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# Public Notice

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U.S. Army Corps  
of Engineers  
Tulsa District

Reply To:

U.S. Army Corps of Engineers  
ATTN: Regulatory Office  
1645 South 101st East Avenue  
Tulsa, OK 74128-4609

SWT-0-14659  
Public Notice No.

October 14, 2008  
Public Notice Date

November 12, 2008  
Expiration Date

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## **PURPOSE**

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

## **SECTION 10**

The U.S. Army Corps of Engineers is directed by Congress through Section 10 of the Rivers and Harbors Act 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 through Section 404 of the Clean Water Act (33 USC 1344) to regulate the discharges of dredged and fill material into all waters of the United States. These waters include lakes, rivers, streams, mudflats, sandflats, sloughs, wet meadows, natural ponds, and wetlands adjacent to other waters. The intent of the law is to protect these waters from the indiscriminate discharge of material capable of causing pollution and to restore and maintain their chemical, physical, and biological integrity.

## **NOTICE TO PUBLISHERS**

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DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS, TULSA DISTRICT  
1645 SOUTH 101ST EAST AVENUE  
TULSA, OKLAHOMA 74128-4609

Application No. SWT-0-14659

JOINT PUBLIC NOTICE  
U.S. Army Corps of Engineers, Tulsa District  
and  
Texas Commission on Environmental Quality  
(30-DAY COMMENT PERIOD)

Interested parties are hereby notified that the District Engineer has received an application for a Department of the Army Permit under Section 404 of the Clean Water Act (CWA). The application is to construct a dam on Bois d'Arc Creek to impound a water supply reservoir, Lower Bois d'Arc Creek Reservoir. The purpose of the work is to expand water supply resources of the North Texas Municipal Water District.

Name of Applicant: Mr. James Parks  
Executive Director  
North Texas Municipal Water District (NTMWD)  
505 East Brown Street  
P.O. 2408  
Wylie, TX 75098

Name of Authorized Agent: Mr. Michael Votaw  
Freese & Nichols, Inc.  
4055 International Plaza, Suite 200  
Fort Worth, TX 76109-4895

Location: In Bois d'Arc Creek, approximately 14 miles northeast of the town of Bonham, in Fannin County, Texas. The center of the dam is located at Latitude 33° 43' 05" and Longitude -95° 58' 56". The project site can be found on the Selfs, Texas 7.5 Minute USGS Quadrangle map. The extent of the proposed impoundment pool includes portions of the following 7.5 Minute USGS Quadrangle maps: Bonham, Dodd City, Lake Bonham, and Lamasco.

Applicant's Statement of Purpose: The purpose of the proposed project is to impound the waters of Bois d'Arc Creek and its tributaries to create a new water supply reservoir for NTMWD. The NTMWD provides wholesale treated water supply, wastewater treatment, and regional solid waste services to member cities and customers in a service area covering all or parts of Collin, Dallas, Denton, Fannin, Hunt, Kaufman, Rains, and Rockwall Counties in north central Texas. State population projections

show the NTMWD service population to increase from 1.6 million to 3.3 million by 2060. This growing population is the driving force for increased demands for water, and the need to develop new sources of water supply. The Lower Bois d'Arc Creek Reservoir would provide a new water supply to help meet this increasing demand.

Description of Work

Dam and Reservoir: Lower Bois d'Arc Creek Reservoir Dam would be constructed as a zoned earthen embankment. The dam would be about 10,400 feet in length and would have a maximum height of about 90 feet. The design top elevation of the embankment would be 553.5' msl. The embankment would provide 19.5 feet of freeboard above the conservation pool of Lower Bois d'Arc Creek Reservoir, at elevation 534.0' msl, and approximately three feet of freeboard above the Probable Maximum Flood (PMF) elevation of 550.5' msl. The upstream and downstream side slopes would be 3.5 horizontal to one vertical. All fill for the embankment is expected to come from required excavations of the spillways and from the reservoir pool area. Soil cement would be placed on the upstream slope and a grass cover would be placed on the downstream slope. Preliminary drawings of the proposed dam and spillways are presented on Figure 2 (Encl 14659-2).

