

The FWS stated that, currently, no federally listed threatened or endangered species are considered to be of regular occurrence in Guadalupe County. However, two candidate species were mentioned that could potentially occur in the county. FWS also expressed concerns about potential impacts to wetlands and riparian zones, and suggested that the proposed transmission line be designed and constructed consistent with guidelines in the publication: *Suggested Practices for Raptor Protection on Power Lines-the State of the Art in 1996*.

The TNRCC reviewed the letter and stated that they did not anticipate significant long-term environmental impacts from the project as long as construction and waste disposal activities are conducted in accordance with applicable local, state, and federal permits and regulations. The agency also stated that the project should pose no significant impact to air quality standards.

TxDOT's Aviation Division provided information concerning FAA notification criteria and the locations of two public-use airports within 20,000 ft of the study area.

6.2 PREFERRED ROUTE

To select a preferred route for the Hickory Forest to New Berlin Project, GVEC and the LCRA initially reviewed PBS&J's recommendations in the draft EA and Alternative Route Study, followed by an individual review of each of the primary alternatives. This review was based on potential environmental impacts, engineering constraints, public input/community values, costs (Table 6-3), and landowner/agency concerns and preferences. Based on this review and evaluation, the LCRA determined that each of the primary routes was a feasible and acceptable alternative from an engineering and cost perspective. Additional review of the primary alternatives with regard to potential environmental and land use impacts, community values, and public input/landowner concerns led GVEC to select Route 4 as their preferred route.

GVEC's preferred and alternate routes are illustrated on Figure 6-1 (map pocket). Tables 6-4 through 6-8 present detailed information for habitable structures and other land use features in the vicinity of the preferred and alternate routes.

159

TABLE 6-4

HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN
THE VICINITY OF THE PREFERRED ROUTE (ROUTE 4)
HICKORY FOREST-NEW BERLIN PROJECT

Map Number	Structure or Feature	Approximate Distance from Centerline
8	Single-family residence	153 ft NW
9	Single-family residence	191 ft SE
10	Single-family residence	179 ft NW
12	Single-family residence	110 ft NW
20	Mobile home	175 ft S

Note: Structures are shown on Figure 6-1 (map pocket).

TABLE 6-5

HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN
THE VICINITY OF ALTERNATE ROUTE 1
HICKORY FOREST-NEW BERLIN PROJECT

Map Number	Structure or Feature	Approximate Distance from Centerline
6	Single-family residence	160 ft NE
8	Single-family residence	153 ft NW
9	Single-family residence	191 ft SE
10	Single-family residence	179 ft NW
12	Single-family residence	110 ft NW
20	Mobile home	175 ft S
44	Cultural Resources Site 41GU7	1,000 ft N

Note: Structures and features are shown on Figure 6-1 (map pocket).

161

TABLE 6-6

HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN
THE VICINITY OF ALTERNATE ROUTE 8
HICKORY FOREST-NEW BERLIN PROJECT

Map Number	Structure or Feature	Approximate Distance from Centerline
1	Single-family residence	140 ft S
2	Single-family residence	197 ft SW
3	Single-family residence	194 ft NE
4	Single-family residence	200 ft NE
5	Wood-frame building (residence? business?)	190 ft NE
8	Single-family residence	153 ft NW
9	Single-family residence	191 ft SE
10	Single-family residence	179 ft NW
12	Single-family residence	110 ft NW
20	Mobile home	175 ft S

Note: Structures are shown on Figure 6-1 (map pocket).

TABLE 6-7

HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN
THE VICINITY OF ALTERNATE ROUTE 7
HICKORY FOREST-NEW BERLIN PROJECT

Map Number	Structure or Feature	Approximate Distance from Centerline
13	Mobile home	165 ft NE
14	Single-family residence	75 ft SE
15	Single-family residence	155 ft NW
17	Single-family residence	146 ft SE
18	Single-family residence	155 ft SE
32	Single-family residence	100 ft S
33	Mobile home	200 ft S
34	Mobile home	116 ft S
35	Mobile home	146 ft S
36	Mobile home	147 ft N
37	Mobile home	119 ft N
37A	Mobile home	119 ft N
37B	Cabin	200 ft N
38	Single-family residence	119 ft N
38A	Sand Hills V.F.D.	119 ft N
39	Commercial building (AT&T)	137 ft N
40	Single-family residence	178 ft S
41	Single-family residence	158 ft S
41A	Mobile home	200 ft S
43	AT&T microwave tower	350 ft N

Note: Structures and features are shown on Figure 6-1 (map pocket).

TABLE 6-8

HABITABLE STRUCTURES AND OTHER LAND USE FEATURES IN
THE VICINITY OF ALTERNATE ROUTE 6
HICKORY FOREST-NEW BERLIN PROJECT

Map Number	Structure or Feature	Approximate Distance from Centerline
8	Single-family residence	153 ft NW
9	Single-family residence	191 ft SE
10	Single-family residence	179 ft NW
12	Single-family residence	110 ft NW
32	Single-family residence	100 ft S
33	Mobile home	200 ft S
34	Mobile home	116 ft S
35	Mobile home	146 ft S
36	Mobile home	147 ft N
37	Mobile home	119 ft N
37A	Mobile home	119 ft N
37B	Cabin	200 ft N
38	Single-family residence	119 ft N
38A	Sand Hills V.F.D.	119 ft N
39	Commercial building (AT&T)	137 ft N
40	Single-family residence	178 ft S
41	Single-family residence	158 ft S
41A	Mobile home	200 ft S
43	AT&T microwave tower	350 ft N

Note: Structures and features are shown on Figure 6-1 (map pocket).

This page intentionally left blank

165

7.0 LIST OF PREPARERS



LIST OF PREPARERS

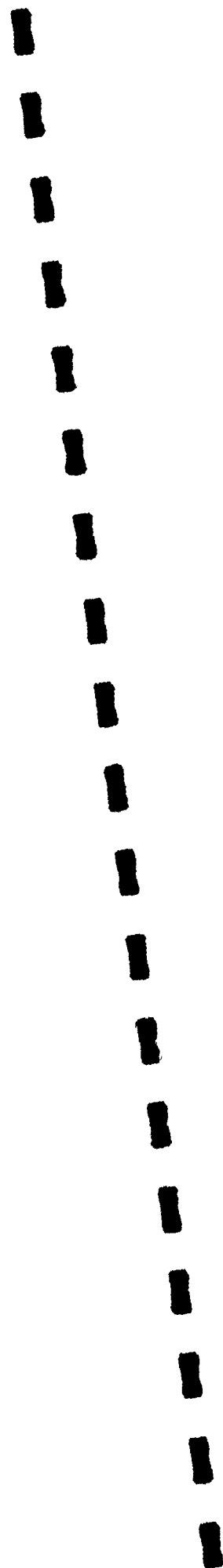
This Environmental Assessment was prepared for the GVEC by PBS&J. The LCRA and GVEC provided Section 1.0 DESCRIPTION OF THE PROJECT and portions of Section 6.0 PREFERRED ROUTE SELECTION. PBS&J employees with primary responsibilities for preparation of this document include the following:

Responsibility	Name	Title
Project Manager	Rob R. Reid	Vice President
Assistant Project Manager	France Davis	Sr. Staff Environmental Analyst
Physical Environment	Tommy Ademski	Staff Planner
Natural Resources	David Lyter	Senior Staff Ecologist
Cultural Resources	Maria Cruse	Senior Laboratory Analyst
Socioeconomics	Kathie Martel	Staff Planner
Human Resources	France Davis	Sr. Staff Environmental Analyst

