to construct a new single-circuit 345 kilovolt (kV) transmission line in Yoakum County, Texas and potentially in Gaines County, Texas, depending on which route is selected (Project) (refer to Figure 1-1 for the Project area location). The Project will be constructed from the existing Yoakum Substation located in Yoakum County, approximately six miles southeast of the city of Plains, and will extend generally southwest until it reaches the Texas/New Mexico State Line. This project is the Texas portion of the Yoakum to Hobbs Project, which will extend into New Mexico. Depending on the route selected the Project ranges in length from approximately 20 to 48 miles. The Project will require a typical right-of-way (ROW) width of approximately 150 feet. In some circumstances, a wider easement may be necessary, but these locations and easement widths cannot be determined until the selected route is surveyed. SPS plans to obtain additional temporary easements for construction purposes.

SPS contracted with POWER Engineers, Inc. (POWER) to prepare this Environmental Assessment and Alternative Route Analysis (EA). This EA will support SPS's application to the Public Utility Commission of Texas (PUC) to amend their Certificate of Convenience and Necessity (CCN). This EA may also be used to support any additional federal, state, or local permitting activities that might be required prior to construction of the Project.

This EA discusses the environmental and land use constraints identified within the Project study area, documents routing methodologies, documents public involvement, and provides an evaluation of alternative routes from an environmental and land use perspective. The EA also identifies and provides the basis for SPS to identify an alternative route that best addresses requirements of the Public Utility Regulatory Act (PURA) and PUC Substantive Rule 25.101 (16 TEX. ADMIN. CODE § 25.101 (TAC).

To assist POWER in its evaluation of the Project, SPS provided POWER with the Project endpoints and information regarding the purpose and need for the Project, proposed construction practices, preliminary transmission line design, clearing methods, ROW requirements and maintenance procedures for the Project.



Legend

- Substation
- Study Area
- County Boundary
- State Line
- 83 US Highway
- 152 State Highway
- Railroad
- City Limits
- River or Stream

Area of Interest

Yoakum to State Line
345 kV Project

Figure 1-1
Project Area Location

0 5 10
Miles

Date: 3/23/2015 Xcel Energy

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1.2 PURPOSE AND NEED

SPS is a member of, and its entire transmission system is located within, the SPP. The SPP is an organization that meets the requirements of PURA § 39.151 as an independent system operator. SPS does not operate in the Electric Reliability Council of Texas (ERCOT) region, and ERCOT takes no position on SPS's transmission projects.

The SPP conducted the High Priority Incremental Load Study (HPLIS) to develop a transmission plan to address the needs associated with network load additions in the SPP footprint that had not been accounted for in previous planning efforts or in models being used in planning efforts underway at the time. As a result of the study, the SPP identified the project as needed for reliability to alleviate loading violations on the underlying network and voltage violations due to insufficient power supply to network load additions.

Based on the need analysis in the HPILS, SPP issued a NTC letter to SPS. The SPP NTC letter sent to SPS under Project ID 30376 and Network Upgrade ID number 50457, directs SPS to build a 345-kV transmission line from the Hobbs Substation in Lea County, New Mexico to the Yoakum Substation in Yoakum County, Texas.

1.3 DESCRIPTION OF PROPOSED DESIGN AND CONSTRUCTION

1.3.1 Design Criteria

SPS proposes to construct the 345-kV transmission line using single-circuit, self-supporting steel H-frame and three-pole structures within new ROW areas. If required due to engineering constraints, some monopole structures may also be used. SPS proposes to use direct burial H-frames for tangent and light angle structures, and proposes three-pole steel structures on drilled pier foundations for structures at high angle and dead-end locations. The typical height of the steel pole structure is between 90 and 180 feet (refer to Figures 1-2 through 1-7). All design criteria would comply with applicable statutes and codes, including the appropriate edition of the National Electrical Safety Code (NESC) and SPS's standard design practices.

1.4 CONSTRUCTION CONSIDERATIONS

Projects of this type require surveying, ROW clearing, foundation installation, structure assembly and erection, conductor and shield wire installation, and cleanup when the Project is completed. The following information regarding these activities was provided to POWER by SPS.

1.4.1 Clearing and Construction Access

Removal of woody vegetation within the ROW would be limited to establish the required conductor to ground clearances and to facilitate construction and future maintenance operations. Mowing and/or shredding of herbaceous vegetation may be required within grasslands or pasturelands. Major grading activities are not anticipated within the ROW due to the relatively flat terrain within the study area. Grading activities will be limited to the minimum required to facilitate construction activities and future maintenance access. Future ROW maintenance activities may include periodic mowing and/or herbicide applications to maintain an herbaceous vegetation layer within the ROW.

ROW clearing activities would be completed while minimizing the impacts to existing groundcover vegetation when practical. All the alternative routes primarily cross areas of pastureland, cropland, or

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OVERSIZED STRUCTURE DRAWING Figure 1-2

OVERSIZED STRUCTURE DRAWING Figure 1-3

OVERSIZED STRUCTURE DRAWING Figure 1-4

OVERSIZED STRUCTURE DRAWING Figure 1-5

OVERSIZED STRUCTURE DRAWING Figure 1-6

OVERSIZED STRUCTURE DRAWING Figure 1-7

grassland which are currently maintained in an herbaceous vegetation stratum. Where at all possible, SPS plans to span all surface waters and playa lake wetlands. Ingress and egress to the ROW would be afforded from adjacent public roads, or where necessary, through additional temporary easements across private property.

1.4.2 Construction

After each structure location has been surveyed and the ROW cleared, a hole will be augured into the ground at each pole location. The hole depth at each location will be determined by the geotechnical profile, terrain, and structure height. Each steel structure will be assembled on the ground near its designated location and then lifted by crane and aligned with structure arms oriented perpendicular to the transmission line centerline. For angle structures, poles will be set with structure arms oriented on the angle bisector. The structure holes will be backfilled with natural soil to provide stability. Excavated material will be spread onsite or disposed offsite in accordance with any federal, state, and local regulations.

Concrete foundations will be required at dead-ends and high angle structure locations. After the hole is augured, a rebar reinforced concrete foundation is poured. The monopoles are then attached to the foundation. After the structures are erected, the insulators and hardware assemblies are then attached. After a series of structures are constructed, the conductor and shield wire is strung and tensioned.

Guard structures are proposed during the line stringing phase where the transmission line crosses existing transmission and distribution lines, telephone lines, and roadways. Once the transmission line is permanently attached, the guards are removed.

1.4.3 Cleanup

ROW cleanup activities include restoration and will be conducted concurrently with the completion of each series of structures as ROW access requirements allow. All equipment, debris, culverts, and temporary environmental controls will be removed. ROW restoration will be completed and includes revegetation with native grass species as necessary to stabilize the soil, and the construction of any necessary permanent environmental controls. The timeliness of these restoration activities is expected to prevent soil erosion.

1.5 MAINTENANCE CONSIDERATIONS

Maintenance of the ROW is typically completed on an interval of two to four years depending on the rate of vegetation regrowth. Maintenance activities include mowing the entire ROW and the application of herbicides to stumps. The application of herbicides will be conducted within federal, state, and local guidelines.

1.6 AGENCY ACTIONS

Numerous federal, state, and local regulatory agencies and organizations have developed rules and regulations regarding the routing and potential impacts associated with the construction of the Project. This section describes the major regulatory agencies and additional issues that are involved in project planning and permitting of transmission lines in Texas. POWER solicited comments from various regulatory entities during the development of this document. Records of correspondence and additional discussions with these agencies and organizations are provided in Appendix A.

1.6.1 Public Utility Commission of Texas

The PUC regulates the routing of transmission lines in Texas under PURA Chapter 37, with specific consideration for the criteria set forth in § 37.056(c). The PUC regulatory guidelines for routing transmission lines in Texas include:

- 16 TAC § 25.101(b)(3)(B), including the policy of prudent avoidance;
- 16 TAC § 22.52(a)(4); and
- CCN application requirements.

This EA has been prepared by POWER in support of SPS's CCN application for PUC approval of the Project.

1.6.2 United States Army Corps of Engineers

Under Section 10 of the Rivers and Harbors Act of 1899, 33 United States Code (U.S.C.) § 403, the United States Army Corp of Engineers (USACE) regulates all work or structures in or affecting the course, condition or capacity of navigable Waters of the United States (US). Under Section 404 of the Clean Water Act (CWA), 33 U.S.C. § 1344, the USACE regulates the discharge of dredged and fill material into all Waters of the US, including associated wetlands.

The Project is located within the jurisdiction of the USACE – Fort Worth District. No navigable waters were identified within the study area that would necessitate a Section 10 Permit for this Project. If construction of the Project impacts waters of the US, or jurisdictional wetlands as defined in Section 404 of the CWA, then the Project will likely meet the criteria of the Nationwide Permit (NWP) No. 12 - Utility Line Activities, which applies to activities associated with any cable, line, or wire for the transmission of electrical energy. In the unlikely event that (1) the Project impacts navigable waters subject to USACE's jurisdiction and (2) the proposed impacts of the Project exceed the criteria established under the regional and general NWP conditions, then an Individual Permit (IP) may be required.

1.6.3 United States Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) enforces federal wildlife laws and provides comments on proposed construction projects with a federal nexus under the National Environmental Policy Act (NEPA) and within the framework of several federal laws including the Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), and Bald and Golden Eagle Protection Act (BGEPA).

POWER reviewed the Texas Natural Diversity Database (TXNDD) records of federal and state listed species occurrences and/or designated critical habitats and considered these during the route development process. The absence of recorded occurrences for individual listed species is not an indication that the species or potential suitable habitat for the species is not present along the approved route. Upon PUC approval of a route and prior to construction, pedestrian surveys will be completed to identify any suitable habitat for federally listed species if necessary. If suitable habitat is noted, then informal consultation with the USFWS – Arlington Ecological Services Field Office may

be completed to determine the need for any required species-specific surveys and/or permitting under Section 7 of the ESA.

The study area is located within the estimated occupied range (EOR) +10 miles for the recently listed lesser prairie-chicken (*Tympanuchus pallidicinctus)* (LPC). The LPC Interstate Working Group drafted a LPC Range-Wide Conservation Plan (RWP) as a voluntary measure implemented by the Western Association of Fish and Wildlife Agencies (WAFWA) and the Foundation for Western Fish and Wildlife (Van Pelt et al. 2013). SPS is a member of the program and is required to evaluate potential project impacts and pay mitigation costs for potential impacts to LPC habitat. Planning and mitigation costs are determined by utilizing the Southern Great Plains Crucial Habitat Assessment Tool ([Southern Great Plains CHAT] 2013). The RWP includes public and private property that currently provides or could potentially provide suitable LPC habitat within the current EOR +10 miles (Van Pelt et al. 2013). Participation in this RWP program meets the USFWS consultation and mitigation requirements under the 4(d) rule (Van Pelt et al. 2013). SPS's participation in this program also provides cost certainty concerning ESA compliance and removes the delays to the construction schedule that normally results from the lengthy USFWS process to obtain an incidental take permit.

WAFWA reviewed all the alternative routes and calculated an estimated mitigation cost associated with the potential impacts to LPC habitat utilizing the Southern Great Plains CHAT program. Once an alternative route is approved by the PUC, SPS will further coordinate with WAFWA to determine the final habitat mitigation costs.

1.6.4 Federal Aviation Administration

According to Federal Aviation Administration (FAA) regulations, Part 77, the construction of a transmission line requires FAA notification if tower structure height exceeds 200 feet or the height of an imaginary surface extending outward and upward at one of the following slopes:

- A 100:1 slope for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of a public or military airport having at least one runway longer than 3,200 feet;
- A 50:1 slope for a horizontal distance of 10,000 feet from the nearest runway of a public or military airport where no runway is longer than 3,200 feet in length; or
- A 25:1 slope for a horizontal distance of 5,000 feet for heliports.

The PUC CCN application also requires listing private airports within 10,000 feet of any alternative route centerline. After PUC route approval, and if any of the FAA notification criteria are met for the approved route, a Notice of Proposed Construction or Alteration, FAA Form 7460-1, will be completed and submitted to the FAA Southwest Regional Office in Fort Worth, Texas at least 30 days prior to construction.

1.6.5 Texas Parks and Wildlife Department

The Texas Parks and Wildlife Department (TPWD) is the state agency with primary responsibility for protecting the state's fish and wildlife resources in accordance with Texas Parks and Wildlife Code (TPWC) § 12.0011(b). POWER solicited comments from TPWD during the scoping phase of the Project, and a copy of this EA will be submitted to TPWD when the CCN application is filed with the PUC.

1.6.6 Floodplain Management

Flood Insurance Rate Maps, published by the Federal Emergency Management Agency (FEMA), were not available for review to determine the floodplain boundaries within the study area. The proposed Project is not anticipated to create any significant permanent changes in the existing topographical grades and should not significantly increase the stormwater runoff within the study area. Gaines and Yoakum Counties do not have a designated local floodplain administrator.

1.6.7 Texas Commission on Environmental Quality

The construction of the Project may require a Texas Pollution Discharge Elimination System General Construction Permit (TX150000) as implemented by the Texas Commission on Environmental Quality (TCEQ) under the provisions of Section 402 of the CWA and Chapter 26 of the Texas Water Code. The TCEQ has developed a three-tiered approach for implementing this permit that is dependent on the acreage of disturbance. No permitting is required for land disturbances of less than one acre (Tier I). If more than one acre, but less than five acres are disturbed, then a Stormwater Pollution Prevention Plan (SWPPP) must be developed and implemented during construction activities accompanied with posting a site notice and sending a notification to the Municipal Separate Sewer System Operator (Tier II). If more than five acres of land are disturbed, then the requirements mentioned above for Tier II are necessary and the submittal of a Notice of Intent (NOI) and Notice of Termination (NOT) to the TCEQ is also required (Tier III). Once a route is approved by the PUC, the proposed acreage of ground disturbance will be determined and the appropriate Tier and conditions of the TX150000 permit will be evaluated.

A Section 401 Water Quality Certificate from the TCEQ may also be required if the Project requires a USACE IP. States have the authority to review federally permitted or licensed activities that may result in a discharge of pollutants into the waters of the US. As previously discussed, a USACE IP is not anticipated for this Project.

1.6.8 Texas Historical Commission

Cultural resources are protected by federal and state laws if they have some level of significance under the criteria of the National Register of Historic Places (NRHP) (36 Code of Federal Regulations [CFR] Part 60) or under state guidance (13 Tex. Admin. Code [TAC] Part 2 § 26.7-8). The Texas Historical Commission (THC) was contacted by POWER to identify known cultural resource sites within the study area boundary. POWER also reviewed Texas Archeological Research Laboratory (TARL) records for known locations of cultural resource sites. Once a route is approved by the PUC, additional coordination with the THC may determine the need for archeological surveys or additional permitting requirements. Even if no additional surveys are required, SPS proposes to implement an unanticipated discovery procedure during construction activities. If artifacts are discovered during construction, activities will cease and SPS will notify the State Historic Preservation Office (SHPO) for additional consultation.

1.6.9 Texas Department of Transportation

The Texas Department of Transportation (TxDOT) has been notified of the Project. If the route approved by the PUC crosses or occupies TxDOT ROW, it will be constructed in accordance with the rules, regulations, and policies of TxDOT. Best management practices (BMP) will be used, as required, to minimize erosion and sedimentation resulting from the construction. Revegetation will

occur as required under the "Revegetation Special Provisions" contained in TxDOT form 1023 (Rev. 9-93). Traffic control measures will comply with applicable portions of the Texas Manual of Uniform Traffic Control Devices.

1.6.10 Texas General Land Office

The Texas General Land Office (GLO) requires a miscellaneous easement for ROW within any state owned riverbeds or navigable streams or tidally influenced waters. Coordination with the GLO will be completed after PUC approval of a route; however, no GLO easement is anticipated for this Project because no rivers or navigable streams are crossed by any of the alternative routes.

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2.0 ROUTE SELECTION METHODOLOGY AND DESCRIPTION OF THE STUDY AREA

2.1 ROUTING STUDY METHODOLOGY

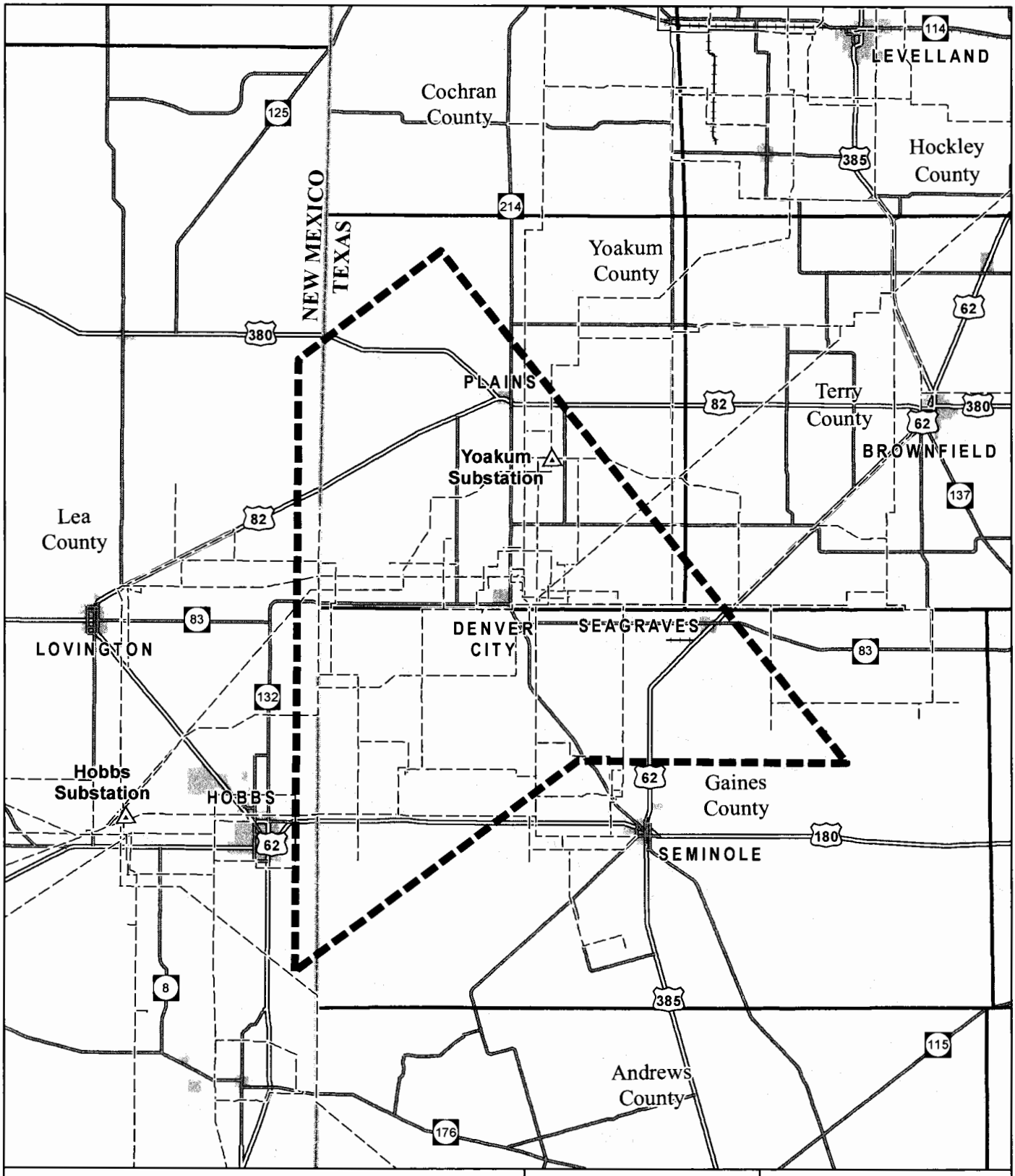
The objective of this EA was to develop and evaluate an adequate number of geographically diverse alternative transmission line routes that comply with PURA § 37.056(c)(4)(A)-(D), 16 TAC § 22.52(a)(4), and 16 TAC § 25.101(b)(3)(B), including the PUC's policy of prudent avoidance. The study approach utilized by POWER for this EA included study area delineation based on the Project endpoints; identification and characterization of existing land use and environmental constraints; and identification of areas of potential routing possibilities located within the study area. POWER identified potentially affected resources including the location of habitable structures and considered each resource during the route development process. Regulatory agency, local official, and public meeting comments were also incorporated into the alternative route development process. Modifications, additions, or deletions of preliminary alternative links were made while considering resource sensitivities, governmental agency guidance, and public input and comments. Feasible and geographically diverse alternative routes were then selected for analysis and comparison using evaluation criteria to determine potential impacts to existing land use and environmental resources. The EA development process culminated with the ranking of 13 alternative routes by POWER from an environmental and land use perspective using a consensus process to select the alternative route that has the least potential impacts and best meets the criteria of PURA and PUC Substantive Rules. With this recommendation from POWER, SPS also considered factors including engineering and construction constraints and estimated costs to identify one alternative route that it believes best addresses the requirements of PURA and PUC Substantive Rules. This alternative route, as well as other alternative routes that provide geographic diversity and sufficient routing options, will be submitted to the PUC in the CCN application.

2.1.1 Study Area Boundary Delineation

The first step in the development of alternative routes was to select a study area. This area needed to encompass the Project endpoints and include a sufficiently large area within which feasible, geographically diverse alternative routes could be located. The study area, which set boundaries for the data collection process, is located in the southwest portion of the Texas Panhandle in the High Plains region. Major physiographic features, jurisdictional boundaries, sensitive land uses and existing utility corridors helped to define the study area boundaries (refer to Figure 2-1).

The Project endpoints and the study area are described below and illustrated in Figure 2-1. The study area encompasses portions of both Yoakum and Gaines Counties with the Yoakum Substation, located in the northeastern portion of the study area. More specifically, the Yoakum Substation is located approximately six miles southeast of the City of Plains, Texas and approximately 10 miles northeast of Denver City, Texas. The width of the study area from north to south is approximately 47 miles, depending on the location of measurement, and the length of the study area from west to east is approximately 40 miles, encompassing a total area of approximately 1,109 square miles.

The northeastern study area boundary is primarily defined by the location of the proposed Yoakum Substation, the starting endpoint of the Project. The western portion of the study area is primarily defined by the Texas-New Mexico state line, which contains five potential endpoints for the Texas portion of the Project. Because the Project is part of a proposed transmission line that will terminate at a substation in Hobbs, New Mexico, and Hobbs is southwest of the Yoakum Substation, the study



Legend

- Substation
- Study Area
- Existing Transmission Line
- County Boundary
- State Line
- US Highway
- State Highway
- Railroad
- City Limits
- River or Stream

Area of Interest

Yoakum to State Line 345 kV Project

Figure 2-1
Study Area

0 5 10
Miles

Date: 3/23/2015 Xcel Energy

Path: N:\Projects\135321_Tuco\DD\GIS\apps\EA\Fig_2-1_Study_Area.mxd

area is primarily southwest of the Yoakum Substation. The study area, however, also encompasses some areas north and east of the Yoakum Substation in order to facilitate identifying an adequate number of alternative routes.

2.1.2 Base Map Development

After delineation of the study area, a Project base map, overlain on United States Geological Survey (USGS) 7.5 minute topographic maps and aerial photography, was prepared and used to initially display resource data for the Project area. Resource data categories and factors that were determined appropriate for interpretation and analysis were selected and mapped. The base map provides a broad overview of various resource locations indicating obvious routing constraints and areas of potential routing opportunities.

Data typically displayed on the base map includes:

- Major land jurisdictions and uses.
- Major roads (including county roads (CR), farm-to-market (FM) roads, United States Highways (US Hwy), State Highways (SH), and Interstate Highways (IH)).
- Existing transmission line and pipeline corridor.
- Parks and wildlife management areas.
- Major political subdivision boundaries.
- Lakes, reservoirs, rivers and ponds.

2.1.3 Evaluation Criteria

Land use and environmental evaluation criteria were developed to reflect accepted practices for routing electric transmission lines in the state of Texas (refer to Table 2-1). Emphasis was placed on acquiring information identified in PURA § 37.056(c)(4)(A)-(D), the PUC's standard CCN application and 16 TAC § 25.101, including the PUC's policy of prudent avoidance. Evaluation criteria were further refined based on data collection, reconnaissance surveys, and public input. The alternative route development process was conducted with consideration and incorporation of the evaluation criteria. Evaluation criteria data were reviewed, tabulated, and compared (refer to Section 4.0) for each resulting primary alternative route and, with other factors, were ultimately used for the recommendation of the best alternative routes from an environmental and land use perspective (refer to Section 5.0), and identification of the alternative route that best addresses the requirements under PURA and PUC Substantive Rules.

TABLE 2-1 LAND USE AND ENVIRONMENTAL EVALUATION CRITERIA

LAND USE
Length of alternative route
Number of habitable structures[1] within 500 feet of ROW centerline
Length of ROW using existing transmission line ROW
Length of ROW parallel to existing transmission line ROW
Length of ROW parallel to other compatible existing ROW (highways, public roadways, railways, etc. - excluding pipelines)
Length of ROW parallel to apparent property lines[2]
Length of ROW parallel to pipelines[3] (excluding length parallel to compatible ROW)

TABLE 2-1 LAND USE AND ENVIRONMENTAL EVALUATION CRITERIA

Percentage of ROW parallel to existing compatible corridors and apparent property boundaries (excluding pipelines)
Length of ROW through parks/recreational areas[4]
Number of parks/recreational areas[4] crossed by ROW centerline
Number of additional parks/recreational areas[4] within 1,000 feet of ROW centerline
Length of ROW through cropland
Length of ROW through pasture/rangeland
Length of ROW through land irrigated by traveling systems (rolling or pivot type)
Number of transmission pipeline crossings
Number of transmission line crossings
Number of US and State highway crossings
Number of farm-to-market road crossings
Number of cemeteries within 1,000 feet of the ROW centerline
Number of FAA registered airports with at least one runway more than 3,200 feet in length located within 20,000 feet of ROW centerline
Number of FAA registered airports having no runway more than 3,200 feet in length located within 10,000 feet of ROW centerline
Number of private airstrips within 10,000 feet of the ROW centerline
Number of heliports within 5,000 feet of the ROW centerline
Number of commercial AM radio transmitters within 10,000 feet of the ROW centerline
Number of FM radio transmitters, microwave towers, and other electronic installations within 2,000 feet of ROW centerline
Number of recorded water wells within 200 feet of the ROW centerline
Number of recorded oil and gas wells within 200 feet of the ROW centerline
AESTHETICS
Estimated length of ROW within foreground visual zone[5] of US and State highways
Estimated length of ROW within foreground visual zone[5] of farm-to-market roads
Estimated length of ROW within foreground visual zone[5] of parks/recreational areas[4]
ECOLOGY
Length of ROW through upland woodlands
Length of ROW through bottomland/riparian woodlands
Length of ROW across mapped NWI wetlands and playa lakes
Length of ROW across known habitat of federally listed endangered or threatened species
WAFWA Estimated Lesser Prairie Chicken Habitat Mitigation Cost ($)
Length of ROW across open water (lakes, ponds)
Number of stream crossings
Number of river crossings
Length of ROW parallel (within 100 feet) to streams or rivers
Length of ROW across 100-year floodplains[6]
CULTURAL RESOURCES
Number of archeological or historical sites crossed by ROW
Number of additional archeological or historical sites within 1,000 feet of ROW centerline
Number of National Register of Historic Places listed properties crossed by ROW
Number of additional National Register of Historic Places listed properties within 1,000 feet of ROW centerline

TABLE 2-1 LAND USE AND ENVIRONMENTAL EVALUATION CRITERIA

Length of ROW across areas of high archeological site potential

Notes:

[1] Single-family and multi-family dwellings, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, and schools, or other structures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis within 500 feet of the centerline of a transmission project of 230-kV or more.

[2] Apparent property lines created by existing roads, highways, or railroad ROWs are not "double-counted" in the length of ROW parallel to property lines criteria.

[3] This data is for informational purposes only.

[4] Defined as parks and recreational areas owned by a governmental body or an organized group, club, or church.

[5] One-half mile, unobstructed.

[6] Floodplain data not available for Gaines and Yoakum Counties.

2.1.4 Data Collection and Constraints Mapping

Environmental and land use data used by POWER in the delineation and evaluation of alternative routes were drawn from a variety of sources, including readily available Geographic Information System (GIS) coverage with associated metadata; maps and published literature; information files and records from numerous federal, state, and local regulatory agencies; meetings with stakeholders; and multiple reconnaissance surveys of the study area. Data collected for each resource area was mapped within the study area utilizing GIS layers.

Maps and data layers reviewed include USGS 7.5 minute topographic maps (Environmental Systems Research Institute [Esri] 2013), National Wetland Inventory (NWI) maps, and TxDOT county highway maps. Appraisal district land parcel boundary data layers were provided by Contract Land Staff, LLC (CLS) and used to identify apparent property boundaries as paralleling possibilities. USGS 7.5 minute topographic maps and aerial photography (Esri 2013; National Aerial Imagery Program [NAIP] 2012, 2014) were used as the background for several of the Project maps, including the initial base map, field maps, the public involvement display boards, and the environmental and land use constraints map.

In an effort to minimize potential impacts to sensitive environmental and land use features, a constraints mapping process was used in developing and refining possible alternative routes. The geographic locations of environmentally sensitive and other restrictive areas within the study area were identified and considered during alternative route development. These constraints were mapped on topographic base maps. The alternative routes presented in this report have been selected in a manner to reduce the potential impact to land use and environmentally sensitive areas including: individual residences, congested urban areas, community facilities, subdivisions, airports, mobile irrigation systems, cemeteries, historic sites, archeological sites, wetlands and playa lakes, parks, churches, schools, and known occupied federally listed threatened and endangered species habitat.

2.1.5 Agency Consultation

A list was developed of federal, state, and local regulatory agencies, elected officials, and organizations to receive a consultation letter regarding the Project. The purpose of the letter was to inform the various agencies and officials of the Project and provide them with an opportunity to provide feedback regarding resources and potential issues within the study area. Various federal, state, and local agencies and officials that might have potential concerns and/or regulatory permitting requirements for the Project were contacted. POWER utilized websites from Gaines and Yoakum Counties and telephone confirmations to identify local officials. Consultation letters were sent in

August 2014. Copies of correspondence with the various state and federal regulatory agencies and local and county officials and other organizations and departments are included in Appendix A.

Agencies/officials contacted include:

FEDERAL

- Federal Aviation Administration
- Federal Emergency Management Agency
- National Park Service
- Natural Resources Conservation Service
- US Army Corps of Engineers
- US Environmental Protection Agency
- US Fish and Wildlife Service

STATE

- Railroad Commission of Texas
- Texas Commission on Environmental Quality
- Texas Department of Transportation (Environmental Affairs Division, Planning and Programming)
- Texas General Land Office
- Texas Historical Commission
- Texas Land Conservancy
- Texas Parks and Wildlife Department
- Texas Water Development Board

LOCAL and OTHER ORGANIZATIONS

- City Officials
- County Officials
- Ducks Unlimited - Texas
- Native Prairies Association of Texas
- Permian Basin Regional Planning Commission
- South Plains Association of Governments
- Texas Agricultural Land Trust
- Texas Cave Management Association
- The Nature Conservancy
- The Nature Conservancy – North Texas
- Independent School Districts

2.1.6 Reconnaissance Surveys

Reconnaissance surveys of the study area are conducted from publicly accessible areas by POWER personnel to confirm the findings of the research and data collection activities, identify changes in land use occurring after the date of aerial photography, and identify potential unknown constraints that might not have been previously noted in the data. A reconnaissance survey of the study area was conducted on September 30 - October 6, 2014.

2.2 COMMUNITY VALUES, LAND USE AND SOCIOECONOMICS

Under PURA § 37.056(c)(4)(A)-(D), "community values" is a factor for consideration in siting a transmission line route; however, the rule does not specifically define the term. The PUC's standard CCN application form requires information concerning the following items related to community values:

- Public open-house meeting(s).
- Approval or permits required from other governmental agencies.
- Brief description of the study area traversed.
- Habitable structures within 500 feet of the centerline for the 345-kV transmission line alternative routes.
- Amplitude modulation (AM) and frequency modulation (FM) radio, microwave, and other electronic installations in the study area.
- FAA-registered airstrips, private airstrips, and heliports located in the area.
- Irrigated pasture or croplands utilizing center-pivot or other traveling irrigation systems in the study area.
- Parks and recreation areas in the study area.
- Historical and archeological sites in the study area.

In addition to evaluating these items, POWER also evaluated the proposed Project for community values and resources that may not be specified by the PUC, but that might be of importance to a particular community as a whole. In several dockets the PUC and Staff have used the following as a working definition: the term "community values" is defined as "a shared appreciation of an area or other natural resource by a national, regional, or local community." Examples of such a community resource could include a park or recreational area, historical or archeological sites, or a scenic vista (aesthetics). POWER mailed consultation letters to various local elected and appointed officials and hosted public open-house meetings to identify and collect information regarding community values and community resources.

2.2.1 Land Jurisdiction

Jurisdiction does not necessarily represent ownership. Potential conflicts could arise from crossing jurisdictional boundaries, which were evaluated in this study area. The study area is located within the jurisdictional boundaries of Gaines and Yoakum Counties. The study area encompasses the northwestern portion of Gaines County and the southwestern portion of Yoakum County.

2.2.2 Land Use

Existing land uses within the study area were identified and placed into the following categories: urban/developed, planned land use, agriculture, oil and gas facilities, transportation/aviation/utility features, and communication towers. Parks and recreation areas are discussed in Section 2.3. Land use information was primarily obtained through interpretation of aerial photographs, USGS topographical maps, and vehicular reconnaissance surveys from accessible public viewpoints. Planned land use features were limited to known features obtained from governmental entities and mobility authorities.

2.2.2.1 Urban/Developed

The urban/developed category represents concentrations of surface-disturbing land uses, which include habitable structures and other developed areas characterized with low, medium and high intensities. The various levels of development include a mix of residential, institutional, commercial, and/or industrial land uses. Developed low-, medium- and high-intensity areas were identified using aerial photograph interpretation and reconnaissance surveys. These classifications are defined below:

- **Developed Low-Intensity** areas typically include rural settings with single-family housing units.
- **Developed Medium-Intensity** areas typically include single-family housing units that are grouped in residential subdivisions and might include peripheral commercial structures.
- **Developed High-Intensity** areas typically include highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses, and commercial/industrial parks. Areas with the highest concentration of development are typically located within or near the towns and communities in the study area.

The study area is predominantly rural, with a mixture of rangeland/pastureland and irrigated cropland. Most of the habitable structures in the study area are associated with scattered rural properties.

Habitable structures were identified using aerial photographs and field reconnaissance surveys. The PUC definition of a habitable structure was used for this routing study. PUC 16 TAC § 25.101(a)(3) defines habitable structures as "[s]tructures normally inhabited by humans or intended to be inhabited by humans on a daily or regular basis. Habitable structures include, but are not limited to, single-family and multi-family dwellings, mobile homes, apartment buildings, commercial structures, industrial structures, business structures, churches, hospitals, nursing homes, and schools." POWER minimized the Project's potential impact to sensitive resources, including habitable structures, to the extent practicable. The route development process considered the proximity of habitable structures to the line and reasonable and cost-effective routing adjustments to avoid habitable structures.

The study area is located within Gaines and Yoakum Counties and within four Independent School Districts (ISDs), including Loop ISD (one Pre-K through high school), Seagraves ISD (one elementary school, one middle school, one high school, and one alternative school), Denver City ISD (one elementary school, one middle school, and one high school), and Plains ISD (one Pre-K through high school) for a total of nine schools identified within the study area (TEA 2014).

2.2.2.2 Planned Land Use

The planned land use category identifies objectives and/or policies regarding land use goals and plans, including conservation easements, managed lands, and planned developments. Cities and counties typically prepare comprehensive land use plans to provide strategic direction for the individual city or county. Gaines and Yoakum County websites were reviewed and correspondence was submitted to county officials to identify any planned land use conflicts.

Conservation Easements

A conservation easement is a restriction property owners voluntarily place on specified uses of their property to protect natural, productive or cultural features. The property owner retains legal title to the property and determines which types of uses to allow and which to restrict. The property can still be

bought, sold and inherited, but the conservation easement is tied to the land and binds all present and future owners to its terms and restrictions. Conservation easement language will vary as to the individual property owners' allowances for additional developments on the land. The land trusts facilitate the easements and ensure compliance with the specified terms and conditions.

The Texas Land Trust Council (TLTC) identifies several non-governmental groups that are land trusts for conservation easements within the Panhandle Plains Region. Specifically, the Colorado River Land Trust, Nature Conservancy, Native Prairies Association of Texas, Texas Agricultural Land Trust, Texas Land Conservancy, and Texas Cave Management Association serve as land trusts within Gaines and Yoakum Counties (TLTC 2014). A review of these and other non-governmental land trust groups did not identify any mapped conservation easements within the study area.

The Texas Agricultural Land Trust is actively working with Gaines and Yoakum Counties to implement voluntary conservation measures on private lands related to the recent listing of the LPC by the USFWS.

2.2.2.3 Agriculture

Agriculture is a significant segment of the economy throughout Texas, and the study area has active agricultural sectors. Table 2-2 compares 2012 data from the United States Department of Agriculture's (USDA) National Agricultural Statistics Service's Census of Agriculture against 2007 data. Table 2-2 sets out the total market value of agricultural products sold, the distribution of products, and the number of farms in the study area for the two time periods.

TABLE 2-2 AGRICULTURE

COUNTY	TOTAL MARKET VALUE OF AGRICULTURAL PRODUCTS			DISTRIBUTION OF PRODUCTS (2012)		NUMBER OF FARMS		
	2007	2012	Change	Crop Sales	Livestock Sales	2007	2012	Change
Gaines County	$193,195,000	$180,470,000	-7%	97%	3%	825	644	-22%
Yoakum County	$90,130,000	$80,008,000	-11%	92%	8%	348	339	-3%

Source: USDA 2012.

2.2.2.4 Oil and Gas Facilities

The study area is located in an area with numerous oil and gas fields. Data was obtained from the Railroad Commission of Texas (RRC) (RRC 2014) which provided a GIS layer for existing oil and gas wells, pipelines and supporting facilities within the study area. Data point categories were reviewed and included the following types: permitted locations; oil, gas, injection, disposal, core test, shut-in, brine mining, and water supply wells; observed oil wells; horizontal drain holes; and sidetrack well surface locations. The 2014 RRC dataset along with aerial photograph interpretation and field reconnaissance were used to identify and map existing oil and gas related facilities.

2.2.2.5 Transportation/Aviation/Utility Features

Transportation Features

Federal, state, and local roadways were identified using TxDOT county transportation maps, Texas Natural Resource Information System (TNRIS) data, and field reconnaissance surveys. The roadway transportation system within the study area in Gaines County includes the following major roadways: US Hwy 385, US Hwy 180, and US Hwy 62 and SH 214 and SH 83. The roadway transportation within the Gaines County study area also includes the following farm-to-market roads: FM 2055, FM 2056, FM 1780, FM 1757 and FM 1429. The roadway transportation system within the study area in Yoakum County includes the following major roadways: US Hwy 380, US Hwy 82, and US Hwy 62 and SH 214. The roadway transportation within the Yoakum County study area also includes the following farm-to-market roads: FM 2196, FM 1939, FM 1780, FM 1622, FM 435 and FM 213. Numerous county and local roads (paved and unpaved) were also identified in both study area counties (TxDOT 2014a).

TxDOT's "Project Tracker," which contains detailed information by county for every project that is or could be scheduled for construction, was reviewed to identify any state roadway projects planned within the study area. In Gaines County, one roadway project is funded for the development and repair of roadway US 62 between the Texas/New Mexico State Line and Seminole (approximately 24 miles in length) (TxDOT 2014b). In Yoakum County, two roadway repair projects are funded for development: 1) the repair of roadway US 380 between the Texas/New Mexico State Line and West Plains City limits (approximately 14 miles in length) and 2) the repair of roadway US 82 between the Plains City limits and Terry County line (approximately 13 miles) (TxDOT 2014b). TxDOT did not identify any other roadway projects in Gaines or Yoakum Counties through fiscal year 2015. It is anticipated that the roadway repair activities identified will be complete before construction of the Project begins.

Aviation Features

FAA registered facilities including public and private airports, airstrips, airfields and heliports were identified based on a review of the Albuquerque Sectional Aeronautical Chart and the FAA database. One FAA registered public airport was identified within the study area counties. The Yoakum County Airport is located approximately one mile northwest of the City of Plains and west of SH 214, and features two runways, a 5,001-foot long asphalt runway and a 3,924-foot long asphalt runway (FAA 2014).

No FAA registered heliports were identified within the study area boundary (FAA 2014).

In addition, review of USGS topographic maps, aerial photograph interpretation, and field reconnaissance surveys were used in an attempt to identify private airstrips within the study area. There are four private airports identified within the study area. The Seagraves Airport is located northeast of City of Seagraves and east of US Hwy 62, and features two runways, a 4,010-foot long asphalt runway and a 2,445-foot long asphalt runway. The Denver City Airport is located immediately west of Denver City, west of SH 214 and north of SH 83, and features two runways, a 5,780-foot long asphalt runway and a 3,960-foot long asphalt runway (FAA 2014). The Hamilton Aircraft Inc. Airport is located approximately 15 miles east of the City of Seminole and north of US Hwy 62, and consists of one 3,700-foot long turf runway (AirNav 2014).

Utility Features

Utility features inventoried include existing electrical transmission lines, distribution lines, pipelines, water wells, and water tanks. Data sources used to identify existing electrical transmission and distribution lines include utility company and regional system maps, data provided by SPS, aerial imagery, USGS topographic maps, additional available planning documents, and field reconnaissance surveys. Transmission lines identified in the study area include seven 230-kV transmission line, eight 115-kV transmission lines, and five other transmission lines (69-kV or less). Distribution lines are prevalent throughout the developed portions of the study area; however, these features were not mapped or inventoried.

In addition, numerous water wells are located throughout the study area (Texas Water Development Board [TWDB] 2014).

2.2.2.6 Communication Towers

Review of the Federal Communication Commission (FCC) database indicated that no AM radio transmitters are within the study area or within 10,000 feet of the study area boundary (FCC 2014).

A review of the FCC databases also indicated that there are numerous Antenna Structure Registration facilities, including FM radio transmitters/microwave towers/cell towers/other electronic installations, within the study area or within 2,000 feet of the study area boundary (FCC 2014).

2.2.3 Socioeconomics

This section presents a summary of economic and demographic characteristics for each county and describes the socioeconomic environment of the study area. Literature sources reviewed include publications of the United States Bureau of the Census (USBOC) and the TWDB.

2.2.3.1 Population Trends

Gaines County experienced a population growth of 21 percent between 2000 and 2010. A state level population increase of 21 percent was noted between 2000 and 2010 (USBOC 2000 and 2010). According to TWDB projections, Gaines County is projected to experience an overall population increase over the next 40 years. Between 2010 and 2020, 2020 and 2030, 2030 and 2040, 2040 and 2050, population changes in Gaines County are projected to increase by 22 percent, 21 percent, 20 percent, and 18 percent, respectively (TWDB 2013).

Yoakum County also experienced a population growth of eight percent between 2000 and 2010. By comparison, population at the state level increased by nearly 21 percent between 2000 and 2010 (USBOC 2000 and 2010). According to TWDB projections, Yoakum County is projected to experience an overall population increase over the next 40 years. Between 2010 and 2020, 2020 and 2030, and 2030 and 2040, 2040 and 2050, population changes in Yoakum County are projected to increase 13 percent, 13 percent, 10 percent, and 10 percent, respectively (TWDB 2013).

By comparison, the population of Texas is expected to experience population increases of 17 percent, 14 percent, 12 percent, and 11 percent, respectively, over the next four decades (TWDB 2013). Table 2-3 presents past population trends and projections for Gaines and Yoakum Counties and for the State of Texas.

TABLE 2-3 POPULATION TRENDS

STATE/COUNTY	PAST		PROJECTED			
	2000	2010	2020	2030	2040	2050
Texas	20,851,820	25,145,561	29,510,184	33,628,653	37,736,338	41,928,264
Gaines County	14,467	17,526	21,316	25,746	30,997	36,654
Yoakum County	7,322	7,879	8,920	10,089	11,128	12,232

Sources: USBOC 2000 and 2010; TWDB 2013.

2.2.3.2 Employment

The civilian labor force (CLF) in Gaines County increased by 34 percent (1,948 people) between 2000 and 2012 and the CLF in Yoakum County increased by 17 percent (522 people) between 2000 and 2012. By comparison, the CLF at the state level grew by 26 percent (2,570,805 people) from 2000 to 2012 (USBOC 2000 and 2012). Table 2-4 presents the CLF for the study area counties and the State of Texas for the years 2000 and 2012.

Between 2000 and 2012, Gaines County experienced a slight decrease in the unemployment rate from 5.5 percent to 4.8 percent. Yoakum County experienced a slight increase in the unemployment rate between 2000 and 2012 from 9.2 percent to 9.5 percent. By comparison, the State of Texas experienced a small increase in the unemployment rate between 2000 and 2012 from 6.1 percent to 7.7 percent (USBOC 2000 and 2012). Table 2-4 presents employment and unemployment data for the study area counties and the State of Texas for the years 2000 and 2012.

TABLE 2-4 LABOR FORCE AND EMPLOYMENT

STATE/COUNTY	2000	2012
Texas		
Labor Force	9,830,559	12,401,364
Employment	9,234,372	11,440,956
Unemployment	596,187	960,408
Unemployment Rate	6.1%	7.7%
Gaines County		
Labor Force	5,776	7,742
Employment	5,460	7,369
Unemployment	316	373
Unemployment Rate	5.5%	4.8%
Yoakum County		
Labor Force	3,152	3,674
Employment	2,861	3,326
Unemployment	291	348
Unemployment Rate	9.2%	9.5%

Sources: USBOC 2000 and 2012.

2.2.3.3 Leading Economic Sectors

The major occupations in Gaines County in 2012 are in the category of natural resources, construction, and maintenance occupations, followed by management, business, science, and arts occupations, and sales and office occupations. In Yoakum County, the major occupations are in the category of natural resources, construction, and maintenance occupations, followed by management,

business, science, and arts, and production, transportation, and material moving occupations (USBOC 2012). Table 2-5 presents the number of persons employed in each occupation category during 2012 in each study area county.

TABLE 2-5 OCCUPATIONS IN THE COUNTY WITHIN THE STUDY AREA

OCCUPATION	TOTAL NUMBER OF PERSONS	
	Gaines County	Yoakum County
Management, business, science, and arts occupations	1,847	770
Service occupations	812	448
Sales and office occupations	1,464	461
Natural resources, construction, and maintenance occupations	2,153	1,136
Production, transportation, and material moving occupations	1,093	511

Source: USBOC 2012.

In 2000 and 2012, the industry group that employed the most people in Gaines County was that encompassing agriculture, forestry, fishing and hunting, and mining. That group was followed by educational services. In 2000 and 2012, the industry group that employed the most people in Yoakum County was that encompassing agriculture, forestry, fishing and hunting, and mining. That group was followed by educational services. Table 2-6 presents the number of persons employed in each of the industries in the study area county for the years 2000 and 2012.

TABLE 2-6 INDUSTRIES IN THE COUNTY WITHIN THE STUDY AREA

INDUSTRY GROUP	TOTAL NUMBER OF PERSONS			
	Gaines County		Yoakum County	
	2000	2012	2000	2012
Agriculture, forestry, fishing and hunting, and mining	1,365	1,808	999	1,367
Construction	396	1,093	95	148
Manufacturing	287	426	123	94
Wholesale trade	250	191	68	64
Retail trade	538	942	268	232
Transportation and warehousing, and utilities	404	386	116	121
Information	70	84	10	5
Finance and insurance, and real estate and rental and leasing	200	163	90	77
Professional, scientific and management, and administrative and waste management services	84	211	60	80
Educational services, and health care and social assistance	1,102	1,105	579	626
Arts, entertainment, and recreation, and accommodation and food services	255	409	169	147
Other services, except public administration	359	482	136	178

TABLE 2-6 INDUSTRIES IN THE COUNTY WITHIN THE STUDY AREA

INDUSTRY GROUP	TOTAL NUMBER OF PERSONS			
	Gaines County		Yoakum County	
	2000	2012	2000	2012
Public administration	150	69	148	178

Source: USBOC 2000 and 2012.

2.3 PARKS AND RECREATION AREAS

The PUC recognizes parks and recreational areas as those owned by a governmental body or an organized group, club, or church. Federal and state databases and county/local maps were reviewed to identify any parks and/or recreational areas within the study area.

2.3.1 National/State/County/Local Parks

No national parks or monuments or state parks were identified within the study area counties (National Park Service [NPS] 2014d, 2014e; TPWD 2014e). Yoakum County Park/RV Park is located in Denver City and operates all year. This RV Park has 15 hook-ups. The Gaines County Golf Course is located at the Gaines County Park near Seminole, Texas. The golf course is semi-private and is open year round. Two city parks were identified in the study area counties: Mustang Park in Denver City and Stanford Park in the City of Plains (City Data 2014).

Additional recreational activities such as hunting and fishing might occur on private properties throughout the study area, but are not considered to be open to the general public.

2.3.2 Wildlife Viewing Trails

Review of the TPWD Panhandle Plains Wildlife Trail indicates that there are no wildlife viewing sites/driving loops within the study area (TPWD 2013f).

2.4 HISTORICAL AND AESTHETIC VALUES

Section 37.056(c)(4)(A-D) of PURA incorporates historical and aesthetic values as a consideration when evaluating proposed electric transmission facilities. The PUC's Standard Application for a CCN further stipulates that known historical sites within 1,000 feet of an alternative route will be listed, mapped, and their distance from the centerline of the route documented in the application filed for consideration. Archeological sites within 1,000 feet of a route will be listed and their distance from the centerline documented, but they need not be shown on maps for the protection of the site. Sources consulted to identify known sites (national, state, or local commission) shall also be listed.

The THC is the state agency responsible for historic preservation. The THC, working in conjunction with the TARL maintains records of previously recorded cultural resources (archeological, architectural, and cemeteries) as well as records of previous field investigations. Information from the THC's Restricted Access Texas Archeological Sites Atlas (ATLAS) was reviewed and GIS shapefiles were acquired from the ATLAS and TARL to identify and map locations of previously recorded cultural resource sites within the study area.

Together archeological and historical sites are often referred to as cultural resources. Under the NPS's standardized definitions, cultural resources include districts, sites, buildings, structures, or objects important to a culture, subculture, or community for scientific, traditional, religious, or other reasons.

For this study, cultural resources have been divided into three major categories: archeological resources, architectural resources, and historic cemeteries. These three categories correlate to the organization of cultural resource records maintained by the THC and TARL.

- **Archeological resources** are locations on the ground surface or buried within the earth where human activity has measurably altered or left deposits of physical remains (e.g., burnt rock middens, stone tools, petroglyphs, house foundations, bottles). Archeological resources can date to either prehistoric times or the historic era.

- **Architectural Resources** typically include standing buildings (e.g., houses, barns, outbuildings), but can also include structures (dams, canals, bridges, roads, silos), and districts that are non-archeological in nature.

- **Cemeteries** are places of intentional human interment and may include large public burial grounds with multiple burials, small family plots with only a few burials, or individual grave sites. In some instances cemeteries may be designated as Historic Texas Cemeteries (HTCs) by the THC and may be recognized with an Official Texas Historical Marker (OTHM). Other cemeteries may also be documented as part of the THC's Record, Investigate, and Protect program.

2.4.1 Cultural Background

The study area is located in Gaines and Yoakum Counties, within the Plains Cultural Resource Planning Region as delineated by the THC (Mercado-Allinger et al. 1996) and shown in Figure 2-2. Geographically, the study area is located on the southern reaches of the Southern High Plains, along the southern edge of the Llano Estacado. This region is largely devoid of topographic relief, and what slight relief exists occurs primarily as small lake and playa basins, dunes, and dry valleys. The majority of *in situ* Native American archeological deposits have been recorded in association with these features. Archeologists have divided the prehistoric occupation of the region into three main periods: the Paleoindian, Archaic, and Late Prehistoric or Ceramic periods (Johnson and Holliday 2004).

2.4.1.1 Prehistory

Paleoindian (ca. 11,500 to ca. 8, 600 years ago). Evidence of human occupation in the Southern High Plains of northwestern Texas and eastern New Mexico spans the last 11,500 years (Johnson and Holliday 2004). The archaeological complexes of the Paleoindian period are represented by the Clovis and Folsom complexes, and Late Paleoindian period, each recognizably based on distinctive lithic technology.

0 30 60 120 180 240

Miles

Source: Mercado- Allinger et. al., 1996

Legend

Cultural Resource Planning Region Boundary

County Boundary

Yoakum - State Line
345 kV Project

Figure 2-2
Location of Study Area In Relation to the Cultural Resource Planning Regions of Texas

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Date: 3/18/2015

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The Clovis subperiods extended from approximately 11,500 years ago to 11,000 years ago during the terminal Late Pleistocene. Clovis occupation sites have been identified on the Llano Estacado, however, only three have *in situ* Clovis deposits; the Blackwater Draw #1 (Clovis type-site) in New Mexico, the Miami site northeast of Amarillo, and the Lubbock Lake occupation west of Lubbock (Johnson and Holliday 2004). Each of these sites contained Clovis-type spear points found in association with mammoth remains indicating that the Clovis population was relying on the animals as an important food base. At the Lubbock Lake site, at least six species of extinct megafauna were found exhibiting evidence that the sites were used as butchering or primary kill sites (Johnson and Holliday 2004). Despite the popular misconception that these early populations were primarily hunters, evidence from the Gault Site in central Texas suggests that their diet was more generalized (Collins 2002). Clovis cultures hunted big game out of base camps for short periods of time, but were highly mobile and rarely stayed for long periods at any one location.