Location	Type and Amount of Fill Material to be Discharged (cubic yards)		
	Slurry Material	Earthen Material	Soil Cement
Honey Grove Creek	61	411	5
Bois d'Arc Creek	67	2,230	27
Wetlands Abutting Bois d'Arc Creek	11,494	130,503	1,891
<b>TOTAL</b>	<b>11,622</b>	<b>133,144</b>	<b>1,923</b>

Service Spillway and Outlet Works: The service spillway would be located at the right (east) abutment of the dam (Figure 2). The spillway would consist of an approach channel; a 150-foot uncontrolled concrete weir, chute, hydraulic jump stilling basin and outlet channel. The weir would consist of a concrete gravity, ogee-type section with a crest length of 150 feet. The crest of the weir would control the conservation pool level which would be at elevation 534.0' msl, and the weir would have a discharge capacity of about 37,300 cfs at the maximum design water surface, the PMF, elevation 550.5' msl. The spillway structure would extend 958 feet downstream from the centerline of the dam to the downstream edge of the end sill. A hydraulic jump stilling basin would be constructed with baffle blocks and an end

sill. The stilling basin would be at elevation 456.0' msl and it would be 128 feet long. Service spillway discharges would be conveyed to Honey Grove Creek by a discharge channel approximately 2,300 feet long with a 150-foot bottom width and then flow approximately 1,500 feet to Bois d'Arc Creek.

Required low-flow releases would be made through a 36-inch diameter low-flow outlet located on the right (east) side of the floodplain near the toe of the right abutment. The conduit would extend through the dam and would have an impact basin as an energy dissipation structure. Its exit channel would extend to the service spillway exit channel and then back to Bois d'Arc Creek. The outlet would include a multiple-level intake tower in the reservoir to allow for required downstream releases.

An emergency spillway would be located in the right abutment of the dam (Figure 2). The spillway would be a 1,400-foot wide uncontrolled broad crested weir structure with a crest elevation of 541' msl. This elevation was selected to contain the 100-year storm such that no flow passes through the emergency spillway during this event.

Preliminary drawings of the dam, service spillway, and outlet works are attached showing several views of the proposed structures, as follows:

- Encl 14659-1 - Vicinity and Location Map
- Encl 14659-2 - Reservoir and Diversion Dam Map
- Encl 14659-5 - Plan and Profile Drawing of Dam and Service Spillway
- Encl 14659-6 - Plan and Profile Drawing of Emergency Spillway
- Encl 14659-7 - Typical Dam and Low-Flow Outlet Section Drawings
- Encl 14659-8 - Service Spillway Plan and Section Drawings

Raw Water Transmission Facilities: Raw water from the reservoir would be transported by a pipeline to a proposed water treatment plant near the City of Leonard in Fannin County (Figure 3). To allow the NTMWD the ability to treat water from Lower Bois d'Arc Creek Reservoir at its existing facilities in Wylie, Texas, the pipeline would also extend to an outfall on Pilot Grove Creek, a tributary of the East Fork of the Trinity River, to deliver raw water to Lake Lavon. The outlet structure is expected to be located approximately 5.4 miles north of Lake Lavon in the reach of Pilot Grove Creek between FM 545 and FM 2756. The raw water would be transported via the bed and banks of Pilot Grove Creek and Lake Lavon to the NTMWD's existing intake structures on Lake Lavon.

The primary pipeline consists of approximately 29 miles of 90-inch pipe, a pump station and intake structure at the reservoir, and a 460 million gallon terminal storage reservoir located near the new water treatment plant near Leonard. The primary pipeline would have an initial capacity of 135 million gallons per day (mgd), with an ultimate capacity of 170 mgd. The discharge outlet would include approximately 14.4 miles of 66-inch pipeline, an outfall structure at Pilot Grove Creek, and appropriate controls. The maximum daily discharge to Pilot Grove Creek through the 66-inch pipeline would be 113 mgd.

Currently, the final alignment of the raw water transmission facilities has not been determined. However, a preliminary route has been developed and a preliminary jurisdictional evaluation was completed by Alan Plummer Associates, Inc. (APAI, 2008). The study consisted primarily of desktop analyses using information such as USGS topographic maps, aerial photography, NRCS digital soil map data, and National Wetland Inventory (NWI) maps to identify potential wetlands, streams, and other water bodies that may be waters of the U.S. and could be affected by the pipeline construction. In addition, field reconnaissance was employed to identify potentially affected vegetation communities and to make observations of stream and wetland characteristics where feasible. The results of the evaluation indicated the preliminary alignment would intersect 15 potential wetlands (5 forested, 10 emergent), 87 streams (3 perennial, 41 intermittent, 43 ephemeral), and 16 impoundments (8 on-channel, 8 on uplands). The Corps will be reviewing these preliminary determinations of jurisdiction for ultimate determination of federal jurisdiction on intersecting streams.

