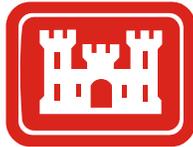


**ENVIRONMENTAL ASSESSMENT  
TRIBUTE GOLF COURSE EXPANSION  
AT  
WYNNEWOOD PARK  
LEWISVILLE LAKE, DENTON COUNTY, TEXAS**



**U.S. Army Corps of Engineers  
Fort Worth District**

**January 2008**

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## 1.0 INTRODUCTION

### 1.1 BACKGROUND

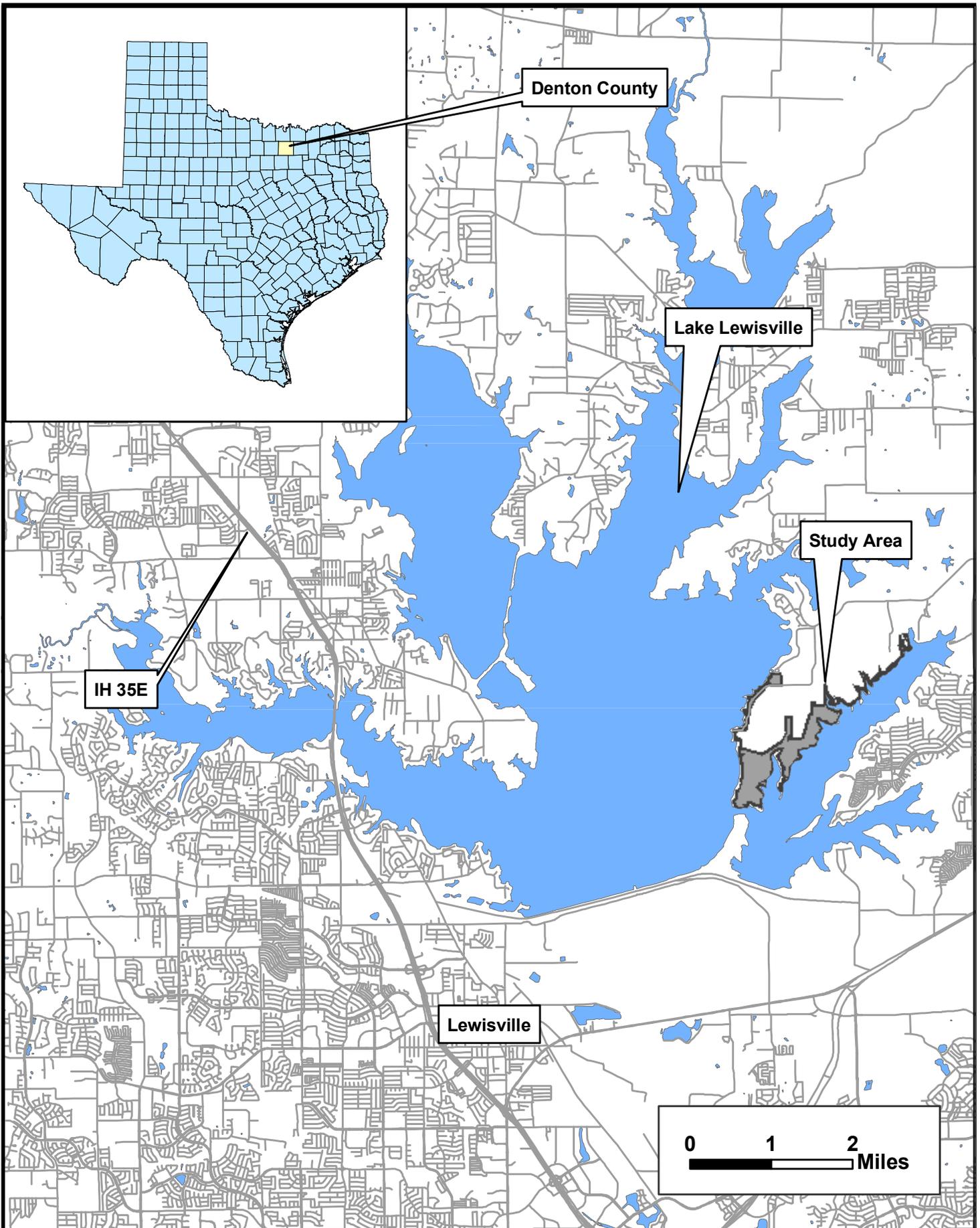
This tiered environmental assessment (EA) assesses the environmental impact of a proposed 18-hole expansion of The Tribute Golf Course located in Wynnewood Park at Lewisville Lake, Denton County, Texas. In accordance with the National Environmental Policy Act of 1969 (NEPA), Federal agencies are required to assess and disclose the environmental and socioeconomic impacts of major Federal actions. The proposed action is considered to be a major Federal action and, along with various alternatives, is described in this tiered EA, and the potential environmental impacts are disclosed.

The City of The Colony leased the 720-acre Wynnewood Park from the U.S. Army Corps of Engineers (USACE) in 1985 for public park and recreation purposes. In accordance with the USACE 1985 Master Plan for Lewisville Lake, the City planned to develop a golf course in the park. In the mid-1990's, The Colony subleased the property to a golf developer, and proceeded to construct an 18-hole course on a portion of the park. This 18-hole course, as well as an additional conceptual 18-hole course, was addressed by the USACE in an Environmental Assessment for which a Finding of No Significant Impact (FONSI) was signed October 7, 1997. Shortly afterward, in response to numerous land use requests from a broad array of entities surrounding Lewisville Lake, the USACE encouraged these entities to participate in a Programmatic Environmental Assessment (PEA) which would assess impacts of numerous proposed projects that would affect federal land at Lewisville Lake for the next ten years. The FONSI for this PEA was signed September 30, 1999.

This tiered EA relies heavily on the previous EA and PEA for background information, including the requisite description of the environmental setting. The previous EA and PEA are posted on the USACE website at: <http://www.swf.usace.army.mil/>.

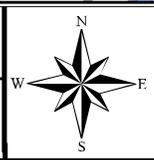
A key aspect of the proposed 18-hole expansion is the proposal to place several of the holes on land that is classified in the USACE Master Plan for Wildlife Management purposes and is located outside the boundary of Wynnewood Park. Under the proposed action, the affected Wildlife Management land would be reclassified as Recreation land and an equal amount of land classified as Recreation land in Wynnewood Park would be reclassified as Wildlife Management land, thus resulting in no net loss of either land classification. This exchange of land classification will be referred to in this EA as the "land use exchange." Because ten years have elapsed since the original EA was written, and the land use exchange was not anticipated or disclosed in the previous EA and PEA, the USACE considers it necessary to prepare this tiered EA.

Sheet 1 of 5 shows the project location within Denton County. Sheet 2 of 5 shows the proposed project location on 2004 aerial photo base data.

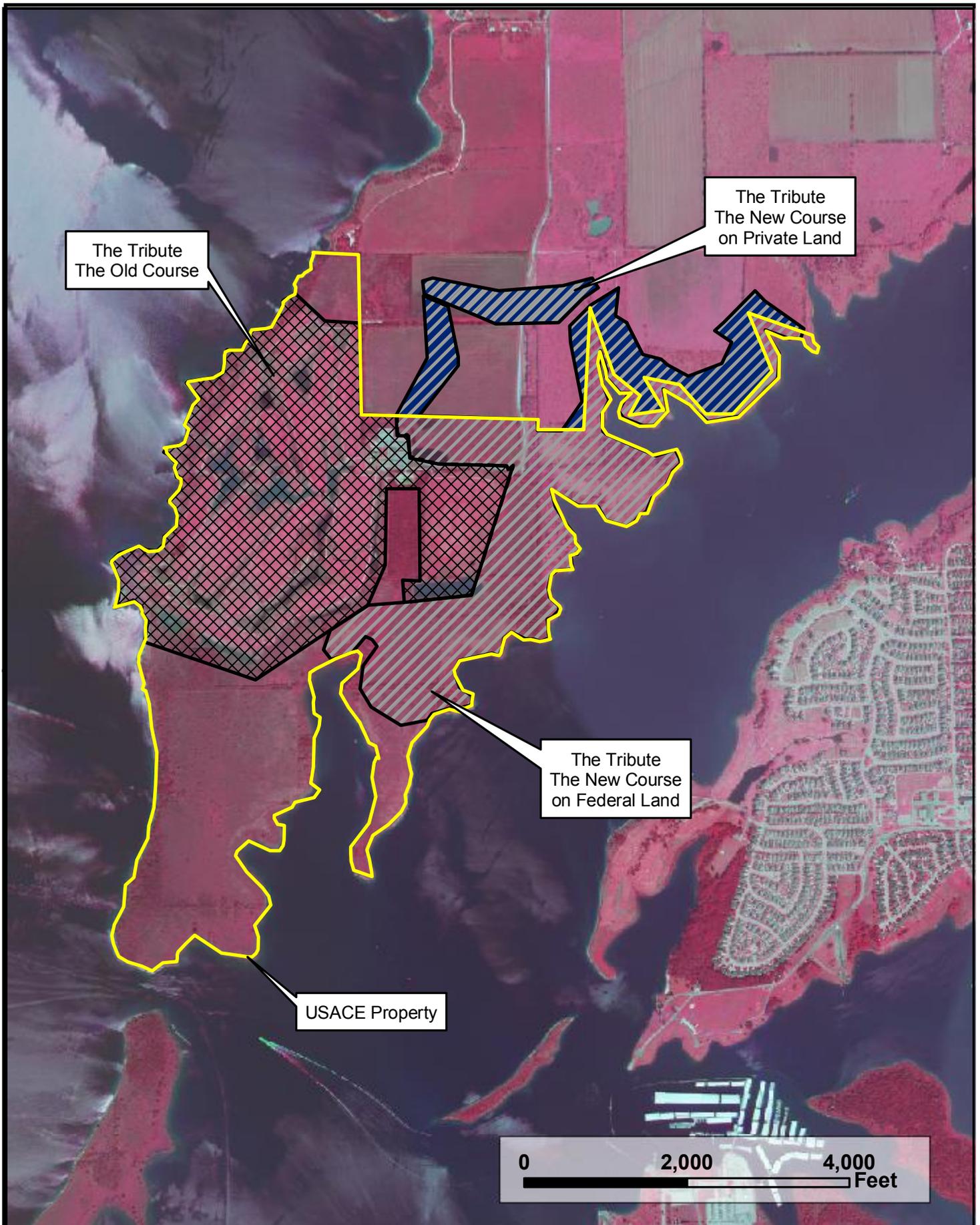


<b>SHEET</b>  <b>1</b>  OF 5 SHEETS	DATE: 7/25/07
	DESIGN:
	DRAWN: MEW
	CHECKED: LDC
	KHA NO.: 067286006

**Tribute Golf Course**  
**The New Course**  
Location Map  
(Denton County, Texas)



 Kimley-Horn and Associates, Inc.		No.	Revision	By	Date



The Tribute  
The Old Course

The Tribute  
The New Course  
on Private Land

The Tribute  
The New Course  
on Federal Land

USACE Property



<b>2</b>	DATE:	7/25/2007
	DESIGN:	
	DRAWN:	MEW
	CHECKED:	LDC
	KHA NO.:	067286006
OF 5 SHEETS		

**Tribute Golf Course**  
**The New Course**

2004 DOQQ Map  
(2004 NAIP DOQQ base data)



		Kimley-Horn and Associates, Inc.	
No.	Revision	By	Date

## 1.2 PURPOSE AND NEED

The 1985 Master Plan for Lewisville Lake indicated that the best use for Wynnewood Park would be to develop a golf course. A 36-hole golf course was approved in 1997 by the USACE, and the first 18 holes were constructed. The proposed project meets the goals and objectives of the Master Plan for Lewisville Lake.

The proposed action is to construct the remaining 18 holes at the golf course. The first 18-hole golf course has been well received and serves as an attractive recreation facility. The additional 18 holes are needed to provide for the increasing demands for quality recreation opportunities in the area.

## **2.0 DESCRIPTION OF ALTERNATIVES**

### 2.1 GENERAL

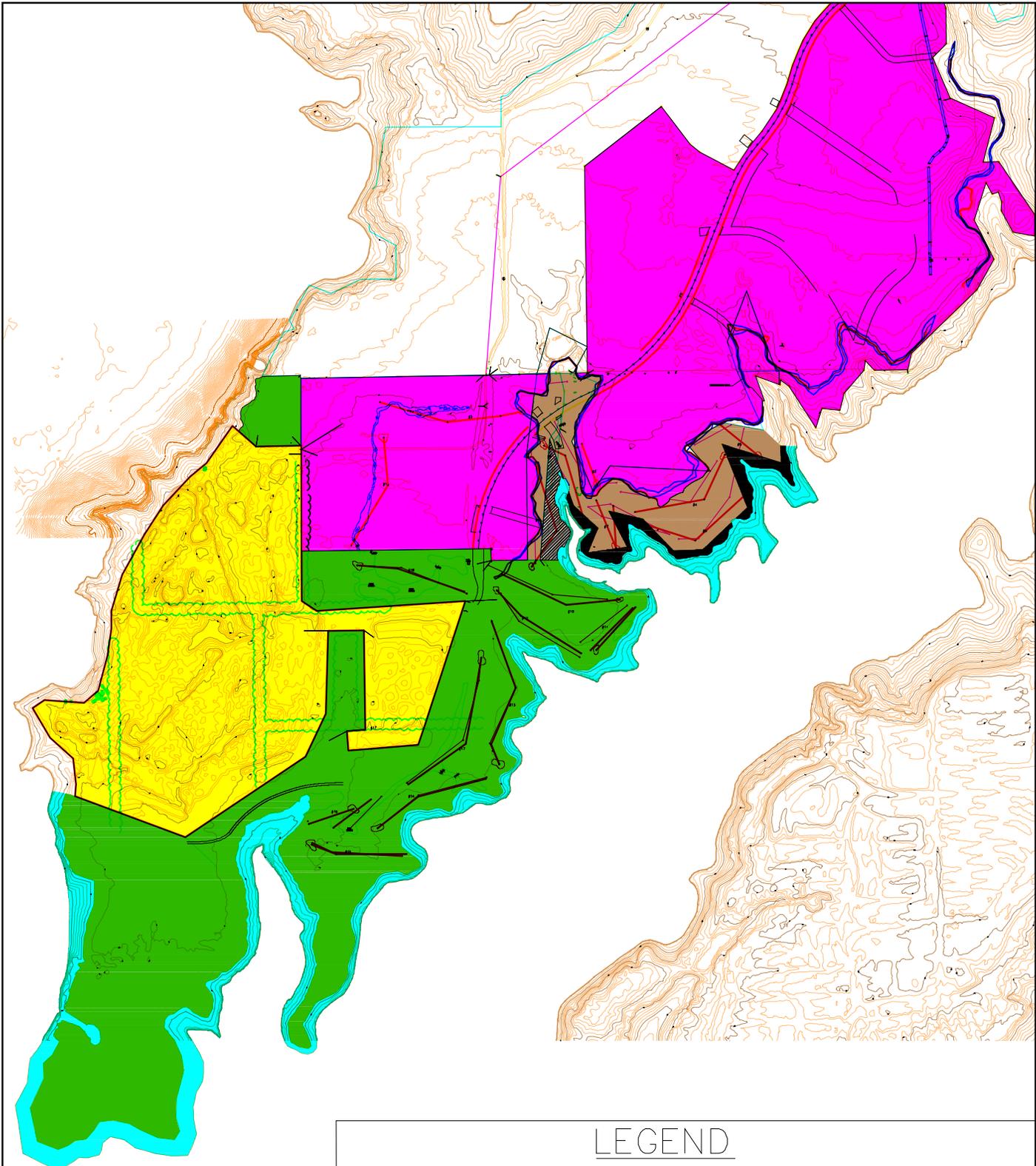
The alternatives proposed entail the construction of an 18-hole golf course expansion to an existing 18-hole course in addition to a no-action alternative. The USACE has a system of land use classifications for their property holdings around Lewisville Lake. These land use classifications include: low-density and intensive recreation, wildlife habitat, and project operations. The proposed project requires a land classification change essentially reclassifying lands in the project area. Because of these changes, this EA is being provided as an update to the 1997 Environmental Assessment for the project and to update the Lewisville Lake land classification plan. Reference Sheet 3 of 5 for the current land use representation.

### 2.2 NO ACTION ALTERNATIVE

The No Action alternative would not entail any golf course expansion at Wynnewood Park. The No Action alternative would have a beneficial impact on the natural environment through no loss of resident wildlife or wildlife habitat. With the No Action alternative, the wildlife habitat footprint would remain in the same location. However, the 1985 Master Plan for Lewisville Lake indicates the best use for Wynnewood Park would be to develop a golf course. A 36-hole golf course was approved in 1997 by the USACE, and the first 18 holes were constructed. The No Action alternative would not meet the goals and objectives of the Master Plan for Lewisville Lake.

### 2.3 ALTERNATIVE 1 (Proposed Action)

The City of The Colony plans to expand the Tribute Golf Course by another 18 holes on the tip of the Wynnewood Peninsula at Lewisville Lake. The site includes 720-acres of federally-owned land currently leased to The Colony. Under Alternative 1, approximately 18 acres of additional federal land would be leased to The Colony. The course will have a daily fee and be open to the public.



