



Public Notice

**US Army Corps
of Engineers**
Fort Worth District

Applicant: Angelina & Neches River Authority

Permit Application No.: 198700524

Date: September 5, 2003

The purpose of this public notice is to inform you of a proposal for work in which you might be interested. It is also to solicit your comments and information to better enable us to make a reasonable decision on factors affecting the public interest. We hope you will participate in this process.

Regulatory Program

Since its early history, the U.S. Army Corps of Engineers has played an important role in the development of the nation's water resources.

Originally, this involved construction of harbor fortifications and coastal defenses. Later duties included the improvement of waterways to provide avenues of commerce. An important part of our mission today is the protection of the nation's waterways through the administration of the U.S. Army Corps of Engineers Regulatory Program.

Section 10

The U.S. Army Corps of Engineers is directed by Congress under Section 10 of the Rivers and Harbors of 1899 (33 USC 403) to regulate *all work or structures in or affecting the course, condition or capacity of navigable waters of the United States*. The intent of this law is to protect the navigable capacity of waters important to interstate commerce.

Section 404

The U.S. Army Corps of Engineers is directed by Congress under Section 404 of the Clean Water Act (33 USC 1344) to regulate the *discharge of dredged and fill material into all waters of the United States, including wetlands*. The intent of the law is to protect the nation's waters from the indiscriminate discharge of material capable of causing pollution and to restore and maintain their chemical, physical and biological integrity.

Contact

Name: Ms. Jennifer Walker

Phone Number: (817) 886-1733

JOINT PUBLIC NOTICE

U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT

AND

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUBJECT: Application for a Department of the Army Permit under Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act of 1899, and for water quality certification under Section 401 of the CWA to discharge dredged and fill material into waters of the United States associated with the construction of Lake Columbia (formerly known as Lake Eastex), a proposed 10,000-surface-acre reservoir in Smith and Cherokee Counties, Texas.

APPLICANT: Angelina & Neches River Authority
Mr. Kenneth Reneau
General Manager
210 Lufkin Avenue
Lufkin, Texas 75902

APPLICATION NUMBER: 198700524

DATE ISSUED: September 4, 2003

LOCATION: The proposed reservoir would be located on Mud Creek, a tributary to the Angelina River and would extend into Smith and Cherokee Counties. The proposed dam site would be located approximately 3 miles downstream (south) of U.S. Highway 79 in Cherokee County, approximately at UTM coordinates 297304.242 East and 3535573.434 North (Zone 15) on the Troup West, Tecula, Griffin, Jacksonville East, and New Summerfield 7.5-minute USGS quadrangle map in the USGS Hydrologic Unit 12020004.

OTHER AGENCY AUTHORIZATIONS: State Water Quality Certification

PROJECT DESCRIPTION: The proposed project would involve the discharge of dredged and fill material into approximately 220 acres of waters of the United States (U.S.) associated with the construction of Lake Columbia (Sheets 1 through 14 of 14) . Proposed filling activities would occur in conjunction with the construction of the dam, spillway, and staging areas. The project would impound approximately 14 miles of Mud Creek and would inundate approximately 10,000 acres at a conservation pool elevation of 315 feet National Geodetic Vertical Datum (NGVD). The project would adversely impact approximately 5,746.5 acres of waters of the U.S. associated with clearing, excavation, filling, and inundation.

The purpose of the proposed project is to provide water for a five-county region of East Texas, including Angelina, Cherokee, Nacogdoches, Rusk, and Smith Counties. Lake Columbia would impound approximately 195,500 acre-feet per year and would provide a firm yield of 85,090 acre-feet per year. The applicant, Angelina & Neches River Authority (ANRA) has contracted with a number of interested parties within the five-county service area to provide a total of 57,010 acre-feet of water per year. This contracted allocation would represent approximately 67% of the reservoir's firm yield. In addition to water supply, the East Texas Regional Planning Group has identified Lake Columbia as a potential water source for future steam electric power generation. The proposed project would also provide opportunities for aquatic-related recreational activities such as boating, fishing, and hunting.

The applicant has presented several studies that have been performed since 1991 to evaluate alternatives to the construction of Lake Columbia (identified in these studies as Lake Eastex). In a 1991 report, prepared by Lockwood Andrews & Newman, Inc. (LAN) identified and evaluated eleven alternative water supplies. These alternatives and their associated costs are listed on Sheet 11 of 14. Based on a 1992 re-evaluation of the LAN report, three of the originally identified project alternatives were determined to be infeasible and two of the alternatives identified as 10 and 10a, which combined the use of Lake Columbia with Sam Rayburn and Lake Columbia with Sam Rayburn and the Angelina County Regional System, respectively were revised to include a single alternative, the use of Lake Columbia alone. The East Texas Regional Water Plan, prepared in 2001 by Schaumburg and Polk, Inc. for the East Texas Regional Planning Group, evaluated and projected water needs, estimated shortfalls, and strategies for entities within a 20-county area, including the proposed five-county area that would be serviced by Lake Columbia and compared a number of alternatives to Lake Columbia (Sheet 12 of 14). Sheet 13 of 14 provides a summary of alternatives to the proposed project.

The proposed dam would be constructed of earthen fill material with an impervious clay core, cutoff to control subsurface seepage, and soil cement to maintain stability. The structure would be 6,800 feet in length and 74 feet high with a top elevation of 336 feet NGVD. The dam would contain the outlet works consisting of two 48-inch diameter pipes. The concrete service spillway would be established at an elevation of 315 feet NGVD and would extend approximately 200 feet in length. The emergency spillway would be constructed as a 1,100-foot-long earthen-bottom grass lined swale and would be established at an elevation of 335.2 feet NGVD. During a 100-year storm event, the flood elevation would rise to 323.3 feet NGVD and a Probable Maximum Flood (PMF) elevation of 335.2 NGVD. There are no proposed minimum instream flows proposed at this time. Options for minimum instream flows are currently being evaluated and will be proposed at a future date.

The proposed project would adversely impact 5,746.5 acres of waters of the U.S. as a result of dam construction and inundation of areas within the conservation pool. Waters of the U.S. affected would include the following: 3,689 acres of forested wetlands, of which 3,652 acres are bottomland hardwood forest, 144 acres of scrub shrub wetlands, 1,518 acres of emergent wetlands, 47 acres (204,864 linear feet) of intermittent streams, 255 acres (370,128 linear feet) of perennial streams, 63 acres of ponds, 0.5 acre of a forested hillside wetland seep, and 30 acres

(14,256 linear feet) of a channelized reach of Mud Creek. The project would also result in the inundation of 2,245 acres of deciduous upland forest, 235 acres of upland shrubland, and 2,381 acres of upland grassland.

The area within and surrounding the project site can generally be characterized as rural, with land uses including both managed and unmanaged woodland, improved and abandoned pasture, and sparse rural residential development. Forested wetland areas located within the project site are typically situated within the floodplain of Mud Creek or its tributaries and are dominated by a variety of trees and shrubs including: willow oak (*Quercus phellos*), overcup oak (*Quercus lyrata*), American elm (*Ulmus americana*), sweet gum (*Liquidambar styraciflua*), hackberry (*Celtis laevigata*), water oak (*Quercus nigra*), ironwood (*Carpinus caroliniana*), black gum (*Nyssa sylvatica*), deciduous holly (*Ilex decidua*), and American beautyberry (*Callicarpa americana*). Scrub-shrub wetlands are dominated by deciduous holly (*Ilex decidua*), buttonbush (*Cephalanthus occidentalis*), red maple (*Acer rubrum*), eastern false-willow (*Baccharis halimifolia*), swamp privet (*Fostiera acuminata*), overcup oak, black willow (*Salix nigra*), loblolly pine (*Pinus taeda*), and American snowbell (*Styrax americana*). A number of herbaceous species are present in both forested and scrub shrub wetlands including: lizardtail (*Seraurus cernuus*), sedges (*Carex spp.*), smartweed (*Polygonum spp.*), and narrow-leaved chasmanthia (*Chasmanthum latifolia*). Emergent wetlands are dominated by various sedge species, rushes, smartweed, lizardtail, morning glory (*Ipomea sp.*), switch grass (*Panicum virgatum*), and various species of bluestem (*Andropogon sp.*, *Schyzachyrium spp.*). In addition to these herbaceous species, emergent wetlands support patches of trees and shrubs such as buttonbush,