The transition from the Clovis to Folsom Period was marked by a significant climatic and environmental change which continued into Late Paleoindian times (Johnson and Holliday 2004). Average summer temperatures warmed from the earlier period while the average winter temperatures dipped below those during the Clovis Period with sustained freezing periods. Perennial streams persisted in the lower reaches of most draws. Ponds and marshes surrounded by lush vegetation began to form in the upper end of the draws. Many of the large animals hunted by Clovis populations died off as a result of the temperature fluctuation; however, large bison thrived and congregated around the ponds where food was plentiful. Folsom people took advantage of the localized food base and large bison became the mainstay of the Folsom diet (Johnson and Holliday 2004).

A consistent and plentiful food base led to an increased Folsom population as suggested by the sharp rise in the number of archeological sites dating to this period (ca. 10,800 to 10,300 years ago). It also appears from archeological assemblages at sites such as Lipscomb, Lake Theo, Lubbock Lake, and the Midland/Scharbauer that Folsom people were occupying established camp sites for longer periods of time. Many of these campsites were in close proximity to the water sources frequented by bison (Johnson and Holliday 2004).

The Midland/Scharbauer site is an archeological site dating to the Folsom era located southwest of the study area along Monahans Draw south of Midland. In 1953, human bone and teeth were found eroding out of the dry channel of Monahans Draw. Subsequent archeological investigations in the draw and adjacent deflation basins from 1953 to 1955 uncovered numerous artifacts that dated to the Folsom period. Many projectile points recovered from the excavations closely resembled the traditional Folsom point, but without the characteristic fluting. This projectile point was named "Midland" after the site. Early dating methods determined that the artifacts date to around 10,000 years ago. Skeletal remains of a woman unearthed at the site were initially thought to date up to 20,000 years before present. More recent investigations at the site have determined that the age of skeletal remains is most likely closer to that of the artifacts –somewhere between 11,000 and 10,000 years ago (Holliday and Meltzer 1996).

The Late Paleoindian period (ca. 10,000 to 8,500 years ago) is characterized by a warming and drying trend that began during the Folsom period. Seasonal temperature changes were more pronounced and periodic droughts led to disappearing surface water. What water was available tended to collect in playa basins and salinas (Johnson and Holliday 2004). Despite the warming trend, subsistence strategies remained much as they were during the earlier Paleoindian periods. Big game animals still made up a large part of the diet; however, smaller mammals such as deer, rabbit, and gophers as well

as fish and reptiles were also part of the diet. Archeological faunal remains dating to the Late Paleoindian vary by geography throughout Texas and represent locally available food resources (Bousman et al. 2004).

Archaic Period (ca. 8,500 to 2,000 years ago). The Archaic Period in the southern plains spans the greatest length of time of any of the Native American occupational periods. This 6,500 year period is divided into Early, Middle, and Late sub-periods based on variations in the style of stone tools. Comparatively little is known about the Early Archaic (ca. 8,000 to 6,000 years ago). Only two sites with Early Archaic components have been excavated in the Llano Estacado region; Lubbock Lake, and San Jon in New Mexico. These sites indicate an increased reliance on plant foods and smaller game, although bison continued to be a major part of the diet (Johnson and Holliday 2004; Dillehay 1974).

In the Middle Archaic, environmental conditions were significantly drier and hotter than during the Early Archaic. Many of the ponds and marshes dried up and the range vegetation was deteriorating. Water wells discovered at three sites dating to the Middle Archaic (Blackwater Draw Locality #1, Mustang Springs, and Marks Beach) indicate that Middle Archaic populations were finding alternate means of procuring and storing water (Meltzer and Collins 1987). Despite the harsh conditions, archeological evidence indicates that Lubbock Lake had a relatively intensive occupation throughout the Middle Archaic. Multiple activity areas representing camping, bison kill/butchering locales, and ovens likely used for plant processing are found around the lake (Johnson and Holliday 2004).

By around 4,500 years ago the climate began to shift back to relatively cooler and wetter conditions marking a transition to the Late Archaic period. Range conditions improved and mixed grass prairie replaced the desert plains grasslands. Localized marshlands returned and springs once again dotted the landscape. Playas and salinas held seasonal to year around water. The more hospitable environment supported a growing population as evidenced by the thousands of archeological sites dating to this period, in sharp contrast to the few sites dating to the Early and Middle periods (Johnson and Holliday 2004; Hughes 1991). During the Late Archaic the primary mode of subsistence was bison hunting, although there is evidence for smaller game and wild plants in the diet. Site types dating to the Late Archaic include campsites, rock shelters, and bison kill and butchering sites. Projectile points consisted primarily of barbed dart points which were significantly smaller than the large spear points used during the Paleoindian period (Hughes 1991).

Late Prehistoric or Ceramic Period (ca. 2,000 to 500 years ago). The Late Prehistoric is marked by increased sedentism. Although hunting and gathering remained the primary mode of subsistence in the region, a hospitable environment and secure resource base allowed for a transition towards a village-gardener lifestyle. One of the hallmarks of the period was the introduction of Mogollon brownware and Woodland cord marked pottery around 1,800 years ago. The bow and arrow was also introduced during this period along with small barbed arrow points and later side-notched triangular arrow points. Pit houses were common on the southern edge of the Llano Estacado early in the period, followed by a transition to surface residential structures around 800 years ago. There is also some evidence for limited agriculture in the Woodland Period. Similar to the Late Archaic, active and abandoned stream channels continued to be preferred locations for campsites (Hughes 1991).

Four Late Prehistoric culture complexes have been recognized on the Llano Estacado: Lake Creek/Plains Woodland on the northern edge, Palo Duro on the eastern edge, Eastern Jornada on the southwest margins, and Blow Out Mountain on the southeastern edge. The study area falls between three of the complexes on a portion of the southern Llano Estacado for which little has been

documented relating to the Late Prehistoric. During the Late Prehistoric the region was used as a north-south thoroughfare along southeasterly flowing drainages. Semi-permanent residential base camps were established at large playa and pluvial lakes along the thoroughfare. The only well-documented Late Prehistoric playa lake site in the southern Llano Estacado is the Salt Cedar site in the extreme southeastern corner of Andrews County. Based on pottery sherds found in the archeological assemblage, the Salt Cedar site been categorized as belonging to the Eastern Jornada Mogollon culture complex (Boyd 2004).

By the second part of the Late Prehistoric (ca. 1,000 to 800 years ago), most of the Southern Plains were occupied by permanent semi-sedentary villages and a mixed economy based on hunting and gathering as well as horticulture (Drass 1998). Intermingling of Puebloan trade pottery and Plains lithic tool types during this time indicate that trade networks had been developed throughout the region. Sites were also exhibiting a much greater variety in the species of animal bones and number of grinding implements, indicating a broadened resource base with a dependency on both wild and domesticated processed plant foods. Intentional human burials were also common by this time (Boyd 2004).

2.4.1.2 Historic Period

Historic Period (ca. 300 to 50 years ago). Archeologically, the historic period on the Southern High Plains is subdivided into the aboriginal and Euro-American-historic eras. The historic period is marked by the arrival of Spain, as they conducted the earliest European explorations of the American Southwest, establishing the first European claim to Texas. The introduction of the horse by Spain changed the lifeways of many Native American cultures, as they were used as beast of burden, food, and in war. Historic-period aboriginal animal processing sites are similar to those during the Late Prehistoric period; however, the sites are distinguished from the earlier period by the presence of European trade goods and remains of modern horses processed as a food source. Several historic rock art sites have been documented to the east of the study area in Garza County, and many Comanche sites with glass trade beads dating from the 1700s to the early to mid-1800s have been found throughout the Texas Panhandle (Johnson and Holliday 2004).

Early American scouts viewed much of the land as dry and arid; incapable of supporting life (Hämäläinen 2003). It was this misconception coupled with the large aboriginal populations that hindered settlement in the area. Euro-American occupation of the Southern High Plains did not begin until the middle to late 1800s. Among the first Europeans to arrive were the Pastores, or sheep men, typically of Hispanic descent from New Mexico. Numerous groups of Pastores moved onto the Llano Estacado and established small settlements consisting of local plazas surrounded by adobe houses. For several decades until the late 1800s, sheep production would dominate the industry in the area. The US government dispatched professional buffalo hunters and military troops to the Plains states to exterminate the buffalo, a primary food source of the aboriginal population, and drive the Native Americans to reservations. Following the Red River War, a series of military engagements between the US Army and Kiowa, Comanche, Southern Cheyenne, and Southern Arapaho tribes in the mid-1870s, the threat of aboriginal raids on Euro-American settlers diminished, and the region was opened to Spanish and Anglo settlement (Johnson and Holliday 2004). Just west of the study area, Cedar Lake, the largest salt-water lake on the Texas plains, was the site of a skirmish between Indians and United States cavalrymen in 1875 (Perez 2014). Some of the buffalo hunters who moved into the region in the 1870s, stayed and established ranches after the bison were exterminated.

Despite the early success of the sheep industry, cattle ranching quickly became the primary agricultural pursuit, with large-scale corporate cattle ranching operations coming to dominate in the latter nineteenth century (Rathjen 2014). In 1900, the combined population of Gaines and Yoakum Counties was 71 people, and over 22,000 head of cattle were reported in the agricultural census (Hunt 2014; Leffler 2014). Cattle production was the only industry within the two counties until the early twentieth century. The sale of railroad land and the 1895 School Land Act, which offered settlers cheap agricultural and grassland acreage, increased the population and encouraged farming in the region after 1904 (Hunt 2014; Leffler 2014). Thousands of acres of land were improved for agriculture by settlers. The Santa Fe Railroad reached Seagraves in 1917, opening the area up to distant markets. Drought however, drove many settlers away from the area by 1920. Agriculture in the counties of Gaines and Yoakum has remained limited in comparison to their eastern county neighbors (Hunt 2014; Leffler 2014).

During the 1920s, cotton increased in importance to the economies of Gaines and Yoakum Counties. By 1930, over 10,000 acres in Yoakum County and over 20,000 acres in Gaines County were devoted to cotton in stark contrast to the 485 acres of cotton planted in Gaines County in 1920 (Hunt 2014; Leffler 2014). Sorghum and corn also became important regional crops during the 1920s, during which farming in both counties took hold.

The Great Depression and Dust Bowl reversed much of the region's and nation's economic growth, affecting many of the local farmers differently. Some farmers were able to hold on by finding local jobs in the flourishing dairy industry of neighboring counties but many more had to turn to tenant farming. Between 1929 and 1935, the number of farmers who fully owned their land dropped by almost 50 percent in Gaines County (Hunt 2014). The Depression's effects were felt nationwide but the environmental cost of the Dust Bowl in the region was just as great. Lowering prices, drought, and sand storms plagued the local economy (Hunt 2014; Worster 2004). Cropland dropped significantly, and topsoil was blown away, exposing unproductive clay in much of the region.

In the mid-1930s oil was discovered in the area, boosting the economy and attracting a growing population. In 1936, drillers found the Seminole Pool, and in 1938, over 650,000 barrels of crude oil was taken from Gaines County wells (Hunt 2014). In the same year, twice as many barrels were taken from wells in Yoakum County, in an oil boom centered on Denver City, founded in 1939 (Leffler 2014). Much of the economy today in the Southern High Plains region is still strongly tied to the oil and gas industry, although water wells, mobile irrigation and mechanization after World War II opened up thousands of acres to cultivation (Leffler 2014). Through these new technologies, the Southern High Plains was better able to diversify its crops; cotton, sorghum, wheat, hay, and corn now dominate (Hunt 2014; Colaizzii et al. 2008).

2.4.2 Previous Investigations

Based on a review of the Texas Historical Sites Atlas (THSA) data, 11 cultural resource surveys have been undertaken in the study area. In 1965, the Texas Archeological Society conducted an investigation on private land, recording sites 41GA1 and 41GA2. In 1984 and 1985, the Gaines County Archaeological Society conducted a survey during which they recorded sites 41GA12, 41GA13, and 41GA14. In 1988, Texas Tech University recorded 41YK1; all documents were removed and relocated to the Texas Tech Museum. In 2001, Western Cultural Resource Management, Inc. conducted a survey recording 41GA62. PaleoWest Solutions in Archaeology conducted a survey in 2007, recording 41GA67. In 2010, TRC of Albuquerque preformed a surveyed and recorded site 41GA71. The University of New Mexico in Albuquerque recorded site 41GA6, however, no survey

date was listed on the site form. The Bureau of Land Management in 2001, SWCA Environmental Consultants in 2008, and the United States Environmental Protection Agency (USEPA) in 1987 and 1990 surveyed within the study area but recorded no sites.

2.4.3 Records Review

The THC, working in conjunction with TARL, maintains records of previously recorded cultural resources as well as records of previous field investigations. On September 22, 2014, GIS shapefiles were acquired from TARL to identify and map locations of previously recorded archeological and historical resources within the study area. Information on archeological sites and surveys was obtained from the ATLAS on several occasions in September, October, and November, 2014. The locations of and information pertaining to State Antiquities Landmarks, NRHP properties, cemeteries, HTCs, and OTHMs within the study area were obtained from the THC's online THSA in September and October 2014. TxDOT's historic bridges database was reviewed for bridges that are listed or determined eligible for listing on the NRHP within the study area. At the national level, the NRHP database (NPS 2014a) and NPS websites for National Historic Landmarks (NPS 2014b), and National Historic Trails (NPS 2014c) were reviewed as well.

No NRHP-listed properties, State Antiquities Landmarks, NRHP-listed or determined-eligible bridges, or HTCs are recorded within the study area. Three cemeteries are located in the study area. Six OTHMs have also been located within the study area, two of which are Recorded Texas Historic Landmarks. Ten archeological sites have been previously recorded within the study area. These cultural resources are summarized in Table 2-7 and discussed in more detail below.

TABLE 2-7 CULTURAL RESOURCES RECORDED WITHIN THE STUDY AREA

COUNTY	RECORDED ARCHEOLOGICAL SITES	STATE ANTIQUITIES LANDMARKS	NRHP-LISTED PROPERTIES	CEMETERIES	OTHM
Gaines	9	0	0	2	3
Yoakum	1	0	0	1	3

Source: THC 2014a and 2014b.

Four of the ten archeological sites recorded in the study area, 41GA6, 412GA62, 41GA67, and 41GA71, are historic in age, and five archeological sites, 41GA1, 41GA2, 41GA12, 41GA13, 41GA14, are prehistoric sites. Other than its location, no information is available for 41YK1 on ATLAS. According to the site forms, site 41GA6 is a large scatter of historical materials including bottles, cans, jars, burned brick, and glass dating from 1900 to the1940s. Site 41GA62, a long, linear site, is a communications cable that was installed three to six feet below the surface in the late 1940s. The cable is part of a 3,000-mile transcontinental telephone cable system, and has the potential for listing on the NRHP. Site 41GA67 is a work shed of which only the frame remains. Artifacts near the shed include a 1948 Ford truck, tea kettle, bottle glass, and architectural materials. The site was recommended as ineligible for listing on the NRHP. Site 41GA71 is a corral that dates to the 1940s-1960s. On the site form, the corral is recommended as ineligible for listing on the NRHP, although, none of the historic sites within the study area have been formally evaluated for listing on the NRHP.

Site 41GA1 is a prehistoric site with a scatter of projectile points, pestle, metate fragments, manos, potsherds, scrapers, and debitage. Nearby, the assemblage from 41GA2 includes a pestle, projectile points, metate fragments, manos, potsherds, scrapers, flint, sandstone, debitage (including obsidian), and a possible bone pipe fragment. Sites 41GA1 and 41GA2 are described as possibly being near the

site of a dried up lake. Site 41GA12 is prehistoric campsite containing debitage, pottery, projectile points, and scattered burnt caliche. Site 41GA13 is prehistoric open campsite located near a Pleistocene lake. Documented contents were several types of flint, a projectile point, and scattered burnt caliche. The 36-acre site is described (in 1984) as more than 80 percent intact. Site 41GA14 is a large, frequently inhabited campsite consisting of projectile points, metates, debitage, and scattered burnt caliche, located near a dry lake bed (similar to 41GA1 and 41GA2). Additional work is recommended for the site.

None of the known prehistoric sites in the study area have been formally evaluated for listing on the NRHP.

Two cemeteries, the Webb Cemetery and an unnamed cemetery, are mapped within the study area in Gaines County. Both are on the outskirts of Seagraves. The Memorial Cemetery is located in the study area in Yoakum County, approximately two miles west of Denver City. None of these cemeteries are designated as HTCs.

Six OTHMs are mapped within the Project area. These include two Recorded Texas Historic Landmarks, the Memorial Museum "Bonus Shack" in Plains and the Simpson Hotel in Seagraves. The Simpson Hotel was built in 1917, the year Seagraves was platted, and continued in operation until 1974. In Seagraves, the C.M. Building is commemorated in an OTHM. The building was built in 1926 to house the Seagraves Motor Company, owned by Armstrong, who was instrumental in local large land deals, including the sale of lots in Seagraves. The three remaining OTHMs are subject markers, honoring the oil industry in Gaines County, a discovery well in the Wasson Oil Field in Yoakum County, and the history of Yoakum County.

To further assess potential impacts to cultural resources, high probability areas (HPAs) for prehistoric archeological sites were defined using topographic and satellite maps, and areas of Holocene deposition within the study area were delineated using the Geologic Atlas Hobbs and Brownfield map sheets (Bureau of Economic Geology [BEG] 1976 and 1974). Within the study area, the prehistoric HPAs occur along Wardswell, Sulphur Springs, Seminole, and McKenzie Draws, and their tributaries; and near springs and playa lakes.

Historic-age resources are also likely to be found near water sources. However, they will also be located in proximity to primary and secondary roads that provided access to the sites. Buildings and cemeteries are also more likely to be located within or near historic communities.

2.5 AESTHETIC VALUES

Section 37.056(c)(4)(C) of PURA incorporates aesthetics as a consideration when evaluating proposed electric transmission facilities. There are currently no formal guidelines provided for managing visual resources on private, state, or county owned lands. For the purposes of this study, POWER defined the term "aesthetics" to accommodate the subjective perception of natural beauty in a landscape and to assess an area's scenic qualities. The visual analysis was conducted by describing the regional setting and assessing the viewer's sensitivities. Related literature, aerial photograph interpretation, and reconnaissance surveys were used to describe the regional setting and to determine the landscape character types for the area.

Consideration of the visual environment includes a determination of aesthetic values (where the major potential effect of a project on the resource is considered visual) and recreational values (where the

location of a transmission line could potentially affect the scenic enjoyment of the area). POWER used the following aesthetic criteria to determine an area's aesthetic identity:

- Topographical variation (hills, valleys, etc.).
- Prominence of water in the landscape (rivers, lakes, etc.).
- Vegetation variety (woodland, meadows).
- Diversity of scenic elements.
- Degree of human development or alteration.
- Overall uniqueness of the scenic environment compared with the larger region.

The study area is located in the southwest portion of the Texas Panhandle in Gaines and Yoakum Counties. It is characterized by a rural setting comprising agricultural cropland with prominent pivot irrigation and sparse commercial/industrial developments. The majority of the study area has been impacted by activities associated with agricultural operations and oil and gas exploration. Overall, the study area viewscape consists of agricultural fields with oil and gas fields and scattered residences on nearly level terrain.

No known designated views or designated scenic roads or highways were identified within the study area.

A review of the NPS website did not indicate any Wild and Scenic Rivers or National Monuments within the study area (National Wild and Scenic Rivers System 2013; NPS 2014d).

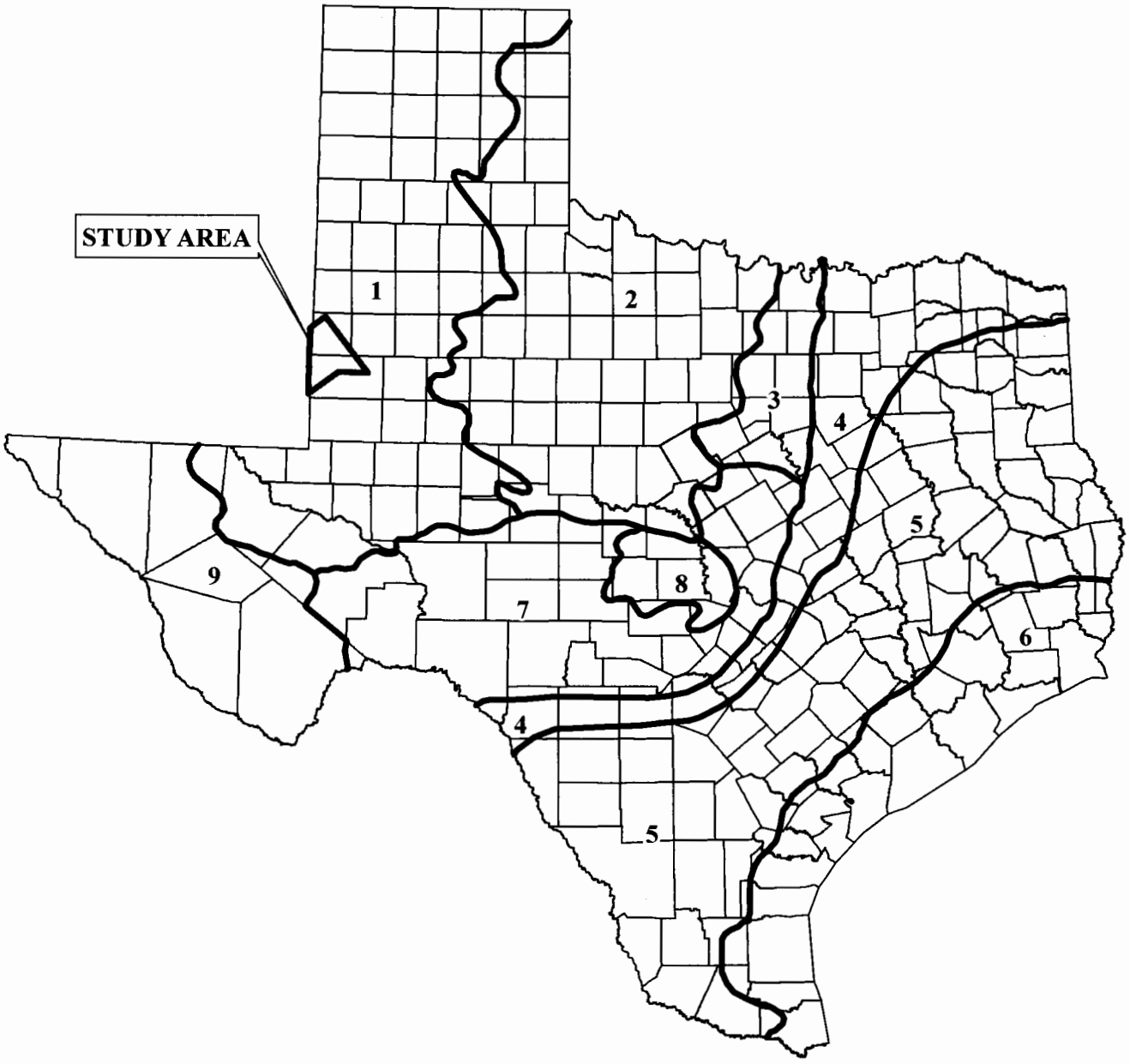
Based on these criteria, the study area exhibits a low degree of aesthetic quality for the region. The study area maintains the feel of a typical rural agricultural community. In general, the aesthetic quality of the study area is not distinguishable from that of other adjacent areas within the region.

2.6 ENVIRONMENTAL INTEGRITY

Resource inventory data were collected for physiography, geology, soils, surface waters, wetlands, and ecological resource areas. These data were mapped within the study area utilizing GIS layers. Additional data collection activities consisted of file and record reviews conducted with the various state and federal regulatory agencies, a review of published literature, and review of various maps and aerial photographs. Maps and data layers reviewed include USGS 7.5 minute topographic maps, Google Earth aerial imagery, Geologic Atlas maps, NWI maps, National Hydrography Database (USGS 2015), Playa Lakes Joint Venture (2011), FEMA national flood hazard layer, USGS, Natural Resource Conservation Service (NRCS) soil survey data, TCEQ, and TPWD/USFWS endangered species county lists.

2.6.1 Physiography and Geology

As shown in Figure 2-3, the study area is located within the Southern High Plains Physiographic Province of Texas and New Mexico. This province is located west of the North-Central Plains Province and is bounded to the south by the Edwards Plateau and Basin and Range provinces (BEG 1996). This region is described as flat with playa lakes and local dune fields. Elevations within the Southern High Plains region range from 2,200 feet to 3,800 feet above mean sea level (amsl) (BEG 1996). Within the study area, elevations typically range between 3,000 and 3,800 feet amsl with elevations increasing to the north and west (BEG 1974, 1976).



N

0 30 60 120 180 240

Miles

Source: Texas Bureau of Economic Geology, 1996

Legend

Physiographic Region Boundary
1 High Plains
2 North-Central Plains
3 Grand Prairie
4 Blackland Prairies
5 Interior Coastal Plains
6 Gulf Coastal Prairies
7 Edwards Plateau
8 Central Texas Uplift
9 Trans-Pecos Basin and Range

County Boundary

Yoakum - State Line
345 kV Project

Figure 2-3
Location of Study Area In Relation to the Physiographic Regions of Texas

POWER ENGINEERS

Date: 3/18/2015

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Geologic formations occurring within the study area include the Quaternary-aged windblown sands, playa/pond deposits, and fluviatile terrace deposit. Tertiary-aged formations include the Ogallala Formation (BEG 1974, 1976). A brief description of the geologic formations within the study area is given below.

Quaternary Formations

A majority of the study area is covered by sedimentary Quaternary-aged windblown sands and windblown cover sands. Pockets of playa/pond deposits occur near playa lakes or depressions. Fluviatile terrace deposit and alluvium occur typically near draws and streams. Alluvium typically consists of clay, silt, sand, and gravel eroded from sedimentary rock with organic material abundant locally (USGS 2014).

Tertiary Formations

The Ogallala Formation is exposed along draws and streams. It is described as a fluviatile sand, silt, clay and gravel capped by caliche. Sand is common and may be fine to coarse grained quartz, cemented locally. Silt and clay are minor with caliche nodules. Gravel is not present everywhere but may consist of pebbles and quartz with some chert, igneous/metamorphic rock, or limestone. Its maximum thickness is approximately 350 feet (BEG 1974).

2.6.1.1 Geological Hazards

Several potential geologic hazards that could affect the construction and operation of the transmission line were evaluated within the study area. Hazardous areas typically reviewed include potential karst areas, faults, coal mining locations, gravel quarries, and potential subsurface contamination.

No known caves were identified within the counties or within the study area (Texas Speleological Society [TSS] 1994). No known quaternary faults were identified within the study area (USGS 2013). No current or historical coal mining activities were identified; however, several gravel quarries are located within the study area (RRC 2014).

Review of the TCEQ State Superfund Site database (TCEQ 2014) and USEPA Superfund Site database (USEPA 2014) did not indicate any current or previous hazardous waste sites within the study area.

The RRC oil/gas database was reviewed for the study area and numerous oil and gas wells, pipelines, treatment facilities and pipeline compressor stations were identified within the study area (RRC 2014).

2.6.2 Soils

2.6.2.1 Soil Associations

The NRCS Web Soil Survey data were used to identify and characterize mapped soil units that are within the study area, including hydric and important farmland soil series designations (NRCS 2014). Soil map units represent an area dominated by one or more major kinds of soil or miscellaneous areas. Table 2-8 summarizes each soil association within the study area and indicates if any mapped units of the soil series within the association are considered hydric and/or prime farmlands (NRCS 2014).

TABLE 2-8 MAPPED SOIL UNITS WITHIN THE STUDY AREA

SOIL ASSOCIATION	DESCRIPTION	SOIL SERIES	LANDFORM	PERCENT OF ASSOCIATION	HYDRIC SOIL	PRIME FARMLAND SOIL
Spur - Potter - Mansker (s7451)	Well drained; Calcareous, loamy alluvium and eolian deposits	Spur	Draws	35	N	N
		Potter	Draws/scarps	15	N	N
		Mansker	Plains/Draws	50	N	Y
Kimbrough - Arvana - Amarillo (s7165)	Well drained; Loamy eolian deposits, or Calcareous, loamy alluvium/eolian	Kimbrough	Plains	30	N	N
		Arvana	Plains	25	N	Y
		Amarillo	Plains	35	N	Y
		Other	-	10	-	-
Simona - Kimbrough (s7645)	Well drained; Calcareous, loamy alluvium or eolian	Simona	Plains	44	N	N
		Kimbrough	Plains	44	N	N
		Other	-	22	-	-
Patricia - Amarillo (s7539)	Well drained; Loamy or sandy eolian deposits	Patricia	Plains	60	N	N
		Amarillo	Plains	35	N	Y
		Other	-	5	-	-

Source: NRCS 2014.

Upland soil units within the study area are dominated by Patricia – Amarillo soils. Soil units restricted to draws and drainage areas include Spur – Potter – Mansker and Simona - Kimbrough. Other soils units are scattered throughout the study area and typically associated with large depressional/basin areas or basins.

2.6.2.2 Hydric Soils

The National Technical Committee for Hydric Soils defines hydric soils as soils that were formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation (NRCS 2014).

Map units that are dominantly comprised of hydric soils might have small areas, or inclusions, of non-hydric soils in the higher positions on the landform, and map units dominantly made up of non-hydric soils might have inclusions of hydric soils in the lower positions on the landform (NRCS 2014).

According to the NRCS (2014) Web Soil Survey data for the study area, no major soil units are designated as hydric soils within the study area. Table 2-8 lists whether there are map unit components that are rated as hydric soils in the study area. Minor soils (Other) within each association were not evaluated for this criterion; however minor soil associations may be classified as hydric.

2.6.2.3 Prime Farmland Soils

The Secretary of Agriculture, within 7 U.S.C. § 4201(c)(1)(A), defines "prime farmlands" as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. These areas have the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods. Additional potential prime farmlands are those with soils that meet most of the requirements of prime farmland but fail because they lack the installation of water management facilities, or they lack sufficient natural moisture. These areas would be considered prime farmland if such practices were installed. Review of the Soil Survey Geographic database listed prime farmland soils within the study area to include the Arvana, Amarillo, and Mansker, additional minor soils may also be classified as prime farmland soils (NRCS 2014).

This transmission line Project is not subject to the requirements of the NEPA or the Farmland Protection Policy Act because this Project will not be completed by and will not receive assistance from any Federal agency. The NRCS responded to POWER's solicitation for information in a letter dated September 29, 2014 that states, "[t]he proposed project is exempt because transmission lines are not a conversion of Important Farmlands and the site can still be used after construction." (refer to Appendix A). The NRCS encourages the use of accepted erosion control methods during construction.

2.6.3 Water Resources

Water resources evaluated in this study include surface water and groundwater. Information on water resources within the study area was obtained from a variety of sources, including the TPWD (2014a), TCEQ (2012), FEMA (2014), TWDB (2011, 2012), USGS topographical maps (USGS 2011), and aerial photographs.

2.6.3.1 Surface Water

The study area is located within the Colorado River Basin. Tributaries of the Colorado River within the study area include McKenzie Draw, Wardswell Draw, Seminole Draw, Johnson Draw, and Monument Draw. These are typically intermittent streams that only flow water after heavy rain events. The streams typically flow to the southeast forming the headwaters of the Colorado River, located approximately 50 miles east of the study area. Additional unnamed surface waters identified within the study area include numerous playa lakes, small ponds, lakes, and ephemeral streams/draws. No major reservoirs or rivers were identified within the study area. All surface waters and their associated wetlands located within the study area are subject to USACE regulations as "Waters of the U.S." under Section 404 of the CWA.

Special Status Waters

Under 31 TAC § 357.8, TPWD has designated Ecologically Significant Stream Segments (ESSS) based on habitat value, threatened and endangered species, species diversity, and aesthetic value criteria. Review of the TPWD database for Water Planning Region O (Llano Estacado) showed no designated ESSS within the study area (TPWD 2014a).

In accordance with Section 303(d) and 304(a) of the Clean Water Act, the TCEQ and New Mexico Environment Department (NMED) identify surface waters for which effluent limitations are not stringent enough to meet water quality standards and for which the associated pollutants are suitable

for measurement by maximum daily load. Review of the TCEQ website and most recent TCEQ CWA § 303(d) lists (TCEQ 2012) indicated no surface waters within the study area that did not meet these water quality standards.

2.6.3.2 Ground Water

The study area is underlain by the Ogallala aquifer. The Ogallala is the largest aquifer in the US and underlies much of the High Plains Region. It consists of sand, gravel, clay, and silt. In Texas, the salinity increases in areas south of the Canadian River. Well yields, from a depth of 200 feet, range from 500 to 1,000 gallons per minute. The aquifer provides significantly more water for users (irrigation) than any other major aquifer in the state (TWDB 2011, 2012).

The TWDB database was reviewed for public and private water wells within the study area. The database identified numerous irrigation well locations throughout the study area. Water well locations were mapped utilizing GIS. No major or historical springs were identified within the study area (TWDB 1975; TPWD 2014b).

2.6.3.3 Floodplains

The FEMA mapped floodplains and FEMA National Flood Hazard Layer (NFHL) data were unavailable within the study area (FEMA 2014). In lieu of maps, it is reasonable to consider that floodplain areas are associated with the larger playa lake depressions and creeks/draws and their tributaries within the study area.

2.6.3.4 Future Surface Water Developments

The study area is located within Water Planning Region O (Llano Estacado). The TWDB State Water Plan and Regional Water Plans (TWDB 2011, 2012) were reviewed for potential future water development projects within the study area. No planned water development projects were identified within the study area.

2.6.4 Ecological Resources

Data and information on ecological resources within the study area were obtained from a variety of sources, including aerial photograph interpretation, field reconnaissance surveys, correspondence with the USFWS, TPWD and published literature and technical reports.

2.6.4.1 Ecological Region

The study area is located within the High Plains Level III Ecoregion and the Llano Estacado, Shinnery Sands, and Arid Llano Estacado Level IV Ecoregions (Griffith et al. 2007). The High Plains Ecoregion consists of flat to rolling grassland plains with a high percentage of cropland. Oil and gas production are also common in this area. The High Plains are scattered with thousands of seasonal playa lakes that are important seasonal habitats for a variety of wildlife and for aquifer recharge, although many playas have been converted into farmland. The Llano Estacado Ecoregion is characterized by a level, treeless plain. Historically this area was a vast shortgrass prairie; with abundant herds of bison (*Bos bison*), prairie dog (*Cynomys ludovicianus)* colonies, and lesser-prairie chickens (*Tympanuchus pallidicinctus*). Today, approximately 80 percent of the Llano Estacado is tilled for agriculture, growing cotton, corn, and wheat, using dry land farming practices or irrigation pumped from the Ogallala Aquifer (Griffith et al. 2007). The Shinnery Sands Ecoregion is characterized by sand dunes, flats, and hills on the western edge of the High Plains. The area is named

for the shrubby shin oak (*Quercus havardii*) that grows in the sand soils. The sand dunes act as a major recharge source for the Pecos River in some areas. The Shinnery Sands are primarily used for grazing livestock, wildlife habitat, and some croplands. The Arid Llano Estacado Ecoregion is similar to, but drier than, the Llano Estacado Ecoregion to the north. It is also characterized by shortgrass prairie, but the more arid climate limits agriculture to irrigated row crops. The ecoregion is primarily used for livestock grazing.

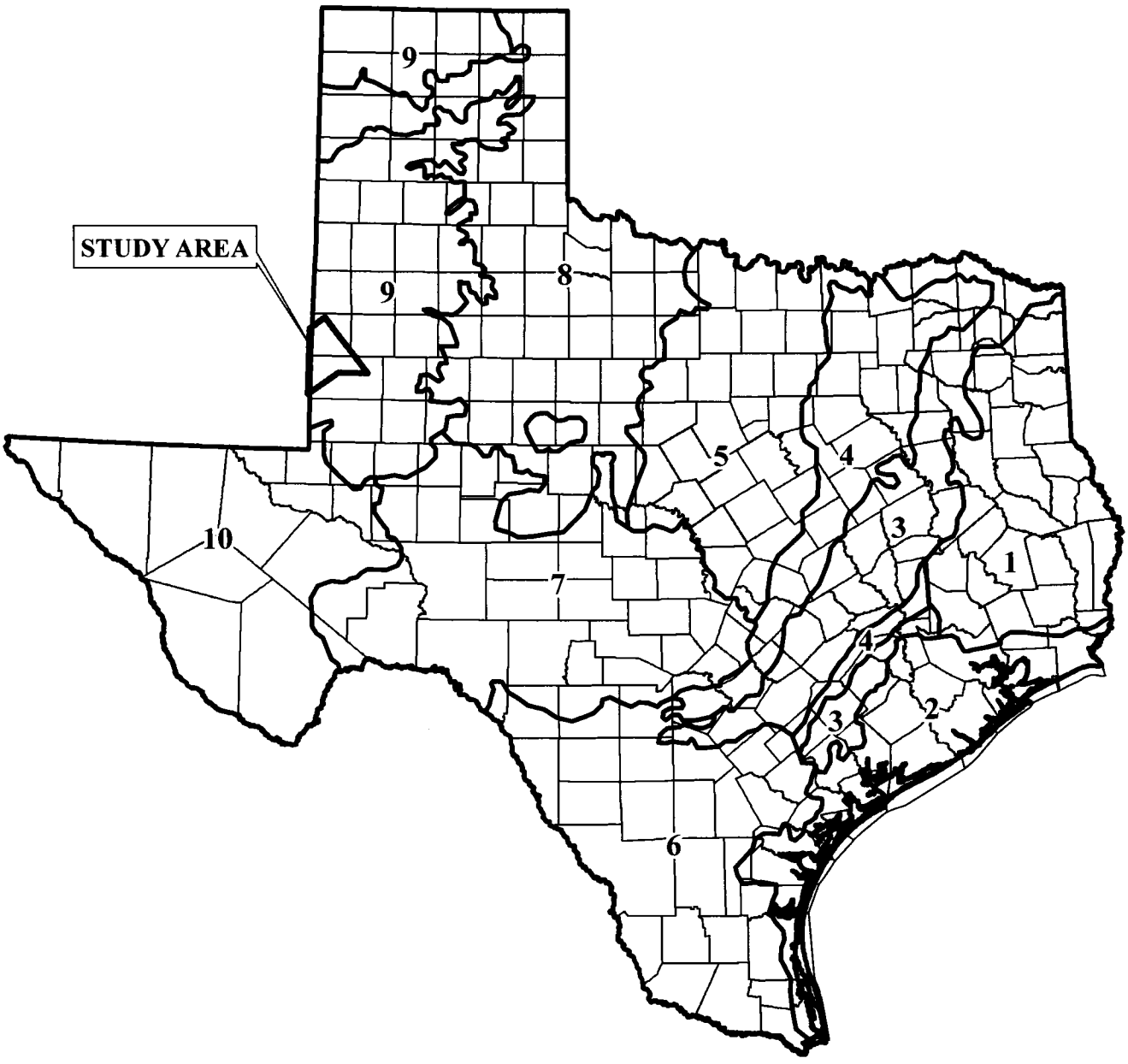
2.6.4.2 Vegetation Types

The study area is located within the High Plains vegetation area (refer to Figure 2-4) as described by Gould et al. (1960). Vegetational types within the study area include Crops, Blue Grama – Buffalograss Grassland (*Bouteloua gracilis - Bouteloua dactyloides*), Mesquite Shrub Grassland (*Prosopis glandulosa*), Mesquite Brush, Harvard Shin Oak – Mesquite Brush (*Quercus havardii - Prosopis*), and Harvard Shin Oak Brush (Frye et al. 1984). The original vegetation of the High Plains region is described by Hatch et al. (1990) as predominantly mixed prairie and shortgrass prairie with tallgrass prairie occurring on deep, sandy soils. Typical native vegetation occurring on clay and clay loam sites include blue grama, buffalograss and galleta (*Hillaria jamesii*), which are the principal plant species originally encountered in this region, prior to widespread agricultural development. Historically, sandy loam soils of the region supported little bluestem (*Schizachyrium scoparium*), western wheatgrass (*Elytrigia smithii*), sideoats grama (*Bouteloua curtipendula*), and sand dropseed (*Sporobolus cryptandrus*). While the High Plains area in general was characteristically treeless and brush free, today, sand sagebrush (*Artemisia filifolia*), honey mesquite, prickly pear (*Opuntia* spp.), and *Yucca* spp. have invaded many sandy and sandy loam sites (Hatch et al. 1990). Currently, most of the High Plains is in irrigated cropland. Major crops produced in the High Plains include cotton, corn, sorghum, wheat, vegetables and sugar beets. Many of the historical playa lakes have also been converted to agricultural croplands (Hatch et al. 1990).

Vegetation within the Llano Estacado Ecoregion consists of mixed gramas (*Bouteloua* spp.) in short grass prairies and midgrasses that include sideoats grama, western wheatgrass, galleta, yellow indiangrass (*Sorghastrum nutans*), and tobosa (*Pleuraphis mutica*). Sandy soils may hold species such as sand bluestem (*Andropogon hallii*) and sand dropseed. Common forbs may include *dalea* spp., scarlet globemallow (*Sphaeralcea coccinea*), sunflower (*Helianthus* spp.), and stiffstem flax (*Linum rigidum*). Honey mesquite, *yucca* spp., and juniper (*Juniperus* spp.) may be common invading woody species. Playa lake depressions may consist of a variety of short and mid-grasses, willow (*Salix* spp.), rushes (*Juncaceae*), and aquatic plants (Griffith et al. 2007).

Vegetation species within the Arid Llano Estacado Ecoregion may consist of silver bluestem (Bothriochloa saccharoides), sand dropseed, Arizona cottontop (*Digitaria californica*), *tridens* spp., muhly (*Muhlenbergia* spp.), bottlebrush (*Callistemon Citrinus*), squirreltail (*Elymus elymoides*), and sand sagebrush (*Artemisia filifolia*). Species such as Burrograss (*Scleropogon brevifolius*), threeawns (*Aristida* spp.), tobosa, broomweed (*Gutierrezia sarothrae*) may be common in heavily grazed areas. Common invading woody species may include mesquite, yucca, juniper, ephedra (*Ephedra antisyphilitica)*, catclaw (Acacia greggi), sensitivebriar (*Mimosa microphylla*), and tarbush (*Flourensia cernua*) (Griffith et al. 2007).

Common woody vegetation within the Shinnery Sands Ecoregion may include havard shin oak, fourwing saltbush (*Atriplex canescens*), sand sagebrush, and yucca. Grasses may include sand



0 30 60 120 180 240

Miles

Source: Gould, F.W., Hoffman, G.O., and Rechenthin, C.A. 1960, modified

Legend

Vegetational Areas Boundary

1 Pineywoods
2 Gulf Prairies and Marshes
3 Post Oak Savannah
4 Blackland Prairies
5 Cross Timbers and Prairies
6 South Texas Plains
7 Edwards Plateau
8 Rolling Plains
9 High Plains
10 Trans-Pecos

County Boundary

Yoakum - State Line
345 kV Project

Figure 2-4
Location of Study Area In Relation to the Vegetational Areas of Texas

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dropseed, sand bluestem, big sandreed (*Calamovilfa longifolia*), little bluestem, switchgrass (*Panicum virgatum*), sideoats grama, buffalograss, alkali sacaton (*Sporobolus airoides*), and black grama (*Bouteloua eriopoda*) (Griffith et al. 2007).

2.6.4.3 Wetlands

Mapped wetlands information was incorporated for the study area from the USFWS NWI mapper (USFWS 2014a). NWI maps are based on topography and interpretation of infrared satellite data and color aerial photographs and are classified under the Cowardin System (Cowardin et al. 1979). Mapped wetlands types identified within the study area include palustrine open water ponds with unconsolidated bottoms (PU), palustrine emergent (PEM), palustrine farmed (Pf), palustrine shrub/scrub (PSS), palustrine forested (PFO), lacustrine. The PU, PEM, Pf, and lacustrine wetlands are the dominant wetland types within the study area and are associated with the playa lake depressions and stock ponds. The PSS/PFO wetlands are typically associated with playa lakes, draws or abandoned fields that have been invaded by shrubby species.

Emergent wetlands are typically located along the edges and shallows of playa lakes, ponds and streams or other depressional areas and are comprised of such species as cattails (*Typha* spp.), rushes (*Scirpus* spp.), sedges (*Carex* spp.), flatsedges (*Cyperus* spp.), millet (*Setaria* spp.), spikerushes (*Eleocharis* spp.), smartweeds (*Polygonum* spp.), cocklebur (*Xanthium* sp.), ragweed (*Ambrosia* spp.) and occasionally woody species such as cottonwood (*Populus deltoides*) and willows. Shrub/scrub wetlands are likely to be comprised of similar woody species such as cottonwood and willow (Chadde 2012a, 2012b).

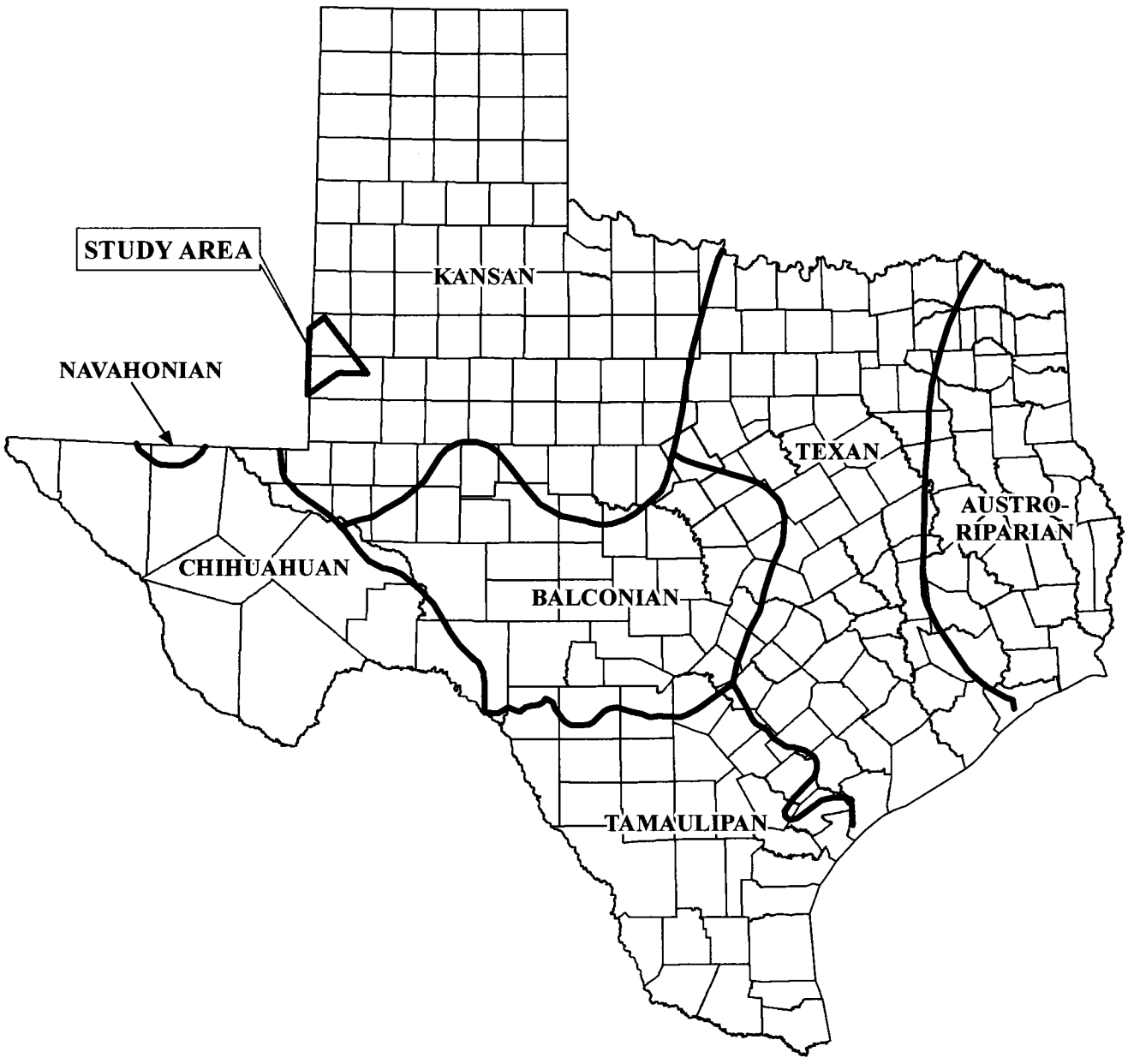
2.6.4.4 Wildlife and Fisheries

Wildlife

The study area is located within the Kansan Biotic Province (refer to Figure 2-5) as described by Blair (1950). The historical terrestrial wildlife community assemblage within this district was an interdependent web with dominant species including the bison, black-tailed prairie dog, black-footed ferret (*Mustela nigripes*), burrowing owl (*Athene cunicularia*), ferruginous hawk (*Buteo regalis*), coyote (*Canis latrans*), gray wolf (*Canis lupis*), swift fox (*Vulpes velox*), pronghorn antelope (*Antilocarpa americana*), deer (*Odocoileus* spp.) and mountain lion (*Puma concolor*) (Griffith et al. 2007). Many species are no longer common throughout the province due to overharvesting, eradication, loss or degradation of habitat due to conversion to croplands or grazing pastures, natural fire suppression, and barbed wire fences. Generalist species able to adapt to the conversion in habitat and land use conditions will be more commonly observed within the study area. Ephemeral playa lakes are important seasonal habitats many amphibians, mammals, and birds, especially migratory species such as waterfowl, wading birds, and shorebirds. According to Blair (1950), species diversity within the Kansan Biotic Province includes 14 frogs and toads, 31 snake species, 14 lizards, one land turtle, and 59 species of mammals.

Amphibians

Amphibian species (frogs, toads, salamanders, and newts) that might occur within the study area are listed in Table 2-9 (Tipton et al. 2012; Dixon 2013). Frogs and toads might occur in all vegetation types while salamanders and newts are typically restricted to moist or hydric habitats.



N

0 30 60 120 180 240

Miles

Source: Blair, 1950, modified

Legend

Biotic Province Boundary

County Boundary

Yoakum - State Line
345 kV Project

Figure 2-5
Location of Study Area
In Relation to the
Biotic Provinces
of Texas

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TABLE 2-9 POTENTIALLY OCCURRING AMPHIBIAN SPECIES WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
Salamanders/Frogs/Toads	
Barred tiger salamander	*Ambystoma marortium*
Bullfrog	*Lithobates catesbeiana*
Couch's spadefoot	*Scaphiopus couchi*
Great plains toad	*Anaxyrus cognatus*
Green toad	*Anaxyrus debilis*
Mexican spadefoot	*Spea multiplicata*
Plains leopard frog	*Lithobates blairi*
Plains spadefoot	*Spea bombifrons*
Red-spotted toad	*Anaxyrus punctatus*
Woodhouse's toad	*Anaxyrus woodhousii*
Spotted chorus frog	*Pseudacris clarkii*
Texas toad	*Anaxyrus speciosus*

Source: Tipton et al. 2012, Dixon 2013.

Reptiles

Reptiles (turtles, lizards, and snakes) that might occur in the study area are listed in Table 2-10 (Dixon 2013). These include those species that are more commonly observed near water (e.g., aquatic turtles) and those that are more common in terrestrial habitats.

TABLE 2-10 POTENTIALLY OCCURRING REPTILIAN SPECIES WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
Turtles	
Plains box turtle	*Terrapene ornata ornata*
Pond slider	*Trachemys scripta elegans*
Spiney softshell	*Apalone spinifera*
Yellow mud turtle	*Kinosternon flavescens*
Lizards	
Common side-blotched lizard	*Uta stansburiana*
Common spotted whiptail	*Aspidoscelis gularis*
Eastern collared lizard	*Crotaphytus collaris collaris*
Great plains skink	*Plestiodon obsoletus*
Great plains earless lizard	*Holbrookia maculata maculata*
Marbled whiptail	*Aspidoscelis marmoratus*
Northern many-lined skink	*Plestiodon multivirgatus multivirgatus*
Prairie racerunner	*Cnemidophorus sexlineatus viridis*
Prairie lizard	*Sceloporus consobrinus*
Round-tailed horned lizard	*Phryosoma modestum*
Southwestern fence lizard	*Sceloporus cowlesi*
Texas greater earless lizard	*Cophosaurus texanus texanus*
Texas horned lizard	*Phryosoma cornutum*
Snakes	
Bullsnake	*Pituophis catenifer sayi*
Checkered gartersnake	*Thamnophis marcianus*

TABLE 2-10 POTENTIALLY OCCURRING REPTILIAN SPECIES WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
Chihuahuan nightsnake	*Hypsiglena jani*
Central plains milksnake	*Lampropeltis triangulum gentilis*
Desert kingsnake	*Lampropeltis splendida*
Great plains ratsnake	*Pantherophis emoryi*
Kansas glossy snake	*Arizona elegans elegans*
Long-nosed snake	*Rhinocheilus lecontei*
Massasauga	*Sistrurus catenatus*
Plain-bellied watersnake	*Nerodia erthrogaster*
Plains black-headed snake	*Tantilla nigriceps*
Plains hog-nosed snake	*Heterodon nasicus*
Prairie rattlesnake	*Crotalus viridis*
Ring-necked snake	*Diadophis punctatus*
Texas threadsnake	*Rena dulcis*
Western coachwhip	*Coluber flagellum testaceus*
Western diamond-backed rattlesnake	*Crotalus atrox*
Variable groundsnake	*Sonora semiannulata semiannulata*

Sources: Dixon 2013.

Birds

Numerous avian species may be present within the study area. They include year-round residents as listed in Table 2-11. Additional bird species may migrate within or through the study area in the spring and fall and/or use the area for nesting (spring/summer) or to overwinter. Winter migrant species that may occur in the study area are listed in Table 2-12. Summer migrant species that may occur in the study area are listed in Table 2-13 (TPWD 2002; Lockwood and Freeman 2014). The likelihood for occurrence of each species will depend upon suitable habitat and the season. All migratory birds are protected under the MBTA.

