

FINDING OF NO SIGNIFICANT IMPACT

In accordance with the National Environmental Policy Act (NEPA) of 1969, including guidelines in 33 Code of Federal Regulations, Part 230, the Tulsa District of the U.S. Army Corps of Engineers (USACE) has assessed the environmental impacts of the relocation of the proposed golf course and camping/RV area within the CrossTimbers Development Project at Skiatook Lake, Osage County, Oklahoma. The proposed action will allow the relocation of a golf course and a camping/RV area from their currently approved locations. Originally proposed for construction at Skiatook Point, the golf course would now be constructed in the Tall Chief Cove area of the lake. The camping and RV area, originally proposed for construction in the Tall Chief Cove area, would now be built at Skiatook Point.

As a means of minimizing adverse impacts to the American burying beetle (*Nicrophorus americanus*), a Federally-listed endangered species, standardized survey and other techniques prescribed by the U.S. Fish and Wildlife Service (USFWS) will accompany all construction activities involving excavation or soil disturbance. Changes to the location of the golf course and camping/RV area under the proposed action would impact additional terrestrial habitat that would require mitigation. In consultation with USFWS and other interested parties, USACE would reclassify property at Gouin Point on Skiatook Lake from recreation to wildlife management general to meet this mitigation requirement. This change in land classification by USACE would allow preservation of significant old-growth cross-timbers habitat at Gouin Point, allow hunting activities and management of habitat for wildlife and non-game species, and provide an additional degree of protection for the area from future development.

The environmental review of the proposed project, which is documented in the enclosed Environmental Assessment, indicates that no significant adverse environmental impacts on the natural and human environments would result from the proposed project. Therefore, an Environmental Impact Statement will not be prepared.

28 APR 06

Date



MIROSLAV P. KURKA
Colonel, U.S. Army
District Engineer

Enclosure:
Environmental Assessment

**ENVIRONMENTAL ASSESSMENT OF THE PROPOSED
RELOCATION OF THE GOLF COURSE AND CAMPING/RV AREA,
CROSSTIMBERS DEVELOPMENT PROJECT,
SKIATOOK LAKE, OSAGE COUNTY, OKLAHOMA**

April 28, 2006

Project Proponent:

**Skiatook Economic Development Authority
Skiatook, Oklahoma**

Prepared for:

**U.S. ARMY CORPS OF ENGINEERS
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I. PURPOSE, NEED, AND SCOPE

The purpose of this Environmental Assessment (EA) is to assess the environmental impacts from the proposed relocation of the golf course and camping/RV facilities within the CrossTimbers development area on Federal lands at Skiatook Lake in Osage County, Oklahoma. Although the Final Environmental Statement for Skiatook Lake, dated 11 February 1972, addressed the authorized recreational purposes at this location, significant excavation and changes in the land and current land use will result from the proposed construction activities, thus requiring preparation of an EA to ensure compliance with the National Environmental Policy Act (NEPA) of 1969, as amended.

Skiatook Reservoir was authorized for construction by the Flood Control Act approved 23 October 1962 (Public Law 87-874, 87th Congress) in accordance with a plan outlined in House Document No. 563 (87th Congress, 2nd Session). Purposes of the Skiatook project included flood control, water quality control, water supply storage, recreation, and fish and wildlife.

In 2003 the U.S. Army Corps of Engineers (USACE) approved the lease of approximately 631 acres of land and 46 acres of water located in portions of Sections 25, 26, 27 and 35 of Township 22 North, Range 11 East and Sections 2, 3, and 4 of Township 21 North, Range 11 East in Osage County, Oklahoma, to the Skiatook Economic Development Authority (Figures 1 and 2). As part of the approval of the lease request, USACE required the Skiatook Economic Development Authority (SEDA) to prepare an EA that addressed the environmental impacts of the proposed SEDA sub-lease of the property to StateSource, LLC for construction of the CrossTimbers development. Development in the lease area as part of the sub-lease to StateSource will include a golf course, marina, boat docks, trails, camping and RV sites, and a village. The village will consist of a lodge, cabins, store, and other related facilities. USACE approved the EA for the original CrossTimbers development, and on 13 February 2003 Colonel Robert L. Suthard, Jr. issued a Finding of No Significant Impact (FONSI) for the EA.

The primary purpose of this new EA is to address the relocation of the proposed golf course to the Tall Chief Cove area and the camping/RV site to the Skiatook Point area. The facility relocations, as herein proposed, are completely contained within the original and approved lease area.

II. ALTERNATIVES INCLUDING PROPOSED ACTION

A. No Action.

The No Action alternative would allow continued construction of the CrossTimbers development within the approved lease area at Skiatook Lake as outlined in the [Environmental Assessment for CrossTimbers Project at Skiatook Lake, Oklahoma](#) (original CrossTimbers EA) for which the USACE issued a Finding of No Significant Impact (FONSI) on February 13, 2003. Development would include a golf course located at Skiatook Point, marina, boat docks, trails, camping and RV sites at Tall Chief Cove, and a village (Figure 3).

The village would consist of a lodge, cabins, store, and other related facilities. As used in this document or accompanying attachments, the term “cabins” or “cabin development” refers to public cabins and lodging, restaurants, and retail and related facilities. The term “marina” refers to boat docks, storage, service ramps, parking areas, and service and repair facilities, as well as trails, restaurants, cabins, and retail and related facilities. Approved CrossTimbers construction that has taken place since issuance of the FONSI for the original CrossTimbers EA has consisted of a marina ship store, boat docks, associated marina storage, parking areas, trails, and a marina access road, primarily located in the Sunset Cove area.

B. Preferred Alternative (Proposed Action).

Under the Preferred Alternative, both the golf course and the camping/RV area would be relocated from their currently approved locations. Originally proposed for construction at Skiatook Point, the golf course would now be constructed in the Tall Chief Cove area (Figure 4). The camping and RV area, originally proposed for construction in the Tall Chief Cove area, would now be built at Skiatook Point (Figure 5).

As a means of minimizing adverse impacts to the American burying beetle (ABB) (*Nicrophorus americanus*), a Federally-listed endangered species, standardized survey and other techniques prescribed by the U.S. Fish and Wildlife Service (USFWS) will accompany all construction activities involving excavation or soil disturbance. Accordingly, use of established protocol and activities for ABB protection is included as a component of the proposed action (Appendix A).

III. AFFECTED ENVIRONMENT

A. Location.

The proposed golf course would be constructed in the Tall Chief Cove area. The golf course would be built entirely within the approved CrossTimbers lease area on approximately 121 acres. The area near Tall Chief Cove has average slopes ranging from 6% to 12% and consists of approximately 21 acres of meadows and pasture and 100 acres of wooded terrain.

The proposed camping area and RV park would be constructed at Skiatook Point, which has average slopes ranging from 7% to 37% and consists of approximately 50 acres of meadows and pastures and 300 acres of woodlands.

B. Climate.

Information regarding climatological conditions at Skiatook Lake has been previously summarized in Section III B of the original CrossTimbers EA.

C. Social and Economic Conditions.

1. Study Area. Skiatook Lake is located in the southeastern portion of Osage County in north-central Oklahoma. The lake covers 10,190 acres and is owned and operated

by the U.S. Army Corps of Engineers. The Tall Chief Cove camping facilities are used at a 100% rate on weekends (turning away a number of individuals during the peak recreation season). Crystal Bay Marina, located on the north shore of the lake, operates at approximately 90% capacity during the boating season (May through September). The recently opened CrossTimbers Marina is currently operating at approximately 95% capacity.

2. Population. The population of Osage County was 44,437 as of the 2000 census. The Skiatook area has seen a growth rate of approximately 10% over the last 10 years.

3. Employment and Income. The economy of the area is based primarily on horse and cattle ranching as well as oil and gas production. The unemployment rate in Osage County was 4.0% in 2001 compared to 4.3% for the State. The 1999 per capita income for Osage County as \$17,634 compared to \$22,958 per capita for the State.

4. Social Ecology. Land use in the Skiatook Lake area is mainly ranching, although recent years have seen the slow encroachment of housing developments west of the town of Skiatook and on the eastern end of the lake. Upscale housing has been built on private property on both sides of the eastern end of the lake. Lakeview houses start at \$160,000 in the Catalina Cove subdivision east of Sunset Cove. Homes in East Ridge sell in excess of \$230,000. Westside homes in the Santa Barbara subdivision start at \$180,000 and homes in the Beverly Hills subdivision sell for a million dollars or more. At The Estates of CrossTimbers development, 0.5 acre lots sell for \$80,000 to \$160,000. The increase in housing prices has brought an increase in the amount of land that is being made available for development. The median price for a home in the Skiatook area is \$63,176 with an average home price of \$69,601. Only 3.3% of homes within a ten-mile radius of the Town of Skiatook sell for more than \$150,000 (Town of Skiatook Market Profile Report dated 15 June 2001).

5. Environmental Justice. Executive Order 12898 requires federal agencies to identify and address disproportionately high and adverse human health and environmental effects of federal programs, policies, and activities on minority and low-income populations. Federal agencies are directed to ensure that federal programs or activities do not result, either directly or indirectly, in discrimination on the basis of race, color or national origin. Federal agencies are required to provide opportunities for input in the NEPA process from affected communities and to evaluate significant and adverse environmental effects proposed federal actions on minority or low-income communities during the preparation of federal environmental documents. The proposed project was evaluated in accordance with E.O. 12898.