LEGEND

- |   |  |   |                          |
|---|--|---|--------------------------|
|  | RECREATION –EXISTING<br>TRIBUTE COURSE |  | RECREATION               |
|  | PRIVATE PROPERTY                       |  | FLOWAGE EASEMENT         |
|  | WILDLIFE MANAGEMENT                    |  | NORMAL POOL<br>ELEVATION |



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Land Use Representation

The Tribute – The New Course

Revised:	Drawn: TDA	Designed: TDA	Checked:	Scale: 1" = 500'	Project Number: 067286006	Date: October 3, 2007	Sheet 3 of 5 Sheets
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The USACE has a system of land use classifications for their property holdings around Lewisville Lake. These land use classifications include: low-density and intensive recreation area, wildlife habitat, and project operations. Approximately 18-acres of wildlife habitat will be reclassified to recreation lands, and approximately 18-acres of recreational lands will be reclassified as wildlife habitat, for an equal acre-to-acre ratio.

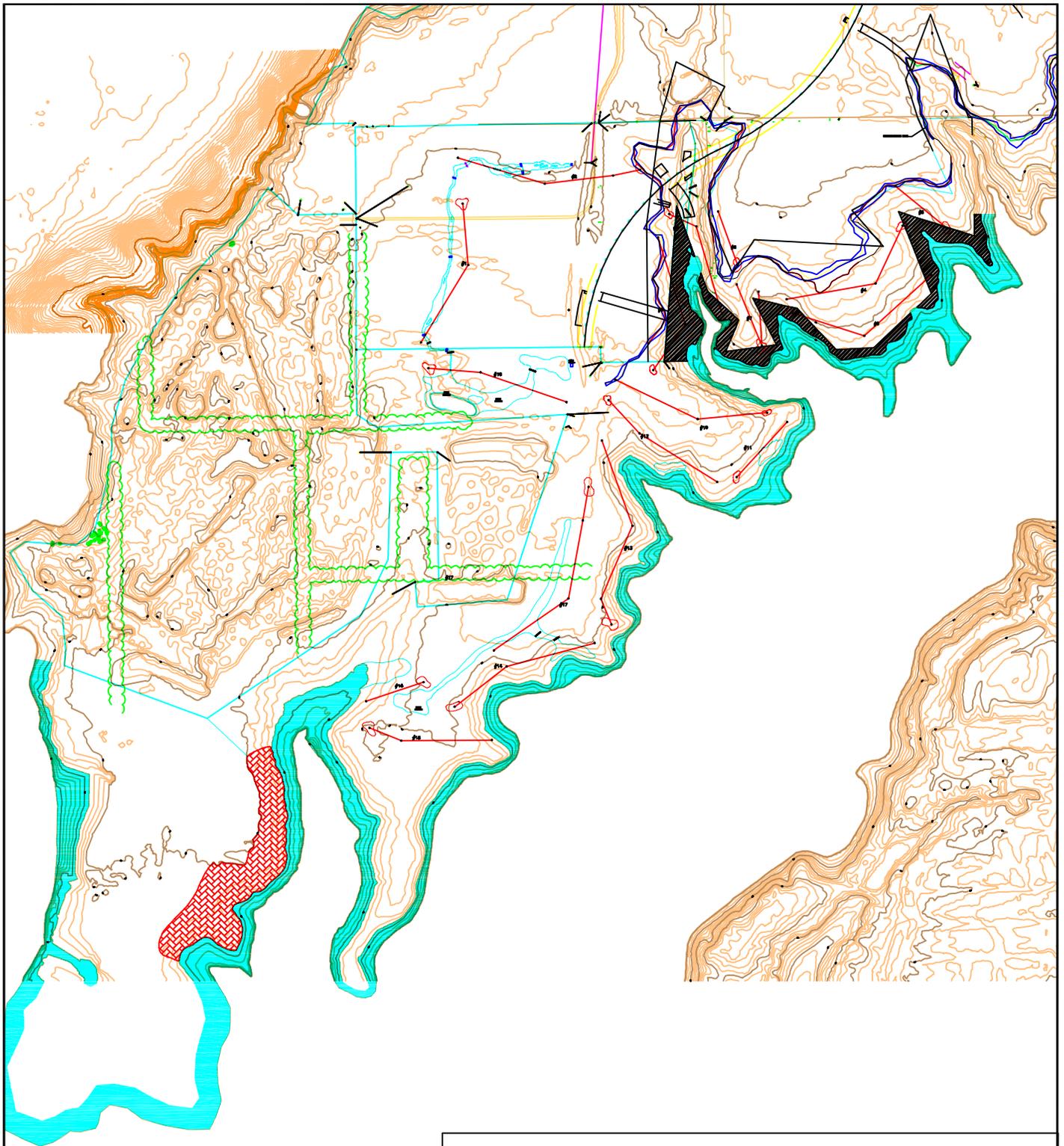
A habitat analysis was conducted by Kimley-Horn and Associates, Inc. to determine the appropriate areas for the land classification changes to occur, maintaining the same level of habitat quality or higher (see attached Habitat Analysis). The Habitat Analysis states generally that the value of the lands proposed for reclassification is of low quality. Reference Sheet 4 of 5 for the land reclassification plan.

The proposed action meets the needs of the Master Plan for Lewisville Lake, and the land classification changes maintains the area and quality of lands classified as wildlife habitat and recreational use on USACE lands. The effects from the proposed project to the surrounding resource areas will be similar to golf courses analyzed within the PEA.

With the development of the proposed golf course, it has been determined that a second practice field may be necessary for proper operation. It is expected that the second course at The Tribute will be as successful, if not more so, than the first, and as such; a second practice field would be needed to allow for adequate space for players to get warmed up prior to play. This proposed practice field will be located on a section of the property that is currently treeless. The construction of this practice field will be unique and incorporate the use of Buffalo grass for the range area (the area where players hit balls to), augmented by turf areas only on the tee itself and for approximately six 4,000 square foot target greens on the range. Not only will this create a unique look, it will greatly reduce water requirements and because it will not regularly be mowed, it will serve as fringe area for surrounding areas.

## 2.4 ALTERNATIVE 2

Under this alternative the proposed new 18-hole course would be developed as described in the 1997 EA. This design was very conceptual, and while only slightly different from the design set forth in the proposed action, may have resulted in fairway alignments causing golf balls to be hit over the lake surface at the normal pool elevation, and may not have fully taken advantage of existing native vegetation. Furthermore, The Colony expressed the need to control invasive and undesirable vegetation (cedar and honey locust encroachment, and Johnsongrass) on USACE wildlife lands adjacent to planned fairways on private land. Allowing The Colony to manage vegetation on these wildlife lands to promote desirable native grasses and shrubs requires a change in land use classification and leasing of the land to The Colony. These actions would not be possible under this alternative.



LEGEND

 LAND TO BE RECLASSIFIED FROM "RECREATION" TO "WILDLIFE"	 LAND TO BE RECLASSIFIED FROM "WILDLIFE" TO "RECREATION"
 PROPOSED FAIRWAYS	 NORMAL POOL ELEVATION



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LAND RECLASSIFICATION PLAN

THE TRIBUTE—THE NEW COURSE

Revision:	Drawn: TDA	Design: TDA	Checked:	Scale: 1" = 400'	Project Number: 067286006	Date: January 10, 2007	Sheet 4 of 5 Sheets
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### **3.0 AFFECTED ENVIRONMENT**

#### **3.1 PROJECT SETTING & LAND USE**

The City of The Colony plans to expand the Tribute Golf Course to 36-holes on the tip of the Wynnewood Peninsula, at Lewisville Lake. The site includes approximately 738-acres of USACE land. The USACE has a system of land use classifications for their property holdings around Lewisville Lake. These land use classifications include: low-density and intensive recreation area, wildlife habitat, and project operations. The proposed project requires a reclassifying some lands in the project area.

#### **3.2 GEOLOGY AND SOILS**

The surficial soils over the majority of the proposed course have been mapped by the U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS), as Branyon clays. Substrate along the proposed golf facility expansions consists mainly of Branyon Clay, 0 to 1 percent slopes and Branyon Clay, 1 to 3 percent slopes, with the shorelines consisting of the Ferris-Heiden clays, 5 to 15 percent slopes and the Heiden clay, 3 to 5 percent slopes. This Branyon-Burleson-Heiden complex of soils is described as well-drained and moderately well-drained, nearly level to moderately steep, clayey soils that have very slow permeability. According to the PEA, the Federal land around Lewisville Lake is not farmland, therefore; the Farmland Protection Policy Act does not apply and coordination with U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) is not required.

#### **3.3 WATER RESOURCES**

##### **3.3.1 Waters of the U.S. including Wetlands**

Section 10 / Section 404

Under Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403), the USACE is directed by Congress to regulate “all work or structures in or affecting the course, condition or capacity of navigable waters of the United States.” Additionally, Section 404 of the Clean Water Act (33 USC 1344) the USACE is directed by Congress to regulate “the discharge of dredged and fill material into all waters of the United States including wetlands.”

A description of the aquatic resources in Lewisville Lake was discussed in the 1999 PEA. Lewisville Lake and an unnamed tributary of Lewisville Lake were the only jurisdictional waters observed on-site. The normal pool elevation for the lake is 522 mean sea level (msl) and is approximated by the ordinary high water mark (OHWM) (USACE 1999). The only wetland areas observed on the study area were fringe wetlands associated with the lake and unnamed tributary. No impacts are proposed to these areas.

##### **3.3.2 Water Quality**

The major consumers of water from Lewisville Lake are the cities of Dallas, Denton, and Lewisville. A description of the surface water quality and ground water resources are discussed in the 1999 PEA (USACE 1999).

### 3.4 BIOLOGICAL RESOURCES

#### 3.4.1 Wildlife and Fish

Representative wildlife species in the proposed project area include coyote (*Canis latrans*), eastern cottontail (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and armadillo (*Dasypus novemcinctus*). Characteristic reptiles and amphibians in the proposed area include southern prairie lizard (*Sceloporus undulates*), Texas spiny lizard (*Sceloporus undulates*), ground skink (*Scincella lateralis*), spotted whiptail (*Cnemidophorus gularis*), Texas brown snake (*Storeria dekayi*), western coachwhip (*Masticophis flagellum*), Great Plains rat snake (*Elaphe guttata*), western diamondback rattlesnake (*Crotalus atrox*), and Blachard's cricket frog (*Acris crepitans blachardi*).

The proposed area is used year-round by many species of birds including mourning dove (*Zenaidura macroura*), western meadowlark (*Sturnella neglecta*), cattle egret (*Bubulcus ibis*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*). In addition, many migratory birds pass through or overwinter in the proposed area. Some of the overwintering birds in the proposed project area include the northern harrier (*Circus cyaneus*), sharp-shinned hawk (*Accipiter striatus*), and vesper sparrows (*Pooecetes gramineus*). Additional species are included in the Threatened and Endangered Species (Sections 3.4.4. and 4.4.4.).

#### 3.4.2 Aquatic Vegetation

A description of the vegetation communities around Lewisville Lake is provided in the 1999 PEA. A strip of buttonbush fringe is located on the southern edge of the study area around the edge of the lake. Besides the buttonbush fringe, there is limited aquatic vegetation on the site.

#### 3.4.3 Terrestrial Vegetation

The attached Habitat Analysis shows there are 101-acres of savannah, 88-acres of grassland, 78-acres of forest and 14-acres of a buttonbush fringe in the existing recreation area totaling 282-acres. These areas are proposed to remain as recreation areas.

The composition of the area to be reclassified from existing wildlife habitat to recreation area is 8.7-acres of savannah, 3.4-acres of grassland, 3.6-acres forested, and 2.4-acres of buttonbush fringe.

The composition of the area to be reclassified from existing recreation area to wildlife habitat is 2.4-acres of savannah, 11.5-acres of grassland, 1.5-acres forested, and 2.7-acres of buttonbush fringe.

#### 3.4.4 Threatened and Endangered Species

In accordance with Section 7 of the Endangered Species Act of 1973 (PL 93-205) (ESA), the USFWS requires consultation for Federal agencies. The USFWS has identified the endangered interior least tern (*Sterna antillarum*), piping plover (*Charadrius melodus*), and whooping crane (*Grus americana*) as listed species likely to occur in Denton County. The bald eagle (*Haliaeetus leucocephalus*) has been removed from the threatened and endangered list, however, it remains protected under the Bald and Golden Eagle Protection Act.

A search of the Texas Biological and Conservation Data System indicated no known occurrences of special species or natural communities in the immediate vicinity of the project area. Furthermore, the PEA states that there are no known federally listed threatened or endangered flora or fauna species in the Lewisville Lake area. If any federally listed threatened or endangered species were identified, further coordination with the USFWS would be required.

#### 3.5 NOISE AND GENERAL AESTHETICS

According to the PEA, the noise sources around the Lewisville Lake may include, “activities in parks and recreational areas, areas around homes and schools, activities around commercial areas, and noise from vehicles, watercraft, aircraft, wind, birds, and air conditioning/compressor units, all of which would be considered exterior ambient noise sources.” The range from 50 dBA Leq to 66 dBA Leq measured in the study is a range representative of the level around the lake and should not vary significantly.

#### 3.6 CULTURAL RESOURCES

The proposed site for the Tribute Golf Course expansion was surveyed for cultural resources in 1985. Fourteen archeological sites were identified in the entire project area; however, none of these sites were determined to be eligible for the National Register of Historic Places (NRHP).

#### 3.7 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTES (HTRW)

Chemical use on the proposed site for the Tribute Golf Course expansion will be minimized when possible. When possible, cultural practices will be used to maintain turf grasses on the course. A buffer of grass along the lake will have no chemicals applied to it and will serve as a buffer to protect water quality in the lake. It is anticipated that proper fertilizer use, in the presence of a vegetative buffer, will not have adverse impacts to water quality. This assessment is consistent with the PEA completed for surrounding proposed projects.

#### 3.8 AIR QUALITY

The proposed additional 18 holes for the golf course would be located within the Environmental Protection Agency’s Air Quality Control Region (AQCR) 215 for Texas. AQCR 215 consists of 19 counties including Dallas, Denton and Tarrant Counties. AQCR 215 is classified as a non-attainment area for ozone and attainment/unclassifiable for other National Ambient Air Quality Standards including lead, sulfur dioxide, nitrogen dioxide, carbon monoxide, and other particulates greater or equal to 10 micrometers in diameter.

### 3.9 RECREATION

Lewisville Lake is a USACE lake that provides recreational opportunities for Denton County and neighboring counties. As referenced in the PEA, there are 23 developed parks and lake access areas around Lewisville Lake. These facilities provide a variety of recreation oriented options for the public.

### 3.10 SOCIOECONOMICS

Southeastern Denton County is one of the fastest growing parts of the Dallas-Fort Worth metropolitan area. The county has grown from 273,525 in 1990 to 400,915 in 1999, equating to a 46.6 % population increase as mentioned in the PEA. The population trends for the Lewisville Lake area are expected to be matched with a demand for recreation.

## **4.0 ENVIRONMENTAL CONSEQUENCES**

### 4.1 PROJECT SETTING & LAND USE

#### *No Action*

The No Action alternative would result in the land remaining in its current state and there would be no impact on the project setting and land use. However, the 1985 Master Plan for Lewisville Lake and the PEA indicate the development and extension of a golf course for Wynnewood Park.

#### *Alternative 1 (Proposed Action)*

The proposed land use exchange will result in no net loss of wildlife lands or recreation lands. The proposed 18-holes will be located approximately where they would have been located in accordance with the 1997 EA. The land use exchange is considered necessary primarily to provide an avenue for leasing an additional 18 acres of federal land to The Colony to allow the city to manage the vegetation on federal land located adjacent to fairways located on private land, and secondarily to allow for fairway alignments that will reduce the possibility of golf balls being hit over the water surface of Lewisville Lake.

Indirect effects are anticipated to include a predictable and stable land use for the long-term. Many of the indirect effects are a direct result of the immediate effects. Setting the golf course and mitigation lands aside will serve to protect them from future development. This will allow a broad-based predictable land-use change with both direct and indirect positive effects

The proposed practice field will impact the USACE lands by approximately 10-acres. This acreage is not currently accounted for in the mitigation plan or the habitat assessment (HA). According to the HA, this proposed practice field will impact three different cover types over three different elevation categories. According to the HA, these areas are designated as poor quality.

In response to public interest in pedestrian trail access around Lewisville Lake, the USACE is committed to preserving the opportunity for such access on all Federal land at Lewisville Lake

with the exception of restricted access areas around prime facilities such as the dam and uncontrolled spillway.

#### *Alternative 2 – 1997 Plan*

This alternative would not result in a land use exchange, and would not provide an avenue for leasing an additional 18 acres of current wildlife lands to The Colony to allow the city to manage the vegetation on federal land adjacent to fairways located on private land. This alternative may also result in a fairway alignment that could cause golf balls to be hit over the water surface of Lewisville Lake.

## 4.2 GEOLOGY AND SOILS

#### *No Action*

The No Action alternative would have no impact on the geology and soils within in the project area.

#### *Alternative 1 (Proposed Action)*

The proposed action would move approximately 500,000 cubic yards of soil to create the topography of the tees and greens. As a part of the proposed action, a storm water pollution prevention plan (SWP3), Notice of Intent (NOI) and best management practices (BMPs) will be incorporated to limit effects of soils on water quality. Additionally, discharges to the lake will also be limited after the fact by the creation of water features that will collect sediment. The soil types would remain the same, as described in Section 3.2.

