



**TRANS-TEXAS WATER PROGRAM**  
**SOUTHEAST AREA**

**Memorandum Report**

---

**Status of Environmental Issues  
for Allens Creek Reservoir**

*April 1997*

**Sabine River Authority of Texas  
Lower Neches Valley Authority  
San Jacinto River Authority  
City of Houston  
Brazos River Authority  
Texas Water Development Board**



**TRANS-TEXAS WATER PROGRAM**  
**SOUTHEAST AREA**

**Memorandum Report**

---

**Status of Environmental Issues  
for Allens Creek Reservoir**

*April 1997*

**Sabine River Authority of Texas  
Lower Neches Valley Authority  
San Jacinto River Authority  
City of Houston  
Brazos River Authority  
Texas Water Development Board**

*This document is a product of the Trans-Texas Water Program: Southeast Area. The program's mission is to propose the best economically and environmentally beneficial methods to meet water needs in Texas for the long term. The program's four planning areas are the Southeast Area, which includes the Houston-Galveston metropolitan area, the South-Central Area (including Corpus Christi), the North-Central Area (including Austin) and the West-Central Area (including San Antonio).*


*The Southeast Area of the Trans-Texas Water Program draws perspectives from many organizations and citizens. The Policy Management Committee and its Southeast Area subcommittee guide the program; the Southeast Area Technical Advisory Committee serves as program advisor. Local sponsors are the Sabine River Authority of Texas, the Lower Neches Valley Authority, the San Jacinto River Authority, the City of Houston and the Brazos River Authority.*

*The Texas Water Development Board is the lead Texas agency for the Trans-Texas Water Program. The Board, along with the Texas Natural Resource Conservation Commission, the Texas Parks & Wildlife Department and the Texas General Land Office, set goals and policies for the program pertaining to water resources management and are members of the Policy Management Committee.*

*Brown & Root and Freese & Nichols are consulting engineers for the Trans-Texas Water Program: Southeast Area. Blackburn & Carter and Ekistics provide technical support. This document was written by:*

Freese and Nichols, Inc.

Peter D. McKone  
Michael A. Shelton  
Barbara A. Nickerson

  
Peter D. McKone

  
Michael A. Shelton

  
Barbara A. Nickerson

# Contents

<b>Executive Summary</b> .....	vi
<b>1. Introduction</b> .....	1-1
<b>2. Existing Environment</b> .....	2-1
2.1. Geology and Soils .....	2-1
2.2. Hydrologic Resources .....	2-2
2.2.1. Wetlands .....	2-3
2.2.2. Riparian Corridors .....	2-3
2.2.3. Bottomland Hardwoods .....	2-3
2.3. Biological Elements .....	2-4
2.3.1. Wildlife .....	2-4
2.3.2. Endangered and Threatened Species .....	2-5
2.4. Cultural Resources .....	2-8
2.5. Socioeconomics .....	2-9
<b>3. Environmental Impacts</b> .....	3-1
3.1. Geological Resources and Soils .....	3-1
3.2. Hydrology and Water Quality Impacts .....	3-1
3.3. Biological Resources .....	3-1
3.3.1. Wildlife .....	3-1
3.3.2. Bottomland Hardwoods .....	3-2
3.3.3. Endangered and Threatened Species .....	3-3
3.4. Cultural Resources .....	3-3
3.5. Socioeconomics .....	3-3
<b>4. Permitting and Regulatory Issues</b> .....	4-1
<b>Appendix A</b> References	
<b>Appendix B</b> Endangered and Threatened Species Occurring in Austin County	
<b>Appendix C</b> Correspondence from the U.S. Fish and Wildlife Service	
<b>Appendix D</b> Correspondence from the City of Simonton	
<b>Appendix E</b> Comments	

## Figures

Figure 1.1	Location Map . . . . .	1-1
Figure 2.1	Land Use . . . . .	2-2

## Tables

Table 3-1: Comparison of Jurisdictional Waters Impacts and Mitigation Requirements for Reservoir (with Alligator Hole) and Reservoir (without Alligator Hole) . . . . . 3-2



## Executive Summary

---

The proposed Allens Creek Reservoir is a potential component of the Trans-Texas Water Program for the Southeast Study Area. Allens Creek Reservoir could provide additional yield and/or serve as regulating storage for water being transferred westward to areas of need in the central part of the state. This memorandum presents an overview of the current status of environmental issues and their potential impact on the feasibility of constructing Allens Creek Reservoir as a balancing reservoir. A more thorough Environmental Assessment will have to be prepared to accompany a Texas Natural Resource Conservation Commission water rights permit application and U.S. Army Corps of Engineers (COE) permit application.

Available data were compiled from publications of the Texas Parks and Wildlife Department (TPWD), Texas Biological and Conservation Data System (TBCD), United States Fish and Wildlife Service (USFWS), and Houston Lighting and Power (HL&P) which currently owns the land. These data included information on geology and soils, cultural resources, endangered/threatened species and their critical habitats, unique vegetation communities, and aerial photos. In addition, two Freese and Nichols, Inc., staff members conducted a site visit in April 1995 to survey the proposed reservoir area.

The proposed reservoir area is underlain by the Beaumont and Lissie Formations. Soils are from the Lake Charles - Midland - Edna and Brazoria - Norwood Associations. Several

soils within the proposed reservoir area are considered hydric by the Natural Resources Conservation Service (NRCS). Hydric soils are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper soil layer and are one of three primary indicators of wetlands. Hydric soils within the proposed reservoir area include Brazoria clay - depressional, Midland clay loam - 0 to 1 percent slopes and 1 to 3 percent slopes, and Nahatche loam - frequently flooded.

Aerial extent of potential wetlands, riparian corridors and bottomland hardwoods were determined based on available published data and field observations. A large portion of the proposed reservoir area is either currently under cultivation or has been recently. Potential wetlands were delineated based on the three criteria used by the COE. Wetlands are considered jurisdictional waters of the U.S. and require a Section 404 permit from the COE to develop. By definition, a wetland must contain hydric soils, a dominance of hydrophytic vegetation and appropriate hydrology under normal conditions. If an area seemed likely to meet all three criteria based on the site visit and available data, it was mapped as a wetland. In addition, if two of the criteria were present and there was good reason to assume the third was also present, then that area was also mapped as a wetland. The total area delineated as potential wetlands within the reservoir pool was 1,428 acres. A more accurate wetland acreage estimate would require a detailed delineation using specific

sampling techniques and survey results. Due to the conservative nature of the wetland classification techniques employed in this study, a detailed delineation would probably significantly reduce wetland acreage. Furthermore, if the dam alignment is modified to avoid Alligator Hole, the wetland acreage would decrease by approximately 723 acres.

Additional jurisdictional waters of the U.S. within the reservoir area include those areas mapped as riparian zones. These areas would fall under COE jurisdiction as waters of the U.S. and would include wetlands. An average width was used for each drainage within the reservoir area and an acreage determined. The width for each riparian zone was a conservative estimate and probably included some acreage that would not be considered waters of the U.S. A more detailed delineation would, therefore, result in less acreage. If the riparian zone passed through a wetland unit, its acreage was included in the wetlands acreage. The remaining riparian acreage (not mapped as wetlands) was compiled and totaled 200 acres.

Mitigation would be required for the impacts associated with inundation of the wetlands and riparian zones by the COE under its authority to regulate impacts to waters of the U.S. through Section 404 of the Clean Water Act. The total acreage of waters of the U.S. is 1,628. This total would be significantly reduced as a result of modifying the dam to avoid Alligator Hole and by a more detailed wetland delineation. A mitigation ratio ranging from 2:1 to 5:1 can be expected, which would yield a total mitigation effort of approximately 3,256 to 8,140 acres, respectively.

Bottomland hardwoods were also evaluated due to their high value as habitat. These included the portion of the proposed reservoir area that was wooded but was not considered jurisdictional wetlands as defined by the COE. The total acreage for bottomland hardwoods was 496 acres. Mitigation would probably be required for these areas if it is determined that they are jurisdictional wetlands, and a ratio ranging from 3:1 to 5:1 could be expected.

Lovelace et al. (1995) conducted a Wildlife Habitat Appraisal Procedure (WHAP) on the proposed reservoir. The purpose of the study was to develop compensation requirements and estimate the extent of jurisdictional wetlands. The study identified various compensation ratios based on the level of management for the mitigation tract. The lowest management option resulted in a replacement requirement of 47,065 acres. The highest management option resulted in a replacement requirement of 9,447 acres. It is assumed that the acreage required for mitigation of jurisdictional waters could be incorporated into the WHAP-identified acreage.

No endangered or threatened species or their critical habitats are known to occur within the proposed reservoir site. However, several species have the potential to occur as migrants or residents. The peregrine falcon, bald eagle, whooping crane, and other migratory species may occur within the proposed project during migrations. However, available stopover points are located in the surrounding area, and the proposed reservoir would not pose a significant threat to any of these species. Nonmigratory rare species that may occur within the reservoir area include the Houston toad, timber rattlesnake, and western smooth green snake. Specific surveys for these



species may be required prior to construction of the reservoir.

Cultural resources were surveyed in 1972 by the Texas Archeological Survey (formerly the Texas Archeological Salvage Project). The survey yielded 32 prehistoric aboriginal sites. Additional testing and excavations revealed three sites that best represented the prehistoric cultural sequence of the area. These sites will be inundated by the proposed reservoir pool or impacted by wave action. Coordination with the State Historic Preservation Officer (SHPO) and the COE will be necessary to determine each site's eligibility for the National Register of Historic Places. Adverse impacts to cultural resources may be mitigated by the prior data recovery efforts at the site.



# 1. Introduction

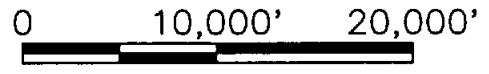
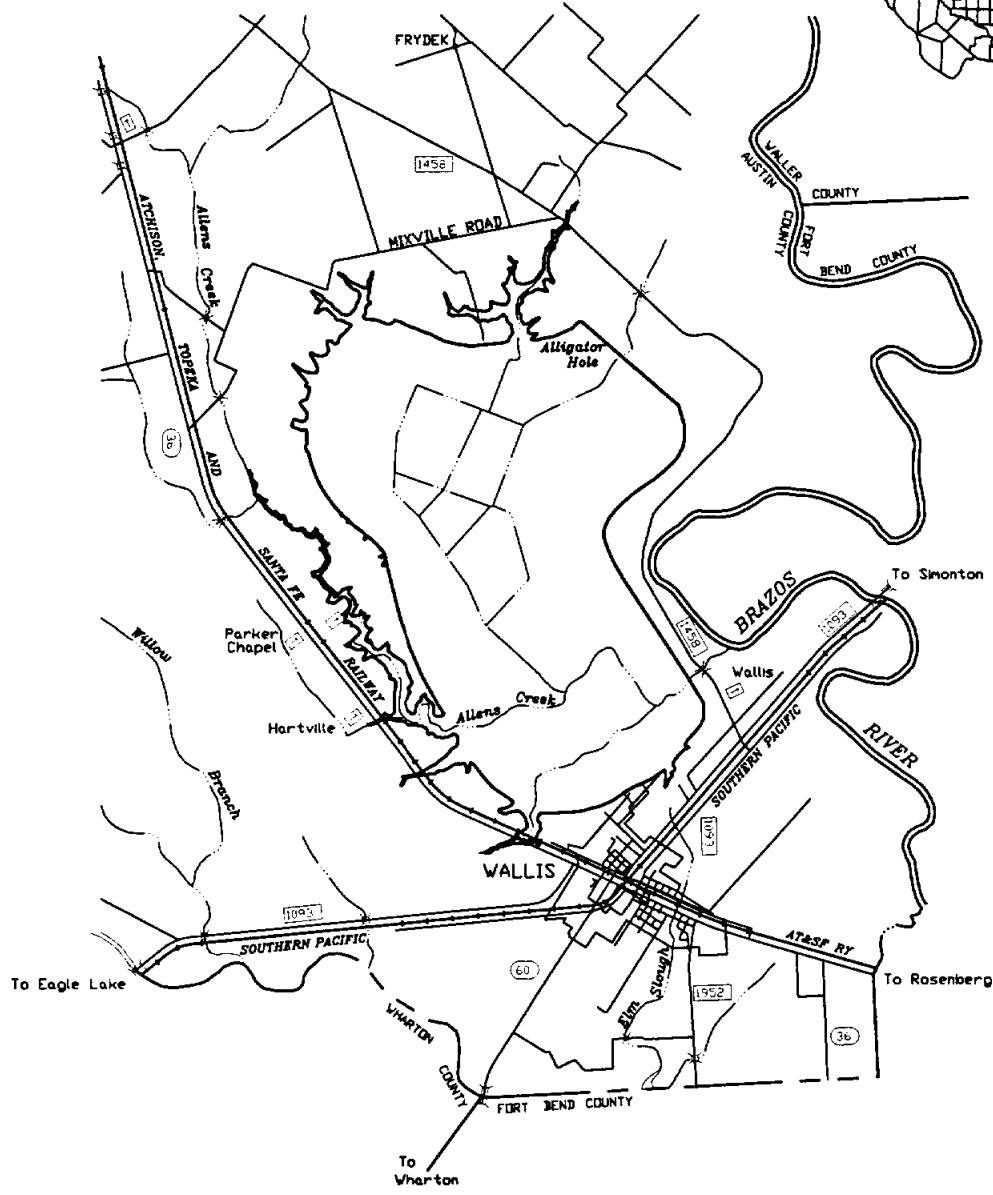
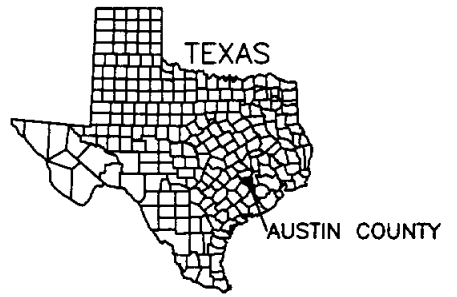
---