6. Protection of Children from Environmental Health Risks and Safety Risks. Executive Order 13045 requires that federal agencies make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. Federal agencies are directed to ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health and safety risks. The proposed project was evaluated in accordance with E.O. 13045.

D. Natural Resources.

1. Terrestrial. Information regarding terrestrial resources at Skiatook Lake has been previously summarized in Section III D.1. of the original CrossTimbers EA. There has been no change to the terrestrial resources since publication of the original CrossTimbers EA.

2. Soils. Information regarding soil types and soil associations present in the Skiatook Lake area has been previously summarized in Section III D.2. of the original CrossTimbers EA. There have been no changes to the soil types and soil associations since publication of the original CrossTimbers EA.

3. Prime Farmland. As defined by the U.S. Natural Resources Conservation Service (NRCS) there are no Prime or Unique Farmlands within the proposed project area. A small area of prime farmland exists within the lease area downstream of Skiatook Dam, but none of this area will be impacted by activities associated with the proposed project action. A copy of the December 12, 2005 coordination letter from the NRCS with this information is located in Appendix B.

4. Wild and Scenic Rivers. No body of water in the Skiatook Lake watershed is a federally designated Wild or Scenic River.

5. Wetlands/Floodplains. Information regarding wetlands and floodplains in the Skiatook Lake area has been previously summarized in Section III D.5. of the original CrossTimbers EA. There are no wetlands present in the proposed project area.

6. Wildlife. Information regarding wildlife present in the Skiatook Lake area has been previously summarized in Section III D.6. of the original CrossTimbers EA. Animal species present in the area are typical of the cross timbers region in Oklahoma and southern Kansas.

7. Unique Habitat Resource. The project area contains cross timbers, which is an increasingly rare and unique habitat type. This component was identified as being present in the project area during preparation of the final environmental statement for the project in 1972. The status of this habitat type has recently been of increasing concern and the focus of recent research by the scientific community.

The cross timbers originally stretched from southeast Kansas, through eastern Oklahoma, and into northeastern Texas. This vegetation type is dominated by blackjack oak, post oak and, in the south, black hickory (*Carya texana*), with an understory dominated by little bluestem. Subdominants include big bluestem, side-oats grama, hairy grama (*Bouteloua hirsuta*), purple lovegrass (*Eragrostis spectabilis*), sand lovegrass (*E. trichodes*), Scribner's panicum (*Panicum oligosanthes*), Indian-grass (*Sorghastrum avenaceum*), longleaf dropseed (*Sporobolus* sp.) and Texas needlegrass (*Stipa leucotricha*) as understory, and hackberry (*Celtis* spp.) as an overstory species. In Oklahoma, the cross timbers prairie habitat type originally covered approximately 30,000 square miles. Throughout much of the eastern range of the cross timbers a combination of fire suppression, plant invasion, and

conversion to agriculture has resulted in the fragmentation and loss of habitat for many migrant songbirds such as the endangered black-capped vireo. Therrell and Stahle (1998) estimate 162 square miles of ancient cross timbers remain today throughout the country, all of which has been impacted by fire suppression, grazing/agriculture, and reservoir impoundment.

Within the general habitat classification of cross timbers there are several different plant communities. The plant community with the broadest distribution is that of the upland cross timbers. The upland cross timbers forest type is generally considered to be a modified version of the oak-hickory forest type that is common along the western portion of the eastern deciduous forest of North America, the major distinction being the lack of the other species of oak and hickory common in eastern North America as well as the lack of black cherry and basswoods. In many places throughout the cross timbers region sandstone or limestone caps many of the hills. Soils associated with the sandstone caps are mostly thin sandy soils that contain unique plant assemblages generally consisting of small annuals and/or succulent perennials with very short taproots, or shallow spreading roots.

One component of this type of habitat is old growth, or ancient cross timbers, which is composed in part of trees that may be 300 to 500 years in age. Tree ring investigations indicate that the ancient cross timber community has remained relatively unchanged following the last glacial period some 6,000 years ago (Stahle et. al. 2000). Due to the rapidly declining trends in this habitat type the value and function of the old growth cross timbers is of special importance. Little is known about the bird communities in these ancient forests.

To date, approximately 300 acres at Tall Chief Cove have been surveyed for ancient (old growth) cross timbers. Candidate trees (those trees possibly 200 years or older) identified in the Tall Chief Cove area and displaying physical characteristics common to old growth timber (including diameter in relation to soil quality, nubs or scars from branch loss, and treetops that are gone or partially gone) were entered into a Geographic Information System (GIS) database. A survey for ancient cross timbers at Skiatook Point has, as of completion of this document, not been completed. The old growth tree inventory of all lands under lease to SEDA is to be incorporated into the CrossTimbers Environmental Management Plan and will be utilized to avoid, to the maximum extent possible, disturbance of the ancient trees. Development activities at Skiatook Point will not begin until candidate trees have been identified and included in the survey GIS database. A preliminary site assessment conducted by SEDA and StateSource, LLC indicates that Skiatook Point exhibits a greater likelihood for the presence of old growth timber. A copy of the Tall Chief Cove old growth tree survey is included in Appendix D.

8. USACE Project Land Allocation and Classification. Property acquired by USACE as part of the development of a project is allocated in accordance with the authorized purpose for which they were acquired. Following guidance contained in Engineer Regulation 1130-2-550 and Engineer Pamphlet 1130-2-550, land is allocated by USACE into one of the following categories: a) operations, which consists of lands acquired in accordance with the authorizing documents for operation of the project (i.e. flood control, hydropower, water supply, etc.); b) recreation, consisting of separable lands acquired in accordance with

authorizing documents for public recreation; c) fish and wildlife, consisting of separable land acquired in accordance with authorizing documents for fish and wildlife management; and d) mitigation, which is land acquired or designated in accordance with authorizing documents to offset losses associated with the development of the project.

Allocated project lands are further classified to provide for development and resource management. This classification process refines the land allocations to allow full utilization of project lands based on public desires, legislative authority, and regional and project specific resource requirements and suitability. Land is classified into one of the following categories:

1) Project operations – includes those lands required for the structure, operations center, office, maintenance compound, and other areas that are used solely for project operations.

2) Recreation – includes those lands to be developed for intensive recreational activities by the visiting public, including developed recreation areas and areas for concession, resort, and quasi-public development.

3) Mitigation – only includes land acquired or designated specifically for mitigation.

4) Environmental sensitive areas – areas where scientific, ecological, cultural, or aesthetic features have been identified. Normally limited or no development of public use is contemplated on land in this classification.

5) Multiple resource management – lands managed for one or more of, but not limited to, these activities to the extent that they are compatible with the primary allocation(s) of the property:

a) Recreation-low density – low density recreation activities such as hiking, primitive camping, wildlife observation, hunting, or similar recreational activities.

b) Wildlife management general – fish and wildlife management activities.

c) Vegetative management – management activities for the protection and development of forest and vegetative cover.

d) Inactive and/or future recreation areas – recreation areas planned for the future or that have been temporarily closed.

6) Easement – lands for which USACE holds and easement interest but not fee title.

Information on the allocation and classification of lands at a project becomes part of the project master plan. The project master plan provides resource objectives based on project purposes, applicable Federal laws and regulations, regional needs, resource capabilities, and expressed public desires. Project master plans are used to guide future design, development, and management activities to obtain the greatest benefit through meeting the needs of the public and protecting and enhancing environmental quality.

E. Cultural Resources.

As an area of research, the project area falls within the Southern Great Plains archeological province. A cultural-historic overview of the surrounding region is beyond the

scope of this report; however, a detailed account is given in various USACE publications. Most notable of these publications are The Archeology of the Proposed Skiatook Reservoir, Osage County, Oklahoma (Rohrbaugh and Wycoff 1969), An Historical-Cultural Assessment of the Skiatook Reservoir, Osage County, Oklahoma (Perino 1972), The Prehistory and Paleoenvironment of Hominy Creek Valley 1978 Field Season (Henry 1979), and The Prehistory and Paleoenvironment of Hominy Creek Valley 1979 Field Season (Henry 1982).

As documented in the original CrossTimbers EA, a series of cultural resources investigations and consultations were undertaken in 2002 as part of USACE compliance with Section 106 of the National Historic Preservation Act. Although no significant cultural resources were identified within the SEDA lease area during these investigations, two historic properties were identified on USACE property directly adjacent to the proposed camping area at Skiatook Point. One of these is a traditional cultural property known as Teepee Rock or Healing Rock (34OS679). Healing Rock is a large upright rock located on a ridge point overlooking Skiatook Lake. Originally located in Hominy Creek valley, the rock was moved to its present location by USACE at the request of the Quapaw and Osage tribes in order to prevent the rock from being inundated by Skiatook Lake. According to informants, Healing Rock is a traditional cultural property of significance to the Quapaw and Osage tribes due to association with some of the first Native American Church gatherings held in Osage County. Consultation with the Osage Nation and Quapaw Tribe by USACE in 2002 and 2003 revealed that both tribes still feel that Healing Rock is a significant traditional cultural property in spite of the fact that the rock is no longer located in its original setting. Based on information provided by the Osage Nation and Quapaw Tribe, USACE determined in 2003 that Healing Rock is eligible for listing on the National Register of Historic Places (NRHP) as a traditional cultural property. The other historic property located near Skiatook Point is a prehistoric burned rock mound (34OS678) located in the front yard of the USACE Skiatook Lake office. Based on the undisturbed nature of the site and the likelihood that it contains important information on subsistence activities of the prehistoric inhabitants of the area, USACE has determined that site 34OS678 is potentially eligible for listing on the NRHP and should be protected until such time that a formal determination of NRHP eligibility can be made.