As identified in the 1997 Environmental Assessment for the project, the design of the proposed golf facility expansion would use features of the natural terrain wherever feasible. Tees and greens would be elevated above the natural topography. As mentioned in the PEA, the topography is nearly level to moderately steep around Lewisville Lake and the elevation range is from 520 to 643 feet above mean sea level. It is estimated that 500,000 cubic yards of soil would be moved. Contractors would cut and fill to maintain or increase the flood storage capacity of the reservoir. Soil with better drainage characteristics may be added to the upper layers of the substrate to promote better drainage in some areas. Such areas would be primarily above the elevation of the maximum flood storage pool. During construction, specific BMPs for sediment and erosion control will be in place. Specific BMPs for erosion control may consist of temporary vegetation, blankets and matting, mulch, and filter socks. Specific BMPs for sediment control may consist of sand bags, silt fencing, rock berms, hay bales, and sediment basins. As discussed in the next section on water quality, permanent vegetated buffers and detention basins will be used to minimize soil movement over time.

Indirect effects are anticipated to include a long-terms stability and protection of geology and soils in the project area by establishing and maintaining vegetation in the area.

#### *Alternative 2*

Alternative 2 would move approximately 500,000 cubic yards of soil to create the topography of the tees and greens. The soil types would remain the same, as described in Section 3.2.

## 4.3 WATER RESOURCES

### 4.3.1 Waters of the U.S., including Wetlands

#### *No Action*

There would be no adverse impacts to any special aquatic sites or Waters of the U.S. at the proposed site. Restoration of approximately 100 acres of native grasslands in areas that are currently not native to the eco type and the planting of approximately 35 acres of native tree species to create more valuable habitat would be beneficial impacts to those aquatic sites adjacent to the project site.

#### *Alternative 1 (Proposed Action)*

The proposed project would not result in any adverse impacts to any special aquatic sites or waters of the U.S. The proposed golf course is designed to avoid any special aquatic site located in the lease area. Features of the course are also designed so that the geomorphologic and hydrologic features of the aquatic sites would remain intact and functional. Non-jurisdictional storm water ditches and water features in uplands will be created on the course, but not on the mitigation site. Under Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403), the USACE is directed by Congress to regulate "all work or structures in or affecting the course, condition or capacity of navigable waters of the United States." Additionally, Section 404 of the Clean Water Act (33 USC 1344) the USACE is directed by Congress to regulate "the discharge of dredged and fill material into all waters of the United States including wetlands." A description of the aquatic resources in Lewisville Lake was discussed in the 1999 PEA. On June 29, 2006 a site visit was conducted, by a Professional Wetland Scientist, with the intent to make observations for Waters of the U.S., including wetlands. Lewisville Lake and an unnamed tributary of Lewisville Lake were the only potentially jurisdictional waters observed on-site. The normal pool elevation for the lake is 522 mean sea level (msl) and is approximated by the ordinary high water mark (OHWM) (USACE 1999). The only wetland areas observed on the study area were fringe wetlands associated with the lake and unnamed tributary. No impacts are proposed to these areas. The features of the golf course are designed to avoid adverse impacts to Waters of the US, including Wetlands. These specific features include the maintenance of a 50-foot vegetative buffer between the normal pool elevation and golf course elements that require ground disturbing activities. This is a sufficient distance to avoid impacts to waters of the U.S., including wetlands. The course design makes practical use of aquatic features in a passive capacity. Direct access to the lake is not part of the golf course design and therefore has eliminated direct and indirect effects to waters of the U.S., including wetlands. Indirect effects are anticipated to be a long-term increase in water quality by reducing erosion, increasing the infiltration rate and managing storm water runoff.

This project was reviewed in accordance with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. Activities in the proposed action would be in accordance with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899.

#### *Alternative 2*

There would be no adverse impacts to any special aquatic sites or waters of the US.

#### 4.3.2 Water Quality

##### *No Action*

There would be no adverse impacts to water quality. Restoration of approximately 100 acres of native grasslands in areas that are currently not native to the eco type and the planting of approximately 35 acres of native tree species to create more valuable habitat would be beneficial impacts to those aquatic sites adjacent to the project site.

##### *Alternative 1 (Proposed Action)*

Best management practice (BMP) measures will be implemented to the maximum extent practicable during construction to direct surface water runoff to earthen ponds on the golf course, and avoid impacts to Lewisville Lake. The golf course will also be surrounded by an existing, naturally-occurring, 50-foot wide buttonbush fringe buffer zone as well as additional vegetated areas that will assimilate nutrients and pesticides that may be present in runoff, effectively serving as an additional permanent BMP. Specific BMPs for erosion control may consist of temporary vegetation, blankets and matting, mulch, and filter socks. Specific BMPs for sediment control may consist of sand bags, silt fencing, rock berms, hay bales, and sediment basins. It is not possible to quantify the effect on water quality until the action is completed and water quality could be physically monitored for changes. It is expected that compliance with the storm water pollution prevention plan will minimize construction phase water quality impacts. Once the construction is complete, water quality will be improved from any point source related to the project site through greater soil stabilization, better filtration of water, increased infiltration, and the slowing of surface runoff. Pesticide use on the proposed golf course will be limited to areas at least 100' from the lake and it is likely they will only be used twice per year. Numerous university studies have shown that pesticides, when used on turf grass, do not migrate when applied properly. On the existing golf course, pesticide use is limited almost exclusively to controlling fire ants and only applied twice per year. Most all other pest would be dealt with in a cultural practice manner.

There would be no permanent adverse impacts to water quality. During construction, adverse impacts to lake water quality could result from increases in turbidity and suspended particles due to storm water runoff. After the golf course expansion is operational, runoff from pesticide and fertilizer application, golf cart washing, and a golf course vehicle maintenance facility could impact lake water quality. To minimize water quality impacts, the golf course would be surrounded by a buttonbush fringe on the lake side that will average 50-feet wide to assimilate nutrients and pesticides in runoff flow. The PEA states that Lewisville Lake is not on the Clean Water Act, Section 303(d) List of Texas water bodies. Additionally, measures would be implemented to direct surface water runoff to storm water ponds built on the golf course. Prior to construction, a Storm Water Protection Plan (SWPP3) would be prepared and implemented. Fertilizer and pesticide utilization at the golf course would be optimized and runoff minimized through the use of a computerized application system. The application system would be programmed to deliver chemicals on an "as needed" basis. If necessary, the City of The Colony would stabilize the shoreline of Lewisville Lake in the vicinity of the golf course using rip rap or vegetative plantings to reduce any additional erosion-induced water turbidity caused from wave action or the increase in surface water runoff from the golf course. Indirect effects are anticipated

to be a long-term increase in water quality by reducing erosion, increasing the infiltration rate and managing storm water runoff.

#### *Alternative 2*

There would be no adverse impacts to water quality. Best Management Practice (BMP) measures will be implemented to the maximum extent practicable during construction to direct surface water runoff to earthen ponds on the golf course and avoid impacts to Lewisville Lake. Specific BMPs for erosion control may consist of temporary vegetation, blankets and matting, mulch, and filter socks. Specific BMPs for sediment control may consist of sand bags, silt fencing, rock berms, hay bales, and sediment basins.

### 4.4 BIOLOGICAL RESOURCES

#### 4.4.1 Fish and Wildlife

##### *No Action*

The No Action alternative would not have an adverse impact on fish and wildlife. Beneficial impacts would be the restoration of approximately 100 acres of native grasslands in areas that are currently not native to the eco type and the planting of approximately 35 acres of native tree species to create more valuable habitat.

##### *Alternative 1 (Proposed Action)*

The construction of the proposed project and human activity associated with course operations would result in the disturbance and displacement of resident wildlife species within the golf course area. Suitable habitat for some species is available in areas adjacent to the project site. Suitable wildlife habitat would also be provided on the site through the proposed mitigation plan.

The final mitigation plan will include planting of native vegetation that is adapted to existing soil types and will most likely include native prairie plantings interspersed with mottes of woody vegetation. Some of the mitigation plantings will attempt to connect disjunct wildlife habitat while complementing the design of the golf course. It is anticipated that the final mitigation plan will be furnished to the USACE prior to initiation of construction and will be implemented in phases over a three year period.

The proposed golf course will permanently impact approximately 56 acres of existing habitat. Mitigation is proposed on approximately 153 acres of USACE lands that are either on or surrounding the golf course. This provides a net gain of 97 acres of habitat with an increased wildlife value.

Minor impacts may be proposed to areas that will be classified as fringe or wildlife habitat on the course. Approximately 23 acres of proposed fringe habitat has been identified on the course that may be impacted as discussed above. Minor impacts may be proposed to approximately 17.5 acres of land that will be considered wildlife habitat on the course. These impacts are temporary and will likely result in an increase in habitat value. Minor impacts in the fringe or wildlife habitat areas would include vegetation manipulation that would favor native wildlife species. Vegetation manipulation may include the planting of wildlife corridors or the removal of some undesirable vegetation to create an edge effect.

These acreages are detailed in section 5.0.

The proposed practice field acreage is not currently accounted for in the mitigation plan or the habitat assessment. The conceptual practice field will result in a loss of species diversity for the area. According to the parameters used for the Wildlife Habitat Appraisal Procedure (WHAP), this loss in species diversity will cause a reduction in the Average Habitat Quality Score (AHQS) which will cause a decrease in Habitat Units (HUs). The mitigation plan will provide for an increase in habitat value that may attract additional wildlife.

#### *Alternative 2*

The construction of Alternative 2 and human activity associated with course operations would result in the disturbance and displacement of resident wildlife species and will adversely impact lands currently classified as wildlife habitat. Alternative 2 would not allow for a land use classification change. This alternative would require that golf balls be in play over areas that are currently classified as wildlife habitat. This activity would adversely impact the lands by allowing a land use that is not compatible with its current classification. Additionally, the City of The Colony would not be able to manage the undesirable plant species in the areas adjacent to the fairways.

#### 4.4.2 Aquatic Vegetation

##### *No Action*

No aquatic vegetation would be affected.

##### *Alternative 1 (Proposed Action)*

Non-jurisdictional storm water ditches and water features will be created in uplands on the course, but no aquatic vegetation would be affected nor actively established. It is expected vegetation will establish naturally. The course has been specifically designed to avoid impacts to aquatic vegetation. A vegetative buffer would be maintained and not impacted around the lake's edge in the area of the golf course. Removal of vegetation in this area would be strictly limited to upland species. The proposed golf course area was evaluated for the presence of aquatic vegetation. It has been determined that only limited aquatic vegetation occurs on the proposed golf course area and is near the lake's shore where ground disturbing activities are not proposed.

##### *Alternative 2*

The golf course has been specifically designed to avoid impacts to aquatic vegetation. The course design makes practical use of aquatic features in a passive capacity. Direct access to the lake is not part of the golf course design and therefore has eliminated direct and indirect effects to existing aquatic vegetation.

#### 4.4.3 Terrestrial Vegetation

##### *No Action*

Terrestrial vegetation would not be altered, including no removal of invasive/exotic species.

### *Alternative 1 (Proposed Action)*

Terrestrial vegetation in the project area will be altered. Outside of the greens and fairway, planting regimes include only native species, so cumulative adverse impacts to terrestrial vegetation are not anticipated. Dominant species that will be impacted in the existing prairie, savannah, and forest areas include:

- Prairie species
  - wheatgrass (*Triticum aestivum*)
  - cocklebur (*Xanthium strumarium*)
  - clasping coneflower (*Dracopis amplexicaulis*)
  - witchgrass (*Panicum capillare*)
  - Bermuda grass (*Cynodon dactylon*)
  - peas (*Lathyrus spp.*)
  - mimosa (*Desmanthus illinoensis*)
- Savannah species
  - mimosa (*Desmanthus illinoensis*)
  - Liatrus spp.
  - cheatgrass (*Bromus tectorum*)
  - hedge parsley (*Torilis arvensis*)
  - ragweed (*Ambrosia trifida*)
- Forest species
  - winged elm (*Ulmus alata*)
  - cedar elm (*Ulmus crassifolia*)
  - Eastern red cedar (*Juniperus virginiana*)
  - greenbriar (*Smilax spp.*)
  - green ash (*Fraxinus pennsylvanica*)
  - poison ivy (*Toxicodendron radicans*)

Approximately 80-acres of turf grass will be planted with Bermuda grass (*Cynodon dactylon*) and bent grass (*Agrostis spp.*). A fringe habitat area adjacent to the turf will be planted with buffalograss (*Bouteloua dactyloides*) and sideoats grama (*Bouteloua curtipendula*). Mitigation plantings will include a variety of native grass and tree species. The project area will be maintained for diverse and desirable species.

### *Alternative 2*

Alternative 2 would impact 18-acres of wildlife habitat and therefore would not meet the current land classification requirements by the USACE. These 18-acres are the proposed reclassification land in Alternative 1 shown on Sheet 4 of 5.

#### 4.4.4 Threatened and Endangered Species

##### *No Action*

There are no known federally listed threatened or endangered species known to occur as resident species on or near the project area. Based on currently available project information, the No Action alternative is not anticipated to create a significant adverse impact on threatened or endangered species.

*Alternative 1 (Proposed Action)*

There are no known federally listed threatened or endangered species known to occur as resident species on or near project area. Federally listed bird species (Section 3.4.4) may migrate through the project area. Based on currently available project information, the proposed project is not anticipated to create a significant adverse impact on the migratory patterns of threatened or endangered species.

*Alternative 2*

There are no known federally listed threatened or endangered species known to occur as resident species on or near project area. Federally listed bird species (Section 3.4.4) may migrate through the project area. Based on currently available project information, the proposed project is not anticipated to create a significant adverse impact on the migratory patterns of threatened or endangered species.

4.5 NOISE AND GENERAL AESTHETICS

*No Action*

The No Action alternative plan would have no affect on noise and general aesthetics.

*Alternative 1 (Proposed Action)*

Sufficient buffers exist around the project area which would protect surrounding areas from any minimal increase in noise from golfers and visitors hiking through Wynnewood Park.

There will be short-term noise emissions associated with the construction and maintenance activities of the proposed golf course expansion. It is anticipated that site conditions will vary from typical construction projects since equipment will not be required to run constantly. As a result, minimal noise impacts are expected. Sufficient areas exist which would buffer surrounding areas from construction noise. There are few potential noise receptors in the immediate project area and no increase in long-term noise emissions is expected. Vegetation maintenance would be directed at enhancing the aesthetics of the area. This would be maintained for the long-term and would result in a natural look to the entire area, including the land proposed for mitigation plantings.

*Alternative 2*

Sufficient buffers exist around the project area which would protect surrounding areas from any minimal increase in noise from golfers and visitors hiking through Wynnewood Park.

4.6 CULTURAL RESOURCES

*No Action*

It is not anticipated that cultural resources will be affected by the No Action plan.

*Alternative 1 (Proposed Action)*

It is not anticipated that cultural resources will be affected by the proposed project. If an accidental discovery is made during construction, work in the immediate area will cease, and the USACE Archeologist will be notified.

Cultural resources would not be adversely impacted by the construction of the proposed golf course expansion. In accordance with the PEA, if cultural resources are identified, the Texas State Historic Preservation Officer and a USACE Archeologist must evaluate the resources in question for NRHP eligibility. Additionally, if cultural resources are not identified or not determined to be eligible for the NRHP, then a finding of no significant historic properties should be filed with the SHPO. Previously unknown cultural resources, if discovered, would be collected and preserved for future generations to study.

*Alternative 2*

It is not anticipated that cultural resources will be affected by the proposed project. If an accidental discovery is made during construction, work in the immediate area will cease, and the USACE Archeologist would be notified.

4.7 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTES (HTRW)

*No Action*

It is not anticipated that No Action will have adverse impacts on HTRW.

*Alternative 1 (Proposed Action)*

It is not anticipated that this alternative will have adverse impacts on HTRW. Indirect effects are anticipated to be a result of providing a large land-base with restrictions on HTRW usage and should result in a long-term protection of the area from these substances.

*Alternative 2*

It is not anticipated that this alternative will have adverse impacts on HTRW.

4.8 AIR QUALITY

*No Action*

It is not anticipated that the No Action plan will have impacts on air quality.

*Alternative 1 (Proposed Action)*

It is not anticipated that this alternative will have adverse impacts on air quality. Dust control is required for the proposed action. Impacts to air quality are anticipated to be associated with dust, fugitive dust and emissions from equipment. The City of The Colony uses electric-powered golf carts and maintenance equipment where feasible to minimize additional air pollutant emissions.

The construction activities associated with the proposed project would have no significant adverse impact on air quality. Minimal amounts of exhaust fumes, dust, and smoke would be expected during construction. It is expected that the proposed project will require less machinery time than typical construction projects. Disposal of cleared vegetation by burning would be accomplished only as permitted by the Texas Commission on Environmental Quality (TCEQ). Once established, the air quality in the area would be protected for the long-term. There are no proposed point sources for the golf course or mitigation area. As a result, a large area is being set aside that should not contribute to air pollution and will serve to mitigate those effects of the surrounding developing area.

*Alternative 2*

It is not anticipated that this alternative will have adverse impacts on air quality. The City of The Colony uses electric-powered golf carts and maintenance equipment where feasible to minimize additional air pollutant emissions.