Phase II of the Trans-Texas Water Program for the Southeast Study Area has recognized the proposed Allens Creek Reservoir as a potentially valuable component of the program. The proposed reservoir could provide additional yield and/or serve as regulating storage for water being transferred westward to areas of need in the central part of the state.

The Allens Creek Reservoir site is located on Allens Creek west of the Brazos River in Austin County. A dam is proposed to be constructed approximately 3,000 feet upstream from the confluence of Allens Creek and the Brazos River in the southern tip of Austin County near Wallis. The project site is bounded on the southwest by State Highway 36 (SH 36), on the southeast by Farm-to-Market Road 1093 (FM 1093), on the east by FM 1458, and on the north by Mixville Road (Figure 1.1).

This report addresses the current status of environmental issues of the proposed reservoir and possible permitting requirements. Information contained in the report is based on a review of existing data, including soil surveys, geological surveys, endangered and threatened species lists, cultural resource studies, and data gathered during a site visit in April 1995. The purpose of the site visit was to survey the area for the presence and extent of wetlands, to note possible endangered or threatened species habitat, and to identify any major concerns of the project due to vegetation or wildlife issues. This report discusses the current environmental conditions within the

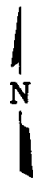
proposed reservoir boundary and the significance of possible impacts to the existing natural and cultural resources.



[BRT94139] \\N:\ENV\LOC-28.DWG  
 MAR 28, 1997 6:18:55 P.M. LTS: 0.80 PSLTS: 1 TWIST: 270.0

**LEGEND**

- Streams and Drainages
- Roads
- Railroad
- Farm-to-Market Road
- State Highway
- Reservoir Boundary
- County Boundary



ENVIRONMENTAL ISSUES  
ALLENS CREEK RESERVOIR

LOCATION MAP

FIGURE  
1.1



## 2. Existing Environment

---

The following three sections describe the existing baseline environmental conditions at the proposed Allens Creek Reservoir site. The conditions are described in terms of the geology and soils, the hydrologic resources, the biological elements, and the cultural resources.

### 2.1. Geology and Soils

The geology underlying the project site determines the regional topology and composition of the soil. The soil type influences the species of vegetation that can survive in the area. The geologic information in this section serves as a foundation for the other environmental concerns in the report.

#### Geology

The entire project area is located within a prehistoric meander of the Brazos River. Exogenic processes associated with the river are the chief geologic factors in the site. All of the sediment forming the site's floor is of the Holocene. The Beaumont Formation and alluvium of the Holocene are exposed where tributaries of the Brazos River have eroded through the earlier Lissie Formation of the Pleistocene Epoch. Recent alluvium is present on the flood plain of Allens Creek while the Beaumont Formation corresponds to the western prairie areas (Barnes, 1974).

#### Soils

The soils within the site correspond to the geology. The soils of the Lake Charles - Midland - Edna Association are on well-defined terraces of the Beaumont Formation. The Brazoria - Norwood Association formed on the Brazos River floodplain. Both soil associations are nearly level to gently sloping, clayey and loamy soils, and can be poorly drained (Greenwade 1984).

Several of the soils within the project site are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper soil layer. These soils are considered hydric and are one indicator of wetlands (U.S. Department of Agriculture, 1985). According to the Natural Resources Conservation Service (NRCS), hydric soils within the project area include Brazoria clay - depressional, Midland clay loam - 0 to 1 percent slopes, Midland clay loam - 1 to 3 percent slopes, and Nahatche loam - frequently flooded (Greenwade, 1984).

### 2.2. Hydrologic Resources

The site lies within the floodplain of the Brazos River and is enclosed by a bowl-like ridge carved by a meander of the river. The morphology of the natural setting is largely determined by the hydrologic patterns. Allens Creek carved a path west to east through the site. Drainage channels create a hydrologic network enclosed by the ridge.

### **2.2.1. Wetlands**

According to the U.S. Army Corps of Engineers (COE), a site under normal conditions must have hydrophytic vegetation, hydric soils, and adequate hydrology to be classified as a wetland. Sites that met all three parameters were considered to be potential wetlands in this study. Sites were labeled as possible wetlands if two of the three parameters were present and the third parameter assumed to be present. A more detailed wetland delineation using the COE's 1987 wetland delineation manual will probably result in significantly less acreage.

#### **Wetland Vegetation**

The U.S. Fish and Wildlife Service (USFWS) categorizes most plants according to hydrologic tolerance. Obligate (OBL) wetland plants have a 99 percent probability of occurring in wetlands. Facultative wetland (FACW) plants have a 67 to 99 percent probability of occurring in wetlands. Facultative (FAC) plants are equally likely to occur in wetlands or non-wetlands. Facultative upland plants have a 1 to 33 percent probability of occurring in wetlands. Finally, obligate upland plants have less than a one percent probability of occurring in wetlands. In order for a site to meet the hydrophytic criteria, the area must contain vegetation of which 50 percent or more of the dominant species are OBL, FACW or FAC.

Virtually all of the wooded areas within the proposed reservoir site contained vegetation that was considered FAC, FACW, or OBL. In addition, there were other areas that contained herbaceous and semi-woody vegetation types which were considered hydrophytic.

#### **Wetland Soils**

Hydric soils are soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper soil layer (U.S. Department of Agriculture, 1985). Soils in the site were compared to the NRCS list of hydric soils. Most of the mapped hydric soils were left untouched by agricultural activities. All of these soil units were mapped as potential wetlands (Figure 2.1).

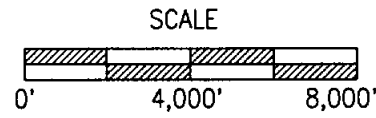
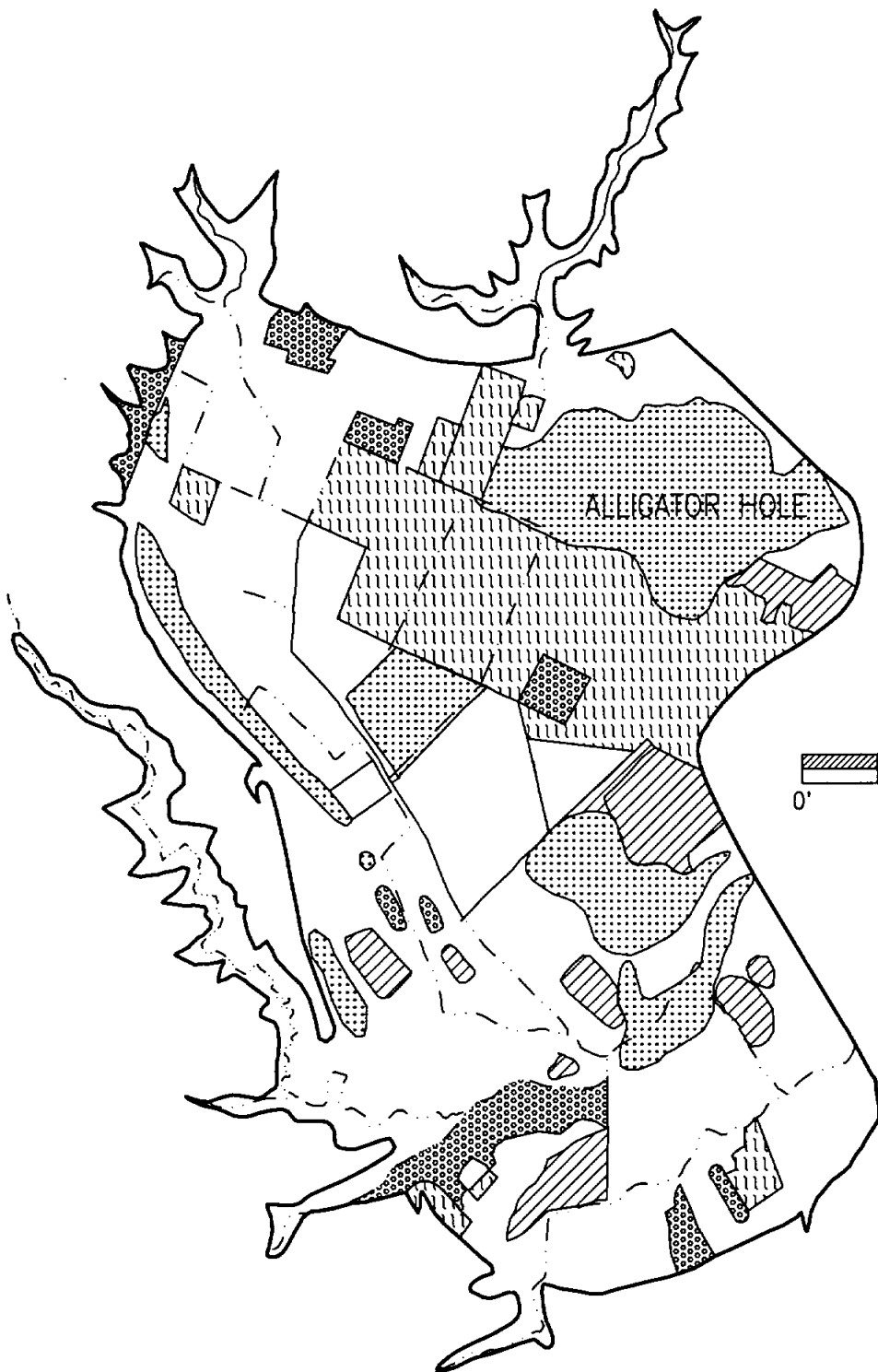
#### **Wetland Hydrology**

For a site to have adequate hydrology for a wetland, the site must be periodically inundated or have soils saturated to the surface at some time during the growing season (Wetland Training Institute, Inc., 1991). Indicators of wetland hydrology observed within the proposed reservoir area include visual observation of inundation or saturation, watermarks on woody vegetation, drainage patterns, and drift lines.