This page intentionally left blank

1106

8.0 REFERENCES



- AIS Market Data. 2001. Managed Care in 40 Metropolitan Statistical Areas - San Antonio. Available on the internet: <<http://www.aishealth.com/MarketData/MSAReports/MSASanAntonio.html>> Accessed September 19, 2001.
- Alexander, Herbert L. Jr. 1963. The Levi Site: A Paleo-Indian Campsite in Central Texas. In *American Antiquity* 28.
- American Ornithologists' Union (AOU). 1998. Check-list of North American Birds. Seventh edition. Allen Press, Inc., Lawrence, Kansas. 829 pp.
- . 2000. Forty-second supplement to the check-list of North American birds. *Auk* 117:847-858.
- Avery, M.L. (ed.). 1978. Impacts of transmission lines on birds in flight: Proceedings of a Workshop. Oak Ridge Associated Universities. Oak Ridge, Tennessee. Inter-agency Agreement No. 40-570-76 between U.S. Department of the Interior and U.S. Department of Energy. FWS/OBS-78/48. 151 pp.
- Avian Power Line Interaction Committee (APLIC). 1994. Mitigating bird collisions with power lines: the state of the art in 1994. Edison Electric Institute. Washington, D.C. 77 pp. + apps.
- Bartlett, R.D. and Bartlett, P.P. 1999. A Field Guide to Texas Reptiles and Amphibians. Gulf Publishing Company. Houston, Texas.
- Beaulaurier, D.L. 1981. Mitigation of bird collisions with transmission lines. Bonneville Power Administration, Portland, Oregon. 83 pp.
- Birdsell, J.B. 1968. Some Predictions for the Pleistocene Based on Equilibrium Systems of Recent Hunter-Gatherers. In *Man the Hunter* (ed. R.B. Lee and I. DeVore), pp. 229-240.
- Black, S. L. 1989. Ch. 3, Central texas Plateau Prairie. In *From the Gulf to the Rio Grande: Human Adaptation in Central, South, and Lower Pecos Texas*, by T. R. Hesser, S. L. Black, D. G. Steele, B. W. Olive, A. A. Fox, K. J. Reinhard, and L. L. Bement pp. 17-38. Research Series No. 33, Arkansas Archelolglcal Survey (A report to the U.S. Army Cops of Engineers. Southwestern Division Study Unit 3, Southwestern Division Archeological Overview).
- Blair, W.F. 1950. The biotic provinces of Texas. *Texas Journal of Science* 2:93-117.
- Bureau of Economic Geology (BEG). 1974. Geologic Atlas of Texas, Seguin Sheet. The University of Texas at Austin. Austin, Texas.
- . 1976. Energy Resources of Texas. Austin, Texas.
- . 1977. Land Resources of Texas. Austin, Texas.
- . 1979. Mineral Resources of Texas. Austin, Texas.

- Collins, J.T. 1990. Standard common and current scientific names for North American amphibians and reptiles, 3rd edition. Society for the Study of Amphibians and Reptiles, Miscellaneous Publications, Herpetological Circular No. 19. 41 pp.
- Creel, Darrell G. 1977. Investigations into Aboriginal Subsistence-Settlement in West Central Texas. Unpublished masters thesis, University of Texas, Austin.
- Davis, W.B. and D.J. Schmidly. 1994. The mammals of Texas. Texas Parks and Wildlife Dept. Distributed by University of Texas Press. 338 pp. Austin.
- Dillehay, Tom D. 1974. Late Quaternary Bison Populations Changes on the Southern Plains. In *Plains Anthropologist*. 19:180-196
- Dixon, J.R. 2000. Amphibians and reptiles of Texas. Texas A&M University Press, College Station, Texas. 421 pp.
- Faaborg, J., M. Brittingham, T. Donovan, and J. Blake. 1992. Habitat fragmentation in the temperate zone: a perspective for managers. In: D.M. Finch and P.W. Stangel (eds.). Status and management of neotropical migratory birds. USDA Forest Service General Technical Report RM-229. Fort Collins, CO.
- Faanes, C.A. 1987. Bird behavior and mortality in relation to power lines in prairie habitats. Fish and Wildlife Technical Report 7, U.S. Fish and Wildlife Service, Washington, D.C. 24 pp.
- Federal Emergency Management Agency (FEMA). 1995. Flood Insurance Rate Maps for Guadalupe County, Texas. Washington, D.C.
- Fish and Wildlife Service (FWS), U.S. Department of the Interior. 1995. Threatened and endangered species of Texas. Austin, Texas. June 1995.
- . 1999a. Endangered and threatened wildlife and plants. 50 CFR 17.11 and 17.12. 31 October 1999. Washington, D.C. 57 pp.
- . 1999b. Endangered and threatened wildlife and plants; review of plant and animal taxa that are candidates for listing as endangered or threatened species. Federal Register 64(205): 57534-57547.
- . 2000. Federally listed species of Texas, county by county. FWS, 28 March 2000. 59 pp.
- . 2001. U.S. Fish and Wildlife Service Threatened and Endangered Species System (TESS). Threatened and endangered species by state and territory. Available on the Internet: <http://ecos.fws.gov/webpage/webpage_usa_lists.html> (15 August 2001).
- Gauthreaux, S.A., Jr. 1978. Migratory behavior and flight patterns. In: M.L. Avery (ed.), Impacts of Transmission Lines on Birds in Flight -- Proceedings of a Workshop. Pp. 12-26. U.S. Fish and Wildlife Service, Washington, D.C.
- Goode, Glenn T. 1984. Archaeological Testing and Recommendations of the Kennedy Bluffs Site, 41BP19, in Bastrop County, Texas. In *Excavations at 41BP19, The Kennedy Bluffs Site, Bastrop*

171

County, Texas. Texas State Department of Highways and Public Transportation Contract Reports in Archaeology No. 5.

Hatch, S.L., K.N. Gandhi, and L.E. Brown. 1990. Checklist of the vascular plants of Texas. MP-1655. Texas A&M University, Texas Agricultural Experiment Station, College Station, Texas. 158 pp.

Holloway, R.G., and V.M. Bryant, (editors). 1985. Late-Quaternary pollen records and vegetational history of the Great Lakes Region: United States and Canada. Pp. 204-245. In *Pollen records of late Quaternary North American Sediments*. American Association of Stratigraphic Palynologists Foundation, Dallas, Texas.

Hubbs, C., R.J. Edwards, and G.P. Garrett. 1991. An annotated checklist of the freshwater fishes of Texas, with keys to identification of species. Texas Journal of Science 43(4):1-56. (Plus errata sheet, February 1996.)

Jelks, Edward B. 1962. *The Kyle Site* University of Texas, Department of Anthropology.

Johnson, L., Jr. 1994. *The Life and Times of Toyah-Culture Folk as Seen from the Buckhollow Encampment, Site 41KM16, of Kimble County, Texas*. Office of the State Archeologist, Report 38, Texas Historical Commission, Austin.

Johnson, L.R., Jr., and D.A. Suhm. 1962. *Salvage archeology of Canyon reservoir: the Wunderlich, Footbridge and Oblate sites*. Texas Memorial Museum, Bulletin 5

Johnson, L. and G.T. Goode. 1994. *A New Try at Dating and Characterizing Holocene Climates, as Well as Archeological Periods, On the Eastern Edwards Plateau*. Bulletin of the Texas Archeological Society 65:1-51.

Kelley, J. Charles. 1947. *The Lehmann Rock Shelter: A Stratified Site of the Toyah, Uvalde, and Round Rock Foci* Volume 18/1947

Kelley, J. Charles, and Thomas Nolan Campbell. 1942. *What are the Burnt-Rock Mounds of Texas?* American Antiquity 7: 319-322.

Knopf, F.L. 1996. Mountain plover (*Charadrius montanus*). In: The Birds of North America, No. 420 (A. Poole and F. Gill, eds.). The Birds of North America, Inc. Philadelphia, Pennsylvania, and The American Ornithologists' Union, Washington, D.C..

Kutac, C., E.A. and S.C. Caran. 1994. Birds and other wildlife of south central Texas, a handbook. University of Texas Press, Austin.

Lee, D.S., C.R. Gilbert, C.H. Hocutt, R.D. Jenkins, D.E. McAllister and J.R. Stauffer, Jr. 1980. Atlas of North American freshwater fishes. North Carolina State Museum of Natural History. Raleigh, North Carolina.

Lewis, J.C. 1995. Whooping Crane (*Grus americana*). In The Birds of North America, No. 153 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C.