4.9 RECREATION

*No Action*

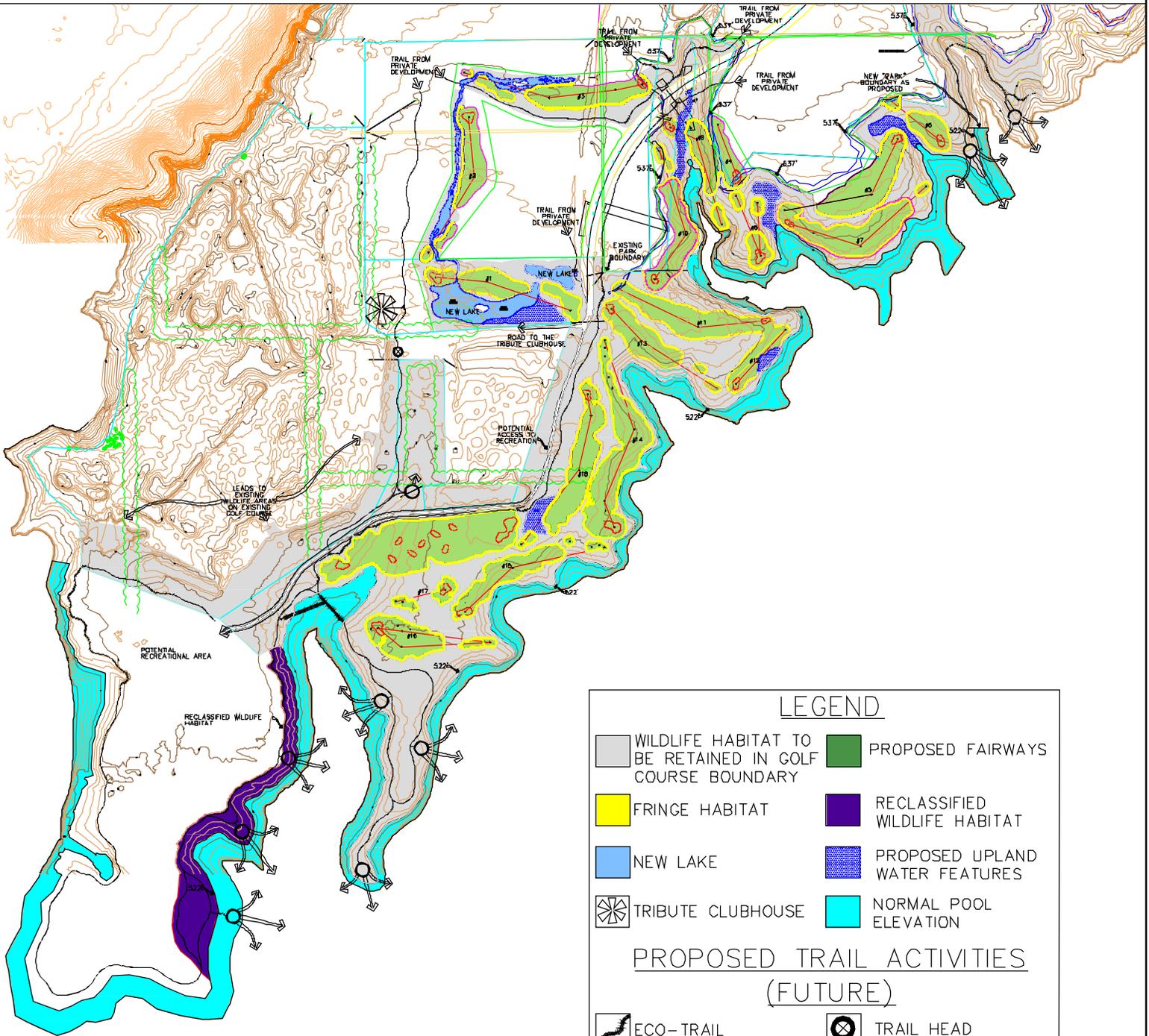
No increased recreational opportunities will occur with the No Action alternative plan.

*Alternative 1 (Proposed Action)*

The proposed expansion of the golf course would allow for increased recreation. The golf course was designed to accommodate a proposed trail system to be developed in the future by the City of Colony. It is anticipated that the project would have positive impacts on recreation by creating additional trails and bird watching areas. Please refer to Sheet 5 of 5 for the land management plan. The anticipated increase in wildlife usage in the area may result in increased recreational opportunities through an increase in wildlife viewing opportunities.

*Alternative 2*

Alternative 2 proposes an additional golf course, trails and bird watching areas.



**LEGEND**

- |   |  |
|---|--|
|  WILDLIFE HABITAT TO BE RETAINED IN GOLF COURSE BOUNDARY |  PROPOSED FAIRWAYS              |
|  FRINGE HABITAT  |  RECLASSIFIED WILDLIFE HABITAT  |
|  NEW LAKE  |  PROPOSED UPLAND WATER FEATURES |
|  TRIBUTE CLUBHOUSE                                       |  NORMAL POOL ELEVATION          |

**PROPOSED TRAIL ACTIVITIES (FUTURE)**

- |   |  |
|---|--|
|  ECO-TRAIL           |  TRAIL HEAD                               |
|  OBSERVATION BRIDGES |  OBSERVATION TOWERS WITH EDUCATION KIOSKS |



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LAND MANAGEMENT PLAN

THE TRIBUTE—THE NEW COURSE

#### 4.10 SOCIOECONOMICS

##### *No Action*

It is anticipated that this alternative will not have adverse impacts on socioeconomics.

##### *Alternative 1 (Proposed Action)*

There will be no additional socioeconomic impacts from what was already addressed in the 1999 PEA. It is anticipated that the project would not have adverse impacts on socioeconomics. The proposed action is expected to have a negligible impact on traffic in the area. New jobs may become available during and after the project construction is complete.

##### *Alternative 2*

It is anticipated that this alternative will not have adverse impacts on socioeconomics.

### **5.0 MITIGATION FOR THE PROPOSED ACTION**

The proposed golf course will impact approximately 96-acres of habitat and will be offset by mitigation efforts. The City of The Colony is developing a final mitigation plan for implementation on USACE lands that are currently leased to the City. The final mitigation plan will include planting of native vegetation that is adapted to existing soil types and will most likely include native prairie plantings interspersed with mottes of woody vegetation. Some of the mitigation plantings will attempt to connect disjunct wildlife habitat while complementing the design of the golf course. It is anticipated that the final mitigation plan will be furnished to the USACE prior to initiation of construction and will be implemented in phases over a three year period.

A habitat quality assessment of the USACE property on the Wynnewood Peninsula and Lake Lewisville was performed and is located in Appendix A. This assessment was completed to assign the existing habitat types into poor, good, or excellent categories so that the appropriate mitigation ratios could be assigned.

Efforts will be made to not disturb the area designated in the habitat quality assessment as buttonbush fringe. Although some of these areas may be shown to be within the footprint of the golf course, they will not be altered to match the rest of the golf course habitat. Additionally, areas proposed with minor impacts that are proposed areas of fringe or wildlife habitat will be self-mitigating.

Minor impacts may be proposed to areas that will be classified as fringe or wildlife habitat on the course. Approximately 23 acres of proposed fringe habitat has been identified on the course that may be impacted as discussed above. Minor impacts may be proposed to approximately 17.5 acres of land that will be considered wildlife habitat on the course. These impacts are temporary and will likely result in an increase in habitat value. Many more acres of existing wildlife habitat surround the golf course and will likely be used for mitigation enhancement activities.

The proposed golf course will permanently impact approximately 66 acres of existing habitat. Mitigation is proposed on approximately 153 acres of USACE lands that are either on or

surrounding the golf course. This provides a net gain of 97 acres of habitat with an increased wildlife value. A summary of proposed impacts, established mitigation ratios, and resulting mitigation acreage requirements is provided in Table 1.

Table 1. Summary of Impacts and Required Mitigation in Acres

Habitat Type and Flood Frequency	Habitat Quality	Mitigation Ratio	Impacts and Required Mitigation by Type of Facility Development								Totals by Habitat Type	
			Cart Path		Bunkers		Turf		Buffalo Grass			
			Impact Area (ac)	Required Mitigation (ac)	Impact Area (ac)	Required Mitigation (ac)	Impact Area (ac)	Required Mitigation (ac)	Impact Area (ac)	Required Mitigation (ac)	Impact Acres	Mitigation Acres
Grassland 5-year	Low	1:1	0.12	0.12	0.5	0.5	2.23	2.23	0.33	0.33	3.18	3.18
Grassland 10-year	Low	2:1	0.15	0.3	0.32	0.64	2.65	5.3	0.19	0.38	3.31	6.62
Grassland 50-year	Low	3:1	1.33	3.99	0.23	0.69	4.83	14.49	0.17	0.51	6.56	19.68
Grassland 100-year	Low	4:1	0.13	0.52	0	0	3.33*	13.32*	7.00*	28.00*	10.46	41.84
<b>Grassland Total</b>			<b>1.73</b>	<b>4.93</b>	<b>1.05</b>	<b>1.83</b>	<b>13.04</b>	<b>35.34</b>	<b>7.69</b>	<b>29.22</b>	<b>23.51</b>	<b>71.32</b>
Savannah 5-year	Low	1:1	0.19	0.19	0.57	0.57	2.71	2.71	0.81	0.81	4.28	4.28
Savannah 10-year	Low	2:1	0.39	0.78	0.51	1.02	4.19	8.38	0.2	0.4	5.29	10.58
Savannah 50-year	Low	3:1	1.82	5.46	1.25	3.75	11.22	33.66	0.71	2.13	15	45
Savannah 100-year	Low	4:1	0.2	0.8	0.1	0.4	1.73	6.92	0.13	0.52	2.16	8.64
<b>Savannah Total</b>			<b>2.6</b>	<b>7.23</b>	<b>2.43</b>	<b>5.74</b>	<b>19.85</b>	<b>51.67</b>	<b>1.85</b>	<b>3.86</b>	<b>26.73</b>	<b>68.5</b>
Forested 5-year	Low	1:1	0.21	0.21	0.04	0.04	2.14	2.14	0.1	0.1	2.49	2.49
Forested 10-year	Good	3:1	0.18	0.54	0.04	0.12	2.7	8.1	0.06	0.18	2.98	8.94
Forested 50-year	Good	4:1	0.78	3.12	0.03	0.12	7.9	31.6	0.15	0.6	8.86	35.44
Forested 100-year	Good	5:1	0.24	1.2	0.02	0.1	0.67	3.35	0.37	1.85	1.3	6.5
<b>Forested Total</b>			<b>1.41</b>	<b>5.07</b>	<b>0.13</b>	<b>0.38</b>	<b>13.41</b>	<b>45.19</b>	<b>0.68</b>	<b>2.73</b>	<b>15.63</b>	<b>53.37</b>
<b>Grand Total</b>			<b>5.74</b>	<b>17.23</b>	<b>3.61</b>	<b>7.95</b>	<b>46.3</b>	<b>132.2</b>	<b>10.22</b>	<b>35.81</b>	<b>65.87</b>	<b>193.19</b>

Additionally, the mitigation plan will address an irrigation system for tree and shrub plantings as well as success criteria of at least 80% survival on tree and shrub plantings and an 80% ground cover for herbaceous plantings. Annual monitoring reports will be submitted to the USACE documenting survival estimates and general site conditions, as well as mitigation activities, for a minimum of three years from planning.

### Conceptual Practice Field

A practice field may be needed to support the proposed 18-hole expansion, but an exact location has not been determined and is therefore not shown on the maps in this document. As envisioned, the practice field would be approximately 10-acres in size and, in the interest of

disclosing all possible impacts, the 10 acres is included in the permanent impacts of approximately 65.87 acres shown in the grand totals in Table 1. If the practice field is not constructed, or is constructed on private lands, there would be no need to mitigate the 10-acre loss of habitat. If the practice field is constructed on USACE land, it will not be constructed in an area of existing high quality woodland habitat.

## 6.0 CUMULATIVE IMPACTS

Council on Environmental Quality (CEQ) regulations stipulate that the cumulative effects analysis in an EA should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 Code of Federal Regulations 1508.7). Recent CEQ guidance in *Considering Cumulative Effects* affirms this requirement, stating that the first steps in assessing cumulative effects involves defining the scope of the other actions and their interrelationship with the proposed action. The scope must consider other projects that coincide with the location and timetable of the proposed action and other actions. Cumulative effects analysis must also evaluate the nature of interactions among these actions.

### *Past Actions:*

The 1985 Master Plan for Lewisville Lake designated the park as a prime location for recreational activities, including a golf course. An 18-hole golf course has already been constructed at Wynnewood Park. Additionally, a PEA was completed for Lewisville Lake providing substantive accounts of resource evaluation areas in the area.

### *Present Actions:*

Present actions include land classification changes for 18-acres of wildlife habitat to recreational lands. Mitigation includes creation of wildlife habitat, removal of invasive and exotic species, and planting of native species. The created habitat will be higher quality than the replated habitat.

### *Reasonably Foreseeable Actions of the Corps:*

Prepared by the USACE.

### *Reasonably Foreseeable Actions of Others:*

Increased development in the area is expected and the golf course is being constructed in a manner that won't preclude other amenities. As mentioned in the PEA “Activities List” in Section 5, there are proposed activities that would be reasonably expected to occur in the future and would affect the natural environment:

- **Bridges and Roadways:** Future Proposed Road and Bridge Actions: Wynnewood Peninsula Roadway and Bridge (City of The Colony).
- **Marinas:** Proposed Marina in Wynnewood Park (City of The Colony): Two alternative sites are under consideration. The proposed floating structures would cover approximately 15.2-acres of surface water. Proposed Marina in Hidden Cove Park - A tiered EA is currently being prepared for proposed marina development in Hidden Cove Park.

- **Parks – Enhance Amenities in Existing Recreational Areas:**
  - Eastvale Park (City of The Colony)
  - Stewart Creek Park (City of The Colony)
  - Hidden Cove Park (City of The Colony)
  - Wynnewood Park (City of The Colony)
- **Hike, Bike and Equestrian Trails:** Shoreline Hike and Bike Trail (City of The Colony): A 23 mile hike and bike trail along the shoreline from the proposed new Ridgepointe Park to Hidden Cove Park extending through Stewart Creek Park, Eastvale Park and Wynnewood Park.
- **Habitable Structures: Hotels, Lodges and Cabins**
  - Wynnewood Park (City of The Colony)
    - Hotel (440 guest rooms (unspecified number of stories), meeting rooms, banquet facilities and one or more restaurants)
    - Conference center
  - Hidden Cove Park (City of The Colony)
    - A tiered EA is currently being prepared for proposed hotel, conference center and cabins in Hidden Cove Park.

## 6.1 GEOLOGY AND SOILS

Approximately 500,000 cubic yards of soil will be moved to create the topography of the golf course. No changes in soil types are anticipated. Cumulative impacts would be minor changes in topography. Construction erosion will be stabilized over time resulting in a long-term reduction in erosion. Establishment of vegetation over a large area should result in minimal soil movement for the long-term.

## 6.2 WATERS OF THE U.S., INCLUDING WETLANDS

As stated in the PEA, there are proposed actions that would result in activities within waters of the U.S. These activities may consist of dredging, sidcasting of material, tunneling, etc. which would require Section 404 permits under the Clean Water Act. The resulting impacts to waters of the U.S. are considered minor if all the conditions of regulations, policies, and standards are met. Additionally, the proposed project would not result in impacts to waters of the U.S., and therefore when analyzed in conjunction with other proposed projects, the effects are not considered cumulatively significant.

## 6.3 WATER QUALITY

In accordance with the PEA, the implementation of proposed actions would result in temporary impacts during the construction phase of projects. Potential impacts would be minimized through the implementation of BMPs to limit soil erosion and runoff. These strategies are required as part of TCEQ’s General Construction Permits for Storm Water Discharges from Construction Activities. It is considered that the implementation of these proposed actions would limit significant adverse cumulative impacts to water quality. During construction, specific BMPs for sediment and erosion control will be in place. Specific BMPs for erosion control may consist of temporary vegetation, blankets and matting, mulch, and filter socks.

Specific BMPs for sediment control may consist of sand bags, silt fencing, rock berms, hay bales, and sediment basins. Permanent vegetated buffers and detention basins will be used to minimize soil movement over time.

#### 6.4 WILDLIFE AND FISH

The PEA states that 10 of the 38 projects listed would result in an adverse impact in the way of habitat fragmentation or degradation. It is considered that USACE property dedicated for wildlife management would serve as habitat for impacted wildlife. Additionally, wildlife and fish in the project area may relocate to adjacent habitat during construction. With the change in some land classifications, this relocation may become permanent. Sufficient habitat is available both on and surrounding the project area. Cumulative impacts are not considered to be significant if projects adhere to regulations, policies, standards and mitigation requirements. Wildlife displacement would largely be limited to a temporary displacement. Cumulatively, the golf course proposes to set aside a large land base that will be manipulated to attract a greater diversity of wildlife. Over time, this area should serve to mitigate for incremental impacts in the region by providing for a high quality place for wildlife to thrive.

#### 6.5 AQUATIC VEGETATION

Aquatic vegetation in the project area will not be altered and is not considered to be an area with significantly adverse cumulative impacts.

#### 6.6 TERRESTRIAL VEGETATION

The PEA states that 12 of 38 projects would likely result in impacts to previously undisturbed vegetation. Additionally, terrestrial vegetation in the project area will be altered. The impacts for the proposed projects are not concentrated but spread around the lake perimeter. Impacts to vegetation are not considered significant if the projects are designed in conjunction with applicable regulations, policies, standards and mitigation requirements. Cumulative impacts on vegetation are not considered significant as the quantity of affected vegetation is not considered a significant proportion of the existing vegetation.

#### 6.7 THREATENED AND ENDANGERED SPECIES

According to the PEA, there are no known federally listed threatened or endangered species known in the proximity of Lewisville Lake. In assessing current project information, the cumulative impacts of the proposed projects are not expected to create a significant adverse impact on threatened or endangered species.

#### 6.8 NOISE AND GENERAL AESTHETICS

In accordance with the PEA, proposed projects may have the potential to increase ambient noise levels in the immediate vicinity during construction. However, when analyzed together, the distance between the projects attenuates noise levels sufficiently that the combination of projects would not result in significantly high noise levels. Therefore, cumulative noise impacts would not be significant.