#### **Extent of Wetlands at the Site**

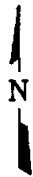
The areas of potential wetlands were determined by comparing USGS topographic maps, National Wetland Inventory maps, and other studies (i.e., Lovelace et al., 1995). Estimates of wetland acreage in this report should be considered conservative. A more detailed delineation using the COE's 1987 wetland delineation manual will probably result in less acreage. In areas where the third parameter was assumed to be present after finding the other two parameters a detailed delineation may indicate the absence of the third parameter. For example, some wooded areas had standing water during the April site

ACAD, Rel 12, e3 User: Environmental Science Station  
 [BR794138] \ENR\FG-PR.DWG  
 MAR 31, 1997 10:12:00 A.M. LIS: 0.25 PSLTS: 1 TWIST: 0.0



**LEGEND**

- Creeks and Drainages
- Bottomland Hardwoods (496 acres)
- Wetlands (1,428 acres)
- Grass (4,876 acres)
- Woodlands (499 acres)
- Crops (1,367 acres)



ENVIRONMENTAL ISSUES  
 ALLENS CREEK RESERVOIR

**LAND USE MAP**

FIGURE  
 2.1

visit. Vegetation for these areas was considered hydrophytic. Based on these two parameters, hydric soils were assumed to be present. Soils testing was not conducted on the April site visit due to time constraints and the inundation. Lovelace et al. (1995) on May 31, 1995, revealed that some of these areas were relatively dry. Soils testing of these sites may indicate that appropriate wetland hydrology was not present long enough to form hydric soils. One large wetland was the complex surrounding Alligator Hole which was approximately 723 acres. One proposed alternative is to modify the dam alignment to avoid impacting almost all of Alligator Hole. Two more wetlands were located in a strip of Brazoria depressional clay soils along the northwest edge of the reservoir area. The areas of the northern and southern wetlands were 15 and 80 acres, respectively. Several other wetland parcels occurred in the southeast portion of the project site. Individual wetlands ranged in size from 225 to three acres. The total area of potential wetlands in the project was 1,428 acres.

### 2.2.2. Riparian Corridors

Riparian corridors consist of greenbelts along rivers and drainages. Jurisdictional waters within riparian corridors consist of the area below the ordinary high water mark and fringe wetlands along the banks of riparian corridors. The area within the riparian corridors was calculated by digitizing the length of the ditches (136,000 feet) and multiplying by an average width of 50 feet. The project will impact a 30-acre drainage near Mixville Road and three small drainages totaling 10 acres off of SH 36. Another riparian corridor occurred where Allens Creek runs through the project

area. The area of 25 acres was calculated using an average width of 150 feet. The width for each riparian zone was conservatively estimated. A more detailed delineation may result in narrower widths and less acreage. The riparian areas that overlap with wetland or bottomland hardwood acres were removed from the calculated total area. The total area of riparian habitat is 200 acres.

### 2.2.3. Bottomland Hardwoods

For purposes of clarification in regards to Section 404 permitting, this report defines bottomland hardwoods as forests which have at least one of the characteristics of a jurisdictional wetland (i.e., hydrophytic vegetation, hydrology, or hydric soils), contain mature stands of hardwoods, and are located within the floodplain. Subsequent to a complete wetland delineation, some of these may be determined to be jurisdictional wetlands while others may not.

Bottomland hardwoods within the project site contain fairly mature trees of sugarberry (Celtis laevigata), black willow (Salix nigra), pecan (Carya sp.), American elm (Ulmus americana), cedar elm (Ulmus crassifolia), green ash (Fraxinus pennsylvanica), and other species. The bottomland hardwood areas trap moisture in depressions and retain water due to canopy shading. While these habitats are much like wetlands and appear to possess key characteristics which would classify them as wetlands, sufficient evidence was not present to classify these areas as wetlands. Information from the site visit and aerial photographs was used to determine the total of 496 acres of bottomland hardwoods. The

bottomland hardwood areas are indicated on Figure 2.1.

### 2.3. Biological Elements

The project area is mostly cultivated fields with drainage ditches. Patches of native vegetation are dominated by sugar hackberry trees, cedar elm trees, live (*Quercus virginiana*) and water oak (*Q. nigra*) and coastal grasses. Habitat types encountered at the site included cultivated fields, wetlands, woodlands, bottomland hardwoods, pasturelands, tree-lined drainages, and major drainages. Cultivated fields were fields with currently farmed crops or were plowed recently (1 to 2 years) but were not planted. Woodlands included upland forests which did not appear to have the appropriate characteristics of a wetland or bottomland hardwood.

#### 2.3.1. Wildlife

##### Mammals

A biological survey of the site identified 21 wildlife species within the area (Dames and Moore, 1975). These species were typical for the area and included the opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), spotted skunk (*Spilogale putorius*), striped skunk (*Mephitis mephitis*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*), eastern fox squirrel (*Sciurus niger*), plains pocket gopher (*Geomys bursarius*), beaver (*Castor canadensis*), fulvous harvest mouse (*Reithrodontomys fulvescens*), northern pygmy mouse (*Baiomys taylori*), white-footed mouse (*Peromyscus leucopus*),

marsh rice rat (*Oryzomys palustris*), black-tailed jackrabbit (*Lepus californicus*), eastern cottontail (*Sylvilagus floridanus*), white-tailed deer (*Odocoileus virginianus*), nine-banded armadillo (*Dasypus novemcinctus*).

##### Birds

Numerous birds representing various families have been observed within the proposed reservoir area (Dames and Moore, 1975). Representative species observed within the area included the anhinga (*Anhinga anhinga*), great blue heron (*Ardea herodias*), Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), woodpeckers, flycatchers, wrens, mockingbird (*Mimus polyglottos*), warblers, cardinal (*Cardinalis cardinalis*), and sparrows.

##### Reptiles/Amphibians

The proposed reservoir area is located within the range of numerous species of reptiles and amphibians. Representative species observed at the site included snapping turtle (*Chelydra serpentina serpentina*), three-toed box turtle (*Terrapene carolina*), ornate box turtle (*Terrapene ornata ornata*), Texas spiny softshell (*Trionyx spinifer emoryi*), six-lined racerunner (*Cnemidophorus sexlineatus sexlineatus*), diamond-backed water snake (*Nerodia rhombifera rhombifera*), Texas rat snake (*Elaphe obsoleta lindheimeri*), southern copperhead (*Agkistrodon contortrix contortrix*), Gulf Coast toad (*Bufo valliceps valliceps*), green treefrog (*Hyla cinerea*), leopard frog (*Rana sphenoccephala*) (Dames and Moore, 1975).



## **Fish**

The proposed reservoir area contains one tributary (Allens Creek) which is located within three miles of the Brazos River. A recent survey conducted on Allens Creek and the nearby Brazos River yielded 54 species (Linam, et al., 1994). Representative species of fish included gar (Lepisosteus spp.), red shiner (Notropis lutrensis), bullhead minnow (Pimephales vigilax), catfish (Ictalurus spp.), western mosquitofish (Gambusia affinis), sunfish (Lepomis spp.), and pirate perch (Aphredoderus sayanus).

### **2.3.2. Endangered and Threatened Species**

A list of seventeen endangered or threatened species that could possibly occur in Austin County was compiled from publications of the Texas Parks and Wildlife Department (TPWD), USFWS, and the Texas Organization for Endangered Species (TOES) and through a review of the Texas Biological and Conservation Data System (TBCD) database in Austin. This list is presented in Appendix B. The TNHP information is specific to geographic locations and therefore more relevant to this report. While none of the species in the list were encountered in the April 1995 site visit, it is possible that some of these species or their habitats may exist within the site.

## **Birds**

**American peregrine falcon (Falco peregrinus anatum)**. The American peregrine falcon is listed as endangered by the USFWS and the TPWD. This species is known to

migrate through all regions of Texas but is known to nest only in western portions of the state. Nesting habitat consists of high cliffs usually in mountainous areas near water. The proposed reservoir area does not appear to provide suitable nesting habitat for the American peregrine falcon.

**American Swallow-tailed Kite (Elanoides forficatus)**. The American swallow-tailed kite is listed as threatened by TPWD. Individuals of this species are regularly observed along the Texas coast during migration and have been sporadically recorded throughout the southwestern U.S. Swallow-tailed kites prefer to breed in areas near water, such as wetlands, rivers and lakes. Prey items include flying insects, frogs, lizards, snakes, and bird nestlings (Clark and Wheeler, 1987). This species' range is restricted to the southeast U.S. and is known in Texas as a migrant. The proposed reservoir lies outside the kite's current range and should not pose a significant impact to this species.

**Aplomado Falcon (Falco femoralis septentrionalis)**. The aplomado falcon is listed as endangered by the USFWS and TPWD. This species prefers an open terrain with scattered trees. No nests have been reported in the U.S. since 1952. Efforts are underway to reintroduce the species to the Laguna Atascosa National Wildlife Refuge in south Texas. The proposed reservoir is located outside the current range of the aplomado falcon and should not pose a threat to this species.

**Attwater's Greater Prairie-Chicken (Tympanuchus cupido attwateri)**. The Attwater's greater prairie-chicken is listed by the TPWD and USFWS as endangered. This

species prefers coastal prairies with a mixture of agricultural lands. Prairie chickens use low growth areas during the breeding period in spring. Afterwards they need the regrowth from the herbaceous layer for concealment and nesting cover. The nearest known present location of the prairie chicken is at the Attwater Prairie Chicken National Wildlife Refuge and surrounding land. Habitat destruction and flooding of nests have been the primary factors for this species' decline. Preferred habitat for the prairie chicken is marginal within the proposed reservoir area. Western portions of the levee, with proper brush and forb management practices, may provide suitable habitat in the future. This appears unlikely with existing management of the land and the current plight of the species.

**Bald Eagle (Haliaeetus leucocephalus)**. The bald eagle is listed as threatened by the USFWS and endangered by the TPWD. This species prefers to nest in trees or tall cliffs near seacoasts, rivers, or lakes. Fish constitute the main prey item, but the bald eagle is an opportunistic feeder and will consume various types of carrion. Pesticide contamination, human encroachment, and illegal taking are the primary causes for the bald eagle's decline (Scott, 1987). The bald eagle may occasionally wander through the site. However, the proposed reservoir should cause no significant adverse impacts to the bald eagle.

**Brown Pelican (Pelecanus occidentalis)**. The brown pelican is listed as endangered by the TPWD and USFWS in Texas. This species prefers coastal habitats and is known only as a rare wanderer inland. The proposed reservoir site does not provide adequate habitat for the brown pelican.

**Piping Plover (Charadrius melodus)**. The piping plover is a federal-listed and state-listed threatened species. The piping plover is found on sandy beaches, lakeshores and dunes (Scott, 1987). Due to the migratory nature of this species and the lack of suitable habitat, the piping plover is not expected to occur within the site boundaries.

**Red-Cockaded Woodpecker (Picoides borealis)**. The red-cockaded woodpecker is listed as endangered by the TPWD and USFWS. This woodpecker species prefers over-mature southern pine forests. This specific habitat was not present within the proposed reservoir site. Therefore, the proposed reservoir will not impact the red-cockaded woodpecker.

**Reddish Egret (Egretta rufescens)**. The reddish egret is listed as threatened by the TPWD. This species occurs along the coast from Texas to Florida. This species is strongly tied to coastal salt bays and marshes, and nests in Yucca sp. - pricklypear (Opuntia sp.) thickets on dry islands (Oberholser, 1974). The proposed project is not connected to any saline environments. Therefore, the egret is not expected to occur within the project boundaries.

**Interior Least Tern (Sterna antillarum anthalassos)**. The interior least tern is a federal-listed and state-listed endangered species. It is still fairly common along the eastern and Gulf coasts. However, populations are declining inland and along the west coast (Scott, 1987). This species prefers to nest in colonies on beaches and sandbars. The interior least tern is not expected to occur within the proposed reservoir area.

**White-Faced Ibis (Plegadis chibi)**. The white-faced ibis is listed as threatened by the TPWD. This species prefers freshwater marshes, sloughs and irrigated rice fields, as well as salt marsh habitats. At one time, this species bred further inland, but it is now confined to coastal rookeries (Oberholser, 1974). Suitable habitat for the white-faced ibis does not exist in the project area.

**White-Tailed Hawk (Buteo albicaudatus)**. The white-tailed hawk is listed as threatened by the TPWD. This hawk species is found in open coastal grasslands and semiarid inland brush country. It is unlikely that the whitetailed hawk will occur within the proposed reservoir area.

**Whooping Crane (Grus americana)**. The whooping crane is a federal-listed and state-listed endangered species. The main population of this species breeds in Wood Buffalo National Park, Alberta, Canada and winters at Aransas National Wildlife Refuge on the Gulf coast of Texas (Scott, 1987). Major winter foods are found in estuarine habitats, although the whooping crane will feed on acorns, insects and berries (Lewis, 1986). This species may occur within the area as a stopover point during migration. However, the proposed reservoir would not have a significant adverse impact on the whooping crane.