- Linam, L.A., G.L. Graham, and D.D. Diamond (editors). 1994. A plan for action to conserve rare resources in Texas. First review draft. Texas Parks and Wildlife Department, Endangered Resources Branch. Austin, Texas.
- Manning, R.W. and C. Jones. 1998. Annotated checklist of recent land mammals of Texas, 1998. Occasional Papers Museum Texas Tech University, Number 182. 16 November 1998. 20 pp.
- Martin, W.A. 2002. Letter dated February 8, 2002. On file at PBS&J. Austin.
- McKern, William C. 1939. The Midwestern Taxonomic Method as an Aid to Archaeological Culture Study. *American Antiquity* 4:301-13.
- 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.
- Morley, E. 2001. A cultural resources investigation of the proposed Broadwing Fiber Optic Line, Travis, Caldwell, Hays, Guadalupe, and Bexar Counties, Texas. Antiquities Number 2622. PBS&J Document No. 010206. Austin.
- Natural Resource Conservation Service (NRCS). 1992. Land Use Estimates By County For Texas. Natural Resources Inventory Division. Accessed on the internet: http://www.nhq.nrcs.usda.gov/NRI_getdata.html (June 22, 1998).
- Newcomb, W.W. 1961. *The Indians of Texas: From Prehistoric to Modern Times*. Austin: University of Texas Press
- Oberholser, H.C. 1974. The bird life of Texas. 2 vol. University of Texas Press, Austin, Texas. 1,069 pp.
- Olendorff, R.R., A.D. Miller, and R.N. Lehman. 1981. Suggested practices for raptor protection on power lines. The state-of-the-art in 1981. Raptor Research Foundation, St. Paul. 111 pp.
- Poole, J.M., J. Singhurst, D. Hurlburt-Price, and W.Carr. 2000. A list of rare plants of Texas. Produced jointly by the Wildlife Diversity Program, Texas Parks and Wildlife Department and the Texas Conservation Data Center of the Nature Conservancy of Texas. Austin, Texas. January 2000.
- Pool, William C. 1975. *A Historical Atlas of Texas*. Encino Press, Austin.
- Prewitt, Elton R. 1974. *Archeological Investigations at the Loeve-Fox Site, Williamson County*. Texas Archeological Survey, Research Report, No. 49. 1981.
- Prewitt, E. R. 1981. Cultural Chronology in Central Texas. In *Bulletin of the Texas Archeological Society*, v. 52, p. 62-89.
- Prewitt, Elton R. 1982. Archaeological Investigations at Loeve-Fox Levee and Tombstone Bluff Sites in the Granger Lake District of Central Texas. In *Volume 4 of the Archaeological Investigations of the San Gabriel Reservation District, Central Texas*, Edited by Thomas R. Hayes. Report to the

USCOE, Fort Worth District, Institute of Applied Science, North Texas State University, Denton, Texas.

Price, A.H. 1990. *Phrynosoma cornutum* (Harlan) Texas horned lizard. *Catalogue of American Reptiles and Amphibians* 469:1-6.

Robbins, C.S., D. Dawson, and B. Dowell. 1989. Habitat area requirements of breeding forest birds of the Middle Atlantic states. *Wildlife Monographs* No. 103. The Wildlife Society, Blacksburg, Virginia.

Rusz, P.J., H.H. Prince, R.D. Rusz, and G.A. Dawson. 1986. Bird collisions with transmission lines near a power plant cooling pond. *Wildlife Society Bulletin* 14:441-444.

Rogers, Robert. 1995. *A Class III Cultural Resources Survey of United Oil and Mineral Stolle No. 1 Well, Guadalupe County, Texas*. Espey Huston & Associates, Inc.

Rogers, Robert and Steve Kotter. 1995. *Archaeological Investigations at the Chesser Site (41LE59), at the Sandow Lignite Mine, Lee County, Texas*. Report to the Aluminum Co. of America (ALCOA), Rockdale, Texas. Espy, Huston and Associates, Austin, Texas.

Schmidly, D.J. 1983. Texas mammals east of the Balcones Fault Zone. Texas A&M University Press, College Station, Texas. 400 pp.

Sellards, E.H. 1952. *Early Man in America*. University of Texas Press, Austin.

Sellards, E.H., W.S. Adkins, and F.B. Plummer. 1932. The Geology of Texas. Volume I. Stratigraphy. Bureau of Economic Geology. Austin, Texas.

Soil Conservation Service (SCS) [now the Natural Resource Conservation Service (NRCS)], U.S. Department of Agriculture. 1977. Soil Survey of Guadalupe County, Texas. In cooperation with Texas Agricultural Experiment Station. Washington, D.C.

———. 1978. Regulations for Designating Prime Farmland. *Federal Register* Vol. 43, No. 21, Sec. 657.5a 31 January, revised May. 99 pp. + 36 maps.

———. 1979. Texas Prime and Potential Prime Farmlands Soils Inventory.

———. 1987. National Resource Inventory. Land cover/use of nonfederal land and small water. U.S. Department of Agriculture, Temple, Texas.

Sorrow, W. M. 1968. *Archeological Investigations at the John Ischy Site: A Burnt Rock Midden in Williamson County, Texas*. Archeological Salvage Project, Papers 18, the University of Texas at Austin.

Story, D.A. 1985. Adaptive Strategies of Archaic Cultures of the West Gulf Coastal Plain. In *Prehistoric food production in North America*, ed. by R. I. Ford, Museum of Anthropology, University of Michigan, Anthropological Papers No. 75, p. 19-56.

- Suhm, D.A., A.D. Krieger, and E.B. Jelks. 1958. A review of central Texas archeology. *Bulletin of the Texas Archeological Society* 29:63-117.
- Suhm, D.A. and E.B. Jelks. 1954. An Introductory Handbook of Texas Archeology. *Bulletin of the Texas Archeological Society* No. 25.
- Swanson, E.R. 1995. *Geo-Texas*. Texas A&M University Press. College Station, Texas.
- Tennant, A. 1998. *A Field Guide to Texas Snakes*. Second Edition. Gulf Coast Publishing, Houston, Texas. 291 pp.
- Terborgh, J. 1989. *Where have all the birds gone?: essays in the biology and conservation of birds that migrate to the American tropics*. Princeton University Press, Princeton, NJ. 207 pp.
- Texas Agriculture Statistic Service (TASS). 1998. 1997 Texas Agriculture Statistics. U.S. Department of Agriculture and Texas Department of Agriculture. Austin, Texas.
- Texas Biological and Conservation Data System. Texas Parks and Wildlife Department. 2001. Wildlife Diversity Program. County lists of Texas' special species (Guadalupe County). Austin, Texas. August 17.
- Texas Department of Transportation (TxDOT), Aviation Division. 2001. *Texas Airport Directory*. Austin, Texas.
- . n.d. *Texas Independence Trail brochure*. In cooperation with Texas Monthly.
- Texas Department of Water Resources (TDWR). 1984. *Water For Texas*. Technical Appendix Vol. 2. Austin, Texas.
- Texas Historical Commission (THC) and Texas Department of Transportation (TxDOT). 2000. *Texas Independence Trail Region map*.
- Texas Organization for Endangered Species (TOES). 1993. *Endangered, threatened, and watch lists of Texas plants*. TOES Publication 9. Austin, Texas. 32 pp.
- Texas Ornithological Society (TOS). 1995. *Checklist of the birds of Texas*, 3rd Edition. Capital Printing, Inc., Austin, Texas. 166 pp.
- Texas Parks and Wildlife Department (TPWD). 1984. 1985 Texas Outdoor Recreation Plan (TORP). Comprehensive Planning Branch, Parks Division. PWD Plan 4000-367. Austin, Texas.
- . 1990. *Texas Outdoor Recreation Inventory (TORI) Database*. Austin, Texas.
- . 1999. *Texas threatened and endangered species*. PWD-LF-W3000-017. Austin, Texas. March 1999.

Texas State Data Center (TSDC). 2001. 1999 Total Population Estimates for Texas Counties. Available on the internet: <http://txsdc.tamu.edu/tpepp/1999_txpopest_county.html> Last modified September 15, 2000.

Texas Water Development Board (TWDB). 2001. County population projections in Texas. Available on the internet: <<http://www.twdb.state.tx.us/data/popwaterdemand/popwaterdemandmain.htm#population>> Last modified April 9, 2001.

———. 1995. Aquifers of Texas. Report 345. November.

Texas Workforce Commission (TWC). 2001. Unemployment rates. Available on the internet: <<http://www.twc.state.tx.us/lmi/lfs/type/unemployment/unemploymenthome.html>> Last modified July 5, 2001.

Thomas, G.W. 1975. Texas plants - an ecological summary. In: F.W. Gould, Texas Plants - a checklist and ecological summary. Texas Agricultural Experiment Station, MP-585/Rev., College Station, Texas.

Thompson, B.C., J.A. Jackson, J. Burger, L.. Hill, E.M. Kirsch, and J.L. Atwood. 1997. Least tern (*Sterna antillarum*). In: The Birds of North America, No. 290 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and the American Ornithologists' Union. Washington, D.C.

Thompson, L.S. 1978. Transmission line wire strikes: mitigation through engineering design and habitat modification. In: M.L. Avery (ed.), Impacts of Transmission Lines on Birds in Flight: Proceedings of a Workshop. Pp. 27-52. Oak Ridge Associated Universities. Oak Ridge, Tennessee. Interagency Agreement No. 40-570-76.