One outcome of the government-to-government consultations between USACE and the Quapaw Tribe and Osage Nation in 2002 and 2003 was the creation of lease provisions and mitigation requirements to minimize potential impacts to the Healing Rock or other cultural resources that might be inadvertently discovered during the construction and operation of the CrossTimbers development. In order to allow public access to the site while minimizing the likelihood of inappropriate behavior at Healing Rock, the following provisions were agreed to by all parties: 1) an area 100 feet on all sides of Healing Rock and approximately 50 feet on either side of the Healing Rock access trail was excluded from the SEDA lease area; 2) the trail and excluded area around Healing Rock will be maintained as part of the maintenance agreement for the USACE Skiatook Lake office compound; and 3) provisions were established in the SEDA lease agreement (and any subsequent sublease agreement) to address future inadvertent discoveries of cultural resources within the entire SEDA lease area (Figure 5).

F. Threatened and Endangered Species.

Threatened, endangered, or candidate species occupying Osage County, Oklahoma include the interior least tern (*Sterna antillarum*), whooping crane (*Grus Americana*), bald eagle (*Haliaeetus leucocephalus*), piping plover (*Charadrius melodus*), mountain plover (*Charadrius montanus*), and Neosho mucket (*Lampsilis rafinesqueana*). These species were identified as potentially occurring in the project area in the previously approved EA prepared for the CrossTimbers development.

Since the 2003 issuance of the original CrossTimbers EA, the U.S. Fish and Wildlife Service (USFWS) has noted the occurrence of the American burying beetle (ABB), a Federally-listed endangered species, in Osage County, Oklahoma. The ABB is a member of the beetle family Silphidae and is known to bury vertebrate carcasses for reproductive purposes as well as exhibit parental care of young. The ABB is fully nocturnal and active when nighttime temperatures consistently exceed 60 F. For the remainder of its life cycle (generally mid-May to late-September) the ABB remains in an inactive state buried at soil depths ranging from 6- to 36-inches (Anderson 1982, Kozol *et al.* 1988). Owing to its confirmed presence in Osage County and its highly mobile nature, the ABB may be present in portions of the project area during summer months. During the inactive season, it is possible that the ABB may exist buried in project area soils of suitable characteristics (see Appendix A). Critical habitat has not been designated for the ABB.

G. Water Quality.

USACE has characterized the general water quality at Skiatook Lake as having macronutrients and trace metals at levels that warrant future monitoring but are not currently a cause for alarm (USACE 1998). Phosphorus concentrations are at levels high enough to consider the lake to be borderline mesotrophic/eutrophic. Mesotrophic lakes show some depletion of oxygen making them not always suitable for warm water fisheries, although productivity is good. Shifting land use patterns in the watershed could shift the entire lake into a higher trophic level (eutrophic). Eutrophic lakes show a reduction in aesthetics due to turbidity, but generally productivity does not limit the reservoirs ability to support warm water fisheries. The second area of awareness is trace metals. Mercury levels were above detection limits in five surface water samples. This survey provided water quality baseline data for Skiatook Lake with samples taken between April and November 1994.

Since 1994, the Oklahoma Water Resources Board (OWRB) has measured water quality in Skiatook Lake. Data gathered in 1996, 1999 and 2000 show that Skiatook Lake is still classified as mesotrophic, bordering on eutrophic. A mesotrophic to eutrophic lake is one that is indicative of moderate to high primary productivity and intermediate nutrient levels. In 1998, the Oklahoma Department of Environmental Quality (ODEQ) determined metals levels in fish at Skiatook Lake did not exceed the screening level or low consumption advisory level for metals toxicity. In 2005 ODEQ issued a state-wide fish consumption advisory for methylmercury toxicity which included Skiatook Lake. While methylmercury values present in fish tissues taken from Skiatook Lake do not exceeded the screening or low consumption advisory levels in 785:45-5-20 Oklahoma's Water Quality Standards, levels of methylmercury present in fish tissues taken from Skiatook Lake do exceed the USEPA

January 2001 published recommended criterion for methylmercury for protection of public health. Previously, Skiatook Lake was listed on the 1998 State of Oklahoma 303(d) list of impaired waters for pesticide from unknown sources. The most recent State of Oklahoma Integrated Report, dated 2002, shows that Skiatook Lake is impaired due to low dissolved oxygen from unknown sources only, with insufficient data to determine impairment due to pesticide at this time. Additionally, Skiatook Lake is identified as not meeting the criteria necessary to fully support warm water aquatic communities as described in 785:46-15-5, Implementation of Oklahoma's Water Quality Standards, Assessment of Fish and Wildlife Propagation support.

More recently, USACE conducted a water quality survey from March 2003 through September 2004 designed to update the 1994 USACE water quality survey. Results from this most recent survey indicate an increase in Secchi depth and total phosphorus. Trace metal results mirror those observed in 1994. A eutrophic classification is supported by nutrient and phytoplankton assemblage data with the reservoir trending towards having higher concentrations of total phosphorus relative to 1994 concentrations. Lake-wide the algal assemblage present in Skiatook Lake is dominated by diatoms and blue-green algae, comprising 41% and 44% respectively of the total algal assemblage. Table 1 lists the percent contribution of diatoms and blue-green algae present at sampling locations near the dam, at the mouth of Tall Chief Cove, and at Skiatook Point. The majority of the dominant diatoms within the reservoir are comprised primarily of filamentous forms, indicating a high abundance of food for zooplankton and zooplanktivorous fish (i.e. small fish which feed primarily on zooplankton). The dominant blue-greens include *Anabaena* spp., *Aphanizomenon* spp., and *Cylindrospermopsis raciborskii*.

TABLE 1

Results of 2003 and 2004 Algal Assemblage Sampling at Skiatook Lake

Sample Location	Diatom %	Blue-Green %
Near Dam	41%	44%
Tall Chief Cove	52%	35%
Skiatook Point	47%	39%
Lake-Wide Average	41%	44%

The dominate blue-greens present in Skiatook Lake are known to have the ability to produce anatoxin-a, which is a neurotoxin affecting the nervous system, and cylindrospermisin, which is a hepatotoxin affecting the liver. While there is no data

available to determine toxin production by blue-green algae in Skiatook Lake, the number of cells per milliliter present at the Dam, Skiatook Point, and Tall Chief Cove portions of the reservoir exceeded the World Health Organization (WHO) guidance level of 20,000 cells per milliliter from August - September 2003 and July - September 2004. Although the value of 20,000 cells per milliliter indicates a low risk of adverse health effects, WHO guidance recommends providing information to lake swimmers regarding possible adverse health effects (WHO 1999).

In general, the areas of awareness for Skiatook Lake are similar to those identified in 1994 by USACE relating to increasing nutrient levels, increases in trophic state, and trace metal concentrations in the reservoir (primarily methylmercury).

H. Air Quality.

The geographic area containing Skiatook Lake is in attainment and meets the National Air Quality Standards for criteria pollutants designated in the Clean Air Act. Consequently, a conformity determination in accordance with the U.S. Environmental Protection Agency (EPA) Conformity Rule is not required for the proposed action.

I. Noise.

Noise levels in the project area are consistent with an area that is experiencing a growth in population levels. Various housing areas are in the process of development and construction adjacent and nearby to the proposed project area. To the north of Skiatook Point (proposed camping/RV area) a variety of housing areas are currently being built. Multiple areas along the southern portion of Skiatook Lake are being cleared and developed for single residence housing.

IV. IMPACTS OF THE PROPOSED ACTION

A. Social and Economic Impacts.

1. Future Without Project Conditions.

a. Population. Impacts to the population are expected to be identical under the “Future Without Project Conditions” and the “Future With Project Conditions”. It is expected that the project will have a minor but direct impact on the number of people living in Osage County. In general, population trends of the past decade should continue or may increase slightly in the area due to recent improvements and upgrades, such as the repaving of existing road surfaces and construction of new road networks. Additionally, Rural Water District No. 15 (RWD 15) has plans to upgrade the water system by installing a new 8 inch main line to the eastern portion of the lake.

The project will have a direct and positive impact on those individuals using the Skiatook Lake facilities. Although construction activities are expected to temporarily increase noise and traffic, the new facilities are expected to generate increased interest in the

area by others living in distant locales, which, in turn, will increase opportunities for the local population.

b. Employment and Income. Impacts to employment and income are expected to be identical under both the “Future Without Project Conditions” and the “Future With Project Conditions”. Projected construction will increase job opportunities in the area. When all phases of the project are in operation approximately 50 to 60 new jobs will be created, which would make CrossTimbers one of the major employers in the local area. In the long-term, unemployment rates should remain slightly lower than average state rates. However, construction related expenditures should increase local incomes. Income for local residents should remain slightly lower than in other more urbanized areas of Oklahoma.

c. Social Ecology. Impacts to social ecology are expected to be identical under both the “Future Without Project Conditions” and the “Future With Project Conditions”. The project will be consistent with the local development. The eastern end of Skiatook Lake has seen an increase in housing development in the last 5 to 10 years. The Estates at CrossTimbers subdivision has recently placed on the market a total of 64 lots, each consisting of 0.5 acres, to the northeast of Sunset Cove. RWD 15 reports that an additional 20 new homes have been built in close proximity to the leased property in the last 5-10 years and 300 new houses were built in the general area over the last 5-10 years.