TABLE 2-11 POTENTIALLY OCCURRING RESIDENT BIRD SPECIES WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
American coot	*Fulica americana*
American kestrel	*Falco sparverius*
American robin	*Turdius migratorius*
Barn owl	*Tyto alba*
Belted kingfisher	*Megaceryle alcyon*
Bewick's wren	*Thryomanes bewickii*
Black-crowned night heron	*Nycticorax nycticorax*
Blue jay	*Cyanocitta cristata*
Brown-headed cowbird	*Molothrus ater*
Burrowing owl	*Athene cunicularia*
Cactus wren	*Campylorhynchus brunneicapillus*
Canyon towhee	*Melozone fuscus*
Chihuahuan raven	*Corvus cryptoleucus*
Common grackle	*Quiscalus quiscula*
Curve-billed thrasher	*Toxostoma curvirostre*

TABLE 2-11 POTENTIALLY OCCURRING RESIDENT BIRD SPECIES WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
Eastern meadowlark	*Sturnella magna*
Eastern screech owl	*Megascops asio*
Eurasian collared-dove	*Streptopelia decaocto*
European starling	*Sturnus vulgaris*
Great blue heron	*Ardea herodias*
Great horned owl	*Bubo virginianus*
Greater roadrunner	*Geococcyx californianus*
Great-tailed grackle	*Quiscalus mexicanus*
Harris hawk	*Parabuteo unicinctus*
Horned lark	*Eremophila alpestris*
House finch	*Haemorhous mexicanus*
House sparrow	*Passer domesticus*
Inca dove	*Columbina inca*
Killdeer	*Charadrius vociferus*
Ladder-backed woodpecker	*Picoides scalaris*
Loggerhead shrike	*Lanius ludovicianus*
Mallard	*Anas platyrhynchos*
Mourning dove	*Zenaida macroura*
Northern bobwhite	*Colinus virginianus*
Northern cardinal	*Cardinalis cardinalis*
Northern flicker	*Colaptes auratus*
Northern mockingbird	*Mimus polyglottos*
Pyrrhuloxia	*Cardinalis sinuatus*
Red-tailed hawk	*Buteo jamaicensis*
Red-winged blackbird	*Agelaius phoeniceus*
Ring-necked pheasant	*Phasianus colchicus*
Rock pigeon	*Columba livia*
Rock wren	*Salpinctes obsoletus*
Rufous-crowned sparrow	*Aimophila ruficeps*
Scaled quail	*Callipepla squamata*
Western meadowlark	*Sturnella neglecta*
White-winged dove	*Zenaida asistica*

Source: Lockwood and Freeman 2014.

TABLE 2-12 POTENTIALLY OCCURRING WINTER MIGRANT BIRD SPECIES WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
American crow	*Corvus brachyrhynchos*
American goldfinch	*Spinus tristis*
American pipit	*Anthus rubescens*
American white pelican	*Pelecanus erythrorhynchos*
American wigeon	*Anas americana*
Bald eagle	*Haliaeetus leucocephalus*
Brewer's blackbird	*Euphagus cyanocephalus*

TABLE 2-12 POTENTIALLY OCCURRING WINTER MIGRANT BIRD SPECIES WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
Brown creeper	*Certhia americana*
Bufflehead	*Bucephala albeola*
Cackling goose	*Branta hutchinsii*
Canada goose	*Branta canadensis*
Canvasback	*Aythya valisineria*
Cedar waxwing	*Bombycilla cedrorum*
Chestnut-collared longspur	*Calcarius ornatus*
Chipping sparrow	*Spizella passerina*
Cinnamon teal	*Anas cyanoptera*
Clark's grebe	*Aechmophorus clarkii*
Common goldeneye	*Bucephala clangula*
Common loon	*Gavia immer*
Common merganser	*Mergus merganser*
Common yellowthroat	*Geothlypis trichas*
Cooper's hawk	*Accipiter cooperii*
Dark-eyed junco	*Junco hyemalis*
Double-crested cormorant	*Phalacrocorax auritus*
Downy woodpecker	*Picoides pubescens*
Eared grebe	*Podiceps nigricollis*
Eastern bluebird	*Sialia sialis*
Ferruginous hawk	*Buteo regalis*
Field sparrow	*Spizella pusilla*
Gadwall	*Anas strepera*
Golden eagle	*Aquila chrysaetos*
Golden-crowned kinglet	*Regulus satrapa*
Greater scaup	*Aythya marila*
Greater white-fronted goose	*Anseralbifrons*
Green-tailed towhee	*Pipilo chlorurus*
Green-winged teal	*Anas crecca*
Hermit thrush	*Catharus guttatus*
Herring gull	*Larus argentatus*
Hooded merganser	*Lophodytes cucullatus*
House wren	*Troglodytes aedon*
Lapland larkspur	*Calcarius lapponicus*
Lark bunting	*Calamospiza melanocorys*
Least sandpiper	*Calidris minutilla*
Lesser scaup	*Aythya affinis*
Lincoln's sparrow	*Melospiza lincolnii*
Long-eared owl	*Asio otus*
Marsh wren	*Cistothorus palustris*
McCown's longspur	*Rhynchophanes mccownii*
Merlin	*Falco columbarius*
Mountain bluebird	*Sialia currucoides*

TABLE 2-12 POTENTIALLY OCCURRING WINTER MIGRANT BIRD SPECIES WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
Northern harrier	*Circus cyaneus*
Northern pintail	*Anas acuta*
Northern shoveler	*Pinas clypeata*
Orange-crowned warbler	*Oreothlypis celata*
Pied-billed grebe	*Podilymbus podiceps*
Prairie falcon	*Falco mexicanus*
Red-breasted nuthatch	*Sitta canadensis*
Red-naped sapsucker	*Sphyrapicus nuchalis*
Redhead	*Aythya americana*
Ring-billed gull	*Larus delawarensis*
Ring-necked duck	*Aythya collaris*
Ross Goose	*Chen rossii*
Rough-legged hawk	*Buteo lagopus*
Ruby-crowned kinglet	*Regulus calendula*
Ruddy duck	*Oxyura jamaicensis*
Sandhill crane	*Grus canadensis*
Savannah sparrow	*Passerculus sandwichensis*
Sharp-shinned hawk	*Accipiter striatus*
Short-eared owl	*Asio flammeus*
Snow goose	*Chen caerulescens*
Song sparrow	*Melospiza melodia*
Sora	*Porzana carolina*
Spotted towhee	*Pipilo maculatus*
Swamp sparrow	*Melospiza georgiana*
Townsend's solitaire	*Myadestes townsendi*
Vesper sparrow	*Pooecetes gramineus*
Virginia rail	*Rallus limicola*
Western grebe	*Aechmophorus occidentalis*
White-breasted nuthatch	*Sitta carolinensis*
White-crowned sparrow	*Zonotrichia leucophrys*
White-throated sparrow	*Zonotrichia albicollis*
Wilson's snipe	*Gallinago delicata*
Wood duck	*Aix sponsa*
Yellow-bellied sapsucker	*Sphyrapicus varius*
Yellow-rumped warbler	*Setophaga coronata*

Source: Lockwood and Freeman 2014.

TABLE 2-13 POTENTIALLY OCCURRING SUMMER MIGRANT BIRD SPECIES WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
American avocet	*Recurvirostra americana*
Ash-throated flycatcher	*Myiarchus cinerascens*
Barn swallow	*Hirundo rustica*

TABLE 2-13 POTENTIALLY OCCURRING SUMMER MIGRANT BIRD SPECIES WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
Black-chinned hummingbird	*Archilochus alexandri*
Black-necked stilt	*Himantopus mexicanus*
Blue grosbeak	*Passerina caerulea*
Blue-winged teal	*Anas discors*
Bronzed cowbird	*Molothrus aeneus*
Bullock's oriole	*Icterus bullockii*
Cassin's sparrow	*Peucaea cassinii*
Cattle egret	*Bubulcus ibis*
Cave swallow	*Petrochelidon fulva*
Chimney swift	*Chaetura pelagica*
Cliff swallow	*Petrochelidon pyrrhonota*
Common gallinule	*Gallinula galeata*
Common nighthawk	*Chordeiles minor*
Common poorwill	*Phalaenoptilus nuttallii*
Dickcissel	*Spiza americana*
Grasshopper sparrow	*Ammodramus savannarum*
Great egret	*Ardea alba*
Green heron	*Butorides virescens*
Lark sparrow	*Chondestes grammacus*
Lesser goldfinch	*Spinus psaltria*
Mississippi kite	*Ictinia mississippiensis*
Northern rough-winged swallow	*Stelgidopteryx serripennis*
Orchard oriole	*Icterus spurius*
Painted bunting	*Passerina ciris*
Purple martin	*Progne subis*
Say's phoebe	*Sayornis saya*
Scissor-tailed flycatcher	*Tyrannus forficatus*
Snowy plover	*Charadrius nivosus*
Swainson's hawk	*Buteo swainoni*
Turkey vulture	*Cathartes aura*
Western kingbird	*Tyrannus verticalis*
Yellow-billed cuckoo	*Coccyzus americanus*
Yellow-crowned night-heron	*Nyctanassa violacea*

Source: Lockwood and Freeman 2014.

Mammals

Mammals that might occur in the study area are listed in Table 2-14 (Schmidly 2004). The occurrence of each species within the study area is dependent on availability of suitable habitat.

TABLE 2-14 POTENTIALLY OCCURRING MAMMALIAN SPECIES WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
American badger	*Taxidea taxus*
American perimyotis	*Perimyotis subflavus*

TABLE 2-14 POTENTIALLY OCCURRING MAMMALIAN SPECIES WITHIN THE STUDY AREA

Banner-tailed kangaroo rat	*Dipodomys spectabilis*
Big brown bat	*Eptesicus fuscus*
Big free-tailed bat	*Nyctinomops macrotis*
Black-tailed jackrabbit	*Lepus californicus*
Black-tailed prairie dog	*Cynomys ludovicianus*
Bobcat	*Lynx rufus*
Brazilian free-tailed bat	*Tadarida brasiliensis*
Chihuahuan desert pocket mouse	*Chaetodipus eremicus*
Common gray fox	*Urocyon cinereoargenteus*
Coyote	*Canis latrans*
Desert cottontail rabbit	*Sylvilagus audubonii*
Desert shrew	*Notiosorex crawfordi*
Deer mouse	*Peromyscus maniculatus*
Eastern cottontail rabbit	*Sylvilagus floridanus*
Eastern fox squirrel	*Sciurus niger*
Eastern red bat	*Lasiurus borealis*
Eastern spotted skunk	*Spilogale putorius*
Eastern white-throated woodrat	*Neotoma leucodon*
Feral pig	*Sus scrofa*
Hispid cotton rat	*Sigmodon hispidus*
Hispid pocket mouse	*Chaetodipus hispidus*
Hog-nosed skunk	*Conepatus leuconotus*
Hoary bat	*Lasiurus cinereus*
House mouse	*Mus musculus*
Jones's pocket gopher	*Geomys knoxjonesi*
Least shrew	*Cryptotis parva*
Long-tailed weasel	*Mustela frenata*
Merriam's kangaroo rat	*Dipodomys merriami*
Merriam's pocket mouse	*Perognathus merriami*
Mexican ground squirrel	*Spermophilus mexicanus*
Mountain lion	*Puma concolor*
Mule deer	*Odocoileus hemionus*
Nine-banded armadillo	*Dasypus novemcinctus*
Northern grasshopper mouse	*Onychomys leucogaster*
Northern pygmy mouse	*Baiomys taylori*
Norway rat	*Rattus norvegicus*
Ord's kangaroo rat	*Dipodomys ordii*
Palid bat	*Antrozous pallidus*
Plains harvest mouse	*Reithrodontomys montanus*
Plains pocket gopher	*Geomys bursarius*
Plains pocket mouse	*Perognathus flavescens*
Porcupine	*Erethizon dorsatum*
Pronghorn	*Antilocarpa americana*
Raccoon	*Procyon lotor*

TABLE 2-14 POTENTIALLY OCCURRING MAMMALIAN SPECIES WITHIN THE STUDY AREA

COMMON NAME	SCIENTIFIC NAME
Red fox	*Vulpes vulpes*
Ringtail	*Bassariscus astutus*
Roof rat	*Rattus rattus*
Silver-haired bat	*Lasionycteris noctivagans*
Southern plains woodrat	*Neotoma micropus*
Spotted ground squirrel	*Spermophilus spilosoma*
Striped skunk	*Mephitis mephitis*
Swift fox	*Vulpes velox*
Texas antelope squirrel	*Ammospermophilus interpres*
Texas mouse	*Peromyscus attwateri*
Thirteen-lined ground squirrel	*Spermophilus tridecemlineatus*
Townsend's big-eared bat	*Plecotus townsendii*
Virginia opossum	*Didelphis virginiana*
Western harvest mouse	*Reithrodontomys megalotis*
Western spotted skunk	*Spilogale gracilis*
White-footed mouse	*Peromyscus leucopus*
White-tailed deer	*Odocoileus virginianus*
Yellow-faced pocket gopher	*Cratogeomys castanops*

Source: Schmidly 2004.

Aquatic Communities

Due to the arid nature of the study area, aquatic habitats within the study area are primarily associated with the playa lakes, small alkaline ponds, lakes, and larger creeks/draws and their tributaries. Emergent vegetation within the open water aquatic habitats is typically limited to the shallow areas along the shorelines with hydrophytic tree/shrub species growing near constant level water sources. Creeks and draws within the study area only flow intermittently due to the high water use for irrigation and the lowered groundwater table. The divisions of the biotic provinces were separated on the basis of terrestrial vertebrate distributions; however, the distribution of freshwater fishes generally corresponds with the terrestrial province boundaries (Hubbs et al. 2008).

Aquatic species supported by the ephemeral water regime are typically adapted to rapid dispersal and life cycle completion within pool habitats typically having fine-grained substrates. The intermittent flowing streams and seasonal and smaller ponds likely support aquatic species primarily adapted to ephemeral pool habitats. Because water is present seasonally, the aquatic species assemblage consists primarily of invertebrate species. These intermittent flowing surface waters may support populations of mosquitofish (*Gambusia affinis*), minnows (Cyprinids), killifish (*Fundulus* spp.) and sunfish (*Lepomis* spp.) (Thomas et al. 2007).

2.6.4.5 Threatened and Endangered Species

For this routing study, emphasis was placed on obtaining documented occurrences of special status species and/or their designated critical habitat within the study area. The documented occurrences of species of concern and/or other unique vegetative communities within the study area were also reviewed. Special status species include those listed by the USFWS as threatened, endangered, or candidate; and those species listed by TPWD as threatened or endangered. Species of concern include

those listed as rare by TPWD. A GIS data layer of historical known occurrences for listed species and/or sensitive vegetative communities was obtained from the TXNDD (TXNDD 2014). For the purpose of this study, the TXNDD information is not used as a substitute for a presence/absence survey, but as an indication of previous occurrences within suitable habitat for the species.

The USFWS regulates activities affecting plants and animals designated as endangered or threatened under the ESA (16 U.S.C. § 1531 et seq.). By definition, an endangered species is in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as likely to become endangered within the near foreseeable future throughout all or a significant portion of its range. Candidate species are those for which there is sufficient information on their biological vulnerability and threat(s) to support listing as threatened or endangered and that might be proposed for listing in the near foreseeable future. The ESA also provides for the conservation of "designated critical habitat," which is defined by the USFWS as the areas of land, water, and air space that an endangered species needs for survival. These areas include sites with food and water, breeding areas, cover or shelter sites, and sufficient habitat to provide for normal population growth and behavior for the species. USFWS data regarding designated critical habitat areas were reviewed; however, no areas were identified (USFWS 2014c). Species not designated as federally threatened or endangered are not afforded any regulatory protection under the ESA; however, other federal and state laws may provide additional regulatory protection.

The TPWD also regulates plants and animals designated as endangered or threatened (Chapters 67 and 68 of the TPWC and 31 TAC §§ 65.171 - 65.176; and Chapter 88 of the TPWC and 31 TAC §§ 69.01 - 69.9). Under Texas law, endangered animal species are those deemed to be "threatened with statewide extinction" and endangered plant species are those "in danger of extinction throughout all or a significant portion of its range." Threatened animal and plant species are those deemed to be likely to become endangered within the foreseeable future.

The USFWS and TPWD, maintain listings by county for all special status species pursuant to federal and state law (USFWS 2014b; TPWD 2014c).

Plants

No plant species listed for the study area counties have been identified by either the federal or state authorities as threatened or endangered (TPWD 2014c; USFWS 2014b).

Animals

Threatened and endangered animal species lists from the USFWS and TPWD were reviewed for each study area county and these are summarized in Table 2-15 (TPWD 2014c; USFWS 2013b). Species not designated as federally threatened or endangered are not afforded any regulatory protection under the ESA; however, other federal and state laws may provide additional regulatory protection.

TABLE 2-15 LISTED SPECIAL STATUS SPECIES WITHIN THE STUDY AREA

LISTED SPECIES		COUNTY LISTED		LEGAL STATUS	
COMMON NAME	SCIENTIFIC NAME	GAINES	YOAKUM	USFWS[1]	TPWD[2]
Birds					
Bald eagle	*Haliaeetus leucocephalus*	X	X	DL	T
Lesser prairie-chicken	*Tympanuchus pallidicinctus*	X	X	T	
Peregrine falcon *(2*	*Falco peregrinus*	X	X	DL	T

TABLE 2-15 LISTED SPECIAL STATUS SPECIES WITHIN THE STUDY AREA

LISTED SPECIES		COUNTY LISTED		LEGAL STATUS	
COMMON NAME	**SCIENTIFIC NAME**	**GAINES**	**YOAKUM**	**USFWS[1]**	**TPWD[2]**
sub-sp.)					
Whooping crane	*Grus americana*	X	X	E	E
Reptiles					
Texas horned lizard	*Phrynosoma cornutum*	X	X		T
Mammals					
Black-footed ferret	*Mustela nigripes*	X	X	E, EXT	EXT
Gray wolf	*Canis lupis*	X	X	E, EXT	E, EXT

Notes: Legal Status abbreviation: E - Endangered, T - Threatened, DL - Delisted, C - Candidate, EXT - Extirpated, X - Listed in the county.
Sources: [1] USFWS 2014b; [2] TPWD 2014b.

Federal Listed Species

Lesser Prairie-Chicken

The USFWS final listing rule to identify the LPC as federally threatened was delivered in March 27, 2013. The primary perceived threat to the species is habitat degradation or loss from the construction of roads and manmade vertical structures that include towers, utility lines, fences, turbines, wells and buildings (USFWS 2013d). The LPC is a medium sized grayish brown grouse endemic to the southern high plains. The species exhibits a lek mating system where the male birds form leks at dusk and dawn to conduct competitive male mating displays to attract females during the spring season. Different habitat requirements for the species include nesting, brooding and lek habitats. Preferred overall habitat is native short- and mixed-grass prairies having a shrub component dominated by sand sagebrush or Harvard shin oak. The LPC feeds primarily on insects, seeds, leaves, buds and cultivated grains (Van Pelt et al. 2013).

The TPWD is maintaining a game bird status for the species with an indefinitely suspended harvest and hunting season. The LPC Interstate Working Group drafted a LPC RWP as a voluntary measure implemented by WAFWA and the Foundation for Western Fish and Wildlife (Van Pelt et al. 2013). Participants in the program are required to register and mitigation costs are estimated for planned projects for each year. Planning and mitigation costs are estimated by utilizing CHAT (Southern Great Plains CHAT 2013). Estimated mitigation costs are refined with vegetation transects within the habitat evaluation units generated by CHAT. The RWP includes public and private property that currently provides or could potentially provide suitable lesser prairie-chicken habitat within the current EOR +10 miles (Van Pelt et al. 2013).

Based on the CHAT model, portions of the study area are within the CHAT 3 (modeled habitat) and CHAT 4 habitat categories within the EOR +10 miles (Southern Great Plains CHAT 2013). CHAT mapped areas of potential LPC habitat are primarily within the northern and southern portions of the study area. Based on this analysis, the LPC may occur within the study area, if suitable habitat is present.

Whooping crane

The study area is located outside of the primary central migratory corridor for the whooping crane (*Grus americana*). The primary migration path includes a 220-mile wide corridor that begins at their nesting site at Wood Buffalo National Park in Canada and continues south to their wintering grounds

at the Aransas National Wildlife Refuge (ANWR) along the Texas coast. They begin their southern migration in September and arrive at their Texas wintering grounds at or near the ANWR between October and December. The migratory pathway contains 95 percent of all confirmed whooping crane stopover sightings, during migration, through spring of 2007 (USFWS 2009). The whooping crane is the tallest bird in North America and uses a variety of habitat types along their migration, from croplands to large wetlands, to feed and roost. Cranes typically feed on insects, frogs, fish, rodents, small birds, berries, fruits, crabs, or clams. During migration, they typically fly at altitudes greater than 1,000 feet but will roost and feed in areas away from human disturbance during nightly stopovers. Stopover areas include large rivers, lakes and associated wetlands, playa lakes, pastureland, and cropland (USFWS 2009). The whooping crane is not anticipated to occur within the study area, except as a rare non-breeding migrant during the spring and fall where suitable stopover habitat is available (TPWD 2002).

Federal Delisted Species

Bald Eagle

The (*Haliaeetus leucocephalus*) was delisted in 2007 by the USFWS because the population had recovered beyond the ESA criteria for listing as either threatened or endangered. The status of the bald eagle population currently is monitored by USFWS and the species is still afforded federal protection under the BGEPA and MBTA. Bald eagles may nest and/or winter in Texas. The bald eagle is found primarily near rivers and large lakes and will build large nests in tree tops or on cliffs, usually near large bodies of water. The bald eagle primarily preys on fish, but will also eat birds, small mammals, and turtles and will often scavenge or steal carrion. The study area is located outside of the known bald eagle nesting and wintering range in Texas (Campbell 2003). Bald eagles are not expected to occur within the study area, except as an uncommon migrant (TPWD 2002).

Peregrine Falcon

The peregrine falcon (*Falco peregrinus*) state listing includes two subspecies: American peregrine falcon (*F. p. anatum*) and Arctic peregrine falcon (*F. p. tundrius*). Although only the American subspecies is listed as state threatened, both sub-species are listed together due to their similarity of appearance (TPWD 2014c). Both subspecies have been delisted from federal listings due to the recovery of population numbers. The American peregrine falcon inhabits nests in tall cliff eyries and occupies many kinds of habitats during migration, including urban. Stopover habitat during migration may include lake shores and coastlines and the falcon is also a resident breeder in west Texas (TPWD 2014c). Diet primarily consists of other birds such as ducks, shorebirds and seabirds (Alsop 2002). This species is not anticipated to occur in the study area, except as an uncommon migrant (TPWD 2002).

Federal Extirpated Species

Gray Wolf

The gray wolf (*Canis lupis*) was formerly known throughout the western two-thirds of the state inhabiting forests, brushlands, and grasslands. The gray wolf preys on large herbivores such as deer and pronghorn antelope, but will also feed on rabbits, ground squirrels, and mice (Schmidly 2004). However, the species is now considered extirpated from the state of Texas and occurrence of a gray wolf within the study area is not anticipated.

Black-footed Ferret

The federally-listed endangered black-footed ferret (*Mustela nigripes*) is associated primarily with prairie dog towns and historically ranged in Texas throughout the northwestern portion of the state including the Panhandle, much of the Trans-Pecos, and a considerable part of the Rolling Plains. However, the black footed ferret is now considered extirpated from Texas with the last records from Dallam County in 1953 and Bailey County in 1963 (Schmidly 2004). Therefore, the occurrence of the black-footed ferret within the study area is not anticipated.

State Listed Species

Texas Horned Lizard

The Texas horned lizard (*Phrynosoma cornutum*) population has recently decreased due to collection, land use conversions, habitat loss and increased fire ant populations. The Texas horned lizard inhabits a variety of habitats including open desert, grasslands and shrubland in arid and semiarid habitats that contain bunch grasses, cacti and yucca on soils varying from pure sands and sandy loams to coarse gravels, conglomerates and desert pavements. Their primary prey item is the harvester ant (*Pogonomyrmex* spp.), but they may also consume grasshoppers, beetles and grubs. The Texas horned lizard thermo-regulates by basking or burrowing into the soil and is active (not hibernating) between early spring to late summer (Henke and Fair 1998). This species may occur within the study area if suitable habitat exists (Dixon 2013).

State Listed Species of Concern

TPWD (2014c) also lists species of concern that may receive protection under other federal and/or state laws, such as the MBTA, TPWC 5:64-67 and 78, TAC 31:65 and 69. Species of concern are those within the state that are considered rare. TPWD generally recommends consideration for these species when routing linear utility corridors and promotes the conservation of these species and their habitats. TPWD (2014c) lists seven birds, five mammal species, and one reptile as species of concern as shown in Table 2-16.

TABLE 2-16 STATE-LISTED SPECIES OF CONCERN WITHIN THE STUDY AREA

		COUNTY LISTED	
COMMON NAME	**SCIENTIFIC NAME**	**GAINES**	**YOAKUM**
Birds			
Baird's sparrow	*Ammodramus bairdii*	X	X
Ferruginous hawk	*Buteo regalis*	X	X
Mountain plover	*Charadrius montanus*	X	X
Prairie falcon	*Falco mexicanus*	X	X
Snowy plover	*Charadrius alexandrinus*	X	X
Western burrowing owl	*Athene cunicularia hypugaea*	X	X
Western snowy plover	*Charadrius alexandrinus nivosus*	X	X
Mammals			
Black-tailed prairie dog	*Cynomys ludovicianus*	X	X
Jones' pocket gopher	*Geomys knoxjonesi*	X	X
Pale Townsend's big-eared bat	*Corynorhinus townsendii pallescens*	X	X
Plains spotted skunk	*Spilogale putorius interrupta*		X
Swift fox	*Vulpes velox*	X	X
Reptiles			

TABLE 2-16 STATE-LISTED SPECIES OF CONCERN WITHIN THE STUDY AREA

		COUNTY LISTED	
COMMON NAME	**SCIENTIFIC NAME**	**GAINES**	**YOAKUM**
Dune sagebrush lizard	Sceloporus arenicolus	X	X

Source: TPWD 2014c, TPWD 2014d.
Notes: Legal Status abbreviation: X - Listed in the county.

Review of the TXNDD (2014) data identified the location of several black-tailed prairie dog (*Cynomys ludovicianus*) colonies throughout the study area. The black-tailed prairie dog lives in large colonies, creates numerous burrows and primarily feeds on plant material. Females may give birth to a single litter of four or five young, per year, in March or April (Schmidly 2004). Historically, they have inhabited the short-grass prairies and plains across west Texas and the Panhandle. Today, with the eradication and fragmentation of prairie dog towns associated with the conversion of prairies to agriculture, population numbers for this species have decreased rapidly. It is estimated that 98 percent of the original Texas population has been eradicated. Populations have shown improvement in the past few years. After a USFWS review in 2004, black-tailed prairie dog was removed as a candidate for federal threatened species. Recently, USFWS announced after a 12-month finding that no ESA protection of the species was warranted because potential impacts do not threaten the long-term persistence of the species (USFWS 2011). Other species associated with prairie dog towns include the Western burrowing owl.

Sensitive Plant Communities

Other information typically included in TXNDD report data, but not on county lists, includes natural plant communities. Review of the TXNDD (2014) data did not indicate any sensitive plant communities within the study area. The TXNDD data does not indicate the presence or absence of a species or suitable habitat within an area, but merely provides documentation of historical occurrences. No other rare natural plant communities were identified within the study area.

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3.0 ALTERNATIVE ROUTE DEVELOPMENT

The objective of this EA was to develop and evaluate an adequate number of geographically diverse alternative routes that comply with the routing criteria in PURA § 37.056(c)(4)(A)-(D) and 16 TAC § 25.101(b)(3)(B), including the PUC's policy of prudent avoidance. This section describes the alternative route development process, which began with mapping constraints and 41 preliminary alternative links. Considering input received from the public open-house meeting and from various governmental agencies, the preliminary alternative links were modified resulting in the development of 40 primary alternative links. Ultimately, all of the 40 primary alternative links were used to develop 13 alternative routes. Each phase of this alternative route development process is described in detail below.

3.1 CONSTRAINTS MAPPING

In an effort to minimize potential impacts to sensitive environmental and land use features, the alternative route development process began with a constraints mapping process wherein POWER initially identified and mapped the geographic locations of environmentally sensitive and other restrictive areas within the study area. This mapping process resulted in an environmental and land use "composite constraints map" for the study area.

POWER considered the following in development of the composite constraints map:

- **Resource Value**: A measure of rarity, intrinsic worth, singularity, or diversity of a resource within a particular area.
- **Protective Status**: A measure of the formal concern as expressed by legal protection or special status designation.
- **Present and Known Future Uses**: A measure of the level of potential conflict with land management and land use policies.
- **Hazards**: A measure of the degree to which construction and operation of the transmission line could be affected by a known resource hazard.

Through the constraints mapping process, POWER identified both constraint areas and areas of potential routing possibilities, and used the composite constraints map to develop and refine possible alternative links. To the extent feasible and practicable, POWER avoided identified constraints to minimize potential impacts or conflicts.

In accordance with PURA § 37.056(c) and 16 TAC § 25.101(b)(3)(B)(i)-(iii), POWER also considered opportunities to parallel or utilize existing compatible linear land uses, and identified and utilized numerous such opportunities. Locating a transmission line adjacent to linear land uses typically minimizes environmental impacts due to existing adjacent disturbances, improved access, and decreased habitat fragmentation. Examples of linear land uses identified within the study area include roadways (though habitable structures are frequently located near these features), railways, apparent property boundaries and electrical transmission lines.

3.2 ALTERNATIVE ROUTE IDENTIFICATION

3.2.1 Preliminary Alternative Links

The POWER planning team—comprised of technical experts within the resource fields of land use, aesthetics, ecology, and cultural resources—used the composite constraints map, in conjunction with existing aerial photography, to identify preliminary alternative links to connect the Project's endpoints. To the extent practicable, the POWER planning team sought to maximize the use of opportunity areas while avoiding areas of higher numbers of environmental constraints or conflicting land uses. Information that was used to identify the preliminary alternative links included the following:

- Input received from correspondence with local officials, regulatory agencies, and others.
- Results of reconnaissance surveys of the study area.
- Aerial photography.
- Findings of various data collection activities.
- Environmental and land use constraints data.
- Apparent property boundaries.
- Existing compatible linear land use opportunities.
- Location of existing development.

To comply with PURA § 37.056(c)(4)(A)-(D) and 16 TAC § 25.101, POWER identified an adequate number of environmentally acceptable and geographically diverse preliminary alternative links while also considering factors such as community values, parks and recreation areas, historical and aesthetic values, environmental integrity, route length parallel to existing compatible corridors or parallel to apparent property boundaries, and the PUC's policy of prudent avoidance. The proposed links also were reviewed by SPS and POWER from an engineering and constructability standpoint.

SPS and POWER identified 41 preliminary alternative links. These preliminary alternative links were presented at public open-house meetings as further discussed below (refer to Figure 3-1 and the open-house handout map in Appendix B).

3.2.2 Public Open-house Meetings

SPS hosted four public open-house meetings within the affected communities to solicit comments from landowners, public officials, and other interested residents and persons regarding the preliminary alternative links for three separate projects (TUCO-Yoakum Project in Texas, Yoakum-State Line Project in Texas and the State Line-Hobbs Project in New Mexico). The meetings were held over a two-week timeframe. The combined open-house meetings allowed the community to see the full scope of the transmission work being done and provided four separate opportunities and locations for participation.

TABLE 3-1 OPEN-HOUSE MEETING SCHEDULE

TUESDAY JANUARY 6, 2015	THURSDAY JANUARY 8, 2015	TUESDAY JANUARY 13, 2015	THURSDAY JANUARY 15, 2015
6:30 – 8:30 p.m. CST	5:30 – 7:30 p.m. CST	5:30 – 7:30 p.m. CST	5:30 – 7:30 p.m. CST
Hobbs Event Center 5101 N. Lovington Hwy Hobbs, NM 88240	Denver City High School Auditorium 601 Mustang Drive Denver City, TX 79323	Brownfield Middle School Auditorium 1001 E. Broadway St. Brownfield, TX 79316	Legacy Event Center 1500 14th Street Lubbock, TX 79401

Landowners along each of the preliminary alternative links as identified by CLS from the County Appraisal Districts' tax rolls were invited to attend. SPS also informed local and other elected officials of the open-house meetings. The purpose of the meetings was to:

- Promote a better understanding of the Project, including the purpose, need, potential benefits and impacts, and the CCN application submittal and approval process at the PUC.
- Inform and educate the public about the routing procedure, schedule, and decision-making process.
- Ensure that the decision-making process adequately identifies and considers the values and concerns of the public and community leaders.

A public open-house meeting notice was submitted to 3,059 landowners who own property within 500 feet of the preliminary alternative link centerlines for any of the three separate projects. This notice included maps that depicted all three project study areas and the preliminary alternative links for each of the three projects, a questionnaire, a copy of the landowner bill of rights, a copy of Landowners and Transmission Line Cases at the PUC, and a survey permission form. An example of the notice letter and a copy of the attachments are provided in Appendix B.

Rather than a formal presentation in a speaker-audience format, each public meeting was held in an open-house format. Several information stations were set up around the meeting room. Each station was devoted to a particular aspect of the routing study and was manned by representatives of SPS, CLS, and/or POWER. Large displays of maps, illustrations, photographs, and/or text explaining each particular topic were presented at the stations.

Interested citizens and property owners were encouraged to visit each station in a particular order so the entire process and general Project development sequence could be explained clearly. The open-house or information station format is advantageous because it facilitates one-on-one discussions and encourages personalized landowner interactions. The open-house format also encourages more interaction from landowners who might be hesitant to participate in a speaker-audience format.

When individuals arrived at each open-house meeting, they were asked to sign a sign-in sheet. After visiting the information stations, individuals were asked to complete the questionnaire; however, not all respondents answered every question.

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OVERSIZED MAP Figure 3-1

According to the sign-in sheets, a total of 271 individuals attended the public open-house meetings. Sixty-two questionnaire responses were returned at the public open-house meetings and another 100 were submitted by mail or email. Table 3-2 shows the number of attendees and submitted questionnaire responses by open-house meeting location. .

TABLE 3-2 OPEN-HOUSE MEETING ATTENDEE AND QUESTIONNAIRE SUMMARY

MEETING LOCATION	NUMBER OF SIGN-IN SHEET ENTRIES	NUMBER OF QUESTIONNAIRES SUBMITTED
Hobbs, NM	14	2
Denver City, TX	26	5
Brownfield, TX	101	18
Lubbock, TX	130	37
N/A	N/A	100 (sent by email or mail)
TOTALS	271	162

Results from the questionnaires were reviewed and analyzed (not all questions had responses). Of the responses received, 90 of the respondents agreed that the need for the Project was adequately explained, while 17 respondents said it was not. Eighty-five of respondents were pleased with the open-house format of the meetings and 81 felt that the information provided was helpful to their understanding of the Project.

Respondents were asked to rank the 16 factors that are taken into consideration for a routing study, with **1** being the least important factor and **5** being the most important factor. Due to ties, the six criteria that were ranked by the respondents as being the most important are listed in descending order:

- Minimize length across cropland — Most Important: 82 responses
- Maximize distance from residences — Most Important: 81 responses
- Maximize length along property boundary lines — Most Important: 70 responses
- Maintain reliable electric service — Most Important: 63 responses
- Maximize length along existing transmission lines — Most Important: 50 responses
- Maximize length along highways or other roads — Most Important: 50 responses

When asked if there are other factors that should be considered, and if they had any comments regarding the listed factors, respondents provided the following:

- Selection of a route away from residential and commercial areas, homes, barns, croplands, pastures, vineyards, and high-value undeveloped property.
- Selection of a route that avoids interference with existing and future land uses or development.
- Selection of a route that avoids irrigation systems and wells.
- Selection of a route that does not bisect properties or reduce usable property.
- Selection of a route that avoids threatened or endangered species habitats.
- Selection of a route that avoids line of sight to residences.

- Selection of a route that avoids properties that are already impacted by transmission lines and other ROW projects.
- Concerns about economic impact on property values.
- Concerns about future wind power developments.
- Concerns about herbicide drift for transmission line maintenance.
- Concerns about health and safety concerns.

Respondents also were asked if there are other features in the study area that are important and, if so, to please describe them, their locations, and to mark them on the maps attached to the questionnaire. Features marked on maps were taken into consideration. Written responses included:

- Existing or future residences, residential developments, barns, and other structures.
- Ranching or farming operations.
- Existing water, irrigation, and drainage systems.
- Existing utility lines/facilities, ROW, and roads.
- Land proposed for development.
- Yellow House Canyon Draw.
- Rare wildlife and other natural resources.
- Existing oil/gas wells and pipelines.
- Enrolled Conservation Reserve Program fields.
- Wetlands and playa lakes.
- City limits.
- Historical markers.

When asked which of four situations applied to them, respondents that answered this question provided the following (due to multiple responses on some questionnaires, totals do not equal 100 %.):

- 40 % (24 responses) indicated that a potential link is near their home.
- 19 % (49 responses) indicated that a potential link is near their business.
- 73 % (91 responses) indicated that a potential link crosses their land.
- 16% (20 responses) answered "Other".

Respondents who answered "other" included those who responded that they have a proposed link near their property, home, wells, irrigation, vineyards, sewer/water lines, historical items, or future development.

The questionnaire also provided a space for respondents to include any additional remarks and comments. Comments and responses included:

- Request for updates on the progress of the route selection or site surveys.
- Request for annual payments if a pole is on their property.
- Request to avoid irrigation systems, croplands, and future developments.
- Inquiries about location of storage and material lay down sites.
- Preference for routes that do not cross owners properties or obstruct view from home.
- Concerns about property appraisals and legal fees.

- Concerns about safety of the transmission line with respect to humans, crops, and livestock.
- Concerns about agricultural operations near structures.
- Concerns about transmission line maintenance activities and potential impacts to croplands.

3.2.3 Correspondence with Agencies/Officials

As described previously in Section 2.1.5, POWER contacted federal, state, and local regulatory agencies, elected officials, and organizations regarding the Project. As of the date of this document, written replies to the letters sent in relation to the study area were received from the following agencies or offices:

- **Federal**: NPS, NRCS, USACE, USFWS
- **State**: GLO, TARL, TPWD, TWDB, TXNDD, TxDOT, THC
- **Local and Other Organizations**: Permian Basin Regional Planning Commission, Texas Agricultural Land Trust

Copies of all correspondence with these agencies and offices are included in Appendix A. All agency comments, concerns, and information received were taken into consideration by SPS and POWER in the preparation of this EA. Additionally, the information received from the agencies will be taken into consideration by SPS before and during construction of the Project. A summary of the comments provided by federal, state, and local officials that have responded as of this writing is included in the Agency Correspondence Table in Appendix A.

3.2.4 Modifications to Preliminary Alternative Links

Following the public open-house meeting, SPS, and POWER performed an analysis of the input, comments, and information received at the open house meeting, and from follow-up meetings and communication with landowners, interested public stake-holders, and governmental agencies and offices. SPS, POWER and Burns & McDonnell also performed an additional analysis of aerial photography. The purpose of this further analysis was to determine any issues warranting modification to the preliminary alternative links and identify potential new links not presented at the meeting. Burns & McDonnell performed a field reconnaissance on portions of the links based on a review of the aerial photography in April 2015. Preliminary alternative links were modified to improve paralleling opportunities, reduce the bisecting of properties, minimize the impacts to habitable structures and irrigation systems, reduce the number of angle structures required and optimize constructability.

Modifications to the 41 preliminary alternative links resulted in development of 40 primary alternative links (route links). The resulting primary alternative route links are presented on Figures 3-2, 3-3 and 5-1 (Appendix C). Landowners that were impacted by these modifications that were not originally invited to the public open-house meetings were sent a letter with a map notifying them of the Project and inviting them to contact SPS to discuss the Project over the phone or at a meeting. A copy of the letter and map are included in Appendix B.

3.2.5 Primary Alternative Routes

POWER and SPS identified primary alternative routes using each of the 40 primary alternative links in at least one route. Ultimately, 13 primary alternative routes were selected that form an adequate

number of reasonably differentiated primary alternative routes that reflect all of the previously discussed routing considerations. These 13 primary alternative routes were then specifically studied and evaluated by POWER staff. The 40 primary alternative links produce 61 possible forward progressing route combinations.

The primary alternative routes, their link compositions, and approximate lengths are presented in Table 3-3 and are depicted in Figure 3-2, Figure 3-3 and Figure 5-1 in Appendix C. Potential impacts for each of the evaluation criteria (refer to Table 2-1) were tabulated for each of the primary alternative routes (refer to Section 4.0 and Table 4-1).

TABLE 3-3 LINK COMPOSITION AND APPROXIMATE LENGTH OF THE PRIMARY ALTERNATIVE ROUTES

ALTERNATIVE ROUTE	LINK COMPOSITION	LENGTH (MILES)
A	1-3-11-15-16-20-21-22-35-37-39	28.67
B	1-3-11-15-16-20-34	20.48
C	1-3-4-12-16-20-34	20.28
D	1-3-11-15-16-20-21-22-23-38-39	28.67
E	1-2-10-15-16-20-21-22-35-36	25.46
F	1-5-7-8-9-13-26-27-30-31-41	47.59
G	1-5-7-8-9-13-25-28-32-40	43.94
H	1-3-4-6-8-9-13-26-29-31-41	47.73
I	1-3-11-14-19-20-34	20.46
J	1-3-11-15-17-22-35-37-39	28.66
K	1-3-4-12-16-20-21-22-23-24-40	32.61
L	1-3-4-12-16-20-21-22-35-36	23.44
M	1-2-10-14-18-34	22.30

4.0 POTENTIAL IMPACTS OF THE PRIMARY ALTERNATIVE ROUTES

This section discusses potential impacts that could be caused by the Project's construction and operation. POWER evaluated the potential impacts of each of the primary alternative routes identified in Section 3.0 by tabulating the data for the evaluation criteria in Table 2-1 (relating to community values, parks and recreation areas, cultural resources, aesthetics, and environmental integrity). The results of the tabulation are presented in Table 4-1. Additionally, through the identification of key evaluation criteria and a consensus process, POWER recommended to SPS the alternative route that best addresses the requirements of PURA and the P.U.C. Substantive Rules (refer to Section 5.0) relating to ecology, community values, land use, and cultural resources.

4.1 IMPACTS ON COMMUNITY VALUES, LAND USE, AND SOCIOECONOMICS

An evaluation of adverse impacts or effects upon community values is conducted to identify aspects of the proposed Project that would significantly and negatively alter the use, enjoyment, or intrinsic value attached to an important area or resource by a community. This evaluation considers community concerns that are applicable to this specific project's location and characteristics and does not include consideration of objections to electric transmission lines in general.

Potential impacts to community resources can be classified into direct and indirect effects. Direct effects are those that would occur if the location and construction of a transmission line would result in the removal or loss of public access to a valued resource. Indirect effects are those that would result from a loss in the enjoyment or use of a resource due to the characteristics (primarily aesthetic) of the proposed transmission line, tower structures, or ROW.

4.1.1 Impacts on Land Use

The magnitude of potential impacts to land use resulting from the construction of a transmission line is determined by the amount and type of land temporarily or permanently displaced by the actual ROW and by the compatibility of the facilities with adjacent land uses. During construction, temporary impacts to land uses within the ROW may occur due to the movement of workers, equipment, and materials through the area. Construction noise and dust, as well as temporary disruptions of traffic flow, might also temporarily affect local residents and businesses in the area immediately adjacent to the ROW. Coordination between SPS, its contractors, local governmental agencies and landowners regarding road and ROW access and construction scheduling should minimize these disruptions.

The evaluation criteria used to compare potential land use impacts include overall route length, route length parallel to existing linear corridors (including apparent property boundaries), route proximity to habitable structures, route length across various land use types, and route proximity to park and recreational areas. An analysis of the existing land use within and adjacent to the proposed ROW is required to evaluate the potential impacts.

Alternative Route Length

The total lengths of the alternative routes vary from 20.28 miles for Alternative Route C to 47.73 miles for Alternative Route H. The differences in route lengths reflect the direct or indirect pathway of each alternative route between the Project endpoints. The lengths of the alternative routes may also

reflect the effort to parallel existing linear corridors, including apparent property boundaries, and the geographic diversity of the alternative routes. The approximate lengths for each of the alternative routes are presented in Table 4-1.

Compatible ROW

16 TAC § SUBST. R. 25.101(b)(3)(B) requires that the PUC consider whether new transmission line routes are within existing compatible ROWs and/or parallel to existing compatible ROWs, apparent property lines, or other natural features. Criteria used to evaluate compatible ROW utilization include length of the route that is parallel and adjacent to existing transmission line ROW, length of the route that is parallel to other existing linear ROWs, and length of the route that is parallel to apparent property lines.

It should also be noted that if a link parallels more than one existing linear corridor, only one linear corridor was tabulated (e.g., a link parallels both an existing transmission line and a roadway, but it was only tabulated as paralleling the transmission line).

None of the alternative routes will utilize existing transmission line ROW. The alternative routes with lengths paralleling existing transmission line ROW range. Alternative Route I paralleling no existing transmission line ROW to Alternative Route A paralleling approximately 4.90 miles of existing transmission line ROW. The lengths parallel and adjacent to existing transmission line ROW for each of the alternative routes are presented in Table 4-1.

The alternative routes with lengths paralleling other existing compatible ROW, including public roadways, highways, and railways range from approximately 5.01 miles for Alternative Routes C and E to approximately 15.26 miles for Alternative Route D. The lengths paralleling other existing compatible ROW for each of the alternative routes are presented in Table 4-1.

The alternative routes were developed to parallel apparent property boundaries to the extent feasible in the absence of other existing compatible ROW. The route lengths paralleling apparent property boundaries range from approximately 7.43 miles for Alternative Route D to approximately 31.03 miles for Alternative Route F. The lengths paralleling apparent property boundaries for each of the alternative routes are presented in Table 4-1.

All of the alternative routes parallel existing compatible linear corridors (including apparent property boundaries) for at least 89 percent of their lengths. The percentage of each route that parallels existing linear features ranges from 89 percent for Alternative Route K to 97 percent for Alternative Routes A, B, E and M.

OVERSIZED
TABLE 4-1

4.1.1.1 Impacts on Urban and Residential Areas

Typically, one of the most important measures of potential land use impacts is the number of habitable structures located in the vicinity of each alternative route. POWER determined the number of habitable structures located within 500 feet of each alternative route centerline and their distance from the centerline through the use of GIS software, interpretation of aerial photography and verification during reconnaissance surveys.

While proximity to habitable structures was considered during the routing process, and steps were taken to minimize the number of affected habitable structures, all of the routes impact at least one habitable structure. The number of habitable structures ranges from one for Alternative Routes B and E to nine for Alternative Route K. The number of habitable structures located within 500 feet of each of the alternative route centerlines is presented in Table 4-1.

Land Use Categories

An analysis of compatibility with adjacent land use types was completed for each alternative route. Land use categories identified within the study area include cropland, land with traveling irrigation systems and pastureland/rangeland.

4.1.1.2 Impacts on Agriculture

Impacts to agricultural land uses can generally be ranked by degree of potential impact, with the least potential impact occurring in areas where cultivation is not the primary use, such as in pasture/rangeland, followed by cultivated croplands. The use of pasture/rangeland can be continued within the ROW following construction. Cultivated cropland use could also be continued within the ROW following construction.

All of the alternative routes cross some length of pasture/rangeland; however, because the ROW for this Project will not be fenced or otherwise separated from adjacent lands, there will be no significant long-term displacement of farming or grazing activities. Alternative route lengths crossing pasture/rangeland areas range from approximately 8.29 miles for Alternative Route I, to approximately 28.70 miles for Alternative Route H. The lengths of each of the alternative routes crossing pasture/rangeland are presented in Table 4-1.

All of the alternative routes cross some length of cropland, but due to the relatively small area affected (the area beneath the structures) and the short duration of construction activities at any one location, any impacts should be short term with only a small permanent loss of production area at the structure locations. Alternative route lengths crossing cropland areas range from approximately 6.38 miles for Alternative Routes B and E to approximately 15.11 miles for Alternative Route F. The lengths of each of the alternative routes crossing croplands are presented in Table 4-1.

Alternative route lengths crossing irrigated lands range from 0.97 mile for Alternative Route L to approximately 5.41 miles for Alternative Route F. The lengths of each of the alternative routes crossing lands with traveling irrigation systems (rolling and pivot type) are presented in Table 4-1. During the routing process, consideration was given to locating the routes along field edges in order to span the traveling arc of the mobile irrigation systems to minimize the impact of the transmission line.

4.1.1.3 Impacts on Transportation, Aviation, and Utility Features

Transportation

Potential impacts to transportation could include temporary disruption of traffic or conflicts with future proposed roadways and/or utility improvements. Traffic disruptions would include those associated with the movement of equipment and materials to the ROW, and slightly increased traffic flow and/or periodic congestion during the construction phase of the proposed Project. In the rural portions of the study area, these impacts are typically considered minor, temporary, and short-term. In the urban portions of the study area, the temporary impacts to traffic flow can be significant during construction, and SPS will coordinate with the agencies in control of the impacted roadways to address these traffic flow impacts during the construction phase of the Project. The alternative routes, however, generally avoid urban areas.

Each alternative route crosses US and State highways. The number of US and State highway crossings ranges from one to two. The majority of the alternative routes cross one FM road however, Alternative Route G crosses four FM roads and Alternative Routes F and H cross five FM roads. As mentioned above, SPS would be required to obtain road-crossing permits from TxDOT for any crossing of state-maintained roadways. The number of US, State highways, and FM road crossings for each of the alternative routes is presented in Table 4-1.

Aviation

According to FAA regulations, Title 14 CFR Part 77, the construction of a transmission line requires FAA notification if tower structure heights exceed the height of an imaginary surface extending outward and upward at a slope of 100:1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway having at least one runway longer than 3,200 feet. The FAA also requires notification if tower structure heights exceed a 50:1 slope for a horizontal distance of 10,000 feet from the nearest runway where no runway is longer than 3,200 feet in length, and if tower structure heights exceed a 25:1 slope for a horizontal distance of 5,000 feet for heliports.

One public FAA-registered airport (Denver City Airport) is located within 20,000 feet of the alternative route links. Following PUC approval of a route for the proposed transmission line, SPS will make a final determination of the need for FAA notification, based on specific route location and structure design. The result of this notification, and any subsequent coordination with the FAA, could include changes in the line design and/or potential requirements to mark and/or light the structures.

Alternative Route G has one public FAA-registered airport with at least one runway more than 3,200 feet in length located within 20,000 feet of its ROW centerline.

None of the alternative routes have an FAA-registered airport having no runway more than 3,200 feet in length located within 10,000 feet of their ROW centerline. None of the alternative routes have a private airstrip located within 10,000 feet of the centerlines. None of the alternative routes have a heliport located within 5,000 feet. Table 4-1 presents airport, airstrip, and heliport information for each of the alternative routes.

The distance of the airstrip from the nearest route was measured using GIS software and aerial photography interpretation (refer to Table 4-2). All known airport/airstrip locations are shown on Figure 5-1 in Appendix C.

TABLE 4-2 AIRSTRIP RUNWAY LOCATIONS

FIGURE 4-1 MAP ID	AIRSTRIP	ALTERNATIVE ROUTES	ESTIMATED RUNWAY LENGTH (FEET)	EXCESSIVE SLOPES
705	Denver City Airport	G	Runway 04/22: 5,780 Runway 08/26 3,960	No

[1] Sources: FAA 2014b; POWER aerial photo and USGS interpretation.
[2] Sources: POWER aerial photo and USGS interpretation considering elevation information obtained from USGS topographic maps and a maximum allowable height of 226 feet.

Utilities

Utility features, including existing electrical transmission lines, distribution lines, pipelines, and water wells are crossed by all of the alternative routes. If these utility features are crossed by or are in close proximity to the centerline of the alternative route approved by the PUC, SPS will coordinate with the appropriate entities to obtain any necessary permits or permission to ensure safety and the continued use of the existing services provided by these utility features.

Numerous existing electric transmission lines were identified within the study area. The number of crossings range from three for Alternative Route M to 11 crossings for Alternative Routes A, D and J. As mentioned above, SPS will coordinate with the appropriate entity to ensure safe and continued operation of these and other utility features. The number of transmission line crossings for each of the alternative routes is presented in Table 4-1.

Numerous water wells were identified within 200 feet of several of the alternative route centerlines. Five water wells were identified within 200 feet of Alternative Route G, three water wells were identified within 200 feet of Alternative Routes F and H, and two water wells were identified within 200 feet of Alternative Routes C, J, K, and L. Alternative Routes A, B, D, E, I and M do not have any known water wells within 200 feet of their centerlines. The number of water wells within 200 feet of each alternative route is presented in Table 4-1.

SPS and POWER applied a set-back buffer distance of 200 feet from alternative route centerlines to identified oil/gas well heads using 2014 RRC data layers, aerial photo interpretation, and GIS software generated measurements. In some instances, the set-back distance was reduced due to the need to traverse a particular area to connect the Project endpoints while also considering other existing constraints in the area. Numerous oil/gas wells were identified within 200 feet of several of the alternative route centerlines. Four oil/gas wells were identified within 200 feet of Alternative Routes G and K, two oil/gas wells were identified within 200 feet of Alternative Route H, and one oil/gas well was identified within 200 feet of Alternative Routes A, C, D, J, and L. No oil/gas wells were identified within 200 feet of Alternative Routes B, E, F, I or M.