Approximately 4,253.5 acres of the project site consist of various types of upland areas including forests, shrubland, and grassland. In addition to waters of the U.S., these areas would be adversely impacted as a result of the proposed project. Forested uplands within the project site generally consist of a mix of hardwood and pine stands with dense understories comprised of trees, shrubs, and vines. These areas are typically dominated by water oak, post oak (*Quercus stellata*), southern red oak (*Quercus falcata*), loblolly pine, shortleaf pine (*Pinus echinata*), sweet gum, winged elm (*Ulmus alata*), eastern red cedar (*Juniperus virginiana*), common persimmon (*Diospyros virginiana*), American beautyberry, and blackberry (*Rhubus sp.*). Upland shrubland consists of small tree species such as various elm, various oak, sweet gum, and pine and a variety of shrub species such as: eastern false-willow, sumac (*Rhus sp.*), Mexican plum (*Prunus mexicana*), and rusty black-haw (*Viburnum rufidulum*). Upland grasslands are dominated by Bermuda grass (*Cynodon dactylon*), nettles (*Solanum spp.*), and yankeeweed (*Eupatorium compositifolium*).

The applicant proposes to mitigate for adverse impacts to waters of the U.S. by implementing a mitigation plan, which consists of the following components: establishment of a \$ 5,000,000.00 escrow account to be used for the purchase of ecologically significant lands that would be added to the Big Thicket National Preserve; purchase and regulation of 1,029 acres of land, up to elevation 318 feet NGVD along the perimeter of the lake; regulation of activities within the 1,029 acres area; regulation of activities including boating, fishing, hunting, and other

recreational and commercial activities on the lake; establishment and regulation of flowage easements for approximately 3,350 acres of land from elevation 318 feet NGVD to 326 feet NGVD; regulation of activities within the flowage easement; and establishment of a 500-acre waterfowl management area within the reservoir, to be located upstream of State Highway 135.

PUBLIC INTEREST REVIEW FACTORS: This application will be reviewed in accordance with 33 CFR 320-331, the Regulatory Program of the U. S. Army Corps of Engineers (USACE), and other pertinent laws, regulations, and executive orders. Our evaluation will also follow the guidelines published by the U. S. Environmental Protection Agency pursuant to Section 404(b)(1) of the CWA. The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impact, of the proposed activity on the public interest. That decision will reflect the national concerns for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including its cumulative effects. Among the factors addressed are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

The USACE is soliciting comments from the public; federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the USACE in determining whether to issue, issue with modifications, or conditions, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. The USACE is also evaluating the proposed project under the National Environmental Policy Act of 1969 (NEPA) and is soliciting comments and information pertinent to making the decision whether to prepare an Environmental Impact Statement (EIS). Under NEPA if the USACE determines that a proposed project is a major federal action with the potential to significantly affect the quality of the human environments, an EIS would be required. An EIS would assess the environmental, social, economic, and other effects of issuance of a Department of the Army Permit under Section 404 of the Clean Water Act for discharges of dredged or fill material into waters of the United States associated with the proposed project. An EIS would also assess potential impacts associated with a range of alternatives. Comments received would be used in the preparation of an Environmental Assessment and/or EIS. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

STATE WATER QUALITY CERTIFICATION: This project would result in a direct impact of greater than three acres of waters of the state or 1,500 linear feet of streams (or a combination of the two is above the threshold), and as such would not fulfill Tier I criteria for the project.

Therefore, Texas Commission on Environmental Quality (TCEQ) certification is required. Concurrent with the processing of this Department of the Army application, the TCEQ is reviewing this application under Section 401 of the Clean Water Act, and Title 31, Texas Administrative Code Section 279.1-13 to determine if the work would comply with State water quality standards. By virtue of an agreement between the USACE and the TCEQ, this public notice is also issued for the purpose of advising all known interested persons that there is pending

before the TCEQ a decision on water quality certification under such act. **Any comments concerning this application may be submitted to the Texas Commission on Environmental Quality, 401 Coordinator, MSC-150, P.O. Box 13087, Austin, Texas 78711-3087.** The public comment period extends 30 days from the date of publication of this notice. A copy of the public notice with a description of the work is made available for review in the TCEQ's Austin Office. The complete application may be reviewed in the USACE's office. The TCEQ may conduct a public hearing to consider all comments concerning water quality if requested in writing. A request for a public hearing must contain the following information: the name, mailing address, application number, or other recognizable reference to the application; a brief description of the interest of the requestor, or of persons represented by the requestor; and a brief description of how the application, if granted, would adversely affect such interest.

ENDANGERED AND THREATENED SPECIES: The USACE has reviewed the U.S. Fish and Wildlife Service's latest published version of endangered and threatened species to determine if any may occur in the project area. The proposed project would be located in counties where the whooping crane (*Grus americana*), interior least tern (*Sterna antillarum*), bald eagle (*Haliaeetus leucocephalus*), piping plover (*Charadrius melodus*), red-cockaded woodpecker (*Picoides borealis*), Louisiana black bear (*Ursus americanus luteolus*), Neches River rose mallow (*Hibiscus dasycalyx*), and Louisiana pine snake (*Pituophis melanoleucus ruthveni*) are known to occur or may occur as migrants. The whooping crane, interior least tern, and red cockaded woodpecker are endangered species; the bald eagle, piping plover, and Louisiana black bear are threatened species, and the Neches River rose mallow and Louisiana pine snake are candidate species. Our initial review indicates that the proposed work would have no effect on federally-listed endangered or threatened species.

NATIONAL REGISTER OF HISTORIC PLACES: The proposed project site has never been formally surveyed for the presence of historic or prehistoric cultural resources. Consequently, no sites eligible for, or listed in the National Register of Historic Places are known to occur. However, a cultural resources survey of the project area will be required. Based on cultural resources work performed in other areas along tributaries of the Angelina and Neches Rivers, the presence of historic occupations as early as the 1850's, and the presence of prehistoric sites, is likely. Occupation of the project area by the Caddo Tribe is known to have occurred between about 500 to 1500 A.D. Professional survey and excavation of similar environments at Lake Gilmer in Upshur County, and Lake Naconiche in Nacogdoches County, revealed numerous Caddoan sites eligible for inclusion in the National Register of Historic Places. It is possible the project site contains deeply buried prehistoric sites that would be encountered during construction.