As stated in the PEA, the proposed projects would not be considered cumulatively significant based on the different locations of each project. It is not anticipated that cumulative aesthetic impacts would be considered significant. Additionally, vegetation planted outside of the greens and fairways for the proposed project will be native and will be maintained according to the mitigation plan therefore recreating an endemic environment consistent with the surroundings.

## 6.9 CULTURAL RESOURCES

The PEA states that 146 cultural sites exist upstream of the dam in the Lewisville Lake area, 11 of which are eligible for the NRHP. Additionally, there are seven recorded sites downstream of the dam, none of which are eligible for the NHRP. If NHRP-eligible cultural resources are identified and would be adversely affected by the proposed projects, it is recommended that the Advisory Council on Historic Preservation and the SHPO shall be consulted to evaluate alternatives for avoiding, minimizing, or mitigating adverse effects on historic properties.

## 6.10 HAZARDOUS, TOXIC AND RADIOACTIVE WASTES

The PEA states that five of the 38 sites within the Lewisville Lake area have potential to be adversely impacted by particular regulatory sites. These sites include those identified in the hazardous, toxic, and radioactive waste report within a specific radius. These sites do have corrective actions and operations that are regulated by bodies including the EPA and the TCEQ. Given that the concerns are typically site specific, the cumulative impacts of the regulated sites on proposed projects are not considered significant.

## 6.11 AIR QUALITY

It is not anticipated that the proposed project would result in cumulative air quality impacts. The City of The Colony uses electric-powered golf carts and maintenance equipment where feasible to minimize additional air pollutant emissions.

According to the PEA, most of the proposed projects would not involve air pollution. There are certain proposed projects (new roadways and bridges, marinas, parks, golf courses, and boat launching facilities) that would attract vehicles and boats which can contribute emissions. The proposed projects are not expected to exceed thresholds resulting in a cumulatively significant adverse effect as stated in the PEA.

## 6.12 RECREATION

The project would beneficially increase recreational opportunities, as stated in the 1985 Master Plan for Lewisville Lake. Additionally, many of the proposed projects would result in recreational benefits, including marinas, parks, golf courses, trails, boat launching facilities and bird watching areas. The other projects, as stated in the PEA, would not result in significant adverse cumulative impacts to recreation.

## 6.13 SOCIOECONOMICS

It is not anticipated that any of the proposed projects would have adverse impacts on any low income or minority populations. Based on currently available project information, the

cumulative impacts on the proposed projects are not anticipated to create a significant adverse impact on socioeconomic resources.

## **7.0 PUBLIC INVOLVEMENT**

A Notice of Availability (NOA) will be sent out for public notification of the review and comment period. The draft EA will be sent to the following resource agencies for review and comment in accordance with coordination requirements as set forth by the NEPA: Texas Parks and Wildlife (TPWD); United States Fish and Wildlife Service (USFWS); Environmental Protection Agency (EPA, Region 6); the State Historical Preservation Office (SHPO) and the Texas Commission on Environmental Quality (TCEQ). Comments received and the NOA are located in Appendix C (Public Coordination).

## **8.0 FINDINGS AND CONCLUSIONS**

The Proposed Alternative meets all the goals and objectives of the 1985 Master Plan for Lewisville Lake, and provides the least amount of adverse impacts to the area. The Proposed Alternative is also consistent with the PEA produced for Lewisville Lake. Because of the proposed reclassification of 18 recreational acres for 18 wildlife habitat acres, no net loss in wildlife habitat occurs.

## **9.0 REFERENCES**

Environmental Impact Statement: Operations and Maintenance of Lewisville Dam and Lake, Elm Fork, Trinity River Texas. USACE, Fort Worth District, Fort Worth Texas, 1973.

1985 Master Plan for Lewisville Lake.

Environmental Assessment for Wynnewood Park 36-hole Golf Course, prepared by the USACE on October 6, 1997.

Programmatic Environmental Assessment for Lewisville Lake, prepared by the USACE in 1999.

Appendix A  
Mitigation Plan

# **Conceptual Mitigation Plan for The Tribute, The New Course**

Prepared by:

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For:

The City of The Colony

February 16, 2007  
Revised: September 24, 2007

KHA # 067286006

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Sheet 1 of 1- Conceptual Mitigation Areas

## 1.0 Baseline Information

The City of The Colony has leased Wynnewood Park and is currently operating an 18-hole golf course (The Tribute) on a 720 acre site. The golf course is situated on approximately 70 acres of private land and 650 acres of leased Federally-owned land. The first 18 holes were constructed on the west side of the complex, and the proposed project is for 18 additional holes on the east side. This second course was considered in the initial planning phase of the first course at The Tribute.

A habitat assessment was conducted for the proposed golf course expansion area as well as on Federal lands surrounding the proposed course in anticipation of using those lands for mitigation activities. The habitat assessment revealed four major cover types:

- Savannah- predominately dominated by herbaceous species. Pioneer woody species present, but less than dominant.
- Grassland- dominated by grasses and herbaceous species. Possible to have a few scattered woody species.
- Forested- dominated by trees and woody species with a lesser presence of herbaceous species.
- Buttonbush fringe- 30- to 50-foot wide strip of unique habitat bordering the edge of the lake, dominated by buttonbush.

The habitat assessment is included as Appendix A of the attached Environmental Information Document for The Tribute, The New Course.

The proposed golf course area was divided into six land cover types resulting from changes due to grading and constructing the course.

The proposed golf course area will consist of the following six land cover types:

- Cart Path- These are the concrete paths used to convey players along a designated route around the golf course.
- Bunker- This is the area on the golf course that will be completely full of sand. All vegetation will be eliminated from these areas.
- Turf- This area will consist of the fairways, rough, and greens on the golf course. They will consist of selected grasses chosen for their playability and ability to withstand heavy use and heavy maintenance.
- Buffalo Grass- These are areas of one grass species that will surround the bunkers as well as other small areas, typically in the general location of the bunkers.
- Fringe Habitat- This is the area that surrounds the turf line of the golf course. This area is planned to be mostly low growing native herbaceous species and will be mowed occasionally.
- Wildlife Habitat- This is the area just outside the fringe habitat. This area will remain mostly undisturbed. Selective thinning of undesirable trees is planned in this area. Some of this area may receive supplemental tree plantings of native desirable species.

The 1999 Programmatic Environmental Assessment (PEA) for Lewisville Lake has established mitigation ratios based on habitat quality. A critical factor in assigning a quality assessment is the flood frequency of the area being considered. Based on elevations established in the 1999 PEA, the land cover types quantified in the habitat quality assessment were divided into the following four flood frequency zones:

- 5-year flood frequency- lands that fall below the 528’msl contour line are in the 5-year flood pool.
- 10-year flood frequency- lands that fall between the 528’msl contour line and the 530’msl contour line are in the 10-year flood pool.
- 50-year flood frequency- lands that fall between the 530’msl contour line and the 536’msl contour line are in the 50-year flood pool.
- 100-year flood frequency- lands that fall above the 536’msl contour line are in the 100-year flood pool.

The results of the habitat assessment were combined with the established flood frequency zones to assign the appropriate mitigation ratio for proposed impacts.

### 1.1. Avoidance and Minimization

Avoidance and minimization has been considered to fullest extent practicable while meeting the purpose and need of the project. The construction of the golf course will impact approximately 96-acres of United States Army Corps of Engineers’ (USACE) lands (Sheet 1 of 1). The footprint of the golf course has been manipulated to use the natural features of the land along with a view of Lewisville Lake.

Efforts will be made to not disturb the area designated in the habitat quality assessment as buttonbush fringe. Although some of these areas may be shown to be within the footprint of the golf course, they will not be altered to match the rest of the golf course habitat. Additionally, areas proposed with minor impacts that are proposed areas of fringe or wildlife habitat will be self-mitigating.

#### 1.1.1. Adverse Impacts

Adverse impacts will be mitigated at the appropriate ratios as provided in the 1999 Programmatic Environmental Assessment (PEA) for Lewisville Lake. Table 1 shows the mitigation ratios that were used for this mitigation plan.

**Table 1:** Established Mitigation Ratios for Habitat Impacts in the 1999 PEA.

Flood Frequency	Habitat Quality		
	Poor	Good	Excellent
5 Year (528' msl)	1:1	2:1	3:1
10 Year (530.8' msl)	2:1	3:1	4:1
50Year (535.2' msl)	3:1	4:1	5:1
100 Year (537' msl)	4:1	5:1	6:1

The habitat quality assessment that was completed for the land classification change qualified the habitat proposed for impacts as poor or good, and is summarized in Table 2.

**Table 2:** Existing Conditions and Mitigation Ratios on United States Army Corps of Engineers' Lands within the Proposed Golf Course Expansion Area.

Cover Type and Flood Frequency	Habitat Quality	Mitigation Ratio
Buttonbush Fringe 5-year	Low	1:1
Grassland 5-year	Low	1:1
Grassland 10-year	Low	2:1
Grassland 50-year	Low	3:1
Grassland 100-year	Low	4:1
Savannah 5-year	Low	1:1
Savannah 10-year	Low	2:1
Savannah 50-year	Low	3:1
Savannah 100-year	Low	4:1
Forested 5-year	Low	1:1
Forested 10-year	Good	3:1
Forested 50-year	Good	4:1
Forested 100-year	Good	5:1

#### *1.1.1.1. Temporary*

Temporary adverse impacts should be limited to water quality issues during construction and the removal of the existing riparian buffer area. Water quality issues will be dealt with utilizing the best management practices provided by the Texas Commission on Environmental Quality in the 401 water quality certification program. The riparian area is proposed to be enhanced by stabilizing the active flood plain and by establishing forested and upland riparian buffers with a higher functional value than is currently present.

Minor impacts may be proposed to areas that will be classified as fringe or wildlife habitat on the course. Approximately 23 acres of proposed fringe habitat has been identified on the course that may be impacted as discussed above. Minor impacts may be proposed to approximately 17.5 acres of land that will be considered wildlife habitat on the course. These impacts are temporary and will likely result in an increase in habitat value. Many more acres of existing wildlife habitat surround the golf course and will likely be used for mitigation enhancement activities (Sheet 1 of 1).

#### *1.1.1.2. Permanent*

Impacts from the golf course expansion will be offset by mitigation efforts. The permanent affect to the habitat will be an increase in functional value. The proposed golf course will permanently impact approximately 56 acres of existing habitat. Mitigation is proposed on approximately 153 acres of USACE lands that are either on or surrounding the golf course. This provides a net gain of 97 acres of habitat with an increased wildlife value.

Table 3 summarizes the proposed adverse impacts. Across all proposed land cover type changes a total of 65.87 acres will be adversely impacted. By assigning the appropriate mitigation ratio, Table 3 shows that 193.19 will need to be mitigated.

**Table 3: Summary of Impacts and Required Mitigation in Acres.**

Habitat Type and Flood Frequency	Habitat Quality	Mitigation Ratio	Impacts and Required Mitigation by Type of Facility Development								Totals by Habitat Type	
			Cart Path		Bunkers		Turf		Buffalo Grass			
			Impact Area (ac)	Required Mitigation (ac)	Impact Area (ac)	Required Mitigation (ac)	Impact Area (ac)	Required Mitigation (ac)	Impact Area (ac)	Required Mitigation (ac)	Impact Acres	Mitigation Acres
Grassland 5-year	Low	1:1	0.12	0.12	0.5	0.5	2.23	2.23	0.33	0.33	3.18	3.18
Grassland 10-year	Low	2:1	0.15	0.3	0.32	0.64	2.65	5.3	0.19	0.38	3.31	6.62
Grassland 50-year	Low	3:1	1.33	3.99	0.23	0.69	4.83	14.49	0.17	0.51	6.56	19.68
Grassland 100-year	Low	4:1	0.13	0.52	0	0	3.33*	13.32*	7.00*	28.00*	10.46	41.84
<b>Grassland Total</b>			<b>1.73</b>	<b>4.93</b>	<b>1.05</b>	<b>1.83</b>	<b>13.04</b>	<b>35.34</b>	<b>7.69</b>	<b>29.22</b>	<b>23.51</b>	<b>71.32</b>
Savannah 5-year	Low	1:1	0.19	0.19	0.57	0.57	2.71	2.71	0.81	0.81	4.28	4.28
Savannah 10-year	Low	2:1	0.39	0.78	0.51	1.02	4.19	8.38	0.2	0.4	5.29	10.58
Savannah 50-year	Low	3:1	1.82	5.46	1.25	3.75	11.22	33.66	0.71	2.13	15	45
Savannah 100-year	Low	4:1	0.2	0.8	0.1	0.4	1.73	6.92	0.13	0.52	2.16	8.64
<b>Savannah Total</b>			<b>2.6</b>	<b>7.23</b>	<b>2.43</b>	<b>5.74</b>	<b>19.85</b>	<b>51.67</b>	<b>1.85</b>	<b>3.86</b>	<b>26.73</b>	<b>68.5</b>
Forested 5-year	Low	1:1	0.21	0.21	0.04	0.04	2.14	2.14	0.1	0.1	2.49	2.49
Forested 10-year	Good	3:1	0.18	0.54	0.04	0.12	2.7	8.1	0.06	0.18	2.98	8.94
Forested 50-year	Good	4:1	0.78	3.12	0.03	0.12	7.9	31.6	0.15	0.6	8.86	35.44
Forested 100-year	Good	5:1	0.24	1.2	0.02	0.1	0.67	3.35	0.37	1.85	1.3	6.5
<b>Forested Total</b>			<b>1.41</b>	<b>5.07</b>	<b>0.13</b>	<b>0.38</b>	<b>13.41</b>	<b>45.19</b>	<b>0.68</b>	<b>2.73</b>	<b>15.63</b>	<b>53.37</b>
<b>Grand Total</b>			<b>5.74</b>	<b>17.23</b>	<b>3.61</b>	<b>7.95</b>	<b>46.3</b>	<b>132.2</b>	<b>10.22</b>	<b>35.81</b>	<b>65.87</b>	<b>193.19</b>

\*Approximately 3 acres of turf and 7 acres of buffalo grass have been included for the practice field. Due to the conceptual nature of this plan, the 4:1 mitigation ratio was assumed.

## 1.2. Mitigation Area

Mitigation activities will occur both on the proposed golf course and off-site but adjacent to the proposed golf course. Off-site mitigation will be limited to USACE land adjacent to the proposed golf course (Sheet 1 of 1).

The City of The Colony is continuing to complete this mitigation plan for implementation on USACE lands that are currently leased to the City. The final mitigation plan will include planting of native vegetation that is adapted to existing soil types and will most likely include native prairie plantings interspersed with mottes of woody vegetation. Some of the mitigation

plantings will attempt to connect disjunct wildlife habitat while complementing the design of the golf course. It is anticipated that the final mitigation plan will be furnished to the USACE prior to initiation of construction and will be implemented in phases over a three-year period.

### 1.3. Preliminary Jurisdictional Determination

There are no proposed impacts to waters of the US.

### 1.4. Existing Liens and Encumbrances

[To be identified by USACE]

## 2.0 Site Selection

### 2.1. Alternatives

Preference will be given for on-site mitigation plantings. Once those resources are exhausted, off-site adjacent land will be identified. Mitigation is proposed on the golf course to the maximum extent practicable. Adjacent USACE land will be used for additional mitigation area.

### 2.2. Compatibility with Existing and Future Conditions

This project is consistent with the Master Plan for Lewisville Lake.

### 2.3. Contributions to Aquatic Resources

The preferred alternative should not have impacts on aquatic resources.

## 3.0 Goals and Objectives

The goals and objectives of the mitigation plan are to compensate for unavoidable losses of habitat. Specifically, this mitigation plan identifies areas to enhance the habitat value of the impacted areas, mitigating for the loss of approximately 56 acres of habitat. A diversity of habitat is proposed as discussed in Section 1.2 above.

## 4.0 Mitigation Work Plan

This remains in the conceptual stage however, it is anticipated that the final mitigation plan will be furnished to the USACE prior to initiation of construction and will be implemented in phases over a three-year period. The work plan will consist of plantings of native trees, shrubs and grasses in areas, and on soil types that will ensure the best chance of long-term survival. Typical tree and shrub plantings on past mitigation actions on USACE land at Lewisville Lake required the planting of five to ten gallon container grown nursery stock at densities of 50 to 100 stems per acre. Preference will be given to the replication of woody mottes and native grasses representative of a savannah habitat type. Native grass seed mixtures are specified to provide a reasonable replication of a biologically diverse native prairie. Some of these plantings would take place in the fringe habitats adjacent to proposed fairways while the majority of plantings

would occur in areas of Wynnewood Park not slated for development. Although wetlands and riparian habitats would not be adversely affected by the proposed action, a mitigation plan incorporating wetland features or riparian zone improvements would be acceptable.

## **5.0 Success Criteria**

### **5.1. Planting Success Criteria**

The applicant is proposing the following as potential metrics for planting success. Tree and shrub planting will be irrigated for an initial three-year establishment period.

#### *5.1.1. Trees and Shrubs*

Plantings of trees and shrubs will be considered successful when the following criteria are met:

A minimum three-year overall 80% survival rate, or replant as needed to achieve at least that survival rate for three years following the most recent remedial planting. Survival rates will be based on the initial number of required stems.

The three most dominant species of trees should be native species typically dominant in a natural situation in the area.

Non-native, noxious, or invasive species should not constitute more than one-third of the areas planted with trees and shrubs.

#### *5.1.2 Herbaceous*

Plantings of native grasses and forbs in designated areas will be considered successful when the following criteria are met:

Mitigation areas exhibit 80% ground cover in planted areas two years after planting or replant until 80% ground cover is achieved two years after the most recent remedial planting.