SPS will coordinate with pipeline companies during transmission line construction and operation for continued safe operation of potentially-affected oil and gas facilities. The number of known pipelines crossed by the alternative routes ranges from four pipeline crossings for Alternative Routes M, to 27 pipeline crossings for Alternative Route G. The number of pipeline crossings for each of the alternative routes is presented in Table 4-1. Pipelines that are crossed by the alternative route approved by the PUC will be indicated on engineering drawings and flagged in the field prior to construction. Table 4-1 also includes length of routes parallel to pipelines.

4.1.1.4 Impacts on Electronic Communication Facilities

No commercial AM radio towers were identified within 10,000 feet of any of the alternative route centerlines. Alternative Routes F and H have one FM radio transmitter, microwave tower and/or other electronic installation within 2,000 feet of their centerline. The remaining alternative routes do not have any FM radio transmitters, microwave towers, and other electronic installations located within 2,000 feet of their centerlines.

4.1.1.5 Impacts on Socioeconomics

Construction and operation of the proposed transmission line is not anticipated to result in a significant change in the population or employment rate within the study area. For this Project, some short-term employment would be anticipated. SPS normally uses contract labor supervised by SPS employees during the clearing and construction phase of transmission line projects. Construction workers for the Project would likely commute to the work site on a daily or weekly basis instead of permanently relocating to the area. The temporary workforce increase would likely result in an increase in local retail sales due to purchases of lodging, food, fuel, and other merchandise for the duration of construction activities. No additional staff would be required for line operations and maintenance.

SPS is required to pay sales tax on purchases and is subject to paying local property tax on land or improvements as applicable.

4.2 IMPACTS ON PARKS AND RECREATION AREAS

Potential impacts to parks or recreation areas include the disruption or preemption of recreation activities. No parks and recreation areas are crossed by any of the alternative routes. No impacts to the use or enjoyment of the parks and recreation facilities located within the study area are anticipated from any of the alternative routes.

4.3 IMPACTS ON HISTORICAL (CULTURAL RESOURCES) VALUES

4.3.1 Impacts on Historical (Cultural Resources) Values

Methods for identifying, evaluating, and mitigating impacts to cultural resources have been established for federal projects or permitting actions, primarily for purposes of compliance with the National Historic Preservation Act (NHPA). Similar methods are often used when considering cultural resources affected by state-regulated actions. In either case, this process generally involves: (1) identifying significant (i.e., national or state-designated) cultural resources within 1,000 feet of the centerline of each routing alternative; (2) determining the potential impacts of the project on those resources; and (3) implementing, where appropriate, measures to avoid, minimize, or mitigate those impacts.

Impacts associated with the construction, operation, and maintenance of transmission lines can affect cultural resources either directly or indirectly. Construction activities associated with any proposed project can adversely impact cultural resources if those activities alter the integrity of key characteristics that contribute to a property's significance as defined by the standards of the NRHP or the Texas State Antiquities Code. These characteristics might include location, design, setting, materials, workmanship, feeling, or association for architectural and engineering resources or archeological information potential for archeological resources.

4.3.2 Direct Impacts

Construction activities associated with any proposed project may adversely impact cultural resources when they alter the integrity of the characteristics that contribute to a property's significance. As defined by the standards of the NRHP, these characteristics typically include location, design, setting, materials, workmanship, feeling, and association. The construction of a transmission line may directly alter, damage, or destroy historic buildings, archeological sites, engineering structures, landscapes, or historic districts. Additionally, an increase in vehicular traffic may damage surficial or shallowly buried sites, while the increase in pedestrian traffic might result in vandalism of some sites. Direct impacts may also include isolation of a historic resource from or alteration of its surrounding environment.

4.3.3 Indirect Impacts

Indirect impacts to cultural resources include those effects caused by the project that are farther removed in distance or that occur later in time but are reasonably foreseeable. These indirect impacts may include introduction of visual or audible elements that are out of character with the resource or its setting. Indirect impacts may also occur as a result of alterations in the pattern of land use, changes in population density, accelerated growth rates, or increased pedestrian or vehicular traffic. Historic buildings, structures, landscapes, and districts are among the types of resources that may be adversely impacted by the indirect impact of the proposed transmission towers and lines.

4.3.4 Mitigation

The preferred form of mitigation for adverse impacts to cultural resources is avoidance during the routing process or rerouting if significant resources (e.g., NRHP-eligible or listed properties) or State Antiquities Landmarks (SALs) are identified prior to construction. Mitigation measures for direct impacts may include implementing a program for data recovery excavations if an archeological site cannot be avoided. Indirect impacts on historical properties and landscapes can be lessened through careful design and landscaping considerations, such as using vegetation screens or berms where practicable. Additionally, relocation might be possible for some historic structures.

4.3.5 Summary of Cultural Resource Impacts

The distance of each recorded cultural resource located within 1,000 feet from the proposed alternative routes was measured using GIS software and aerial photography interpretation. A review of the THSA and ATLAS (THC 2014a, 2014b) records did not indicate any National Historic Landmarks, SALs, or HTCs that have been recorded within the study area boundary, so none of these types of resources are recorded within 1,000 feet of the alternative routes. There are ten recorded archeological sites identified within the study area. Only one site, 41GA1, is recorded within 1,000 feet. It is crossed by Alternative Route K. Site 41GA1 is a prehistoric campsite from which two arrow points, a pestle, metate fragments, manos, pot sherds and debitage are reported. The site was recorded in 1965, at which time it was in a cultivated field that had recently been deep-plowed. Site 41GA1 has not been formally evaluated for listing on the NRHP. The centerline of Alternative Route K crosses 41GA1 for approximately 1,250 feet. It is anticipated that direct impacts to the site are likely if Alternative Route K is approved by the PUC, unless the site is avoided during the engineering and design stage. Archeological sites do not typically depend on visual and aesthetic qualities for their cultural significance, so no visual indirect effects are anticipated for 41GA1. No other known cultural resources are recorded within 1,000 feet of the alternative routes.

No systematic cultural resource surveys have been conducted along any of the alternative routes. Thus, the potential for undiscovered cultural resources does exist for all alternative routes. To assess this potential, a review of geological, soils, and topographical maps was undertaken by a professional archeologist to identify areas along the alternative routes where unrecorded prehistoric archeological resources have a higher probability to occur. These HPAs for prehistoric archeological sites were identified near major streams and their tributaries, near playa lakes, on terraces overlooking stream channels, and near previously recorded archeological sites. The larger streams near or crossed by alternative routes include Wardswell Draw, McKenzie Draw, and Sulphur Springs Draw. To facilitate the data evaluation and alternative route comparison, each HPA was mapped using GIS and the length of each alternative route crossing these areas was tabulated.

All of the alternative routes cross HPAs for prehistoric cultural resources. Alternative Routes I, M, and C cross the shortest lengths of HPAs, crossing 4.01, 4.69, and 5.48 miles, respectively. Alternative Routes H, F, and G cross the longest lengths of HPAs, crossing 13.41, 13.66, and 15.25 miles, respectively. Table 4-1 presents the length of each alternative route crossing HPAs for archeological resources.

4.4 IMPACTS ON AESTHETIC VALUES

Aesthetic impacts, or impacts to visual resources, exist when the ROW, lines and/or structures of a transmission line system create an intrusion into, or substantially alter the character of the existing view. The significance of the impact is directly related to the quality of the view, in the case of natural scenic areas, or to the importance of the existing setting in the use and/or enjoyment of an area, in the case of valued community resources and recreational areas.

Construction of the proposed 345-kV transmission line could have both temporary and permanent aesthetic effects. Temporary impacts would include views of the actual assembly and erection of the tower structures. If wooded areas are cleared, the brush and wood debris could have an additional negative temporary impact on the local visual environment. Permanent impacts from the Project would involve the views of the cleared ROW, tower structures, and lines.

Since no designated landscapes protected from most forms of development exist within the study area, potential visibility impacts were evaluated by estimating the length of each alternative route that would fall within the foreground visual zones (one-half mile with unobstructed views) of major highways, and FM roads. There are no interstate highways located within the study area. The alternative route lengths within the foreground visual zone of parks or recreational areas, US and State highways, and FM roads were tabulated and are discussed below.

All of the alternative routes have lengths located within the foreground visual zone of US and State highways. Alternative Routes D and J have the longest length within the foreground visual zone of US and State highways, with each having approximately 2.73 miles. Alternative Routes B, C, E, I, L, and M have the shortest lengths within the foreground visual zone of US and State highways, with each having approximately 1.00 mile.

All of the alternative routes have lengths located within the foreground visual zone of FM roads. Alternative Route G has the longest length within the foreground visual zone of FM roads, with approximately 8.96 miles. Alternative Routes A, B, C, D, E, J, K and L have the shortest length within the foreground visual zone of FM roads, with approximately one mile of their lengths located within the foreground visual zone as presented in Table 4-1.

Alternative Route D is the only alternative route with length (0.21 mile) located within the foreground visual zone of any park or recreational area. A summary of the lengths for each of the alternative routes within the foreground visual zone of US and State highways, FM roads, and parks or recreational areas is presented in Table 4-1.

4.5 IMPACTS ON ENVIRONMENTAL INTEGRITY

4.5.1 Impacts on Physiography and Geology

Construction of the proposed transmission line is not anticipated to have any significant adverse effects on the physiographic or geologic features and resources of the study area. Erection of the structures will require the excavation and/or minor disturbance of small quantities of near-surface materials, but should have no measurable impacts on the geologic resources or features along any of the alternative routes. No geologic hazards were identified in the study area, and none are anticipated to be created by the Project.

4.5.2 Impacts on Soils

Activities associated with the construction, operation, and maintenance of electrical transmission lines typically do not adversely impact soils when appropriate mitigation measures are implemented during the construction phase. Potential impacts to soils include erosion, compaction, and the conversion of prime farmland soils.

The highest risk for soil erosion and compaction is primarily associated with the construction phase of a project. In accordance with SPS's standard construction practices, ROW clearing of woody vegetation including trees, brush, and undergrowth will be conducted within the primary ROW area. Areas where vegetation is removed have the highest potential for soil erosion, and the use of heavy equipment on the cleared ROW creates the greatest potential for soil compaction. Prior to construction, SPS will develop a SWPPP to minimize potential impacts associated with soil erosion, compaction, and sedimentation of the ROW. Implementation of this plan will incorporate temporary and permanent BMPs to minimize soil erosion on the ROW during significant rainfall events. The SWPPP will also establish the criteria for re-vegetation and mitigating soil compaction to ensure adequate soil stabilization during the construction and post-construction phases. The native herbaceous layer of vegetation will be maintained, to the extent practicable, during construction, and most denuded areas with a low erosion potential will be allowed to re-vegetate with native herbaceous species. Areas with a high erosion potential, including steep slopes and areas with shallow topsoil, might require seeding and/or implementation of permanent BMPs (e.g., soil berms or interceptor slopes) to stabilize disturbed areas and minimize soil erosion potential during the post-construction phase. The ROW will be inspected prior to and during construction to ensure that potential high-erosion areas are identified and appropriate BMPs are implemented and maintained. The ROW will be inspected post-construction to identify areas where erosion control measures will need to be in place to assist in soil stabilization.

Prime farmlands, as defined by the NRCS, are lands that are best suited for producing food, feed, forage, or fiber crops. The USDA recognizes the importance and vulnerability of prime farmlands throughout the nation and encourages the wise use and conservation of these areas where possible. The Project crosses areas designated as prime farmlands. In addition to the construction-related impacts described above, the major impact of the Project on prime farmland soils would be the physical occupation of small areas by the support structures. These occupied areas would not be available for agricultural production and could become obstacles to farm machinery. However, the

USDA-NRCS does not consider the limited area of direct impact associated with these structures to be a significant conversion of these lands, and the majority of the ROW would be available for agricultural use once construction of the transmission line is completed.

Potential impacts to soils, primarily erosion and compaction, would be minimized with the development and implementation of a SWPPP; therefore, the magnitude of potential soil impacts are considered equivalent for all of the alternative routes. No significant conversions of prime farmlands are anticipated related to Project activities for any of the alternative routes.

4.5.3 Impacts on Water Resources

4.5.3.1 Impacts on Surface Water

Multiple surface waters within the study area would be crossed by all of the alternative routes. These surface waters typically include ephemeral or intermittent playa lakes/depressions and streams. These features will often attract wildlife and can also support a fishery if they maintain a perennial characteristic. Named streams crossed include McKenzie Draw and Wardswell Draw. SPS proposes to span all surface waters crossed by any of the alternative routes. Structure locations would be outside of the ordinary high water lines for spanned surface waters. Hand-cutting of woody vegetation within the ordinary high water lines may be implemented and limited to the removal of woody vegetation as necessary to meet conductor to ground clearances. The shorter understory and herbaceous layers of vegetation would remain, where allowable, and BMPs would be implemented in accordance with the SWPPP to reduce the potential for sedimentation outside of the ROW.

The number of stream crossings for each alternative route is tabulated in Table 4-1. The number of streams crossed varies from one for Alternative Routes I and M, to seven crossings for Alternative Route G. Because all streams crossed will be spanned and a SWPPP will be implemented, no significant impacts are anticipated to surface water integrity or water quality. None of the alternative routes parallel (within 100 feet) streams. None of the alternative routes cross any rivers or have length across open water (lakes, ponds).

The lengths of open water crossings, lengths parallel with streams, and the number of streams crossed by each of the alternative routes is presented in Table 4-1. Since all surface waters are proposed to be spanned and a SWPPP plan will be implemented during construction, no significant impacts to these surface waters are anticipated for any of the alternative routes.

4.5.3.2 Impacts on Groundwater

The construction, operation, and maintenance of the proposed transmission line are not anticipated to adversely affect groundwater resources within the study area, though potential fuel and/or chemical spills during the construction process could potentially impact both surface water and groundwater resources. Thus, standard operating procedures and spill response specifications relating to petroleum product storage, refueling, and maintenance activities of equipment are provided as a component of the SWPPP in order to avoid and minimize potential contamination to water resources. SPS will take all necessary and available precautions to avoid and minimize the occurrence of such spills, and any remedial and disposal activities associated with any accidental spills will be in accordance with state and federal regulations.

4.5.3.3 Impacts on Floodplains

FEMA data were unavailable within the study area. In lieu of maps, it is reasonable to consider that a floodplain area may be associated with the larger playa lake depressions and larger streams/draws within the study area. No construction activities are anticipated that would significantly impede the flow of water within watersheds. Engineering design should protect against the potential of construction activities adversely impacting flood channels, and proper structure placement would minimize any impeding of flows during a major flood event. The construction of any of the alternative routes is not likely to significantly impact the overall function of a floodplain or adversely affect adjacent or downstream properties.

4.5.4 Impacts on Ecological Resources

4.5.4.1 Impacts on Vegetation Types

Potential impacts to vegetation would result from clearing the ROW of woody vegetation and/or herbaceous vegetation. These activities facilitate ROW access for structure construction, line stringing, and future maintenance activities of the proposed transmission line. Impacts to vegetation would be limited to the ROW. Woodland vegetation removal within the ROW would be required if present. ROW clearing activities would be completed while minimizing the impacts to existing groundcover vegetation when practical. Mowing and/or shredding of herbaceous vegetation may be required within grasslands/pasturelands. Future ROW maintenance activities may include periodic mowing and/or herbicide applications to maintain the herbaceous vegetation layer within the ROW.

Clearing of trees and shrubs, or herbaceous cover may cause a degree of habitat fragmentation. The magnitude of habitat fragmentation can be minimized by paralleling an existing linear feature such as railway road. During the route development process, consideration was given to maximizing the length of the routes parallel to existing linear corridors to minimize impact to or avoid woodland areas. Clearing would occur only where necessary to provide access, work space and future maintenance access to the ROW.

The lengths of each route crossing upland woodlands and bottomland/riparian woodlands were interpolated from aerial photography, and route lengths were digitally measured for these tabulations. None of the Alternative Routes were identified to cross upland woodlands or bottomland/riparian woodlands. The alternative routes typically cross areas dominated by croplands or grasslands; however, all of the alternative routes may cross areas of grassland that have been invaded by short shrub species such as mesquite.

4.5.4.2 Impacts on Wetlands

Wetlands serve as habitat to a number of species and are often used as migration corridors for wildlife. Removal of vegetation within wetlands increases the potential for erosion and sedimentation, which can be detrimental to downstream plant communities and aquatic life. Removal of woody vegetation within any wetlands crossed should be conducted by using hand-clearing methods to avoid disturbance of the soil profile and to preserve the herbaceous vegetation layer. Additionally, mitigation measures can be implemented during construction activities to further avoid and/or minimize potential impacts to wetlands. Due to the nature of the study area, NWI mapped wetland areas are typically restricted to intermittent playa lakes. In most instances these areas could be spanned with temporary impacts limited to accessing each structure during construction. Impact

minimization measures can be implemented (e.g., timber matting and access road minimization) to reduce temporary impacts if avoidance is not practical.

The temporary and/or permanent placement of fill material within jurisdictional surface waters and associated wetlands requires a permit from the USACE under Section 404 of the CWA. Streams and rivers within the study area subject to regulation under Section 404 of the CWA have been avoided where practical, and the placement of fill material may be avoided through spanning if crossed. Playa lakes are generally considered isolated and typically not regulated by the USACE as jurisdictional wetlands unless they are located on a stream. Therefore, a Section 404 permit is not anticipated for the Project. Prior to construction, an assessment of the PUC approved route would be completed to determine if there would be any planned impacts to possible jurisdictional areas. If necessary, SPS will coordinate with the USACE prior to clearing and construction to ensure compliance with Section 404 of the CWA.

NWI mapped wetlands crossed by the alternative routes are primarily comprised of freshwater emergent wetlands and ponds. Freshwater emergent wetlands and ponds may be comprised of playa lakes and other small depressional areas. The alternative route lengths crossing NWI mapped wetlands and playa lakes range from 0.02 mile for Alternative Routes A, B, C, D, E, I, K, L, M, to 0.44 mile for Alternative Route F. SPS proposes to span these features and no significant impacts are anticipated to these resources.

SPS proposes to implement BMPs as a component of its SWPPP to prevent off-ROW sedimentation and degradation of any wetland areas. If emergent wetland areas are traversed by equipment, matting can be used to minimize the potential temporary impacts. With SPS's use of these impact avoidance and minimization measures, none of the alternative routes are anticipated to have a significant impact on wetlands.

4.5.4.3 Impacts on Wildlife and Fisheries

The primary impacts of construction activities on terrestrial wildlife species are typically associated with temporary disturbances from construction activities, and with the removal of vegetation (habitat modification/fragmentation). Increased noise and equipment movement during construction may temporarily displace mobile wildlife species from the immediate workspace area. These impacts are considered short-term and normal wildlife movements would be expected to resume after construction is completed. Potential long-term impacts include those resulting from habitat modifications and/or fragmentation. During the routing process, POWER attempted to minimize potential habitat fragmentation by paralleling existing linear features and avoiding paralleling streams to the extent feasible.

Construction activities may impact small, immobile, or fossorial (living underground) animal species. Impacts to these species may occur due to equipment or vehicular movement on the ROW by direct impact or due to the compaction of the soil if the species is fossorial. Potential impacts of this type are not typically considered significant and are not likely to have an adverse effect on any species population dynamics.

If ROW clearing occurs during bird nesting season, potential impacts could occur within the ROW area related to migratory bird eggs and/or nestlings. Increases in noise and equipment activity levels during construction could also potentially disturb breeding or other activities of bird species nesting

in areas adjacent to the ROW. SPS proposes to complete all ROW clearing and construction activities in compliance with the MBTA to avoid or minimize potential impacts.

Transmission lines can also present additional hazards to birds due to electrocutions and/or collisions. Measures can be implemented to minimize this risk with transmission line engineering designs. The electrocution risk to birds should not be significant since the engineering design distance between conductors, conductor to structure, or conductor to ground wire for the proposed transmission line is greater than the wingspan of any bird potentially within the area (i.e., greater than eight feet). While the conductors are typically thick enough to be seen and avoided by birds in flight, the shield wire is thinner and can present a risk for avian collision. This risk can be minimized by installing bird flight diverters or other line marking devices on the line within high bird use areas.

Potential impacts to aquatic systems would include effects of erosion, siltation, and sedimentation. Clearing the ROW of vegetation might result in increased suspended solids in the surface waters traversed by the transmission line. Increases in suspended solids might adversely affect aquatic organisms that require relatively clear water for foraging and/or reproduction. Physical aquatic habitat loss or alteration could result wherever riparian vegetation is removed and also at temporary crossings required for access roads. Increased levels of siltation or sedimentation might also potentially impact downstream areas, primarily affecting filter feeding benthic and other aquatic invertebrates.

To avoid or minimize these impacts, SPS proposes to span all surface waters where practical. Additionally, the implementation of a SWPPP and BMPs will also minimize potential impacts. Therefore, no significant adverse impacts are anticipated to any aquatic habitats crossed or located adjacent to the ROW for any of the alternative routes.

Construction of the proposed transmission line is not anticipated to have direct adverse impacts to wildlife and fisheries within the study area. Direct impacts would be associated with the loss of habitat which is reflected in the vegetation analysis discussed above. Habitat fragmentation was minimized for all the alternative routes within woodland areas by avoidance and/or paralleling existing linear features to the extent feasible. While highly mobile animals might be temporarily displaced from habitats near the ROW during the construction phase, normal movement patterns should return after Project construction is complete. Implementation of a SWPPP utilizing BMPs will minimize potential impacts to aquatic habitats.

4.5.4.4 Impacts to Threatened and Endangered Species

To determine potential impacts to threatened or endangered species, POWER reviewed several sources of information: known element occurrence data for the study area was obtained from the TXNDD; and Project scoping comments were received from TPWD (refer to Appendix A). Current county listings for federal and state listed threatened and endangered species and USFWS designated critical habitat locations were included in the review. POWER also utilized several published sources to review life histories and habitat requirements of listed species as previously discussed.

Threatened and Endangered Plant Species

No federal- or state-listed threatened or endangered plant species are listed for the study area counties (TPWD 2014c; USFWS 2014b). TXNDD (2014) data did not document any rare plant communities within the study area. Therefore, it is not anticipated that any of the alternative routes will affect any threatened or endangered plant species or rare plant communities.

Threatened and Endangered Animal Species

None of the alternative routes cross any known habitat or designated critical habitat for federally listed animal species. Review of the TXNDD database did not indicate any previous occurrences of any federally listed species or state listed species near any of the proposed routes.

Of the federally listed threatened and endangered species previously described, the species with the highest potential for impact as a result of the Project is the LPC. Based on the Southern Great Plains CHAT (2013) tool, all of the alternative routes cross within the CHAT Categories 3 and 4 LPC habitats. CHAT Category 3 is considered modeled habitat, while CHAT Category 4 is considered modeled non-habitat and is comprised of the EOR for the LPC plus 10 miles. While empirical data is lacking to determine the effect of a transmission line on the behavior of the LPC, potential impacts have been minimized to the extent practical during the route development phase by paralleling existing linear features (such as roadways and existing transmission lines) to minimize the disturbance of native habitat. No documented occurrences of the LPC species have been recorded within the study area; however, fragmented potential suitable habitat may be present within the study area. Based on the Southern Great Plains CHAT (2013) data the nearest known active lek is located approximately 4.75 miles north of Alternative Routes E and M.

POWER submitted all the alternative routes to WAFWA to obtain the estimated LPC habitat mitigation costs for each route. The WAFWA estimated mitigation fee is a reflection of route development along existing previous impact areas and LPC habitat quality. It represents the potential impact of each alternative route to LPC habitat. Estimated LPC mitigation costs range from $627,000 for Alternative Route I to $2,947,000 for Alternative Route E. The estimated LPC habitat mitigation cost for each alternative route is presented in Table 4-1. Upon PUC approval of a route and prior to construction, SPS will need to coordinate with WAFWA for additional field surveys to refine the mitigation fees and the possible implementation of additional mitigation measures.

The construction of a transmission line does not include activities associated with collecting, hooking, hunting, netting, shooting, or snaring by any means or device, and does not include an attempt to conduct such activities. Therefore, "take" of state-listed species as defined in Section 1.01(5) of the TPWC is not anticipated by this Project. However, the Texas horned lizard is anticipated to occur within the study area where suitable habitat exists. If present, the Texas horned lizard may be subject to minor temporary disturbance during construction activities. If this species is observed during construction activities, it will be allowed to leave the study area or be relocated by a permitted individual.

It should be noted that pedestrian surveys for threatened and endangered species have not been completed for any of the alternative routes; therefore suitable habitat for these species might occur within the ROW of any of the alternative routes. If necessary, a field survey for potential suitable habitat for all listed species will be completed after PUC approval of an alternative route. Additional consultation with USFWS and TPWD may also be require

5.0 ROUTE EVALUATION

The purpose of this study was to delineate and evaluate alternative routes for SPS's proposed transmission line in Gaines and Yoakum Counties, Texas between the existing Yoakum Substation and the Texas State Line. POWER completed an environmental analysis of 13 primary alternative routes (Section 4.0), the results of which are shown in Tables 4-1. The environmental evaluation was a comparison of the alternative routes strictly from an environmental and land use impact viewpoint (i.e., land use, aesthetics, ecology, and cultural resources) based upon measurement of the environmental criteria (Table 2-1). POWER used this information to evaluate and rank the alternative routes and to recommend one alternative route that provides the best balance between potential impacts to land use, aesthetic, ecological, and cultural resource factors. SPS considered this information along with engineering, construction, maintenance, and operational factors, cost estimates, and comments from agencies and the public, to identify a route that best addresses the requirements of applicable portions of PURA and P.U.C. Substantive Rules. POWER's evaluation is discussed below.

5.1 POWER'S ENVIRONMENTAL EVALUATION

POWER used a consensus process to evaluate the potential environmental impacts of the alternative routes. POWER professionals with expertise in different environmental disciplines (land use, ecology, and cultural resources), as well as POWER's Project Manager, evaluated all of the alternative routes based on the environmental conditions present along each route. This evaluation was based on the evaluation criteria, comments received from the public, and local, state, and federal agencies, and a field reconnaissance of the study area from publicly accessible viewpoints. Each POWER technical expert independently analyzed the routes and the environmental data presented in Table 4-1 and then independently ranked the routes with respect to potential impacts within their respective discipline. The evaluators then met as a group and discussed their independent results within a consensus process. The group as a whole determined the relationship and relative sensitivity among the major land use, ecological, and cultural resource factors. The group then ranked the alternative routes based strictly upon the land use, aesthetics, ecology, and cultural resource environmental data considered.

The evaluators agreed that all of the alternative routes were viable and acceptable from an overall land use, aesthetic, ecology, and cultural resource perspective. The evaluators each ranked the alternatives from 1st to 13th (with 1st having the least potential impact and 13th the greatest potential impact) from the perspective of their own area of expertise. The results of these rankings are summarized in Table 5-1.

TABLE 5-1 POWER'S ENVIRONMENTAL RANKING OF THE ALTERNATIVE ROUTES

Alternative Route	Land Use Specialist	Ecology Specialist	Cultural Resources Specialist	Project Manager	Consensus
A	9th	6th	7th	6th	6th
B	2th	2nd	4th	1st	2nd
C	1st	4th	3rd	2nd	3rd
D	12th	5th	8th	8th	9th
E	5th	9th	6th	4th	5th
F	10th	12th	11th	11th	11th
G	11th	13th	12th	13th	13th
H	13th	11th	10th	12th	12th
I	3rd	1st	1st	3rd	1st
J	7th	7th	9th	9th	8th
K	8th	10th	13th	10th	10th
L	4th	3rd	5th	5th	4th
M	6th	8th	2nd	7th	7th

The land use evaluation placed the greatest importance on the length paralleling existing transmission lines, length paralleling existing compatible ROW, and length paralleling apparent property lines. Secondary evaluation criteria included overall length of the route and the number of habitable structures located within 500 feet of the proposed ROW centerline. The land use specialist ranked Alternative Routes C, B and I as having the least potential land use impact and Alternative Routes H, D and G, as having the greatest potential land use impact.

The ecological evaluation was based primarily on the total length of each route and potential impacts to LPC habitat. The number of stream crossings was a secondary consideration. The overall length of route and proportion of route parallel to existing linear features was also taken into consideration to reduce habitat fragmentation. The ecologist ranked Alternative Routes I, B and L as having the least potential ecological impact and Alternatives Route G, F and H as having the most potential ecological impact.

The cultural resources evaluation was based primarily on the number of archeological sites and the amount of HPA crossed by the alternative routes. Alternative Routes I, M and C were identified as the alternative routes with the least impact from a cultural resources perspective. Alternative Routes K, G and F were ranked as having the greatest potential impact from a cultural resources perspective.

The POWER Project Manager also ranked the alternative routes, considering all of the evaluation criteria. Given the nature of the study area, paralleling of existing ROW/apparent property lines, the overall length of the alternative route as well as proximity to habitable structures were considered key factors. Consideration was also given to the potential impacts to LPC habitat. Potential impact avoidance and minimization measures typically employed during the construction of transmission (e.g., whether a feature could be spanned to minimize potential impacts) were also taken into account. Alternative Routes B, C and I were selected by the POWER Project Manager as the best-balanced routes considering all the evaluation criteria reviewed. Alternative Routes G, H, and F were considered to have the most potential impacts.

Based on group discussion of the relative value and importance of each set of criteria (land use, ecology, and cultural resources) for this specific project, it was the consensus of the POWER evaluators that total length of the route, length paralleling existing ROWs, potential impacts to LPC habitat and number of habitable structures within 500 feet of each route centerline would be the primary key factors in their selection of the route that best meets the criteria of PURA and PUC Substantive Rules and ranking of the remaining alternative routes. Secondary evaluation criteria included the length of each route crossing croplands, length of route within HPA for cultural resources and number of stream crossings.

Based on these criteria, the group selected Alternative Route I as the alternative route that best addresses PURA and PUC environmental routing criteria and then agreed on ranking the remaining top four alternatives. The next top four alternative routes, Alternative Routes B, C, L, and E (in order of ranking), were determined to have the least potential cumulative impacts. The ranking of the alternative routes is presented in Table 5-1. All the geographically diverse alternative routes are considered viable acceptable routes.

POWER's recommendation of Alternative Route I as the route that best balances the PUC routing criteria related to land use, aesthetics, ecology, and cultural resources, is supported by the following evaluation criteria. Alternative Route I:

- Has the second shortest overall length.
- Runs parallel to existing compatible corridors and apparent property boundaries (excluding pipelines) for 96% of its length.
- Has the shortest length crossing areas of high archaeological site potential.
- Has the least potential impact to LPC habitat.
- Has no length of ROW across known habitat of federally listed endangered or threatened species.
- Crosses only one stream.
- Crosses no parks/recreational areas.
- Has no length of ROW through upland woodlands.
- Has no length of ROW through bottomland/riparian woodlands.
- Has no length of ROW across open water (lakes, ponds).
- Crosses no rivers.
- Has no length of ROW parallel (within 100 feet) to streams or rivers.
- Crosses no archeological or historical sites.
- Has no additional archeological or historical sites within 1,000 feet of ROW centerline.
- Crosses no National Register of Historic Places listed properties.
- Has no additional National Register of Historic Places listed properties within 1,000 feet of ROW centerline.

POWER's Project Director reviewed all of the data and evaluations produced by the Project Manager and task managers and concurred with the rankings and recommendations for the alternative routes.

Therefore, based upon its evaluation of this Project and its experience and expertise in the field of transmission line routing, POWER recommends Alternative Route I from an overall environmental perspective and the remaining routes as alternatives. Considering all pertinent factors, it is POWER's opinion that this Route I best addresses the criteria related to land use, aesthetics, ecology, and

cultural resources, specified in PURA § 37.056(c)(4) and the P.U.C. Substantive Rules, and that the remaining routes or other combinations of proposed links are acceptable alternatives.

5.2 ROUTE SELECTION

Following POWER's review of the 13 primary alternative routes, SPS undertook a further evaluation to consider the reliability, constructability, operation, maintenance, and the cost to construct each alternative. The final evaluation by the SPS project team resulted in the identification of Alternative Route I as the route that SPS believes best addresses the requirements of PURA and PUC Substantive Rules for reasons including those identified above by POWER, and because it is the 3rd least expensive route based on estimated costs, has the least LPC mitigation cost, and has no recorded water wells or oil and gas wells within 200 feet of the ROW centerline. While all proposed alternative routes and combinations of links comprising those routes are viable and constructible, both SPS and POWER believe that Alternative Route I best addresses the requirements of PURA and PUC Substantive Rules.

6.0 LIST OF PREPARERS

This EA was prepared for SPS by POWER. A list of the POWER employees with primary responsibilities for the preparation of this document is presented below.

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7.0 REFERENCES

AirNav.com. 2014. Hamilton Airport Inc., Airport, Seminole, Texas. Available on the internet. http://www.airnav.com/airport/5TA0 (accessed November 2014).

Alsop, Fred J., 2002. *Birds of Texas*. DK Publishing, Inc. New York, New York. 575pp.

Blair, W.F. 1950. The biotic provinces of Texas. Texas Journal of Science 2:93117.

Bousman, C. Britt, Barry W. Baker, and Anne C. Kerr 2004. *Paleoindian Archeology in Texas*. In Prehistory of Texas. Ed. Timothy Pertulla. Texas A & M University Press. College Station.

Boyd, Douglas K. 2004. *The Palo Duro Complex*. In The Prehistory of Texas. Ed. Timothy Pertulla. Texas A & M University Press, College Station.

Bureau of Economic Geology (BEG). 1974. Geologic Atlas of Texas, Brownfield Sheet. Bureau of Economic Geology, University of Texas at Austin. Austin, Texas.

_____. 1976. Geologic Atlas of Texas, Hobbs Sheet. Bureau of Economic Geology, University of Texas at Austin. Austin, Texas.

_____. 1996. Physiographic Map of Texas. Bureau of Economic Geology, University of Texas. Austin, Texas.

Campbell, Linda. 2003. The Endangered and Threatened Animals of Texas. Texas Parks and Wildlife Department. 129pp.

Chadde, S.W. 2012a. Wetland Plants of Texas, Volume One Monocots. A Bogman Guide. 360pp.

_____. 2012b. Wetland Plants of Texas, Volume Two Dicots. A Bogman Guide. 506pp.

City Data. 2014. Available on the internet: http://www.city-data.com/city/Plains-Texas.html http://www.city-data.com/city/Denver-City-Texas.html (accessed October 2014).

Collins, Michael B. 2002. The Gault Site, Texas and Clovis Research. Athena Review 3(2):24-36.

Colaizzi, P. D. et al. 2008. *Irrigation in the Texas High Plains: A Brief History and Potential Reductions in Demand*. Irrigation and Drainage. John Wiley & Sons, Ltd. 2008.

Cowardin, L.M, V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C.

Dillehay, Tom D. 1974. *Late Quaternary Bison Population Changes on the Southern Plains*. Plains Anthropologist 19(65):180-196.

Dixon, J.R. 2013. Amphibians and Reptiles of Texas: with keys, taxonomic synopses, bibliography, and distribution maps. W.L. Moody Jr. Natural History Series. Texas A&M University Press, College Station Texas. 447pp.

Drass, Richard. 1998. *The Southern Plains Villagers*. In Archaeology of the Great Plains. Ed. Raymond Wood. University Press of Kansas.

Environmental Systems Research Institute (Esri). 2013. United States Geologic Survey (USGS) 7.5 Minute Quadrangle Maps for the United States. Service: http://services.arcgisonline.com/ArcGIS/ rest/services/USA_Topo_Maps/MapServer & Info: http://goto.arcgisonline.com/maps /USA_Topo_Maps, Copyright: 2013 National Geographic Society, i-cubed.

Federal Aviation Administration (FAA). 2014. Airport Data and Contact Information. Available on the internet: http://www.faa.gov/airports/airport_safety/airportdata_5010/ (accessed November 2014).

_____. 2015. National Aeronautical Charting Office. Albuquerque Sectional Aeronautical Chart, 95th Edition, Effective April 30, 2015.

Federal Communication Commission (FCC). 2014. Geographic Information Systems – Licensing Database Extracts. Available on the internet: http://wireless.fcc.gov/geographic/index.htm?job=licensing_database_extracts (accessed November 2014)

Federal Emergency Management Agency (FEMA). 2014. National Flood Hazard Layer. Available on the internet: https://hazards.fema.gov/femaportal/wps/portal/NFHLWMSkmzdownload (accessed December 2014).

Frye, R.G., L. Brown, and C.A. McMahan. 1984. Vegetational Areas of Texas Map. Texas Parks and Wildlife Department. Austin, Texas.

Gould, F.W., G.O. Hoffman, and C.A. Rechenthin. 1960. *Vegetational Areas of Texas*. Texas Agricultural Extension Service. L-492.

Griffith, G., S. Bryce, J. Omernik, and A. Rogers. 2007. *Ecoregions of Texas*. Project Report to Texas Commission on Environmental Quality. Austin, Texas. 125pp.

Hämäläinen, Pekka. 2003. *The Rise and Fall of Plains Indian Horse Cultures*. The Journal of American History, Vol. 90, No. 3, 833-862pps.

Hatch, S.L., K. Handhi, and L. Brown. 1990. *Checklist of the Vascular Plants of Texas*. MP-1655. Texas A&M University, Texas Agricultural Experiment Station, College Station, Texas.

Henke S.E. and W.S. Fair. 1998. *Management of Texas Horned Lizards*. Wildlife Management Bulletin of the Caesar Kleberg Wildlife Research Institute. Texas A&M University-Kingsville. No.2.

Holliday, Vance T. and David J. Meltzer. 1996. Geoarchaeology of the Midland Site. American Antiquity. 61(4) 755-771.

Hubbs, C., R.J. Edwards, G.P. Garrett. 2008. An annotated checklist of the freshwater fishes of Texas, with keys to identification of species, 2nd Edition. Texas Journal of Science 43(4):1-87.

Hughes, J.T. 1991. Prehistoric cultural development on the Texas High Plains. Bulletin of the Texas Archeological Society 60:1–56.

Hunt, William R. 2014. "GAINES COUNTY," Handbook of Texas Online. Available on the internet: http://www.tshaonline.org/handbook/online/articles/hcg01, accessed October 09, 2014. Published by the Texas State Historical Association.

Johnson, Eileen, and Vance T. Holliday. 2004. *Archeology and Late Quaternary Environments of the Southern High Plains*. In Prehistory of Texas. Ed. Timothy Pertulla. Texas A & M University Press. College Station.

Leffler, John. 2014. "YOAKUM COUNTY," Handbook of Texas Online. Available on the internet: http://www.tshaonline.org/handbook/online/articles/hcy01, accessed October 09, 2014. Published by the Texas State Historical Association.

Lockwood, M.W. and B. Freeman. 2014. The TOS handbook of Texas birds, Second edition, Revised. Texas A&M University Press. College Station, Texas. 403pp.

Meltzer, David J., and Michael B. Collins. 1987. Prehistoric Water Wells on the Southern High Plains: Clues to Altithermal Climate. Journal of Field Archaeology 14:9–28.

Mercado-Allinger, P.A., N.A. Kenmotsu, and T.K. Perttula. 1996. Archeology in the central and southern planning region, Texas: a planning document. Division of Antiquities Protection, Cultural Resource Management Report 7. Texas Historical Commission, Austin.

National Aerial Imagery Program (NAIP). 2014. USDA's Farm Service Agency NAIP/Texas 2014 1M NC, Add GIS Service: http://gis.apfo.usda.gov/arcgis/services. Service Name: NAIP/Texas_2014_1m_NC.

_____. 2012. USDA's Farm Service Agency NAIP/Texas 2014 1M NC, Add GIS Service: http://gis.apfo.usda.gov/arcgis/services Service Name: NAIP/Texas_2014_1m_NC.

National Park Service (NPS). 2014a. National Register of Historic Places Program: Research Available on the internet: http://www.nps.gov/nr/research/index.htm. Accessed December 2014.

_____. 2014b. Database of National Historic Landmarks. Available on the internet: http://www.nps.gov/nhl/find/database.htm (accessed November 17, 2014) (last updated August 21, 2014).

_____. 2014c. National Trails System Maps. Available on the internet: http://www.nps.gov/nts/maps.html (accessed November 17, 2014).

_____. 2013d. *National Historic Landmarks Program* – Lists of National Historic Landmarks - Texas. Available on the internet: http://www.nps.gov/nhl/find/statelists/tx.htm (accessed November 2014).

_____. 2014e. Texas Parks. Available on the internet: http://www.nps.gov/state/tx/index.htm

National Wild and Scenic Rivers System (NWSRS). 2013. *National Wild and Scenic Rivers System Wild and Scenic Rivers by State*. Available on the internet: http://www.rivers.gov/national-system.php (accessed December 2014).

Natural Resources Conservation Service (NRCS). 2014. Web Soil Survey. US Department of Agriculture. Available on the internet: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm (accessed December 2014).

Playa Lakes Joint Venture. 2011. Probable Playas Spatial Data Set (version 4).

Perez, Joan Jenkins. 2014. "MARTIN COUNTY," Handbook of Texas Online (http://www.tshaonline.org/handbook/online/articles/hcm03), accessed October 09, 2014. Published by the Texas State Historical Association.

Railroad Commission of Texas (RRC). 2014. Historical Coal Mining in Texas. Available on the internet:http://www.rrc.state.tx.us/mining-exploration/historical-coal-mining/ (accessed December 2014).

Rathjen, F.W. 2014. "PANHANDLE," Handbook of Texas Online. Available on the internet: http://www.tshaonline.org/handbook/online/articles/ryp01 (accessed October 9, 2014).

Schmidly, D. J. 2004. The Mammals of Texas, revised edition. University of Texas Press, Austin, Texas. 501pp.

Southern Great Plains Crucial Habitat Assessment Tool (Southern Great Plains CHAT). 2013. Available on the internet: http://kars.ku.edu/maps/sgpchat/ (accessed January 2015).

Texas Commission on Environmental Quality (TCEQ). 2012. Texas Water Quality Inventory and 303(d) List. Available on the internet: http://www.tceq.texas.gov/assets/public/waterquality/swqm/assess/12twqi/2012_303d.pdf (accessed December 2014).

_____. 2014. Download TCEQ GIS Data. Available on the internet: https://www.tceq.texas.gov/gis/download-tceq-gis-data (accessed December 2014).

Texas Department of Transportation (TxDOT). 2014a. County Grid Map Search. Available on the internet: http://www.dot.state.tx.us/apps-cg/grid_search/county_grid_search.htm (accessed November 2014).

_____. 2014b. Project Tracker. Available on the internet: http://www.txdot.gov/project_information/project_tracker.htm (accessed November 2014).

Texas Education Agency (TEA). 2014. School District Locator. Available on the internet: http://wgisprd.tea.state.tx.us/SDL/ (accessed October 2014).

Texas Historical Commission (THC). 2014a. Texas Historical Commission. Texas Archeological Sites Atlas. Restricted access. Available on the internet: http://nueces.thc.state.tx.us/ (accessed December, 2014).

____. 2014b. Texas Historical Commission. Texas Historic Sites Atlas. Available on the internet: http://atlas.thc.state.tx.us/ (accessed December, 2014).

Texas Land Trust Council (TLTC). 2014. Panhandle Plains Region. Available on the internet: http://www.texaslandtrustcouncil.org/index.php/panhandle-plains (October 2014).

Texas Natural Diversity Database (TXNDD). 2014. Texas Biological and Conservation Data System. Texas Parks and Wildlife Department. Austin, Texas. (Report Received September 4, 2014).

Texas Parks and Wildlife Department (TPWD). 2002. Birds of the High Plains and Rolling Plains of Texas – A field Checklist. Available on the internet: https://tpwd.texas.gov/publications/pwdpubs/media/pwd_bk_w7000_0760.pdf (accessed December 2014).

_____. 2014a. Ecologically Significant Stream Segments. Available on the internet: http://www.tpwd.state.tx.us/landwater/water/environconcerns/water_quality/sigsegs/ (accessed December 2014).

_____. 2014b. GIS Data Downloads. Available on the internet: http://tpwd.texas.gov/gis/data/ (accessed December 2014).

_____. 2014c Texas Parks and Wildlife Annotated County List of Rare Species. Available on the internet: http://www.tpwd.state.tx.us/gis/ris/es/ (accessed December 2014).

_____. 2014d. Nongame and Rare Species Program: Rare Plant Communities. Available on the internet: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/nongame/communities/ (accessed December 2014).

_____. 2014e. Texas State Parks. Available on the internet: http://tpwd.texas.gov/huntwild/wildlife/wildlife-trails/plains/panhandle-plains (accessed October 2014).

_____.2014f. http://tpwd.texas.gov/huntwild/wildlife/wildlife-trails/plains/panhandle-plains (accessed October 20140).

Texas Speleological Society (TSS). 1994. The Caves and Karst of Texas. National Speleological Society, Inc. Huntsville, Alabama 342 pp.

Texas Water Development Board (TWDB). 1975. Major and Historical Springs of Texas. Texas Water Development Board, Report 189. Austin, Texas.

_____. 2013. *2016 Regional Water Plan, Population and Water Demand Projections*. County

Population Projections in Texas: 2020-2070 population projections by county. Available on the internet: http://www.twdb.texas.gov/waterplanning/data/projections/2017/popproj.asp (accessed November 2014).

_____. 2014. Maps and GIS. Available on the internet: http://www.twdb.state.tx.us/mapping/ (accessed November 2014).

_____. 2011 Llano Estacado Regional Water Plan. Region O Water Planning Group. Available on the internet: http://www.twdb.texas.gov/waterplanning/rwp/plans/2011/ (accessed December 2014).

_____. 2012. Water for Texas. Austin, Texas. Available on the internet: http://www.twdb.state.tx.us/waterplanning/swp/2012/index.asp (accessed December 2014).

Thomas, C., Bonner T. H., and B.G. Whiteside. 2007. Freshwater Fishes of Texas: A Field Guide. Texas A&M University Press. College Station, Texas.

Tipton, B.L., T.L. Hibbits, T.D. Hibbits, T.J. Hibbits, and T.J Laduc. 2012 Texas Amphibians – A Field Guide. University of Texas Press, Austin, Texas. 309pp.

United States Bureau of the Census (USBOC). 2000. Census 2000 Gateway. Available on the internet: http://www.census.gov/main/www/cen2000.html (accessed October 2014).

United States Department of Agriculture (USDA). 2012. 2012 Census of Agriculture State and County Profiles - Texas. Available on the internet: http://www.agcensus.usda.gov/Publications/2012/Online_Resources/County_Profiles/Texas/ (accessed November 2014).

U.S. Environmental Protection Agency (USEPA). 2014. Superfund Sites Where You Live. Available on the internet: http://www.epa.gov/superfund/sites/ (accessed December 2014).

U.S. Fish and Wildlife Service (USFWS). 2009. Whooping Cranes and Wind Development, An issue Paper. USFWS Region 2 and Region 6, April 2009.

_____. 2011. Endangered Species: Black-tailed Prairie Dog. USFWS Mountain-Prairie Region. Available on the internet: http://www.fws.gov/mountain-prairie/species/mammals/btprairiedog/ (assessed December 2014).

_____. 2014a. National Wetland Inventory (NWI) Mapper. Available on the internet: http://www.fws.gov/wetlands/Data/Mapper.html (accessed December 2014).

_____. 2014b. List of species by county for Texas. Southwest Region Ecological Services. Available on the internet: http://www.fws.gov/southwest/es/EndangeredSpecies /lists/ListSpecies.cfm (accessed December 2014).

_____. 2014c. Critical Habitat Mapper. Available on the internet: http://criticalhabitat.fws.gov/crithab/flex/crithabMapper.jsp (accessed December 2014)

_____. 2014d. Lesser prairie-chicken (*Tympanuchus pallidicinctus*). Southwest Region Ecological Services. Available on the internet: http://www.fws.gov/southwest/es/lpc.html (accessed December 2014).

U.S. Geological Survey (USGS). 2011. United States Geologic Survey - 7.5 minute quadrangle maps. Note: Most quads have different print dates and these were not cited but referenced. The quadrangle maps were accessed through Environmental Sciences Research Institute, 2011, ArcGIS Map Service: http://services.arcgisonline.com/ArcGIS/services.

_____. 2013. Brief Report for Gulf – Margin Normal Faults, Texas. Available on the internet: http://earthquake.usgs.gov/hazards/qfaults/ (accessed December 2014).

_____. 2014. Mineral Resources On-line Spatial Data. Geologic units in Texas. Available on the internet: http://mrdata.usgs.gov/geology/state/fips-unit.php?state=TX (accessed December 2014).

_____. 2015. National Hydrography Dataset (NHD). Available on the internet: http://nhd.usgs.gov/data.html (accessed January 2015).

Van Pelt, W.E., S. Kyle, J. Pitman, D. Klute, G. Beauprez, D. Schoeling, A. Janus, J. Haufler, 2013. The Lesser Prairie-Chicken Range-wide Conservation Plan. Western Association of Fish and Wildlife Agencies. Cheyenne, Wyoming, pp.296 .

Worster, Donald. 2004. *Dust Bowl: The Southern Plains in the 1930s*. Oxford University Press. 2004.

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APPENDIX A

Appendix A

Agency Correspondence

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YOAKUM-STATE LINE 345 kV TRANSMISSION LINE
FEDERAL, STATE AND LOCAL AGENCIES

Mr. Chris Shoulders
National Operations Supervisor
Obstruction Evaluation Group
Federal Aviation Administration
4500 Mercantile Plaza
Fort Worth, TX 76137

Mr. Salvador Salinas
State Conservationist
NRCS Texas State Office
101 South Main Street
Temple, TX 76501

Mr. Ron Curry
Region 6 Administrator
U. S. Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, TX 75202

Mr. Tony Robinson
Regional Adminsitrator
Federal Emergency Management Agency
FRC 800 North Loop 288
Denton, TX 76209-3698

Mr. Tom Cloud
Field Supervisor
U.S. Fish & Wildlife Service
2005 NE Green Oaks Blvd., Suite 140
Arlington, TX 76006

Colonel Charles H. Klinge, Jr.
District Engineer
USACE - Ft Worth District
819 Taylor Street
Fort Worth, TX 76102

Mr. John Wessels
Regional Director
National Park Service - Intermountain Region
IMRextrev@nps.gov

Ms. Kathy Boydston
Wildlife Habitat Assessment Program
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, TX 78744

Ms. Carolyn Brittin
Deputy Executive Administrator
Texas Water Development Board
1700 North Congress Avenue
Austin, TX 78701

Mr. Greg Miller
Director, Planning & Programming
Texas Department of Transportation
Department of Aviation
125 E. 11th Street
Austin, TX 78701-2483

Mr. Carlos Swoke
Director of Environmental Affairs
Texas Department of Transportation
125 East 11th Street
Austin, TX 78701-2483

Mr. Mark Wolfe
Executive Director
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711

Mr. Brad Jones
Regional Director
Texas Commission on Environmental Quality
3918 Canyon Dr.
Amarillo, TX 79109-4933

Mr. Jerry Patterson
Commissioner
Texas General Land Office
1700 North Congress Ave., Suite 935
Austin, TX 78701-1495

Mr. Milton Rister
Executive Director
Railroad Commission of Texas
P.O. Box 12967
Austin, TX 78711-2967

Ms. Terry Moore
Executive Director
Permian Basin Regional Planning Commission
P.O. Box 60660
Midland, TX 79711-0660

YOAKUM-STATE LINE 345 kV TRANSMISSION LINE
FEDERAL, STATE AND LOCAL AGENCIES

Mr. Tim Pierce
Executive Director
South Plains Association of Governments
P.O. Box 3730
Lubbock, TX 79452-3730

Mr. John Herron
Director of Conservation
The Nature Conservancy
318 Congress Avenue
Austin, TX 78701

Mr. Jerry Holden
Director of Conservation
Ducks Unlimited - Texas
915 Front Street
Richmond, TX 77469

Mr. David Bezanson
Program Director
The Nature Conservancy – North Texas
PO Box 26
Celeste, TX 75423

Mr. Pat Merkord
Executive Director
Native Prairies Association of Texas
2002-A Guadalupe Street PMB 290
Austin, TX 78705-5609

Ms. Blair Fitzsimons
Executive Director
Texas Agricultural Land Trust
4040 Broadway, Suite 430
San Antonio, TX 78209

Mr. Mark Steinbach
Executive Director
Texas Land Conservancy
P. O. Box 162481
Austin, TX 78716

Ms. Linda Palit
President
Texas Cave Management Association
P.O. Box 7427
Austin, TX 78713-7427

TEXAS

Yoakum County

The Honorable Jim Barron
County Judge
Yoakum County
P.O. Box 309
Plains, TX 79355

The Honorable Woodson W. Lindsey
Yoakum County Commissioner
Precinct 1
P.O. Box 309
Plains, TX 79355

The Honorable Ray Marion
Yoakum County Commissioner
Precinct 2
P.O. Box 309
Plains, TX 79355

The Honorable Ty Earl Powell
Yoakum County Commissioner
Precinct 3
P.O. Box 309
Plains, TX 79355

The Honorable Tim Addison
Yoakum County Commissioner
Precinct 4
P.O. Box 309
Plains, TX 79355

Mr. Michael Michalson
Superintendent
Plains ISD
P.O. Box 479
Plains, TX 79355-0479

Mr. Gary Davis
Superintendent
Denver City ISD
501 Mustang Ave
Denver City, TX 79323-2752

YOAKUM-STATE LINE 345 kV TRANSMISSION LINE
FEDERAL, STATE AND LOCAL AGENCIES

The Honorable Pamela K. Redman
Mayor
City of Plains
P.O. Box 550
Plains, TX 79355-0550

The Honorable Tommy Hicks
Mayor
Denver City
P.O. Box 1539
Denver City, TX 79323-1539

Gaines County

The Honorable Lance T. Celander
County Judge
Gaines County
P.O. Box 847
Seminole, TX 79360

The Honorable Danny Yocom
Gaines County Commissioner
Precinct 1
P.O. Box 847
Seminole, TX 79360

The Honorable Craig Belt
Gaines County Commissioner
Precinct 2
P.O. Box 847
Seminole, TX 79360

The Honorable Blair Tharp
Gaines County Commissioner
Precinct 3
P.O. Box 847
Seminole, TX 79360

The Honorable Biz Houston
Gaines County Commissioner
Precinct 4
P.O. Box 847
Seminole, TX 79360

Dr. Kevin Spiller
Superintendent
Seagraves ISD
P.O. Box 577
Seagraves, TX 79359-0577

Mr. Doug Harrriman
Superintendent
Seminole ISD
207 S. W. 6th St.
Seminole, TX 79360

Mr. Scott Allen
Superintendent
Loop ISD
P.O. Box
Loop, TX 79342-0917

The Honorable Brace Huse
Mayor
City of Seagraves
P.O. Box
Seagraves, TX 79359-0037

POWER ENGINEERS

7600B N CAPITAL OF TEXAS HWY
SUITE 320
AUSTIN, TX 78731 USA

PHONE 512-795-3700
FAX 512-795-3704

August 19, 2014
(Via Mail)

ENERGY
FACILITIES
COMMUNICATIONS
ENVIRONMENTAL

«Name»
«Title»
«Agency»
«Street_Address»
«City», «State» «Zip»

Re: Tuco-Yoakum-Hobbs 345 kV Transmission Line Project
Gaines, Hale, Hockley, Lubbock, Lynn, Terry, Lynn, and Yoakum Counties, Texas and Lea County, New Mexico.
POWER Engineers, Inc. Project Nos. 135321, 135607 and 135608

Dear «Name»:

Xcel Energy Inc. (Xcel) will be filing for a Certificate of Convenience and Necessity (CCN) with the Public Utility Commission of Texas (PUCT) and a Certificate of Public Convenience and Necessity (CPCN) with the New Mexico Public Regulation Commission (PRC) to design and construct a new 345 kilovolt (kV) transmission line in a study area within Gaines, Hale, Hockley, Lubbock, Lynn, Terry, Lynn, and Yoakum Counties, Texas and Lea County, New Mexico. The new transmission line will connect the existing Tuco Substation in Hale County and extend southwest until it reached the proposed Yoakum Substation in Yoakum County, Texas. The transmission line will continue from the Yoakum Substation southwest to the existing Hobbs Substation in Lea County, New Mexico. The location of the study area, existing substations and transmission lines are shown on the enclosed map.