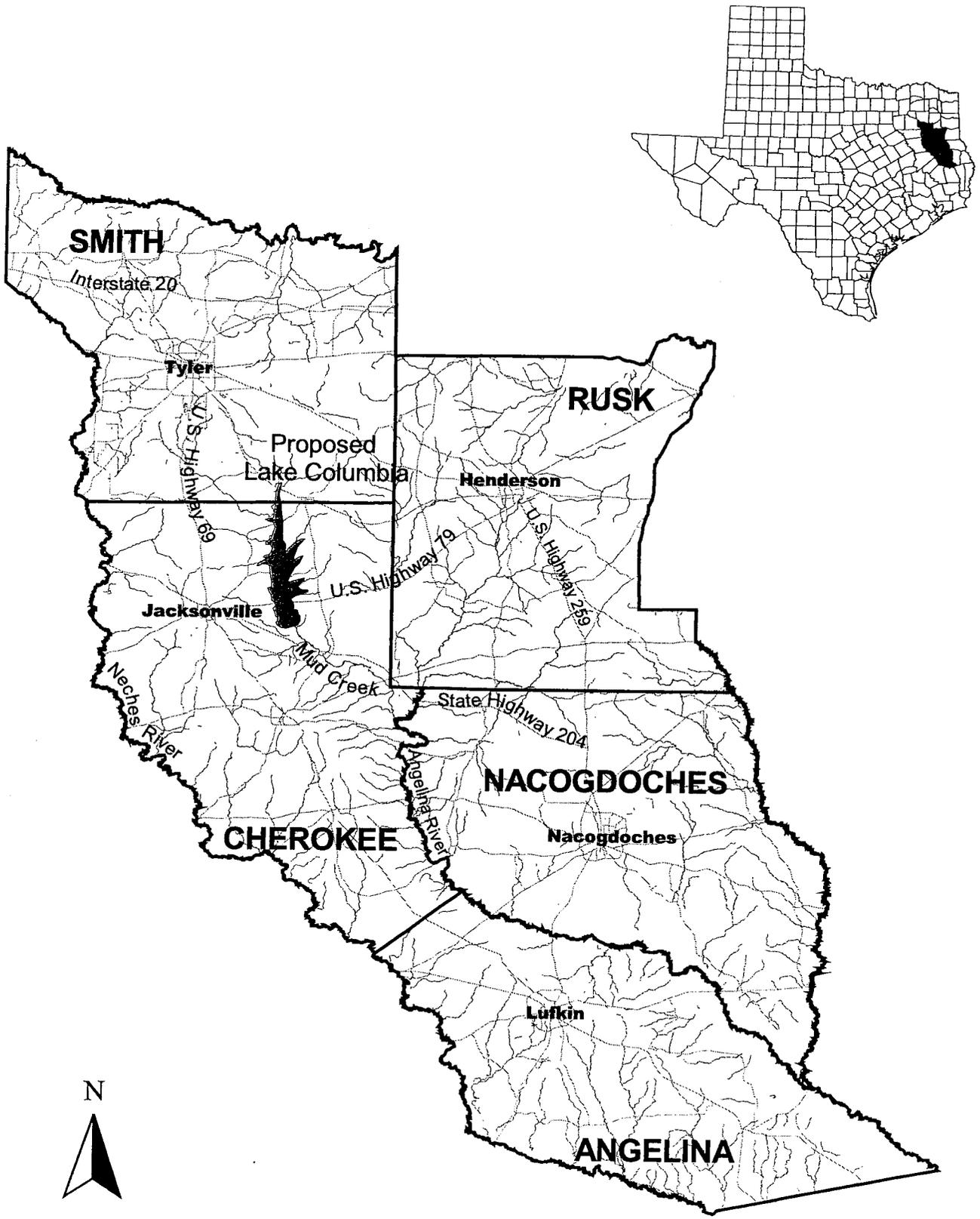
FLOODPLAIN MANAGEMENT: The USACE is sending a copy of this public notice to the local floodplain administrator. In accordance with 44 CFR part 60 (Flood Plain Management Regulations Criteria for Land Management and Use), the floodplain administrators of participating communities are required to review all proposed development to determine if a floodplain development permit is required and maintain records of such review.

SOLICITATION OF COMMENTS: The public notice is being distributed to all known interested persons in order to assist in developing fact upon which a decision by the USACE may be based. For accuracy and completeness of the record, all data in support of or in opposition to the proposed work should be submitted in writing setting forth sufficient detail to furnish a clear understanding of the reasons for support or opposition.

PUBLIC HEARING: Prior to the close of the comment period any person may make a written request for a public hearing setting forth the particular reasons for the request. The District Engineer will determine whether the issues raised are substantial and should be considered in his permit decision. If a public hearing is warranted, all known interested persons will be notified of the time, date, and location.

CLOSE OF COMMENT PERIOD: All comments pertaining to this Public Notice must reach this office on or before October 5, 2003, which is the close of the comment period. Extensions of the comment period may be granted for valid reasons provided a written request is received by the limiting date. If no comments are received by that date, it will be considered that there are no objections. Comments and requests for additional information should be submitted to Ms. Jennifer R. Walker; Regulatory Branch, CESWF-PER-R; U. S. Army Corps of Engineers; Post Office Box 17300; Fort Worth, Texas 76102-0300. You may visit the Regulatory Branch in Room 3A37 of the Federal Building at 819 Taylor Street in Fort Worth between 8:00 A.M. and 3:30 P.M., Monday through Friday. Telephone inquiries should be directed to (817) 886-1731. Please note that names and addresses of those who submit comments in response to this public notice may be made publicly available.

DISTRICT ENGINEER
FORT WORTH DISTRICT
CORPS OF ENGINEERS




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 817 735 7300

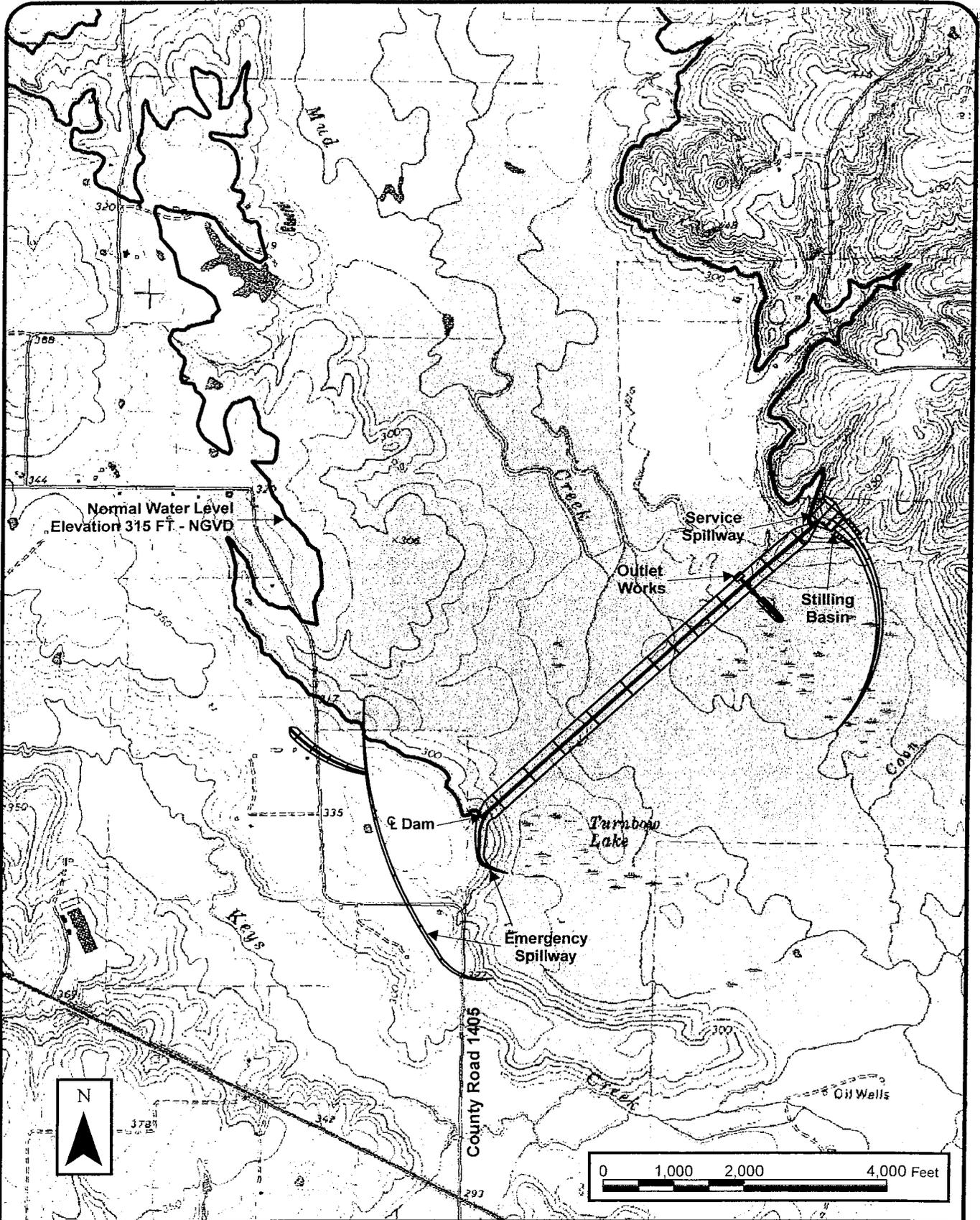
USACE
Project No.
198700524

Angelina and Neches River Authority
Proposed Lake Columbia

Location Map

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SCALE	1:1,000,000
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SHEET
1 of 14