**Wood Stork (Mycteria americana)**. The wood stork is listed as threatened by the TPWD. This species prefers wet areas, such as swamps, ponds, wet meadows, and coastal shallows (Scott, 1987). The wood stork is not expected to occur within the reservoir site. Therefore, no adverse impacts to this species are expected if the reservoir should be constructed.

## Reptiles/Amphibians

**Alligator Snapping Turtle (Macrolemys temminckii)**. The alligator snapping turtle is listed as threatened by the TPWD. This species prefers bottom areas of lakes or rivers and should not be adversely impacted by the proposed reservoir.

**Houston Toad (Bufo houstonensis)**. The Houston toad is listed as endangered by the TPWD and USFWS. Rolling uplands with a friable surface layer of sand approximately 40 inches deep with woodlands and native grasses and with ephemeral or permanent water in depressions or streams comprise the Houston toad's preferred habitat. Further analysis of the soils within the reservoir will be necessary to determine if there is habitat in the proposed pool. In the event appropriate soils are present, a survey for Houston toads may be necessary.

**Texas Horned Lizard (Phrynosoma cornutum)**. The Texas horned lizard is listed as threatened by the TPWD. This species occurs throughout a broad range, including Texas, Oklahoma, parts of adjoining states, and Mexico. This species has been virtually eliminated from its former range in southeast Texas. Several factors, such as pesticide use on fire ants, habitat alteration, and heavy agricultural use, are thought to be responsible for the Texas horned lizard's decline (Price, 1990). This species is not expected to occur within the proposed project area.

**Texas Scarlet Snake (Cemophora coccinea lineri)**. The Texas scarlet snake is listed as threatened by the TPWD. This species is only found in sand-floored thickets immediately adjacent to the Gulf Coast, therefore, this

species is not expected to occur within the proposed reservoir area.

**Timber Rattlesnake (Crotalus horridus).**

The timber rattlesnake is listed as threatened statewide by the TPWD. This species is an uncommon but widely distributed species across the eastern third of Texas. Although primarily associated with dense, low-growth vegetation in forest clearings and along riparian corridors, the timber rattlesnake is also found in overgrown thickets around farmsteads and urban areas (Tennant, 1984). The proposed reservoir project may impact the timber rattlesnake.

**Western Smooth Green Snake (Opheodrys vernalis blanchardi).** The western smooth green snake is listed as endangered by the TPWD (TPWD, 1987). The snake occupied a wide variety of habitats, including moist grassy portions of plains and prairies, but is now scarce in such areas due to habitat destruction (Conant, 1975). According to the TNHP, this species was collected a few miles north of Wallis on SH 36 in 1953. It is unlikely that the species exists in the proposed reservoir.

**Fish**

**Blue Sucker (Cyprinella elongatus).** The blue sucker is listed as threatened by the TPWD. A fisheries survey was completed in December 1994 and the blue sucker was not observed within any samples in Allens Creek or the nearby Brazos River (Linam *et al.*, 1994). This species prefers deep, moderately swift channels in rivers over firm bottom. Some populations are known to survive in reservoirs. Based on results of the recent fisheries survey and the sucker's habitat preference, the

proposed reservoir should not cause any adverse impacts to this species.

**Plants**

**Texas Prairie Dawn (Hymenoxys texana).**

The Texas prairie dawn is federally listed as endangered without critical habitat. This species occurs in the northern part of the Gulf Coastal Prairie, where it is found in poorly drained saline depressions around mima mounds in open grasslands and is confined to limestone soils (Correll and Johnston, 1979). Populations of the flower occur in Harris County and adjacent Fort Bend County. Another population is protected at the Mercer Arboretum in Humble, Texas. Because of the limited range, the proposed reservoir is not likely to contain the species.

**2.4. Cultural Resources**

Previous studies have identified significant cultural resources at the proposed Allens Creek Reservoir site. A reconnaissance survey of the project area was conducted by the Texas Archeological Salvage Project (now the Texas Archeological Survey) in 1972 for the formerly proposed Allens Creek Nuclear Generating Station. The survey identified 32 prehistoric aboriginal sites, with one additional site reported subsequent to the survey. Fifteen of these sites were recommended for further subsurface testing (Dillehay *et al.*, 1972).

In 1974, additional investigations were conducted at each of the fifteen recommended sites to identify those which best represented the prehistoric cultural sequence of the area. Based on these evaluations, twelve of the fifteen sites were eliminated from further

consideration. Intensive excavations were conducted at three sites over a seven month period during 1974 and 1975 (Hall, 1981). The three sites, designated 41 AU 36, 41 AU 37 and 41 AU 38, showed a record of human habitation and activity in the area spanning the period from 2,600 B.C. (Middle Archaic) to A.D. 1530 (Late Prehistoric).

Materials contained at the Ernest Witte site (41 AU 36) revealed that the site had been inhabited as well as used for a burial ground during different periods in its history. Approximately 238 human burials were recovered from the site. Burial practices and artifactual remains indicated that the people of the central region and northern coastal plain of Texas engaged in an import-export system with groups of the southeastern U.S. during the Late Archaic period (650 B.C. - A.D. 950). Burials from the Transitional Archaic and Late Prehistoric periods showed that trade with populations of the southeastern U.S. later declined or ceased.

The Leonard K site (41 AU 37) contained a stratified deposit with horizons from the Middle Archaic, Late Archaic and Late Prehistoric periods. A limited number of burials were found at this site, with trends following those of the Ernest Witte site. A ceramic sequence recovered at the site also suggested that the Late Prehistoric peoples at Allens Creek had ties with coastal groups (Hall, 1981).

The Little Bethlehem site (41 AU 38) consisted of a shallow, unstratified deposit that contained Late Prehistoric habitational debris, ceramics, faunal remains and chipped stone diagnostics. Artifacts at the site were dated at A.D. 1480 and were more typical of coastal

than inland groups of the same period (Hall, 1981).

## 2.5. Socioeconomics

The proposed reservoir site and surrounding areas are dominated by agricultural enterprises. The reservoir site is currently used for growing crops and grazing domestic livestock. Large tracts of previously cultivated land and pastureland within the reservoir area have remained unused in recent years.



## 3. Environmental Impacts

---

The natural environment within the proposed reservoir site will be affected by construction of the reservoir. Possible impacts include the addition of fisheries habitat from the reservoir and the loss of farmland, loss of wetlands, loss of bottomland hardwoods, loss of habitat for plant and animals, and inundation of cultural resources.

### 3.1. Geological Resources and Soils

The geology will not be significantly affected by inundation. Some of the floodplain is currently used for farming, and the Natural Resources Conservation Service needs to be consulted concerning impacts to prime farmland soils.

### 3.2. Hydrology and Water Quality Impacts

Wetlands and riparian corridors exist within the project site. Construction of the proposed reservoir would impact the value of these areas as habitat. Regulatory agencies such as the U.S. Army Corps of Engineers (COE) and Texas Parks and Wildlife Department (TPWD) prefer to avoid impacts for such sensitive habitats. When the impact is unavoidable, the agencies may require compensation in the form of mitigation. Wetlands mitigation ratios can range from 1:1 to 6:1. For habitat similar to that found in the proposed reservoir area a ratio ranging from 2:1 to 5:1 can be expected. A conservative estimate of the total area of jurisdictional waters of the U.S., including

wetlands, that would be inundated by the proposed reservoir is 1,628 acres. A more extensive delineation will probably reduce this number. In addition, modifications to the dam alignment to avoid Alligator Hole will remove approximately 723 acres from the area of impact.

The wetlands at the site are of varying qualities. The pond in the center of Alligator Hole is probably the highest valued habitat due to the diversity of species present and its isolation from human disturbance. The remaining wetland areas range from poor to fair as wetlands due to problems such as small areas of hydric soils, questionable hydrophytic vegetation, or possibly inadequate hydrology.

If it were feasible to alter the dam alignment and remove Alligator Hole from the conservation pool, the impact to wetlands would be reduced. The Alligator Hole wetland has the greatest value in the project site and removal of it would significantly decrease the impact on wetlands and the acreage needed for mitigation (Table 3-1).

### 3.3. Biological Resources

#### 3.3.1. Wildlife

The reservoir will inundate habitat suitable to a number of wildlife species. Terrestrial habitat located within the reservoir pool limits

**Table 3-1: Comparison of Jurisdictional Waters Impacts and Mitigation Requirements for Reservoir (with Alligator Hole) and Reservoir (without Alligator Hole)**

<i>Options</i>	<i>Jurisdictional Waters Impacts (acres)</i>	<i>Mitigation (acres)</i>	
		<i>Minimum<sup>1</sup></i>	<i>Maximum<sup>2</sup></i>
Reservoir (with Alligator Hole)	1,628	3,256	8,140
Reservoir (without Alligator Hole)	905	1,810	4,525

<sup>1</sup> Based on a 2:1 mitigation ratio.

<sup>2</sup> Based on a 5:1 mitigation ratio.

would be permanently eliminated. In addition, riparian habitat for both fish and wildlife would be altered. Available habitat in the riparian corridors would shift from a narrow tree-lined corridor with moving, relatively shallow currents to a deep, open water aquatic system.

Generally, species that favor terrestrial habitats will be dispersed. In addition, species that prefer bottomland hardwoods, shallow water habitat or aquatic vegetation will experience a decline in numbers. Species that prefer open water and non-vegetated shorelines will likely increase (Baker and Greene, 1988).

Management of the reservoir will also influence the types and numbers of species. Timber left standing within the reservoir will provide habitat for fish under the water surface and for wildlife species above the water surface. In addition, allowing the water level to fluctuate at the proper times during the seasons will influence fish spawning grounds and could increase available habitat along the fringes of the reservoir.

**3.3.2. Bottomland Hardwoods**

The total acreage of bottomland hardwoods in the project area as determined in the April 1995 site visit was 496 acres (Figure 2.1). The trees that made up these areas were mature hardwoods, including sugarberry, black willow, pecan, American elm, cedar elm, and green ash. While these areas are generally wet and similar to the wetland areas, they may not qualify for two or more of the three wetland parameters of soil, vegetation, and hydrology. Still, these areas are important habitat to many wildlife species. Regulating agencies are likely to require some compensation for these sites.

**3.3.3. Endangered and Threatened Species**

Several of the endangered and threatened species that could possibly exist in the project area three need to be examined more closely to determine significance. The American swallow-tailed kite, the bald eagle, and the timber rattlesnake use habitat that occurs at the

project site. The wetlands and streams within the project area are not possible nesting grounds for the American Swallow-tailed kite because the project area is outside of the birds known migration pattern. The proposed reservoir would not remove critical habitat for the Bald Eagle. The eagle may stop at tall trees near the completed reservoir during migration. Peregrine Falcons and Whooping Cranes may also fly over during migration. The proposed reservoir will impact the dense, low-growth vegetation that is typical habitat for the Timber Rattlesnake. Further study to determine the presence of Bald Eagles and Timber Rattlesnakes in the project area is recommended.

The Houston Toad is known to occur in Austin County. The sandy soils that are Houston Toad habitat have not been identified within the project area. Further study to look for suitable habitat is recommended. The proposed reservoir will not affect the Alligator Snapping Turtle because this species prefers to live in bottom areas of lakes and rivers.

The Attwater's Prairie Chicken refuge is over five miles away from the proposed reservoir site. While areas composed of 50 percent tall grass prairie climax species exist within the project site; Attwater's Prairie Chicken is not likely to need this habitat considering the current plight of the species. However, the U.S. Fish and Wildlife Service identified suitable habitat within the proposed project area (Appendix C). A more realistic appraisal of the species status and available habitat within the reservoir area would have to be conducted during a later reservoir development phase. Other populations of Attwater's Prairie Chicken are located at a reserve near Galveston and in captivity.

None of these species was observed in the April 1995 site visit.