POWER Engineers, Inc. (POWER) is preparing an Environmental Assessment (EA) and Alternative Route Analysis for Xcel to support their CCN and CPCN applications for the PUCT and PRC. POWER is gathering data on the existing environment and identifying environmental and land use constraints within the study area that will be used in the creation of an environmental and land use constraints map. POWER will identify potential alternative route segments that consider these environmental and land use constraints.

We are requesting that your agency/office provide information concerning environmental and land use constraints or other issues of interest to your agency/office within the study area. Your input will be an important consideration in the delineation and evaluation of alternative routes and in the assessment of potential impacts of those routes. In addition, we would appreciate receiving information about any permits, easements, or other approvals by your agency/office that you believe could affect this project, or if you are aware of any major proposed

development or construction in the study area. Upon certification of a final route for the proposed project, Xcel will identify and obtain necessary permits, if required, from your agency/office.

Thank you for your assistance with this proposed electric transmission line project. Please contact me by phone at 512-795-3700, extension 6903 or by e-mail at anastacia.santos@powereng.com if you have any questions or require additional information.

Sincerely,

Anastacia Santos
Project Manager

Enclosure:
Study Area Map

Sent Via Mail
DMS 135321
PER-01

OVERSIZED MAP

From: Lea Davenport 6900
To: "IMRextrev@nps.gov" (IMRextrev@nps.gov)
Cc: Anastacia Santos 6903
Subject: Tuco-Yoakum-Hobbs 345 kV Transmission Line Project
Date: Monday, August 25, 2014 5:09:26 PM
Attachments: Ltr to Mr. Wessels 08-25-2014.pdf
image003.png

Dear Mr. Wessels:

Xcel Energy Inc. (Xcel) will be filing for a Certificate of Convenience and Necessity (CCN) with the Public Utility Commission of Texas (PUCT) and a Certificate of Public Convenience and Necessity (CPCN) with the New Mexico Public Regulation Commission (PRC) to design and construct a new 345 kilovolt (kV) transmission line in a study area within Gaines, Hale, Hockley, Lubbock, Lynn, Terry, Lynn, and Yoakum Counties, Texas and Lea County, New Mexico. The new transmission line will connect the existing Tuco Substation in Hale County and extend southwest until it reached the proposed Yoakum Substation in Yoakum County, Texas. The transmission line will continue from the Yoakum Substation southwest to the existing Hobbs Substation in Lea County, New Mexico. The location of the study area, existing substations and transmission lines are shown on the enclosed map.

POWER Engineers, Inc. (POWER) is preparing an Environmental Assessment (EA) and Alternative Route Analysis for Xcel to support their CCN and CPCN applications for the PUCT and PRC. POWER is gathering data on the existing environment and identifying environmental and land use constraints within the study area that will be used in the creation of an environmental and land use constraints map. POWER will identify potential alternative route segments that consider these environmental and land use constraints.

We are requesting that your agency/office provide information concerning environmental and land use constraints or other issues of interest to your agency/office within the study area. Your input will be an important consideration in the delineation and evaluation of alternative routes and in the assessment of potential impacts of those routes. In addition, we would appreciate receiving information about any permits, easements, or other approvals by your agency/office that you believe could affect this project, or if you are aware of any major proposed
development or construction in the study area. Upon certification of a final route for the proposed project, Xcel will identify and obtain necessary permits, if required, from your agency/office.

Thank you for your assistance with this proposed electric transmission line project. Please contact me by phone at 512-795-3700, extension 6903 or by e-mail at anastacia.santos@powereng.com if you have any questions or require additional information.

Sincerely,

Anastacia Santos
Project Manager

Enclosure:
Study Area Map

Lea Davenport 2400

From: Jarvis, Jonathan H. <jonathan@austin.utexas.edu>
Sent: Wednesday, September 03, 2014 4:13 PM
To: Darren Schubert 5568
Subject: GIS Data: Project No. 135321
Attachments: TARL_3SEP2014_135321.zip

Darren:

The shapefiles containing the archeological site location data for your study area are attached in a zip file. The standard caveat applies: site location information is protected by the National Historic Preservation Act of 1966 (as amended), Title III §304 and by the Texas Antiquities Code §191.004, and is not intended for public distribution. Please let me know if you have any questions.

Best regards,
Jonathan

Jonathan H. Jarvis, MLA, M.S., RPA
Associate Director
Texas Archeological Research Laboratory
The University of Texas at Austin
Phone: 512/471-5959
www.utexas.edu/research/tarl/
www.texasbeyondhistory.net

Philosophia Krateìto Photôn

POWER ENGINEERS

TELEPHONE RECORD

DATE:	September 4, 2014	TIME OF CALL:	am
TO:	Anastacia Santos	PHONE NUMBER:	
FROM:	Judy TX Agricultural Land Trust	C:	
TYPED BY:	Anastacia Santos	PROJECT NUMBER:	135321, 135607, 135608
CLIENT:	Xcel Energy		
PROJECT NAME:	Tuco-Yoakum-Hobbs		
SUBJECT:	Initial Agency Correspondence Response		

MESSAGE

- Judy from TX Agricultural Land Trust called on behalf of Blair Fitzsimons (Executive Director) in response to the initial agency letter.
- Judy asked that POWER update their records to reflect their correct suite number (350).

Ms. Blair Fitzsimons
Executive Director
Texas Agricultural Land Trust
4040 Broadway, Suite 350
San Antonio, TX 78209

TEXAS GENERAL LAND OFFICE

JERRY PATTERSON, COMMISSIONER

September 5, 2014

Anastacia Santos
Power Engineers, Inc.
7600B N. Capital of Texas Hwy, Suite 320
Austin, Texas 78731-1190

Re: Tuco-Yoakum-Hobbs 345 kV Transmission Line Project
Gaines, Hale, Hockley, Lubbock, Lynn, Terry, and Yoakum Counties, Texas
POWER Engineers, Inc. Project Nos. 135321, 135607 and 135608

Dear Ms. Santos:

On behalf of Commissioner Patterson, I would like to thank you for your letter concerning the above referenced project.

Using your map depicting the project preliminary study area, it does not appear that the General Land Office will have any environmental issues or land use constraints at this time.

When a final route for this proposed project has been determined, please contact me and we can assess the route and determine if the project will cross any streambeds or Permanent School Fund land that would require an easement from our agency.

In the interim, if you would like to speak to me further on this project, I can be reached by email at glenn.rosenbaum@glo.texas.gov or by phone at (512) 463-8180.

Again, thank you for your inquiry.

Sincerely,

Glenn Rosenbaum

Glenn Rosenbaum
Team Leader, Right-of-Way Department
Asset Inspection-Professional Services Program

Texas General Land Office
Stephen F. Austin Building • 1700 North Congress Avenue, Texas 78701-1495
Post Office Box 12873 • Austin, Texas 78711-2873
Phone: 512-463-5001 • 800-998-4GLO
www.glo.state.tx.us

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF

September 8, 2014

Regulatory Division

SUBJECT: Project Number SWF-2014-00355, Tuco-Yoakum-Hobbs 345 kV Transmission Line Project

Anastacia Santos
Power Engineers
7600B North Capital of Texas Highway
Suite 320
Austin, TX 78731

Dear Ms. Santos:

Thank you for your letter received August 28, 2014, concerning a proposal by Xcel Energy Inc. to construct a new 345 kilovolt transmission line located in Gaines, Hale, Hockley, Lubbock, Lynn, Terry, Lynn, and Yoakum Counties, Texas. This project has been assigned Project Number SWF-2014-00355. Please include this number in all future correspondence concerning this project.

Mr. Darvin Messer has been assigned as the regulatory project manager for your request and will be evaluating it as expeditiously as possible.

You may be contacted for additional information about your request. For your information, please reference the Fort Worth District Regulatory Branch homepage at www.swf.usace.army.mil/Missions/Regulatory.aspx and particularly guidance on submittals at www.media.swf.usace.army.mil/pubdata/environ/regulatory/introduction/submital.pdf and mitigation at www.usace.army.mil/Missions/Regulatory/Permitting/Mitigation.aspx that may help you supplement your current request or prepare future requests.

If you have any questions about the evaluation of your submittal or would like to request a copy of one of the documents referenced above, please refer to our website at http://www.swf.usace.army.mil/Missions/Regulatory.aspx or contact Mr. Darvin Messer at the address above or telephone 817-886-1744 and refer to your assigned project number. Please note that it is unlawful to start work without a Department of the Army permit if one is required.

Please help the regulatory program improve its service by completing the survey on the following website: http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey

Stephen L Brooks
Chief, Regulatory Division

Texas Department of Transportation

AVIATION DIVISION
125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • 512/416-4500 • FAX 512/416-4510

Ms. Anastacia Santos
Power Engineers, Inc.
7600B N. Capitol of Texas Highway
Suite 320
Austin, Texas 78731

September 9, 2014

Dear Ms. Santos:

I received your letter dated August 25, 2014 concerning Powers Engineers projects number 135321, 135607, and 135608.

Title 14, US Code, Part 77 of the Federal Aviation Administration's (FAA) Federal Aviation Regulations (FAR) requires notice to the FAA if the facility to be constructed fits either of the below listed conditions:

77.9 a. Any construction or alteration that is more than 200 ft. AGL (Above Ground Level) at its site.

77.9 b.(1) 100 to 1 for a horizontal distance of 20,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway more than 3,200 ft. in actual length, excluding heliports.

(2) 50 to 1 for a horizontal distance of 10,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway no more than 3,200 ft. in actual length, excluding heliports.

(3) 25 to 1 for a horizontal distance of 5,000 ft. from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph (d) of this section

There are eleven public use airports in or near the study area:

Airport ID	Name	Latitude / Longitude	Longest runway
LBB	Lubbock Internatl.	33-39-49.2000N / 101-49-14.0000W	11,500
F83	Abernathy	33-50-45.2890N / 101-45-46.6120W	4,000
LLN	Levelland	33-33-09.1000N / 102-22-21.1000W	6,110
F98	Yoakum	33-13-01.9000N / 102-49-48.3000W	5,001
E06	Lee County, NM	32-57-14.2000N / 103-24-31.6000W	6,001
HOB	Hobbs, NM	32-41-15.0000N / 103-13-02.4000W	7,398
E57	Denver City	32-58-28.7742N / 102-50-42.3464W	5,780
GNC	Seminole	32-40-31.2000N / 102-39-09.6000W	5,381

F97	Seagraves	32-57-16.3920N / 102-32-27.2350W	4,010
2F5	Lamesa	32-45-22.7000N / 101-55-12.8000W	5,002
BFE	Brownfield	33-10-23.3000N / 102-11-34.5000W	5,218

There are no public use heliports in or near the study area.

If the criterion of FAR 77.9 is met, the FAA must be notified in four copies using FAA Form 7460-1, "Notice of Proposed Construction or Alteration". This form, supporting documents, and how to file electronically are available at http://oeaaa.faa.gov

Sincerely,

William B. Gunn
Compliance

POWER ENGINEERS

7600B N CAPITAL OF TEXAS HWY
SUITE 320
AUSTIN, TX 78731 USA

PHONE 512-795-3700
FAX 512 795-3704

August 25, 2014
(Via Mail)

RECEIVED
AUG 2 9 2014
TXDOT AVIATION DIVISION

ENERGY
GAS LINES
COMMUNICATIONS
ENVIRONMENTAL

Mr. Greg Miller
Director, Planning & Programming
Texas Department of Transportation
Department of Aviation
125 E. 11th Street
Austin, TX 78701-2483

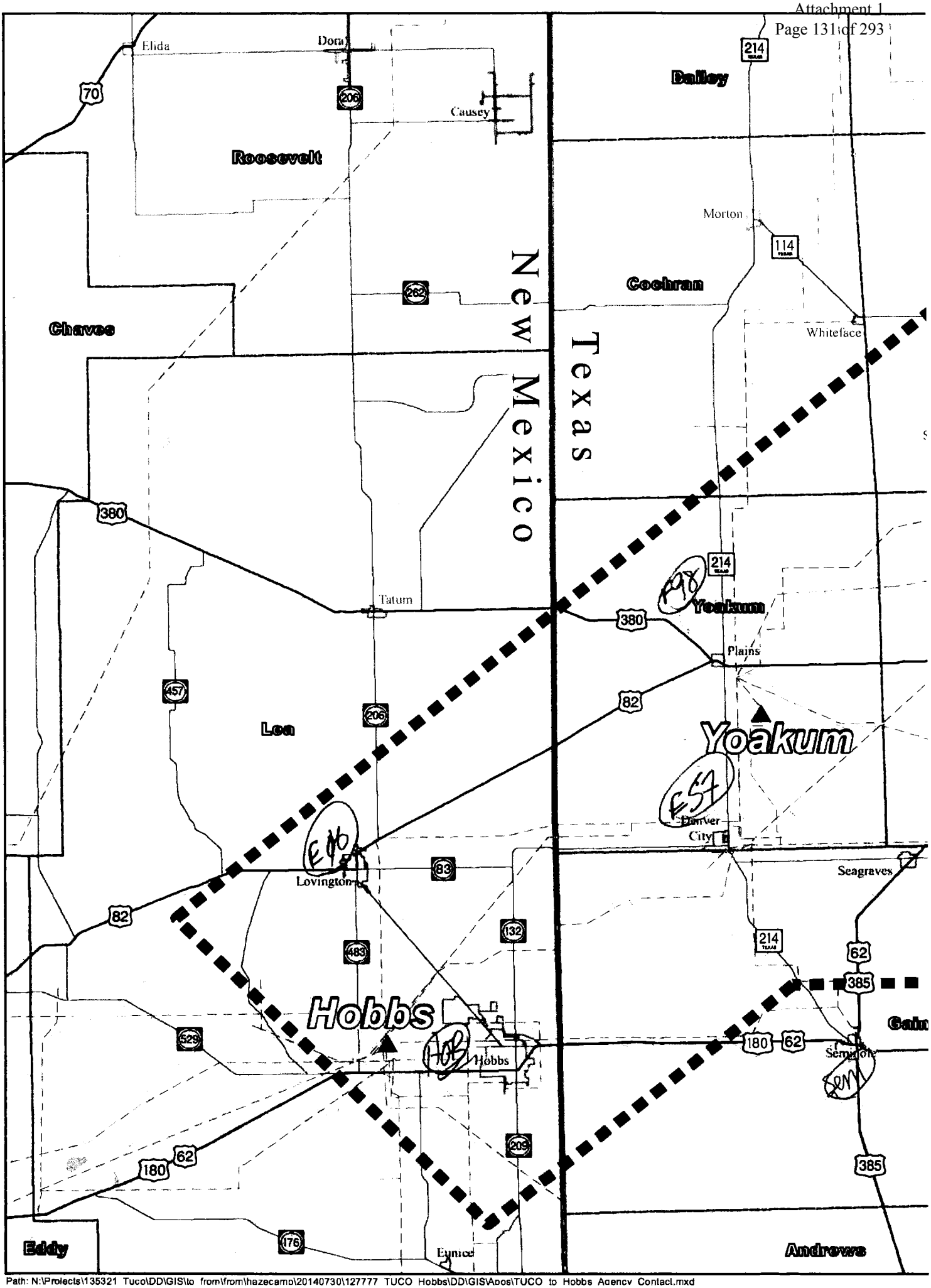
Re: Tuco-Yoakum-Hobbs 345 kV Transmission Line Project
Gaines, Hale, Hockley, Lubbock, Lynn, Terry, Lynn, and Yoakum Counties, Texas and Lea County, New Mexico.
POWER Engineers, Inc. Project Nos. 135321, 135607 and 135608

Dear Mr. Miller:

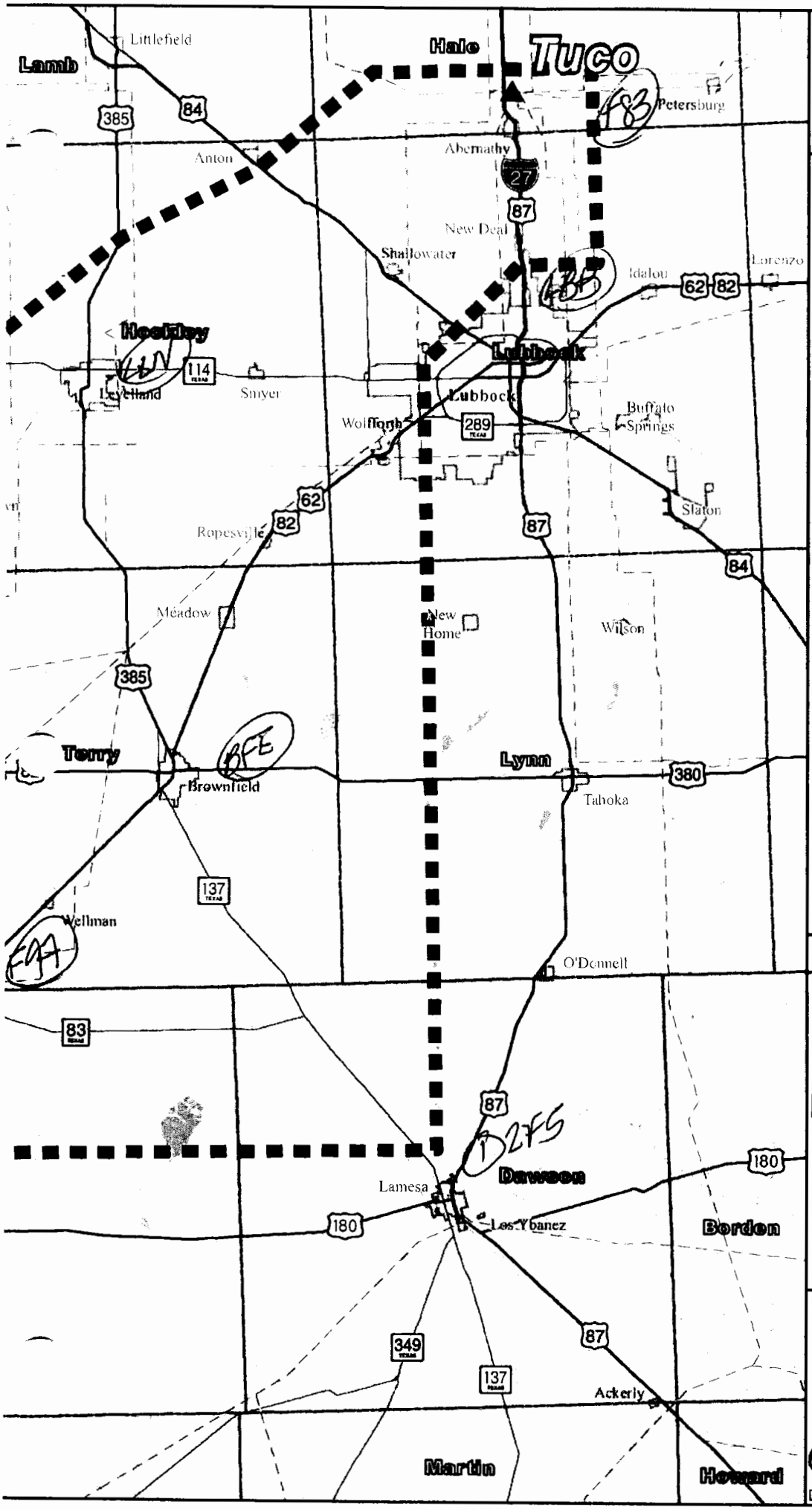
Xcel Energy Inc. (Xcel) will be filing for a Certificate of Convenience and Necessity (CCN) with the Public Utility Commission of Texas (PUCT) and a Certificate of Public Convenience and Necessity (CPCN) with the New Mexico Public Regulation Commission (PRC) to design and construct a new 345 kilovolt (kV) transmission line in a study area within Gaines, Hale, Hockley, Lubbock, Lynn, Terry, Lynn, and Yoakum Counties, Texas and Lea County, New Mexico. The new transmission line will connect the existing Tuco Substation in Hale County and extend southwest until it reached the proposed Yoakum Substation in Yoakum County, Texas. The transmission line will continue from the Yoakum Substation southwest to the existing Hobbs Substation in Lea County, New Mexico. The location of the study area, existing substations and transmission lines are shown on the enclosed map.

POWER Engineers, Inc. (POWER) is preparing an Environmental Assessment (EA) and Alternative Route Analysis for Xcel to support their CCN and CPCN applications for the PUCT and PRC. POWER is gathering data on the existing environment and identifying environmental and land use constraints within the study area that will be used in the creation of an environmental and land use constraints map. POWER will identify potential alternative route segments that consider these environmental and land use constraints.

We are requesting that your agency/office provide information concerning environmental and land use constraints or other issues of interest to your agency/office within the study area. Your input will be an important consideration in the delineation and evaluation of alternative routes and in the assessment of potential impacts of those routes. In addition, we would appreciate receiving information about any permits, easements, or other approvals by your agency/office that you believe could affect this project, or if you are aware of any major proposed



Path: N:\Projects\135321 Tuco\DD\GIS\to from\from\hazecamp\20140730\127777 TUCO Hobbs\DD\GIS\Apps\TUCO to Hobbs Agency Contact.mxd

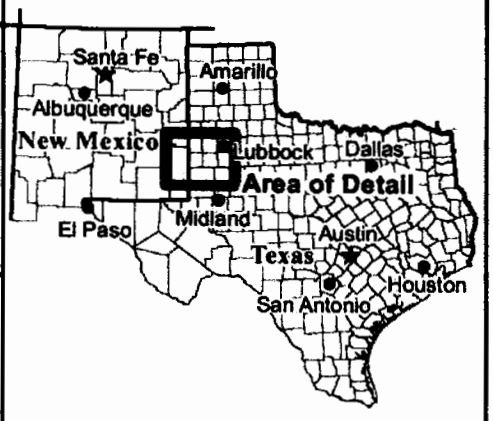


Project Area Map

TUCO-Yoakum-Hobbs 345 kV
Transmission Line Project

Legend

- Project Substation
- Study Area
- Existing Transmission Line
- Interstate Highway
- US Highway
- State Highway
- State Boundary
- County Boundary
- City Boundary
- Lake or Pond
- Perennial River or Stream
- Intermittent River or Stream
- Canal, Ditch, or Water Pipeline



0 5 10 15 20
Miles

N

POWER ENGINEERS

Xcel Energy

Date: 8/7/2014

From: Richard Hanson
To: Anastacia Santos 6903
Subject: Tuco-Yoakum-Hobbs 345 kV Transmission Line Project
Date: Monday, September 15, 2014 4:13:38 PM

Hi Anastacia,

Could you send me the shapefiles for the study area on the Tuco-Yoakum-Hobbs project? Thank you.

Rick Hanson
Wildlife Habitat Assessment Program
Texas Parks and Wildlife Department
1702 Landmark Lane
Lubbock, TX 79415
Office: (806) 761-4936
Richard.Hanson@tpwd.texas.gov

Texas Water Development Board

P.O. Box 13231, 1700 N. Congress Ave.
Austin, TX 78711-3231, www.twdb.texas.gov
Phone (512) 463-7847, Fax (512) 475-2053

September 15, 2014

Ms. Anastacia Santos
Project Manager
POWER Engineers
7600B North Capital of Texas Highway, Suite 320
Austin, TX 78731

Re: Tuco-Yoakum-Hobbs 345 kV Transmission Line Project. Gaines, Hale, Hockley, Lubbock, Lynn, Terry, and Yoakum Counties, Texas and Lea County, New Mexico. POWER Engineers, Inc. Project Nos 135321, 135607 and 135608

Dear Ms. Santos:

We received your letter dated August 25, 2014 requesting information concerning environmental assessment and alternative route analysis for the proposed new 345 kilovolt (kV) transmission line that would connect the existing Excel Energy Inc. Tuco Substation in Hale County and the existing Hobbs Substation located in Lea County through a proposed Yoakum Substation in Yoakum County.

To plan for the state's water resources and provide affordable water and wastewater services, the Texas Water Development Board (TWDB) provides planning, geographic data collection and dissemination, and financial and technical assistance services. TWDB is not a regulatory agency and does not issue any permits. Based on the map and information provided, it appears that the proposed transmission line would not conflict with any recommended water management strategies in the regional or state water plans. Therefore, we have no specific comments in regard to the proposed project.

If you have any further questions, please contact Sarah Backhouse of my staff at (512) 936-2387.

Sincerely,

Jeff Walker
Deputy Executive Administrator
Water Supply and Infrastructure

From: Anastacia Santos 6903
To: "Richard Hanson"
Subject: RE: Tuco-Yoakum-Hobbs 345 kV Transmission Line Project
Date: Tuesday, September 16, 2014 5:02:00 PM
Attachments: study_area.shx
study_area.dbf
study_area.prj
study_area.sbn
study_area.sbx
study_area.shp
study_area.shp.xml

Richard,

Please see attached shapefile of the study area boundary for the Tuco-Yoakum-Hobbs Project.

Anastacia Santos
Project Manager
7600-B N. Capital of Texas Hwy., Suite 320
Austin, Texas 78731
(512) 795-3700 ext. 6903 office
(512) 585-3202 cell

POWER Engineers, Inc.
Energy ▪ Facilities ▪ Communications ▪ Environmental
www.powereng.com

From: Richard Hanson [mailto:Richard.Hanson@tpwd.texas.gov]
Sent: Monday, September 15, 2014 3:39 PM
To: Anastacia Santos 6903
Subject: Tuco-Yoakum-Hobbs 345 kV Transmission Line Project

Hi Anastacia,

Could you send me the shapefiles for the study area on the Tuco-Yoakum-Hobbs project? Thank you.

Rick Hanson
Wildlife Habitat Assessment Program
Texas Parks and Wildlife Department
1702 Landmark Lane
Lubbock, TX 79415
Office: (806) 761-4936
Richard.Hanson@tpwd.texas.gov

From: david_hurd@nps.gov on behalf of IMRextrev, NPS
To: Lea Davenport 6900
Cc: Anastacia Santos 6903
Subject: Re: Tuco-Yoakum-Hobbs 345 kV Transmission Line Project
Date: Monday, September 22, 2014 4:49:23 PM
Attachments: image003.png
RR-14-0096 Tuco-Yoakum-Hobbs 345 kV Transmission Line Project Response (1).pdf

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Dear Mr. Davenport,

The National Park Service (NPS) would like to thank you for the opportunity to be involved in your project. The NPS has submitted the attached comment document for the project mentioned above. If you have any questions or need additional assistants, please feel free to contact me.

Sincerely,

David Hurd

National Park Service
Intermountain Region External Review Team
Serving MT, UT, WY, CO, AZ, NM, OK, TX
imrextrev@nps.gov

On Mon, Aug 25, 2014 at 4:09 PM, Lea Davenport <lea.davenport@powereng.com> wrote:

> Dear Mr. Wessels:
>
> Xcel Energy Inc. (Xcel) will be filing for a Certificate of Convenience and Necessity (CCN) with the Public Utility Commission of Texas (PUCT) and a Certificate of Public Convenience and Necessity (CPCN) with the New Mexico Public Regulation Commission (PRC) to design and construct a new 345 kilovolt (kV) transmission line in a study area within Gaines, Hale, Hockley, Lubbock, Lynn, Terry, Lynn, and Yoakum Counties, Texas and Lea County, New Mexico. The new transmission line will connect the existing Tuco Substation in Hale County and extend southwest until it reached the proposed Yoakum Substation in Yoakum County, Texas. The transmission line will continue from the Yoakum Substation southwest to the existing Hobbs Substation in Lea County, New Mexico. The location of the study area, existing substations and transmission lines are shown on the enclosed map.
>
> POWER Engineers, Inc. (POWER) is preparing an Environmental Assessment (EA) and Alternative Route Analysis for Xcel to support their CCN and CPCN applications for the PUCT and PRC. POWER is gathering data on the existing environment and identifying environmental and land use constraints within the study area that will

be used in the creation of an environmental and land use constraints map. POWER will identify potential alternative route segments that consider these environmental and land use constraints.

We are requesting that your agency/office provide information concerning environmental and land use constraints or other issues of interest to your agency/office within the study area. Your input will be an important consideration in the delineation and evaluation of alternative routes and in the assessment of potential impacts of those routes. In addition, we would appreciate receiving information about any permits, easements, or other approvals by your agency/office that you believe could affect this project, or if you are aware of any major proposed development or construction in the study area. Upon certification of a final route for the proposed project, Xcel will identify and obtain necessary permits, if required, from your agency/office.

Thank you for your assistance with this proposed electric transmission line project. Please contact me by phone at 512-795-3700, extension 6903 or by e-mail at anastacia.santos@powereng.com if you have any questions or require additional information.

Sincerely,

Anastacia Santos

Project Manager

Enclosure:

Study Area Map

United States Department of the Interior

National Park Service

Midwest Region
601 Riverfront Drive
Omaha, Nebraska 68102-4226

650.2(MWR-P/G)

SEP 2 2 2014

Mr. David Hurd
Environmental Protection Specialist
NPS – Intermountain Regional Office
12795 W. Alameda Parkway
Denver, Colorado 80225-0287

Subject: RR-14/0096 Tuco-Yoakum-Hobbs 345 kV Transmission Line Project

Dear Mr. Hurd:

Our office has reviewed the subject project in relation to any possible conflicts with the Land and Water Conservation (LWCF) and Urban Park and Recreation Recovery programs. There are 18 LWCF projects sponsored by the communities of Lovington and Hobbs in Lea County within the proposed New Mexico study area. Accordingly, each of these sites is encumbered by the LWCF Act (Public Law 88-578, as amended) and specifically Section 6(f)(3) of the Act which states: "No property acquired or developed with assistance under this section shall without the approval of the Secretary (of the Interior), be converted to other than public outdoor recreation uses. The Secretary shall approve such conversion only if he finds it to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as he deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location."

We therefore recommend Power Engineers, Inc. officials contact Ms. Judy Kowalski, administrator for the LWCF program in New Mexico, for additional consultation in determining the exact location for each of these assisted parks. Ms. Kowalski's mailing address is:

Ms. Judy Kowalski
Bureau Chief
Design and Development Bureau
New Mexico Parks Division
Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Ms. Kowalski's phone number is 505-476-3387.

The LWCF projects are:

Project Number	Project Title	Sponsor
35-00122	Chaparral Park	City of Lovington
35-00272	Hobbs Recreation Improvements	City of Hobbs
35-00333	Snyder Street Park Addition	City of Hobbs
35-00369	Hobbs Mini Parks Project	City of Hobbs
35-00388	Bender and Jefferson Street Park	City of Hobbs
35-00464	Hobbs Tennis Courts	City of Hobbs
35-00600	Hobbs Playground & Ballfields	City of Hobbs
35-00680	Hobbs Softball All Purpose Fields	City of Hobbs
35-00681	Hobbs Edison/Heizer Park	City of Hobbs
35-00780	Taylor School Mini Park	City of Hobbs
35-00821	Lovington Softball Fields	City of Lovington
35-00832	Ballfield Complex Improvements	City of Hobbs
35-00912	Chaparral Park Footpath	City of Lovington
35-00966	Hobbs Recreation Improvements	City of Hobbs
35-01029	Little League Field #2	City of Lovington
35-01056	College Lane Elementary School	Hobbs School District
35-01098	South Dal Paso Park	City of Hobbs
35-01189	Chaparral Park Swimming Pool	City of Lovington

We appreciate the opportunity to review this project. If you have any questions or concerns regarding these comments, you may contact me at 402-661-1552.

Sincerely,

Kelly A. Pearce
Program Officer
State & Local Assistance Programs

cc:
Ms. Judy Kowalski, Bureau Chief, Design and Development Bureau, New Mexico Parks Division, Energy, Minerals and Natural Resources Department, 1220 South St. Francis Drive Santa Fe, New Mexico 87505

Permian Basin Regional Planning Commission
P.O. BOX 60660 • 2910 LAFORCE BOULEVARD • MIDLAND, TEXAS 79711-0660 • (432) 563-1061 • FAX (432) 563-1728

TERRI MOORE
Executive Director

September 22, 2014

Ms. Anastacia Santos
Project Manager
Power Engineers
7600B N. Capital of Texas Hwy, Suite 320
Austin, TX 78731

Re: Tuco-Yoakum-Hobbs 345 kV Transmission Line Project
Gaines County, Texas
POWER Engineers, Inc. Project Nos. 135321, 135607 and 135608

Dear Ms. Santos:

The Permian Basin Regional Planning Commission (PBRPC) has received a letter requesting comment on a proposed project by Xcel Energy Inc. Thank you for the notification.

The proposed project affects one county in the Permian Basin Region – Gaines County. The PBRPC does not have a comment regarding the proposed project. It is recommend the Gaines County Judge, Lance Celander be notified and provided opportunity to review the project and determine land use constraints and environmental issues. His contact information is as follows:

The Honorable Lance Celander
Gaines County Judge
POB 847
Seminole, TX 79360

The Permian Basin Regional Planning Commission supports the economic and community development opportunities afforded to the region. Please contact me if I can provide other information.

Sincerely,

Virginia Belew
Regional Services Director

TEXAS HISTORICAL COMMISSION
real places telling real stories

September 22, 2014

Anastacia Santos
Power Engineering, Inc.
7600B N. Capital of Texas Hwy
Austin, TX 78731

Re: Project review under the National Historic Preservation Act and the Antiquities Code of Texas: Tuco-Yoakum-Hobbs 345 kV transmission line project (PUC: 201413223)

Dear Ms. Santos,

Thank you for your correspondence describing the above referenced project. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission.

The review staff, led by Tiffany Osburn, has completed its review. According to our maps, the proposed transmission line project will cross an area containing several previously recorded archeological sites. Much of the study area, however, has never been surveyed by a professional archeologist and is likely to contain additional historic and archeological resources.

We recommend consulting with a professional archeologist early in your route selection process to allow avoidance of recorded archeological resources. Your archeologist should also identify areas high probability areas (HPAs) for further investigation and submit their scope of work for our concurrence once the route is selected. You can obtain lists of most professional archeologists in Texas on-line at www.rpanet.org or http://www.council oftexasarcheologists.org. Please note that other professional archeologists meeting the qualifying standards may be used; see these standards at http://www.cr.nps.gov /local-law/arch_stnds_9.htm.

Additionally, if there any buildings or structures 45 years or older that are directly or indirectly affected by the project, as determined by the area of potential effects (APE), these should be documented in the submission. Documentation should include detailed site aerial photographs or maps of the project location with notations of all buildings or structures in relation to the project location and/or APE, and high resolution colored photographs of all buildings or structures in the project area and/or APE.

Thank you for your assistance in this state review process, and for your efforts to preserve the irreplaceable heritage of Texas. If you have any questions concerning our review or if we can be of further assistance, please contact Tiffany Osburn at 512/463-8883.

Sincerely,

for
Mark Wolfe, State Historic Preservation Officer

MW/to

From: Montano, Andrew
To: Anastacia Santos 6903
Subject: Tuco-Yoakum-Hobbs 345-kV Transmission Line Project
Date: Wednesday, September 24, 2014 5:16:16 PM

Dear Anastacia

Hello. I'm the Renewable Energy Specialist for the National Park Service in Denver, CO. I work with other federal agencies and other stakeholders involved with renewable energy projects (wind/solar/biomass) as well as proposed new transmission lines throughout the Intermountain Region. We recently received your letter inviting us to provide comment on your proposed Tuco-Yoakum-Hobbs 345-kV Transmission Line Project. I also believe that we recently submitted comments to you regarding this proposal.

I'm writing you today to see if I could be included on correspondence from your company regarding any future milestones that are coming due on your environmental review. I'd greatly appreciate being added.

I hope that we provided you with helpful comments, and I also hope that should you have any questions of the NPS, I'll be your point of contact regarding any of the comments that we submitted recently. Please do not hesitate to contact me.

Thank you for your time and inclusion in your proposed action.

Andrew
Andrew M. Montaño, PMP
Renewable Energy Specialist | Natural Resources | IMR
National Park Service | Department of the Interior
12795 West Alameda Parkway, Denver, CO 80228
Office: 303.969.2439 | Mobile: 720.376.2935

Pleasure in the job puts perfection in the work. - Aristotle

From: Anastacia Santos 6903
To: "Montano, Andrew"
Subject: RE: Tuco-Yoakum-Hobbs 345-kV Transmission Line Project
Date: Thursday, September 25, 2014 10:18:00 AM

Andrew,

We did receive comments from your agency – thank you. I will keep you informed about upcoming milestones for the project (Public Open House Meetings, Application Submittals, etc.)

Anastacia Santos
Project Manager
7600-B N. Capital of Texas Hwy., Suite 320
Austin, Texas 78731
(512) 795-3700 ext. 6903 office
(512) 585-3202 cell

POWER Engineers, Inc.
Energy ▪ Facilities ▪ Communications ▪ Environmental
www.powereng.com

From: Montano, Andrew [mailto:andrew_montano@nps.gov]
Sent: Wednesday, September 24, 2014 5:16 PM
To: Anastacia Santos 6903
Subject: Tuco-Yoakum-Hobbs 345-kV Transmission Line Project

Dear Anastacia

Hello. I'm the Renewable Energy Specialist for the National Park Service in Denver, CO. I work with other federal agencies and other stakeholders involved with renewable energy projects (wind/solar/biomass) as well as proposed new transmission lines throughout the Intermountain Region. We recently received your letter inviting us to provide comment on your proposed Tuco-Yoakum-Hobbs 345-kV Transmission Line Project. I also believe that we recently submitted comments to you regarding this proposal.

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Thank you for your time and inclusion in your proposed action.

Andrew

Andrew M. Montaño, PMP
Renewable Energy Specialist | Natural Resources | IMR
National Park Service | Department of the Interior
12795 West Alameda Parkway, Denver, CO 80228
Office: 303.969.2439 | Mobile: 720.376.2935

Pleasure in the job puts perfection in the work. - Aristotle

TEXAS AGRICULTURAL LAND TRUST

Conserving Texas Land For Future Generations

September 25, 2014

Ms. Anastacia Santos
Power Engineers
7600B N Capital of Texas Hwy
Suite 320
Austin, TX 78731

RE: Tuco-Yoakum-Hobbs 345 kV Transmission Line Project
POWER Engineers, Inc. Project Nos. 135321, 135607 and 135608

Dear Ms. Santos,

We are in receipt of your letter of August 25 regarding the above referenced project. Please be advised that our organization is actively working in Cochran, Hockley, Lubbock, Yoakum, Terry, Lynn, Gaines and Dawson Counties to implement voluntary conservation measures on private lands related to the recent listing of the Lesser Prairie Chicken by USFWS on the threatened species list. Properties in these counties fall in the historic range of this species. We believe that this is an environmental and land use issue of interest which merits consideration. If you need additional information, please do not hesitate to contact me on my or at my office, 210-826-0074.

Very Truly Yours,

Allison Elder
Vice-President & General Counsel

USDA
United States Department of Agriculture

Natural Resources
Conservation Service

State Office

101 S. Main Street
Temple, TX 76501
Voice 254.742.9800
Fax 254.742.9819

September 29, 2014

Power Engineers
7600B N Capital of Texas Hwy
Suite 320
Austin, TX 78731

Attention: Anastacia Santos

Subject: LNU-Farmland Protection
Proposed Tuco-Yoakum-Hobbs 345 kV Transmission Line Project
Gaines, Hale, Hockley, Lubbock, Lynn, Terry, and Yoakum
Counties, Texas and Lea County, New Mexico

We have reviewed the information provided in your correspondence dated August 25, 2014 concerning the transmission line in Gaines, Hale, Hockley, Lubbock, Lynn, Terry, and Yoakum Counties, Texas and Lea County, New Mexico. This review is part of the National Environmental Policy Act (NEPA) evaluation for Public Utility Commission of Texas (PUCT). We have evaluated the proposed site as required by the Farmland Protection Policy Act (FPPA).

The proposed project is exempt because transmission lines are not a conversion of Important Farmlands and the site can still be used after construction. The Farmland Conversion Impact Rating (Form AD-1006) indicating the exemption is enclosed. We encourage the use of accepted erosion control methods during the construction of this project.

If you have any questions, please contact me at (254) 742-9826, Fax (254) 742-9859 or by email at micki.yoder@tx.usda.gov.

Sincerely,

Micki Yoder

Micki Yoder
NRCS Soil Conservationist

Attachment

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request August 25, 2014
Name of Project Tuco-Yoakum-Hobbs 345K Transmission Line	Federal Agency Involved PUCT
Proposed Land Use	County and State Gaines, Hale, Hockley, Lubbock, Lynn, Terry, and Yoakum Counties, Texas and Lea County, New Mexico
PART II *(To be completed by NRCS)*	Date Request Received By NRCS September 23, 2014

Does the site contain prime, **unique, statewide** or **local important farmland?** *(If no, the FPPA does not apply - do not complete additional parts of this form)*	YES ☐	NO ☒	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %		Amount of Farmland As Defined in FPPA Acres: %	
Name of Land Evaluation System Used	Name of State or Local Site Assessment System		Date Land Evaluation Returned by NRCS 9-29-14	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly				
B. Total Acres **To Be Converted Indirectly**				
C. Total Acres In Site				
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide Important or Local Important Farmland				
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value				
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)				
PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)*	**Maximum Points**	Site A	Site B	Site C	Site D
1. Area In Non-urban Use	(15)				
2. Perimeter In Non-urban Use	(10)				
3. Percent Of Site Being Farmed	(20)				
4. Protection Provided By State and Local Government	(20)				
5. Distance From Urban Built-up Area	(15)				
6. Distance To Urban Support Services	(15)				
7. Size Of Present Farm Unit Compared To Average	(10)				
8. Creation Of Non-farmable Farmland	(10)				
9. Availability Of Farm Support Services	(5)				
10. On-Farm Investments	(20)				
11. Effects Of Conversion On Farm Support Services	(10)				
12. Compatibility With Existing Agricultural Use	(10)				
TOTAL SITE ASSESSMENT POINTS	160				
PART VII ***(To be completed by Federal Agency)***					
Relative Value Of Farmland *(From Part V)*	100				
Total Site Assessment *(From Part VI above or local site assessment)*	160				
TOTAL POINTS ***(Total of above 2 lines)***	260				

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? YES ☐ NO ☐

Reason For Selection:

Name of Federal agency representative completing this form:	Date:

(See Instructions on reverse side) **Form AD-1006 (03-02)**

USDA

United States Department of Agriculture

Natural Resources
Conservation Service

State Office

101 S. Main Street
Temple, TX 76501
Voice 254.742.9800
Fax 254.742.9819

For Informational Purposes

To Whom It May Concern:

The official source for current soil survey information is Web Soil Survey at http://websoilsurvey.nrcs.usda.gov. Enclosed is a pamphlet about the website.

Farmland Classification maps can be obtained by following the steps below:

Delineate your area of interest (AOI) and create an AOI, or create an AOI from a zipped shape file. Go to the Soil Data Explorer tab, then the Suitability's and Limitations for Use tab, and then under the Land Classifications list of reports, run the Farmland Classification report. Print or save the report to a file, or add it to the shopping cart and produce a Custom Soil Resource Report to submit to us electronically, or print it out for mailing.

NRCS Farmland Policy Protection Act Form AD-1006 or NRCS-CPA-106 can be obtained at the following URL's respectively:
http://www.usda.gov/rus/water/ees/pdf/ad1006.pdf
http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1045395.pdf

NRCS Conservation Easements for Texas can be obtained at the following URL to determine if your project overlaps with any conservation easements:
http://www.tx.nrcs.usda.gov/easements.html

NRCS Conservation Easements by state can be obtained at the following
URL:http://datagateway.nrcs.usda.gov/GDGOrder.aspx

If you have any questions, please contact the Texas State Soil Scientist at (254) 742-9863.

Soil Survey

Soil survey data are produced by the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture Natural Resources Conservation Service and other federal agencies, state agencies including the agricultural experiment stations, and local governments.

Web Soil Survey (WSS)

The Web Soil Survey provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the Natural Resources Conservation Service (NRCS) of the United States Department of Agriculture (USDA). The WSS:

- Provides predominantly digital soil survey publications.
- Provides the means for quick delivery of information.
- Provides electronic access to full text of soil survey report contents.
- Provides access to the most current soil survey publications.
- Allows customers to get just the information they want.

Current, Custom Soil Maps & Reports Fast. Free. Friendly.

Web Soil Survey

http://websoilsurvey.nrcs.usda.gov

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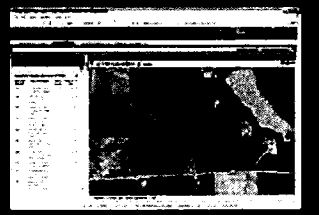

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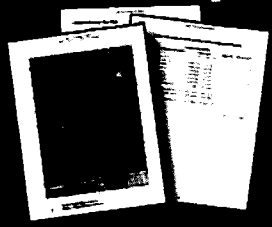

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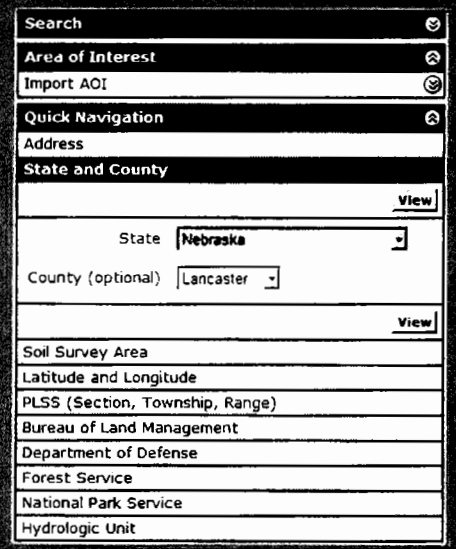
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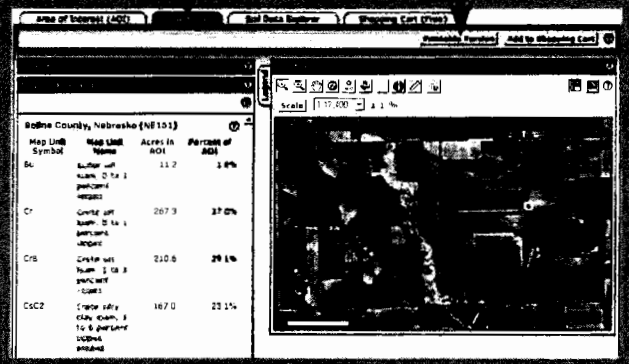
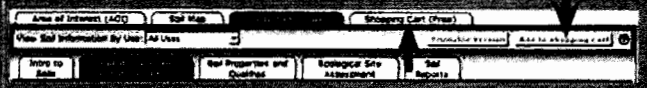
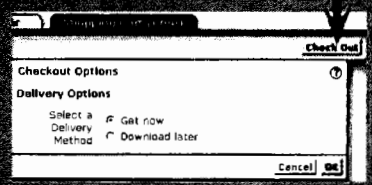
Bureau of Land Management
Department of Defense
Forest Service
National Park Service
Hydrologic Unit



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Area of Interest Interactive Map
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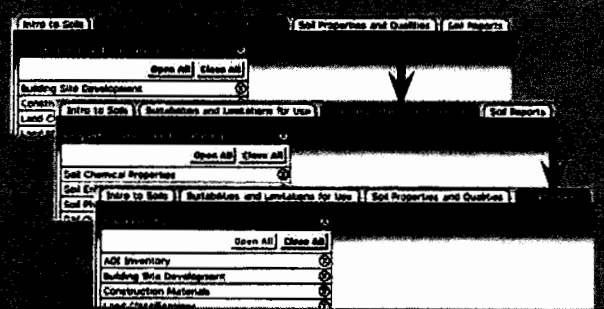

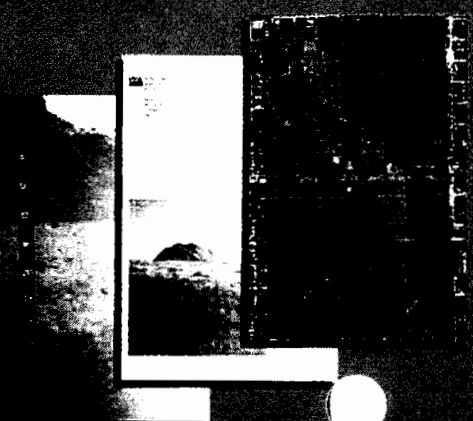

TEXAS PARKS & WILDLIFE

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October 6, 2014

Ms. Anastacia Santos
Power Engineers, Inc.
7600B N Capital of Texas Hwy
Austin, TX 78731

RE: Tuco-Yoakum-Hobbs 345 kV Transmission Line Project; Gaines, Hale, Hockley, Lubbock, Lynn, Terry, and Yoakum Counties, Texas and Lea County, New Mexico

Dear Ms. Santos:

Texas Parks and Wildlife Department (TPWD) received the preliminary information request regarding the above-referenced proposed transmission line project. TPWD staff has reviewed the information provided and offers the following comments concerning this project. Please note that TPWD does not maintain detailed information about natural resources or managed areas outside of Texas. Please contact the New Mexico Department of Game and Fish regarding potential impacts to natural resources located in the study area in New Mexico.

TPWD Wildlife Habitat Assessment Program is now accepting projects through electronic submittal. Future project review requests can be submitted to WHAB@tpwd.texas.gov. If submitting requests electronically, please include geographic location files when available (e.g. GIS shape file, .kmz, etc.).

Please be aware that a written response to a TPWD recommendation or informational comment received by a state governmental agency may be required by state law. For further guidance, see the Texas Parks and Wildlife Code, Section 12.0011, which can be found online at http://www.statutes.legis.state.tx.us/Docs/PW/htm/PW.12.htm#12.0011. For tracking purposes, please refer to TPWD project number 33466 in any return correspondence regarding this project.

Project Description

Xcel Energy Inc. (Xcel) will be filing for a Certificate of Convenience and Necessity (CCN) with the Public Utility Commission of Texas (PUC) and a Certificate of Public Convenience and Necessity (CPCN) with the New Mexico Public Regulation Commission (PRC) to design and construct a new

4200 SMITH SCHOOL ROAD
AUSTIN, TEXAS 78744-3291
512.389.4800
www.tpwd.texas.gov

345 kilovolt (kV) transmission line in a study area within Gaines, Hale, Hockley, Lubbock, Lynn, Terry, and Yoakum Counties, Texas and Lea County, New Mexico. The new transmission line will connect the existing Tuco Substation in Hale County and extend southwest until it reaches the proposed Yoakum Substation in Yoakum County, Texas. The transmission line will continue from the Yoakum Substation southwest to the existing Hobbs Substation in Lea County, New Mexico.

Recommendation: TPWD recommends using existing facilities whenever possible. Where new construction is the only feasible option, TPWD recommends routing new transmission lines along existing roads, pipelines, transmission lines, or other utility right-of-way (ROW) and easements to reduce habitat fragmentation. By utilizing existing utility corridors, county roads and highway ROWs, adverse impacts to fish and wildlife resources would be mitigated by avoiding and/or minimizing the impacts to undisturbed habitats. Please see the TPWD Recommendations for Electrical Transmission/Distribution Line Design and Construction found online at http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/habitat_assessment/tools.phtml. Please review the recommendations and incorporate these measures into design and construction plans.

Federal Laws

Clean Water Act

Section 404 of the Clean Water Act establishes a federal program to regulate the discharge of dredged and fill material into the waters of the U.S., including wetlands. The U.S. Army Corps of Engineers (USACE) and the Environmental Protection Agency are responsible for regulating water resources under this act. Although the regulation of isolated wetlands has been removed from the USACE permitting process, both isolated and jurisdictional wetlands provide habitat for wildlife and help protect water quality.

As seen on the attached map, numerous playa lakes are located within the study area.