Tucker, V.A. 1975. Flight energetics: In: M. Peakes (ed.), Avian Physiology. Pp. 49-63. Academic Press, London.

Turpin, J. 2001. Assessment of prehistoric site 41GU87, Arrowhead Hill, Schertz-Seguin Water System, Guadalupe County, Texas. TAS, Inc. Technical Report 20. Austin.

Tyler, R. (editor) 1996. The New Handbook of Texas, Vols 1, 5 and 6. The Texas State Historical Association, Austin.

U.S. Bureau of Census (USBOC). 1997. 1997 Census of Agriculture. Available on the internet: <<http://www.nass.usda.gov/census97/highlights/tx/txc094.txt>> September 14, 2000.

———. 2001. Available on the internet: <<http://148.129.129.31/population/cencounts/tx190090.txt>> Last modified March 27, 1995.

U.S. Department of The Air Force (USAF). 2000. Environmental Report For The Seguin Auxiliary Airfield, Texas.

U.S. Department of Transportation Federal Aviation Administration (FAA). 2000. San Antonio Sectional Aeronautical Chart. U.S. Washington, D.C. November 30.

———. 2001. *Airport/Facility Directory - South Central U.S.* Washington, D.C.

Webb, W.P. (editor) 1952. *Handbook of Texas, Vol. 1 and 2.* State Historical Association, Austin.

Weir, F.A. 1976. The Central Texas Archaic. Ph. D. dissertation, Washington State University, Pullman.

Weir, F.A. 1985. An Early Holocene Burial at the Wilson-Leonard Site in Central Texas. In *Mammoth Trumpet*, v. 2, no. 1, p. 1-3.

Willard, D.E. 1978. The impact of transmission lines on birds (and vice versa). In: M.L. Avery (ed.), *Impacts of Transmission Lines on Birds in Flight -- Proceedings of a Workshop.* Pp. 3-7. U.S. Fish and Wildlife Service, Washington, D.C.

Wiley, Gordon R. 1966. *An Introduction to American Archaeology, Vol. 1: North and Middle America.* Prentice-Hall Anthropology Series, David M. Schneider, general editor. Prentice-Hall, Engelwood Cliffs, NJ.

APPENDIX A
PUBLIC INVOLVEMENT INFORMATION



Hickory Forest to New Berlin Project

Managed for GVEC by LCRA



January 8, 2002

This questionnaire is designed to help you identify the issues related to the proposed Hickory Forest to New Berlin transmission facilities project. Your answers will assist the Lower Colorado River Authority (LCRA) and Guadalupe Valley Electric Cooperative, Inc. (GVEC) in understanding public interests and concerns about the project. This information is one element that is considered in the route selection process. Please complete this questionnaire after you have reviewed the maps attached to this form.

Mail to: Lower Colorado River Authority
Sandy Morris
P.O. Box 220 BTC - 151
Austin, Texas 78767-0220

Your name and address are optional, but could be useful if you would like to be contacted regarding this project.

Name: _____

Address: _____

City, State, Zip: _____

Telephone: _____

1. Which of the following applies to your situation?

___ A. Potential Hickory Forest to New Berlin Project route is near my home.

___ B. Potential Hickory Forest to New Berlin Project route is near my business.

___ C. Other, please specify _____

2. What factors do you think the LCRA and GVEC should give the most attention to when considering alternative routes for this transmission line?



Hickory Forest to New Berlin Project

Managed for GVEC by LCRA



3. Which route would you like the LCRA and GVEC to select? (Please highlight your preference on the attached map.) Why is this your preference?

4. Has the need for the projects been fully explained to you? If not, what information would be helpful in understanding the need?

5. Is there any specific information you would like LCRA and GVEC to consider in the routing of these projects?

6. Please use this space for additional comments or questions.

7. Please indicate the location of your property on the attached maps.

Thank you for your comments!

OVERSIZED MAP(S)

**TO VIEW
OVERSIZED MAP(S),
PLEASE GO TO
CENTRAL RECORDS.**

(512) 936-7180



Hickory Forest to New Berlin Project

Managed for GVEC by LCRA



October 22, 2001

The Honorable James E. Sagebiel
Guadalupe County Judge
307 W. Court Ste. 200
Seguin, Texas 78155

Dear Judge Sagebiel:

Guadalupe Valley Electric Cooperative, Inc. (GVEC) in cooperation with the Lower Colorado River Authority (LCRA) is proposing to construct new electric transmission facilities in Guadalupe County, Texas. Specifically, GVEC is planning to build a new 138-kilovolt (kV) transmission line between the Hickory Forest Substation and the New Berlin Substation, both located in Guadalupe County. These facilities are shown on the attached figure. The new line will be approximately 12-15 miles long and will be built on single-pole structures made of either steel, wood, or concrete, within a minimum 80-foot wide right-of-way (ROW).

Our consultant for the project, PBS&J, is preparing an Environmental Assessment (EA) and Alternative Route Analysis to support GVEC's application for a Certificate of Convenience and Necessity (CCN) from the Public Utility Commission of Texas (PUCT). As part of the EA, GVEC informs all federal, state, and local agencies about the proposed project. This is done to facilitate the identification of any governmental requirements or permits and is also helpful in gathering information about the project area. Therefore, please let us know if you are aware of any local requirements, proposed development, or other information relevant to the project.

Your comments are an important consideration during the preparation of the EA and we appreciate your response. If you have any questions concerning this project, please contact Sandra Morris at 800-776-5272 ext. 4522 or 512-369-7522.

Sincerely,

Marcus W. Pridgeon
General Manager and Chief Executive Officer

Attachment

cc: Sandra Morris, LCRA
France Davis, PBS&J

APPENDIX B
AGENCY CORRESPONDENCE



An employee-owned company

September 21, 2001

Ms. Linda Howard, AICP
Manager, Planning & Programming
Texas Department of Transportation
Department of Aviation
125 East 11th Street
Austin, Texas 78701-2483

PBS&J Project No. 440700

Dear Ms. Howard:

Guadalupe Valley Electric Cooperative, Inc. (GVEC), in cooperation with the Lower Colorado River Authority (LCRA), is proposing to construct new electric transmission facilities in Guadalupe County, Texas. Specifically, GVEC and LCRA are planning to build a new 138-kilovolt (kV) transmission line between the Hickory Forest Substation and the New Berlin Substation, both located in Guadalupe County. These facilities are shown on the attached figure. The new line will be approximately 12-15 miles long and will be built on single-pole structures made of either steel, wood, or concrete, within a minimum 80-foot wide right-of-way (ROW).

PBS&J is preparing an Environmental Assessment and Alternative Route Analysis for the project to support GVEC's application for a Certificate of Convenience and Necessity (CCN) from the Public Utility Commission of Texas (PUC). PBS&J is currently in the process of collecting and evaluating environmental data for the study area (see attached figure). As part of this effort, we are requesting that your agency/office relate any concerns that you may have regarding the potential environmental effects from the construction of these facilities within the designated study area. **At this time there are no proposed routes for the transmission line.** Alternative routes will be developed following the analysis of the existing environment in the study area and GVEC will consider using/upgrading existing facilities and ROW wherever feasible. PBS&J would appreciate receiving your comments regarding the natural, cultural, or human resources of the study area that are of concern to your agency/office.

Your comments will be an important consideration in both the selection and evaluation of alternative routes and in the assessment of impacts. In addition, should you identify any area requiring permits, easements, or other approvals by your agency/office, or if you are aware of any major proposed development or construction in the study area, we would also appreciate receiving this information. If you have any questions concerning this project or our request for information, please call me or Mr. France Davis at (512) 327-6840. Your earliest reply will be appreciated.