None of the three most dominant species are non-native, noxious, or invasive species in the planted areas.

## **6.0 Compliance with Other Legal Requirements**

### **6.1. Threatened or Endangered Species**

Region Two of the US Fish and Wildlife Service lists the following federally listed species for Denton County:

- bald eagle (*Haliaeetus leucocephalus*)\*.
- whooping crane (*Grus Americana*), endangered.
- least tern (*Sterna antillarum*) endangered.
- piping Plover (*Charadrius melodus*), endangered and threatened.

\*The bald eagle has been removed from the threatened and endangered list, however it remains protected under the Bald and Golden Eagle Protection Act.

There is no critical habitat designated for these species in Denton County. Evidence of the presence of these birds or suitable habitat was not observed within the project limits. These bird species are considered migratory. The migration patterns of these species should not be affected by this project. Measures will be taken to avoid harm to migratory birds, their nests, eggs, or young if they are observed in the project area.

## 6.2. Archeology

Based on previous archeological studies, it was determined this project should have no impact on cultural resources. If buried cultural materials are encountered during construction, work should stop in that area immediately and the Fort Worth District of the US Army Corps of Engineers should be contacted.

Construction documents will include directions for the construction contractor to stop work in the area and contact Mr. Scott (USACE Archeologist) in the event that an accidental discovery is made.

## 7.0 Long-Term Management and Monitoring

### 7.1. Operation and Management Plan

Once established, this mitigation area should be self-sustaining. However, routine visits to the mitigation area will be conducted to make observations relative to compliance with permit conditions. Necessary actions, in agreement with the contingency plan, outlined in the Tribute mitigation plan will be implemented to maintain an acceptable level of ecological performance.

Vegetation management will be directed at the removal of noxious plants for the benefit of desirable species and in support of the goals and objectives of the mitigation plan. Control of undesirable vegetation may include minimal impact techniques which could include hand clearing or chemical treatment.

Routine visits by a trained designated environmental scientist will be conducted to monitor the results of erosion control activities and general assessment of plant health. These visits may result in suggestions for maintenance activities including but not limited to removal of temporary devices, such as silt fencing and tree stakes. One or more transects through the areas will be established and monitored for changes in plant and wildlife species. Monitoring reports will indicate survivorship of endemic species and invasive exotic encroachment.

### 7.2. Preliminary Schedule

At the time of the writing of this document it is anticipated that construction in the mitigation area will commence in early 2008. Mitigation construction elements will be installed concurrent with the construction of the project. Mitigation plantings will follow as soon as practicable upon completion of construction. The schedule for planting may be dependant on time of year and

recent weather conditions. The implementation of the mitigation plan will be phased over a three-year period.

### 7.3. Monitoring Plan

Permanent plots will be established within the mitigation area at locations that should provide a representative sampling of the different communities present, including but not limited to; upland buffers, riparian buffers, and aquatic features. These plots will be used to assess the development of the vegetation, soils, and hydrology within the mitigation area. These permanent plots will also be used to develop a photographic record of the progression of mitigation area toward its intended ecological function.

#### 7.3.1. *Vegetation*

Vegetative communities will initially be mapped based on the planting plan. Inventories of planted species along with volunteer species will be conducted at the permanently established plots and other locations as determined necessary to provide a representative sample of the vegetative community.

#### 7.3.2. *Soils*

Soil conditions are not expected to change significantly or become hydric in the mitigation area. Observations will be directed at stabilization and erosion reduction. Where appropriate, observations for soil accumulation and stabilization will be made as it relates to vegetation establishment.

### 7.4. Compliance Reporting

A reporting program will be initiated to provide information to the USACE regarding; monitoring results, mitigation success, and general compliance with the terms and conditions of the anticipated permit.

#### 7.4.1. *Responsible Party*

The City of The Colony has designated Kimley-Horn and Associates, Inc. as the responsible party for coordinating with the Fort Worth District, USACE, concerning written compliance reports.

#### 7.4.2. *Notification of Final Schedule*

The USACE will be notified of the final schedule for implementing and completing each element of the mitigation plan at least 30 days prior to the start of soil-disturbing activities.

#### 7.4.3. *Notification of Pre-construction Meeting*

The USACE will be notified of the date of the pre-construction meeting between the appropriate contractor(s) and the responsible party to explain the terms and conditions of the permit,

provisions of the mitigation plan, and the contractor's responsibility regarding compliance with the anticipated permit. Within two weeks following the meeting, the responsible party should confirm to the USACE that the meeting was held.

#### *7.4.4. Annual Written Compliance Reports*

Written compliance reports to the USACE will be submitted annually each year. Generally, these reports will be due to the USACE on October 1 of each year; however, when site conditions delay Fall survival counts, reports may be delayed appropriately. Compliance reports will be submitted to the USACE even if no work was conducted during the reporting period. Compliance reports will be submitted to the USACE until the USACE verifies that the permittee has successfully completed all mitigation plan components, the mitigation area has met the performance standards, including planting success requirements included in the Tribute mitigation plan, and authorized construction activities have either been completed or deleted from the project. Each compliance report will normally include, at a minimum, the following:

- Changes in the construction or mitigation plan implementation schedule,
- Summary of activities that occurred during the reporting period, including demonstration of the permittee's compliance with the anticipated permit conditions, and documentation of the progress and/or completion of authorized work, including mitigation plan activities in meeting performance standards and planting success,
- Description of pre-construction (baseline) conditions in the project area, including the mitigation area, in the initial compliance report,
- Documentation that the permittee is in compliance with all permit conditions,
- Documentation of the progress and/or completion of all authorized work, including mitigation plan activities,
- Description of the project's actual impact to waters of the US,
- Documentation that disturbed areas, including temporary disturbances are revegetating adequately and are not suffering erosion damage,
- Documentation that adjacent aquatic areas are adequately protected from construction activities,
- Photographs, maps, or drawings to support the written components of the mitigation plan.

## **8.0 Contingency Plan**

In the event that the target success criteria outlined in the Tribute mitigation plan are not achieved in the required timeframe, USACE consultation will be sought. In this unlikely event, the previous functional assessment will be revisited and alternatives studied to make changes to the mitigation plan to achieve an acceptable overall ecological function. If it is determined and agreed to by the USACE and the City of The Colony, options for purchasing mitigation bank credits may be used as a last resort to achieve the overall goal of no net loss of resources.

## **9.0 Project Success/Responsible Parties**

The City of The Colony has retained Kimley-Horn and Associates, Inc. with a staff of Professional Wetland Scientists and Engineers, many of whom are trained in fluvial geomorphology, stream restoration, and mitigation plantings. The point of contact for the

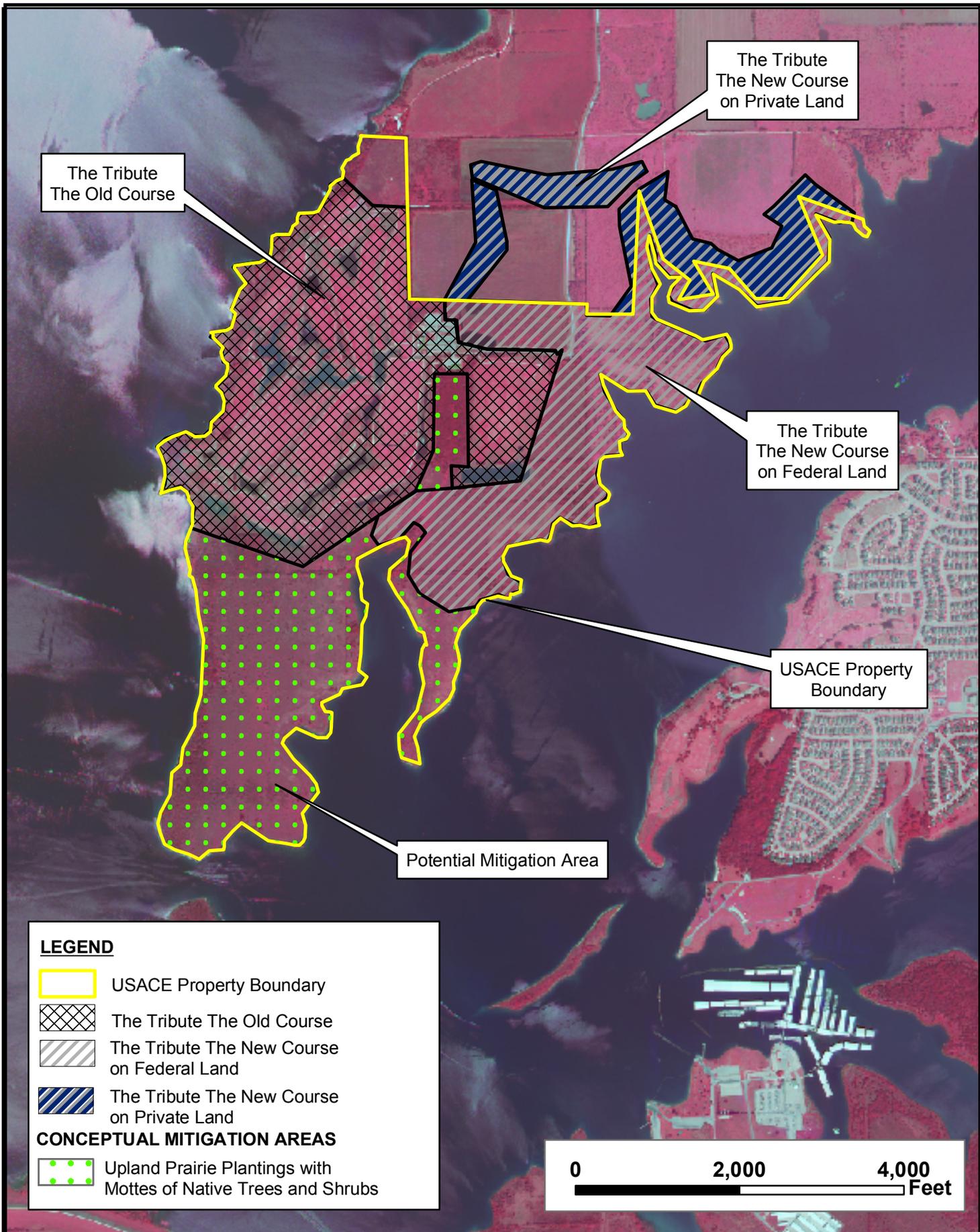
Tribute mitigation plan will be Larry Clendenen, CF, PWS. He will be responsible for overseeing project construction and mitigation plan implementation; including planting, monitoring, and reporting. The City of The Colony will be responsible for accomplishing, maintaining, monitoring, and managing short and long-term mitigation plan provisions through Kimley-Horn and Associates, Inc.

## **10.0 Site Protection**

Presently, mitigation activities include on-site minimization for permanent unavoidable adverse impacts habitat areas along the lake. The Tribute mitigation area will be maintained as described above and in compliance with the anticipated permit and all special conditions of the Department of Army authorization. The area will not be disturbed except by activities that would not adversely affect the intended extent, condition, and function of the mitigation area or those activities specifically provided for in the anticipated permit. Conveyance of interest in the Tribute mitigation area will adhere to these protections.

## **11.0 Financial Assurances**

The City of The Colony will be responsible for providing and managing the financial assurances and contingency funds for the Tribute mitigation plan. Funds will be adequate to maintain the mitigation project until it becomes self-sustaining. If the project is not self-sustaining at the time the USACE determines monitoring obligations have been met, the City of The Colony will provide funds to cover contingency actions to maintain performance standards. The City of The Colony will provide for long-term management, monitoring, and protection of the Tribute mitigation project.



The Tribute  
The Old Course

The Tribute  
The New Course  
on Private Land

The Tribute  
The New Course  
on Federal Land

USACE Property  
Boundary

Potential Mitigation Area

**LEGEND**

-  USACE Property Boundary
-  The Tribute The Old Course
-  The Tribute The New Course on Federal Land
-  The Tribute The New Course on Private Land

**CONCEPTUAL MITIGATION AREAS**

-  Upland Prairie Plantings with Mottes of Native Trees and Shrubs



<b>1</b>	SHEET	DATE: 09/24/2007
		DESIGN:
		DRAWN: MEW
		CHECKED: LDC
	OF 1 SHEET	KHA NO.: 067286006

**Tribute Golf Course  
The New Course**

Conceptual Mitigation Areas  
(2004 NAIP DOQQ base data)



		Kimley-Horn and Associates, Inc.	
		No.	Revision

## Appendix B

### Habitat Quality Assessment

**Habitat Quality Assessment of  
United States Army Corps of Engineers  
Property, Wynnewood Peninsula, Lake Lewisville,  
For The Tribute, The New Course**

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For:

The City of The Colony

February 16, 2007

KHA # 067286006

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- Sheet 2 of 4– Existing Wildlife Habitat which is Proposed to be Reclassified as Recreation Area
- Sheet 3 of 4 – Existing Recreation Area which is Proposed to be Reclassified as Wildlife Habitat
- Sheet 4 of 4– Land Cover Types and WHAP Plots
- Components
- Site Photographs

## 1.0 Introduction

The purpose of this study was to complete analyses to determine the quality of wildlife habitat existing within the property boundary of the United States Army Corps of Engineers (USACE) on the Wynnewood Peninsula, in The Colony, Denton County, Texas. The Tribute Golf Course is on property leased from the USACE on the shores of Lake Lewisville. The golf course proposes to expand its existing 18 holes to 36 holes offering two separate courses. The study area for this project is the USACE land on the Wynnewood Peninsula and is to be impacted by the proposed golf course expansion (Sheet 1 of 4).

The USACE has a system of land classifications for their property around Lake Lewisville. Property falls into one of three classes: recreation, wildlife habitat, and project operations. The USACE also has a no net loss policy for these classifications. A portion of the USACE's wildlife habitat land will be impacted by the proposed golf course expansion. For this to happen it is necessary to change the classification of this area from wildlife habitat to recreation area. In order to maintain the USACE's acreages of wildlife habitat and recreation area, a land use exchange is proposed resulting in no net loss of current land classifications.

To show that the land that is being changed is equal, not only in size, but also in habitat quality it is necessary to quantify the wildlife habitat that exists within the study area. Previously, an Environmental Assessment (EA) was written to address the impacts of mowing and underbrushing activities on Federal land and to compare wildlife habitat value of the USACE property around Lake Lewisville and Lake Grapevine. In that EA the USACE used the Texas Parks and Wildlife Department's Wildlife Habitat Appraisal Procedure (WHAP) to evaluate the areas around the lake. This habitat assessment tool provides a qualitative evaluation of wildlife habitat. This procedure requires minimal resources. Its methods are derived to give credit for vegetation composition, structure and physiognomy.

The mowing and underbrushing EA separated cover types into three classes: grassland, savannah, and forested. In an effort to remain consistent with the work done in the past, the same appraisal procedure to quantify and qualify the habitat that surrounds The Tribute Golf Course was used. For the assessment of the study area a new cover type was added, buttonbush fringe. This was done to account for the thin strip of unique habitat that borders the lake. Each cover type was sampled both above and below the 528-foot contour line. Land that falls below the 528 elevation contour is considered to be poor quality habitat regardless of score determined by the WHAP. The 528-foot contour line designates the 5-year flood pool of the lake.

Currently 317-acres of Federal land in Wynnewood Park is undeveloped and currently classified as recreational area or wildlife habitat. The proposed expansion of The Tribute Golf Course will impact 99-acres of that property. The WHAP scores set forth in this report, along with detailed impacts proposed for the new golf course will be used to develop a mitigation plan for the unavoidable impacts to wildlife habitat as a result of the proposed golf course expansion.

The WHAP plots were placed in three areas of interest: existing wildlife habitat which is proposed to be reclassified as recreation area, existing recreation area which is proposed to

be reclassified as wildlife habitat, and existing recreation area which is proposed to remain recreation area. Sampling these three areas resulted in an assessment of the existing habitat for the study area. This provided a baseline for the calculation of compensatory mitigation for the unavoidable impacts to existing wildlife habitat resulting from the proposed expansion of the golf course.

## **2.0 Methods:**

The study area was delineated into four land cover classes by digitizing cover types over recent aerial photography in ArcGIS. Sheet 1 of 4 shows the land cover classes for the USACE lands proposed for the golf course expansion, both above and below the 528-foot contour line. Sheet 2 of 4 shows the land cover classes for the existing wildlife habitat which is proposed to be reclassified as recreation area, both above and below the 528-foot contour line. Sheet 3 of 4 shows the land cover classes for the existing recreation area which is proposed to be reclassified as wildlife habitat, both above and below the 528-foot contour line. Photographs were taken during the site visits of typical condition for each of the four cover types. These photographs are attached at the back of this report.

The WHAP plots were placed within each cover type in each of the three areas of interest using ArcGIS. The WHAP plot locations can be seen on Sheet 4 of 4. Seven components were scored for each of the WHAP plots. Component 1 gives points for Site Potential based on soil characteristics. Component 2 gives points for Temporal Development of Existing Successional Stage, based on size and age of existing timber or habitat type. Component 3 gives points for Uniqueness and Relative Abundance based on the value of the area for wildlife and how abundant it is in the area. Component 4 gives point for Vegetation Species Diversity and is broken into two criteria. Criteria A gives points based on the number of different woody species. Criteria B gives points based on the total number of woody species. Component 5 gives points for Vertical Vegetation Stratification, based on the presence or absence of three different strata. Component 6 gives points for Additional Structural Diversity, based on the presence or absence of different naturally occurring structures. Component 7 gives points for the Condition of Existing Vegetation and is broken into two criteria. Criteria A gives points for utilization of woody vegetation and is based on the visible evidence of plant utilization. Criteria B gives points for availability of herbaceous vegetation, based on the number of different herbaceous species. Details of the WHAP components scored in the field are attached to the back of this report.