Recommendation: TPWD recommends Xcel consult with the USACE for potential impacts to waters of the U.S. including jurisdictional

determinations, delineations, and mitigation. All waterways and associated floodplains, riparian corridors, playa lakes, and wetlands provide valuable wildlife habitat and should be protected to the maximum extent possible. Natural buffers contiguous to any wetlands or aquatic systems should remain undisturbed to preserve wildlife cover, food sources, and travel corridors. During construction, trucks and equipment should use existing bridge or culvert structures to cross creeks. Destruction of inert microhabitats in waterways such as snags, brush piles, fallen logs, creek banks, pools, and gravel stream bottoms should be avoided, as these provide habitat for a variety of fish and wildlife species and their food sources. Erosion controls and sediment runoff control measures should be installed prior to construction and maintained until disturbed areas are permanently revegetated using site specific native vegetation. Measures should be properly installed in order to effectively minimize the amount of sediment and other debris from entering the waterway.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits taking, attempting to take, capturing, killing, selling/purchasing, possessing, transporting, and importing of migratory birds, their eggs, parts and nests, except when specifically authorized by the Department of the Interior. This protection applies to most native bird species, including ground nesting species. The USFWS Migratory Bird Office can be contacted at (505) 248-7882 for more information on potential impacts to migratory birds.

As stated above, numerous playa lakes are located within the study area. Please note that playa lakes are important habitat features that are used by a host of wildlife species including large numbers of waterfowl and predator species. There is potential for electrocution and collision of large-bodied waterfowl and avian predators with electrical wires near these upland lakes. Direct loss to wildlife from collisions with wires or from electrocution may be less significant than the potential for disease created by decomposition after these fatalities. Indirect adverse impacts imposed by these collisions and subsequent decomposition of animal tissue within a water regime significantly contributes to the concentration of botulism bacteria that is highly toxic and often fatal to wildlife. During disease epidemics, playa lakes that are highly concentrated with botulism bacteria can have devastating adverse impacts on the remaining waterfowl and wildlife populations which use them.

Recommendation: TPWD recommends Xcel route the transmission line to avoid crossing or disturbing water resources in the project area to the extent feasible. Lines that cross or are located near playa lakes should have line markers installed at the crossings or closest points to the drainages to reduce potential collisions by birds flying along or near the drainages. To prevent electrocution of perching raptors, raptor protection measures such as adequate conductor spacing, perch guards, and insulated jumper wires should also be used.

For additional information, please see the guidelines published by USFWS and the Avian Power Lines Interaction Committee (APLIC) in the updated guidance document Reducing Avian Collisions with Power Lines: State of the Art in 2012. This manual, released on December 20, 2012, identifies best practices and provides specific guidance to help electric utilities and cooperatives reduce bird collisions with power lines. A companion document, Suggested Practices for Avian Protection on Power Lines, was published by APLIC and the USFWS in 2006. For more information on both documents, please visit www.aplic.org.

Endangered Species Act

Federally-listed animal species and their habitat are protected from "take" on any property by the Endangered Species Act (ESA). Take of a federally-listed species can be allowed if it is "incidental" to an otherwise lawful activity and must be permitted in accordance with Section 7 or 10 of the ESA. Any take of a federally-listed species or its habitat without the required take permit (or allowance) from the USFWS is a violation of the ESA.

Lesser prairie-chicken (*Tympanuchus pallidicinctus*) – Federal-listed Threatened

On March 27, 2014, the Lesser prairie-chicken (LPC) was listed as a threatened species under the ESA, with the final listing rule in effect as of May 12, 2014. Harming or harassing birds or destroying habitat for this species through industry development may constitute take under the act, which can result in civil and criminal penalties.

The LPC Interstate Working Group, which includes a representative from TPWD, developed the LPC Range-Wide Conservation Plan (RWP) and

submitted it to the USFWS for consideration during deliberations on the proposed listing of this species. This voluntary RWP is administered by the Western Association of Fish and Wildlife Agencies (WAFWA) and the Foundation for Western Fish and Wildlife. Participants are required to document their commitment by signing a WAFWA Certificate of Participation (WCP) and entering into the accompanying WAFWA Conservation Agreement or signing onto other permitting mechanisms held by WAFWA through the RWP. Additional information including a link to the RWP can be found at http://www.wafwa.org/index.html .

On October 23, 2013, after an extensive review, the USFWS found the RWP to be consistent with criteria proposed for conserving the LPC. Concurrent with the listing rule, the USFWS also announced a final special rule under section 4(d) of the ESA to allow the five range states to continue to manage conservation efforts for the LPC and avoid further regulation of activities that are covered under the RWP.

Construction, operations, maintenance, decommissioning, and remediation of power lines can be considered Covered Activities under the RWP. The Covered Area of the RWP includes public and private property that currently provides or could potentially provide suitable habitat for the LPC within the current estimated occupied range of the LPC and 10 miles around that range (EOR+10). The Covered Area is represented in the Southern Great Plains Crucial Habitat Assessment Tool (CHAT).

As seen on the attached map, portions of the study area contain all four CHAT categories. In addition, documented occurrences of this species have been recorded in the study area.

> **Recommendation:** Enrollment is recommended for sites that are within the EOR+10 or where the impact buffer of a new project extends into the EOR+10. Given the location of the proposed project in the EOR+10, TPWD recommends Xcel enroll in the voluntary RWP for this project as well as any future projects within the EOR+10.

The RWP includes a process of project evaluation for avoidance, minimization, and mitigation of threats. The standard for avoidance is that no impacts are expected to occur, and the standard for minimization is that impacts will be minimized through design, siting, and other available

methods. Mitigation will be utilized to offset any remaining impacts after minimization.

Recommendation: TPWD recommends Xcel review the process for avoidance, minimization, and mitigation in the RWP. TPWD notes that this process starts with pre-project planning, which includes LPC surveys of proposed project sites in CHAT categories 1-3 if surveys have not been conducted within the previous five years. Alternately, the project proponent can assume the site is occupied with active leks.

TPWD recommends Xcel review the Conservation Measures discussed in the RWP that are anticipated for issuance of a WCP. TPWD recommends Xcel site the proposed line within existing impact buffers and implement all feasible measures for avoidance and minimization of habitat loss and fragmentation, collision and other direct and indirect sources of mortality, and disturbance of breeding, nesting, and brood rearing activities. Where these impacts cannot be avoided, TPWD recommends Xcel participate in the WAFWA Mitigation Framework discussed in the RWP.

State Law

Parks and Wildlife Code, Section 68.015

Section 68.015 of the Parks and Wildlife Code regulates state-listed species. Please note that there is no provision for take (incidental or otherwise) of state-listed species. A copy of TPWD Guidelines for Protection of State-Listed Species, which includes a list of penalties for take of species, can be found on-line at http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/habitat_assessment/media/tpwd_statelisted_species.pdf. State-listed species may only be handled by persons with a scientific collection permit obtained through TPWD. For more information on this permit, please contact the Wildlife Permits Office at (512) 389-4647.

Based on a review of the project location, the state listed threatened Texas horned lizard (*Phrynosoma cornutum*) may be present in the project study area. Texas horned lizards are generally active in this part of Texas from mid-April through September. At that time of year, they may be able to avoid slow (less than 15 miles per hour) moving equipment. The remainder of the year,

this species hibernates only a few inches underground and they will be much more susceptible to earth moving equipment and compaction.

Recommendation: TPWD recommends Xcel avoid disturbing the Texas horned lizard and colonies of its primary food source, the Harvester ant (*Pogonomyrmex* sp.), during clearing and construction. TPWD recommends a biological monitor be present during construction to try to relocate Texas horned lizards if found. If the presence of a biological monitor during construction is not feasible, state-listed threatened species observed during construction should be allowed to safely leave the site or be relocated by a permitted individual to a nearby area with similar habitat that would not be disturbed during construction.

A mixture of cover, food sources, and open ground is important to the Texas horned lizard and Harvester ant. Disturbed areas within suitable habitat for the Texas horned lizard should be revegetated with site-specific native, patchy vegetation rather than sod-forming grasses.

Species of Concern/Special Features

In addition to state and federally-protected species, TPWD tracks special features, natural communities, and rare species that are not listed as threatened or endangered. TPWD actively promotes their conservation and considers it important to evaluate and, if necessary, minimize impacts to rare species and their habitat to reduce the likelihood of endangerment and preclude the need to list. These species and communities are tracked in the Texas Natural Diversity Database (TXNDD).

Based on a review of recent aerial photographs and TXNDD records in the project area, the following rare species and special features could potentially be impacted by project activities:

Species of Concern
Ferruginous Hawk (*Buteo regalis*)
Western Burrowing Owl (*Athene cunicularia hypugaea*)
Black-tailed prairie dog (*Cynomys ludovicianus*)
Swift fox (*Vulpes velox*)
Plains Spotted Skunk (*Spilogale putorius interrupta*)

Special Features
Prairie dog towns

The Black-tailed prairie dog is a keystone species which provides food and/or shelter for rare species tracked by TPWD such as the Swift fox, Ferruginous Hawk, and Western Burrowing Owl, as well as many other wildlife species.

Recommendation: TPWD recommends Xcel survey the study area for prairie dog towns and species that depend on them. If prairie dog towns are found in the study area, TPWD recommends Xcel avoid these areas during ROW clearing and placement of the structures, switching station, and substation. If prairie dog burrows would be disturbed as a result of the proposed project, TPWD recommends non-harmful exclusion methods be used to encourage the animals to vacate the area prior to disturbance and discourage them from returning to the area during construction.

The Western Burrowing Owl is a ground-dwelling owl that uses the burrows of prairie dogs and other fossorial animals for nesting and roosting. The Western Burrowing Owl is protected under the MBTA and take of these birds, their nests, and eggs is prohibited. Potential impacts to the Western Burrowing Owl could include habitat removal as well as displacement and/or destruction of nests and eggs if ground disturbance occurs during the breeding season.

Recommendation: If prairie dog towns would be disturbed as a result of the proposed project, TPWD recommends the burrows be surveyed for burrowing owls. If nesting owls are found, disturbance should be avoided until the eggs have hatched and the young have fledged.

The Swift fox uses den sites in winter wheat fields, fencerows, and roadside rights of way. Swift fox dens often have multiple entrances that are approximately 8 inches in diameter and have a characteristic keyhole shape.

Recommendation: TPWD recommends Xcel survey potentially disturbed areas for Swift fox dens. If dens are found, TPWD recommends Xcel avoid vegetation removal and ground disturbance in these areas to the extent feasible.

Please note that the absence of TXNDD information in an area does not imply that a species is absent from that area. Given the small proportion of public

versus private land in Texas, the TXNDD does not include a representative inventory of rare resources in the state. Although it is based on the best data available to TPWD regarding rare species, the data from the TXNDD do not provide a definitive statement as to the presence, absence or condition of special species, natural communities, or other significant features within your project area. These data are not inclusive and cannot be used as presence/absence data. This information cannot be substituted for on-the-ground surveys. The TXNDD is updated continuously. As the project progresses and for future projects, please request the most current and accurate information at TexasNatural.DiversityDatabase@tpwd.texas.gov.

Recommendation: Please review the TPWD county lists for Gaines, Hale, Hockley, Lubbock, Lynn, Terry, and Yoakum Counties, as rare species in addition to those discussed above could be present depending upon habitat availability. These lists are available online at http://www.tpwd.state.tx.us/landwater/land/maps/gis/ris/endangered_species/ If during construction, the project area is found to contain rare species, natural plant communities, or special features, TPWD recommends that precautions be taken to avoid impacts to them. The USFWS should be contacted for species occurrence data, guidance, permitting, survey protocols, and mitigation for federally listed species. For the USFWS rare species lists by county please visit http://www.fws.gov/southwest/es/EndangeredSpecies/lists/

Determining the actual presence of a species in a given area depends on many variables including daily and seasonal activity cycles, environmental activity cues, preferred habitat, transiency and population density (both wildlife and human). The absence of a species can be demonstrated only with great difficulty and then only with repeated negative observations, taking into account all the variable factors contributing to the lack of detectable presence. If encountered during construction, measures should be taken to avoid impacting wildlife.

Vegetation

Based on a review of the Ecological Mapping Systems of Texas (EMST) project, the following vegetation types are found in the study area:

Barren	High Plains: Playa Lake	High Plains: Sandhill Deciduous Shrub Duneland	Native Invasive: Yucca-Succulent Shrubland
CRP/Other Improved Grassland	High Plains: Playa Marsh	High Plains: Sandhill Shinnery Duneland	Non-native invasive: Elm-Olive Woodland
High Plains: Active Sand Dunes	High Plains: Riparian Deciduous Shrubland	High Plains: Sandy Deciduous Shrubland	Non-native invasive: Saltcedar Shrubland
High Plains: Alkali Sacaton Grassland	High Plains: Riparian Emergent Marsh	High Plains: Sandy Shinnery Shrubland	Open Water
High Plains: Depressional Marsh	High Plains: Riparian Hardwood-Juniper Forest	High Plains: Shortgrass Prairie	Rolling Plains: Breaks Canyon
High Plains: Flood Plain Deciduous Shrubland	High Plains: Riparian Hardwood Forest	Marsh	Rolling Plains: Breaks Deciduous Shrubland
High Plains: Floodplain Hardwood-Juniper Forest	High Plains: Riparian Herbaceous Vegetation	Native Invasive: Deciduous-Juniper Woodland	Rolling Plains: Breaks Evergreen Shrubland
High Plains: Floodplain Hardwood Forest	High Plains: Riparian Juniper Shrubland	Native Invasive: Deciduous Shrubland	Rolling Plains: Mixedgrass Prairie
High Plains: Floodplain Herbaceous Vegetation	High Plains: Saline Flat	Native Invasive: Deciduous Woodland	Row Crops
High Plains: Floodplain Juniper Shrubland	High Plains: Salt Lake	Native Invasive: Juniper Shrubland	Urban High Intensity
High Plains: Mesquite Shrubland	High Plains: Salt Lake Shrubland	Native Invasive: Mesquite Shrubland	Urban Low Intensity
High Plains: Playa Grassland	High Plains: Sand Prairie	Native Invasive: Sand Sage Shrubland	

Project area vegetation types are shown on the attached map for your reference. Additional information about the EMST, including a link to download shapefiles, can be found at http://www.tpwd.state.tx.us/gis/gallery/.

Managed Areas

Chapter 26.001 (a) of the Parks and Wildlife Code states that no feasible and prudent alternative to taking of Parks and Wildlife property must be demonstrated and that all reasonable planning to minimize impacts to the property have been explored. If a transmission line is designed to go through a property owned by TPWD, approval for an easement from the Parks and Wildlife Commission will be required, which can be a several month to year long process.

TPWD strongly discourages project alternatives that cross TPWD properties such as State Parks and Wildlife Management Areas (WMA). TPWD recommends avoiding these areas and routing around TPWD property. As seen on the attached map, the Yoakum Dunes WMA is within the proposed project study area. If the proposed project has the potential to impact this WMA, please contact Chip Ruthven at (806) 492-3405.

Please provide a copy of the EA to TPWD for review and comment prior to application to the PUC for a CCN. I appreciate the opportunity to provide preliminary input on potential impacts related to this project, and I look forward to reviewing the EA. Please contact me at (806) 761-4936 or Richard.Hanson@tpwd.texas.gov if you have any questions.

Sincerely,

Rick Hanson

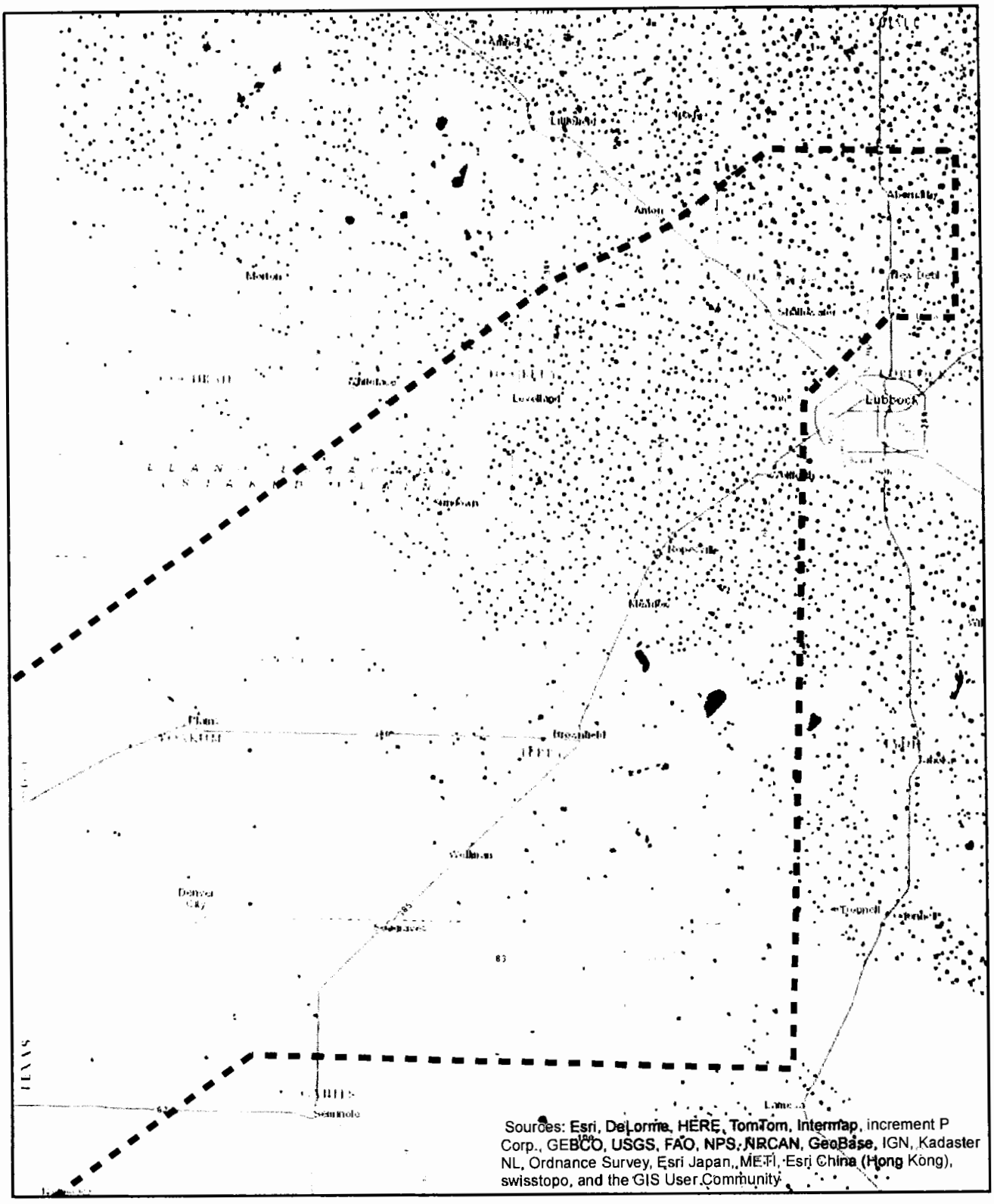
Rick Hanson
Wildlife Habitat Assessment Program
Wildlife Division

RH:gg.ERCS-9417

Attachments (4)

cc: Mohammed Ally, PUC

Study Area Playa Lakes



Date: 9/19/2014

Map compiled by the Texas Parks and Wildlife Department, Wildlife Habitat Assessment Program. No claims are made to the accuracy of the data or to the suitability of the data to a particular use.

0 4.25 8.5 17 Miles

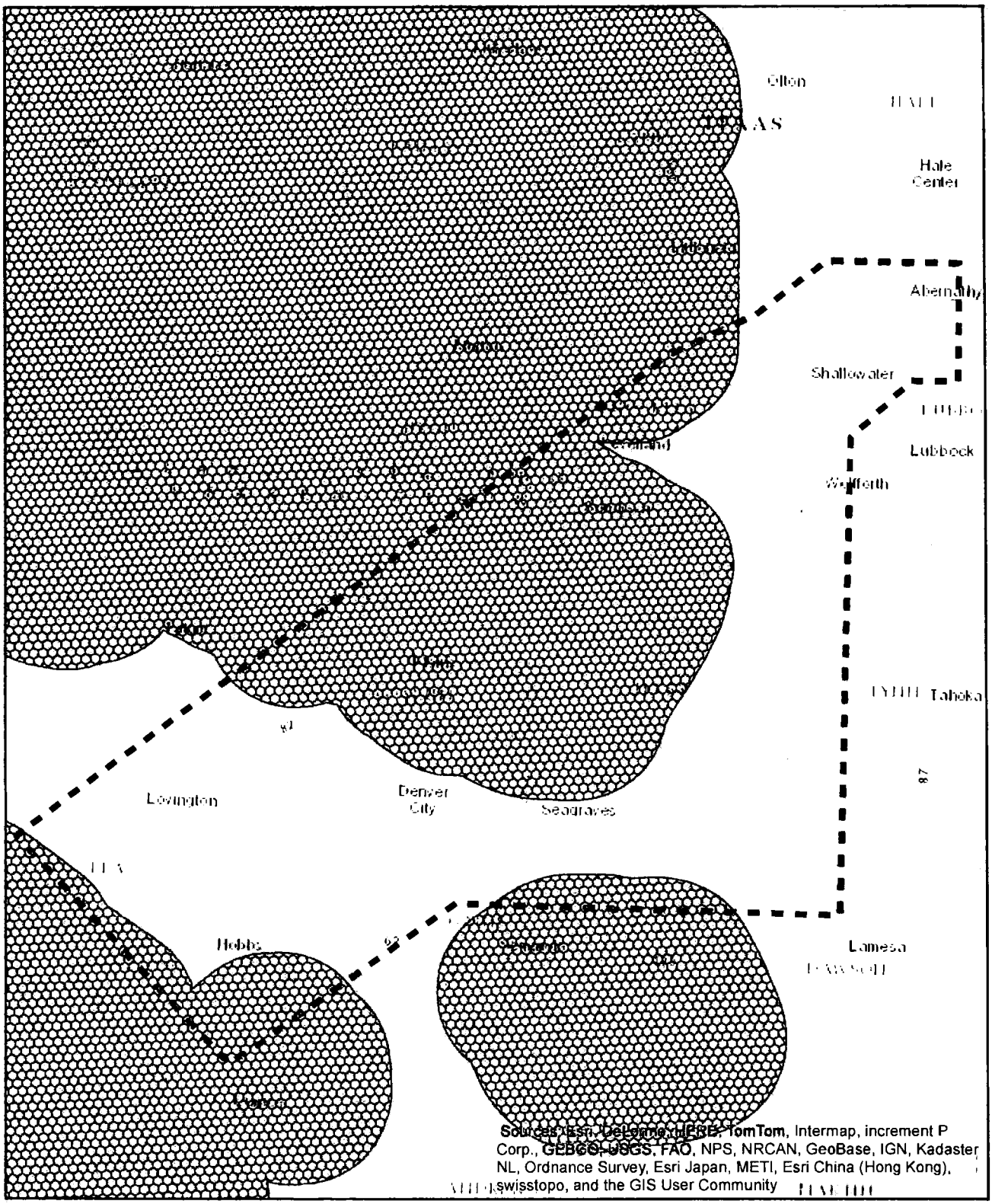
TEXAS PARKS & WILDLIFE

Life's better outside.®

Legend

- Study Area
- Playas

Study Area CHAT Score



Date: 9/19/2014

Map compiled by the Texas Parks and Wildlife Department, Wildlife Habitat Assessment Program. No claims are made to the accuracy of the data or to the suitability of the data to a particular use.

0 5 10 20 Miles

TEXAS PARKS & WILDLIFE

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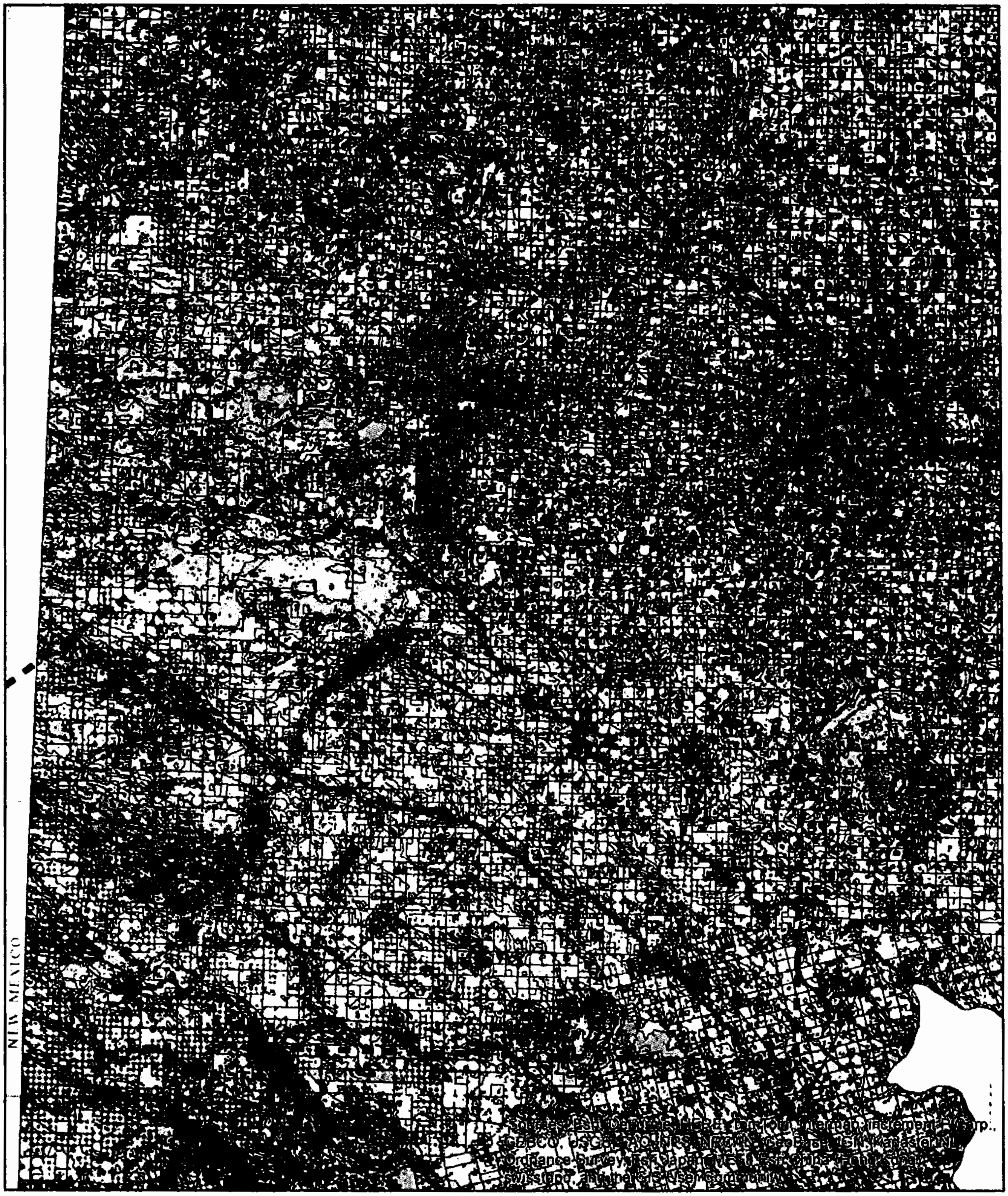
Legend

Chat Score

- 1
- 2
- 3
- 4
- Study Area

Study Area Vegetation Types



Date: 9/19/2014

Map compiled by the Texas Parks and Wildlife Department, Wildlife Habitat Assessment Program No claims are made to the accuracy of the data or to the suitability of the data to a particular use

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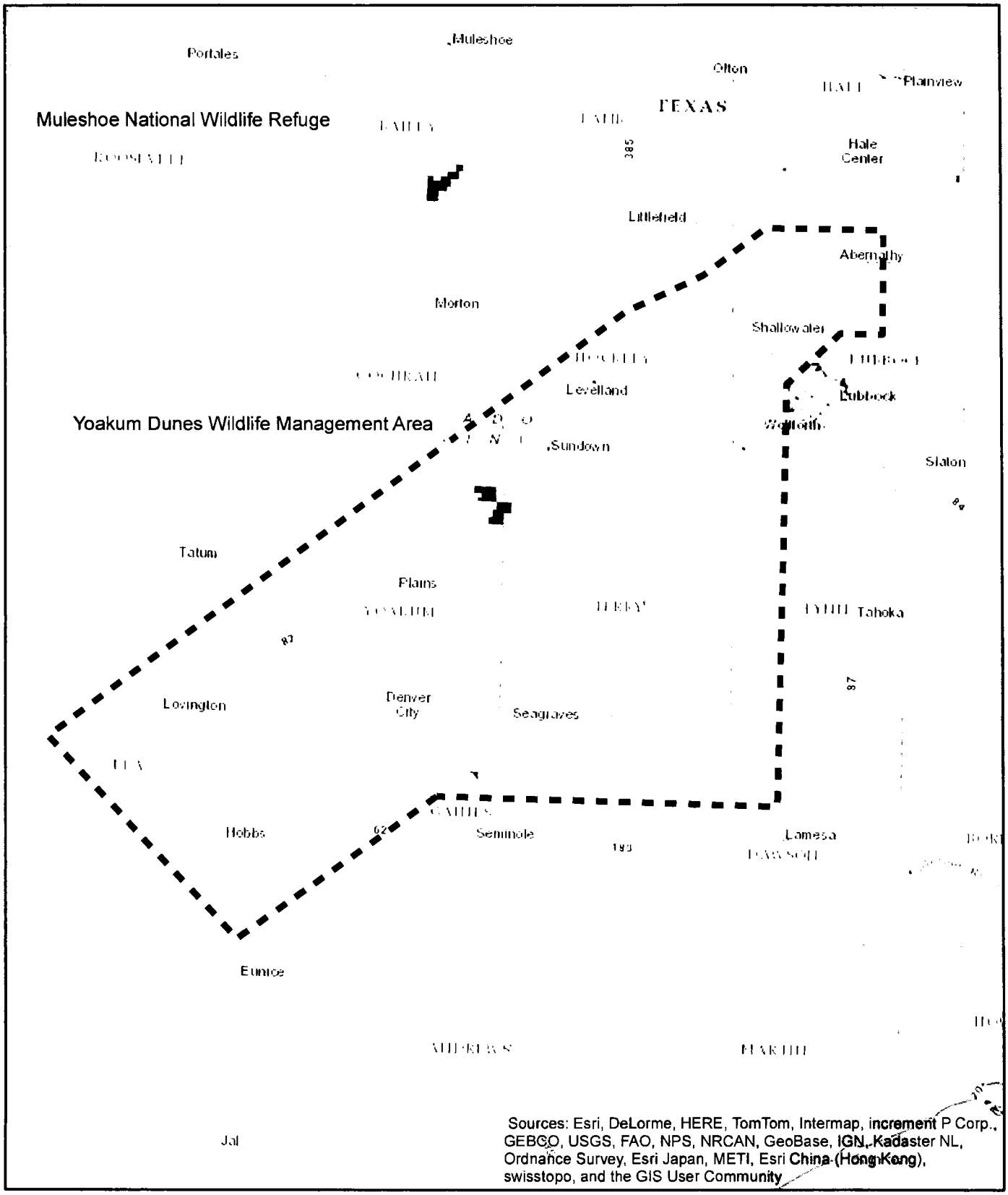
Managed Areas



Date: 10/06/2014

Map compiled by the Texas Parks and Wildlife Department, Wildlife Habitat Assessment Program. No claims are made to the accuracy of the data or to the suitability of the data to a particular use.

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DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF

October 17, 2014

Regulatory Division

SUBJECT: Project Number SWF-2014-00355, Tuco-Yoakum-Hobbs 345 kV Transmission Line Project

Ms. Anastacia Santos
Power Engineers
7600B North Capital of Texas Highway
Suite 320
Austin, Texas 78731

Dear Ms. Santos:

Thank you for your letter received August 28, 2014, concerning the proposal by Xcel Energy Inc. to construct a new 345 kilovolt transmission line located in Gaines, Hale, Hockley, Lubbock, Lynn, Terry, Lynn, and Yoakum Counties, Texas. This project has been assigned Project Number SWF-2014-00355. Please include this number in all future correspondence concerning this project.

Under Section 404 of the Clean Water Act the U. S. Army Corps of Engineers (USACE) regulates the discharge of dredged and fill material into waters of the United States, including wetlands. USACE responsibility under Section 10 of the Rivers and Harbors Act of 1899 is to regulate any work in, or affecting, navigable waters of the United States. Based on the description of the proposed work, and other information available to us, we have determined this project will involve activities subject to the requirements of Section 404. The USACE based this decision on a preliminary jurisdictional determination that there are waters of the United States within the project site.

We have reviewed the proposal and based on the information provided, it appears the activity may qualify for Nationwide Permit 12 Utility Line Activities. Please review the enclosed nationwide permit concerning the proposed placement of dredged or fill material into waters of the United States. Provided the permittee complies with all the terms and conditions therein, the project may proceed. If the permittee cannot comply with the conditions of the nationwide permit, please reply.

This nationwide permit is valid until March 18, 2017, unless prior to that date the nationwide permit is suspended, revoked, or modified such that the activity would no longer comply with the terms and conditions of the nationwide permit on a regional or national basis. The USACE will issue a public notice announcing the changes when they occur. Furthermore, activities that have commenced, or are under contract to commence, in reliance on a nationwide permit will remain authorized provided the activity is completed within 12 months of the date of the nationwide permit's expiration, modification, or revocation, unless discretionary authority has

been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 CFR 330.4(e) and 33 CFR 330.5(c) or (d). Continued confirmation that an activity complies with the specifications and conditions, and any changes to the nationwide permit, is the responsibility of the permittee.

Thank you for your interest in our nation's water resources. If you have any questions concerning our regulatory program, please refer to our website at http://www.swf.usace.army.mil/Missions/Regulatory.aspx or contact Mr. Billy Standridge at the address above or telephone 817-886-1662.

Please help the regulatory program improve its service by completing the survey on the following website: http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey

Sincerely,

for Stephen L Brooks
Chief, Regulatory Division

Enclosures

NATIONWIDE PERMIT 12

Utility Line Activities

Effective Date: March 19, 2012
(NWP Final Notice, 77 FR 10184)

Utility Line Activities. Activities required for the construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the United States, provided the activity does not result in the loss of greater than 1/2-acre of waters of the United States for each single and complete project.

Utility lines: This NWP authorizes the construction, maintenance, or repair of utility lines, including outfall and intake structures, and the associated excavation, backfill, or bedding for the utility lines, in all waters of the United States, provided there is no change in pre-construction contours. A "utility line" is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and radio and television communication. The term "utility line" does not include activities that drain a water of the United States, such as drainage tile or french drains, but it does apply to pipes conveying drainage from another area.

Material resulting from trench excavation may be temporarily sidecast into waters of the United States for no more than three months, provided the material is not placed in such a manner that it is dispersed by currents or other forces. The district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain waters of the United States (e.g., backfilling with extensive gravel layers, creating a french drain effect). Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

Utility line substations: This NWP authorizes the construction, maintenance, or expansion of substation facilities associated with a power line or utility line in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not result in the loss of greater than 1/2-acre of waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters of the United States to construct, maintain, or expand substation facilities.

Foundations for overhead utility line towers, poles, and anchors: This NWP authorizes the construction or maintenance of foundations for overhead utility line towers, poles, and anchors in all waters of the United States, provided the foundations are the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible.

Access roads: This NWP authorizes the construction of access roads for the construction and maintenance of utility lines, including overhead power lines and utility line substations, in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters for access roads. Access roads must be the minimum width necessary (see Note 2, below). Access roads must be constructed so that the length of the road minimizes any adverse effects on waters of the United States and must be as near as possible to pre-construction contours and elevations (e.g., at grade corduroy roads or geotextile/gravel

roads). Access roads constructed above pre-construction contours and elevations in waters of the United States must be properly bridged or culverted to maintain surface flows.

This NWP may authorize utility lines in or affecting navigable waters of the United States even if there is no associated discharge of dredged or fill material (See 33 CFR Part 322). Overhead utility lines constructed over section 10 waters and utility lines that are routed in or under section 10 waters without a discharge of dredged or fill material require a section 10 permit.

This NWP also authorizes temporary structures, fills, and work necessary to conduct the utility line activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if any of the following criteria are met: (1) the activity involves mechanized land clearing in a forested wetland for the utility line right-of-way; (2) a section 10 permit is required; (3) the utility line in waters of the United States, excluding overhead lines, exceeds 500 feet; (4) the utility line is placed within a jurisdictional area (i.e., water of the United States), and it runs parallel to or along a stream bed that is within that jurisdictional area; (5) discharges that result in the loss of greater than 1/10-acre of waters of the United States; (6) permanent access roads are constructed above grade in waters of the United States for a distance of more than 500 feet; or (7) permanent access roads are constructed in waters of the United States with impervious materials. (See general condition 31.) (Sections 10 and 404)

Note 1: Where the proposed utility line is constructed or installed in navigable waters of the United States (i.e., section 10 waters) within the coastal United States, the Great Lakes, and United States territories, copies of the pre-construction notification and NWP verification will be sent by the Corps to the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), for charting the utility line to protect navigation.

Note 2: Access roads used for both construction and maintenance may be authorized, provided they meet the terms and conditions of this NWP. Access roads used solely for construction of the utility line must be removed upon completion of the work, in accordance with the requirements for temporary fills.

Note 3: Pipes or pipelines used to transport gaseous, liquid, liquescent, or slurry substances over navigable waters of the United States are considered to be bridges, not utility lines, and may require a permit from the U.S. Coast Guard pursuant to Section 9 of the Rivers and Harbors Act of 1899. However, any discharges of dredged or fill material into waters of the United States associated with such pipelines will require a section 404 permit (see NWP 15).

Note 4: For overhead utility lines authorized by this NWP, a copy of the PCN and NWP verification will be provided to the Department of Defense Siting Clearinghouse, which will evaluate potential effects on military activities.

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR §§ 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR § 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an

ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.noaa.gov/fisheries.html respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for obtaining any "take" permits required under the U.S. Fish and Wildlife Service's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such "take" permits are required for a particular activity.

20. Historic Properties. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the

activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for

any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

(2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring

requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been

independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____

(Transferee)

_____

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the work and mitigation.

31. Pre-Construction Notification. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual

permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate

that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

D. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. For a linear project, this determination will include an evaluation of the individual crossings to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a

waiver of the 300 linear foot limit on impacts to intermittent or ephemeral streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51 or 52, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in minimal adverse effects. When making minimal effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

2. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

3. If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (a) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to

seek authorization under an individual permit; (b) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (c) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period, with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

E. Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project.

F. Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the

water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections

of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line, which is defined at 33 CFR 328.3(d).

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a jurisdictional water of the United States. If a jurisdictional wetland is adjacent – meaning bordering, contiguous, or neighboring – to a waterbody determined to be a water of the United States under 33 CFR 328.3(a)(1)-(6), that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.

ADDITIONAL INFORMATION

This nationwide permit is effective March 19, 2012, and expires on March 18, 2017.

Information about the U.S. Army Corps of Engineers regulatory program, including nationwide permits, may also be accessed at http://www.swf.usace.army.mil/regulatory or http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx

NATIONWIDE PERMIT (NWP) REGIONAL CONDITIONS FOR THE STATE OF TEXAS

The following regional conditions apply within the entire State of Texas:

1. Compensatory mitigation is required at a minimum one-for-one ratio for all special aquatic site losses that exceed 1/10 acre and require pre-construction notification (PCN), and for all losses to streams that exceed 300 linear feet and require PCN, unless the appropriate District Engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement.

2. For all discharges proposed for authorization under nationwide permits (NWP) 3, 6, 7, 12, 14, 18, 19, 25, 27, 29, 39, 40, 41, 42, 43, 44, 51, and 52, into the following habitat types or specific areas, the applicant shall notify the appropriate District Engineer in accordance with the NWP General Condition 31, Pre-Construction Notification (PCN). The Corps of Engineers (Corps), except for the Tulsa District, will coordinate with the resource agencies as specified in NWP General Condition 31(d) (PCN). The habitat types or areas are:

a. Pitcher Plant Bogs: Wetlands typically characterized by an organic surface soil layer and include vegetation such as pitcher plants (Sarracenia sp.), sundews (Drosera sp.), and sphagnum moss (Sphagnum sp.).

b. Bald Cypress-Tupelo Swamps: Wetlands comprised predominantly of bald cypress trees (Taxodium distichum), and water tupelo trees (Nyssa aquatica), that are occasionally or regularly flooded by fresh water. Common associates include red maple (Acer rubrum), swamp privet (Forestiera acuminata), green ash (Fraxinus pennsylvanica) and water elm (Planera aquatica). Associated herbaceous species include lizard's tail (Saururus cernuus), water mermaid weed (Proserpinaca spp.), buttonbush (Cephalanthus occidentalis) and smartweed (Polygonum spp.). (Eyre, F. H. Forest Cover Types of the United States and Canada. 1980. Society of American Foresters, 5400 Grosvenor Lane, Bethesda, Maryland 20814-2198. Library of Congress Catalog Card No. 80-54185)

3. For all activities proposed for authorization under NWP 12 that involve a discharge of fill material associated with mechanized land clearing in a forested wetland, the applicant shall notify the appropriate District Engineer in accordance with the NWP General Condition 31 (Pre-Construction Notification) prior to commencing the activity.

4. For all activities proposed for authorization under NWP 16, the applicant shall notify the appropriate District Engineer in accordance with the NWP General Condition 31 (Pre-Construction Notification), and work cannot begin under NWP 16 until the applicant has received written approval from the Corps.

The following regional conditions apply only within the Fort Worth District in the State of Texas:

5. For all discharges proposed for authorization under all NWPs, into the area of Caddo Lake within Texas that is designated as a "Wetland of International Importance" under the Ramsar Convention, the applicant shall notify the Fort Worth District Engineer in accordance with the NWP General Condition 31. The Corps will coordinate with the resource agencies as specified in NWP General Condition 31(d) (Pre-Construction Notification).

6. For all discharges proposed for authorization under NWP 43 that occur in forested wetlands, the applicant shall notify the Fort Worth District Engineer in accordance with the General Condition 31 (Pre-Construction Notification).

7. For all discharges proposed for authorization under any nationwide permit in Dallas, Denton, and Tarrant Counties that are within the study area of the "Final Regional Environmental Impact Statement (EIS), Trinity River and Tributaries" (May 1986), the applicant shall meet the criteria and follow the guidelines specified in Section III of the Record of Decision for the Regional EIS, including the hydraulic impact requirements. A copy of these guidelines is available upon request from the Fort Worth District and at the District website www.swf.usace.army.mil (select "Permits").

8. Federal Projects. The applicant shall notify the Forth Worth District Engineer in accordance with the NWP General Condition 31, Pre-Construction Notification (PCN) for any regulated activity where the applicant is proposing work that would result in the modification or alteration of any completed Corps of Engineer projects that are either locally or federally maintained and for work that would occur within the conservation pool or flowage easement of any Corps of Engineers lake project. PCN's cannot be deemed complete until such time as the Corps has made a determination relative to 33 USC Section 408, 33 CFR Part 208, Section 208.10, 33 CFR Part 320, Section 320.4.

9. Invasive and Exotic Species. Best management practices are required where practicable to reduce the risk of transferring invasive plant and animal species to or from project sites. Information concerning state specific lists and threats can be found at: http://www.invasivespeciesinfo.gov/unitedstates/tx.shtml. Best management practices can be found at: http://www.invasivespeciesinfo.gov/toolkit/prevention.shtml. Known zebra mussel waters within can be found at: http://nas.er.usgs.gov/queries/zmbyst.asp.

10. For all discharges proposed for authorization under NWPs 51 and 52, the Corps will provide the PCN to the US Fish and Wildlife Service as specified in NWP General Condition 31(d)(2) for its review and comments.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 5, 2012

Ms. Kristi N. McMillan
Galveston District CESWG-PE-RE
U.S. Army Corps of Engineers
P.O. Box 1229
Galveston, Texas 77553-1229

Re: USACE Nationwide Permits

Dear Ms. McMillan:

This letter is in response to your January 23, 2012, letter requesting Clean Water Act Section 401 certification of the United States Army Corps of Engineers (Corps) Nationwide Permits (NWPs). The Final Notice of Reissuance of Nationwide Permits was published in the Federal Register (Vol. 77, No. 34, pages 10184-10290) on February 21, 2012. Proposed regional conditions for NWPs in Texas were proposed in public notices on February 24, 2011 and November 14, 2011.

The Texas Commission on Environmental Quality (TCEQ) has reviewed the Final Notice of Reissuance of Nationwide Permits and the proposed regional conditions. On behalf of the Executive Director and based on our evaluation of the information contained in these documents, the TCEQ certifies that the activities authorized by NWPs 1, 2, 4, 5, 8, 9, 10, 11, 20, 23, 24, 28, 34, 35, and 48 should not result in a violation of established Texas Surface Water Quality Standards as required by Section 401 of the Federal Clean Water Act and pursuant to Title 30, Texas Administrative Code, Chapter 279.

The TCEQ conditionally certifies that the activities authorized by NWPs 3, 6, 7, 12, 13, 14, 15, 17, 18, 19, 21, 22, 25, 27, 29, 30, 31, 32, 33, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 49, 50, 51 and 52 should not result in a violation of established Texas Surface Water Quality Standards as required by Section 401 of the Federal Clean Water Act and pursuant to Title 30, Texas Administrative Code, Chapter 279. Conditions for each NWP are defined in Enclosure 1 and more detail on specific conditions are discussed below.

The TCEQ understands that a prohibition against the use of NWPs in coastal dune swales will be included in the 2012 Texas Regional Conditions (Regional Conditions) for all NWPs, except for NWP 3. Inclusion of a prohibition of using NWPs in coastal dune swales, except for NWP 3, is a condition of this 401 TCEQ certification.

The TCEQ wants to clarify the application of NWP 16 in Texas. NWP 16 should be limited to the return water from upland contained dredged material disposal areas. It is important to emphasize the intent for dredged material disposal. The TCEQ understands dredged material to be associated with navigational dredging activities, not commercial mining activities. To avoid confusion the TCEQ requests that a regional condition be added that prohibits the use of NWP 16 for activities that would be regulated under Standard Industrial Classification (SIC) codes 1442 and 1446 (industrial and construction sand and gravel mining). This condition is also included as part of the 401 certification of NWP 16.

The final NWP 16 states that the quality of the return water is controlled by the state through the 401 certification procedures. Consistent with previous NWPs certification decisions the TCEQ is conditionally certifying NWP 16 for the return water from confined upland disposal not to exceed a 300 mg/L Total Suspended Solids (TSS) concentration and request the Corps to include this condition in the Regional Conditions. The TCEQ recognizes the usefulness of having an instantaneous method to determine compliance with the 300 mg/L TSS limit. However, existing literature and analysis of paired samples of turbidity and TSS from the Texas Surface Water Quality Data indicate this relationship must be a site specific characterization of the actual sediments to be dredged. To address this approach we have continued language in the NWP 16 conditional certification that allows flexibility to use an instantaneous method in implementing the TSS limit when a site specific correlation curve for turbidity (nephelometric turbidity units (NTU)) versus TSS has been approved by TCEQ. The TCEQ remains interested in working with the Corps in the development of these curves. We encourage the Corps to accept the conditional certification of NWP 16 as a Regional Condition and that we work together to find the best methods to implement this limit.

In evaluating this condition for the Regional Conditions for NWPs, the TCEQ encourages the Corps to consider that TSS limits are promulgated as effluent limits under Title 40 of the Code of Federal Regulations. The TCEQ requirement to control return water from confined upland disposal not to exceed a 300 mg/L TSS has also been included in individual 404 permits. It is also important to note that the TCEQ effectively imposes TSS effluent limits in thousands of wastewater discharge permits issued in Texas under Section 402 of the federal Clean Water Act.

The TCEQ is conditionally certifying NWP General Condition #12 *Soil Erosion and Sediment Controls*, and General Condition #25 *Water Quality*. The conditions address three broad categories of water quality management with specific recommendations for Best Management Practices (BMPs) for each category. These BMPs are intended to enhance the water quality protection of these General Conditions. A list of TCEQ-recommended BMPs is included as Enclosure 2.

Enclosure 3 is provided as a quick reference table for all NWPs. A detailed description of the BMPs is provided in Enclosure 4. Runoff from bridge decks has been exempted from the requirement for post-construction total suspended solids (TSS) controls under General Condition 25. As stated in our April 11, 2011 and November 30, 2011 letters to the Corps, the TCEQ would like to include these BMPs for the protection of waters in the state specific to each NWP as part of the regional conditions for Texas.

The TCEQ is conditionally certifying NWPs 13, 29, 39, 40, 41, 42, 43, 44, 50, 51, and 52 to require the Corps to copy TCEQ on all written approvals of waivers for impacts to ephemeral, intermittent or perennial streams. The TCEQ is conditionally certifying NWP 36 to require the Corps to copy TCEQ on all written waivers for discharges greater than the 50 cubic yard limit or boat ramps greater than 20 feet in width. The TCEQ is also conditionally certifying General Condition 23 *Mitigation* to require the Corps to copy TCEQ on any written notification of a mitigation waiver. The TCEQ is requesting this information to fulfill its responsibility to ensure water of the state is appropriately protected by understanding the impact of waivers being granted in Texas.

This certification decision is limited to those activities under the jurisdiction of the TCEQ. For activities related to the production and exploration of oil and gas, a Texas Railroad Commission certification is required as provided in the Texas Water Code §26.131.

The TCEQ has reviewed the Notice of Reissuance of Nationwide Permits for consistency with the Texas Coastal Management Program (CMP) goals and policies in accordance with the CMP regulations {Title 31, Texas Administrative Code (TAC), Chapter (§)505.30} and has determined that the action is consistent with the applicable CMP goals and policies.

This certification was reviewed for consistency with the CMP's development in critical areas policy {31 TAC §501.23} and dredging and dredged material disposal and placement policy {31 TAC §501.25}. This certification complies with the CMP goals {31 TAC §501.12(1, 2, 3, 5)} applicable to these policies.

The TCEQ reserves the right to modify this certification if additional information identifies specific areas where significant impacts, including cumulative or secondary impacts, are occurring, and the use of these NWPs would be inappropriate.

No review of property rights, location of property lines, nor the distinction between public and private ownership has been made, and this certification may not be used in any way with regard to questions of ownership.

If you require further assistance, please contact Mr. John Trevino, Water Quality Assessment Section, Water Quality Division (MC-150), at (512) 239-4600.

Sincerely,

Charles W. Maguire
Water Quality Division Director
Texas Commission on Environmental Quality

CWM/JT/gg

Attachments

ccs: Mr. Stephen Brooks, Branch Chief, U.S. Army Corp of Engineers, Regulatory Branch, CESWF-PER-R, P.O. Box 17300, Fort Worth, Texas 76102-0300
Ms. Kate Zultner, Secretary, Coastal Coordination Council, P.O. Box 12873, Austin, Texas 78711-2873
Mr. Allan E. Steinle, Branch Chief, U.S. Army Corps of Engineers, Albuquerque District, 4101 Jefferson Plaza NE, Room 313, Albuquerque, New Mexico 87109-3435
Regulatory Branch Chief, U.S. Army Corps of Engineers, Regulatory Branch CESWT-PE-R, 1645 South 101st East Avenue, Tulsa, Oklahoma, 74128
Regulatory Branch Chief, U.S. Army Corps of Engineers, El Paso Regulatory Office, CESPA-OD-R-EP, P.O. Box 6096, Fort Bliss, Texas 79906-6096

Attachment 1

Attachment 1
Conditions of Section 401 Certification for Nationwide Permits and General Conditions

General Condition 12 (Soil Erosion and Sediment Controls)

Erosion control and sediment control BMPs described in Attachment 2 are required with the use of this general condition. If the applicant does not choose one of the BMPs listed in Attachment 2, an individual 401 certification is required.

General Condition 25 (Water Quality)

Post-construction total suspended solids (TSS) BMPs described in Attachment 2 are required with the use of this general condition. If the applicant does not choose one of the BMP's listed in Attachment 2, an individual 401 certification is required. Bridge deck runoff is exempt from this requirement.

General Condition 23 (Mitigation)

The U.S. Army Corps of Engineers will copy the TCEQ on all mitigation waivers sent to applicants.

NWPs 13, 29, 39, 40, 41, 42, 43, 44, 50, 51, 52

The U.S. Army Corps of Engineers will copy the TCEQ on all written approvals of waivers for impacts to ephemeral, intermittent or perennial streams.

All NWPs except for NWP 3

These NWPs are not authorized for use in coastal dune swales in Texas.

NWP 3 (Maintenance)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 6 (Survey Activities)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 7 (Outfall Structures and Associated Intake Structures)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 12 (Utility Line Activities)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

NWP 13 (Bank Stabilization)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 14 (Linear Transportation Projects)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

Attachment 1
Conditions of Section 401 Certification for Nationwide Permits and General Conditions

NWP 15 (U.S. Coast Guard Approved Bridges)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 16 (Return Water From Upland Contained Disposal Areas)

Activities that would be regulated under Standard Industrial Classification (SIC) codes 1442 and 1446 (industrial and construction sand and gravel mining) are not eligible for this NWP. Effluent from an upland contained disposal area shall not exceed a TSS concentration of 300 mg/L unless a site-specific TSS limit, or a site specific correlation curve for turbidity (nephelometric turbidity units (NTU)) versus (TSS) has been approved by TCEQ.