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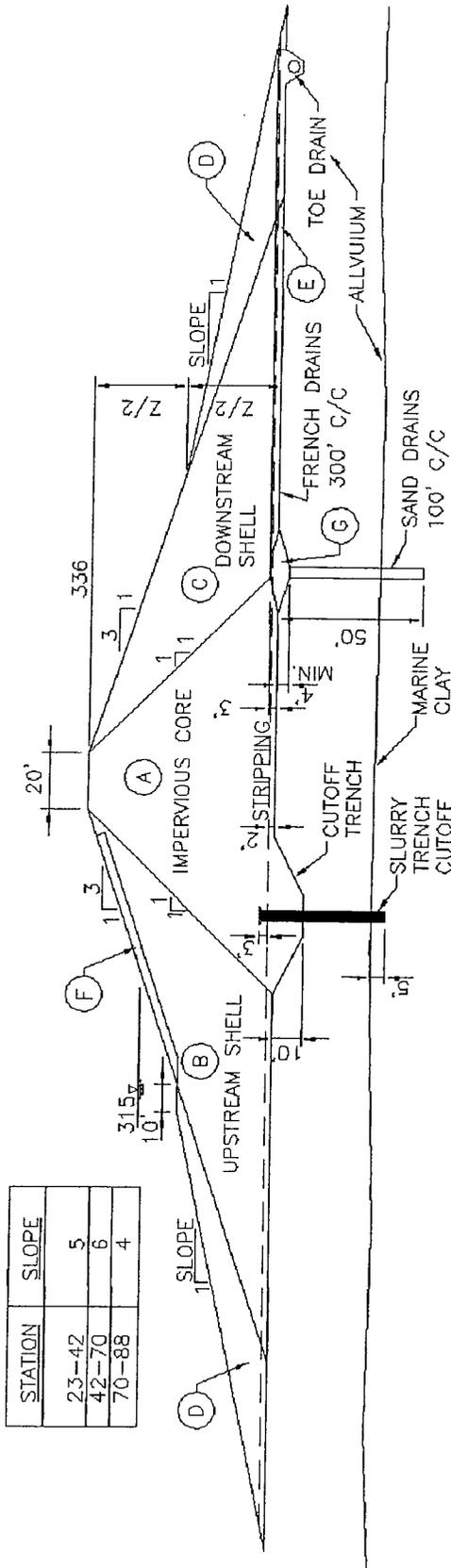
USACE
 Project No. 198700524

**Angelina and Neches River Authority
 Proposed Lake Columbia**

Layout of Dam

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SHEET
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TYPICAL DAM SECTION

ZONE	DESCRIPTION	USC	COMPACTION
A	IMPERVIOUS CORE	CL & CH	95% STD, OPT ±2%
B	UPSTREAM SHELL	CL, SM, SC	do
C	DOWNSTREAM SHELL	CL, SM, SC	do
D	STABILIZING FILL	RANDOM	90% STD, OPT ±4%
E	FINGER DRAIN	GP & SP	65% RELATIVE DENSITY
F	SLOPE PROTECTION	SOIL CEMENT	95% STD
G	LINEAR DRAIN	GP & SP	65% RELATIVE DENSITY



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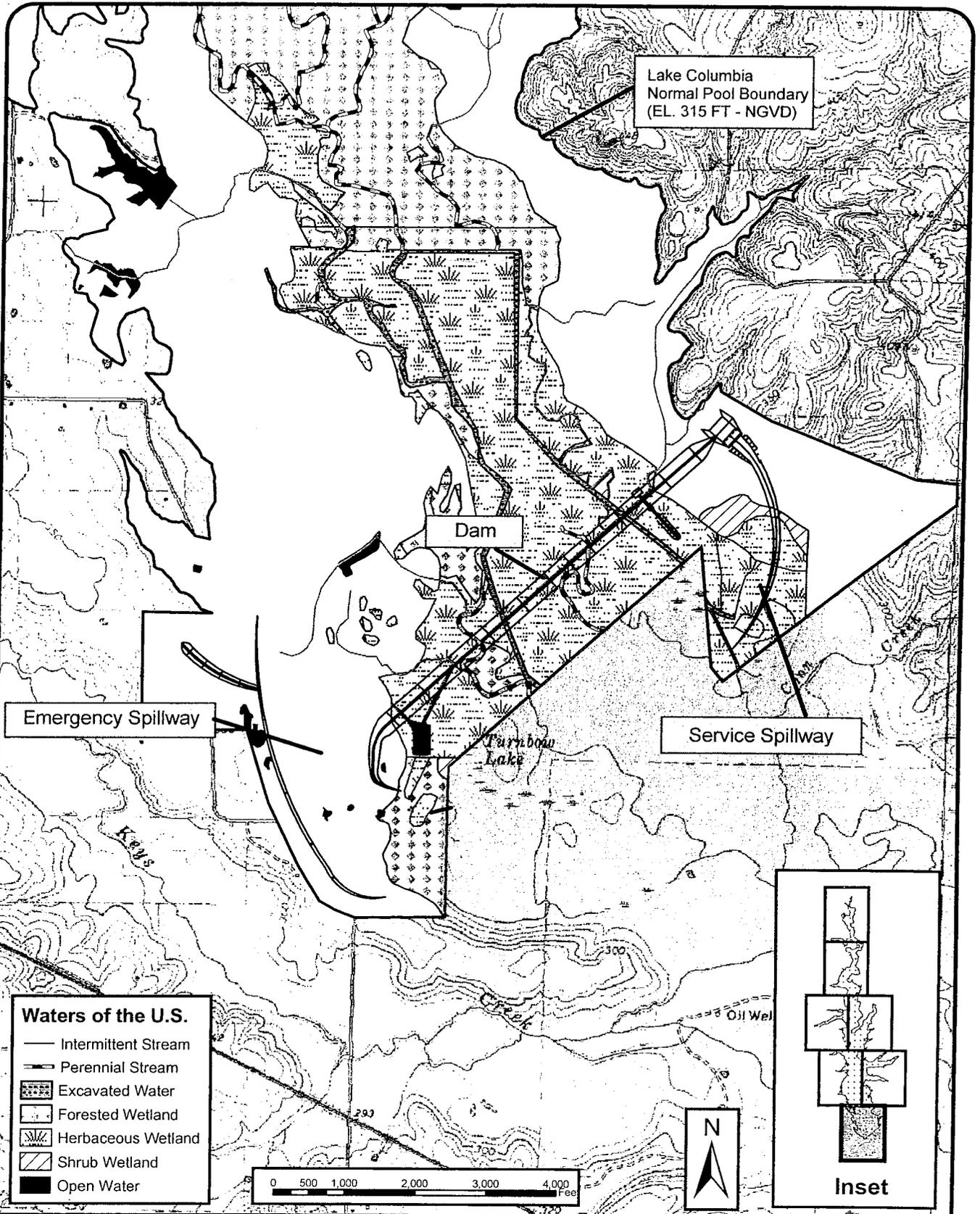
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Angelina and Neches River Authority
 Proposed Lake Columbia

Typical Embankment Section

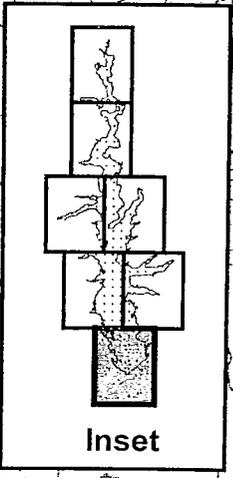
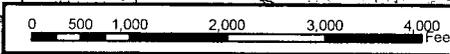
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SHEET
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Waters of the U.S.