Component points were totaled for each habitat type within each of the three areas of interest. This total was divided by the number of plots within that habitat type, within each area of interest. This gives the average habitat quality score for that land cover type within that area of interest. The average habitat quality scores were multiplied by the area of the cover type within that area of interest to calculate Habitat Units (HU).

For the components used in this habitat assessment, the lowest possible score for a WHAP plot is 3, and the highest possible score is 100. In order to separate the habitat types into poor, good and excellent habitat, the scores were divided into three equal ranges. The low quality habitat scores ranged from 3 to 35. Good quality habitat ranged from 36 to 67.

Excellent quality habitat scores ranged from 68 to 100. These designations will aid in determining mitigation ratios for unavoidable impacts to existing wildlife habitat.

### 3.0 Results:

#### 3.1. Field Data

Twenty-four WHAP plots were conducted over the four cover types in the three different areas of interest. Tables 1 through 12 show the component scores found in the field for each cover type in each area of interest. Details of each component are attached at the back of this report.

**Table 1:** WHAP scores for the Savannah Habitat in the Existing Wildlife Habitat which is Proposed to be Reclassified as Recreation Area.

Plot Number	Component Points									TOTAL
	1	2	3	4		5	6	7		
				A	B			A	B	
19	7	5	5	2	1	3	3	3	5	34
23	7	5	5	3	1	3	3	3	5	35
										<b>69</b>

Average Habitat Quality Score for all sites within this cover type = Component Points/Number of sites x1/100  
 $69/2=34.5*1/100=0.345$

**Table 2:** WHAP scores for the Grassland Habitat in the Existing Wildlife Habitat which is Proposed to be Reclassified as Recreation Area.

Plot Number	Component Points									TOTAL
	1	2	3	4		5	6	7		
				A	B			A	B	
20	7	5	5	2	1	3	3	3	5	34
22	7	5	5	1	1	3	3	3	5	33
										<b>67</b>

Average Habitat Quality Score for all sites within this cover type = Component Points/Number of sites x1/100  
 $67/2=33.5*1/100=0.335$

**Table 3:** WHAP scores for the Forested Habitat in the Existing Wildlife Habitat which is Proposed to be Reclassified as Recreation Area.

Plot Number	Component Points									TOTAL
	1	2	3	4		5	6	7		
				A	B			A	B	
18	7	6	10	6	3	4	3	3	3	45
24	7	6	10	4	3	4	3	3	3	43
										<b>88</b>

Average Habitat Quality Score for all sites within this cover type = Component Points/Number of sites x1/100  
 $88/2=44*1/100=0.44$

**Table 4:** WHAP scores for the Buttonbush Fringe Habitat in the Existing Wildlife Habitat which is Proposed to be Reclassified as Recreation Area.

Plot Number	Component Points									TOTAL
	1	2	3	4		5	6	7		
				A	B			A	B	
21	12	6	10	1	1	3	3	3	3	42
										<b>42</b>

Average Habitat Quality Score for all sites within this cover type = Component Points/Number of sites x1/100  
 $42/1=42*1/100=0.42$

**Table 5:** WHAP scores for the Savannah habitat in the Existing Recreation Area which is Proposed to be Reclassified as Wildlife Habitat.

Plot Number	Component Points									TOTAL
	1	2	3	4		5	6	7		
				A	B			A	B	
6	7	5	5	3	1	3	3	3	5	35
10	7	5	5	5	3	4	3	3	5	40
										<b>75</b>

Average Habitat Quality Score for all sites within this cover type = Component Points/Number of sites x1/100  
 $75/2=37.5*1/100=0.375$

**Table 6:** WHAP scores for the Grassland habitat in the Existing Recreation Area which is Proposed to be Reclassified as Wildlife Habitat.

Plot Number	Component Points									TOTAL
	1	2	3	4		5	6	7		
				A	B			A	B	
7	7	5	5	5	3	3	3	3	5	39
8	7	5	5	4	1	3	3	3	5	36
										<b>75</b>

Average Habitat Quality Score for all sites within this cover type = Component Points/Number of sites x1/100  
 $75/2=37.5*1/100=0.375$

**Table 7:** WHAP scores for the Forested habitat in the Existing Recreation Area which is Proposed to be Reclassified as Wildlife Habitat.

Plot Number	Component Points									TOTAL
	1	2	3	4		5	6	7		
				A	B			A	B	
1	7	12	10	6	3	4	5	3	3	53
5	7	12	10	5	3	5	5	3	3	53
										<b>106</b>

Average Habitat Quality Score for all sites within this cover type = Component Points/Number of sites x1/100  
 $106/2=53*1/100=0.53$

**Table 8:** WHAP scores for the Buttonbush Fringe Habitat in the Existing Recreation Area which is Proposed to be Reclassified as Wildlife Habitat.

Plot Number	Component Points									TOTAL
	1	2	3	4		5	6	7		
				A	B			A	B	
3	12	6	10	4	1	4	3	3	3	46
										<b>46</b>

Average Habitat Quality Score for all sites within this cover type = Component Points/Number of sites x1/100  
 $46/1=46*1/100=0.46$

**Table 9:** WHAP scores for the Savannah Habitat in the Existing Recreation Area which is Proposed to Remain as Recreation Area.

Plot Number	Component Points									TOTAL
	1	2	3	4		5	6	7		
				A	B			A	B	
4	7	5	5	6	3	4	3	5	3	41
12	7	8	5	7	3	4	3	3	3	43
17	7	5	5	5	3	4	3	3	5	40
										<b>124</b>

Average Habitat Quality Score for all sites within this cover type = Component Points/Number of sites x1/100  
 $124/3=41.33*1/100=0.413$

**Table 10:** WHAP scores for the Grassland Habitat in the Existing Recreation Area which is Proposed to Remain as Recreation Area.

Plot Number	Component Points									TOTAL
	1	2	3	4		5	6	7		
				A	B			A	B	
9	7	5	5	5	3	3	3	3	5	39
15	7	5	5	1	1	3	1	5	5	33
16	7	5	5	0	0	3	1	5	5	31
										<b>103</b>

Average Habitat Quality Score for all sites within this cover type = Component Points/Number of sites x1/100  
 $103/3=34.33*1/100=0.343$

**Table 11:** WHAP scores for the Forested Habitat in the Existing Recreation Area which is Proposed to Remain as Recreation Area.

Plot Number	Component Points									TOTAL
	1	2	3	4		5	6	7		
				A	B			A	B	
2	7	12	10	5	3	5	5	3	12	62
11	7	12	10	8	3	4	3	3	12	62
14	7	6	10	5	3	4	5	3	3	46
										<b>170</b>

Average Habitat Quality Score for all sites within this cover type = Component Points/Number of sites x1/100  
 $170/3=56.67*1/100=0.567$

**Table 12:** WHAP scores for the Buttonbush Fringe Habitat in the Existing Recreation Area which is Proposed to Remain as Recreation Area.

Plot Number	Component Points									TOTAL
	1	2	3	4		5	6	7		
				A	B			A	B	
13	12	6	10	5	3	3	3	3	5	50
										<b>50</b>

Average Habitat Quality Score for all sites within this cover type = Component Points/Number of sites x1/100  
 $50/1=50*1/100=0.50$

### 3.2. Calculation of Habitat Quality

Table 13 shows the average habitat quality score for each cover type within the different areas of interest. This table also shows the overall average habitat quality score for each area.

**Table 13:** Combined WHAP scores for the three different areas.

	Wildlife Habitat which is Proposed to be Reclassified as Recreation Area	Recreation Area which is Proposed to be Reclassified as Wildlife Habitat	Recreation Area which is Proposed to Remain as Recreation Area
Savannah	0.345	0.375	0.413
Grassland	0.335	0.375	0.343
Forested	0.44	0.53	0.567
Buttonbush Fringe	0.42	0.46	0.50
<b>Average</b>	<b>0.385</b>	<b>0.435</b>	<b>0.456</b>

Tables 14 through 16 show the calculated habitat units for each cover type within each area of interest.

**Table 14:** Habitat Units for the Existing Wildlife Habitat which is Proposed to be Reclassified as Recreation Area.

	WHAP Score	Area (ac)	Habitat Units
Savannah	0.345	8.66	2.99
Grassland	0.335	3.43	1.15
Forested	0.44	3.55	1.56
Buttonbush Fringe	0.42	2.41	1.01
<b>Totals</b>	<b>1.54</b>	<b>18.05</b>	<b>6.71</b>

**Table 15:** Habitat Units for the Existing Recreation Area which is Proposed to be Reclassified as Wildlife Habitat.

	WHAP Score	Area (ac)	Habitat Units
Savannah	0.375	2.42	0.91
Grassland	0.375	11.54	4.33
Forested	0.53	1.53	0.81
Buttonbush Fringe	0.46	2.73	1.15
<b>Totals</b>	<b>1.74</b>	<b>18.22</b>	<b>7.2</b>

**Table 16:** Habitat Units for the Existing Recreation Area which is Proposed to Remain as Recreation Area.

	WHAP Score	Area (ac)	Habitat Units
Savannah	0.413	101.14	41.77
Grassland	0.343	88.13	30.23
Forested	0.567	78.07	44.27
Buttonbush Fringe	0.50	14.13	7.07
<b>Totals</b>	<b>1.86</b>	<b>281.47</b>	<b>123.34</b>

Tables 17 through 19 show the acres of poor, good, or excellent quality habitat for each cover type within each area of interest.

**Table 17:** Habitat rating for the Existing Wildlife Habitat which is Proposed to be Reclassified as Recreation Area.

	Poor Quality Habitat (acres)	Good Quality Habitat (acres)	Excellent Quality Habitat (acres)
Savanna	1.93	0	0
Savanna(below 528)	6.73	0	0
Grassland	0.30	0	0
Grassland(below 528)	3.13	0	0
Forested	0	2.30	0
Forest(below 528)	1.25	0	0
Buttonbush Fringe(below 528)	2.41	0	0
<b>Totals</b>	<b>15.75</b>	<b>2.30</b>	<b>0</b>

**Table 18:** Habitat rating for the Existing Recreation Area which is Proposed to be Reclassified as Wildlife Habitat.

	<b>Poor Quality Habitat (acres)</b>	<b>Good Quality Habitat (acres)</b>	<b>Excellent Quality Habitat (acres)</b>
Savanna	0	0.56	0
Savanna(below 528)	1.86	0	0
Grassland	0	0.76	0
Grassland (below 528)	10.77	0	0
Forest		0.44	0
Forest(below 528)	1.09	0	0
Buttonbush Fringe(below 528)	2.74	0	0
<b>Totals</b>	<b>16.46</b>	<b>1.76</b>	<b>0</b>

**Table 19:** Habitat rating for the Existing Recreation Area which is Proposed to Remain as Recreation Area.

	<b>Poor Quality Habitat (acres)</b>	<b>Good Quality Habitat (acres)</b>	<b>Excellent Quality Habitat (acres)</b>
Savanna	0	84.30	0
Savanna(below 528)	17.14	0	0
Grassland	52.41	0	0
Grassland (below 528)	35.72	0	0
Forested		42.98	0
Forest(below 528)	35.09	0	0
Buttonbush Fringe(below 528)	14.13	0	0
<b>Totals</b>	<b>154.49</b>	<b>127.28</b>	<b>0</b>

#### **4.0 Conclusion:**

The existing recreation area which is proposed to remain as recreation area had the highest average habitat quality scores according to WHAP. This area also had the highest amount of habitat units.

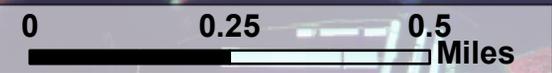
The existing recreation area which is proposed to be reclassified as wildlife habitat and the existing wildlife habitat which is proposed to be reclassified as recreation area had very similar average habitat quality scores. The existing recreation area which is proposed to be reclassified as wildlife habitat scored slightly higher than the existing wildlife habitat which is proposed to be reclassified as recreation area. After calculating HUs, the existing wildlife habitat which is proposed to be reclassified as recreation area has a slightly lower total of HUs than does the existing recreation area which is proposed to be reclassified as wildlife habitat. After classifying the habitat into poor, good, and excellent quality habitat, the existing wildlife habitat which is proposed to be reclassified as recreation area has 2.3-acres of good habitat, and the existing recreation area which is proposed to be reclassified as wildlife habitat has 1.76-acres of good habitat. This is a difference of slightly more than one-half acre (0.54). The remaining areas in the existing wildlife habitat which is proposed to be reclassified as recreation area and existing recreation area which is proposed to be reclassified as wildlife habitat are all poor quality habitat.

The two areas considered for the land use classification change are of equal size. It has also been shown through the habitat assessment that the two areas have almost identical habitat value. The existing recreation area which is proposed to be reclassified as wildlife habitat has a slightly higher average habitat quality score, and a slightly larger amount of habitat units. This reclassification of land use should result in no net loss of habitat area or habitat value.

# Legend

-  buttonbush fringe
-  grassland below 528' msl
-  grassland
-  savannah below 528' msl
-  savannah
-  forested below 528' msl
-  forested

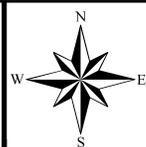
**Study Area**



<b>1</b>	SHEET	DATE: 10/31/2006
		DESIGN:
		DRAWN: GDM
		CHECKED: LDC
	OF 4 SHEETS	KHA NO.: 068157001

Study Area

Tribute  
Golf Course  
Expansion



		Kimley-Horn and Associates, Inc.	
No.	Revision	By	Date

# Legend

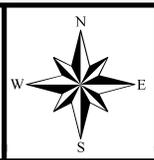
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-  grassland below 528' msl
-  grassland
-  savannah below 528' msl
-  savannah
-  forested below 528' msl
-  forested



SHEET	DATE: 10/31/2006
<b>2</b>	DESIGN:
	DRAWN: GDM
	CHECKED:
	KHA NO.: 067286006
OF 4 SHEETS	

Existing Wildlife Habitat  
which is Proposed to  
be Reclassified as  
Recreation Area

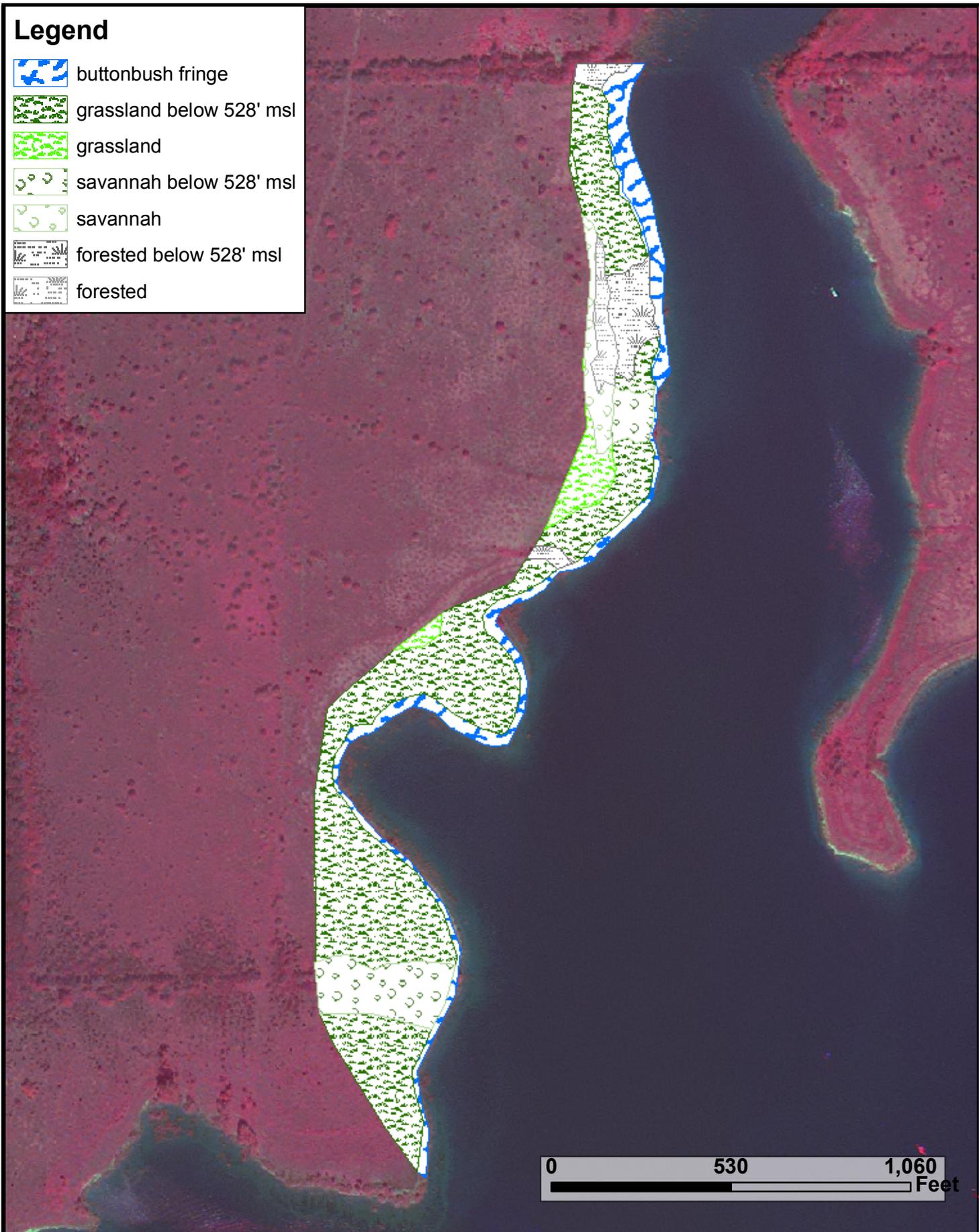
Tribute  
Golf Course  
Expansion

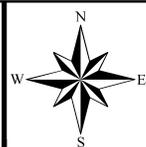


		Kimley-Horn and Associates, Inc.	
No.	Revision	By	Date

# Legend

-  buttonbush fringe
-  grassland below 528' msl
-  grassland
-  savannah below 528' msl
-  savannah
-  forested below 528' msl
-  forested