### **3.4. Cultural Resources**

Several significant archeological sites will be impacted by the proposed project. A total of 32 prehistoric aboriginal sites were identified during an archeological reconnaissance survey conducted for the previously proposed Allens Creek Nuclear Station. Extensive excavation was conducted at three sites (41 AU 36, 41 AU 37 and 41 AU 38) which contained human burial remains and evidence of habitation. These sites will potentially be inundated by the proposed Allens Creek Reservoir pool or impacted by wave action. Coordination with the State Historic Preservation Officer and COE for sites listed or eligible for listing in the National Register of Historic Places will be necessary for the proposed project. Adverse impacts to cultural resources due to the project may be mitigated by the prior data recovery efforts at the site.

### **3.5. Socioeconomics**

The proposed reservoir would inundate existing cropland and pastureland and would result in an irretrievable change in land use practices. Lessees would lose income as a result of the reservoir. However, the local economy would experience a slight shift towards lake-related facilities. For example, tourists, fishermen, and lake recreationists would now be attracted to the area.

An economic study was conducted in 1977 for a proposed reservoir at this site (Fitzgerald, 1977). Based on 1985 dollars, it was determined that recreation from the lake and



an adjacent state park would yield \$24.33 million to \$67 million annually.



## 4. Permitting and Regulatory Issues

---

The proposed project would require a Texas Natural Resource Conservation Commission water rights permit, a U.S. Army Corps of Engineers (COE) permit issued under Section 404 of the Clean Water Act, and possibly other permits such as a Marl, Sand, and Gravel Permit from the Texas Parks and Wildlife Department (TPWD). A Section 404 permit is required for projects involving the discharge of dredged or fill materials into waters of the U.S., including wetlands. The Section 404 permit regulations dictate that the project will meet the spirit of the National Environmental Policy Act, which requires consideration of the impacts of the project upon the natural and human environment during the project planning and implementation stages.

The project would impact approximately 1,628 acres of wetlands, including 1,428 acres of emergent wetlands and 200 acres of riparian wetlands. Once again, the acreage estimates are conservative and a more detailed delineation using the COE's 1987 wetland delineation manual would probably result in less acreage of wetlands. In addition, modifications of the dam alignment to avoid Alligator Hole will reduce the total acres of wetland impacted by approximately 723. Losses or adverse impacts to wetlands must be mitigated by preserving or enhancing other wetlands areas. Mitigation requirements are based on the functional value of the wetlands rather than strictly on the number of acres impacted. A preliminary assessment of the wetlands habitat value based on a site visit conducted in April 1995 indicated that a mitigation ratio between 2:1 and 5:1 may be required to replace the wetlands acres lost.

Acreage of required mitigation wetlands may vary from 1,628 to 8,140 acres.

The remaining area in the proposed reservoir area would require some compensation. Areas where compensation would be required would be the bottomland hardwoods and non-cultivated fields. Mitigation values would be based on habitat value. Two commonly accepted methods to determine habitat value are the federal Habitat Evaluation Procedure (HEP) and the Texas Parks and Wildlife Department's Wildlife Habitat Appraisal Procedure (WHAP).

The National Historic Preservation Act of 1966 requires evaluation of the impacts of federally funded or permitted projects on prehistoric or historic sites listed or eligible for listing in the National Register of Historic Places. For this project, the State Historic Preservation Office (SHPO) is the state agency responsible for reviewing projects which may potentially impact such sites. Because the proposed project is subject to Section 404 permitting requirements, coordination with the SHPO, COE and Advisory Council on Historic Preservation will be necessary for impacts to cultural resources.

The project will be constructed in the floodplain of Allens Creek. Thus, review by the Federal Emergency Management Agency and the local floodplain administrator will also be required for the project. Hydrologic modeling will be performed to determine the impact of the proposed reservoir on the upstream and downstream 100-year flood elevations. The City of Simonton has recently

sent a letter to the Brazos River Authority expressing concern for flooding which may be exacerbated with the construction of Allens Creek Reservoir (Appendix D).

The economy for the reservoir area will shift from one centered around agriculture to one influenced by recreation.

### **Summary**

Impacts to jurisdictional waters of the U.S. appear to be the most significant issues related to construction of the Allens Creek Reservoir dam and subsequent impoundment. Approximately 1,628 acres of wetlands and riparian areas were mapped as jurisdictional water of the U.S. This estimated acreage should be regarded as conservative. More detailed delineations would be necessary to obtain a more accurate estimate. In some areas mapped as wetlands, one of the parameters assumed to be present may, in fact, turn out to be not present as a result of more detailed delineations. For example, large portions of the wooded areas that were observed during the site visit in April 1995 had standing water but were not mapped as containing hydric soils. Hydric soils were assumed to be present but not verified by soil testing. Soils tests were not conducted due to inundation and time constraints. Further analysis of the soils may indicate that the observed inundation and saturation was not present long enough to cause the soils to undergo hydric conditions. In a conversation with Travis Lovelace (University of Houston - Clear Lake) it was discovered that some of the inundated areas in April 1995 were relatively dry during the last two weeks of May 1995. In addition, efforts to modify the dam alignment to avoid Alligator Hole would

reduce the total acreage of impacted wetlands by approximately 723.

Lovelace et al. (1995) conducted a Wildlife Habitat Appraisal Procedure (WHAP) on the proposed reservoir. The purpose of the study was to develop compensation requirements and estimate the extent of jurisdictional wetlands. The study identified various compensation ratios based on the level of management for the mitigation tract. The lowest management option resulted in a replacement requirement of 47,065 acres. The highest management option resulted in a replacement requirement of 9,447 acres. It is assumed that the acreage required for mitigation of jurisdictional waters per the Section 404 permit could be incorporated into the WHAP-identified acreage.

Another issue to consider prior to construction of the Allens Creek Reservoir would be impacts on endangered and threatened species. There are several endangered and threatened species that are known to occur in Austin and surrounding counties. Surveys for some of these species may be required and impacts addressed at that time should any of these species be discovered within the proposed reservoir site.

Finally, impacts to cultural resources will have to be addressed. Modifications to the dam in order to avoid Alligator Hole will likely require raising the dam height. Impacts associated with the increased height will require an additional assessment of impacts to cultural resources.

**APPENDIX A**  
**LIST OF REFERENCES**

## APPENDIX A

### LIST OF REFERENCES

- Arroyo, B. 1992. Threatened and endangered species of Texas. U.S. Fish and Wildlife Service. Austin, Texas.
- Baker, W.B., Jr., and G.N. Greene. 1988 Special ecological studies for the South Texas Project, Matagorda County, Texas (1986-1987). Houston Lighting and Power Company. Houston, Texas.
- Barnes, V.E. 1974. Geologic atlas of Texas, Seguin Sheet. The University of Texas at Austin, Austin, Texas.
- Brewer, R. 1988. The science of ecology. Saunders College Publishing, Philadelphia.
- Clark, W. S. and B. K. Wheeler. 1987. A field guide to the hawks of North America. Houghton Mifflin Company, Inc. Boston, Massachusetts.
- Correll, D.S. and Johnston M.C. 1979. Manual of the vascular plants of Texas. The University of Texas at Dallas. Richardson, Texas.
- Dames and Moore, 1975. Final report: biological monitoring program Allens Creek nuclear generating station site for Houston Lighting and Power Company. Houston, Texas.
- Dillehay, T.D., M.G. Mallouf, M.J. O'Brien and D.S. Dibble. 1972. An archeological reconnaissance or areas to be affected by the proposed nuclear power plant, Austin County, Texas, and associated power transmission lines in Austin, Waller, Fort Bend, and Harris Counties, Texas. The University of Texas at Austin, Texas Archeological Salvage Project. Austin, Texas.
- Fitzgerald, T.K. and L.J. Perl. 1977. An economic analysis of the recreational value derived from Allens Creek Lake and State Park. National Economic Research Associates, Inc.
- Elias, T. 1980. The complete trees of North America: field guide and natural history. Times Mirror Magazines, Inc. New York, NY.
- Garrett, J. M. and D. G. Barker. 1987. A field guide to reptiles and amphibians of Texas. Texas Monthly Press, Inc. Austin, Texas.
- Greenwade, J.M. 1984. Soil survey of Austin and Waller Counties, Texas. U.S. Department of Agriculture.
- Hall, G. 1981. Allens Creek: a study in the cultural prehistory of the Lower Brazos River

Valley, Texas. Technical Report 61 Texas Archeological Survey. The University of Texas at Austin. Austin, Texas.

- Lewis, J. C. 1986. The whooping crane. Pages 659-676 in R. L. DiSilvestro, ed. Audubon Wildlife Report 1986. The National Audubon Society. New York.
- Linam, G.W., J.C. Henson, and M.A. Webb. 1994. A fisheries inventory and assessment of Allens Creek and the Brazos River, Austin County, Texas. River Studies Report Number 12. Texas Parks and Wildlife Department. Austin, Texas.
- Loughmiller, C. and L. Loughmiller. 1989. Texas wildflowers: a field guide. University of Texas Press. Austin, Texas.
- Mahler, W. F. 1988. Shinner's manual of the north central Texas flora. Botanical Research Institute of Texas, Inc. Fort Worth, Texas.
- Oberholser, H. C. 1974. The bird life of Texas. Volumes 1 and 2. University of Texas Press. Austin, Texas.
- Price, A. H. 1990. Phrynosoma cornutum. Reptilia: Squamata: Sauria: Iguanidae. Texas Parks and Wildlife Department. Austin, Texas.
- Reeves, R. G. 1977. Flora of central Texas. Grant Davis Inc. Dallas, Texas.
- Scott, S. L., editor. 1987. Field guide to the birds of North America. National Geographic Society. Washington, D.C.
- Tennant, A. 1984. The snakes of Texas. Texas Monthly Press, Inc. Austin, Texas.
- Texas Parks and Wildlife Department. 1987. Endangered and threatened species list. Texas Parks and Wildlife. Austin, Texas.
- Texas Organization for Endangered Species. 1993. Endangered, threatened and watch lists of Texas plants: Publication 9. Texas Organization for Endangered Species. Austin, Texas.
- Texas Organization for Endangered Species. 1992. Endangered, threatened and watch list of natural communities of Texas. Publication 8. Texas Organization for Endangered Species. Austin, Texas.
- Texas Organization for Endangered Species. 1988. Invertebrates of special concern. Publication 7. Texas Organization for Endangered Species, Austin, Texas.
- United States Department of Agriculture: Soil Conservation Service. 1985. Hydric soils of the United States. USDA-SCS National Bulletin Number 430-5-9; Washington D.C.
- United States Fish and Wildlife Service. 1991. Federally listed endangered and threatened species by counties. FWS, Arlington, Texas.

Vines, R. A. 1986. Trees, shrubs, and woody vines of the southwest. University of Texas Press; Austin, Texas.

Werler, J. and B. Marvel. 1985. A field guide to Texas snakes. Gulf Publishing Company; Houston, Texas.

Wetland Training Institute, Inc. 1991. Field guide for wetland delineation: 1987 Corps of Engineers manual. WTI 91-2; Poolesville, Maryland.