- Intermittent Stream
- ▬ Perennial Stream
- ▨ Excavated Water
- ▩ Forested Wetland
- ▧ Herbaceous Wetland
- ▦ Shrub Wetland
- Open Water



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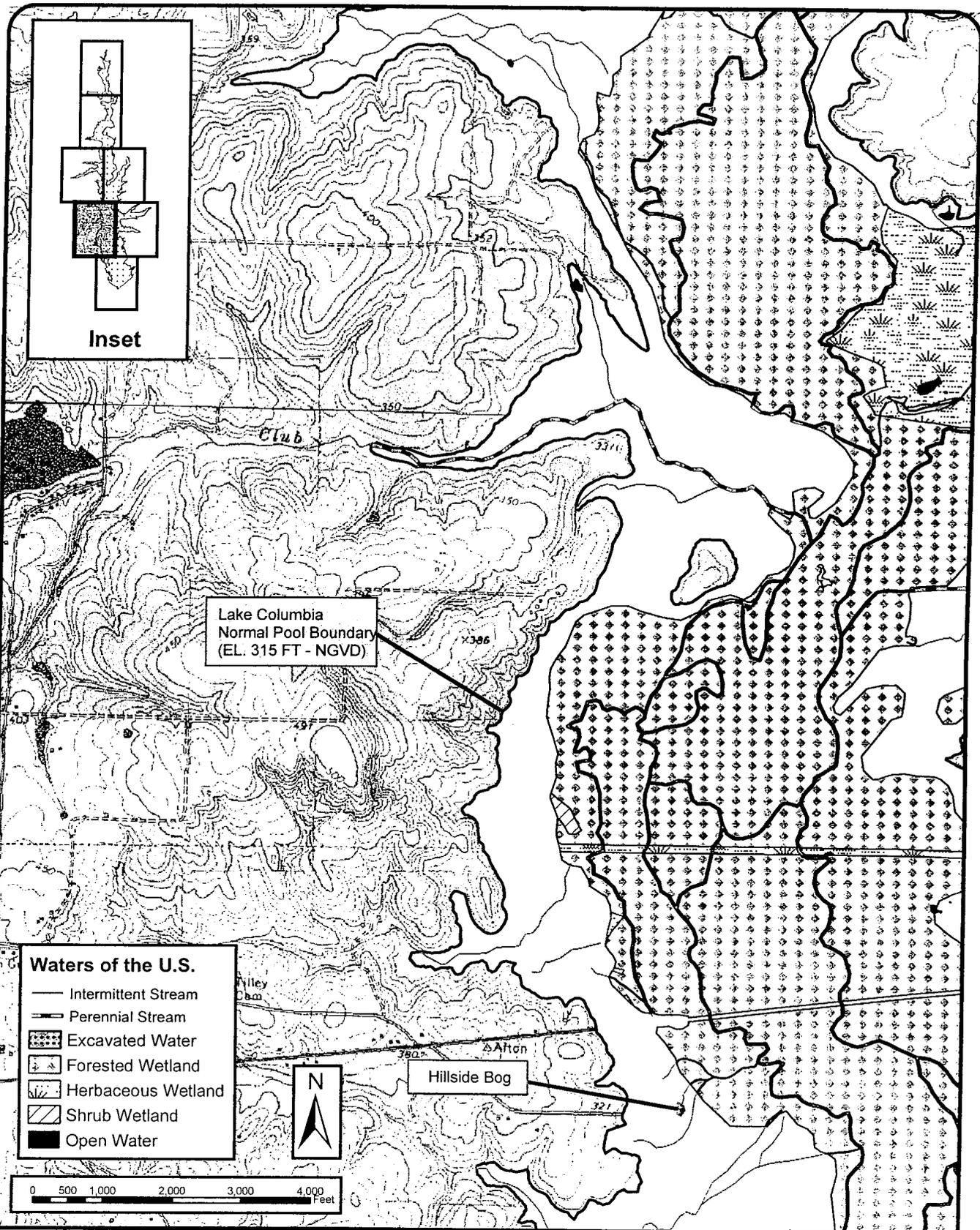
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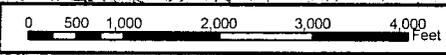
Waters of the U.S.
Within the Normal Pool

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SHEET
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- Waters of the U.S.**
- Intermittent Stream
 - Perennial Stream
 - ▨ Excavated Water
 - ▧ Forested Wetland
 - ▩ Herbaceous Wetland
 - Shrub Wetland
 - Open Water



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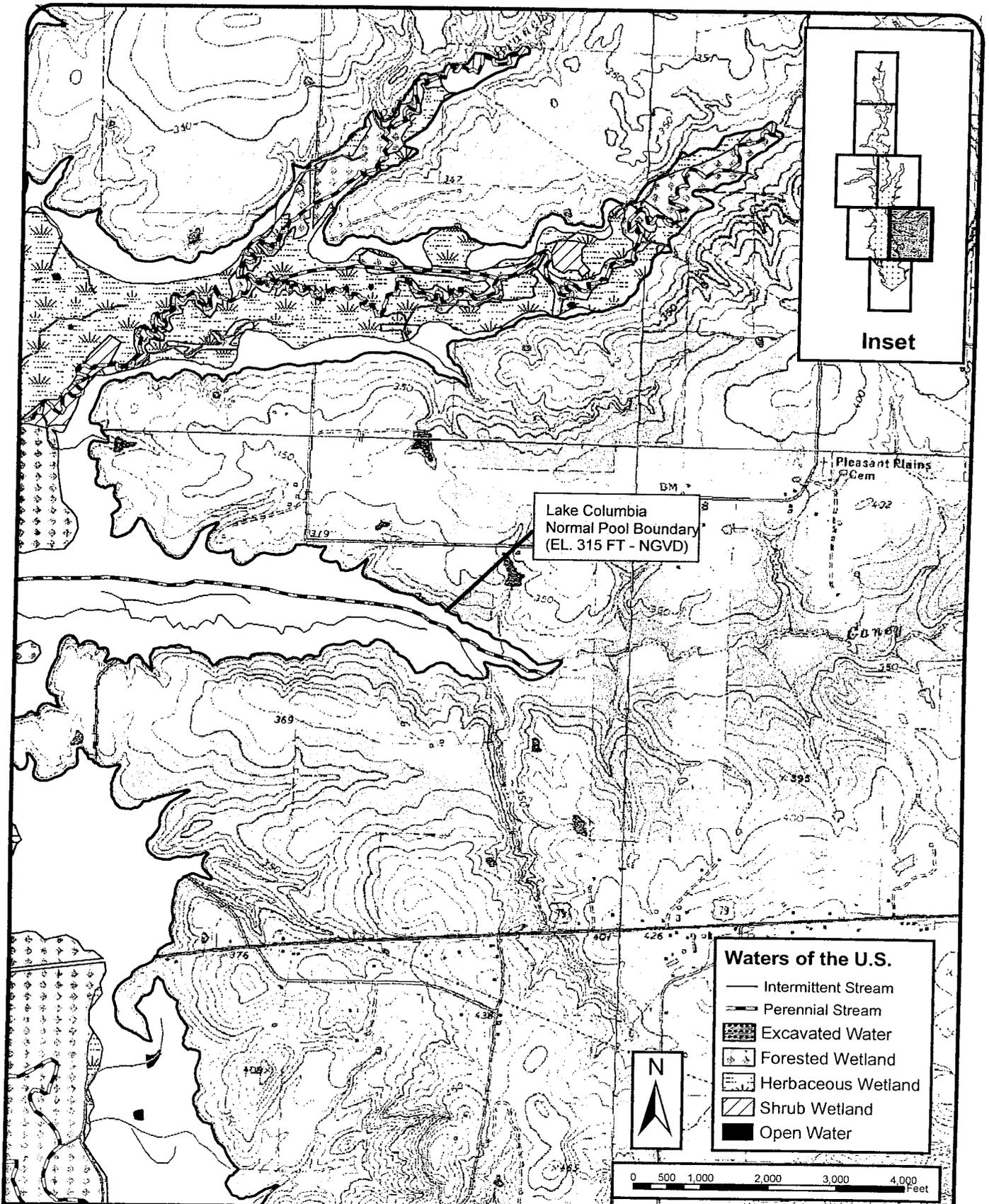
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Angelina and Neches River Authority
Proposed Lake Columbia