RWD 15, which receives water from the Town of Skiatook, will provide potable water to the area and currently has plans to upgrade their delivery system. RWD 15 has a 2000 acre-foot future use water storage contract at Skiatook Lake. This storage is from the originally authorized water supply storage. As the proposed project is developed, RWD 15 will activate the water storage contract from future use to a present use status. The town of Skiatook would treat water from water storage at RWD 15 to insure that the demands for the phased development of the proposed project are met. Water to irrigate the golf course will be purchased from RWD 15 and supplemented as needed with Skiatook Lake water.

Onsite sewage treatment will be handled via an aerobic system. The system(s) installed will comply with all applicable state and federal laws and regulations regarding wastewater treatment.

Traffic flow to the area will come from the North on SH 20 either via Lake Road or via Rogers Blvd and from the South via W. 103rd St. to Lake Road. This is the normal traffic pattern today. As previously discussed, noise in the area is expected to temporarily increase during the construction phase.

The aesthetics of the proposed development are of utmost importance. The proposed CrossTimbers project will be built consistent with its surroundings, with existing facilities in Oklahoma and Missouri being used as templates for project design. The standard of living will also benefit from the development via an increase in employment and land values.

2. Future With Project Conditions.

a. Population. Impacts to population under the “Future With Project Conditions” are expected to be identical to those identified for the “Future Without Project Conditions”. The scope of development at CrossTimbers will be the same, the only difference being the location of the golf course and camping area.

b. Employment and Income. Impacts to employment and income under the “Future With Project Conditions” are expected to be identical to those identified for the “Future Without Project Conditions”. The scope of development at CrossTimbers will be the same, the only difference being the location of the golf course and camping area.

c. Social Ecology. Impacts to social ecology under the “Future With Project Conditions” are expected to be identical to those identified for the “Future Without Project Conditions”. The scope of development at CrossTimbers will be the same, the only difference being the location of the golf course and camping area.

d. Environmental Justice. In accordance with Presidential Executive Order 12898, a review of this project was evaluated in terms of its effect of excluding persons (including populations) from participating in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination because of their race, color, or national origin. The review indicates that no such effects will result from the project.

e. Protection of Children from Environmental Health Risks and Safety Risks. In accordance with Presidential Executive Order 13045, a review of this project was evaluated in terms of any health risks and safety risks that may disproportionately affect children. The review conducted indicates, at present, a low to moderate environmental health risk to children due to the presence of blue-green algae at cellular densities high enough to merit administrative action (WHO 1999) and capable of producing neurotoxins (nerve toxins) and hepatotoxins (liver toxins). Symptoms experienced due to acute exposure to neurotoxins could possibly include muscle cramps, twitching, paralysis, cardiac or respiratory failure, death in animals (WHO 1999, NOAA 2005). Symptoms experienced due to acute exposure to hepatotoxins could possibly include nausea, vomiting, and acute liver failure (WHO 1999, NOAA 2005). It is recommended that information regarding possible adverse health effects related to primary and secondary water contact be posted at public use facilities within the lease area consistent with USACE public notice practices.

B. Natural Resources Impacts.

1. Terrestrial. Temporary disturbance to soils and existing vegetation will occur from construction activities (i.e., shaping, excavation, installation of sod and turf). With the exception of the buffer zones around its perimeter, a large percentage of the 121 acres in the golf course will be disturbed during construction. Additionally, other potentially disturbed acreage will include 40 acres for the Village, 5 acres for the marina, and 59 acres for the camping/RV Park extension with a modest additional development occurring within

the balance of the project area for trails and other facilities as detailed in the development plan. Approximately three-quarters of the total area is timbered and the remaining one-quarter is open prairie land and aquatic habitat (see Table 2).

ESTIMATED WILDLIFE HABITAT TYPE TO BE ALTERED BY THE PROPOSED PROJECT							
	PRAIRIE	INTERSPERSED FOREST	FOREST EDGE	CLOSED CANOPY FOREST	RIPARIAN	AQUATIC	TOTAL
GOLF COURSE	21 acres (17%)	0 acres	5 acres (4%)	95 acres (79%)	0 acres	0 acres	121 acres (52%)
MARINA	0 acres	0 acres	0 acres	3 acres (9%)	2 acres (5%)	30 acres (86%)	35 acres (15%)
VILLAGE	8 acres (20%)	0 acres	2 acres (5%)	30 acres (75%)	0 acres	0 acres	40 acres (17%)
RV/CAMPING	0 acres	0 acres	3 acres (10%)	54 acres (90%)	2 acres (3.5%)	0 acres	59 acres (23%)
TRAILS	0 acres	0 acres	0 acres	5 acres (100%)	0 acres	0 acres	5 acres (2%)
TOTAL	29 acres (13%)	0 acres	10 acres (4%)	187 acres (72%)	4 acres (1.5%)	30 acres (13%)	260 acres (100%)

While detailed construction plans for all CrossTimbers features have yet to be developed, conservative estimates of terrestrial habitat disturbance can be derived from total acreages noted in Table 2. Accordingly, approximately 200 acres of forest habitat, 4 acres of riparian zone, and 29 acres of prairie habitat would be potentially lost as a result of all CrossTimbers development features. These estimates can be considered worst-case as some habitat will remain upon completion of construction. However, habitat fragmentation in these areas may result in reduced ecosystem function despite the existence of some remaining habitat.

The development of the village, golf course, marina, and camping/RV park will, to the extent possible, avoid those areas with old growth cross timbers. Through the use of the Old Growth Tree Inventory, the golf course and village will be designed and developed to showcase the ancient trees through educational signage.

By locating the golf course in the Tall Chief Cove area and the combination primitive camping and RV area on Skiatook Point, the CrossTimbers development will be able to design around and safeguard the maximum amount of ancient trees possible.

2. Prime and Unique Farmlands. There are no Prime or Unique Farmlands located in the proposed project area.

3. Aquatic and Wetlands. Nutrient loading from fertilizer applications and contamination from pesticide use at the golf course should be minimal due to efforts taken to maximize the integration of existing undeveloped lands into the project design. A detailed Turf Management and Integrated Pest Management Plan will be used to properly apply

fertilizers, herbicides and pesticides (see golf course design guidelines in Appendix D). A buffer zone consisting of existing shoreline habitats, cross timbers, riparian species, natural plants and Bermuda grass should be ideal for natural assimilation and/or decomposition of possible pollutants. The native cross-timber trees, shrubs, and grasses in the buffer zone will serve as indicators of excessive herbicide application due to their sensitivity to these products.

4. Fish and Wildlife. The construction of a "target golf course" may benefit some wildlife species and adversely impact others. Foraging species may benefit from increased food availability provided by clearing of the underbrush. However, neotropical bird species that utilize the cross timbers could be adversely impacted. In coordination with USACE and USFWS, bird and small mammal habitat will be added where possible throughout the project. As with any construction project, some species will be displaced.

Other construction is proposed within the heavily used Tall Chief Cove area where wildlife has either been displaced or adapted to human occupancy.

5. Migratory Birds. The potential impacts of the proposed development to migratory birds have been evaluated. The change in camping and golf course locations within the existing SEDA lease should not impact the USACE ability to protect migratory birds from deleterious impacts. According to information contained in the document Partners in Flight, Bird Conservation Plan for the Osage Plains (*Physiographic Area 33, American Bird Conservancy, Version 1.0, October 2000*), the physiographic area of the proposed development consists of grass-shrublands and Savanna-woodlands.

In grass-shrublands, the breeding bird species that appear to be increasing consist of the Bewick's Wren and Blue-gray Gnatcatcher, while declining species consist of the Western Kingbird, Eastern Kingbird, Scissor-tailed Flycatcher, Loggerhead Shrike, Bell's Vireo, Brown Thrasher, and Lark Sparrow. With or without the proposed development, this trend is expected to continue.

In Savanna-woodlands, the breeding bird species that appear to be increasing consist of the Wild Turkey, Eastern Bluebird, Indigo Bunting, Carolina Chickadee, Tufted Titmouse, White-breasted Nuthatch, and Carolina Wren. The declining species consist of the Redheaded Woodpecker, Northern Flicker, Western Kingbird, Eastern Kingbird, Scissor-Tailed Flycatcher, Loggerhead Shrike, and Brown Thrasher. Again, this trend is likely to continue with or without the proposed development.

6. Impacts on Fishing and Hunting Opportunities. An Aquatic and Terrestrial Mitigation Plan has been designed, approved by the USACE, and implemented.

Skiatook Point and Tall Chief Cove are part of the leased area. These areas are zoned for recreation use and are closed to hunting. The area from Skiatook Dam south to Tall Chief Cove (approximately 200 acres) was zoned for recreation-low density and had been used for archery-only hunting in accordance with Oklahoma Department of Wildlife Conservation (ODWC) regulations. Approximately 100 acres of this shoreline (in the vicinity of the marina and cabin developments) have been rezoned by USACE to recreation use to allow

currently approved development and are no longer open to hunting. The remainder of the shoreline (from the cabins to Skiatook Dam) remains zoned for recreation-low density.