**APPENDIX B**  
**ENDANGERED AND THREATENED SPECIES**  
**OCCURRING IN AUSTIN COUNTY**



**Common and Scientific Names of  
Threatened and Endangered Species  
of Austin County**

<u>Common Name</u>	<u>Scientific Name</u>
Alligator Snapping Turtle	<i>Macroclemys temminckii</i>
American Swallow-Tailed Kite	<i>Elanoides forficatus</i>
American Peregrine Falcon	<i>Falco peregrinus anatum</i>
Aplomado Falcon	<i>Falco femoralis septentrionalis</i>
Attwater's Greater Prairie Chicken	<i>Tympanuchus cupido attwateri</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Blue Sucker	<i>Cycleptus elongatus</i>
Brown Pelican	<i>Pelecanus occidentalis</i>
Houston Toad	<i>Bufo houstonensis</i>
Interior Least Tern	<i>Sterna antillarum anthalassos</i>
Piping Plover	<i>Charadrius melodus</i>
Red-Cockaded Woodpecker	<i>Picoides borealis</i>
Reddish Egret	<i>Egretta rufescens</i>
Texas Horned Lizard	<i>Phrynosoma cornutum</i>
Texas Scarlet Snake	<i>Cemophora coccinea lineri</i>
Texas Prairie Dawn (Texas Bitterweed)	<i>Hymenoxys texana</i>
Timber Rattlesnake	<i>Crotalus horridus</i>
Western Smooth Green Snake	<i>Opheodrys vernalis blanchardi</i>
White-Faced Ibis	<i>Plegadis chihi</i>
White-tailed Hawk	<i>Buteo albicaudatus</i>
Whooping Crane	<i>Grus americana</i>
Wood Stork	<i>Mycteria americana</i>

**APPENDIX C**  
**CORRESPONDENCE FROM THE U.S.**  
**FISH AND WILDLIFE SERVICE**



# United States Department of the Interior

**FISH AND WILDLIFE SERVICE**  
Division of Ecological Services  
17629 El Camino Real, Suite 211  
Houston, Texas 77058

February 11, 1997

JWT  
AG  
Copy To Tom Goach  
+ Jeff Taylor

Albert Gray  
Development Manager  
Sabine River Authority  
P. O. Box 579  
Orange, Texas 77630

Post-It® Fax Note	7871	Date	3/6	# of pages	1
To	Tom Goach		From	Albert	
Co./Dept.			Co.		
Phone #			Phone #		
Fax #			Fax #		

Dear Mr. Gray:

The U.S. Fish and Wildlife Service (myself and Bryan Pridgeon) has been participating on the SETAC to insure that TTWP planning will be consistent with any Federal environmental requirements and that fish and wildlife resource planning is included with other features of project development.

We have recently reviewed and completed a preliminary field evaluation of the Allens Creek Reservoir site near Wallis, Texas. The information contained in the environmental issues volume is quite comprehensive but we believe Figures 2.1 and 2.2 should be combined into one (or an overlay) cover type habitat map.

The action agency for this project should inspect the area for bald eagle nests and for the presence of Attwater greater prairie chicken at the time the detailed planning for construction begins. There are eagle nests across the Brazos in Fort Bend County and suitable habitat for prairie chickens was identified within the reservoir area.

Alligator Hole is a rather unique and interesting habitat. Mitigation for losses here would be extremely costly so the project should be designed around the alternative that avoids this area. A mitigation scheme for subsequent losses could be put in place in and around the Alligator Hole landscape to return value that has been lost from past agriculture. This could be done by an easement on the lands involved to conserve them as natural areas against deterioration and drainage for the future.

The operation of the reservoir for storing trans-basin water was not discussed in the document if this is the case. Would the reservoir be on the direct route of trans-Texas conveyance or re-allocation take place by withdrawal and discharge into the Brazos during pick up periods elsewhere? This requirements could affect design of the reservoir and consequential environmental impacts in the reservoir and river.

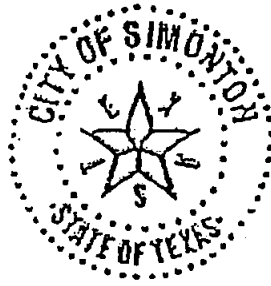
Thank you for the opportunity to comment. If you need any additional information please do not hesitate to contact me at 713/286-8282.

Sincerely,

*[Handwritten Signature]*  
Frederick T. Werner  
Chief, Regulatory Activities

cc:  
Glenda Callaway, TTWP Environmental Focus Group

**APPENDIX D**  
**CORRESPONDENCE FROM THE CITY OF SIMONTON**



**CITY OF SIMONTON**

P.O. Drawer A - Simonton, Texas 77476-1010

11 May 1995

Mr. R.A. Roberts  
Brazos River Authority  
PO Box 7555  
Waco, TX 76714-7555

Dear Mr. Roberts:

Recently it came to my attention, through an article in the Houston Chronicle, that there is some discussion of constructing a lake on the site of the formerly proposed Allens Creek Nuclear Power Plant.

At a pre-construction hearing, that was held in Wallis Texas in the early eighties, it was revealed that no studies concerning the effects of building an extensive levee system to form the lake would have on the water levels during a flooding situation on this East side of the river, which is where our community is located.

It is my understanding, by observation, experience and word of mouth, that the "Frydek Bottom", which this area is known as locally, accepted flood waters prior to water rising on this side of the river. By taking 9000 acres out of the flood plain, this would force the water onto us under lesser flooding conditions than in the past.

This community has undergone two devastating floods in the past three years. We have had an untold loss of monies, property values and sense of security and well being.

I would go on record, on behalf of my community, as requesting extensive studies be completed prior to embarking on this project.

Please keep us informed on any actions taken with this project.

Sincerely,

Maurice Berkman  
Mayor

cc: Ft Bend County Judge  
Commissioner O'Shields  
Corp of Engineers  
TNRCC

Representative McCoulskey

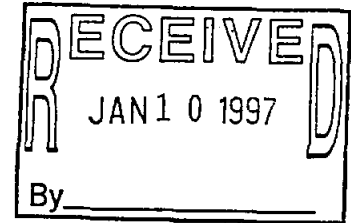
**APPENDIX E**  
**COMMENTS**

# The Light company

Houston Lighting & Power

P.O. Box 1700 Houston, Texas 77251-1700 713-207-1111

January 8, 1997



Mr. Thomas Gooch, P.E.  
Freese and Nichols, Inc.  
4055 International Plaza, Suite 200  
Fort Worth, Texas 76109-4895

**Re: Trans-Texas Water Program - Southeast Area  
Comments on Draft Memorandum Reports for Allens Creek Reservoir**

Dear Mr. Gooch:

Members of Houston Lighting & Power Company's (HL&P) staff have reviewed the two draft memorandum reports prepared for the Trans-Texas Water Program concerning the proposed Allens Creek Reservoir: *Operation Studies and Opinions of Cost for Allens Creek Reservoir* (Operation Study) dated November 1996 and *Status of Environmental Issues for Allens Creek Reservoir* (Environmental Study) dated November 1996. The following comments are submitted for your consideration.

### **Comments on the Environmental Study**

1. Copies of additional studies which contained information about wildlife and habitat at the proposed Allens Creek Reservoir site were sent to you last month. We feel that where appropriate this information should be incorporated into the final Trans-Texas report.
  - *Wildlife Habitat Appraisal for The Proposed Allens Creek Reservoir Site*. August 1995. Dr. James Lester of the University of Houston Clear Lake commissioned by Texas Parks and Wildlife Department.
  - *Biological Monitoring Program of the Allens Creek Nuclear Generating Station*. 1975. Dames & Moore Environmental commissioned by Houston Lighting & Power Company.

Mr. Thomas Gooch, P.E.

January 8, 1997

Page 2

2. The title of Section 2 of the Environmental Study, "Affected Environment", should be changed to something less prejudicial. We suggest a more neutral title such as "Site Description" since the purpose of Section 2 is to detail the existing baseline conditions found at the site; whereas, Section 3 assesses how constructing a reservoir will impact the site.
3. The Operation Study proposes an alternative dam alignment to reduce wetlands mitigation costs, but this second design and the reduced impacts are only briefly mentioned in the Environmental Study. We believe that the Environmental Study should fully discuss this alternative.
4. During the recent meeting of the Technical Advisory Committee for the Southeast Area of the Trans-Texas Water Project, there were questions as to why the estimated acreage needed to mitigate the reservoir site differed so much between the Environmental Study and the Wildlife Habitat Appraisal prepared by Dr. Lester. Both reports contain similar area estimates for potential wetlands, but it appears that Dr. Lester based his mitigation estimates on mitigating all land inundated by a 8,250 acre reservoir, whereas, the Environmental Study assumes that only the jurisdictional waters of the U.S. impacted by a 8,250 acre and a 7,060 acre reservoir would be mitigated. We understand that under current law the reservoir developer must mitigate impacts to jurisdictional waters of the U.S. and that any additional mitigation would be solely at the discretion of the developer. If this is the case, it is inappropriate to include estimates for discretionary mitigation in cost estimates that will be used to compare this water management strategy with other strategies.

Additionally, we question whether the statement in Section 4 (third paragraph) that the remaining area in the proposed reservoir area would require some mitigation is correct.

5. Both the Environmental Study and Dr. Lester's Wildlife Habitat Appraisal assume that all the environmental and ecological impacts will be negative. This assumption has proven false at the reservoir constructed adjacent to the South Texas Project in Matagorda County. HL&P constructed the 7,000 acre reservoir in the early 1980's and filled the reservoir with fresh water from the Colorado River. Annual waterfowl population counts conducted each fall from 1980 to 1986 showed a increase in the number and diversity of migratory waterfowl and native shorebird species. Annual Mad Island Marsh Christmas Bird Counts which are conducted at the STP Reservoir and neighboring land have continued to identify a wide range of species that have been attracted by the reservoir. Reports detailing these ecological studies are attached. In general, the ecological advantages of managed deep water habitat over farmlands include increased number and diversity of migratory waterfowl (i.e., ducks, loons, grebes), increased number and



Mr. Thomas Gooch, P.E.

January 8, 1997

Page 3

diversity of native shorebird species, and a refuge for migratory waterfowl during drought cycles.

In addition, aquatic life habitat has not been addressed. Construction of a reservoir enables a well managed fishery to be established that will enhance the ecological value of the site, the recreational fishing activity, and general aquatic recreation activities.

HL&P believes that the positive environment and ecological impacts should be fully discussed in the Environmental Study and the value of these positive impacts be used to offset needed mitigation.

6. Will the reservoir dam design include relief well or some other mechanism for relieving the hydrostatic pressure of the reservoir on the dam? If so, could this water be used to enhance the wetland areas which lay between the reservoir and the Brazos River?

#### **Comments on the Operation Study**

1. The Operation Study is somewhat confusing. The main body of the study addresses the operation and costs associated with a 8,250 acre reservoir. Almost as an afterthought, an additional section was added which proposes an alternate dam alignment that would minimize the inundation of wetland areas. Since the outcome of evaluating this water management strategy would undoubtedly be significantly different depending on which of the two design options is considered, it is important that only one design be proposed for final review by the Trans-Texas Section Team so that all team members are evaluating the same project. Based on the material in these studies, HL&P supports the concept of realigning the dam to minimize disturbing established wetland areas. We suggest that the realigned dam design be the single design evaluated by the Trans-Texas Selection Team for the Allens Creek Reservoir; consequently, all the supporting operational studies, cost estimates, environmental impacts, and other materials should support this design. It seems more appropriate to discuss the two alternate designs and the advantages of the realignment in the report's Introduction, then focus exclusively on the one design in the body of the report.
2. The Operation Study does not address several of the criteria which will be used to evaluate the various Water Management Strategies. In particular, the study does not discuss a very important issue: the economic impacts of the reservoir to the surrounding communities. HL&P commissioned an economic analysis of the recreational value of the proposed Allens Creek Reservoir and State Park when we were planning an electric generating facility adjacent to the reservoir. The study, which is attached, concluded that

Mr. Thomas Gooch, P.E.

January 8, 1997


Page 4

there would be an annual net benefit of at least \$24 million (in 1985 dollars) from the direct use of reservoir and park facilities. In addition, the development of a dependable water supply will also impact the economic development of not only the surrounding communities, but also of the downstream communities in Fort Bend and Brazoria Counties. HL&P suggests that the economic impact of the reservoir be fully discussed in the final Study.

3. The Operation Report does not address operating the Allens Creek Reservoir and the other Brazos River Authority reservoirs as a system. Is it possible to optimize the yield from the Brazos River and the Allens Creek Reservoir by operating these reservoirs in a coordinated fashion?

We appreciate the opportunity to comment on these Studies. Should you have any questions about our comments, please contact Ms. Cynthia M. Schmidt at (713) 945-8214.

Sincerely,



Edward A. Feith, P.E.

Manager, Environmental Department

CMS/cms J:\ENV\WATERSUP\ALENS-CK\COMMENT1.WP6

Attachments

cc: Jeff Taylor



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Division of Ecological Services  
17629 El Camino Real, Suite 211  
Houston, Texas 77058

February 11, 1997

JWT  
AG  
Copy To Tom Gocch  
+ Jeff Taylor

Albert Gray  
Development Manager  
Sabine River Authority  
P. O. Box 579  
Orange, Texas 77630

Dear Mr. Gray:

The U.S. Fish and Wildlife Service (myself and Bryan Pridgeon) has been participating on the SETAC to insure that TTWP planning will be consistent with any Federal environmental requirements and that fish and wildlife resource planning is included with other features of project development.