Sincerely,

Rob R. Reid
Project Manager
Vice President

RRR:FD:lp
Attachment

cc: France Davis, PBS&J
206 Wild Basin Road, Suite 300 • Austin, Texas 78746 • Telephone: 512.327.6840 • Fax: 512.327.2453 • www.pbsj.com

185

HICKORY FOREST-NEW BERLIN 69-kV TRANSMISSION LINE PROJECT

AGENCIES/OFFICIALS CONTACTED

Dr. Larry McKinney
Director - Resource Protection Division
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, Texas 78744

Dr. Tommy Knowles
Deputy Executive Administrator for
Planning
Texas Water Development Board
1700 N. Congress Avenue
Austin, Texas 78701

Ms. Linda Howard, AICP
Manager, Planning & Programming
Texas Department of Transportation
Department of Aviation
125 East 11th Street
Austin, Texas 78701-2483

Mr. Ralph B. Christian III
Program Manager
Texas Airport Development Office
Federal Aviation Administration
2601 Mecham Boulevard
Fort Worth, Texas 73137-4298

Mr. F. Lawrence Oaks
Executive Director
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

Mr. John P. Burt
State Conservationist
Natural Resources Conservation Service
101 South Main
Temple, Texas 76501-7682

Mr. Gregg Cooke
Regional Administrator
U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

Mr. Jeff Saitas
Executive Director
Texas Natural Resource Conservation
Commission
P.O. Box 13087
Austin, Texas 78711-3087

Mr. Kyle M. Mills, P.E.
Regional Environmental Officer
Federal Emergency Management Agency
Region VI
Federal Center, 800 N. Loop 288
Denton, Texas 76209-3698

Ms. Christine Turk
Planning and Environmental Quality
Intermountain Support Office
National Parks Service
12795 West Alameda Parkway
P.O. Box 25287
Denver, Colorado 80225-0287

Mr. Wayne A. Lea
Chief, Regulatory Branch
U.S. Army Corps of Engineers
Fort Worth District
819 Taylor Street
Fort Worth, Texas 76102-0300

**HICKORY FOREST-NEW BERLIN 69-kV TRANSMISSION LINE
PROJECT**

AGENCIES/OFFICIALS CONTACTED

Ms. Diana Noble
Director
Division of Environmental Affairs
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483

The Honorable Freddie Friederick
Mayor
City of New Berlin
9180 FM 775
La Vernia, TX 78121

James E. Sagebiel
Guadalupe County Judge
307 W. Court Ste. 200
Seguin, Tx 78155

Roger Baenziger
Guadalupe County Commissioner
Precinct 1
307 W. Court, Ste. 200
Seguin, Tx 78155

Mr. Stan Burrier
Guadalupe County Floodplain
Administrator
415 E. Donegan
Seguin, Tx 78155

Mr. David Frederick
Field Supervisor
U.S. Fish and Wildlife Service
Ecological Services
10711 Burnett Rd. Ste. 200
Austin, Tx 78758

Mr. Al J. Notzon III
Executive Director
Alamo Area Council of Governments
118 Broadway, Ste 400
San Antonio, Tx 78205

Dee A. Carter
Seguin ISD Superintendent
P.O. Drawer 31
Seguin, Tx 78156-0031



Federal Emergency Management Agency

Region VI
Federal Regional Center
800 North Loop 288
Denton, TX 76209-3606

October 15, 2001

Mr. Rob R. Reid
Project Manager
PBS&J – Suite 300
206 Wild Basin Road
Austin, TX 78746

Ref: PBS&J Project No. 440700

Dear Mr. Reid:

We have received your letter dated September 21, 2001. Thank you for the opportunity to comment on the above-proposed project.

The concerns of the Federal Emergency Management Agency (FEMA) are directed toward the National Flood Insurance Program (NFIP) and the possible negative impact upon identified special flood hazard areas within the outlined project boundaries.

Guadalupe County is participating in the National Flood Insurance Program (NFIP). Therefore, any development that takes place within the County must be reviewed and appropriate permits issued to ensure compliance with their adopted Flood Damage Prevention Ordinance. Our records show that Mr. Stan Burrier is the current Floodplain Administrator and can be reached at 830-303-4188.

Coordination with the Floodplain Administrator for the County can ensure that this project is in compliance with the City's/County's Flood Damage Prevention Ordinance.

Sincerely,

A handwritten signature in cursive script, reading "Dolores J. LeVinus", is written over a faint, circular official stamp.

Dolores J. LeVinus, NCFM
Natural Hazards
Program Specialist



TEXAS
HISTORICAL
COMMISSION

The State Agency for Historic Preservation

RICK PERRY, GOVERNOR

JOHN L. NAU, III, CHAIRMAN

F. LAWERENCE OAKS, EXECUTIVE DIRECTOR

October 17, 2001

Rob R. Reid
Project Manager
PBS&J
206 Wild Basin Road, Suite 300
Austin, TX, 78746

Re: Project review under Section 106 of the National Historic Preservation Act of 1966
Guadalupe Electric Cooperative, Inc. (PUC)

Dear Mr. Reid:

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

The review staff, led by Bill Martin, has examined our records. According to our maps, professional archeologists have not surveyed much of the area. It is possible that construction of the line will contribute to adverse effects on historic properties.

We recommend that your cultural resources staff examine records and visit the study area to identify locations with a high potential for containing historic properties so that your client can plan to avoid them. Please send us additional information when alternative routes have been developed. We may recommend that portions of the line will need to be surveyed to complete the identification of historic properties.

Thank you for your cooperation in this federal 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 Bill Martin at 512/463-5867.**

Sincerely,

A handwritten signature in dark ink, appearing to read "F. Lawrence Oaks", written over a horizontal line.

for
F. Lawrence Oaks, State Historic Preservation Officer

FLO/wam



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

OCT 22 2001

Rob R. Reid
PBS&J Project Manager, V.P.
206 Wild Basin Rd, Suite 300
Austin, TX 78746

Subjects: 138-kV Electric Transmission Facilities
Guadalupe County, Texas

Dear Mr. Reid:

Thank you for your letter, dated September 21, 2001, to the U.S. Environmental Protection Agency (EPA), Region 6, requesting comments and available information on the subject project. Your package was received by the Office of Planning and Coordination and I am pleased to provide the following in response to your request.

EPA understands PBS&J has been retained by the Guadalupe Valley Electric Cooperative to prepare an Environmental Assessment (EA) evaluating the potential impacts of the proposed action. Our office receives from 30-50 letters each month requesting input to EAs. Limited resources and statutory regulations do not allow our office the opportunity to thoroughly evaluate each of these EA actions. Nevertheless, we are hopeful our input on environmental issues to be addressed will help minimize adverse effects, and in particular, help to reduce cumulative adverse impacts on the more sensitive resource areas.

Regarding construction, efforts should be taken to minimize "non-point sources" of pollution that may enter surface waters. These include water that runs off during rainstorms that may contain metals, oil, grease, and other equipment fluids, as well as the runoff from agricultural fields may contain animal waste, fertilizers, and pesticides. Reducing the potential for these contaminants to enter surface waters (e.g., through the implementation of best management practices to control erosion at construction sites), makes a substantial contribution to improving water quality. EPA's National Pollutant Discharge Elimination System (NPDES) storm water general permit may be applicable to projects with construction sites that affect a minimum of five acres. For additional information on this NPDES general permit, contact Taylor Sharpe, EPA Region 6 Storm Water Team, at (214) 665-7495.

Any activity that releases materials into the air affects air quality. Using the proper equipment and using it correctly with the appropriate pollution controls, including vehicles, reduces particulates into the air. The Clean Air Act restricts the use, emission and disposal of ozone-depleting chemicals such as chlorofluorocarbons (CFCs, also know as Freons) and other chlorine- and bromine-containing compounds. CFCs are commonly used in refrigerators and air conditioners. For additional information, contact Jole Leuhrs, Chief of the Air Permits Section, at (214) 665-7250.

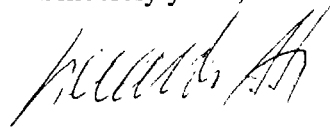
Clean up of the construction site and proper waste disposal are also important. Today, landfill space is at a premium. Solid waste disposal options include not only recycling, but also incineration, source reduction, and biodegradation. Both hazardous and solid waste regulations prohibit disposal of hazardous waste in a landfill that is not specifically designed and permitted. Also, the volume of waste accepted is set in the terms of the landfill permit, usually as tons per month. Each of us is part of the problem as well as the solution, which is proper disposal. From gum wrappers to used cars, we exert our personal choices in what we purchase, how we use the product, and how we dispose of the waste. Although some people and companies illegally put hazardous waste in landfills, heavy penalties including fines and jail sentences make illegal disposal very unattractive. For additional information, contact Willie Kelley, Chief of the Solid Waste Section at (214) 665-6761.

The EPA and the U.S. Department of Energy (DOE) have a number of programs that offer assistance to the public, commercial, industrial and government sectors to create a better environment. Examples of these programs are: 1) Energy Star Buildings - how to construct a building with lower electrical consumption and how to retrofit a building; 2) Energy Star Homes - energy efficient homes that reduce electrical consumption by as much as half, at a cost of less than two percent on new construction homes; and 3) a DOE program to upgrade energy efficient residential building codes and standards. Enclosed are some related informational pamphlets and for questions on the EPA/DOE Energy Star program, contact Patrick Kelly at (214) 665-7316.