The proposed use of this shoreline area (from the cabins to Skiatook Dam) for a trail would probably result in some seasonal restrictions on archery-only hunting activities. In consultation with the USFWS and ODWC, USACE has agreed to rezone approximately 300 acres in the undeveloped eastern portion of the Twin Points recreation area at Skiatook Lake from recreation to wildlife management general (Figure 1). Twin Points was originally purchased for development as a recreation area, but the planned recreation facilities were not constructed due to a lack of funding. Changing the classification of this portion of Twin Points to wildlife management general will allow hunting activities and management of habitat for wildlife and non-game species to take place on that portion of the lake, effectively offsetting the loss of hunting opportunities in the SEDA lease area. It will also provide an additional degree of protection for this area from future development considerations. USACE will continue to maintain responsibility for wildlife management activities at Twin Points.

7. Threatened and Endangered Species. The proposed action incorporates the use of standardized protocol (Appendix A) for minimizing adverse impacts to the endangered American burying beetle. These techniques will become a part of the Environmental Management Plan for the CrossTimbers development and will be employed in association with all construction activities. Surveys, relocation, and baiting away techniques (if applicable), and other standardized actions will be timed and phased relative to construction activities such that they meet current USFWS criteria for ABB protection. Accordingly, adverse impacts to the ABB as a result of this project should be minimal.

Adverse impacts to other listed threatened, endangered, or candidate species are not anticipated in association with the proposed action. These species are either not expected to occupy specific project lands or are temporary migrants through the area. No critical habitat has been designated for any of these species within the proposed project area. Correspondence regarding threatened and endangered species is included in Appendix B.

8. Wetlands/Floodplains And Water Quality Permits. No existing wetlands as identified by the USFWS (National Wetlands Inventory) will be impacted by the proposed project. All permanently habitable buildings will be located outside of the 50-year floodplain (2% chance of flooding over a given year). The project was coordinated with the Floodplain Management Section of the Tulsa District USACE in accordance with Executive Order 11988. The project will have no impacts on the floodplain of Hominy Creek.

All required Clean Water Act permits would be acquired prior to the start of any construction activities associated with the proposed project.

9. Cultural Resources. As part of compliance with Section 106 of the National Historic Preservation Act (NHPA), USACE reopened consultation with potentially interested Native American tribes regarding potential impacts to cultural resources from the proposed change in the CrossTimbers development plan in January 2005. Letters were

received later that same month from the Osage Tribal Council and the Quapaw Tribe of Oklahoma indicating a desire to consult with USACE on potential impacts to cultural resources as a result of the proposed CrossTimbers development changes (see Appendix C).

Cultural resources concerns expressed by the Quapaw Tribe and Osage Nation centered around potential impacts to Healing Rock (34OS679) and the burned rock mound (34OS678) located near Skiatook Point. Although neither of these historic properties are located within the actual SEDA lease, their close proximity to the proposed camping and RV areas at Skiatook Point raised concerns regarding the protection of these significant cultural resources from physical damage or vandalism by the public.

After a series of informal telephone conversations on the topic, representatives from USACE, StateSource, and the Osage Nation and Quapaw Tribe meet on January 13, 2006 to discuss tribal concerns and desires regarding the proposed project. As a result of this meeting, all parties agreed that protection and interpretation of historic properties at Skiatook Lake was desired and appropriate, and would be conducted under the following general guidelines: 1) StateSource would consult with the Osage Nation, Quapaw Tribe, and USACE on the interpretation of cultural and other natural resources throughout the CrossTimbers lease area. Examples of potential interpretation efforts discussed included Healing Rock, tribal names for natural and cultural features located along the proposed trail, construction history of Skiatook Lake, and general information on the prehistory of the area; 2) once constructed, StateSource would provide a permanent security presence in the proposed camping area at Skiatook Point, and would consult with all parties regarding the placement of any future security features or controls that might be considered for the area; and 3) that the results of the consultation meeting would be formalized as part of some sort of agreement document (MOA or MOU), and that any resulting guidelines or requirements would be incorporated into the CrossTimbers EMP as appropriate.

Because USACE, SEDA, StateSource, and the Osage Nation and Quapaw Tribe have agreed to work together to effectively protect and interpret cultural and natural resources in the CrossTimbers development area, USACE feels that the proposed modification to the CrossTimbers development plan will have no adverse effect on historic properties.

10. Water Quality. Surface water quality impacts associated with the proposed golf course could conceivably occur in two aquatic environments: (1) Skiatook Lake and (2) constructed surface waters on the golf course. Potential contaminants could be transported to these systems via surface or subsurface flows. Chemical constituents of potential concern include nutrients (nitrogen, phosphorus, potassium or N-P-K) from fertilizers, pesticides and herbicides, and sediment. Excessive nutrients are of concern in surface waters owing to their ability to promote excessive algae growth, which lowers the dissolved oxygen content of the water and poses potential health threats to swimmers. At elevated concentrations, pesticides and herbicides can negatively impact aquatic organisms or result in contamination of waters used for water supply purposes. Decreased water clarity, loss of storage capacity, and reduced aesthetics are among potential detrimental impacts associated with excessive sediment transport to surface waters.

The proposed golf course on Tall Chief Cove is estimated to occupy 121 acres. Topographic slopes on lands surrounding Tall Chief cove range from 6% to 12%. Features intended to mitigate potential water quality impacts would include a buffer zone of natural vegetation between the maintained turf and the water's edge that would average 125 feet in width for slopes less than 10% and average 200 feet for slopes greater than 10%. The recommended minimum buffer zone width in any topographic setting would not be less than 32 feet in width (Fischer and Fischenich 2000). Forests within the buffer zone may be selectively thinned to increase the amount of sunlight at ground level to promote dense cover vegetation. This vegetation will better retain and absorb sediment and nutrients, thereby decreasing amounts that might reach the lake. Natural vegetation will be enhanced with additional plant varieties (e.g. poplar and cottonwood trees, grasses such as buffalo and couch, ferns and other low-growing plants) that have been proven effective in absorbing N-P-K. These plant varieties have been successfully used downstream of cattle pastures to protect downstream water sources from potential sources of high nitrogen and total phosphorous concentrations (See "Using Buffers to Reduce Sediment," at http://www.rivers.gov.au/acrobat/techguidelines//tech_guide_vo12_chapd.pdf and "Conservation Buffers & Water Quality", <http://www.ent.iastate.edu/iprn/icrn/2000/6-12-2000/consbuffers.html>).

While desirable from a water quality standpoint, thinning of the buffer zone area could have an adverse effect upon the quality of the cross timbers ecosystem. Because the majority of the filtration of sediment and nutrients occurs within the first 32 feet of a buffer for low to moderate slopes (Fischer and Fischenich 2000) thinning will only occur within the first 32 feet of buffer strips when the total width of the buffer is greater than 40 feet. In areas where the buffer strip might be less than 32 feet in width infiltration trenches could be used to enhance the performance of the buffer zone next to the golf course as well as minimize the loss to ecosystem / buffer function.

Additional design features or construction techniques to supplement the buffer zone around the perimeter of the golf course would be further detailed in the CrossTimbers Environment Management Plan (EMP). The EMP would be updated as necessary as new information becomes available. At this time, design features being considered for implementation as part of the golf course design include:

(1) Man-made retention/detention ponds and other features to collect surface runoff and prevent potential contaminants, including N-P-K, pesticides and herbicides, and sediment from being transported to the lake. A study by Purdue University's Environmental Sciences and Engineering Institute determined that that proper use of fertilizers and pesticides on golf courses does not add any chemicals to surface or ground water. Purdue University Professor Zachary Reicher states, "In fact, the grass itself actually will use or trap most of the nutrients and chemicals contained in runoff from adjacent areas." See <http://news.uns.purdue.edu/html4ever/020708.Reicher.wetlands.html>

(2) Infiltration trenches adjacent to sand-based putting greens drained to gravel sumps or man-made water features. Small sedimentation ponds may be constructed upstream to reduce nutrient and sediment deposits from impacting the water quality of designed features.

(3) Berms and swales adjacent to or incorporated into tees, fairways, and roughs to direct and/or collect runoff discharged into man-made water features.

A Turf Management Plan, to be included in the CrossTimbers EMP, would specify types, amounts, and usage frequency of turf management chemicals to be used on the golf course. All applied products will be U.S. Environmental Protection Agency (EPA) approved. Chemicals considered for use would be non-persistent, short-lived, degradable, and non-mobile. Where practical, foliar applied liquid fertilizers will be used that are readily absorbed by the turf, thereby minimizing their availability for runoff. Granular fertilizers used to supplement liquid fertilizers would include those made by Nature Safe (www.naturesafe.com). These products include slow-release organic fertilizers enhanced with food energies from yeast, sugars, carbohydrates, proteins, fats, vitamins and enzymes. Together these ingredients increase the natural soil microbes that aid in turf rooting, stress tolerance and disease management. They also contain humus as a soil conditioner to buffer salts and improve the nutrient holding capacity of soils. They are low salt index organic fertilizers ideal for hot weather application to promote turf recovery and increase wear and stress tolerance. The cumulative effect of these types of products in turf management increases the performance of the turf to filter, trap, and absorb potential contaminants and sediment and prevent these contaminants from entering surface or ground waters.