We have recently reviewed and completed a preliminary field evaluation of the Allens Creek Reservoir site near Wallis, Texas. The information contained in the environmental issues volume is quite comprehensive but we believe Figures 2.1 and 2.2 should be combined into one (or an overlay) cover type habitat map.

The action agency for this project should inspect the area for bald eagle nests and for the presence of Attwater greater prairie chicken at the time the detailed planning for construction begins. There are eagle nests across the Brazos in Fort Bend County and suitable habitat for prairie chickens was identified within the reservoir area.

Alligator Hole is a rather unique and interesting habitat. Mitigation for losses here would be extremely costly so the project should be designed around the alternative that avoids this area. A mitigation scheme for subsequent losses could be put in place in and around the Alligator Hole landscape to return value that has been lost from past agriculture. This could be done by an easement on the lands involved to conserve them as natural areas against deterioration and drainage for the future.

The operation of the reservoir for storing trans-basin water was not discussed in the document if this is the case. Would the reservoir be on the direct route of trans-Texas conveyance or re-allocation take place by withdrawal and discharge into the Brazos during pick up periods elsewhere? This requirements could affect design of the reservoir and consequential environmental impacts in the reservoir and river.

Thank you for the opportunity to comment. If you need any additional information please do not hesitate to contact me at 713/286-8282.

Sincerely,

  
Frederick T. Werner  
Chief, Regulatory Activities

cc:  
Glenda Callaway, TTWP Environmental Focus Group

December 8, 1996

Albert Gray  
Sabine River Authority of Texas  
Box 579  
Orange, Texas 77630

RECEIVED  
DEC 11 1996  
SABINE RIVER AUTHORITY  
OF TEXAS

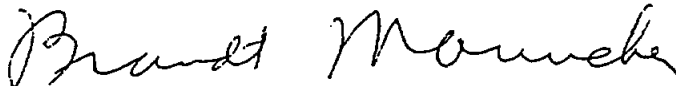
Dear Mr. Gray,

Enclosed is a copy of my personal comments regarding the TPWD's Legislative Summary for the State Water Plan.

My comments on the Allens Creek Project can be found here as well as other comments that address the Trans - Texas Plan. Please do send me a copy of Volume II of the Allens Creek Plan.

Thank you for your assistance.

Sincerely,



Brandt Mannchen  
1705 Michigan #3  
Houston, Texas 77006  
H713-521-9534, W713-640-4313

December 8, 1996

Craig Pedersen  
Executive Administrator  
Texas Water Development Board  
P. O. Box 13231  
1700 N. Congress Ave.  
Austin, Texas 78711-3231

Dear Mr. Pedersen,

Enclosed are my personal comments regarding the "Draft Water for Texas Today and Tomorrow - A Draft Legislative Summary of the 1996 Consensus - based Update of the State Water Plan".

1) I am concerned that the TWDB is talking to state legislators about what bills should be passed by the Texas Legislature and what should be in the bills. This one action virtually nullifies any possible impact the public, including myself, can have on this proposal. This is not true public participation since the outcome is already preordained. In essence this is sham public input. I object!

2) In reality the entire process is backwards. The Texas Water Plan update should come out first, the public should give their comments, and then the water plan finalized. By the time the water plan does come out the TWDB will have gotten much of what it wanted, without public input and scrutiny of the water plan because the Texas Legislature will have passed changes that TWDB pushed to have made. All this is being done again without the benefit of public input which can correct errors as well as bring additional information to the fore and prevent hasty actions that are not in the public's best interest. I object again!

3) Since we have no inflow studies completed, as one example, how can we push for changes to water policy that will effect inflows when we cannot tell how the inflow issue will effect the water plan? The same can be said for the drought criteria. Without seeing what TWDB proposes and how the public feels about this how can legislation be passed that will change drought policy regarding overriding inflow protection? You in essence seek changes to obtain more power before you give the public the ability to see what you propose and judge it.

4) I certainly agree with Bill Moore of the San Jacinto River Authority that we need to have people take responsibility for their actions or inactions. This means that we need to start living within our means. In the Houston Area we have exceeded our carrying capacity. We exceed air quality standards so we are exceeding our airshed capacity, we exceed water quality standards so we are exceeding our water quality capacity, we exceed our watershed capacity to only use water in the basin where we live, we exceed our floodshed capacity since we have severe floods every year which cause millions of dollars of damage, we have exceeded our wildlife capacity since we have endangered species, depleted wildlife populations, and deteriorated habitat (very little native prairie and bottomland hardwoods left, to name just two habitats that have severely deteriorated), we have exceeded our vegetation capacity by destroying so much of our native vegetation that erosion is having a major impact on our human created systems, like dredging for navigation.

We need to start living within our means. Just because there have been interbasin transfers in the past does not mean we should have more of them. The magnitude of interbasin transfers being proposed are huge compared to what we have seen in the past. I do not believe that once water has been transferred that it can be cut off from the basin it has been transferred to. I believe those who say this are not being accurate or honest. I do not really believe that once Houston gets Trans - Texas in it will give the water back to East Texas.

We need to redirect our population growth to areas where we are not exceeding our water carrying capacity. We also need to reduce population growth and discourage additional people from moving here. We need to reduce our material usage. We do not need a doubled population. Trend is not destiny. We can plan for these things. If we do not talk about them and start the process then we will never come to grips with the growing forever cancer talk. This is not biologically possible or socially desirable or responsible.

4) I also am concerned that we are piecemealing the old Texas Water Plan. You do not show in the document the existing water transfer projects that are in place. If you overlay these with the ones proposed that are in your document you can very easily see that a canal or pipeline down to Brownsville and one to the Panhandle are not that farfetched from happening. The political momentum will be hard to resist once all of these projects are in place to go ahead and make some final connections. This would be disastrous for the environment and for people's livelihoods.

5) The economic emphasis of this plan scares me. Economic potential is not necessarily good for people. For instance, massive layoffs in Texas and elsewhere, are good for economic potential for bondholders and stockholders as are movements to other countries of jobs. But they are devastating to our people who need the jobs here and now. In addition on page 2 this plan does not focus on economic viability because it does not take the attitude that overstripping our natural resource base is bad and that those jobs shipped out of Texas to other countries is not good. In addition on page 1 when you talk about reasonable cost for economic development what does this mean? Is it reasonable to have socialistic intents to support wealthy persons or interests by subsidizing these with lots of water projects? Is this best for the public in the long run?

6) I continue to be worried that by TPWD signing on to this process and plan it has placed itself in an impossible position. I do not believe TPWD will have the leverage to stop unacceptable parts of this plan when it is so enmeshed in the matrix of the plan. I do not believe that TPWD will have the independent voice to stop foolishness within the process. The TPWD has an opportunity to do this outside the process where it can talk directly to the public and not be compromised by its entanglements within the process. This is a great concern that I have. Already the PR part of the process makes you wonder about its fairness and validity. This is not a consensus-based process when you do not allow the public to respond before you work with legislators about what changes are needed and when most meetings of the Trans-Texas project are held at times when the public cannot attend.

7) I am opposed to many of the water projects that are listed on page 6, Figure 5, In particular the WALLISVILLE DAM WILL UNACCEPTABLY IMPACT THE TRINITY RIVER DELTA AND IS NOT NECESSARY ECONOMICALLY. The Allens Creek Dam really scares me since on page 1 - 1 of the Draft Memorandum Status of Environmental Issues for Allens Creek Reservoir, Trans-Texas Water Program Southeast Area, November 1996, when it says that "The proposed reservoir could provide additional yield and or serve as regulating storage for water being transferred westward to areas of need in the central part of the state.". I can easily see Toledo Bend water going to Austin and San Antonio as well as Houston. This is not living within our means and is disrupting entire multiple watersheds in a third of the State of Texas. This is not a comforting thought for a plan that is supposed to care about the environment. This same phrase is also given on page 1 - 1 of the companion report, "Operation Studies and Opinions of Cost for Allens Creek Reservoir, Volume I - Text.

8) I am very concerned about the water transfer proposal on page 6 that will take Trinity River (Luce Bavou Project) across Sam Houston National Forest in San Jacinto County. We must stop thinking of the NF as a place to put projects across and destroy the environment. I am also concerned about the canal that is shown as connecting Lake Conroe to the Conroe Area. It appears as if the San Jacinto River may be impacted by this. The river makes an excellent flood control, recreation, and wildlife corridor to Lake Houston and should be protected and not degraded.

9) Many of the other dams on page 6 look unneeded including the Paluxy Dam, Rio Grande Wier, and others.

10) I have a concern that this plan does not do enough about stressing the need to learn to live with droughts and not fight against them. Droughts are not disasters. People living where there is not enough water is the disaster. It is natural and cyclical to have dry and wet times. We need to adapt to these real natural events and not try to engineer our way around them.

11) The State must stop granting water rights permits to already overallocated waters. This makes no sense at all. In addition the state must not do anything to weaken the Texas Open Records or Meetings Acts. There are very few real emergencies that require such draconian authority that cannot be seen coming and planned for ahead of time. Do not wait for droughts or floods but plan ahead. I am totally against any emergency suspension of inflows into bays, estuaries, and rivers. You do not even define what emergency is here or give the criteria for determining if it exists.

12) I am not for using streams as conveyance mechanisms for someone's water that will be used later. Once the water hits the stream it is the public's and should be used for public purposes. Also on page 11, TNRCC "must" and not simply "consider" mitigate impacts of interbasin transfers. Why would you allow short-changing of other's environment when you take their water?

13) Once again water conservation is given short shrift here. A minimum water conservation plan must reduce use by 30%. Otherwise you are just paying lipservice to what we can do to save water.

14) On page 13, I am against streamlining water rights permitting. This usually means the public has fewer opportunities to get their concerns on record. Also on page 15, I do not want the state to buy dam sites. Buying dam sites ensure that boondoggle projects will be provided subsidies and momentum for completion.

15) On page 16, I do not see a crisis of bond funding. It looks like a lot of money is left to use. It is obvious the State wants to mix all the monies so it can use them to build boondoggle water projects without the public's oversight. I object. In addition environmental mitigation must be a state requirement and not just a federal one.

16) On page 19 flooded areas should be bought and turned into natural flood control areas and be used for parks, recreation, and wildlife corridors.

17) On page 23, I have real concerns about regional environmental mitigation banks. These banks, if not operated properly, may make development of wetlands sites, which under Section 404(b)(1) guidelines by the U. S. EPA are deemed to be sites of special significance and should not be developed, easier to develop. Two areas where mitigation banks would be useful would be the Katy Prairie, so that we could create at least a 50,000 acre Katy Prairie National Wildlife Refuge, and Sam Houston National Forest where we could buy inholdings, acquire better lands, and corridors to connect all of the federal forest lands.

18) I see nothing in here that addresses saving wild, scenic, and recreational rivers in our state. This is a large oversight and must be corrected.

19) In West Harris County and in Waller and Fort Bend Counties I want to see some groundwater use saved for the Katy Prairie and the farms that exist there so the hundreds of thousands of waterfowl and shorebirds can safely live in this area.

20) I am against golf course irrigation projects having a greater priority than instream flows for wildlife and for natural purposes.

21) I am very concerned that the present studies on inflows into Galveston Bay suggest that about half of the water (4.9 million acre feet) be protected for bays and estuaries and the other 50% be allowed to be sucked up by development. This hardly seems fair to the environment and its natural range of flows.

Because of these concerns I request that this document be withdrawn and not be developed until the new Texas Water Plan is finalized. Thank you.

Sincerely,

A handwritten signature in cursive script that reads "Brandt Mannchen". The signature is written in black ink and is positioned to the right of the word "Sincerely,".