Based on the results of the preliminary alignment evaluation for the pipeline, impacts to waters of the U.S. would likely be unavoidable. However, impacts would be avoided and minimized to the extent practicable during final design by such means as:

- adjusting the pipeline alignment to avoid discrete water bodies such as wetlands and open waters,
- crossing streams at narrow points and at right angles to minimize crossing lengths, and
- reducing the construction easement clearing width to the minimum necessary at stream crossings to preserve existing riparian vegetation.

Each of these intersections would represent a single and complete crossing, so any impacts to waters of the U.S. could be considered independent at each crossing rather than cumulatively for the entire pipeline. The NTMWD proposes to follow the terms and conditions of the current (2007) Nationwide Permit 12,

*Utility Line Activities*, as the design criteria for the pipeline in order to avoid and minimize impacts where waters of the U.S. are unavoidable. Thus, construction of the pipeline would include such measures as restoring preconstruction contours in waters of the U.S.; limiting total impacts at a single crossing to less than 0.5 acre with a goal of less than 0.1 acre; and backfilling the top 6 to 12 inches of the pipeline trench in wetlands with topsoil from the trench. Therefore, the applicant has requested that the pipeline be authorized under the terms and conditions of 2007 NWP 12, based on the following conditions:

1. A detailed jurisdictional determination (JD) would be conducted for the pipeline route to allow identification, avoidance, and minimization of impacts to waters of the U.S. prior to final design and construction. The JD report would be submitted to the USACE for approval prior to construction.

A preconstruction notification (PCN) prepared in accordance with 2007 NWP General Condition 27 would be submitted to the USACE for approval prior to construction. This PCN would provide verifiable evidence to the USACE that the proposed pipeline would meet the terms and conditions of 2007 NWP 12.

Construction Timing: If authorized, the applicant projects construction of the project commencing in 2013 and being completed in 2016. Construction of the pump station and pipeline would begin in 2015 and be completed by 2017.

Surface Area of Wetlands and Waters Filled: Based on the applicant's jurisdictional determinations in the project area, construction of the dam and impoundment of the water within the normal pool elevation of 534' msl would result in direct fill impact or inundation of approximately 120 acres of perennial streams, 99 acres of intermittent streams, 87 acres of open water, 4,602 acres of forested wetlands, 1,223 acres of herbaceous wetlands, and 49 acres of shrub wetlands. The location of the wetlands and waters of the U.S. are depicted on Figure 4 (The 15 higher detail sheets 4A1 through 4E1 are available on a request basis). The Corps is currently reviewing for verification the jurisdictional determinations and delineations submitted by the applicant's agent.

Mitigation: The applicant proposes the following as potential components of a conceptual compensatory mitigation plan for the unavoidable impacts to aquatic resources expected from the proposed project:

- a. Mitigation bank credit purchase and/or in-lieu fee agreements
- b. In-stream flow releases
- c. Stream restoration and riparian habitat enhancement

- d. Purchase of lands and management for wildlife habitat enhancement
- e. Private land purchases to expand the Caddo National Grasslands within the congressional proclamation boundary
- f. Water quality protection measures and shoreline management planning
- g. Creation of waterfowl management areas.

The applicant proposes that any additional lands purchased to support mitigation purposes be purchased from willing sellers.

This mitigation plan is the applicant's proposal and will be subject to refinement through the permit evaluation process. The Corps of Engineers has made no determination at this time with regard to the adequacy of the proposed mitigation relative to federal mitigation rules and guidance, including Tulsa District's Mitigation and Monitoring Guidelines. The Corps is accepting comments on the need for and nature of the proposed mitigation in addition to comments on the applicant's primary proposal. The Corps bears the final decision on the need for and extent of mitigation required if the project proposed herein is authorized.