The primary objective of the golf course's fertility program is to create a soil environment where sufficient nutrients are available for optimal plant health with minimal risk to water quality. Studies conducted by Michigan State University have proven that healthy turf along with thatch bind most all of the applied nitrogen. Unused nitrogen is consumed by microorganisms which, when they die, release nitrogen as complex forms of N that do not move downward to any extent in soils. Natural organic and slowly soluble fertilizers would be used in conjunction with liquid fertilizers. These forms of fertilizers are non-mobile and timed to release nutrients for staged uptake by the turf. In order to reduce the amount of nutrients having to be applied, mowing practices would include "grass cycling". Returning the grass clipping to the maintained turf provides four pounds of nitrogen, ½ pound of phosphorus and two pounds of potassium for every 100 pounds of dried grass clippings (according to North Carolina State University).

All products used on the CrossTimbers Golf Course would be thoroughly tested by the manufacturer and approved by the EPA prior to their usage. All applications would be made by a licensed applicator in accordance with State of Oklahoma requirements. Products would be selected for use based upon published charts listing maximum recommended application rate of active ingredient per acre and a leaching potential rate. Products used would be chosen to minimize risk of impacting water quality. No products would be applied within the natural buffer area between the maintained turf and Skiatook Lake.

Additional management programs to be detailed in the EMP include an Integrated Pesticide Management Plan, which would determine thresholds for pesticide usage, thereby reducing the availability of pesticides as a potential contaminant; and a fertilization system, which would be used to apply fertilizers on a continuous basis. This application process maximizes the absorption of fertilizers by plants, thereby reducing the availability of fertilizers as a potential contaminant to ground and surface waters.

In order to minimize or eliminate temporary impacts to water quality during the construction of the golf course, village, and other features, as well as during turf establishment, measures would be taken to reduce impacts (i.e. stormwater construction permits and appropriate protective measures). A stormwater management plan would be required during operation of the facility. All applicable laws and regulations concerning stormwater management would be followed during the construction and operation of the project.

In order to ensure water quality protection, sufficient detail regarding chemical application rates, qualifications and training of grounds maintenance and chemical application personnel, and other personnel involved in golf course operations would be provided in the EMP as described in Section V of this document.

11. Air Quality. The geographic area containing Skiatook Lake is in attainment and meets the National Air Quality Standards for criteria pollutants designated in the Clean Air Act. Conformity to the 1993 Conformity Rule (EPA) for ambient air quality is not necessary because foreseeable emissions from activities associated with the proposed project would not result in the regional air quality becoming a non-attainment area.

12. Noise. Construction of the golf course, camping and RV park, marina, and village would result in the temporary increase in noise levels in the project area. The types of construction equipment used in the project area (e.g., tractor, loader, backhoe) will generate noise levels of 80-90 dBA at a distance of 50 feet (Jones & Stokes 1998). The operation of construction equipment would vary from intermittent to fairly continuous, and many pieces of equipment may operate at the same time. Assuming a bulldozer (87 dBA), backhoe (90 dBA), and front-end loader (82 dBA) are operating simultaneously in the same area, peak construction-period noise could be approximately 94 dBA at 50 feet for the construction sites (Jones & Stokes 1998).

Although construction-related noise levels would occur in the construction areas of the project during the initial construction period, these effects are considered relatively minor for the following reasons: (i) construction noise effects will be temporary, (ii) the most intensive construction activities would occur over a relatively short period of time, and (iii) most construction would occur in areas that are not sensitive to noise.

C. Indirect and Cumulative Effects

Indirect and cumulative effects of the proposed action alternative are nearly identical to those expected for the no action alternative, and have previously been identified and evaluated as part of the original approved CrossTimbers EA approved in 2003. Exceptions to the previously identified indirect and cumulative effects are detailed below.

Cumulative effects from construction of the proposed project include loss of natural habitat. Approximately 121 acres for the golf course would be placed under planned maintenance. Native species of plants and grasses would be used when practical.

Impacts to water quality (surface and ground water) and wildlife (flora and fauna) would depend on the quality of golf course design and maintenance. Excessive application of fertilizers could result in nutrient loading into the lake and/or nitrate contamination of ground water. The use of insecticides and herbicides could result in either temporary or sustained damage(s) to the terrestrial and aquatic ecosystems within and adjacent to the protected area, depending upon the types of product(s) used. Non-point source inputs to the lake and ground water from these applications would be moderated by the frequency of use, quantity per application, assimilation by vegetative ground cover, precipitation duration and frequency, soil drainage characteristics, and depth to bedrock. Because the project has been designed to minimize the use of fertilizers, herbicides, and pesticides by reducing the overall area of managed turf, significant cumulative effects from facility operations are not anticipated. Also, a Turf Management Plan and Integrated Pest Management program would be used to regulate the amount and types of products used.

It is anticipated that the golf course would increase traffic flow to the Tall Chief Cove area by 150 to 200 cars per day. Tall Chief Cove is accessible from the north and west via county road 1215 (Lake Road) off of State Highway 20. Skiatook Point is accessible from the south and east via W. 103rd St. from N. 52nd W. Ave. and State Highway 11. The Bureau of Indian Affairs (BIA) have extended N. 52nd W. Street from W. 103rd St. to 75th St. North to provide better access from the south to the west side of the lake. The existing campground at Tall Chief Cove and the CrossTimbers Marina are accessible from the lake access road. SEDA is working with county, state, and federal agencies to improve lake access and other roads in the area.

The Skiatook Lake project anticipated much greater development of recreational areas and larger visitor numbers than have occurred to date. The Final Environmental Statement prepared for Skiatook Lake identified a total of seven public use areas to be developed on 1,350 acres of USACE managed lands. The proposed lease area consists of approximately 47% of the acreage identified to be developed at the lake (631 acres of leased lands divided by 1,350 acres identified to be developed) and just over 3% of the total project lands and water comprising the Skiatook Lake project (677 acres of total lease area divided by 20,000 acres of USACE managed lands). Prior to construction an average annual visitation of 1,455,000 people was estimated for the lake, which would have been supported in part by the seven proposed public use areas. Visitation to Skiatook Lake has never approached that volume. Instead, annual visitation at Skiatook Lake has averaged slightly more than 586,000 during fiscal years 1999-2002. Cumulative impacts experienced at Skiatook Lake to date have not reached the levels originally contemplated.

Some land classification actions at Skiatook Lake have taken place in conjunction with the overall CrossTimbers development. As part of the approved original CrossTimbers EA, approximately 80 acres of land were changed from recreation-low density to recreation (20 acres for the CrossTimbers Marina and 60 acres for the adjacent cabin locations). As part of the requirements of the proposed action in this 2006 EA, USACE would agree to update the Skiatook Lake master plan to reclassify approximately 300 acres of undeveloped lands in the eastern portion of the Twin Points recreation area from recreation to wildlife management general as a means of offsetting the loss of hunting lands associated with the

CrossTimbers development. This change in classification would also provide an additional degree of protection from future development considerations.

V. MITIGATION REQUIREMENTS

Much of the SEDA lease area that would be impacted by the CrossTimbers development is situated on lands already classified for recreation or recreation-low density purposes. However, the proposed development includes features such as a golf course, lodge, and cabins that were not originally envisioned for Skiatook Lake. Because they were not identified as anticipated recreation features, the potential impacts of these types of facilities were not considered during the original Skiatook Lake development and coordination with resource agencies under the provisions of the Fish and Wildlife Coordination Act and NEPA.

As part of the mitigation measures identified during preparation of the original EA for the CrossTimbers development, a requirement for 135 acres of terrestrial mitigation was identified based on the intensive use associated with the proposed changes in the types of construction activities and proposed development (see original approved EA and Appendix D). In consultation with SEDA, StateSource, USFWS, and ODWC, a comparable amount and type of terrestrial habitat located at Gouin Point on Skiatook Lake was reclassified from recreation to wildlife management general to meet this mitigation requirement.

Changes to the location of the golf course and camping/RV area under the proposed action in this EA would impact a total of 166 acres of terrestrial habitat that would require mitigation. Nearly all of this impact would be associated with the construction of the golf course and village. This impacted acreage would include the 135 acres already identified and mitigated for as part of the original EA for the CrossTimbers development. In consultation with SEDA, StateSource, USFWS, and ODWC, USACE would reclassify the remaining 120 acres at Gouin Point from recreation to wildlife management general to meet the additional 31 acre mitigation requirement. This change in land classification by USACE would allow preservation of significant old-growth cross-timbers habitat. It would also allow hunting activities and management of habitat for wildlife and non-game species to take place on that portion of the lake, and provide an additional degree of protection for the area from future development. USACE would continue to maintain responsibility for wildlife management activities at Gouin Point in consultation with USFWS and ODWC.