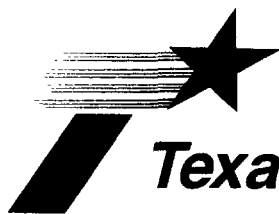
In addition to the above issues, to assist PBS&J in conducting a thorough and objective evaluation of the environmental impacts (e.g., siting, permitting, and socioeconomics) of the subject proposals, a copy of EPA's Environmental Information Document (EID) Guidance Handbook is also enclosed.

Additional EPA publications are available at www.epa.gov/earth1/r6/6en/xp/enxp4c.htm. I hope you find this information is helpful. If you have any questions, feel free to contact me at (214) 665-8150 or Joe Swick, of my staff, at (214) 665-7456.

Sincerely yours,


Robert D. Lawrence, Chief
Office of Planning and
Coordination (6EN-XP)

Enclosures



Texas Department of Transportation

DEWITT C. GREER STATE HIGHWAY BLDG. • 125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • (512) 463-8585

October 23, 2001

PBS&J

Attn: Rob R. Reid

206 Wild Basin Road, Suite 300

Austin, Texas 78746

Re: PBS&J Project No. 440700 - Guadalupe Valley Electric Cooperative, Inc. (GVEC), new electric transmission facilities in Guadalupe County, Texas.

Dear Mr. Reid:

Reference is made to your letter of September 21, 2001, requesting comments regarding the proposed construction of new electric transmission lines between the Hickory Forest Substation and the New Berlin Substation, both located in Guadalupe County.

The San Antonio District of the Texas Department of Transportation (TxDOT) has requested copies of all regulatory permits and clearances where the proposed transmission lines traverse state transportation facility right-of-way.

As there are no proposed routes for the transmission line at this time, we have no additional comments to offer. Thank you for the opportunity to participate in this matter.

Sincerely,

Ken Bohuslav, P.E.
Deputy Division Director
Environmental Affairs Division



November 2, 2001

Mr. Rob Reid
PBS&J
206 Wild Basin Road, Suite 300
Austin, TX 78746

RE: Proposed upgrade of electrical infrastructure, Guadalupe Valley Electric Cooperative, Guadalupe County.

Dear Mr. Reid:

Thank you for coordinating with this agency in your planning activities regarding the proposed project referenced above. In your letter dated September 21, 2001, you requested that the Texas Parks and Wildlife Department (TPWD) relate any concerns regarding potential environmental effects from the construction of a new 12 to 15 mile long 138 kV transmission line between Hickory Forest Substation and New Berlin Substation in Guadalupe County. At the time of your letter, there were no proposed routes. Staff reviewed the proposed project and the study area depicted in the map provided. Until more specific information can be provided about proposed routes and natural resources that may be affected by the proposed project, TPWD can provide some general concerns and recommendations to assist your planning efforts and are provided to minimize effects of this project upon fish, wildlife, and plant resources.

A major responsibility of the Texas Parks and Wildlife Department (TPWD) is to conserve and protect the state's fish, wildlife, and plant resources. Certain categories of these biotic resources warrant special consideration. They include habitats that are locally and regionally scarce, habitat supporting or capable of supporting unique species or communities. The occurrence of high quality habitats such as wetlands, riparian drainages, floodplains, native vegetation communities, and remnant natural communities should be identified and avoided where possible. New electric transmission lines should follow existing rights-of-way (ROW) to reduce further fragmentation of remaining wildlife habitat. However, ROW and access easements often display exceptional biotic diversity and quality by representing isolated areas free from agricultural grazing and cultivation impact. Consequently, caution should be taken to avoid any unique and rare plant communities that may occur. Please find *TPWD Recommendations for Electrical Transmission Line Design and Construction* for your assistance in minimizing adverse impacts to fish and wildlife in the project area.

The use of existing ROWs and minimization of tree and brush clearing is particularly important at stream crossings. Please find the attachment entitled *Texas Parks and Wildlife Department Guidelines for Construction and Clearing*

*Give Thanks for
the Memories...*



Lone Star Legacy.

*Give to the
Lone Star Legacy
Endowment Fund*

4200 SMITH SCHOOL ROAD
AUSTIN, TEXAS 78744-3291
512-389-4800
www.tpwd.state.tx.us

*To manage and conserve the natural and cultural resources of Texas for the
use and enjoyment of present and future generations.*

Mr. Reid

Page 2

within Riparian Areas. These guidelines should be incorporated into your review and planning process to reduce the likelihood your project will impact fish, wildlife, and plant resources in riparian areas. Transmission lines should be designed to cross drainages at right angles, at points of narrowest width, and/or at the lowest banks whenever feasible to provide the least disturbance to stream corridor habitat. Design and implementation of the project should include measures to minimize obstructions to wildlife movement along existing riparian corridors. This can be aided by leaving areas adjacent to the channel undisturbed. Construction activity, including staging areas, should be located in previously disturbed areas outside riparian and native vegetation communities. Because forest and woody areas provide food and cover for wildlife, these cover types should be preserved. Shrubs and trees should be trimmed rather than cleared. The Department recommends avoiding removal of large trees (greater than 12 inches diameter breast height), particularly mast bearing species, and other native vegetation during project development and mitigation site development. Mature trees or native brush should be avoided. If trees are lost, particularly those that produce nuts or acorns, then additional trees should be reestablished at a frequency of at least three trees planted for every tree lost.

Chapter 86 of the Texas Parks and Wildlife Code places the management, control, and protection of bay bottom and streambed materials under the authority of the Texas Parks and Wildlife Commission in order to ensure that disturbance of those habitats does not pose a significant threat to aquatic life. Disturbing or taking of materials from a state owned streambed or bay bottom without a permit is prohibited, and any material removed incurs a charge per cubic yard payable to the Department. Please check with Mr. Rollin MacRae (512-389-4639) to see if this project requires a permit. Attached is information that outlines permit requirements.

The Clean Water Act (CWA) sets the basic regulatory framework for regulating discharges of pollutants to U.S. waters. Section 404 of the CWA establishes a federal program to regulate the discharge of dredge and fill material into waters of the U.S., including wetlands. The U.S. Army Corps of Engineers (COE) and the Environmental Protection Agency (EPA) are primarily responsible for making jurisdictional determinations and regulating wetlands under Section 404 of the CWA. The COE also makes jurisdictional determinations under Section 10 of the Rivers and Harbors Act of 1899. If the proposed construction would impact aquatic resources then the project sponsor should contact the U.S. Army Corp of Engineers (Corpus Christi Regulatory Field Office) for determination of jurisdictional wetlands and for permitting requirements. Compensation may be required for any encroachment into these areas.

154

Mr. Reid
Page 3

The Migratory Bird Treaty Act (MBTA) implicitly prohibits intentional and unintentional take of migratory birds, including their nests and eggs, except where permitted. If this project requires vegetation clearing or maintenance, then it may result in impacts to migratory birds, nest or eggs. Construction activities such as, but not limited to, tree felling, vegetation clearing, or maintenance shall need to be scheduled outside the general migratory bird nesting season of each year the project is authorized and lasting for the life of the project. In addition, since raptors nest in late winter and early spring, all proposed construction areas should be surveyed for raptors and construction activities should be excluded for a minimum zone of 100 meters around any raptor nest tree during the period February 1-July 15. Riparian corridors provide habitat for many species of birds. Wooded drainages provide habitat for cavity nesting birds. Avoid disturbing colonial waterbird rookeries that often exist near wetlands and riparian corridors. Additional information regarding the MBTA may be obtained through the Southwest Regional Office (Region 2) Division of Migratory Birds, US Fish and Wildlife Service, at (505) 248-6879 or the Migratory Birds Permits Office at (505) 248-7882.

Birds typically establish flight corridors along and within river and creek drainages. Transmission lines that cross or are located near these drainages should have line markers installed at the crossings or closest points to the drainages to reduce the potential of collisions by flying along or near the drainage corridors. Please plan to incorporate bird electrocution prior to any electrocutions. Line alterations to prevent bird electrocutions should not necessarily be implemented after such events occur as all electrocutions may not be known or documented. Incorporation of preventative measures along portions of the routes that are most attractive to birds (as indicated by frequent sightings) prior to any electrocutions is a preferred alternative. If you would like more information about avian mortality prevention measures, please contact me.

Project plans should include measures to prevent erosion and sediment runoff from disturbed areas. The Department recommends a combination of hay bales and silt screens to prevent siltation into wetlands. Any hay that is used in erosion control should be certified weed free hay to reduce the potential for introduction of exotic weedy species. Graded embankments should not exceed a 4:1 slope. Runoff control measures should be maintained until native vegetation has been reestablished on disturbed sites.