Project Setting: The proposed project site lies across the boundary between two Level IV Ecoregions, the Northern Blackland Prairie and the Northern Post Oak Savanna. The Blackland Prairies have finely textured clay soils and the natural vegetation is prairie. However, much of the Blackland Prairie has been converted to cropland or urban uses. The Northern Post Oak Savanna, part of the East Central Texas Plains (also known as the Claypan area) is an area of irregular plains that were originally covered by post oak savanna vegetation. Much of this area is currently being used for pasture and rangeland. The bottom of the Bois d'Arc valley is predominantly bottomland hardwoods. These bottomland woods have been subject to repeated cycles of timber cutting, both select cutting and clear cutting, to the point that the remaining timber stands are predominantly composed of less merchantable species (green ash, box elder, sugarberry, cedar elm, hackberry, and black willow).

Plans and Other Data: Plans showing the location of the proposed activity and other data are enclosed with this notice (Encls 14659-1 through 14659-8). The application and supplemental materials are on file and may be viewed during normal working hours at the Tulsa District, U.S. Army Corps of Engineers, 1645 South 101st East Avenue, Tulsa, Oklahoma. If additional information is desired, it may be obtained from Mr. Andrew R. Commer, U.S. Army Corps of Engineers, Tulsa District, ATTN: Regulatory Office, 1645 South 101st East Avenue, Tulsa, OK 74128-4609, or telephone 918-669-7400.

Cultural Resources: The District Engineer has consulted the National Register of Historic Places (Register), and it has been determined that there are no properties currently listed in the Register nor any properties which have been determined eligible for listing in the Register which would be directly affected by the proposed work. However, with a project involving this much area, encountering previously unknown sites is a possibility and we will be coordinating with the Texas Historic Commission for compliance with Section 106 of the National Historic Preservation Act of 1966. Furthermore, if we are made aware, as a result of comments received in response to this notice, or by other means, of specific archeological or other historic properties which might be affected by the proposed work, the District Engineer will immediately take the appropriate action necessary pursuant to the National Historic Preservation Act of 1966 (Public Law 89-665), as amended, and 36 CFR 800, in accordance with implementing regulations 33 CFR 325, Appendix C.

Environmental Considerations: Our preliminary determination is that the proposed activity will not affect listed Endangered Species or their critical habitat. A copy of this notice is being furnished the U.S. Fish and Wildlife Service and appropriate State agencies and constitutes a request to those agencies for information on whether any listed or proposed-to-be-listed endangered or threatened species may be present in the area which would be affected by the proposed activity.

Authorization from other Agencies: This project would result in a direct impact of greater than three acres of waters of the state or 1500 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) CWA Section 401 water quality certification is required. Concurrent with processing of this application, the TCEQ is reviewing this application under Section 401 of the Clean Water Act and in accordance with Title 30, 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 U.S. Army Corps of Engineers (Corps) 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 TCEQ, 401 Coordinator, MSC-150, P.O. Box 13087, Austin, Texas 78711-3087. The public comment period extends 30 days from the date of the publication of this notice. A copy of the public notice with a description of work is made available for review in the TCEQ's Austin office. The complete application may be reviewed in the Corps 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



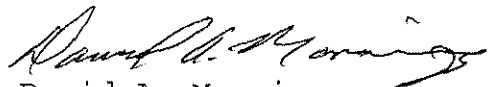
contain the following information: the name, mailing address, application number, or other recognizable reference to the application; a brief description of the interest of the requester, or of persons represented by the requester; and a brief description of how the application, if granted, would adversely affect such interest.

The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impacts, of the proposed activity and its intended use on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit 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 the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain 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 ownerships, and, in general, the needs and welfare of the people. A permit will be denied if the discharge does not comply with the Environmental Protection Agency's 404(b)(1) guidelines. Subject to the 404(b)(1) guidelines and any other applicable guidelines or criteria, a permit will be granted unless the District Engineer determines that it would be contrary to the public interest.