VI. FEDERAL, STATE, AND LOCAL AGENCY COORDINATION

This draft Environmental Assessment is being coordinated with the following agencies having legislative and administrative responsibilities for environmental protection:

U.S. Fish and Wildlife Service
Oklahoma Department of Wildlife Conservation
U.S. Natural Resources Conservation Service
Oklahoma Department of Environmental Quality
Oklahoma State Historic Preservation Officer
Oklahoma State Archaeologist
Osage Nation
Quapaw Tribe
Wichita and Affiliated Tribes
Kiowa Tribe
Comanche Tribe
Oklahoma State Conservationist
Oklahoma Department of Tourism
Oklahoma Department of Transportation
Oklahoma Water Resources Board
Oklahoma National Heritage Inventory
City of Skiatook
City of Tulsa
City of Sand Springs
City of Sapulpa
Indian Nations Council of Government

VII. MAILING LIST FOR CROSTIMBERS DEVELOPMENT RELOCATION ENVIRONMENTAL ASSESSMENT

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IX. APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS

TABLE 3

**RELATIONSHIP OF PLANS TO ENVIRONMENTAL PROTECTION
STATUTES AND OTHER ENVIRONMENTAL REQUIREMENTS**

Policies	Compliance of Alternative
Federal	
Archeological and Historic Preservation Act, 1974, as amended, 16 U.S.C. 469, <u>et seq.</u>	All plans in full compliance
Clean Air Act, as amended, 42 U.S.C. 7609, <u>et seq.</u>	All plans in full compliance
Clean Water Act, 1977, as amended, (Federal Water Pollution Control Act) 33 U.S.C. 1251, <u>et seq.</u>	All plans in full compliance
Endangered Species Act, 1973, as amended, 16 U.S.C. 1531, <u>et seq.</u>	All plans in full compliance
Federal Water Protection Recreation Act, as amended, 16 U.S.C. 661, <u>et seq.</u>	All plans in full compliance
Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661, <u>et seq.</u>	All plans in full compliance
Land Water Conservation Fund Act, 1965, as amended, 16 U.S.C. 4601, <u>et seq.</u>	All plans in full compliance
National Historic Preservation Act, 1966, as amended, 16U.S.C. 470a, <u>et seq.</u>	All plans in full compliance
National Environmental Policy Act, 1970, as amended, 42 U.S.C. 4321, <u>et seq.</u>	All plans in full compliance
Native American Graves Protection and Repatriation Act, 1990, 25 U.S.C. 3001-13, <u>et seq.</u>	All plans in full compliance
Rivers and Harbors Act, 33 U.S.C. 401, <u>et seq.</u>	Not Applicable
Watershed Protection and Flood Prevention Act, as amended, 16 U.S.C. 1001, <u>et seq.</u>	Not Applicable
Wild and Scenic Rivers Act, as amended, 16 U.S.C. 1271, <u>et seq.</u>	Not Applicable
Water Resources Planning Act, 1965.....	Not Applicable
Floodplain Management (E.O. 11988)	All plans in full compliance
Protection of Wetlands (E.O. 11990)	All plans in full compliance
Environmental Justice (E.O. 12898)	All plans in full compliance
Protection of Children (E.O. 13045).....	All plans in full compliance
Farmland Protection Act, 7 U.S.C. 4201, <u>et seq.</u>	All plans in full compliance

Note: Full compliance-Having met all requirements of the statues, Executive Orders, or other environmental requirements for the current stage of planning.