Enhancement of existing native grasses or prairie remnants can be assisted by the reseeding of exposed areas with a mixture of native grasses and limiting mowing practices. Mowing only essential use areas will allow native grasses to prosper,

Mr. Reid
Page 4

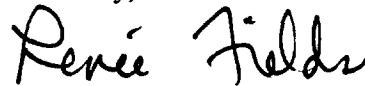
generally without additional irrigation. At water crossings ROW maintenance should be conducted to allow optimal growth of both herbaceous and woody cover within the constraints imposed by required access to poles and line conductors and required minimum distances needed to prevent electrical arcs. Trees and brush should be cleared or trimmed only when necessary to meet safe clearance requirements.

Please find the annotated list of special species that occur in Guadalupe County. Species on the list could be present depending upon habitat availability. Please note species that are proposed for federal de-listing should still be considered listed and are usually state listed. If rare plant or animal species are found within or near the project area, precautions should be taken to avoid adverse impacts to them. If it is determined adverse impacts could occur with completion of your project, then mitigation in the form of planning to reduce adverse impacts and/or compensation for damages should occur. More site-specific information can be obtained from a search of the TPWD Biological and Conservation Data System (BCD) For more information about the BCD or threatened and endangered species in the project area please contact Celeste Brancel-Brown at (512) 912-7021.

Coordination with the Grants-In-Aid Branch of the Texas Parks and Wildlife Department and local park administrators is necessary to prevent conversion of grant assisted lands to other than public outdoor recreation use - as prohibited by Section 6(f) of the Land and Water Conservation Act. Please contact Russell Downey at (512) 912-7112 for more information.

We appreciate the opportunity to review and comment on your project and would like to review more specific information when it becomes available. If you have any questions contact me in San Marcos at 512-396-9211.

Sincerely,



Renée Fields
Wildlife Habitat Assessment Program
Wildlife Division

/jrf

Attachments

TPWD Recommendations for Electrical Transmission/Distribution Line Design and Construction

Construction of the line should be performed to avoid adverse environmental impact and to restore or enhance environmental quality to the greatest extent practical. In order to minimize the possible project effects upon wildlife, the following measures are recommended:

1. For distribution lines, Use wood or non-conducting cross arms to minimize the possibility of electrical contact with perching birds.
2. For distribution lines, when possible, install electrical equipment on the bottom cross arm to allow top cross arm for perching.
3. To protect raptors, procedures should be followed as outlined in: "Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996," by Richard R. Olendorff, Allan R. Ansell, Monte G. Garrett, Robert N. Lehman and A. Dean Miller. 1996. Distributed by the Raptor Research Foundation Incorporated, for Edison Electric Institute.
"Mitigating Bird Collisions with Power Lines: the State of the Art in 1994."
Avian Power Line Interaction Committee (APLIC). 1994. Edison Electric Institute. Washington D.C.
4. Construction should avoid identified wetland areas. Coordination with appropriate agencies should be accomplished to ensure regulatory compliance. Construction should occur during dry periods.
5. Construction should attempt to minimize the amount of flora and fauna disturbed. Reclamation of construction sites should emphasize replanting with native grasses and leguminous forbs.
6. Existing rights-of-way should be used to upgrade facilities, where possible, in order to avoid additional clearing and prevent adverse impacts associated with habitat loss and fragmentation of existing blocks of wooded habitat.
7. Because forest and woody areas provide food and cover for wildlife, these cover types should be preserved. Mature trees, particularly those which produce nuts or acorns, should be retained. Shrubs and trees should be trimmed rather than cleared.
8. All pole design should be single phase (without arms), where possible, to preserve the aesthetics of the area.
9. Lines should be buried, when practical.

*Texas Parks & Wildlife Department Guidelines for Construction
and Clearing Within Riparian Areas*

A. Summary of Impacts Anticipated With Clearing of Rights-of-Way and Construction Within Riparian Habitats

The following discussion lists a portion of the adverse impacts often incurred to natural resources with clearing of vegetation along streams and rivers as a result of construction disturbance and right-of-way (ROW) preparation.

(1) Direct Vegetation Loss

Removal of vegetation along stream systems is usually very damaging to fish and wildlife habitat and to natural processes associated with these systems. Vegetation associated with forested stream systems usually reflects highest value wildlife habitats. The degree of adverse impact to habitat resulting from this vegetation loss relates directly to the quantity of the vegetation loss and quality of the vegetation assemblage in fulfilling life requisites of those organisms using it.

(2) Disruption of Habitat Continuity

Habitat fragmentation is a serious threat to biological diversity. Because of the high use of riparian systems in general by wildlife, TPWD recommends that forest systems associated with floodplains be managed so as to avoid habitat fragmentation. Wildlife use river corridors to travel across the landscape and to move between food, cover, and breeding locations. Fish use habitat features within stream systems where appropriate physical parameters of light, temperature and water quality exist. As human development activity continues to compete for the natural resources existing within these riverine systems, remaining forested floodplains become increasingly valuable and scarce. Clearing for construction and utility ROW's, widening of utility ROW's, realignment of roadways crossing riverine systems, and abandonment of roads which cross these systems contribute significantly to increasing fragmentation of high value riparian habitats.

(3) Impacts to Protected and Rare Species and Natural Resources

Riverine systems are more prone to function as protected species habitat than upland areas because they tend to be less disturbed and represent higher value systems. Consequently, endangered species and natural plant community investigations should always be conducted when disturbance of these systems is projected or planned

characteristics: sinuosity¹, gradient², bottom substrate type³, pool/riffle ratio, streamside vegetation, overhead canopy vegetation, and channel width/depth/velocity characteristics. Projects will generally be opposed when:

- moderate to high quality fish or wildlife habitat or any endangered species habitat exists;
- project benefits are considered minimal in comparison to environmental costs; alternatives to stream modification are not evaluated.

(2) *Stream Crossing Structures (culverts, bridges, transmission lines, pipelines, utility rights-of-way)*

- cross at right angles to the stream;
- locate crossings where the channel is straight and exhibits unobstructed flows;
- avoid crossing at bends;
- structure design (span) must ensure that the natural stream-bed and bank remains intact;
- during construction, work from only one bank;
- vegetation and overstory canopy should be preserved (i.e. preserve the streamside vegetation corridor), especially the more southerly or westerly banks to maximize shading;
- construction of conduit for fluids or transmission lines across waterways should be installed by boring under streams versus trenching through the stream substrate;
- accommodate low-flow fish passage; and,
- Avoid vegetation buffer areas adjacent to wetlands and riparian corridors by a minimum of 100'.

¹Sinuosity (k): that attribute of stream meander geometry dealing with the degree of waviness of the channel. K can be expressed as the ratio between the stream channel length to the valley length or as the ratio of stream channel slope to the valley slope.

²Gradient: slope along the stream channel

³Substrate type: particle size distribution of the stream bottom substrate, i.e., percent silt, clay, sand, gravel, cobble, boulder, & bedrock occurring at the bed of the stream.

- If the proposed development indicates substantial disturbance or removal of the State-owned streambed material, a permit from TPWD under Chapter 86, Parks & Wildlife Code may be required. Application forms and instructions are available by contacting ~~Mr. Paul Shinkawa~~ at our Austin address or by requesting information at ~~(512) 389-4724~~.

Mr. Bob Sweeney 512-389-4433

Mr. Rollin MacRae 512-389-4639

State-Owned Streambed, Bay Bottoms and Gulf Bottoms

A permit is required to "disturb or take" streambed or baybottom or Gulf bottoms if:

Baybottom or Gulf bottoms

(if it is State-owned) and it is

not a federal project

not for navigation

not covered by a General Land Office oil or gas lease

Inland streams is State-owned if

The streambed has an average width of 30 feet from the mouth up to project location (whether it has water or not).

OR

If the stream is it is perennial.

AND

The stream is NOT within the city limits of San Antonio, Houston, Beaumont, Dallas, Fort Worth, Wichita Falls, or El Paso, or

it is NOT within the city limits of Austin as of March 29, 1945, or

it is NOT within the city limits of Waco as of 1960.

Exemptions:

Federal projects and Navigation projects,

Maintenance of public water supplies,

Maintenance of public utility intakes, lines and such, and

Public road projects contracted by TxDOT

To get information or permit application call Bob Sweeney (512-389-4433) or Rollin MacRae (512-389-4639).