Waters of the U.S.
Within the Normal Pool

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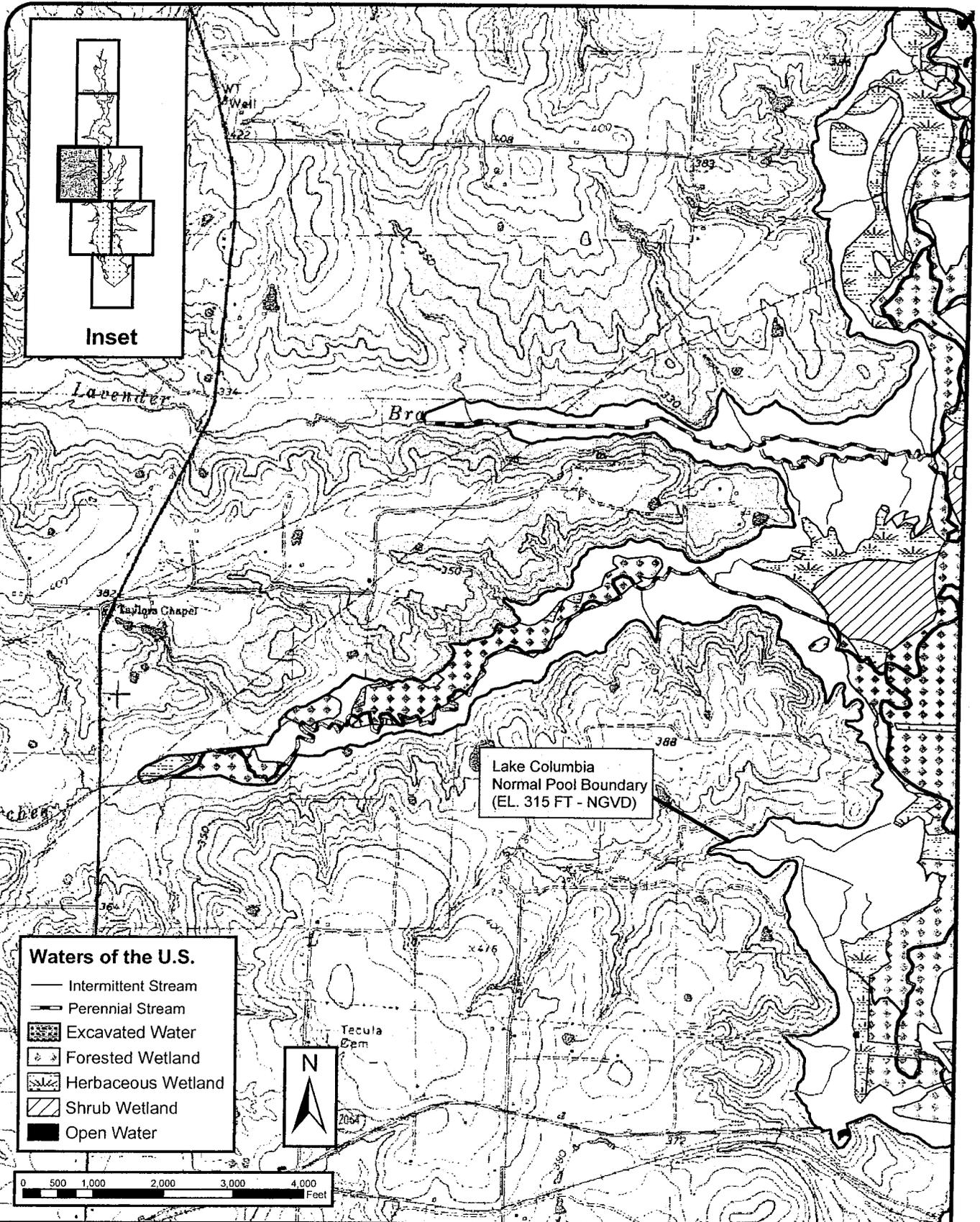
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Proposed Lake Columbia

Waters of the U.S.
Within the Normal Pool

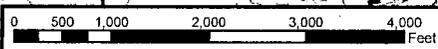
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SHEET
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Waters of the U.S.

- Intermittent Stream
- Perennial Stream
- ▨ Excavated Water
- ▤ Forested Wetland
- ▧ Herbaceous Wetland
- ▩ Shrub Wetland
- Open Water



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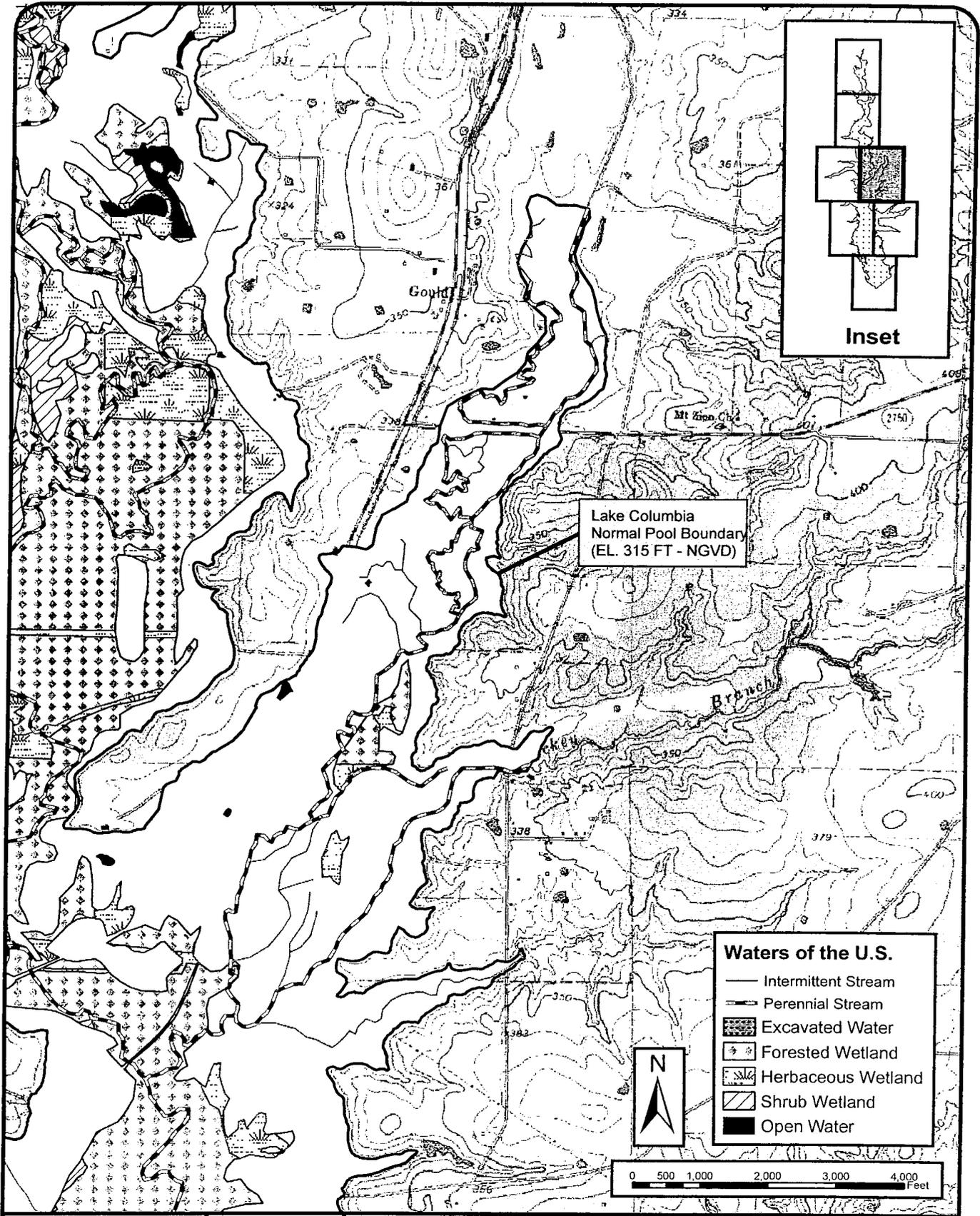
Angelina and Neches River Authority
Proposed Lake Columbia