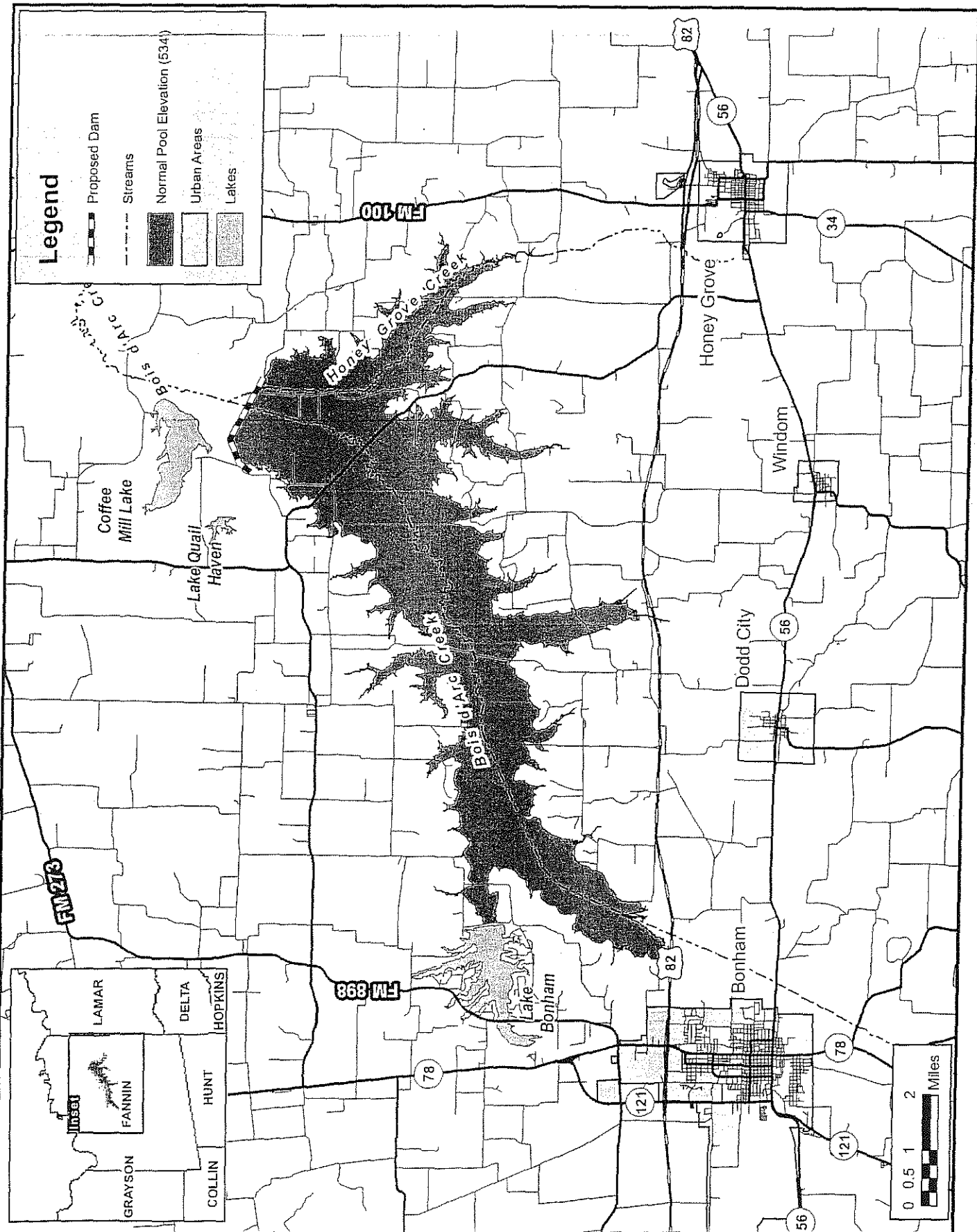
Comments: The USACE is soliciting comments from the public; Federal, State, and local agencies and officials; Indian tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Comments concerning the issuance of this permit should be received by the District Engineer not later than 30 days from the date of this public notice. Any comments received will be considered by the USACE to determine whether to issue, modify, condition, 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. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. Any person may request in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests

for public hearings shall state, with particularity, the reasons for holding a public hearing.