Application fee runs from \$200 to \$1200, depending on the type of permit, and the charge for material is about \$0.20 per ton, about \$0.25 per cubic yard. That is for sand, gravel or marl.

Oyster shell from a bay is a separate permit, much more difficult to get (there has not been one since 1982), and the charge is more like \$1.50 a cubic yard.

TEXAS PARKS AND WILDLIFE DEPARTMENT
ENDANGERED RESOURCES BRANCH
SPECIAL SPECIES LIST
GUADALUPE COUNTY

Revised:
98-03-24

Scientific Name	Common Name	Federal Status	State Status
-----------------	-------------	----------------	--------------

*** BIRDS

CHARADRIUS MONTANUS	MOUNTAIN PLOVER	C1	
FALCO PEREGRINUS ANATUM	AMERICAN PEREGRINE FALCON	LE DL	E
FALCO PEREGRINUS TUNDRIUS	ARCTIC PEREGRINE FALCON	E/SA DL	T
GRUS AMERICANA	WHOOPIING CRANE	LE	E
STERNA ANTILLARUM ATHALASSOS	INTERIOR LEAST TERN	LE	E

*** FISHES

MICROPTERUS TRECULI	GUADALUPE BASS
---------------------	----------------

*** REPTILES

GOPHERUS BERLANDIERI	TEXAS TORTOISE		T
HOLBROOKIA PROPINQUA	KEELED EARLESS LIZARD		
PHRYNOSOMA CORNUTUM	TEXAS HORNED LIZARD		T

*** VASCULAR PLANTS

HYMENOPAPPUS CARRIZOANUS	SANDHILL WOOLYWHITE
POLYGONELLA PARKSII	PARKS' JOINTWEED
SALVIA PENSTEMONOIDES	BIG RED SAGE

Codes:

LE, LT - Federally Listed Endangered/Threatened
 PE, PT - Federally Proposed Endangered/Threatened
 E/SA, T/SA - Federally Endangered/Threatened by Similarity of Appearance
 C1 - Federal Candidate, Category 1; information supports proposing to
 list as endangered/threatened
 DL, PDL - Federally Delisted/Proposed Delisted
 E, T - State Endangered/Threatened

Species appearing on these lists do not all share the same probability of occurrence within a county. Some species are migrants or wintering residents only. Additionally, a few species may be historic or considered extirpated within a county. Species considered extirpated within the state are so flagged on each list. Each county's revised date reflects the last date any changes or revisions were made for that county, to reflect current listing statuses and taxonomy.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

10711 Burnet Road, Suite 200
Austin, Texas 78758
(512) 490-0057

November 8, 2001

Rob R. Reid
PBS&J
206 Wild Basin Road, Suite 300
Austin, Texas 78746

Consultation # 2-15-02-I-0082

Dear Mr. Reid:

This is a response to your September 21, 2001 letter requesting that the U.S. Fish and Wildlife Service (Service) provide information regarding federally listed or proposed threatened and endangered species and designated Critical Habitat that may be affected by the construction of a 138 kV transmission line in southern Guadalupe County, Texas. This project is a cooperative effort between the Guadalupe Valley Electric Cooperative (GVEC) and the Lower Colorado River Authority (LCRA).

We understand from the information provided that the transmission line would run between the existing Hickory Forest Substation and the New Berlin Substation, but that no routes have yet been proposed for the transmission line right-of-way (ROW). The transmission line would be approximately 12-15 miles long depending upon the route taken, and would be supported on single-pole structures within a minimum 80-foot wide ROW. We are providing this information to assist you, the Rural Utilities Service, and the Public Utilities Commission of Texas in assessing and avoiding potential impacts to sensitive resources that may result from the proposed project.

Endangered and Threatened Species

Currently, no Federally listed threatened or endangered species are considered to be of regular occurrence in Guadalupe County. The endangered whooping crane and threatened bald eagle are considered to be of potential occurrence in the county during migration, but their presence in the county is unpredictable. We recommend that the transmission lines be designed and constructed in such a way as to be consistent with the guidance in the publication, *Suggested practices for raptor protection on power lines - the state of the art in 1996*. Avian Power Line Interaction Committee, Edison Electric Institute/Raptor Research Foundation. Washington, D.C.¹

Following the recommendations in that publication should help to minimize or eliminate the potential for the project to injure or kill bald eagles and other raptors that may perch on the project's wires or power poles.

¹ Publication may be ordered for \$30.00, plus \$5.00 shipping from: Jim Fitzpatrick, Treasurer, Raptor Research Foundation, Inc., Carpenter Nature Center, 12805 St. Croix Valley, Hastings, MN 55033

The mountain plover, currently a species that has been proposed to be listed as threatened, is considered to be of potential occurrence in Guadalupe County during the non-breeding season. Typical habitat for this species in central Texas consists of agricultural fields, especially areas that have been recently plowed. If the proposed project results in the ROW and/or adjacent properties being removed from cultivation, the project may result in a decrease in winter foraging habitat for the mountain plover. Often, agricultural operations can be allowed to continue in electric transmission line ROWs after construction is complete without any negative impact on the operation or maintenance of the transmission lines. A continuation of agricultural operations in the ROW from this project would not only assure that any existing mountain plover habitat would not be impacted by the project, it would also help to maintain power company-landowner relations by allowing farmers to continue to work the land in the ROW.

Cagle's map turtle, which is known to occur in Guadalupe County, is a candidate for listing under the Endangered Species Act. In Guadalupe County, this species is only known to occur in the Guadalupe River, which is several miles north of the proposed project. The proposed project should not impact this species or its habitat unless a route is selected for this project that crosses or is immediately adjacent to the Guadalupe River or a tributary to that river within a short distance of the Guadalupe River.

Wetlands and Riparian Zones

Depending upon the project route eventually selected for this project, the transmission line may cross wetlands or riparian zones. If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements under Section 404 of the Clean Water Act, please contact the Fort Worth District Corps of Engineers, Permits Section, CESWF-EV-0, P.O. Box 17300, Fort Worth, Texas, 76102-0300, 817/886-2681.

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks, and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, or major construction. Construction activities near such areas should be carefully designed and scarified soil should be revegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. No permanent structures should be placed in the 100-year floodplain. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

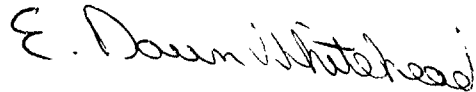
The State of Texas provides legal protection for additional species of plants and animals (Texas Parks and Wildlife Code Chapters 67, 68, and 88). We recommend you contact the Diversity Program of the Texas Parks and Wildlife Department, 3000 IH-35 South, Suite 100, Austin, Texas 78704 (512/912-7011) for information concerning animals and plants of State concern.


Mr. Reid

3

We thank you for your concern for threatened and endangered species and other natural resources, and we appreciate the opportunity to provide comments on the proposed transmission line construction. If we can be of further assistance or if you have questions about these comments, please contact Ray Brown at the Service's Austin Office at (512) 490-0057, extension 243. Please refer to the consultation number listed above in any future correspondence with the Service regarding this project

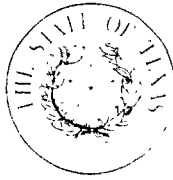
Sincerely,



 David C. Frederick
Supervisor

205

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Kathleen Hartnett White, *Commissioner*
Jeffrey A. Saitas, *Executive Director*



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

January 14, 2002

Mr. Rob R. Reid
PBS&J
206 Wild Basin Road, Suite 300
Austin, TX 78746

Re: Transmission Line, Guadalupe County

Dear Mr. Reid:

The Texas Natural Resource Conservation Commission (TNRCC) has reviewed the above-referenced project and offers the following comments:

The Policy & Regulations Division has reviewed the above-referenced project and does not anticipate significant long-term environmental impacts from this project as long as construction and waste disposal activities associated with it are completed in accordance with applicable local, state, and federal environmental permits and regulations. We recommend that the applicants take necessary steps to insure that best management practices are utilized to control runoff from construction sites to prevent detrimental impact to surface and groundwater.

The Strategic Assessment Division has reviewed the above-referenced project for General Conformity impacts in accordance with 40 CFR Part 93 and Chapter 101.30 of the TNRCC General Rules. The proposed action is located in Guadalupe County, which is unclassified or in attainment of the National Ambient Air Quality Standards for all six criteria air pollutants. Therefore, general conformity does not apply.

Although any demolition, construction, rehabilitation or repair project will produce dust and particulate emissions, these actions should pose no significant impact upon air quality standards. Any minimal dust and particulate emissions should be easily controlled with standard dust mitigation techniques by the construction contractors.

206