Waters of the U.S.
Within the Normal Pool

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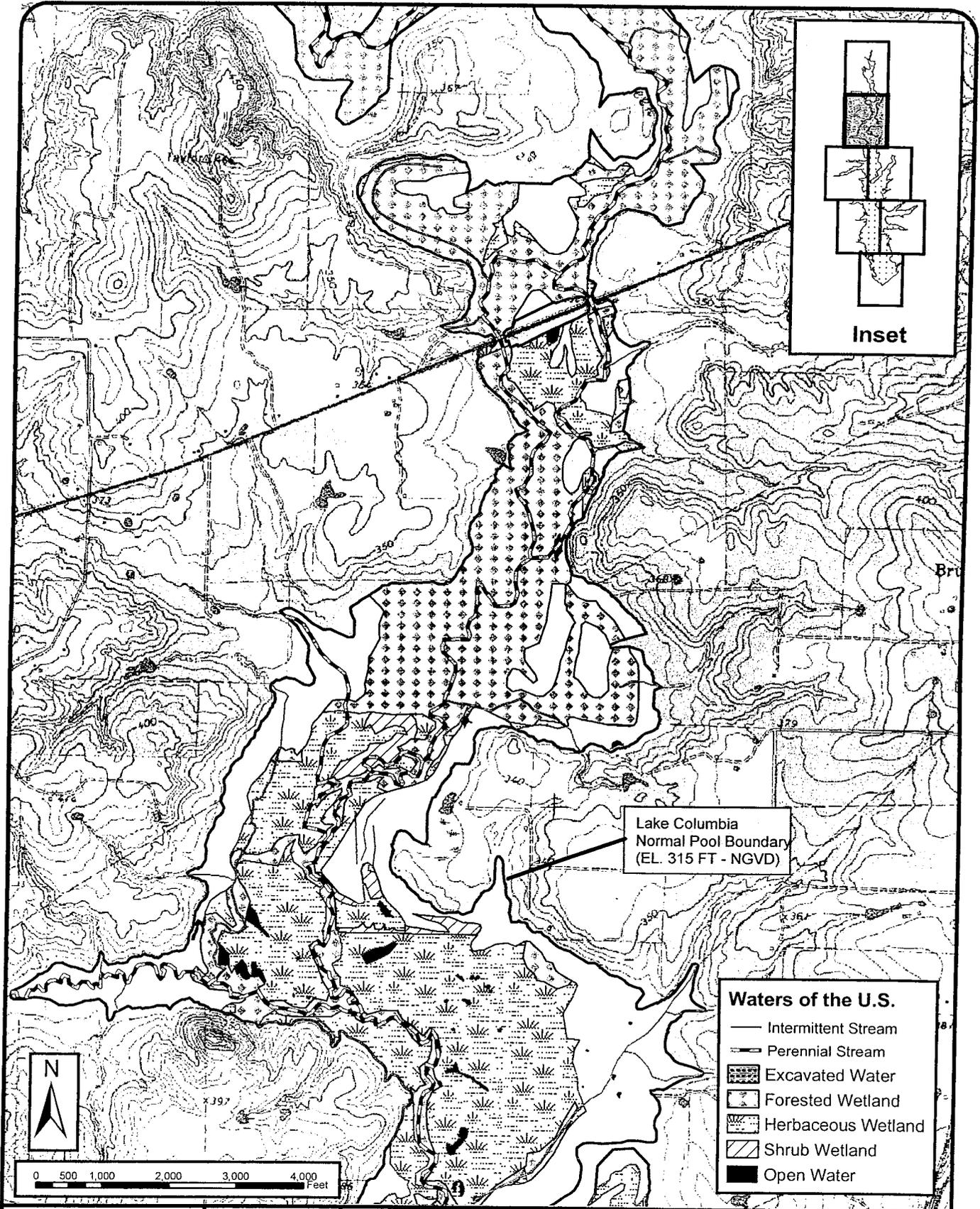
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Waters of the U.S.
Within the Normal Pool

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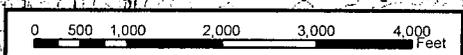
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Lake Columbia
Normal Pool Boundary
(EL. 315 FT - NGVD)

Waters of the U.S.

- Intermittent Stream
- Perennial Stream
- ▨ Excavated Water
- ▨ Forested Wetland
- ▨ Herbaceous Wetland
- ▨ Shrub Wetland
- Open Water



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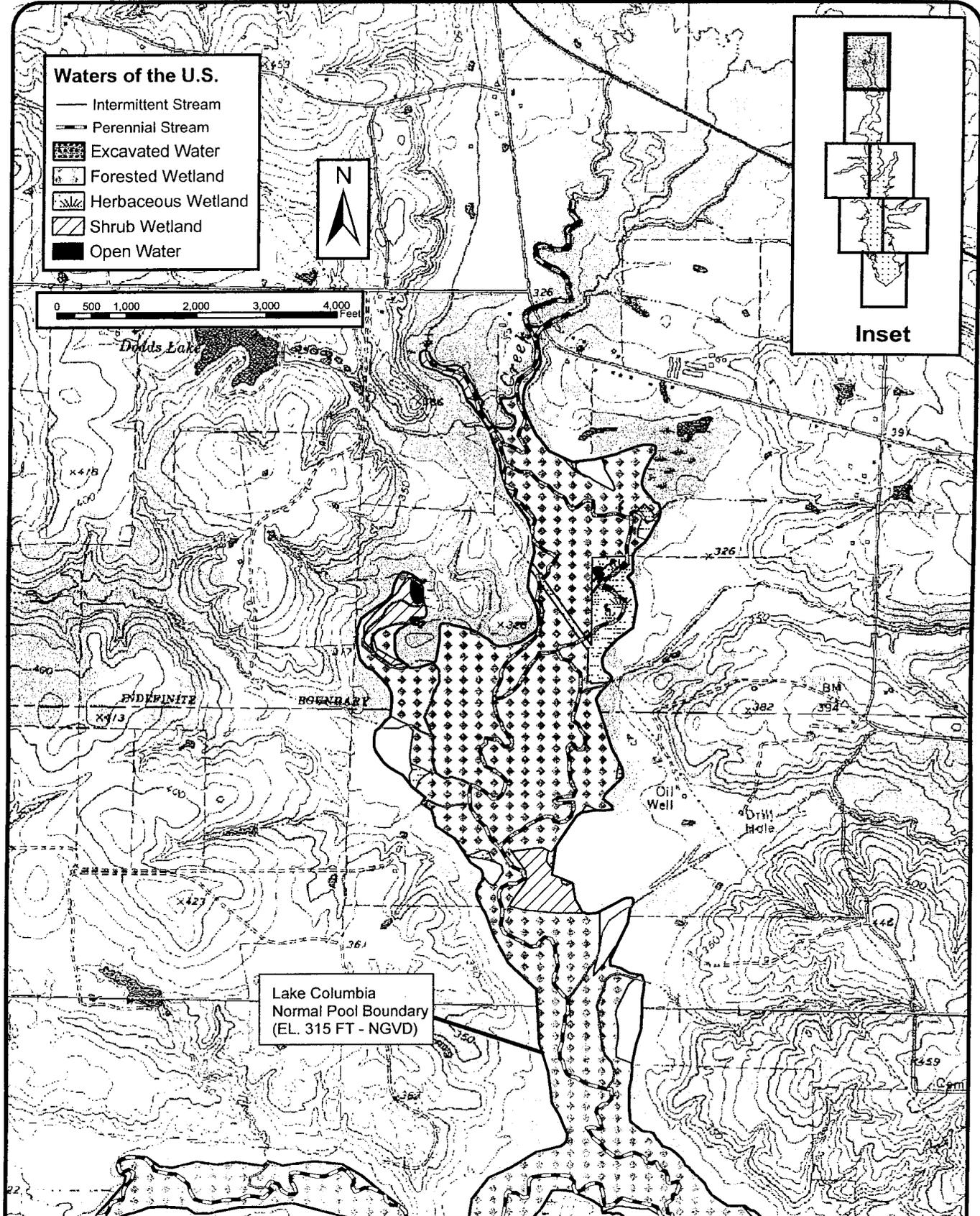
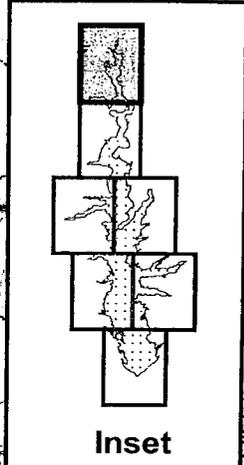
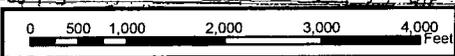
Waters of the U.S.
Within the Normal Pool