Brandt Mannchen  
1705 Michigan #3  
Houston, Texas 77006  
H713-521-9534, W713-640-4313





AG

Don W. Hooper, Ph.D.  
Office of the Superintendent

Copy To Tom Gooch  
+ Jeff Taylor

January 28, 1997

Mr. Albert Gray  
Coordinator, Trans-Texas Water Program Southeast Area  
Sabine River Authority  
P.O. Box 579  
Orange, Texas 77630

Re: Proposed Allens Creek Reservoir

Dear Mr. Gray:

I understand that the Trans-Texas Water Program (Southeast Study Area) is considering the proposed Allens Creek Reservoir as a water supply option for meeting projected water demand in the State of Texas. As a local official I am in favor of the Allens Creek Reservoir because

- the Fort Bend Independent School District will ultimately need a dependable surface water supply
- future economic development in FBISD depends on the future availability of a dependable water supply
- the reservoir can store otherwise destructive flood water for constructive use during droughts
- the reservoir will have a positive economic impact on the school district due to increased recreation facilities and tourism
- the reserve will have a positive economic impact on the school district due to the potential for development and increased property value of the land surrounding the reservoir
- the reservoir will enhance the environment by replacing flood prone agricultural and grazing land with a reservoir that can support a large fish and bird population.

I urge you to give full consideration to the positive economic impact that the Allens Creek Reservoir will have on the local and regional economy and recommend it as a water supply project to the State.

Sincerely,

Don W. Hooper, Ph.D.  
Superintendent

cc: County Judge  
Brazos River Authority  
The Greater Fort Bend Economic Development Council

Copy E. Taylor  
TG



One Trojan Drive  
Stafford, Texas 77477  
Tel (281) 983-2950  
Fax (281) 983-2940

January 28, 1997

Mr. Albert Gray  
Coordinator, Trans-Texas Water Program Southeast Area  
Sabine River Authority  
P.O. Box 579  
Orange, Texas 77630

Mayor  
Jim McDonald

Re: Proposed Allens Creek Reservoir

Aldermen  
Terry J. Hoolay  
Craig A. Kress  
Joe McCann  
Mark McGrath  
David J. Ptowka

Dear Mr. Gray:

City Secretary  
Elaine Herff

I understand that the Trans-Texas Water Program (Southeast Study Area) is considering the proposed Allens Creek Reservoir as a water supply option for meeting projected water demand in the State of Texas. As a Local official, I am in favor of the Allens Creek Reservoir because:

The City of Meadows will ultimately need a dependable surface water supply.

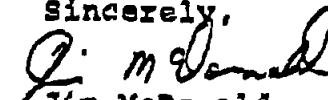
Future economic development in the City of Meadows depends on the future availability of a dependable water supply.

The reserve will have a positive economic impact on the City of Meadows due to the potential for development and increased property value of the land surrounding the reservoir.

The reservoir will enhance the environment by replacing flood prone agricultural and grazing land with a reservoir that can support a large fish and bird population.

I urge you to give full consideration to the positive economic impact that the Allens Creek Reservoir will have on the local and regional economy and recommend it as a water supply project to the State.

Sincerely,

  
Jim McDonald  
Mayor

JM:eh

cc: County Judge Mike Rosell  
Brazos River Authority  
The Greater Fort Bend Economic Development



Michael D. Rozell  
County Judge

## COUNTY JUDGE

Fort Bend County, Texas

(713) 341-8608  
Fax (713) 341-8609

January 16, 1997

Mr. Albert Gray  
Coordinator, Trans-Texas Water Program Southeast Area  
Sabine River Authority  
P. O. Box 579  
Orange, Texas 77630

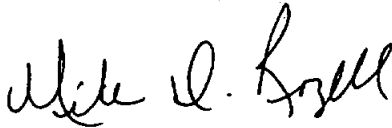
Dear Mr. Gray:

I understand that the Trans-Texas Water Program (Southeast Study Area) is considering the proposed Allens Creek Reservoir as a water supply option for meeting projected water demand in the State of Texas. As a local official, I am in favor of the Allens Creek Reservoir because:

- Fort Bend County will ultimately need a dependable surface water supply
- future economic development in Fort Bend County depends on the future availability of a dependable water supply
- the reservoir can store otherwise destructive flood water for constructive use during droughts
- the reservoir will have a positive economic impact on Fort Bend County due to increased recreational facilities and tourism
- the reserve will have a positive impact on Fort Bend County due to the potential for development and increased property value of the land surrounding the reservoir
- the reservoir will enhance the environment by replacing flood prone agricultural and grazing land with a reservoir that can support a large fish and bird population.

**I urge you to give full consideration to the positive economic impact that the Allens Creek Reservoir will have on the local and regional economy and recommend it as a water supply project to the State.**

Sincerely,

A handwritten signature in black ink that reads "Mike D. Rozell". The signature is written in a cursive style with a large, looped initial "M".

**Michael D. Rozell  
County Judge**

MDR/lz



1522 TEXAS PARKWAY • P.O. BOX 666 • MISSOURI CITY, TEXAS 77459 • 281-261-4260

**MAYOR  
Allen Owen**

January 21, 1997

Mr. Albert Gray  
Coordinator, Trans-Texas Water Program Southeast Area  
Sabine River Authority  
P. O. Box 579  
Orange, Texas 77630

Re: Proposed Allens Creek Reservoir

Dear Mr. Gray:

I understand that the Trans-Texas Water Program (Southeast Study Area) is considering the proposed Allens Creek Reservoir as a water supply option for meeting projected water demand in the State of Texas. As a local official, I am in favor of the Allens Creek Reservoir because:

- The City of Missouri City will ultimately need a dependable surface water supply.
- Future economic development in the City of Missouri City depends on the future availability of a dependable water supply.
- The reservoir can store otherwise destructive flood water for constructive use during droughts.
- The reservoir will have a positive economic impact on the City of Missouri City due to increased recreation facilities and tourism.
- The reservoir will have a positive economic impact on the City of Missouri City due to the potential for development and increased property value of the land surrounding the reservoir.
- The reservoir will enhance the environment by replacing flood prone agricultural and grazing land with a reservoir that can support a large fish and bird population.

I urge you to give full consideration to the positive economic impact that the Allens Creek Reservoir will have on the local and regional economy and recommend it as a water supply project to the State.

Sincerely,

A handwritten signature in cursive script that reads "Allen Owen".

Allen Owen  
Mayor

cc: Mike D. Rozell  
Fort Bend County Judge

Herb Appel  
Greater Fort Bend Economic Development

Brazos River Authority

Raymond R. Betz Interests, Inc.  
Raymond R. Betz Brokerage, Inc.



**The BETZ Companies**  
Established in 1978

Betz Realty Investors, L.C.  
Betz Realty Management, L.C.

January 17, 1997

Mr. Albert Gray  
Coordinator, Trans-Texas Water Program Southeast Area  
SABINE RIVER AUTHORITY  
P.O. Box 579  
Orange, Texas 77630

*RE: Proposed Allens Creek Reservoir*

Dear Mr. Gray:

I understand that the Trans-Texas Water Program (Southeast Study Area) is considering the proposed Allens Creek Reservoir as a water supply option for meeting projected water demand in the State of Texas. As a local real estate professional, I am in favor of the Allens Creek Reservoir because:

- Fort Bend County will ultimately need a dependable surface water supply.
- future economic development in Fort Bend County depends on the future availability of a dependable water supply.
- the reservoir can store otherwise destructive flood water for constructive use during droughts.
- the reservoir will have a positive impact on Fort Bend County due to:
  - increased recreation facilities and tourism.
  - the potential for development and increased property value of the land surrounding the reservoir.
- the reservoir will enhance the environment by replacing flood prone agricultural and grazing land with a reservoir that can support a large fish and bird population.

I urge you to give full consideration to the positive economic impact that the Allens Creek Reservoir will have on the local and regional economy and recommend it as a water supply project to the State.

Sincerely,

RAYMOND R. BETZ BROKERAGE, INC.

A handwritten signature in black ink, appearing to read 'Tom Condon, Jr.', written in a cursive style.

Tom Condon, Jr.  
Vice President

cc: The Greater Fort Bend Economic Development Council

Raymond R. Betz Interests, Inc.  
Raymond R. Betz Brokerage, Inc.



**The BETZ Companies**  
Established in 1976

Betz Realty Investors, L.C.  
Betz Realty Management, L.C.

January 27, 1997

Mr. Albert Gray  
Coordinator, Trans-Texas Water Program Southeast Area  
SABINE RIVER AUTHORITY  
P.O. Box 579  
Orange, Texas 77630

*RE: Proposed Allens Creek Reservoir*

Dear Mr. Gray:

I understand that the Trans-Texas Water Program (Southeast Study Area) is considering the proposed Allens Creek Reservoir as a water supply option for meeting projected water demand in the State of Texas. As a local real estate professional, I am in favor of the Allens Creek Reservoir because:

- Fort Bend County will ultimately need a dependable surface water supply.
- future economic development in Fort Bend County depends on the future availability of a dependable water supply.
- the reservoir can store otherwise destructive flood water for constructive use during droughts.
- the reservoir will have a positive impact on Fort Bend County due to:
  - increased recreation facilities and tourism.
  - the potential for development and increased property value of the land surrounding the reservoir.
- the reservoir will enhance the environment by replacing flood prone agricultural and grazing land with a reservoir that can support a large fish and bird population.

I urge you to give full consideration to the positive economic impact that the Allens Creek Reservoir will have on the local and regional economy and recommend it as a water supply project to the State.

Sincerely,



Raymond R. Betz

cc: The Greater Fort Bend Economic Development Council



## RESPONSE TO COMMENTS

Response to Comments by Edward Feith, Houston Lighting and Power Company:

1. **General**  
Please note that this is only a status report on existing environmental conditions at the Allens Creek site. It is not meant to take the place of the environmental assessment, which will come later.
  
2. **Additional Information on Wildlife and Habitat**  
*Wildlife Habitat Appraisal for The Proposed Allens Creek Reservoir Site*  
Discussion was added to the Executive Summary and Section 4 - Permitting and Regulatory Issues. This discussion centers on the compensation requirements identified in the WHAP study.  
  
*Biological Monitoring Program of the Allens Creek Nuclear Generating Station*  
An additional section (Section 2.3.1 - Wildlife) was added to Section 2 to discuss more completely the environmental conditions within the proposed reservoir area.
  
3. **Title of Section 2**  
The title for Section 2 has been changed from "Affected Environment" to "Existing Environment."
  
4. **Discussion of Alignment Change**  
Table 3-1 was added to Section 3.2 to demonstrate the differences in impacts and mitigation requirements with and without Alligator Hole.
  
5. **Mitigation Acreage**  
Compensation acreage identified in the WHAP report would be required by Texas Parks and Wildlife Department for impacts to wildlife as a result of construction of the reservoir. Mitigation for impacts to wetlands and other jurisdictional waters would be required by the U.S. Army Corps of Engineers. It is hoped that mitigation acreage required by the Corps could be incorporated into the compensation acreage required by TPWD.
  
6. **Positive Environmental/Ecological Impacts**  
Discussion was added to Section 3.3 (3.3.1 - Wildlife) to cover the shift in habitat types as a result of construction of the reservoir.
  
7. **Relief Wells and Wetland Area Enhancement**  
Your suggestion is a good one if relief wells are in fact needed. However, that point will not be clear until the design phase, when there will be more detailed geotechnical work and decisions on the embankment configuration.

Response to Comments by Frederick Werner, US Fish and Wildlife Service:

First four paragraphs: Noted.

Fifth paragraph: The Trans-Texas Scope called for a review of the benefits and environmental impacts of operating Allens Creek Reservoir as a balancing reservoir in the Trans-Texas system. The environmental impacts of using Allens Creek as a balancing reservoir are very similar to those of using it as a water supply project. Those effects are covered in the report. The use of Allens Creek operationally as a balancing reservoir would cause day to day variations but would not impact the yield. However, if considerable storage is dedicated to smoothing out *seasonal* demand, this would affect the yield. The specifics of the balancing reservoir operation would depend on the specifics of the program to export water to the west. The trade-off between yield and the balancing need should be analyzed at the time a specific program of transfer is established.

Response to Comments by Brandt Mannchen:

Item #7 referencing Allens Creek Reservoir: Noted

Response to Comments by Don Hooper, Fort Bend ISD: Noted

Response to Comments by Jim McDonald, City of Meadows: Noted

Response to Comments by Michael Rozell, Fort Bend County Judge: Noted

Response to Comments by Allen Owen, Mayor of Missouri City, Texas: Noted

Response to Comments by Tom Condon, The Betz Companies: Noted

Response to Comments by Raymond Betz, The Betz Companies: Noted