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OSAGE COUNTY

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SKIATOOK LAKE

PUBLIC HUNTING AREA

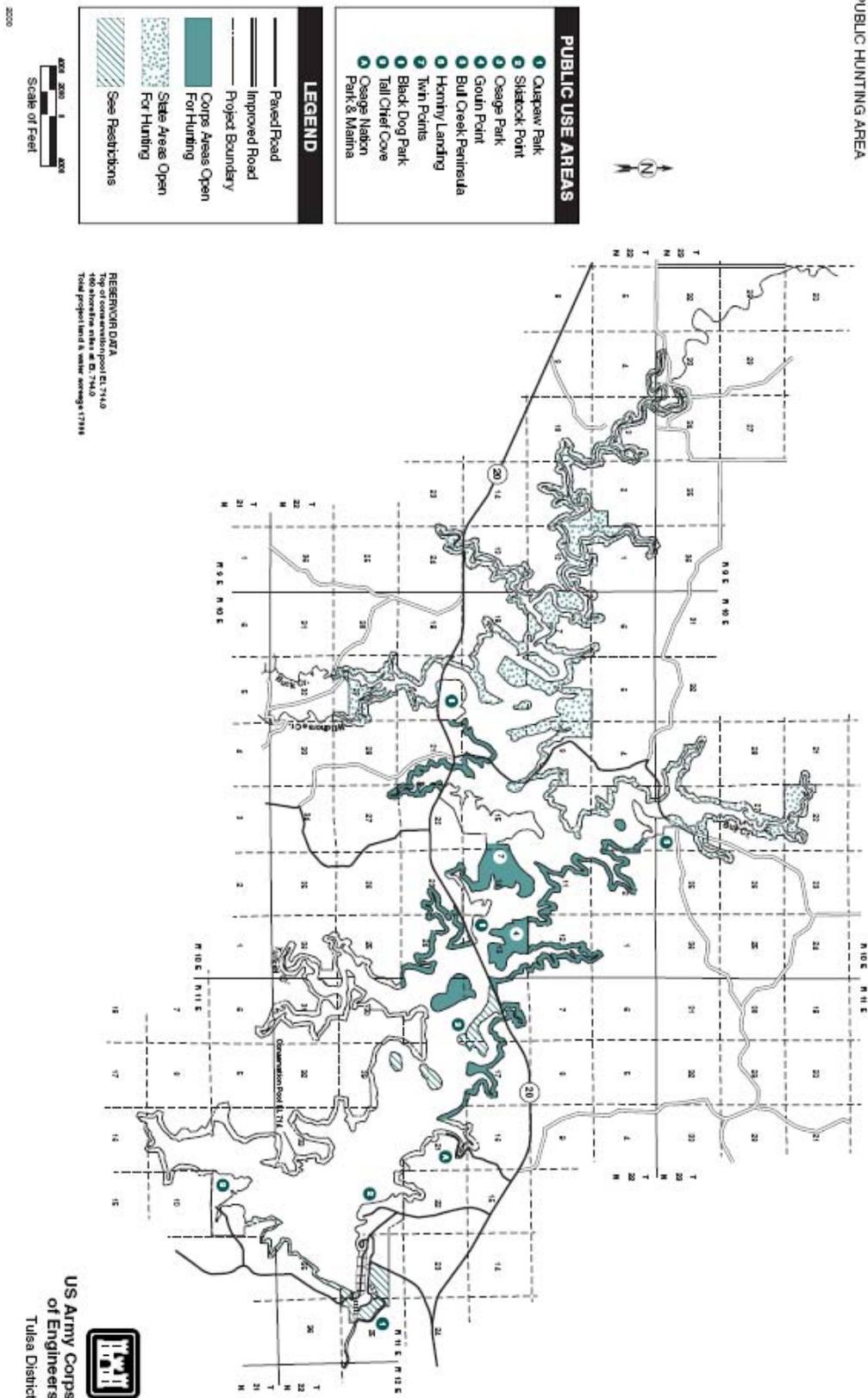


Figure 1. General Vicinity Map, Skiatook Lake, Osage County, Oklahoma

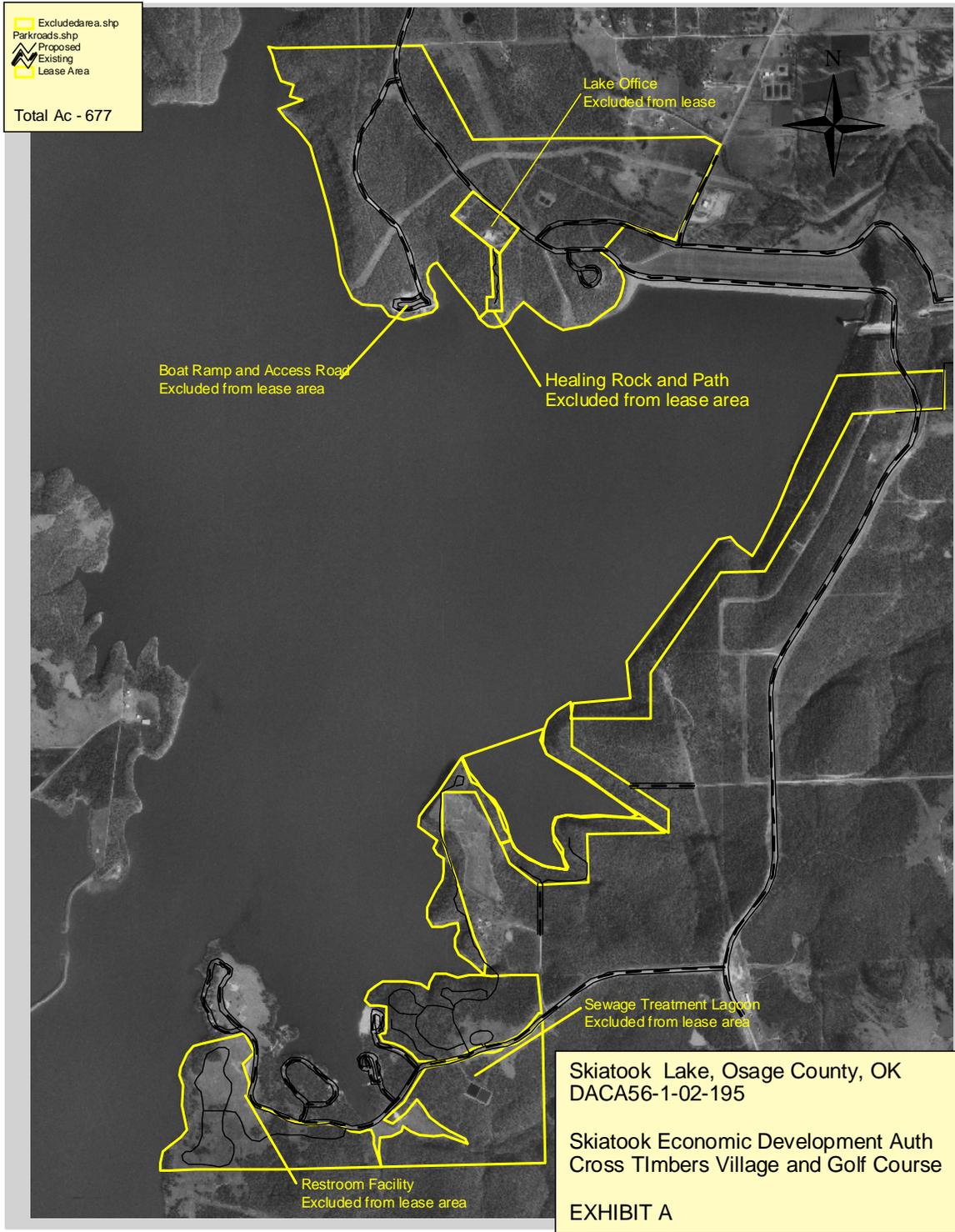
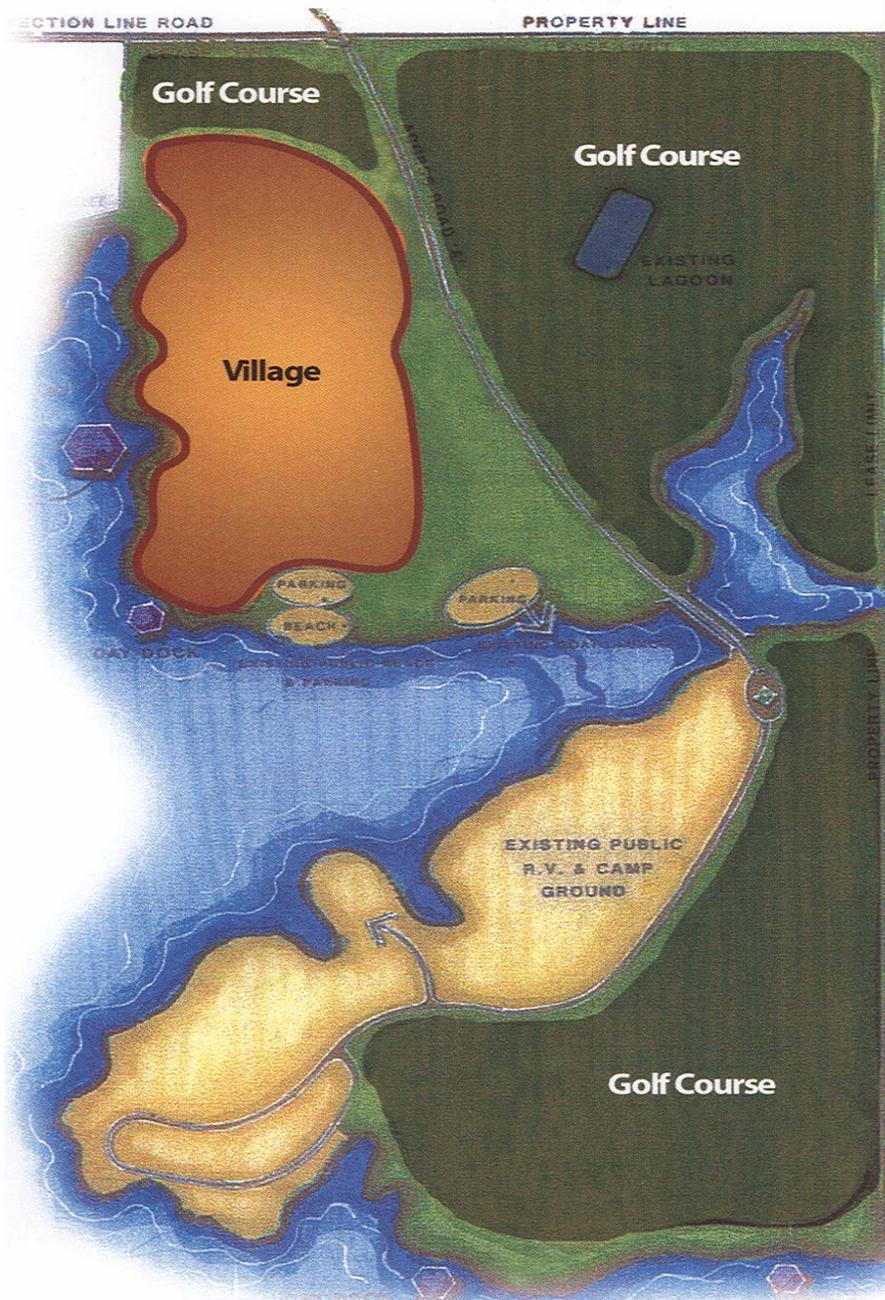


Figure 2. Skiatook Economic Development Authority Lease Area


Land Plan



Uses may be relocated within the lease area with the approval of the USACE

Figure 4. Proposed Golf Course at Tall Chief Cove



Figure 5. Proposed Camping Area at Skiatook Point

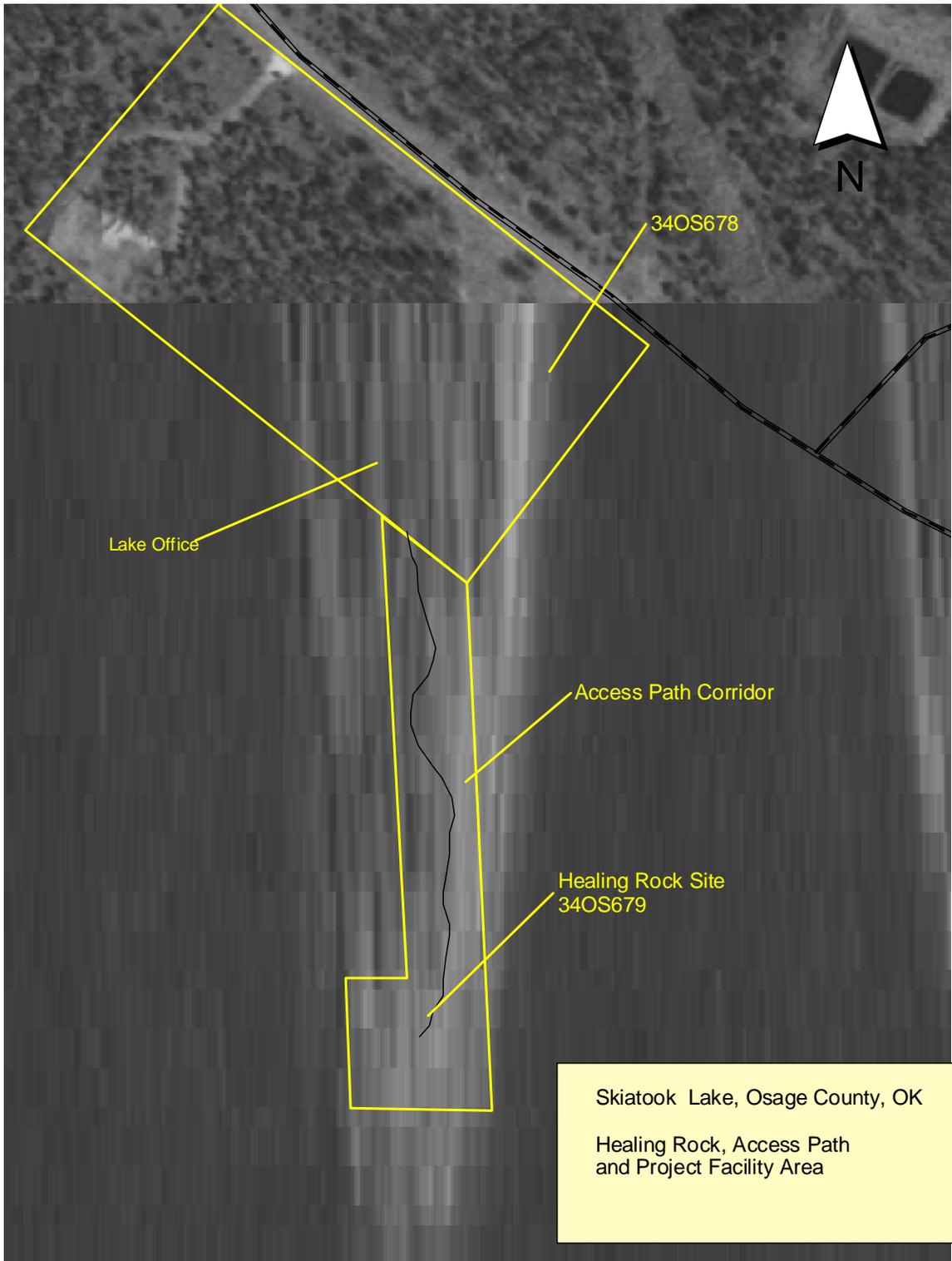


Figure 6. Significant Cultural Resources and Area Excluded from SEDA Lease