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SHEET
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Waters of the U.S.

- Intermittent Stream
- Perennial Stream
- ▨ Excavated Water
- ▨ Forested Wetland
- ▨ Herbaceous Wetland
- ▨ Shrub Wetland
- ▨ Open Water



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Proposed Lake Columbia

Waters of the U.S.
Within the Normal Pool

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DATE	August 11, 2003
SCALE	1:24,000
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SHEET
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Alternatives to Lake Eastex (LAN, 1991 & 1992)

Alt #	Name	Source	Delivery Amt. (Ac-ft/yr)	Viable in 1991 ^a	Cost/1,000 gallons ^b
1	Sam Rayburn (via Steinhagen)	LAN, 1992	85,507	Yes	\$1.5166
2	Toledo Bend Reservoir	LAN, 1992	85,507	Yes	\$1.3013
3	Toledo Bend with Lake Palestine	LAN, 1992	85,507	Yes	\$1.3568
4	Toledo Bend with Lake Palestine and Little Cypress Reservoir	LAN, 1992	85,507	-	\$1.3214
5	Toledo Bend with Little Cypress	LAN, 1991	110,102	No	
6	Sam Rayburn via Storage Reallocation	LAN, 1992	85,507	Yes	\$0.9647
7	Sam Rayburn with Lake Palestine and Little Cypress Reservoir	LAN, 1992	85,507	-	\$1.0352
8	Sam Rayburn with Lake Palestine	LAN, 1991	110,102	No	
9	Sam Rayburn with Little Cypress Reservoir	LAN, 1991	110,102	No	
10	Lake Eastex with Sam Rayburn	LAN, 1991	110,102	-	\$0.7281
10a	Lake Eastex with Sam Rayburn, including Angelina County. Regional System	LAN, 1991	110,102	-	\$0.7000

- a. Viability as determined in 1991 LAN report. Since then, projects with Little Cypress Reservoir are not considered viable.
- b. Costs were updated to 2003 dollars using ENR indexing.

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Alternatives to Lake Eastex identified in the East Texas Regional Water Plan

Water User Group	ID #	Alternatives to Lake Eastex	Quantity (Ac-ft/yr)	Cost/1,000 gallons^a
New Summerfield	SU-2	Obtain water from city of Jacksonville	855	\$3.2202
New Summerfield	SU-3	Obtain water from city of Tyler	855	\$2.6621
City of Rusk	RU-2	Obtain water from city of Jacksonville	855 ^b	\$3.6067
Cherokee County-Other	CHC-5 & 7	Obtain water from city of Jacksonville	2,138	\$3.3748
Cherokee County-Other	CHC-6	Obtain water from city of Tyler	855	\$2.6621
Cherokee County – SEP	CHS-3	Reuse of wastewater from Jacksonville	1,934	\$0.9875
Cherokee County – SEP	CHS-4&5	Reuse of wastewater from Tyler	12,985	\$1.7915
Cherokee County – SEP	CHS-2	Lake Stryker (raw water)	5,600	\$0.6977
City of Nacogdoches	NA-2	Obtain supply from Toledo Bend	9,834	\$5.0665
City of New London	NL-2	Obtain water from the city of Henderson	855	\$3.2095
City of New London	NL-3	Obtain water from the city of Tyler	855	\$4.3366

a. Updated to 2003 dollars using ENR indexing.

c. This amount is also included in the supply identified for Cherokee County-Other (CHC-7)

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Summary of Alternatives Evaluated for the Lake Eastex Project

Proposed Alternative	Comments
Lake Eastex	State water rights permit issued. Recommended by regional water planning group and the State Water Plan 2002 to meet regional demands through 2050.
Alternatives with no discharges into waters of the U.S.	
Advanced conservation	No implementation authority. Cannot meet projected demands.
Increased groundwater use with current infrastructure	Cannot meet projected demands
Alternatives with discharges into waters of the U.S.	
Sam Rayburn (via Steinhagen)	Uncertain of available supply. LNVA projects demands to increase over 300,000 ac-ft/yr, mainly due to irrigation and manufacturing in Jefferson Co.
Toledo Bend Reservoir	High costs associated with infrastructure and operation (SB1 cost estimate for city of Nacogdoches)
Toledo Bend with Lake Palestine	Costs were higher than other alternatives.
Toledo Bend with Lake Palestine and Little Cypress Reservoir	High uncertainty with development of Little Cypress.
Toledo Bend with Little Cypress	High uncertainty with development of Little Cypress
Sam Rayburn via Storage Reallocation	Requires COE reallocation study and implementation. Increased water levels associated with reallocation could possibly impact the Angelina National Forest.
Sam Rayburn with Lake Palestine and Little Cypress Reservoir	High uncertainty with development of Little Cypress.
Sam Rayburn with Lake Palestine	The firm yield of Lake Palestine (123,000 ac-ft/yr) is fully committed.
Sam Rayburn with Little Cypress Reservoir	High uncertainty with development of Little Cypress
Obtain water from city of Jacksonville	Insufficient supplies to meet all projected demands
Obtain water from city of Tyler	Insufficient supplies to meet all projected demands
Reuse of wastewater from Jacksonville	Would require additional water source because return flows are insufficient to meet projected SEP demands
Reuse of wastewater from Tyler	Would require additional water source because return flows are insufficient to meet projected SEP demands
Lake Stryker (raw water)	Would require additional water source because unallocated water is insufficient to meet projected SEP demands
Obtain water from the city of Henderson	Insufficient supplies to meet all projected demands
New groundwater sources and infrastructure	Long-term reliability is uncertain and water quality is objectionable
Move Eastex dam site upstream of U.S Highway 79	Significant reduction in yield.

Area and Types of Waters of the U.S. Affected by the Proposed Lake Eastex

Category	Dam, Spillway, and Construction Area (acres)	Inundated Area (acres)	Total Area (acres)
Forested Wetlands	37	3,652	3,689
Shrub-scrub Wetlands	0	144	144
Herbaceous Wetlands	168	1,350	1,518
Intermittent Streams	0	47	47
Perennial Streams	4	251	255
Open Water	6	57	63
Hillside Bog	0	.5	0.5
New Channel	5	25	30
TOTAL	220	5,526.5	5,746.5