<p>SHEET</p> <p style="font-size: 24pt; font-weight: bold; text-align: center;">3</p> <p>OF 4 SHEETS</p>	<p>DATE: 10/31/2006</p> <p>DESIGN:</p> <p>DRAWN: GDM</p> <p>CHECKED:</p> <p>KHA NO.: 067286006</p>	<p>Existing Recreation Area which is Proposed to be Reclassified as Wildlife Habitat</p>	<p>Tribute Golf Course Expansion</p>		<p> Kimley-Horn and Associates, Inc.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">No.</th> <th style="width: 40%;">Revision</th> <th style="width: 15%;">By</th> <th style="width: 35%;">Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No.	Revision	By	Date								
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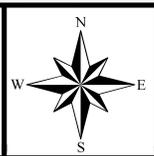
-  buttonbush fringe
-  grassland below 528' msl
-  grassland
-  savannah below 528' msl
-  savannah
-  forested below 528' msl
-  forested
-  WHAP points



SHEET	DATE: 10/31/2006
<b>4</b>	DESIGN:
	DRAWN: GDM
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	KHA NO.: 067286006
OF 4 SHEETS	

**Land Cover  
Types and  
WHAP Plots**

**Tribute  
Golf Course  
Expansion**



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		No.	Revision

## **Component Score Criteria**

**Component 1 - Site Potential**

<b>Criteria</b>	<b>Value</b>
Substrate is composed or exhibits one or more of the following: 1) at least periodically supports predominately hydrophytic vegetation; 2) is predominately undrained hydric soil and supports or is capable of supporting hydrophytic vegetation 3) is saturated with water or covered by shallow water during 1-2 months during the growing season of each year (swamps, bogs, marshes, and hardwood bottomlands exhibiting a high frequency of flooding).	25
Alluvial substrate although less hydric than above; only temporarily or intermittently inundated or saturated for short periods (higher terraces of hard-wood bottoms, riparian drainages).	20
Uplands with thick surface layer (generally greater than or equal to 10 inches) consisting of unrestricted loam (including sandy loam) or dark well structured (granulated) clay (including sandy clay).	12
Uplands with shallow surface layer (generally less than 10 inches) consisting of shallow soil over restrictive layer (rock, gravel, claypan, etc.) or deep, leached, droughty sand or, relatively light colored, poorly structured clay or gravelly/stony sand or clay.	7
Organic matter minimal or absent at the surface. (Includes undrained or saturated hydric soils not supporting vegetation i.e., mud flats).	3
Surface contains chemical compounds which would potentially limit growth of primary producers (salt, mine overburden containing heavy metals or acid compounds, surface pollution).	1

**Component 2 - Temporal Development of Existing Successional Stage**

Determine currently existing successional stage (Criteria A); evaluate for all cover types except marshes. For this habitat type use Criteria B Criteria A3/ Value

<b>Criteria A</b>	<b>Value</b>
Old timber (100 or more years, trees >25 inches*)	20
Mature timber, old brush, climax prairie (40-99 years, trees 12-25 inches)	12
Pole and young timber, mature brush (11-39 years, trees <12 inches)	6
Grasslands in grazing disclimax** or early and mid-successional perennial grasses and forbs, hay meadows	5
Seedlings, saplings, young brush (3-10 years)	3
Annual native or introduced grasses, forbs, crops	1

\* Diameter at breast height (DBH)

\*\* Example: Texas wintergrass-silver bluestem grasslands

Criteria B Value  
(Marsh wetlands)

<b>Criteria B</b>	<b>Value</b>
Established mature communities within or adjacent to an enclosed coastal water body with a free connection to the sea and a measurable quantity of salt in its waters but with abundant or semi-abundant freshwater inflow (estuarine areas).	20
Established mature communities or intermediate to well advanced successional stages occurring in fresh, brackish, or saline environments; freshwater inflow limited to generally small tributaries and localized runoff or overflow from flood conditions.	10
Aquatic or semi-aquatic communities occurring in generally early to intermediate successional stages as a result of periodic changes in moisture gradients; highly dependent on seasonal weather conditions.	5

**Component 3 - Uniqueness and Relative Abundance**

1. Evaluate the habitat within the site according to the categories below.

<b>Category</b>	<b>Value</b>
Highly valuable for wildlife and is very uncommon, unique or irreplaceable (USFWS Mitigation Resource Category 1)	20
Highly valuable for wildlife but is relatively scarce or becoming scarce (USFWS Mitigation Resource Category 2)	15
Exhibits high to medium value for wildlife and is relatively abundant (USFWS Mitigation Resource Category 3)	10
Exhibits medium to low value for wildlife and is relatively abundant (USFWS Mitigation Resource Category 4)	5
Exhibits very low wildlife value regardless of abundance or scarcity	0

\*Corresponds to scarcity and abundance criteria as contained in U.S. Fish and Wildlife Service Mitigation Policy; Federal Register Vol. 46:15, Jan. 23, 1981.

**Component 4 - Vegetation Species Diversity**

**Criteria A**

**Diversity of Woody Species**

Evaluate the composition of readily observable woody species in the overstory, midstory, and understory by determining the number of species groups as represented by the following categories. Evaluate for all cover types except Swamps (Criteria C) and Marsh wetlands (Criteria D).

<b>Species Group</b>	<b>Examples</b>
Berry/Drupe	hackberry, mulberry, paw paw, hawthorn, winterberry, black haw, soapberry, persimmon, choke cherry, yaupon, dogwood, Am. beautyberry, greenbriar, dewberry, poison ivy, rattan vine, blackgum, grape, mulberry, holly, juniper, bumelia, huckleberry, sumac, Virginia creeper, sassafras, prickly ash, chinaberry, crab apple, agarito, lotebush, ivy tree vine
Legume/Pod	mesquite, locust, redbud, Acacia spp.
Acorn	white oak, red oak, live oak, water oak, willow oak, post oak, bur oak
Nut/Nutlike	hickory, pecan, walnut, wax myrtle, ironwood, ephidra
Samara (Winged Fruit)	elm, ash, box elder, maple, river birch
Cone	pine, cypress
Achene	sycamore, Baccharis spp., sandsage, Clematis spp., salt bush
All others (capsules, follicles, burrs, hairy seeds)	willow, cottonwood, sweetgum, salt cedar, yucca, cactus, buttonbush, sweetgum, bois d'arc, creosotebush

Value assigned is equivalent to the number of groups represented (Maximum=8, If none is represented then value is 0)

**Criteria B**

**Total Number of Occurring Woody Species**

Determine the total number of readily observable woody species and assign value according to the following categories. Do not use for Swamps (Criteria C) or Marsh wetlands (Criteria D)

<b>Criteria B</b>	<b>Value</b>
15 or more species	7
10-14 species	5
5-9 species	3
1-4 species	1
None occurring	0

### Criteria C

#### Diversity of Vegetation in Swamps

Evaluate swamp areas according to the following categories:

Criteria C	Value
Seasonally flooded mixed bottomland hardwoods; inundation resulting from freshwater inflow	15
Seasonally flooded vegetation dominated by cypress-tupelo; inundation resulting from freshwater inflow	10
Continually flooded or infrequent, abrasively flooded vegetation comprised of one or more species; inundation resulting from freshwater, brackish or saline inflow	6
Continually flooded vegetation; inundation resulting from stagnant or impounded freshwater, brackish, or saline water conditions	2

### Criteria D

#### Diversity of Vegetation in Marshes and other similar wetland areas

Determine the major types of wetland vegetation present according to the following categories: rooted emergent vegetation, rooted submergent vegetation, rooted vegetation with floating leaves, algal mat communities (microalgae), benthic or drifting seaweeds (macroalgae).

Criteria D	Value
High - includes three or more of above categories.	20
Medium - includes two of the above categories.	15
Low - includes one of the above categories.	5

### Component 5 - Vertical Vegetation Stratification

Evaluate canopy coverage of the following three categories of vegetation for all cover types except crops and marsh wetlands.

Categories:

- 1) Vegetation greater than 12 feet high
- 2) Vegetation 3-12 feet high
- 3) Vegetation less than 3 feet high

Criteria	Value
All three categories present, each accounting for at least 25 percent of ground cover	5
Any two of the above categories present, each accounting for at least 25 percent of ground cover	4
Only one of the above categories present and accounting for at least 25 percent of ground cover	3
None of the categories together account for more than 25 percent of ground cover	1

**Component 6 - Additional Structural Diversity Components**

Evaluate for all cover types except crops. Determine the presence of brush piles, rock piles, rocky crevices, snags, fallen logs, thick grass cover, brambles or thickets according to the following categories.

<b>Criteria</b>	<b>Value</b>
Abundant - Three or more of the above components readily apparent and observable from most locations with the site	5
Moderate - Any of the above components present, and observable with very little search effort	3
Sparse - Any of the above components present, but occurring infrequently or requiring significant search effort to locate	1
Absent - None of the above components observed	0

**Component 7 - Condition of Existing Vegetation - Other**

Use: Criteria A&B for cover types (other than crops and marsh wetlands) containing woody and/or herbaceous vegetation.

Criteria C for cropland only.

Criteria D for marsh wetlands.

**Criteria A**

Degree of utilization of woody vegetation by vertebrates and invertebrates

<b>Criteria A</b>	<b>Value</b>
Not evident - little or no evidence of plant utilization	5
Moderate - plant utilization observable with minimal damage to leaves and/or stems	3
Severe - damage to leaves and/or stems readily observable	1
No woody vegetation present	0

**Criteria B Value**

Availability of Herbaceous Vegetation.

Do not evaluate for Crops (Criteria C) or Marsh Wetlands (Criteria D)

<b>Criteria B</b>	<b>Value</b>
Good - Eight or more combined species of grasses and forbs readily observable.	5
Fair - Four to seven combined species of grasses and forbs readily observable	3
Poor - One to three combined species of grasses and forbs readily observable	12
None - Herbaceous vegetation lacking or absent	0

Criteria C Value

Available Biomass (Evaluate for croplands only)

Criteria C	Value
High - Biomass removed periodically, although not necessarily annually; removed biomass supplanted by other vegetation resulting from natural succession of invading species or overseeding of introduced species; (Ex. Rice or other crop on multi-year rotational system allowing for additional biomass accumulations between harvests).	10
Moderate - Most biomass removed annually or semi-annually but with some residual amount remaining during portions of the rotational period. Minimal bare ground conditions (Hay operations, crops grown for pasture or grazing, chiseled crops).	5
Low - Most biomass removed annually due to clean farming practices creating significant bare ground conditions (intensive row crop farming).	1

Criteria D Value

Condition of Marsh Wetlands

Criteria D	Value
Unaltered - Quality of water and/or associated vegetation good, no foreseeable danger of environmental intrusion including pollution, contamination, sedimentation, or stagnation	10
Stable - Quality of water and/or associated vegetation good, although evidence exists that pollution, contamination sedimentation or stagnation could occur in the future or has occurred in the past	5
Degraded - Quality of water and/or associated vegetation poor or declining or degradation imminent	1

# **Typical Conditions for Cover Types**



Picture 1: typical site condition for grassland cover type



Picture 2: typical site condition for savannah cover type



Picture 3: typical sit condition for forested cover type



Picture 4: typical site condition for buttonbush fringe cover type

## Appendix C

### Public Coordination



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

REPLY TO  
ATTENTION OF:

**December 10, 2007**

**NOTICE OF AVAILABILITY**

**ENVIRONMENTAL ASSESSMENT  
TRIBUTE GOLF COURSE/WYNNEWOOD PARK  
LEWISVILLE LAKE, DENTON COUNTY, TEXAS**

**Description.** Interested parties are hereby notified that the District Engineer, Fort Worth District, has prepared an Environmental Assessment (EA) and a draft Finding of No Significant Impact (FONSI) regarding the proposed project for the City of The Colony at Lewisville Lake, Texas.

**Statutory Authority.** This notice is being issued to all interested parties in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, and the Council on Environmental Quality (CEQ) Code of Federal Regulations (40 CFR parts 1500-1508).

**Background.** An EA and draft FONSI for the proposed action were prepared in accordance with the requirements of NEPA and Engineering Regulation 200-2-2, Procedures for Implementing NEPA. The purpose of the EA is to identify and evaluate the environmental aspects of implementing the proposed action in accordance with NEPA.

**Proposed Action.** The United States Army Corps of Engineers (USACE) has assessed potential impacts to the environment that may result from the proposed Tribute Golf Course Expansion project in Wynnewood Park leased by the City of The Colony at Lewisville Lake. The City of The Colony leased the 720-acre Wynnewood Park from the U.S. Army Corps of Engineers (USACE) in 1985 for public park and recreation purposes. In accordance with the USACE 1985 Master Plan for Lewisville Lake, the City planned to develop a golf course in the park. An Environmental Assessment (EA) was prepared and a Finding of No Significant Impact (FONSI) was signed October 1997 for an 18-hole course as well as an additional conceptual 18-hole course. Impacts from this project and other projects at Lake Lewisville were also assessed in a Programmatic Environmental Assessment (PEA) in September 1999. The first 18-hole course has since been constructed and the conceptual 18-hole course expansion is being proposed at this time. The proposed 18-hole expansion incorporates a different design than originally stated in the 1997 EA and the 1999 PEA requiring additional Federal land outside of Wynnewood Park as well as the exchange of land use classifications. Because ten years have elapsed since the 1997 EA was written, and the land use exchange was not anticipated or disclosed in the previous EA and PEA, this tiered EA was conducted to assess impacts as a result of the changes to the 1997 plan.

**Public Hearing.** A public hearing has not been scheduled for this proposed action. Prior to the close of the comment period, any person may make a written request for a public hearing, setting forth the particular reasons for the request. The District Engineer will determine whether the issues raised are substantial and should be considered in his decision. If a public hearing is warranted, all known interested parties will be notified of the time, date, and location of such a hearing.

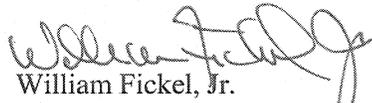
**Public Review.** Pursuant to the regulations implementing the procedural provisions of the National Environmental Policy Act of 1969 as amended in 1975 (40 Code of Federal Regulations [CFR], Parts 1500 through 1508), the U.S. Department of the Army gives notice that it has prepared the required environmental documentation for the Tribute Golf Course/Wynnewood Park project, Lewisville Lake, Texas. This document is available for review on the Fort Worth District Website [www.swf.usace.army.mil](http://www.swf.usace.army.mil) or at the following addresses:

Elm Fork Project Office  
1801 N. Mill St.  
Lewisville, Texas 75057  
469-645-9100

Parks & Recreation Admin.  
5151 North Colony Blvd.  
The Colony, Texas 75056  
972-625-1106

The Colony Public Library  
6800 Main Street  
The Colony, Texas 75056  
972-625-1900

**Comment Period.** The comment period for this action is 30 days from the date of this Public Notice. Please address any comments to Mr. Brandon Mobley, CESWF-PER-EE, Post Office Box 17300, Fort Worth, Texas 76102-0300. Copies of the EA and draft FONSI may be requested in writing at the above address or by telephone at (817) 886-1714.



William Fickel, Jr.  
Chief, Planning, Environmental,  
And Regulatory Division



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

December 12, 2007

Texas Parks & Wildlife Dept.

Planning, Environmental, and Regulatory Division

DEC 13 2007

Wildlife Habitat Assessment Program

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

Dear Ms. Boydston:

The U.S. Army Corps of Engineers (USACE) is assessing the potential impacts to the environment that may result from the proposed Tribute Golf Course Expansion project in Wynnewood Park leased by the City of The Colony at Lewisville Lake. USACE is disclosing all associated impacts for public review in an Environmental Assessment (EA). The City of The Colony leased the 720-acre Wynnewood Park from the U.S. Army Corps of Engineers (USACE) in 1985 for public park and recreation purposes. An Environmental Assessment (EA) was prepared and a Finding of No Significant Impact (FONSI) was signed October 1997 for an 18-hole course as well as an additional conceptual 18-hole course. The first 18-hole course has since been constructed and the conceptual 18-hole course expansion is being proposed at this time. The proposed 18-hole expansion incorporates a different design than originally stated in the 1997 EA requiring additional Federal land outside of Wynnewood Park as well as the exchange of land use classifications. Because ten years have elapsed since the 1997 EA was written, and the land use exchange was not anticipated or disclosed in the previous EA, this tiered EA was conducted to assess impacts as a result of the changes to the 1997 plan.

This EA is submitted for your review and solicits any additional comments or concerns your agency may have regarding this proposed action. Please respond with any comments or concerns within 30 days of the date of this letter. Additional information regarding the proposed action is available upon request. Please address any requests or comments to Mr. Brandon Mobley (817) 886-1714 of my staff. Thank you for your cooperation in this matter.

Sincerely,

William Fickel, Jr.  
 Chief, Planning, Environmental, and  
 Regulatory Division



Enclosures

Review of the project activity as proposed indicates minimal impacts to fish and wildlife resources.

Reviewed: *Brandon Mobley*  
 Date: 1-15-08

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