NWP 17 (Hydropower Projects)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

NWP 18 (Minor Discharges)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

NWP 19 (Minor Dredging)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 21 (Surface Coal Mining Operations)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

NWP 22 (Removal of Vessels)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 25 (Structural Discharges)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 27 (Aquatic Habitat Restoration, Establishment, and Enhancement Activities)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 29 (Residential Developments)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

Attachment 1
Conditions of Section 401 Certification for Nationwide Permits and General Conditions

NWP 30 (Moist Soil Management for Wildlife)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 31 (Maintenance of Existing Flood Control Facilities)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

NWP 32 (Completed Enforcement Actions)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 33 (Temporary Construction, Access and Dewatering)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 36 (Boat Ramps)

The U.S. Army Corps of Engineers will copy the TCEQ on all written waivers for discharges greater than the 50 cubic yard limit or boat ramps greater than 20 feet in width. Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

NWP 37 (Emergency Watershed Protection and Rehabilitation)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 38 (Cleanup of Hazardous and Toxic Waste)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 39 (Commercial and Institutional Developments)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

NWP 40 (Agricultural Activities)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

NWP 41 (Reshaping Existing Drainage Ditches)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

Attachment 1
Conditions of Section 401 Certification for Nationwide Permits and General Conditions

NWP 42 (Recreational Facilities)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

NWP 43 (Stormwater Management Facilities)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 44 (Mining Activities)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

NWP 45 (Repair of Uplands Damaged by Discrete Events)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

NWP 46 (Discharges in Ditches)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 49 (Coal Remining Activities)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

NWP 50 (Underground Coal Mining Activities)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

NWP 51 (Land-Based Renewal Energy Generation Facilities)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

NWP 52 (Water-Based Renewal Energy Generation Pilot Projects)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 25 are required.

Attachment 2

Attachment 2
401 Water Quality Certification Best Management Practices (BMPs) for Nationwide Permits

Below are the 401 water quality certification conditions the Texas Commission on Environmental Quality (TCEQ) added to the February 21, 2012 issuance of Nationwide Permits (NWP), as described in the Federal Register (Vol. 77, No. 34, pages 10184-10290).

Additional information regarding these conditions, including descriptions of the best management practices (BMPs), can be obtained from the TCEQ by contacting the 401 Coordinator, MC-150, P.O. Box 13087, Austin, Texas 78711-3087 or from the appropriate U.S. Army Corps of Engineers district office.

I. Erosion Control

Disturbed areas must be stabilized to prevent the introduction of sediment to adjacent wetlands or water bodies during wet weather conditions (erosion). *At least one* of the following BMPs must be maintained and remain in place until the area has been stabilized for NWPs 3, 6, 7, 12, 13, 14, 15, 17, 18, 19, 21, 22, 25, 27, 29, 30, 31, 32, 33, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 49, 50, 51, and 52. If the applicant does not choose one of the BMPs listed, an individual 401 certification is required. BMPs for NWP 52 apply only to land-based impacts from attendant features.

- o Temporary Vegetation
- o Blankets/Matting
- o Mulch
- o Sod
- o Interceptor Swale
- o Diversion Dike
- o Erosion Control Compost
- o Mulch Filter Socks
- o Compost Filter Socks

II. Sedimentation Control

Prior to project initiation, the project area must be isolated from adjacent wetlands and water bodies by the use of BMPs to confine sediment. Dredged material shall be placed in such a manner that prevents sediment runoff into water in the state, including wetlands. Water bodies can be isolated by the use of one or more of the required BMPs identified for sedimentation control. These BMP's must be maintained and remain in place until the dredged material is stabilized. *At least one* of the following BMPs must be maintained and remain in place until the area has been stabilized for NWPs 3, 6, 7, 12, 13, 14, 15, 17, 18, 19, 21, 22, 25, 27, 29, 30, 31, 32, 33, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 49, 50, 51, and 52. If the applicant does not choose one of the BMPs listed, an individual 401 certification is required. BMPs for NWP 52 apply only to land-based impacts from attendant features.

- o Sand Bag Berm
- o Rock Berm
- o Silt Fence
- o Hay Bale Dike
- o Triangular Filter Dike
- o Brush Berms

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401 Water Quality Certification Best Management Practices (BMPs) for Nationwide Permits

- o Stone Outlet Sediment Traps
- o Sediment Basins
- o Erosion Control Compost
- o Mulch Filter Socks
- o Compost Filter Socks

III. Post-Construction TSS Control

After construction has been completed and the site is stabilized, total suspended solids (TSS) loadings shall be controlled by *at least one* of the following BMPs for NWPs 12, 14, 17, 18, 21, 29, 31, 36, 39, 40, 41, 42, 44, 45, 49, 50, 51, and 52. If the applicant does not choose one of the BMPs listed, an individual 401 certification is required. BMPs for NWP 52 apply only to land-based impacts from attendant features. Runoff from bridge decks has been exempted from the requirement for post construction TSS controls.

- o Retention/Irrigation Systems
- o Constructed Wetlands
- o Extended Detention Basin
- o Wet Basins
- o Vegetative Filter Strips
- o Vegetation lined drainage ditches
- o Grassy Swales
- o Sand Filter Systems
- o Erosion Control Compost
- o Mulch Filter Socks
- o Compost Filter Socks
- o Sedimentation Chambers*

* Only to be used when there is no space available for other approved BMPs.

IV. NWP 16: Return Water from Upland Contained Disposal Areas

Effluent from an upland contained disposal area shall not exceed a TSS concentration of 300 mg/L unless a site-specific TSS limit, or a site specific correlation curve for turbidity (nephelometric turbidity units (NTU)) versus (TSS) has been approved by TCEQ.

V. NWP 29, 39, 40, 42, 43, 44, 50, 51, and 52

The Corps will copy the TCEQ on all authorizations for impacts of greater than 300 linear feet of intermittent and ephemeral streams.

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401 Water Quality Certification Best Management Practices (BMPs) for Nationwide Permits

VI. NWP 13 and 41

The Corps will copy the TCEQ on all authorizations for impacts greater than 500 linear feet in length of ephemeral, intermittent, perennial streams or drainage ditches.

VII. NWP 36

The Corps will copy the TCEQ on all authorizations for discharges greater than the 50 cubic yard limit or boat ramps greater than 20 feet in width.

VIII. All NWPs except NWP 3

These NWPs are not authorized for use in coastal dune swales in Texas.

Attachment 3

Attachment 3
Reference to Nationwide Permits Best Management Practices Requirements

NWP	Permit Description	Erosion Control	Sediment Control	Post Construction TSS
1	Aid to Navigation			
2	Structures in Artificial Canals			
3	Maintenance	X	X	
4	Fish and Wildlife Harvesting, Enhancement and Attraction Devices and Activities			
5	Scientific Measurement Devices			
6	Survey Activities *Trenching	X	X	
7	Outfall Structures and Associated Intake Structures	X	X	
8	Oil and Gas Structures on the Outer Continental Shelf			
9	Structures in Fleeting and Anchorage Areas			
10	Mooring Buoys			
11	Temporary Recreational Structures			
12	Utility Line Activities	X	X	X
13	Bank Stabilization	X	X	
14	Linear Transportation Projects	X	X	X
15	U.S. Coast Guard Approved Bridges	X	X	
16	Return Water From Upland Contained Disposal Areas			
17	Hydropower Projects	X	X	X
18	Minor Discharges	X	X	X
19	Minor Dredging	X	X	
20	Response Operations for Oil and Hazardous Substances			
21	Surface Coal Mining Operations	X	X	X
22	Removal of Vessels	X	X	
23	Approved Categorical Exclusions			

Attachment 3
Reference to Nationwide Permits Best Management Practices Requirements

NWP	Permit Description	Erosion Control	Sediment Control	Post Construction TSS
24	Indian Tribe or State Administered Section 404 Programs			
25	Structural Discharges	X	X	
26	[Reserved]			
27	Aquatic Habitat Restoration, Establishment, and Enhancement Activities	X	X	
28	Modifications of Existing Marinas			
29	Residential Developments	X	X	X
30	Moist Soil Management for Wildlife	X	X	
31	Maintenance of Existing Flood Control Facilities	X	X	X
32	Completed Enforcement Actions	X	X	
33	Temporary Construction, Access and Dewatering	X	X	
34	Cranberry Production Activities			
35	Maintenance Dredging of Existing Basins			
36	Boat Ramps	X	X	X
37	Emergency Watershed Protection and Rehabilitation	X	X	
38	Cleanup of Hazardous and Toxic Waste	X	X	
39	Commercial and Institutional Developments	X	X	X
40	Agricultural Activities	X	X	X
41	Reshaping Existing Drainage Ditches	X	X	X
42	Recreational Facilities	X	X	X
43	Stormwater Management Facilities	X	X	
44	Mining Activities	X	X	X
45.	Repair of Uplands Damaged by Discrete Events	X	X	X
46.	Discharges in Ditches	X	X	

Attachment 3
Reference to Nationwide Permits Best Management Practices Requirements

NWP	Permit Description	Erosion Control	Sediment Control	Post Construction TSS
47.	[Reserved]			
48.	Existing Commercial Shellfish Aquaculture Activities			
49.	Coal Remining Activities	X	X	X
50.	Underground Coal Mining Activities	X	X	X
51.	Land-Based Renewable Energy Generation Facilities	X	X	X
52.	Water-Based Renewable Energy Generation Pilot Projects	X	X	X

Attachment 4

Attachment 4
Description of BMPs

EROSION CONTROL BMPs

Temporary Vegetation

Description: Vegetation can be used as a temporary or permanent stabilization technique for areas disturbed by construction. Vegetation effectively reduces erosion in swales, stockpiles, berms, mild to medium slopes, and along roadways. Other techniques such as matting, mulches, and grading may be required to assist in the establishment of vegetation.

Materials:

- The type of temporary vegetation used on a site is a function of the season and the availability of water for irrigation.
- Temporary vegetation should be selected appropriately for the area.
- County agricultural extension agents are a good source for suggestions for temporary vegetation.
- All seed should be high quality, U.S. Dept. of Agriculture certified seed.

Installation:

- Grading must be completed prior to seeding.
- Slopes should be minimized.
- Erosion control structures should be installed.
- Seedbeds should be well pulverized, loose, and uniform.
- Fertilizers should be applied at appropriate rates.
- Seeding rates should be applied as recommended by the county agricultural extension agent.
- The seed should be applied uniformly.
- Steep slopes should be covered with appropriate soil stabilization matting.

Blankets and Matting

Description: Blankets and matting material can be used as an aid to control erosion on critical sites during the establishment period of protective vegetation. The most common uses are in channels, interceptor swales, diversion dikes, short, steep slopes, and on tidal or stream banks.
Materials:

New types of blankets and matting materials are continuously being developed. The Texas

Attachment 4
Description of BMPs

Department of Transportation (TxDOT) has defined the critical performance factors for these types of products and has established minimum performance standards which must be met for any product seeking to be approved for use within any of TxDOT's construction or maintenance activities. The products that have been approved by TxDOT are also appropriate for general construction site stabilization. TxDOT maintains a web site at http://www.txdot.gov/business/doing_business/product_evaluation/erosion_control.htm which is updated as new products are evaluated.

Installation:

- Install in accordance with the manufacturer's recommendations.
- Proper anchoring of the material.
- Prepare a friable seed bed relatively free from clods and rocks and any foreign material.
- Fertilize and seed in accordance with seeding or other type of planting plan.
- Erosion stops should extend beyond the channel liner to full design cross-section of the channel.
- A uniform trench perpendicular to line of flow may be dug with a spade or a mechanical trencher.
- Erosion stops should be deep enough to penetrate solid material or below level of ruling in sandy soils.
- Erosion stop mats should be wide enough to allow turnover at bottom of trench for stapling, while maintaining the top edge flush with channel surface.

Mulch

Description: Mulching is the process of applying a material to the exposed soil surface to protect it from erosive forces and to conserve soil moisture until plants can become established. When seeding critical sites, sites with adverse soil conditions or seeding on other than optimum seeding dates, mulch material should be applied immediately after seeding. Seeding during optimum seeding dates and with favorable soils and site conditions will not need to be mulched.

Materials:

- Mulch may be small grain straw which should be applied uniformly.
- On slopes 15 percent or greater, a binding chemical must be applied to the surface.
- Wood-fiber or paper-fiber mulch may be applied by hydroseeding.
- Mulch nettings may be used.

Attachment 4
Description of BMPs

- Wood chips may be used where appropriate.

Installation:

Mulch anchoring should be accomplished immediately after mulch placement. This may be done by one of the following methods: peg and twine, mulch netting, mulch anchoring tool, or liquid mulch binders.

Sod

Description: Sod is appropriate for disturbed areas which require immediate vegetative covers, or where sodding is preferred to other means of grass establishment. Locations particularly suited to stabilization with sod are waterways carrying intermittent flow, areas around drop inlets or in grassed swales, and residential or commercial lawns where quick use or aesthetics are factors. Sod is composed of living plants and those plants must receive adequate care in order to provide vegetative stabilization on a disturbed area.

Materials:

- Sod should be machine cut at a uniform soil thickness.
- Pieces of sod should be cut to the supplier's standard width and length.
- Torn or uneven pads are not acceptable.
- Sections of sod should be strong enough to support their own weight and retain their size and shape when suspended from a firm grasp.
- Sod should be harvested, delivered, and installed within a period of 36 hours.

Installation:

- Areas to be sodded should be brought to final grade.
- The surface should be cleared of all trash and debris.
- Fertilize according to soil tests.
- Fertilizer should be worked into the soil.
- Sod should not be cut or laid in excessively wet or dry weather.
- Sod should not be laid on soil surfaces that are frozen.
- During periods of high temperature, the soil should be lightly irrigated.

Attachment 4
Description of BMPs

- The first row of sod should be laid in a straight line with subsequent rows placed parallel to and butting tightly against each other.
- Lateral joints should be staggered to promote more uniform growth and strength.
- Wherever erosion may be a problem, sod should be laid with staggered joints and secured.
- Sod should be installed with the length perpendicular to the slope (on the contour).
- Sod should be rolled or tamped.
- Sod should be irrigated to a sufficient depth.
- Watering should be performed as often as necessary to maintain soil moisture.
- The first mowing should not be attempted until the sod is firmly rooted.
- Not more than one third of the grass leaf should be removed at any one cutting.

Interceptor Swale

Interceptor swales are used to shorten the length of exposed slope by intercepting runoff, prevent off-site runoff from entering the disturbed area, and prevent sediment-laden runoff from leaving a disturbed site. They may have a v-shape or be trapezoidal with a flat bottom and side slopes of 3:1 or flatter. The outflow from a swale should be directed to a stabilized outlet or sediment trapping device. The swales should remain in place until the disturbed area is permanently stabilized.

Materials:

- Stabilization should consist of a layer of crushed stone three inches thick, riprap or high velocity erosion control mats.
- Stone stabilization should be used when grades exceed 2% or velocities exceed 6 feet per second.
- Stabilization should extend across the bottom of the swale and up both sides of the channel to a minimum height of three inches above the design water surface elevation based on a 2-year, 24-hour storm.

Installation:

- An interceptor swale should be installed across exposed slopes during construction and should intercept no more than 5 acres of runoff.
- All earth removed and not needed in construction should be disposed of in an approved spoils site so that it will not interfere with the functioning of the swale or contribute to siltation in other areas of the site.

Attachment 4
Description of BMPs

- All trees, brush, stumps, obstructions and other material should be removed and disposed of so as not to interfere with the proper functioning of the swale.

- Swales should have a maximum depth of 1.5 feet with side slopes of 3:1 or flatter. Swales should have positive drainage for the entire length to an outlet.

- When the slope exceeds 2 percent, or velocities exceed 6 feet per second (regardless of slope), stabilization is required. Stabilization should be crushed stone placed in a layer of at least 3 inches thick or may be high velocity erosion control matting. Check dams are also recommended to reduce velocities in the swales possibly reducing the amount of stabilization necessary.

- Minimum compaction for the swale should be 90% standard proctor density.

Diversion Dikes

A temporary diversion dike is a barrier created by the placement of an earthen embankment to reroute the flow of runoff to an erosion control device or away from an open, easily erodible area. A diversion dike intercepts runoff from small upland areas and diverts it away from exposed slopes to a stabilized outlet, such as a rock berm, sandbag berm, or stone outlet structure. These controls can be used on the perimeter of the site to prevent runoff from entering the construction area. Dikes are generally used for the duration of construction to intercept and reroute runoff from disturbed areas to prevent excessive erosion until permanent drainage features are installed and/or slopes are stabilized.

Materials:

- Stone stabilization (required for velocities in excess of 6 fps) should consist of riprap placed in a layer at least 3 inches thick and should extend a minimum height of 3 inches above the design water surface up the existing slope and the upstream face of the dike.

- Geotextile fabric should be a non-woven polypropylene fabric designed specifically for use as a soil filtration media with an approximate weight of 6 oz./yd^2, a Mullen burst rating of 140 psi, and having an equivalent opening size (EOS) greater than a #50 sieve.

Installation:

- Diversion dikes should be installed prior to and maintained for the duration of construction and should intercept no more than 10 acres of runoff.

- Dikes should have a minimum top width of 2 feet and a minimum height of compacted fill of 18 inches measured form the top of the existing ground at the upslope toe to top of the dike and have side slopes of 3:1 or flatter.

- The soil for the dike should be placed in lifts of 8 inches or less and be compacted to 95 % standard proctor density.

- The channel, which is formed by the dike, must have positive drainage for its entire length to an outlet.

Attachment 4
Description of BMPs

- When the slope exceeds 2 percent, or velocities exceed 6 feet per second (regardless of slope), stabilization is required. In situations where velocities do not exceed 6 feet per second, vegetation may be used to control erosion.

Erosion Control Compost

Description: Erosion control compost (ECC) can be used as an aid to control erosion on critical **sites during the establishment period of protective vegetation.** The most common uses are on **steep slopes, swales, diversion dikes, and on tidal or stream** banks.

Materials:

New types of erosion control compost are continuously being developed. The Texas Department of Transportation (TxDOT) has established minimum performance standards which must be met for any products seeking to be approved for use within any of TxDOT's construction or maintenance activities. Material used within any TxDOT construction or maintenance activities must meet material specifications in accordance with current TxDOT specifications. TxDOT maintains a website at http://www.txdot.gov/business/contractors_consultants/recycling/compost.htm that provides information on compost specification data.

ECC used for projects not related to TxDOT should also be of quality materials by meeting performance standards and compost specification data. To ensure the quality of compost used as an ECC, products should meet all applicable state and federal regulations, including but not limited to the United States Environmental Protection Agency (USEPA) Code of Federal Regulations (CFR), Title 40, Part 503 Standards for Class A biosolids and Texas Natural Resource Conservation Commission (now named TCEQ) Health and Safety Regulations as defined in the Texas Administration Code (TAC), Chapter 332, and all other relevant requirements for compost products outlined in TAC, Chapter 332. Testing requirements required by the TCEQ are defined in TAC Chapter 332, including Sections §332.71 Sampling and Analysis Requirements for Final Products and §332.72 Final Product Grades. Compost specification data approved by TxDOT are appropriate to use for ensuring the use of quality compost materials or for guidance.

Testing standards are dependent upon the intended use for the compost and ensures product safety, and product performance regarding the product's specific use. The appropriate compost sampling and testing protocols included in the United States Composting Council (USCC) Test Methods for the Examination of Composting and Compost (TMECC) should be conducted on compost products used for ECC to ensure that the products used will not impact public health, safety, and the environment and to promote production and marketing of quality composts that meet analytical standards. TMECC is a laboratory manual that provides protocols for the composting industry and test methods for compost analysis. TMECC provides protocols to sample, monitor, and analyze materials during all stages of the composting process. Numerous parameters that might be of concern in compost can be tested by following protocols or test methods listed in TMECC. TMECC information can be found at http://www.tmecc.org/tmecc/index.html. The USCC Seal of Testing Assurance (STA) program contains information regarding compost STA certification. STA program information can be found at http://tmecc.org/sta/STA_program_description.html.

Attachment 4
Description of BMPs

Installation:

- Install in accordance with current TxDOT specification.
- Use on slopes 3:1 or flatter.
- Apply a 2 inch uniform layer unless otherwise shown on the plans or as directed.
- When rolling is specified, use a light corrugated drum roller.

Mulch and Compost Filter Socks

Description: Mulch and compost filter socks (erosion control logs) are used to intercept and detain sediment laden run-off from unprotected areas. When properly used, mulch and compost filter socks can be highly effective at controlling sediment from disturbed areas. They cause runoff to pond which allows heavier solids to settle. Mulch and compost filter socks are used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. The sock should remain in place until the area is permanently stabilized. Mulch and compost filter socks may be installed in construction areas and temporarily moved during the day to allow construction activity provided it is replaced and properly anchored at the end of the day. Mulch and compost filter socks may be seeded to allow for quick vegetative growth and reduction in run-off velocity.

Materials:

New types of mulch and compost filter socks are continuously being developed. The Texas Department of Transportation (TxDOT) has established minimum performance standards which must be met for any products seeking to be approved for use within any of TxDOT's construction or maintenance activities. Mulch and compost filter socks used within any TxDOT construction or maintenance activities must meet material specifications in accordance with TxDOT specification 5049. TxDOT maintains a website at http://www.txdot.gov/business/contractors_consultants/recycling/compost.htm that provides information on compost specification data.

Mulch and compost filter socks used for projects not related to TxDOT should also be of quality materials by meeting performance standards and compost specification data. To ensure the quality of compost used for mulch and compost filter socks, products should meet all applicable state and federal regulations, including but not limited to the United States Environmental Protection Agency (USEPA) Code of Federal Regulations (CFR), Title 40, Part 503 Standards for Class A biosolids and Texas Natural Resource Conservation Commission Health and Safety Regulations as defined in the Texas Administration Code (TAC), Chapter 332, and all other relevant requirements for compost products outlined in TAC, Chapter 332. Testing requirements required by the TCEQ are defined in TAC Chapter 332, including Sections §332.71 Sampling and Analysis Requirements for Final Products and §332.72 Final Product Grades. Compost specification data approved by TxDOT are appropriate to use for ensuring the use of quality compost materials or for guidance.

Attachment 4
Description of BMPs

Testing standards are dependent upon the intended use for the compost and ensures product safety, and product performance regarding the product's specific use. The appropriate compost sampling and testing protocols included in the United States Composting Council (USCC) Test Methods for the Examination of Composting and Compost (TMECC) should be conducted on compost products used for mulch and compost filter socks to ensure that the products used will not impact public health, safety, and the environment and to promote production and marketing of quality composts that meet analytical standards. TMECC is a laboratory manual that provides protocols for the composting industry and test methods for compost analysis. TMECC provides protocols to sample, monitor, and analyze materials during all stages of the composting process. Numerous parameters that might be of concern in compost can be tested by following protocols or test methods listed in TMECC. TMECC information can be found at http://www.tmecc.org/tmecc/index.html. The USCC Seal of Testing Assurance (STA) program contains information regarding compost STA certification. STA program information can be found at http://tmecc.org/sta/STA_program_description.html.

Installation:

- Install in accordance with TxDOT Special Specification 5049.
- Install socks (erosion control logs) near the downstream perimeter of a disturbed area to intercept sediment from sheet flow.
- Secure socks in a method adequate to prevent displacement as a result of normal rain events such that flow is not allowed under the socks.
- Inspect and maintain the socks in good condition (including staking, anchoring, etc.). Maintain the integrity of the control, including keeping the socks free of accumulated silt, debris, etc., until the disturbed area has been adequately stabilized.

SEDIMENT CONTROL BMPS

Sand Bag Berm

Description: The purpose of a sandbag berm is to detain sediment carried in runoff from disturbed areas. This objective is accomplished by intercepting runoff and causing it to pool behind the sand bag berm. Sediment carried in the runoff is deposited on the upstream side of the sand bag berm due to the reduced flow velocity. Excess runoff volumes are allowed to flow over the top of the sand bag berm. Sand bag berms are used only during construction activities in streambeds when the contributing drainage area is between 5 and 10 acres and the slope is less than 15%, i.e., utility construction in channels, temporary channel crossing for construction equipment, etc. Plastic facing should be installed on the upstream side and the berm should be anchored to the streambed by drilling into the rock and driving in "T" posts or rebar (#5 or #6) spaced appropriately.

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Description of BMPs

Materials:

- The sand bag material should be polypropylene, polyethylene, polyamide or cotton burlap woven fabric, minimum unit weight 4 oz/yd 2, mullen burst strength exceeding 300 psi and ultraviolet stability exceeding 70 percent.
- The bag length should be 24 to 30 inches, width should be 16 to 18 inches and thickness should be 6 to 8 inches.
- Sandbags should be filled with coarse grade sand and free from deleterious material. All sand should pass through a No. 10 sieve. The filled bag should have an approximate weight of 40 pounds.
- Outlet pipe should be schedule 40 or stronger polyvinyl chloride (PVC) having a nominal internal diameter of 4 inches.

Installation:

- The berm should be a minimum height of 18 inches, measured from the top of the existing ground at the upslope toe to the top of the berm.
- The berm should be sized as shown in the plans but should have a minimum width of 48 inches measured at the bottom of the berm and 16 inches measured at the top of the berm.
- Runoff water should flow over the tops of the sandbags or through 4-inch diameter PVC pipes embedded below the top layer of bags.
- When a sandbag is filled with material, the open end of the sandbag should be stapled or tied with nylon or poly cord.
- Sandbags should be stacked in at least three rows abutting each other, and in staggered arrangement.
- The base of the berm should have at least 3 sandbags. These can be reduced to 2 and 1 bag in the second and third rows respectively.
- For each additional 6 inches of height, an additional sandbag must be added to each row width.
- A bypass pump-around system, or similar alternative, should be used on conjunction with the berm for effective dewatering of the work area.

Silt Fence

Description: A silt fence is a barrier consisting of geotextile fabric supported by metal posts to prevent soil and sediment loss from a site. When properly used, silt fences can be highly effective at controlling sediment from disturbed areas. They cause runoff to pond which allows heavier solids to settle. If not properly installed, silt fences are not likely to be effective. The purpose of a silt fence is to intercept and detain water-borne sediment from unprotected areas of a limited

Attachment 4
Description of BMPs

extent. Silt fence is used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. This fence should remain in place until the disturbed area is permanently stabilized. Silt fence should not be used where there is a concentration of water in a channel or drainage way. If concentrated flow occurs after installation, corrective action must be taken such as placing a rock berm in the areas of concentrated flow. Silt fencing within the site may be temporarily moved during the day to allow construction activity provided it is replaced and properly anchored to the ground at the end of the day. Silt fences on the perimeter of the site or around drainage ways should not be moved at any time.

Materials:

- Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in 2, ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.

- Fence posts should be made of hot rolled steel, at least 4 feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/ft 2, and Brindell hardness exceeding 140.

- Woven wire backing to support the fabric should be galvanized 2" x 4" welded wire, 12 gauge minimum.

Installation:

- Steel posts, which support the silt fence, should be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of 1 foot deep and spaced not more than 8 feet on center. Where water concentrates, the maximum spacing should be 6 feet.

- Lay out fencing down-slope of disturbed area, following the contour as closely as possible. The fence should be sited so that the maximum drainage area is ¼ acre/100 feet of fence.

- The toe of the silt fence should be trenched in with a spade or mechanical trencher, so that the down-slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or rock outcrop), weight fabric flap with 3 inches of pea gravel on uphill side to prevent flow from seeping under fence.

- The trench must be a minimum of 6 inches deep and 6 inches wide to allow for the silt fence fabric to be laid in the ground and backfilled with compacted material.

- Silt fence should be securely fastened to each steel support post or to woven wire, which is in turn attached to the steel fence post. There should be a 3-foot overlap, securely fastened where ends of fabric meet.

Triangular Filter Dike

Description: The purpose of a triangular sediment filter dike is to intercept and detain water-

Attachment 4
Description of BMPs

borne sediment from unprotected areas of limited extent. The triangular sediment filter dike is used where there is no concentration of water in a channel or other drainage way above the barrier and the contributing drainage area is less than one acre. If the uphill slope above the dike exceeds 10%, the length of the slope above the dike should be less than 50 feet. If concentrated flow occurs after installation, corrective action should be taken such as placing rock berm in the areas of concentrated flow. This measure is effective on paved areas where installation of silt fence is not possible or where vehicle access must be maintained. The advantage of these controls is the ease with which they can be moved to allow vehicle traffic and then reinstalled to maintain sediment

Materials:

- Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in 2 , ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.

- The dike structure should be 6 gauge 6" x 6" wire mesh folded into triangular form being eighteen (18) inches on each side.

Installation:

- The frame of the triangular sediment filter dike should be constructed of 6" x 6", 6 gauge welded wire mesh, 18 inches per side, and wrapped with geotextile fabric the same composition as that used for silt fences.

- Filter material should lap over ends six (6) inches to cover dike to dike junction; each junction should be secured by shoat rings.

- Position dike parallel to the contours, with the end of each section closely abutting the adjacent sections.

- There are several options for fastening the filter dike to the ground. The fabric skirt may be toed-in with 6 inches of compacted material, or 12 inches of the fabric skirt should extend uphill and be secured with a minimum of 3 inches of open graded rock, or with staples or nails. If these two options are not feasible the dike structure may be trenched in 4 inches.

- Triangular sediment filter dikes should be installed across exposed slopes during construction with ends of the dike tied into existing grades to prevent failure and should intercept no more than one acre of runoff.

- When moved to allow vehicular access, the dikes should be reinstalled as soon as possible, but always at the end of the workday.

Rock Berm

Description: The purpose of a rock berm is to serve as a check dam in areas of concentrated flow, to intercept sediment-laden runoff, detain the sediment and release the water in sheet flow.

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The rock berm should be used when the contributing drainage area is less than 5 acres. Rock berms are used in areas where the volume of runoff is too great for a silt fence to contain. They are less effective for sediment removal than silt fences, particularly for fine particles, but are able to withstand higher flows than a silt fence. As such, rock berms are often used in areas of channel flows (ditches, gullies, etc.). Rock berms are most effective at reducing bed load in channels and should not be substituted for other erosion and sediment control measures further up the watershed.

Materials:

- The berm structure should be secured with a woven wire sheathing having maximum opening of 1 inch and a minimum wire diameter of 20 gauge galvanized and should be secured with shoat rings.
- Clean, open graded 3- to 5-inch diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rocks may be used.

Installation:

- Lay out the woven wire sheathing perpendicular to the flow line. The sheathing should be 20 gauge woven wire mesh with 1 inch openings.
- Berm should have a top width of 2 feet minimum with side slopes being 2:1 (H:V) or flatter.
- Place the rock along the sheathing to a height not less than 18".
- Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least 2 inches, and the berm retains its shape when walked upon.
- Berm should be built along the contour at zero percent grade or as near as possible.
- The ends of the berm should be tied into existing upslope grade and the berm should be buried in a trench approximately 3 to 4 inches deep to prevent failure of the control.

Hay Bale Dike

Description: The purpose of a hay or straw bale dike is to intercept and detain small amounts of sediment-laden runoff from relatively small unprotected areas. Straw bales are to be used when it is not feasible to install other, more effective measures or when the construction phase is expected to last less than 3 months. Straw bales should not be used on areas where rock or other hard surfaces prevent the full and uniform anchoring of the barrier.

Materials:

Straw: The best quality straw mulch comes from wheat, oats or barley and should be free of weed and grass seed which may not be desired vegetation for the area to be protected. Straw mulch is light and therefore must be properly anchored to the ground.

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Description of BMPs

Hay: This is very similar to straw with the exception that it is made of grasses and weeds and not grain stems. This form of mulch is very inexpensive and is widely available but does introduce weed and grass seed to the area. Like straw, hay is light and must be anchored.

- Straw bales should weigh a minimum of 50 pounds and should be at least 30 inches long.
- Bales should be composed entirely of vegetable matter and be free of seeds.
- Binding should be either wire or nylon string, jute or cotton binding is unacceptable. Bales should be used for not more than two months before being replaced.

Installation:

- Bales should be embedded a minimum of 4 inches and securely anchored using 2" x 2" wood stakes or 3/8" diameter rebar driven through the bales into the ground a minimum of 6 inches.
- Bales are to be placed directly adjacent to one another leaving no gap between them.
- All bales should be placed on the contour.
- The first stake in each bale should be angled toward the previously laid bale to force the bales together.

Brush Berms

Organic litter and spoil material from site clearing operations is usually burned or hauled away to be dumped elsewhere. Much of this material can be used effectively on the construction site itself. The key to constructing an efficient brush berm is in the method used to obtain and place the brush. It will not be acceptable to simply take a bulldozer and push whole trees into a pile. This method does not assure continuous ground contact with the berm and will allow uncontrolled flows under the berm.

Brush berms may be used where there is little or no concentration of water in a channel or other drainage way above the berm. The size of the drainage area should be no greater than one-fourth of an acre per 100 feet of barrier length; the maximum slope length behind the barrier should not exceed 100 feet; and the maximum slope gradient behind the barrier should be less than 50 percent (2:1).

Materials:

- The brush should consist of woody brush and branches, preferably less than 2 inches in diameter.
- The filter fabric should conform to the specifications for filter fence fabric.
- The rope should be ¼ inch polypropylene or nylon rope.

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- The anchors should be 3/8-inch diameter rebar stakes that are 18-inches long.

Installation:

- Lay out the brush berm following the contour as closely as possible.
- The juniper limbs should be cut and hand placed with the vegetated part of the limb in close contact with the ground. Each subsequent branch should overlap the previous branch providing a shingle effect.
- The brush berm should be constructed in lifts with each layer extending the entire length of the berm before the next layer is started.
- A trench should be excavated 6-inches wide and 4-inches deep along the length of the barrier and immediately uphill from the barrier.
- The filter fabric should be cut into lengths sufficient to lay across the barrier from its up-slope base to just beyond its peak. The lengths of filter fabric should be draped across the width of the barrier with the uphill edge placed in the trench and the edges of adjacent pieces overlapping each other. Where joints are necessary, the fabric should be spliced together with a minimum 6-inch overlap and securely sealed.
- The trench should be backfilled and the soil compacted over the filter fabric.
- Set stakes into the ground along the downhill edge of the brush barrier, and anchor the fabric by tying rope from the fabric to the stakes. Drive the rope anchors into the ground at approximately a 45-degree angle to the ground on 6-foot centers.
- Fasten the rope to the anchors and tighten berm securely to the ground with a minimum tension of 50 pounds.
- The height of the brush berm should be a minimum of 24 inches after the securing ropes have been tightened.

Stone Outlet Sediment Traps

A stone outlet sediment trap is an impoundment created by the placement of an earthen and stone embankment to prevent soil and sediment loss from a site. The purpose of a sediment trap is to intercept sediment-laden runoff and trap the sediment in order to protect drainage ways, properties and rights of way below the sediment trap from sedimentation. A sediment trap is usually installed at points of discharge from disturbed areas. The drainage area for a sediment trap is recommended to be less than 5 acres.

Larger areas should be treated using a sediment basin. A sediment trap differs from a sediment basin mainly in the type of discharge structure. The trap should be located to obtain the maximum storage benefit from the terrain, for ease of clean out and disposal of the trapped

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sediment and to minimize interference with construction activities. The volume of the trap should be at least 3600 cubic feet per acre of drainage area.

Materials:

- All aggregate should be at least 3 inches in diameter and should not exceed a volume of 0.5 cubic foot.
- The geotextile fabric specification should be woven polypropylene, polyethylene or polyamide geotextile, minimum unit weight of 4.5 oz/yd 2, mullen burst strength at least 250 lb/in 2, ultraviolet stability exceeding 70%, and equivalent opening size exceeding 40.

Installation:

- Earth Embankment: Place fill material in layers not more than 8 inches in loose depth. Before compaction, moisten or aerate each layer as necessary to provide the optimum moisture content of the material. Compact each layer to 95 percent standard proctor density. Do not place material on surfaces that are muddy or frozen. Side slopes for the embankment are to be 3:1. The minimum width of the embankment should be 3 feet.
- A gap is to be left in the embankment in the location where the natural confluence of runoff crosses the embankment line. The gap is to have a width in feet equal to 6 times the drainage area in acres.
- Geotextile Covered Rock Core: A core of filter stone having a minimum height of 1.5 feet and a minimum width at the base of 3 feet should be placed across the opening of the earth embankment and should be covered by geotextile fabric which should extend a minimum distance of 2 feet in either direction from the base of the filter stone core.
- Filter Stone Embankment: Filter stone should be placed over the geotextile and is to have a side slope which matches that of the earth embankment of 3:1 and should cover the geotextile/rock core a minimum of 6 inches when installation is complete. The crest of the outlet should be at least 1 foot below the top of the embankment.

Sediment Basins:

The purpose of a sediment basin is to intercept sediment-laden runoff and trap the sediment in order to protect drainage ways, properties and rights of way below the sediment basin from sedimentation. A sediment basin is usually installed at points of discharge from disturbed areas. The drainage area for a sediment basin is recommended to be less than 100 acres.

Sediment basins are effective for capturing and slowly releasing the runoff from larger disturbed areas thereby allowing sedimentation to take place. A sediment basin can be created where a permanent pond BMP is being constructed. Guidelines for construction of the permanent BMP should be followed, but revegetation, placement of underdrain piping, and installation of sand or other filter media should not be carried out until the site construction phase is complete.

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Materials:

- Riser should be corrugated metal or reinforced concrete pipe or box and should have watertight fittings or end to end connections of sections.
- An outlet pipe of corrugated metal or reinforced concrete should be attached to the riser and should have positive flow to a stabilized outlet on the downstream side of the embankment.
- An anti-vortex device and rubbish screen should be attached to the top of the riser and should be made of polyvinyl chloride or corrugated metal.

Basin Design and Construction:

- For common drainage locations that serve an area with ten or more acres disturbed at one time, a sediment basin should provide storage for a volume of runoff from a two-year, 24-hour storm from each disturbed acre drained.
- The basin length to width ratio should be at least 2:1 to improve trapping efficiency. The shape may be attained by excavation or the use of baffles. The lengths should be measured at the elevation of the riser de-watering hole.
- Place fill material in layers not more than 8 inches in loose depth. Before compaction, moisten or aerate each layer as necessary to provide the optimum moisture content of the material. Compact each layer to 95 percent standard proctor density. Do not place material on surfaces that are muddy or frozen. Side slopes for the embankment should be 3:1 (H:V).
- An emergency spillway should be installed adjacent to the embankment on undisturbed soil and should be sized to carry the full amount of flow generated by a 10-year, 3-hour storm with 1 foot of freeboard less the amount which can be carried by the principal outlet control device.
- The emergency spillway should be lined with riprap as should the swale leading from the spillway to the normal watercourse at the base of the embankment.
- The principal outlet control device should consist of a rigid vertically oriented pipe or box of corrugated metal or reinforced concrete. Attached to this structure should be a horizontal pipe, which should extend through the embankment to the toe of fill to provide a de-watering outlet for the basin.
- An anti-vortex device should be attached to the inlet portion of the principal outlet control device to serve as a rubbish screen.
- A concrete base should be used to anchor the principal outlet control device and should be sized to provide a safety factor of 1.5 (downward forces = 1.5 buoyant forces).
- The basin should include a permanent stake to indicate the sediment level in the pool and marked to indicate when the sediment occupies 50% of the basin volume (not the top of the

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stake).

- The top of the riser pipe should remain open and be guarded with a trash rack and anti-vortex device. The top of the riser should be 12 inches below the elevation of the emergency spillway. The riser should be sized to convey the runoff from the 2-year, 3-hour storm when the water surface is at the emergency spillway elevation. For basins with no spillway the riser must be sized to convey the runoff from the 10-yr, 3-hour storm.

- Anti-seep collars should be included when soil conditions or length of service make piping through the backfill a possibility.

- The 48-hour drawdown time will be achieved by using a riser pipe perforated at the point measured from the bottom of the riser pipe equal to ½ the volume of the basin. This is the maximum sediment storage elevation. The size of the perforation may be calculated as follows:

$$Ao = \frac{As \times \sqrt{2h}}{Cd \times 980{,}000}$$

Where:
A_o = Area of the de-watering hole, ft 2
A_s = Surface area of the basin, ft 2
C_d = Coefficient of contraction, approximately 0.6
h = head of water above the hole, ft
Perforating the riser with multiple holes with a combined surface area equal to A_o is acceptable.

Erosion Control Compost

Description: Erosion control compost (ECC) can be used as an aid to control erosion on critical sites during the establishment period of protective vegetation. The most common uses are on steep slopes, swales, diversion dikes, and on tidal or stream banks.

Materials:

New types of erosion control compost are continuously being developed. The Texas Department of Transportation (TxDOT) has established minimum performance standards which must be met for any products seeking to be approved for use within any of TxDOT's construction or maintenance activities. Material used within any TxDOT construction or maintenance activities must meet material specifications in accordance with current TxDOT specifications. TxDOT maintains a website at http://www.txdot.gov/business/contractors_consultants/recycling/compost.htm that provides information on compost specification data.

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ECC used for projects not related to TxDOT should also be of quality materials by meeting performance standards and compost specification data. To ensure the quality of compost used as an ECC, products should meet all applicable state and federal regulations, including but not limited to the United States Environmental Protection Agency (USEPA) Code of Federal Regulations (CFR), Title 40, Part 503 Standards for Class A biosolids and Texas Natural Resource Conservation Commission (now named TCEQ) Health and Safety Regulations as defined in the Texas Administration Code (TAC), Chapter 332, and all other relevant requirements for compost products outlined in TAC, Chapter 332. Testing requirements required by the TCEQ are defined in TAC Chapter 332, including Sections §332.71 Sampling and Analysis Requirements for Final Products and §332.72 Final Product Grades. Compost specification data approved by TxDOT are appropriate to use for ensuring the use of quality compost materials or for guidance.

Testing standards are dependent upon the intended use for the compost and ensures product safety, and product performance regarding the product's specific use. The appropriate compost sampling and testing protocols included in the United States Composting Council (USCC) Test Methods for the Examination of Composting and Compost (TMECC) should be conducted on compost products used for ECC to ensure that the products used will not impact public health, safety, and the environment and to promote production and marketing of quality composts that meet analytical standards. TMECC is a laboratory manual that provides protocols for the composting industry and test methods for compost analysis. TMECC provides protocols to sample, monitor, and analyze materials during all stages of the composting process. Numerous parameters that might be of concern in compost can be tested by following protocols or test methods listed in TMECC. TMECC information can be found at http://www.tmecc.org/tmecc/index.html. The USCC Seal of Testing Assurance (STA) program contains information regarding compost STA certification. STA program information can be found at http://tmecc.org/sta/STA_program_description.html.

Installation:

- Install in accordance with current TxDOT specification.
- Use on slopes 3:1 or flatter.
- Apply a 2 inch uniform layer unless otherwise shown on the plans or as directed.
- When rolling is specified, use a light corrugated drum roller.

Mulch and Compost Filter Socks

Description: Mulch and compost filter socks (erosion control logs) are used to intercept and detain sediment laden run-off from unprotected areas. When properly used, mulch and compost filter socks can be highly effective at controlling sediment from disturbed areas. They cause runoff to pond which allows heavier solids to settle. Mulch and compost filter socks are used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. The sock should remain in place until the area is permanently stabilized. Mulch and compost filter socks may be installed in construction areas

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Description of BMPs

and temporarily moved during the day to allow construction activity provided it is replaced and properly anchored at the end of the day. Mulch and compost filter socks may be seeded to allow for quick vegetative growth and reduction in run-off velocity.

Materials:

New types of mulch and compost filter socks are continuously being developed. The Texas Department of Transportation (TxDOT) has established minimum performance standards which must be met for any products seeking to be approved for use within any of TxDOT's construction or maintenance activities. Mulch and compost filter socks used within any TxDOT construction or maintenance activities must meet material specifications in accordance with TxDOT specification 5049. TxDOT maintains a website at http://www.txdot.gov/business/contractors_consultants/recycling/compost.htm that provides information on compost specification data.

Mulch and compost filter socks used for projects not related to TxDOT should also be of quality materials by meeting performance standards and compost specification data. To ensure the quality of compost used for mulch and compost filter socks, products should meet all applicable state and federal regulations, including but not limited to the United States Environmental Protection Agency (USEPA) Code of Federal Regulations (CFR), Title 40, Part 503 Standards for Class A biosolids and Texas Natural Resource Conservation Commission Health and Safety Regulations as defined in the Texas Administration Code (TAC), Chapter 332, and all other relevant requirements for compost products outlined in TAC, Chapter 332. Testing requirements required by the TCEQ are defined in TAC Chapter 332, including Sections §332.71 Sampling and Analysis Requirements for Final Products and §332.72 Final Product Grades. Compost specification data approved by TxDOT are appropriate to use for ensuring the use of quality compost materials or for guidance.

Testing standards are dependent upon the intended use for the compost and ensures product safety, and product performance regarding the product's specific use. The appropriate compost sampling and testing protocols included in the United States Composting Council (USCC) Test Methods for the Examination of Composting and Compost (TMECC) should be conducted on compost products used for mulch and compost filter socks to ensure that the products used will not impact public health, safety, and the environment and to promote production and marketing of quality composts that meet analytical standards. TMECC is a laboratory manual that provides protocols for the composting industry and test methods for compost analysis. TMECC provides protocols to sample, monitor, and analyze materials during all stages of the composting process. Numerous parameters that might be of concern in compost can be tested by following protocols or test methods listed in TMECC. TMECC information can be found at http://www.tmecc.org/tmecc/index.html. The USCC Seal of Testing Assurance (STA) program contains information regarding compost STA certification. STA program information can be found at http://tmecc.org/sta/STA_program_description.html.

Installation:

- Install in accordance with TxDOT Special Specification 5049.

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- Install socks (erosion control logs) near the downstream perimeter of a disturbed area to intercept sediment from sheet flow.
- Secure socks in a method adequate to prevent displacement as a result of normal rain events such that flow is not allowed under the socks.
- Inspect and maintain the socks in good condition (including staking, anchoring, etc.). Maintain the integrity of the control, including keeping the socks free of accumulated silt, debris, etc., until the disturbed area has been adequately stabilized.

POST-CONSTRUCTION TSS CONTROLS

Retention/Irrigation Systems

Description: Retention/irrigation systems refer to the capture of runoff in a holding pond, then use of the captured water for irrigation of appropriate landscape areas. Retention/irrigation systems are characterized by the capture and disposal of runoff without direct release of captured flow to receiving streams. Retention systems exhibit excellent pollutant removal but can require regular, proper maintenance. Collection of roof runoff for subsequent use (rainwater harvesting) also qualifies as a retention/irrigation practice, but should be operated and sized to provide adequate volume. This technology, which emphasizes beneficial use of stormwater runoff, is particularly appropriate for arid regions because of increasing demands on water supplies for agricultural irrigation and urban water supply.

Design Considerations: Retention/irrigation practices achieve 100% removal efficiency of total suspended solids contained within the volume of water captured. Design elements of retention/irrigation systems include runoff storage facility configuration and sizing, pump and wet well system components, basin lining, basin detention time, and physical and operational components of the irrigation system. Retention/irrigation systems are appropriate for large drainage areas with low to moderate slopes. The retention capacity should be sufficient considering the average rainfall event for the area.

Maintenance Requirements: Maintenance requirements for retention/irrigation systems include routine inspections, sediment removal, mowing, debris and litter removal, erosion control, and nuisance control.

Extended Detention Basin

Description: Extended detention facilities are basins that temporarily store a portion of stormwater runoff following a storm event. Extended detention basins are normally used to remove particulate pollutants and to reduce maximum runoff rates associated with development to their pre-development levels. The water quality benefits are the removal of sediment and buoyant materials. Furthermore, nutrients, heavy metals, toxic materials, and oxygen-demanding materials associated with the particles also are removed. The control of the maximum runoff rates serves to protect drainage channels below the device from erosion and to reduce downstream flooding. Although detention facilities designed for flood control have different design requirements than those used for water quality enhancement, it is possible to

achieve these two objectives in a single facility.

Design Considerations: Extended detention basins can remove approximately 75% of the total suspended solids contained within the volume of runoff captured in the basin. Design elements of extended detention basins include basin sizing, basin configuration, basin side slopes, basin lining, inlet/outlet structures, and erosion controls. Extended detention basins are appropriate for large drainage areas with low to moderate slopes. The retention capacity should be sufficient considering the average rainfall event for the area.

Maintenance Requirements: Maintenance requirements for extended detention basins include routine inspections, mowing, debris and litter removal, erosion control, structural repairs, nuisance control, and sediment removal.

Vegetative Filter Strips

Description: Filter strips, also known as vegetated buffer strips, are vegetated sections of land similar to grassy swales except they are essentially flat with low slopes, and are designed only to accept runoff as overland sheet flow. They may appear in any vegetated form from grassland to forest, and are designed to intercept upstream flow, lower flow velocity, and spread water out as sheet flow. The dense vegetative cover facilitates conventional pollutant removal through detention, filtration by vegetation, and infiltration.

Filter strips cannot treat high velocity flows, and do not provide enough storage or infiltration to effectively reduce peak discharges to predevelopment levels for design storms. This lack of quantity control favors use in rural or low-density development; however, they can provide water quality benefits even where the impervious cover is as high as 50%. The primary highway application for vegetative filter strips is along rural roadways where runoff that would otherwise discharge directly to a receiving water passes through the filter strip before entering a conveyance system. Properly designed roadway medians and shoulders make effective buffer strips. These devices also can be used on other types of development where land is available and hydraulic conditions are appropriate.

Flat slopes and low to fair permeability of natural subsoil are required for effective performance of filter strips. Although an inexpensive control measure, they are most useful in contributing watershed areas where peak runoff velocities are low as they are unable to treat the high flow velocities typically associated with high impervious cover.

Successful performance of filter strips relies heavily on maintaining shallow unconcentrated flow. To avoid flow channelization and maintain performance, a filter strip should:

- Be equipped with a level spreading device for even distribution of runoff
- Contain dense vegetation with a mix of erosion resistant, soil binding species
- Be graded to a uniform, even and relatively low slope
- Laterally traverse the contributing runoff area

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Description of BMPs

Filter strips can be used upgradient from watercourses, wetlands, or other water bodies along toes and tops of slopes and at outlets of other stormwater management structures. They should be incorporated into street drainage and master drainage planning. The most important criteria for selection and use of this BMP are soils, space, and slope.

Design Considerations: Vegetative filter strips can remove approximately 85% of the total suspended solids contained within the volume of runoff captured. Design elements of vegetative filter strips include uniform, shallow overland flow across the entire filter strip area, hydraulic loading rate, inlet structures, slope, and vegetative cover. The area should be free of gullies or rills which can concentrate flow. Vegetative filter strips are appropriate for small drainage areas with moderate slopes. Other design elements include the following:

- Soils and moisture are adequate to grow relatively dense vegetative stands
- Sufficient space is available
- Slope is less than 12%
- Comparable performance to more expensive structural controls

Maintenance Requirements: Maintenance requirements for vegetative filter strips include pest management, seasonal mowing and lawn care, routine inspections, debris and litter removal, sediment removal, and grass reseeding and mulching.

Constructed Wetlands

Description: Constructed wetlands provide physical, chemical, and biological water quality treatment of stormwater runoff. Physical treatment occurs as a result of decreasing flow velocities in the wetland, and is present in the form of evaporation, sedimentation, adsorption, and/or filtration. Chemical processes include chelation, precipitation, and chemical adsorption. Biological processes include decomposition, plant uptake and removal of nutrients, plus biological transformation and degradation. Hydrology is one of the most influential factors in pollutant removal due to its effects on sedimentation, aeration, biological transformation, and adsorption onto bottom sediments.

The wetland should be designed such that a minimum amount of maintenance is required. The natural surroundings, including such things as the potential energy of a stream or flooding river, should be utilized as much as possible. The wetland should approximate a natural situation and unnatural attributes, such as rectangular shape or rigid channel, should be avoided.

Site considerations should include the water table depth, soil/substrate, and space requirements. Because the wetland must have a source of flow, it is desirable that the water table is at or near the surface. If runoff is the only source of inflow for the wetland, the water level often fluctuates and establishment of vegetation may be difficult. The soil or substrate of an artificial wetland should be loose loam to clay. A perennial baseflow must be present to sustain the artificial wetland. The presence of organic material is often helpful in increasing pollutant removal and retention. A greater amount of space is required for a wetland system than is required for a detention facility treating the same amount of area.

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Design Considerations: Constructed wetlands can remove over 90% of the total suspended solids contained within the volume of runoff captured in the wetland. Design elements of constructed wetlands include wetland sizing, wetland configuration, sediment forebay, vegetation, outflow structure, depth of inundation during storm events, depth of micropools, and aeration. Constructed wetlands are appropriate for large drainage areas with low to moderate slopes.

Maintenance Requirements: Maintenance requirements for constructed wetlands include mowing, routine inspections, debris and litter removal, erosion control, nuisance control, structural repairs, sediment removal, harvesting, and maintenance of water levels.

Wet Basins

Description: Wet basins are runoff control facilities that maintain a permanent wet pool and a standing crop of emergent littoral vegetation. These facilities may vary in appearance from natural ponds to enlarged, bermed (manmade) sections of drainage systems and may function as online or offline facilities, although offline configuration is preferable. Offline designs can prevent scour and other damage to the wet pond and minimize costly outflow structure elements needed to accommodate extreme runoff events.

During storm events, runoff inflows displace part or all of the existing basin volume and are retained and treated in the facility until the next storm event. The pollutant removal mechanisms are settling of solids, wetland plant uptake, and microbial degradation. When the wet basin is adequately sized, pollutant removal performance can be excellent, especially for the dissolved fraction. Wet basins also help provide erosion protection for the receiving channel by limiting peak flows during larger storm events. Wet basins are often perceived as a positive aesthetic element in a community and offer significant opportunity for creative pond configuration and landscape design. Participation of an experienced wetland designer is suggested. A significant potential drawback for wet ponds in arid climates is that the contributing watershed for these facilities is often incapable of providing an adequate water supply to maintain the permanent pool, especially during the summer months. Makeup water (i.e., well water or municipal drinking water) is sometimes used to supplement the rainfall/runoff process, especially for wet basin facilities treating watersheds that generate insufficient runoff.

Design Considerations: Wet basins can remove over 90% of the total suspended solids contained within the volume of runoff captured in the basin. Design elements of wet basins include basin sizing, basin configuration, basin side slopes, sediment forebay, inflow and outflow structures, vegetation, depth of permanent pool, aeration, and erosion control. Wet basins are appropriate for large drainage areas with low to moderate slopes.

Maintenance Requirements: Maintenance requirements for wet basins include mowing, routine inspections, debris and litter removal, erosion control, nuisance control, structural repairs, sediment removal, and harvesting.

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Grassy Swales

Grassy swales are vegetated channels that convey stormwater and remove pollutants by filtration through grass and infiltration through soil. They require shallow slopes and soils that drain well. Pollutant removal capability is related to channel dimensions, longitudinal slope, and type of vegetation. Optimum design of these components will increase contact time of runoff through the swale and improve pollutant removal rates.

Grassy swales are primarily stormwater conveyance systems. They can provide sufficient control under light to moderate runoff conditions, but their ability to control large storms is limited. Therefore, they are most applicable in low to moderate sloped areas or along highway medians as an alternative to ditches and curb and gutter drainage. Their performance diminishes sharply in highly urbanized settings, and they are generally not effective enough to receive construction stage runoff where high sediment loads can overwhelm the system. Grassy swales can be used as a pretreatment measure for other downstream BMPs, such as extended detention basins. Enhanced grassy swales utilize check dams and wide depressions to increase runoff storage and promote greater settling of pollutants.

Grassy swales can be more aesthetically pleasing than concrete or rock-lined drainage systems and are generally less expensive to construct and maintain. Swales can slightly reduce impervious area and reduce the pollutant accumulation and delivery associated with curbs and gutters. The disadvantages of this technique include the possibility of erosion and channelization over time, and the need for more right-of-way as compared to a storm drain system. When properly constructed, inspected, and maintained, the life expectancy of a swale is estimated to be 20 years.

Design Considerations:

- Comparable performance to wet basins
- Limited to treating a few acres
- Availability of water during dry periods to maintain vegetation
- Sufficient available land area

The suitability of a swale at a site will depend on land use, size of the area serviced, soil type, slope, imperviousness of the contributing watershed, and dimensions and slope of the swale system. In general, swales can be used to serve areas of less than 10 acres, with slopes no greater than 5 %. The seasonal high water table should be at least 4 feet below the surface. Use of natural topographic lows is encouraged, and natural drainage courses should be regarded as significant local resources to be kept in use.

Maintenance Requirements:

Research in the Austin area indicates that vegetated controls are effective at removing pollutants even when dormant. Therefore, irrigation is not required to maintain growth during dry periods, but may be necessary only to prevent the vegetation from dying.

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Vegetation Lined Drainage Ditches

Vegetation lined drainage ditches are similar to grassy swales. These drainage ditches are vegetated channels that convey storm water and remove pollutants by filtration through grass and infiltration through soil. They require soils that drain well. Pollutant removal capability is related to channel dimensions, longitudinal slope, and type of vegetation. Optimum design of these components will increase contact time of runoff through the ditch and improve pollutant removal rates. Vegetation lined drainage ditches are primarily storm water conveyance systems. They have vegetation lined in the low flow channel and may include vegetated shelves.

Vegetation in drainage ditches reduces erosion and removes pollutants by lowering water velocity over the soil surface, binding soil particles with roots, and by filtration through grass and infiltration through soil. Vegetation lined drainage ditches can be used where:

- A vegetative lining can provide sufficient stability for the channel grade by increasing maximum permissible velocity

- Slopes are generally less than 5%, with protection from sheer stress as needed through the use of BMPs, such as erosion control blankets

- Site conditions required to establish vegetation, i.e. climate, soils, topography, are present

Design Criteria: The suitability of a vegetation lined drainage ditch at a site will depend on land use, size of the area serviced, soil type, slope, imperviousness of the contributing watershed, and dimensions and slope of the ditch system. The hydraulic capacity of the drainage ditch and other elements such as erosion, siltation, and pollutant removal capability, must be taken into consideration. Use of natural topographic lows is encouraged, and natural drainage courses should be regarded as significant local resources to be kept in use. Other items to consider include the following:

- Capacity, cross-section shape, side slopes, and grade

- Select appropriate native vegetation

- Construct in stable, low areas to conform with the natural drainage system. To reduce erosion potential, design the channel to avoid sharp bends and steep grades.

- Design and build drainage ditches with appropriate scour and erosion protection. Surface water should be able to enter over the vegetated banks without erosion occurring.

- BMPs, such as erosion control blankets, may need to be installed at the time of seeding to provide stability until the vegetation is fully established. It may also be necessary to divert water from the channel until vegetation is established or to line the channel with sod.

- Vegetated ditches must not be subject to sedimentation from disturbed areas.

Attachment 4
Description of BMPs

• Sediment traps may be needed at channel inlets to prevent entry of muddy runoff and channel sedimentation.

- Availability of water during dry periods to maintain vegetation
- Sufficient available land area

Maintenance:

During establishment, vegetation lined drainage ditches should be inspected, repaired, and vegetation reestablished if necessary. After the vegetation has become established, the ditch should be checked periodically to determine if the channel is withstanding flow velocities without damage. Check the ditch for debris, scour, or erosion and immediately make repairs if needed. Check the channel outlet and all road crossings for bank stability and evidence of piping or scour holes and make repairs immediately. Remove all significant sediment accumulations to maintain the designed carrying capacity. Keep the vegetation in a healthy condition at all times, since it is the primary erosion protection for the channel. Vegetation lined drainage ditches should be seasonally maintained by mowing or irrigating, depending on the vegetation selected. The long-term management of ditches as stable, vegetated, "natural" drainage systems with native vegetation buffers is highly recommended due to the inherent stability offered by grasses, shrubs, trees, and other vegetation.

Research in the Austin area indicates that vegetated controls are effective at removing pollutants even when dormant. Therefore, irrigation is not required to maintain growth during dry periods, but may be necessary only to prevent the vegetation from dying.

Sand Filter Systems

The objective of sand filters is to remove sediment and the pollutants from the first flush of pavement and impervious area runoff. The filtration of nutrients, organics, and coliform bacteria is enhanced by a mat of bacterial slime that develops during normal operations. One of the main advantages of sand filters is their adaptability; they can be used on areas with thin soils, high evaporation rates, low-soil infiltration rates, in limited-space areas, and where groundwater is to be protected.

Since their original inception in Austin, Texas, hundreds of intermittent sand filters have been implemented to treat stormwater runoff. There have been numerous alterations or variations in the original design as engineers in other jurisdictions have improved and adapted the technology to meet their specific requirements. Major types include the Austin Sand Filter, the District of Columbia Underground Sand Filter, the Alexandria Dry Vault Sand Filter, the Delaware Sand Filter, and peat-sand filters which are adapted to provide a sorption layer and vegetative cover to various sand filter designs .

Design Considerations:

- Appropriate for space-limited areas

Attachment 4
Description of BMPs

- Applicable in arid climates where wet basins and constructed wetlands are not appropriate
- High TSS removal efficiency

Cost Considerations:

Filtration Systems may require less land than some other BMPs, reducing the land acquisition cost; however the structure itself is one of the more expensive BMPs. In addition, maintenance cost can be substantial.

Erosion Control Compost

Description: Erosion control compost (ECC) can be used as an aid to control erosion on critical sites during the establishment period of protective vegetation. The most common uses are on steep slopes, swales, diversion dikes, and on tidal or stream banks.

Materials:

New types of erosion control compost are continuously being developed. The Texas Department of Transportation (TxDOT) has established minimum performance standards which must be met for any products seeking to be approved for use within any of TxDOT's construction or maintenance activities. Material used within any TxDOT construction or maintenance activities must meet material specifications in accordance with current TxDOT specifications. TxDOT maintains a website at http://www.txdot.gov/business/contractors_consultants/recycling/compost.htm that provides information on compost specification data.

ECC used for projects not related to TxDOT should also be of quality materials by meeting performance standards and compost specification data. To ensure the quality of compost used as an ECC, products should meet all applicable state and federal regulations, including but not limited to the United States Environmental Protection Agency (USEPA) Code of Federal Regulations (CFR), Title 40, Part 503 Standards for Class A biosolids and Texas Natural Resource Conservation Commission (now named TCEQ) Health and Safety Regulations as defined in the Texas Administration Code (TAC), Chapter 332, and all other relevant requirements for compost products outlined in TAC, Chapter 332. Testing requirements required by the TCEQ are defined in TAC Chapter 332, including Sections §332.71 Sampling and Analysis Requirements for Final Products and §332.72 Final Product Grades. Compost specification data approved by TxDOT are appropriate to use for ensuring the use of quality compost materials or for guidance.
Testing standards are dependent upon the intended use for the compost and ensures product safety, and product performance regarding the product's specific use. The appropriate compost sampling and testing protocols included in the United States Composting Council (USCC) Test Methods for the Examination of Composting and Compost (TMECC) should be conducted on compost products used for ECC to ensure that the products used will not impact public health, safety, and the environment and to promote production and marketing of quality composts that meet analytical standards. TMECC is a laboratory manual that provides protocols for the composting industry and test methods for compost analysis. TMECC provides protocols to sample, monitor, and analyze materials during all stages of the composting process. Numerous

Attachment 4
Description of BMPs

parameters that might be of concern in compost can be tested by following protocols or test methods listed in TMECC. TMECC information can be found at http://www.tmecc.org/tmecc/index.html. The USCC Seal of Testing Assurance (STA) program contains information regarding compost STA certification. STA program information can be found at http://tmecc.org/sta/STA_program_description.html.

Installation:

- Install in accordance with current TxDOT specification.
- Use on slopes 3:1 or flatter.
- Apply a 2 inch uniform layer unless otherwise shown on the plans or as directed.
- When rolling is specified, use a light corrugated drum roller.

Mulch and Compost Filter Socks

Description: Mulch and compost filter socks (erosion control logs) are used to intercept and detain sediment laden run-off from unprotected areas. When properly used, mulch and compost filter socks can be highly effective at controlling sediment from disturbed areas. They cause runoff to pond which allows heavier solids to settle. Mulch and compost filter socks are used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. The sock should remain in place until the area is permanently stabilized. Mulch and compost filter socks may be installed in construction areas and temporarily moved during the day to allow construction activity provided it is replaced and properly anchored at the end of the day. Mulch and compost filter socks may be seeded to allow for quick vegetative growth and reduction in run-off velocity.

Materials:

New types of mulch and compost filter socks are continuously being developed. The Texas Department of Transportation (TxDOT) has established minimum performance standards which must be met for any products seeking to be approved for use within any of TxDOT's construction or maintenance activities. Mulch and compost filter socks used within any TxDOT construction or maintenance activities must meet material specifications in accordance with TxDOT specification 5049. TxDOT maintains a website at http://www.txdot.gov/business/contractors_consultants/recycling/compost.htm that provides information on compost specification data.

Mulch and compost filter socks used for projects not related to TxDOT should also be of quality materials by meeting performance standards and compost specification data. To ensure the quality of compost used for mulch and compost filter socks, products should meet all applicable state and federal regulations, including but not limited to the United States Environmental Protection Agency (USEPA) Code of Federal Regulations (CFR), Title 40, Part 503 Standards for Class A biosolids and Texas Natural Resource Conservation Commission Health and Safety Regulations as defined in the Texas Administration Code (TAC), Chapter 332, and all other

Attachment 4
Description of BMPs

relevant requirements for compost products outlined in TAC, Chapter 332. Testing requirements required by the TCEQ are defined in TAC Chapter 332, including Sections §332.71 Sampling and Analysis Requirements for Final Products and §332.72 Final Product Grades. Compost specification data approved by TxDOT are appropriate to use for ensuring the use of quality compost materials or for guidance.

Testing standards are dependent upon the intended use for the compost and ensures product safety, and product performance regarding the product's specific use. The appropriate compost sampling and testing protocols included in the United States Composting Council (USCC) Test Methods for the Examination of Composting and Compost (TMECC) should be conducted on compost products used for mulch and compost filter socks to ensure that the products used will not impact public health, safety, and the environment and to promote production and marketing of quality composts that meet analytical standards. TMECC is a laboratory manual that provides protocols for the composting industry and test methods for compost analysis. TMECC provides protocols to sample, monitor, and analyze materials during all stages of the composting process. Numerous parameters that might be of concern in compost can be tested by following protocols or test methods listed in TMECC. TMECC information can be found at http://www.tmecc.org/tmecc/index.html. The USCC Seal of Testing Assurance (STA) program contains information regarding compost STA certification. STA program information can be found at http://tmecc.org/sta/STA_program_description.html.

Installation:

- Install in accordance with TxDOT Special Specification 5049.
- Install socks (erosion control logs) near the downstream perimeter of a disturbed area to intercept sediment from sheet flow.
- Secure socks in a method adequate to prevent displacement as a result of normal rain events such that flow is not allowed under the socks.
- Inspect and maintain the socks in good condition (including staking, anchoring, etc.). Maintain the integrity of the control, including keeping the socks free of accumulated silt, debris, etc., until the disturbed area has been adequately stabilized.

Sedimentation Chambers (only to be used when there is no space available for other approved BMP's)

Description: Sedimentation chambers are stormwater treatment structures that can be used when space is limited such as urban settings. These structures are often tied into stormwater drainage systems for treatment of stormwater prior to entering state waters. The water quality benefits are the removal of sediment and buoyant materials. These structures are not designed as a catch basin or detention basin and not typically used for floodwater attenuation.

Design Considerations: Average rainfall and surface area should be considered when following manufacturer's recommendations for chamber sizing and/or number of units needed to achieve effective TSS removal. If properly sized, 50-80% removal of TSS can be expected.

Attachment 4
Description of BMPs

Maintenance Requirements: Maintenance requirements include routine inspections, sediment, debris and litter removal, erosion control and nuisance control.

From: Bocanegra, Omar
To: Anastacia Santos 2403
Subject: Tuco-Yoakum-Hobbs 345 kV Transmissin line project
Date: Monday, October 20, 2014 11:52:12 AM

Ms. Santos:

We have received your letter concerning the subject project proposed in Gains, Hale, Hockley, Lubbock, Lynn, Terry, and Yoakum Counties, Texas, and Texas and Lea Counties, New Mexico. This office will only be responding to the portion of the project that would occur in Texas. For information regarding the portion in New Mexico, please contact the New Mexico Field Office at 505-346-2525.

We anticipate providing you a written response to your request by the end of this week. Thank you.

-Omar

Omar R. Bocanegra
U.S. Fish & Wildlife Service
2005 NE Green Oaks Blvd, Suite 140
Arlington, Texas 76006
(817) 277-1100 ext. 2126
(817) 277-1129 fax
Website: http://www.fws.gov/southwest/es/arlingtontexas/

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
2005 NE Green Oaks Blvd., Suite 140
Arlington, Texas 76006

In Reply Refer To:
02ETAR00-2014-I-0431

October 22, 2014

Ms. Anastacia Santos
Project Manager
Power Engineers, Inc.
7600B North Capital of Texas Highway, Suite 320
Austin, Texas 78731

Dear Ms. Santos

Thank you for your August 25, 2014, letter requesting information concerning the proposed Tuco-Yoakum-Hobbs 345 kV transmission line project in Gaines, Hale, Hockley, Lubbock, Lynn, Terry, and Yoakum Counties, Texas and Lea and Texas Counties, New Mexico. The information provided by this office is to be used in the development of an Environmental Assessment and Alternative Route Analysis in support of a Certificate of Convenience and Necessity and Certificate of Public Convenience and Necessity application to the Public Utility Commission of Texas. This office is providing comments on the Texas portion of the project only.

Your letter included a map of a study area for the proposed project that includes a large polygon containing the existing Tuco Substation in Hale County, Texas, and existing Hobbs Substation in Lea County, New Mexico. Within this study area, the proposed 345 kV line would be routed, which included the construction of new Yoakum Substation in Yoakum County, Texas.

The following is a list of the threatened (T) and endangered (E) species of concern to the proposed action by county:

whooping crane (*Grus americana*) – E, Hale, Hockley, Lubbock, Lynn, Terry, Yoakum
sharpnose shiner (*Notropis oxyrhynchus*) – E, Lubbock, Lynn
smalleye shiner (*Notropis buccula*) – E, Lubbock, Lynn
lesser prairie-chicken (*Tympanuchus pallidicinctus*) – T, Gaines, Hockley, Terry, Yoakum

Under section 9 of the Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.), it is unlawful for any person to "take" any federally-listed threatened or endangered fish, wildlife, or plant species, without special exemption. Consequently, it is a violation of Federal law to take endangered

species or their habitat without appropriate permits, even if the take is accidental. Take of federally-listed species incidental to a lawful activity may be authorized through formal consultation under section 7(a)(2) of the ESA, whenever a Federal agency, Federal funding, or a Federal permit is involved. Otherwise, a person may seek an incidental take permit under section 10(a)(1)(B) of the ESA upon completion of a satisfactory habitat conservation plan (HCP) for listed species. There is no mechanism for authorizing incidental take "after-the-fact." For more information regarding formal consultation and HCPs, please see the Endangered Species Consultation Handbook, www.fws.gov/endangered/esa-library/index.html#consultations and the Service's HCP website, www.fws.gov/endangered/what-we-do/hcp-overview.html#.

The proposed action should be evaluated for potential effects to these species and their habitats. Should you determine that adverse effects to one or more of these species may occur as a result of the proposed project, please contact this office for additional information. Of particular concern is the potential occurrence of the lesser prairie-chicken (LPC) within the study area. The project study area encompasses areas with documented occurrence or are considered important to the LPC. Information on these areas may be found using the Southern Great Plains Crucial Habitat Assessment Tool (CHAT) at http://kars.ku.edu/geodata/maps/sgpchat/. To completely avoid potential impacts to the species, we recommend the proposed route avoid the estimated occupied range buffered by 10 miles (CHAT categories 1 through 4) as delineated on the CHAT map. If this area cannot be avoided, we recommend you contact Sean Kyle of Texas Parks and Wildlife Department at 806-742-4735 or email Sean.Kyle@wafwa.org to inquire about the potential to participate in the Range-wide Conservation Plan (RWCP) for the LPC.

If potential impacts to the LPC and its habitat cannot be avoided through route modification or participation in the RWCP, you should contact this office for additional information.

Thank you for the opportunity to provide information on the proposed project. If you have any questions, please contact Omar Bocanegra of my staff at 817-277-1100, extension 2126.

Sincerely,

for Debra Bills
Field Supervisor

Electronic CC: Sean Kyle, Texas Parks and Wildlife Department, Lubbock, TX
Field Supervisor, Fish and Wildlife Service, Albuquerque, NM (Attn: D. Hill)

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APPENDIX B

Appendix B

Open House Information

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Siting and Land Rights
Toll-free 844-213-5797

Xcel Energy®
RESPONSIBLE BY NATURE™

Power for the Plains

December 16, 2014

Via USPS mail

[Landowner Name]
[Landowner Address 1]
[Landowner Address 2]

Re: Tuco-Yoakum-Hobbs 345 kV Transmission Line Project Open Houses

Dear Sir or Madam:

Southwestern Public Service Company (SPS), a subsidiary of Xcel Energy, Inc., is proposing to construct a new 345 kilovolt (kV) electric transmission line. The proposed transmission line will be approximately 159 miles long, depending upon the final approved routes. Approximately 107 miles will be constructed between the Tuco substation which is located approximately two miles north of Abernathy in Hale County, Texas to the Yoakum substation located about 30 miles from Brownfield, Texas. Approximately 52 miles of 345 kV line will be constructed between the Hobbs Plant substation which is located about 11 miles northwest of Hobbs, New Mexico to the Yoakum substation. Preliminary alternative route links have been identified and are shown as black dashed lines on the attached map.

You are receiving this notice regarding the aforementioned proposed project because one or more of the preliminary alternative route segments for the proposed transmission line may require an easement or other property interest across your property or the centerline of one of the preliminary alternative routes may be located within 500 feet of your property.

SPS is committed to routing the proposed transmission line in a manner consistent with the values of the local communities, the Texas Utilities Code, the Public Utility Commission of Texas Rules and Policies, and the need to provide reliable electric service to this area of North Texas. Additionally, SPS will work with the Texas Public Utility Commission and the New Mexico Public Regulation Commission for the necessary approvals needed for the project.

SPS is hosting four public open houses to solicit input from the public to help determine the route for the proposed transmission line as well as to share information about routing alternatives. We invite you to attend one of these open houses that is most convenient for you to learn more about our project.

OPEN HOUSE INFORMATION

Tuesday January 6, 2015	Thursday January 8, 2015	Tuesday January 13, 2015	Thursday January 15, 2015
5:30 – 7:30 p.m. MST 6:30 – 8:30 p.m. CST	5:30 – 7:30 p.m.	5:30 – 7:30 p.m.	5:30 – 7:30 p.m.
Hobbs Event Center 5101 N. Lovington Hwy Hobbs, NM 88240	Denver City High School Auditorium 601 Mustang Drive Denver City, TX 79323	Brownfield Middle School Auditorium 1001 E. Broadway St. Brownfield, TX 79316	Legacy Event Center 1500 14th Street Lubbock, TX 79401

Maps with greater detail will be available at the open houses. Individuals attending the public open houses will have an opportunity to ask questions and provide information regarding the proposed transmission line route links. These preliminary alternative route links are subject to modification based on further study and information received at the public open houses.

Additional project information, including detailed route link maps for the Tuco-Yoakum-Hobbs project, is posted at www.powerfortheplains.com . If you have any questions concerning the open houses, please contact Ed Trapp at 715-379-5576 or our project toll-free information line 844-213-5797.

Sincerely,

Edwin Trapp
Project Manager
Representing Xcel Energy

Enclosures

OVERSIZED MAP Sheet 1 of 5

OVERSIZED MAP Sheet 2 of 5

OVERSIZED MAP Sheet 3 of 5

OVERSIZED MAP Sheet 4 of 5

OVERSIZED MAP Sheet 5 of 5

Segment _____

Tract # _____

Xcel Energy®
RESPONSIBLE BY NATURE™

January 2015 Open House Questionnaire
Tuco-Yoakum-Hobbs 345 kV Transmission Line

Welcome and thank you for taking the time to attend this public open-house meeting for the proposed Tuco-Yoakum-Hobbs 345 kV transmission line project. The purpose of this open-house is to present information, receive your ideas and concerns, and answer your questions about the project. Before Xcel Energy, Inc. (Xcel Energy) and their routing consultant (POWER Engineers, Inc.) make any final decisions concerning which potential routes will be filed for consideration by the Public Utility Commission of Texas and the New Mexico Public Regulation Commission, and which transmission structure type to select, we want to hear your opinion.

We welcome your comments on the Tuco-Yoakum-Hobbs 345 kV transmission line project. Please take a few minutes to answer the following questions. To ensure that your comments will be incorporated into the analysis of alternatives, please return this form at the open-house or not later than February 15, 2015 to the following address: PO Box 4144, Waterloo, Iowa 50704. You may also submit your comments by email to Ed.Trapp@contractlandstaff.com. To find more information, we encourage you to visit the project website, http://www.powerfortheplains.com/projects.

1. Which public open-house meeting did you attend?

   Hobbs, NM, Jan. 6, Yes ___ No ____, Denver City, Jan 8, Yes ___ No ____

   Brownfield, Jan. 13, Yes ___ No ____, Lubbock, Jan. 15, Yes ___ No ____

2. In your opinion, has the purpose for the project been adequately explained?

   Yes ___ No ____

3. How could we have improved on this effort? Was there something that did you not understand?

   _____

   _____

   _____

   _____

   _____

4. Do you believe the public open-house format and the information that was provided were helpful for your understanding of the project?

   Open-house Format Yes ____ No ____
   Information Provided Yes ____ No ____

5. As explained at one of the stations of the open-house, the routing of a transmission line involves many considerations. Please circle the number corresponding to the level of importance that each specific factor in the routing of the transmission line is to you.

	FACTORS	**RATINGS**				
		Not Important	----------	Somewhat Important	----------	Very Important
a)	Maximize distance from residences	1	2	3	4	5
b)	Maximize distance from businesses	1	2	3	4	5
c)	Maximize distance from public facilities (e.g., parks & schools)	1	2	3	4	5
d)	Maximize length along existing transmission lines	1	2	3	4	5
e)	Maximize length along highways or other roads	1	2	3	4	5
f)	Maximize length along property boundary lines	1	2	3	4	5
g)	Maintain reliable electric service	1	2	3	4	5
h)	Minimize length through wetlands/floodplains	1	2	3	4	5
i)	Minimize crossing and paralleling of streams/ rivers	1	2	3	4	5
k)	Minimize length across cropland	1	2	3	4	5
l)	Minimize loss of trees	1	2	3	4	5
m)	Minimize visibility of the line	1	2	3	4	5
n)	Minimize total length of line (reduces cost of line)	1	2	3	4	5
o)	Minimize length through grassland or pasture	1	2	3	4	5
p)	Maximize length through undeveloped land	1	2	3	4	5
q)	Minimize impacts to archaeological and historic sites	1	2	3	4	5

6. If you wish to comment on the factors listed in the previous question, or add any factors that you think should be considered, please use the space below and the back of the questionnaire, if necessary.

_____

_____

_____

_____

_____

7. If there are any other features in the study area that you feel are important, please describe the locations and/or mark them on the study area maps attached.

_____

_____

_____

_____

_____

8. If you have a concern with a particular transmission line segment shown on the displays and the attached maps, please indicate the segment (by segment designation) and describe your concern.

Segment	Concern
_____	_____
	_____
	_____
_____	_____
	_____
	_____
_____	_____
	_____
	_____
_____	_____
	_____
	_____
_____	_____
	_____
	_____

9. Which of the following applies to your situation?

_____ Potential segment is near my home
_____ Potential segment is near my business
_____ Potential segment crosses my land
_____ Other (please specify)

_____

_____

_____

Please provide any additional comments below:

We would appreciate having your contact information below, however, it is optional.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____

E-mail Address: _____

THANK YOU FOR YOUR COMMENTS!

Mail comments to – P.O. Box 4144 – Waterloo, Iowa 50704 or
Email to Ed.Trapp@contractlandstaff.com

Tract # – _____

State – _____

PERMISSION TO SURVEY

I, _____ of _____ County, State of _____, hereby grant Southwestern Public Service ("SPS"), a subsidiary of Xcel Energy, and its representatives, permission to enter upon the following described land, which is either owned or leased by me, for the purposes of performing a civil survey; soil testing, including but not limited to soil boring and hydrovac studies; any necessary archeological and environmental studies, including but not limited to prairie chicken studies; and any other required or necessary studies for a proposed electric transmission power line:

Parcel ID(s) - _____

I understand that this is not an agreement regarding the construction of a transmission line, but is only permission to allow SPS to conduct preliminary surveys and studies as described above.

Dated this _____ day of _____, 20_____.

_____	_____
LANDOWNER	**TENANT**
Contact Information:	**Contact Information:**
Address: _____	Address: _____
_____	_____
Phone No: _____	Phone No: _____
_____	_____
LANDOWNER	**TENANT**
Contact Information:	**Contact Information:**
Address: _____	Address: _____
_____	_____
Phone No: _____	Phone No: _____

Return to SPS – c/o: Contract Land Staff- P.O. Box 4144 – Waterloo, Iowa 50701

LANDOWNER	TENANT
Contact Information:	**Contact Information:**
Address: ______________	Address: ______________
______________	______________
Phone No: ______________	Phone No: ______________

LANDOWNER	TENANT
Contact Information:	**Contact Information:**
Address: ______________	Address: ______________
______________	______________
Phone No: ______________	Phone No: ______________

LANDOWNER	TENANT
Contact Information:	**Contact Information:**
Address: ______________	Address: ______________
______________	______________
Phone No: ______________	Phone No: ______________

LANDOWNER	TENANT
Contact Information:	**Contact Information:**
Address: ______________	Address: ______________
______________	______________
Phone No: ______________	Phone No: ______________

Return to SPS – c/o: Contract Land Staff- P.O. Box 4144 – Waterloo, Iowa 50701

THE STATE OF TEXAS

LANDOWNER'S BILL OF RIGHTS

PREPARED BY THE

OFFICE OF THE
ATTORNEY GENERAL OF TEXAS

STATE OF TEXAS LANDOWNER'S BILL OF RIGHTS

This Landowner's Bill of Rights applies to any attempt by the government or a private entity to take your property. The contents of this Bill of Rights are prescribed by the Texas Legislature in Texas Government Code Sec. 402.031 and Chapter 21 of the Texas Property Code.

1. You are entitled to receive adequate compensation if your property is taken for a public use.
2. Your property can only be taken for a public use.
3. Your property can only be taken by a governmental entity or private entity authorized by law to do so.
4. The entity that wants to take your property must notify you that it wants to take your property.
5. The entity proposing to take your property must provide you with a written appraisal from a certified appraiser detailing the adequate compensation you are owed for your property.
6. The entity proposing to take your property must make a bona fide offer to buy the property before it files a lawsuit to condemn the property – which means the condemning entity must make a good faith offer that conforms with Chapter 21 of the Texas Property Code.
7. You may hire an appraiser or other professional to determine the value of your property or to assist you in any condemnation proceeding.
8. You may hire an attorney to negotiate with the condemning entity and to represent you in any legal proceedings involving the condemnation.
9. Before your property is condemned, you are entitled to a hearing before a court appointed panel that includes three special commissioners. The special commissioners must determine the amount of compensation the condemning entity owes for the taking of your property. The commissioners must also determine what compensation, if any, you are entitled to receive for any reduction in value of your remaining property.
10. If you are unsatisfied with the compensation awarded by the special commissioners, or if you question whether the taking of your property was proper, you have the right to a trial by a judge or jury. If you are dissatisfied with the trial court's judgment, you may appeal that decision.

CONDEMNATION PROCEDURE

Eminent domain is the legal authority that certain entities are granted that allows those entities to take private property for a public use. Private property can include land and certain improvements that are on that property.

Private property may only be taken by a governmental entity or private entity that is authorized by law to do so. Your property may be taken only for a public purpose. That means it can only be taken for a purpose or use that serves the general public. Texas law prohibits condemnation authorities from taking your property to enhance tax revenues or foster economic development.

Your property cannot be taken without adequate compensation. Adequate compensation includes the market value of the property being taken. It may also include certain damages if your remaining property's market value is diminished by the acquisition itself or by the way the condemning entity will use the property.

HOW THE TAKING PROCESS BEGINS

The taking of private property by eminent domain must follow certain procedures. First, the entity that wants to condemn your property must provide you a copy of this Landowner's Bill of Rights before - or at the same time - the entity first represents to you that it possesses eminent domain authority.

Second, if it has not been previously provided, the condemning entity must send this Landowner's Bill of Rights to the last known address of the person who is listed as the property owner on the most recent tax roll. This requirement stipulates that the Landowner's Bill of Rights must be provided to the property owner at least seven days before the entity makes a final offer to acquire the property.

Third, the condemning entity must make a bona fide offer to purchase the property. The requirements for a bona fide offer are contained in Chapter 21 of the Texas Property Code. At the time a purchase offer is made, the condemning entity must disclose any appraisal reports it produced or acquired that relate specifically to the property and were prepared in the ten years preceding the date of the purchase offer. You have the right to discuss the offer with others and to either accept or reject the offer made by the condemning entity.

CONDEMNATION PROCEEDINGS

If you and the condemning entity do not agree on the value of your property, the entity may begin condemnation proceedings. Condemnation is the legal process that eligible entities utilize to take private property. It begins with a condemning entity filing a claim for your property in court. If you live in a county where part of the property being condemned is located, the claim must be filed in that county. Otherwise, the condemnation claim can be filed in any county where at least part of the property being condemned is located. The claim must describe the property being condemned, state with specificity the public use, state the name of the landowner, state that the landowner and the condemning entity were unable to agree on the value of the property, state that the condemning entity provided the landowner with the Landowner's Bill of Rights, and state that the condemning entity made a bona fide offer to acquire the property from the property owner voluntarily.

SPECIAL COMMISSIONERS' HEARING

After the condemning entity files a condemnation claim in court, the judge will appoint three local landowners to serve as special commissioners. The judge will give you a reasonable period to strike one of the special commissioners. If a commissioner is struck, the judge will appoint a replacement. These special commissioners must live in the county where the condemnation proceeding is filed, and they must take an oath to assess the amount of adequate compensation fairly, impartially, and according to the law. The special commissioners are not legally authorized to decide whether the condemnation is necessary or if the public use is proper. Their role is limited to assessing adequate compensation for you. After being appointed, the special commissioners must schedule a hearing at the earliest practical time and place. The special commissioners are also required to give you written notice of the condemnation hearing.

You are required to provide the condemning entity any appraisal reports that were used to determine your claim about adequate compensation for the condemned property. Under a new law enacted in 2011, landowners' appraisal reports must be provided to the condemning entity either ten days after the landowner receives the report or three business days before the special commissioners' hearing - whichever is earlier. You may hire an appraiser or real estate professional to help you determine the value of your private property. Additionally, you can hire an attorney to represent you during condemnation proceedings.

At the condemnation hearing, the special commissioners will consider your evidence on the value of your condemned property, the damages to remaining property, any value added to the remaining property as a result of the condemnation, and the condemning entity's proposed use of your condemned property.

SPECIAL COMMISSIONERS' AWARD

After hearing evidence from all interested parties, the special commissioners will determine the amount of money that you should be awarded to adequately compensate you for your property. The special commissioners' decision is significant to you not only because it determines the amount that qualifies as adequate compensation, but also because it impacts who pays for the cost of the condemnation proceedings. Under the Texas Property Code, if the special commissioners' award is less than or equal to the amount the condemning entity offered to pay before the proceedings began, then you may be financially responsible for the cost of the condemnation proceedings. However, if the special commissioners' award is more than the condemning entity offered to pay before the proceedings began, then the condemning entity will be responsible for the costs associated with the proceedings.

The special commissioners are required to provide the court that appointed them a written decision. That decision is called the "Award." The Award must be filed with the court and the court must send written notice of the Award to all parties. After the Award is filed, the condemning entity may take possession of the property being condemned, even if either party appeals the Award of the special commissioners. To take possession of the property, the condemning entity must either pay the amount of the Award or deposit the amount of the Award into the court's registry. You have the right to withdraw funds that are deposited into the registry of the court.

OBJECTION TO THE SPECIAL COMMISSIONERS' AWARD

If either the landowner or the condemning entity is dissatisfied with the amount of the Award, either party can formally object to the Award. In order to successfully make this valuation objection, it must be filed in writing with the court. If neither party timely objects to the special commissioners' Award, the court will adopt the Award as the final judgment of the court.

If a party timely objects to the special commissioners' Award, the court will hear the case in the same manner that other civil cases are heard. Landowners who object to the Award and ask the court to hear the matter have the right to a trial and can elect whether to have the case decided by a judge or jury. The allocation of any trial costs is decided in the same manner that costs are allocated with the special commissioners' Award. After trial, either party may appeal any judgment entered by the court.

DISMISSAL OF THE CONDEMNATION ACTION

A condemning entity may file a motion to dismiss the condemnation proceeding if it decides it no longer needs your condemned property. If the court grants the motion to dismiss, the case is over and you are entitled to recover reasonable and necessary fees for attorneys, appraisers, photographers, and for other expenses incurred to the date of the hearing on the motion to dismiss.

If you wish to challenge the condemning entity's authority to take your property, you can lodge that challenge by filing a motion to dismiss the condemnation proceeding. Such a motion to dismiss would allege that the condemning entity did not have the right to condemn your property. For example, a landowner could challenge the condemning entity's claim that it seeks to take the property for a public use. If the court grants the landowner's motion, the court may award the landowner reasonable and necessary fees for attorneys, appraisers, photographers, and for other expenses incurred to the date of the hearing or judgment.

RELOCATION COSTS

If you are displaced from your residence or place of business, you may be entitled to reimbursement for reasonable expenses incurred while moving personal property from the residence or relocating the business to a new site. However, during condemnation proceedings, reimbursement for relocation costs may not be available if those costs are separately recoverable under another law. Texas law limits the total amount of available relocation costs to the market value of the property being moved. Further, the law provides that moving costs are limited to the amount that a move would cost if it were within 50 miles.

RECLAMATION OPTIONS

If private property was condemned by a governmental entity, and the public use for which the property was acquired is canceled before that property is used for that public purpose, no actual progress is made toward the public use within ten years or the property becomes unnecessary for public use within ten years, landowners may have the right to repurchase the property for the price paid to the owner by the entity at the time the entity acquired the property through eminent domain.

DISCLAIMER

The information in this statement is intended to be a summary of the applicable portions of Texas state law as required by HB 1495, enacted by the 80th Texas Legislature, Regular Session. This statement is not legal advice and is not a substitute for legal counsel.

ADDITIONAL RESOURCES

Further information regarding the procedures, timelines and requirements outlined in this document can be found in Chapter 21 of the Texas Property Code.

Landowners and Transmission Line Cases at the PUC

Public Utility Commission of Texas

1701 N. Congress Avenue
P.O. Box 13326
Austin, Texas 78711-3326
(512) 936-7261
www.puc.state.tx.us

Effective: January 1, 2003

PURPOSE OF THIS BROCHURE

This brochure is intended to provide landowners with information about proposed new transmission lines and the Public Utility Commission's process for evaluating these proposals. At the end of the brochure is a list of sources for additional information.

The following topics are covered:

- How the Public Utility Commission (PUC) evaluates whether a new transmission line should be built,
- How you can participate in the PUC's evaluation of a line, and
- How utilities acquire the right to build a transmission line on private property.

You are receiving the enclosed formal notice because one or more of the routes for a proposed transmission line may require an easement or other property interest across your property, or the centerline of the proposed project may come within 300 feet of a house or other habitable structure on your property. (This distance is expanded to 500 feet if the proposed line is greater than 230kVv or greater voltage.) For this reason, your property is considered **directly affected land.** This brochure is being included as part of the formal notice process.

If you have questions about the proposed routes for a transmission line, you may contact the utility company to obtain a more detailed map of the proposed routes for the transmission line and nearby habitable structures.

The PUC is sensitive to the impact that transmission lines have on private property. At the same time, transmission lines deliver electricity to millions of homes and businesses in Texas, and new lines are sometimes needed so that customers can obtain reliable, economical power.

The PUC's job is to assess the utility's proposal and the positions of the parties, and to decide whether a proposed transmission line should be approved. The PUC values input from landowners and encourages you to participate in this process.

PUC TRANSMISSION LINE PROCEEDING

Texas law provides that most utilities must file an application with the PUC to obtain a Certificate of Convenience and Necessity (CCN) in order to build a new transmission line in Texas.
The law requires the PUC to consider a number of factors in deciding whether to approve a proposed new transmission line.

The PUC may grant a CCN after considering the following factors:

- Adequacy of existing service;
- Need for additional service;
- Effect of granting the certificate on the local utility and any utility serving the proximate area;
- Whether the route utilizes existing compatible rights-of-way, including the use of vacant positions on existing multiple-circuit transmission lines;
- Whether the route parallels existing compatible rights-of-way;
- Whether the route parallels property lines or other natural or cultural features;
- Whether the route conforms with the policy of prudent avoidance (which is defined as the limiting of exposures and magnetic fields that can be avoided with reasonable investments of money and effort); and
- Other factors such as community values, recreational and park areas, historical and aesthetic values, environmental integrity, and the probable improvement of service or lowering of cost to consumers in the area.

If the PUC deems a line should be approved, it will grant the utility's application to construct the transmission line.

Utility Application for CCN:

A utility's application for approval of a CCN describes the proposed line and includes a statement from the utility describing the need for the line and the impact of building it. The application also includes a route designated by the utility as a "preferred route"; however, any of the proposed routes may be selected by the Commission.

The PUC conducts a proceeding to evaluate the need and impact of the proposed line and to decide whether to approve it. Landowners who would be affected by a new line can participate in the case in the following ways:

- informally, by filing a protest, or
- formally, by intervening in the PUC proceeding.

Filing a Protest (informal comments):
If you do not wish to intervene in a CCN proceeding, you may file **comments.** An individual or business or a group who files comments for or against any aspect of the utility's transmission line application is considered a "protestor."

Protestors make a written or verbal statement in support of or in opposition to the utility's application and give information to the PUC staff that they believe supports their position.

Protestors are not parties to the case, however, and *do not have the right to*:
- Make discovery requests and obtain facts about the case from other parties;
- Receive notice of a hearing, or copies of testimony and other documents that are filed in the case;
- Receive notice of the time and place for the negotiations; or
- File testimony and/or cross-examine witnesses;
- Appeal the PUC's decision to state district court.

If you want to file comments, you may either send written comments stating your position, or you may make a statement on the first day of the public hearing. Although public comments are not treated as evidence, they help inform the PUC and its staff of the public concerns and identify issues to be explored. The PUC welcomes such participation in its proceedings.

Intervening in a Proceeding:
Intervenors are parties to the case and may have certain legal rights as a directly affected landowner, including the right to participate in the case and any settlement or mediation relating to the case and the right to appeal any decision of the PUC.

To become an intervenor, you must file a statement with the PUC requesting intervenor status (also referred to as a party). This statement should describe how the proposed transmission line would affect your property. Typically, intervention is granted only to directly affected landowners. A sample form for intervention and the filing address are attached to this brochure, and may be used to make your filing.

If you decide to intervene in a case, you will be required to follow certain procedural rules:
- You are required to respond to discovery requests from other parties who seek information about your position.
- If you file testimony, you must appear at a public hearing to be cross-examined.
- If you file testimony or other documents in the case, you must send copies of the documents to every party in the case.

Intervenors may have an attorney to represent them in a CCN proceeding. If you intervene in a proceeding, you may want an attorney to help you understand the PUC's procedures and the laws and rules that the PUC applies in deciding whether to approve a transmission line.

Stages of a CCN Proceeding:
If there are persons who intervene in the proceeding and oppose the approval of the line, the PUC will refer the case to an administrative law judge (ALJ) at the State Office of Administrative Hearings (SOAH) to conduct a hearing. The hearing is a formal proceeding, much like a trial, in which testimony is presented, and the ALJ makes a recommendation to the PUC on whether the application should be approved.

There are several stages of a CCN proceeding:
- The ALJ holds a pre-hearing conference (usually in Austin) to set a schedule for the case.
- Parties to the case have the opportunity to conduct discovery; that is, obtain facts about the case from other parties.
- Parties file written testimony before the date of the hearing.
- A hearing is held (usually in Austin), and parties have an opportunity to cross-examine the witnesses.
- Parties file written briefs concerning the evidence presented at the hearing.
- The ALJ makes a recommendation, called a **proposal for decision**, to the PUC Commissioners regarding the case. Parties who disagree with the ALJ's recommendation may file exceptions.
- The Commissioners discuss the case and decide whether to approve the utility's application. The Commissioners may approve the ALJ's recommendation, approve it with specified changes, send the case back to the ALJ for further consideration, or deny the utility's application. The decision rendered by the Commissioners is called a **Final Order**. Parties who are dissatisfied with the PUC's decision may file motions for rehearing, asking the Commissioners to reconsider the decision.
- After the Commissioners rule on the motion for rehearing, parties have the right to appeal the decision to district court in Travis County.

RIGHT TO USE PRIVATE PROPERTY

Before building a transmission line on private property, the utility must obtain the right to enter the land and use it for the transmission line. They typically do this by obtaining an easement from the landowners. Easements convey certain rights to the utility from a landowner.

Utilities may buy easements through a negotiated agreement, but they also have the power of eminent domain (condemnation) under Texas law (Texas Utilities Code § 181.004). Local courts, not the PUC, decide issues concerning easements for rights-of-way. The PUC does not determine the value of property.

The PUC Final Order in a transmission case normally requires a utility to take certain steps to minimize the impact of the new transmission line on landowners' property and on the environment. For example, the order normally requires steps to minimize the possibility of erosion during construction and maintenance activities.

HOW TO OBTAIN MORE INFORMATION

The PUC's online "Interchange" provides free access to documents that are filed with the Commission in Central Records. The docket number of a proceeding is a key piece of information used in locating documents in the case. You may access the Interchange by visiting the PUC's website at www.puc.state.tx.us.
Documents may also be purchased from and filed in Central Records. For more information on how to purchase or file documents, call Central Records at the PUC at 512-936-7180.

PUC SUBST. RULE 25.101, Certification Criteria is available on-line or you may obtain copies of PUC rules from Central Records.

Always include the docket number on all filings with the PUC. You can find the docket number on the enclosed formal notice. Send documents to the PUC at the following address.

Public Utility Commission of Texas
Central Records
Attn: Filing Clerk
1701 N. Congress Avenue
P.O. Box 13326
Austin, TX 78711-3326

The information contained within this brochure is not intended to provide a complete and comprehensive guide to all matters relative to landowner rights and responsibilities in transmission line cases at the PUC. This brochure should neither be regarded as legal advice nor should it be a substitute for the PUC's rules. However, if you should have questions about the process in transmission line proceedings, you may call the PUC's Legal Division at 512-936-7261 and speak to the PUC staff attorney assigned to this case. The attorney may help you with the PUC's rules, but may not provide legal advice or represent you in a proceeding.

Communicating with Decision-Makers:
Do <u>not</u> contact the ALJ or the Commissioners by telephone or email. They are not allowed to discuss pending cases with a party or a protestor. They may only make their recommendations and decisions by relying on the evidence, written pleadings, and arguments that are presented in the case.

Xcel Energy®
RESPONSIBLE BY NATURE™

May 5, 2015

[Landowner Name]
[Landowner Address1]
[Landowner Address2]
[City, State Zip]

Tract Number: [Tract Number**]**

RE: Notice of Proposed Alternative Route Links for the Yoakum to Texas/New Mexico Interconnect 345-kV Transmission Line Project potentially located in Yoakum, and Gaines counties, Texas.

Dear [Landowner Name],

Southwestern Public Service Company (SPS), a subsidiary of Xcel Energy, Inc., is proposing to construct a new 345 kilovolt (kV) electric transmission line. The proposed transmission line will be approximately 159 miles long, depending upon the final approved routes. Approximately 107 miles will be constructed between the Tuco substation which is located approximately two miles north of Abernathy in Hale County, Texas to the Yoakum substation located about 30 miles from Brownfield, Texas. Approximately 52 miles of 345 kV line will be constructed between the Hobbs Plant substation which is located about 11 miles northwest of Hobbs, New Mexico to the Yoakum substation. Preliminary alternative route links have been identified and are shown as black dashed lines on the attached map.

In January 2015, SPS hosted public open houses in Lubbock, Brownfield, and Denver City, Texas and Hobbs, New Mexico. Using public input collected at these open houses as well as other data received, a thorough review of all proposed preliminary route links was conducted. As a result of this review, some existing preliminary route links have been modified and newly proposed alternative route links have been created. One of these modifications or newly proposed alternative route links has been identified as located directly on your property, or within 500 feet of a habitable structure on your property.

SPS will file a Certificate of Convenience and Necessity (CCN) application with the Public Utility Commission of Texas (PUC) for the Yoakum to Texas/New Mexico State Line portion of this Project in the spring of 2015. **The CCN application will include a route designated by SPS as the route that best meets the criteria of the Public Utility Regulatory Act and PUC Substantive Rules; however, any of the proposed alternative routes and/or their links are viable and may be selected by the PUCT.** Once the CCN application is filed, direct notice of the filing will be mailed to all directly affected landowners and owners of habitable structures within 500 feet of the centerline of any proposed route link. Maps of the alternative routes will be available on the Project website (at www.powerfortheplains.com), at selected local libraries, and by direct request. Enclosed is a map showing your property in relation to a newly proposed link, as well as a Frequently Asked Questions document, which addresses general questions regarding the Project. If you would like additional information, please visit the Project website, call Lance Kenedy at (806) 378-2435, or send an email to lance.kenedy@xcelenergy.com. If you would like to meet with SPS representatives to discuss the Project, please contact Lance Kenedy at the telephone number or email address provided.

Thank you,
Southwestern Public Service Company

Enclosures

OVERSIZED MAP Sheet 1 of 2

OVERSIZED MAP Sheet 2 of 2

APPENDIX C

Appendix C

Oversize Maps

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FIGURE 3-2

PRIMARY ALTERNATIVE LINKS WITH ENVIRONMENTAL AND LAND USE CONSTRAINTS

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OVERSIZED
MAP
Figure 3-2
Sheet 1 of 4

OVERSIZED
MAP
Figure 3-2
Sheet 2 of 4

OVERSIZED
MAP
Figure 3-2
Sheet 3 of 4

OVERSIZED
MAP
Figure 3-2
Sheet 4 of 4

FIGURE 3-3

STUDY AREA AND PRIMARY ALTERNATIVE LINKS WITH ENVIRONMENTAL AND LAND USE CONSTRAINTS

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OVERSIZED MAP Figure 3-3

FIGURE 5-1

HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF THE PRIMARY ALTERNATIVE ROUTES

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OVERSIZED MAP Figure 5-1 Sheet 1 of 4

OVERSIZED MAP
Figure 5-1
Sheet 2 of 4

OVERSIZED MAP Figure 5-1 Sheet 3 of 4

OVERSIZED MAP Figure 5-1 Sheet 4 of 4

APPENDIX D

Appendix D

Habitable Structures and Other Land Use Features in the Vicinity of the Routes (Tables 5-2 through 5-14)

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Tables 5-2 through 5-14 present detailed information on habitable structures and other land use features in the vicinity of the alternative routes. The items in Tables 5-2 through 5-14 and the alternative routes are illustrated on Figure 5-1 in Appendix C.

TABLE 5-2 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF ROUTE A

LINK COMBINATION: 1-3-11-15-16-20-21-22-35-37-38

Map Number	Structure or Feature	Approximate Distance from Centerline (feet)	Direction from Route Centerline
464	Single Family Residence	281	N
465	Garage/Guesthouse	340	N
466	Single Family Residence	287	N

TABLE 5-3 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF ROUTE B

LINK COMBINATION: 1-3-11-15-16-20-34

Map Number	Structure or Feature	Approximate Distance from Centerline (feet)	Direction from Route Centerline
455	Single Family Residence	197	S

TABLE 5-4 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF ROUTE C

LINK COMBINATION: 1-3-4-12-16-20-34

Map Number	Structure or Feature	Approximate Distance from Centerline (feet)	Direction from Route Centerline
454	Work Building	351	W
455	Single Family Residence	197	S

TABLE 5-5 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF ROUTE D

LINK COMBINATION: 1-3-11-15-16-20-21-22-23-38-39

Map Number	Structure or Feature	Approximate Distance from Centerline (feet)	Direction from Route Centerline
461	Single Family Residence	204	W
462	Single Family Residence	377	E
463	Industrial	281	N
464	Single Family Residence	281	N
465	Garage/Guesthouse	340	N
466	Single Family Residence	287	N

TABLE 5-6 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF ROUTE E

LINK COMBINATION: 1-2-10-15-16-20-21-22-35-36

Map Number	Structure or Feature	Approximate Distance from Centerline (feet)	Direction from Route Centerline
460	Industrial	146	N

TABLE 5-7 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF ROUTE F

LINK COMBINATION: 1-5-7-8-9-13-26-27-30-31-41

Map Number	Structure or Feature	Approximate Distance from Centerline (feet)	Direction from Route Centerline
482	Industrial	470	E
486	Industrial	202	N
490	Single Family Residence-Mobile	416	S
491	Single Family Residence-Mobile	281	S
492	Single Family Residence	326	S
611	Other electronic Installation	650	S

TABLE 5-8 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF ROUTE G

LINK COMBINATION: 1-5-7-8-9-13-25-28-32-40

Map Number	Structure or Feature	Approximate Distance from Centerline (feet)	Direction from Route Centerline
473	Single Family Residence	422	W
474	Single Family Residence	369	N
475	Single Family Residence/ Work Building	326	N
476	Single Family Residence/ Work Building	288	N
477	Single Family Residence	162	S
478	Guesthouse	222	S
479	Industrial	237	N
480	Industrial	399	N
705	Denver City Public Airport	19,632	N

TABLE 5-9 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF ROUTE H

LINK COMBINATION: 1-3-4-6-8-9-13-26-29-31-41

Map Number	Structure or Feature	Approximate Distance from Centerline (feet)	Direction from Route Centerline
483	Single Family Residence	230	E
484	Single Family Residence	133	W
485	Single Family Residence	374	S
486	Industrial	202	N
490	Single Family Residence-Mobile	416	S
491	Single Family Residence-Mobile	281	S
492	Single Family Residence	326	S
611	Other electronic Installation	650	S

TABLE 5-10 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF ROUTE H

Map Number	Structure or Feature	Approximate Distance from Centerline (feet)	Direction from Route Centerline
448	Single Family Residence	132	S
449	Single Family Residence	122	S
450	Single Family Residence	263	S
451	Single Family Residence	173	N
452	Single Family Residence	221	S
453	Industrial/Work Building	160	S
455	Single Family Residence	197	S

TABLE 5-11 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF ROUTE J

Map Number	Structure or Feature	Approximate Distance from Centerline (feet)	Direction from Route Centerline
456	Single Family Residence-Mobile	351	S
457	Single Family Residence	400	S
458	Single Family Residence	229	N
459	Single Family Residence	400	N
464	Single Family Residence	281	N
465	Garage/Guesthouse	340	N
466	Single Family Residence	287	N

TABLE 5-12 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF ROUTE K

Map Number	Structure or Feature	Approximate Distance from Centerline (feet)	Direction from Route Centerline
454	Work Building	351	W
461	Single Family Residence	204	W
462	Single Family Residence	377	E
467	Single Family Residence-Mobile	136	W
468	Single Family Residence	267	E
469	Industrial	289	N
470	Industrial	280	N
471	Industrial	258	N
472	Single Family Residence	291	E

TABLE 5-13 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF ROUTE L

Map Number	Structure or Feature	Approximate Distance from Centerline (feet)	Direction from Route Centerline
454	Work Building	351	W
460	Industrial	271	N

TABLE 5-14 HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN THE VICINITY OF ROUTE M

Map Number	Structure or Feature	Approximate Distance from Centerline (feet)	Direction from Route Centerline
448	Single Family Residence	132	S
449	Single Family Residence	122	S
450	Single Family Residence	263	S
451	Single Family Residence	173	N
452	Single Family Residence	221	S
453	Industrial/Work Building	160	S
455	Single Family Residence	197	S