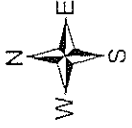


David A. Manning  
Chief, Regulatory Office

Enclosures



**Freese and Nichols**  
 4055 International Plaza, Suite 200  
 Fort Worth, TX 76109 - 4895  
 Phone - (817) 735 - 7300



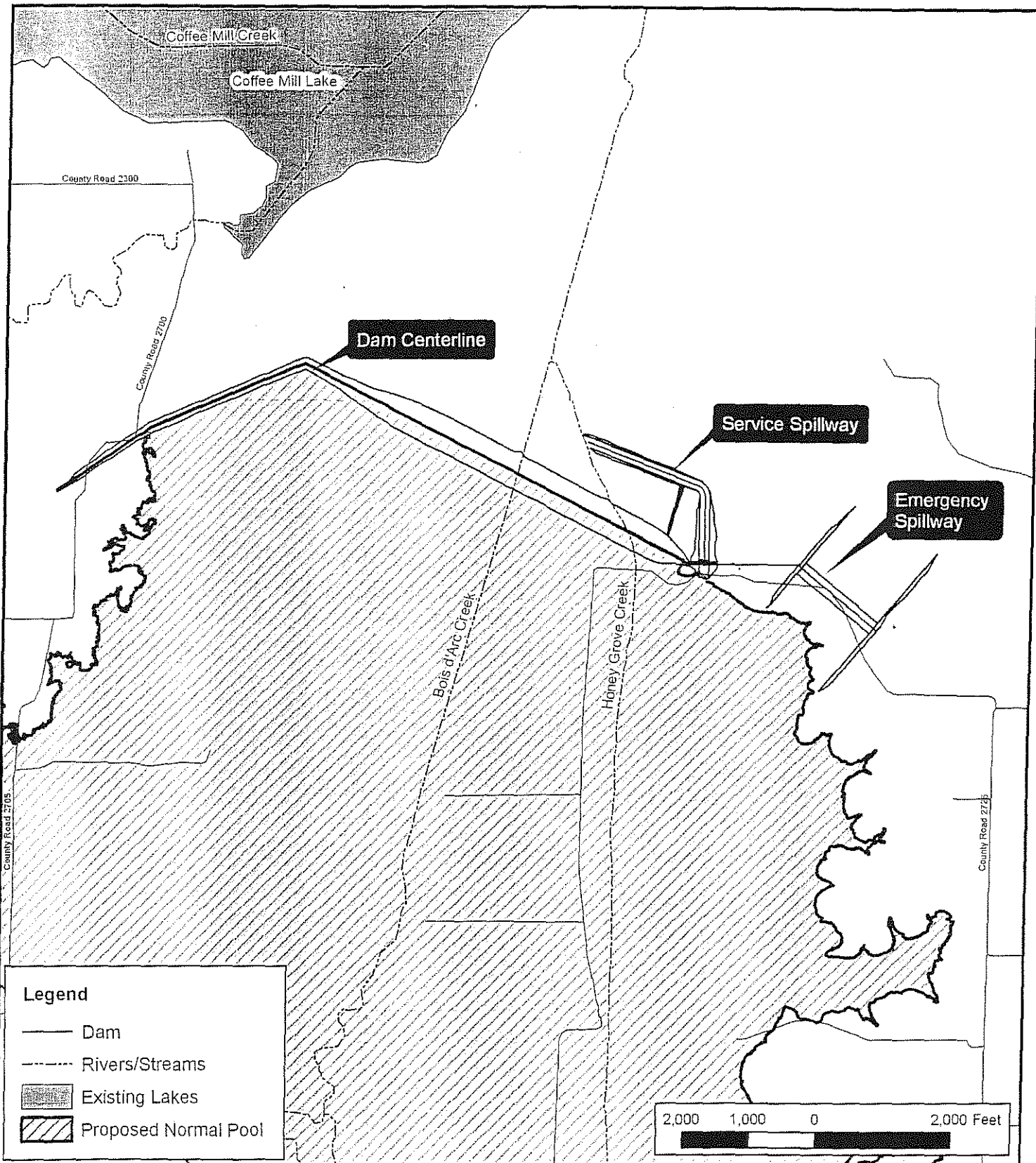
North Texas Municipal Water District  
 Proposed Lower Bois d'Arc Creek Reservoir

### General Location Map

FIG JOB NO	NTD06128
FILE	Figure1.mxd
DATE	April 2006
SCALE	1:150,000
DESIGNED	MPV
DRAFTED	BME

1

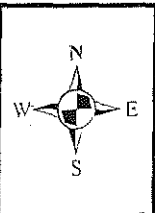
FIGURE



**Legend**

- Dam
- Rivers/Streams
- Existing Lakes
- Proposed Normal Pool

**Freese and Nichols**  
 4055 International Plaza, Suite 200  
 Fort Worth, TX 76109 - 4895  
 Phone - (817) 735 - 7300



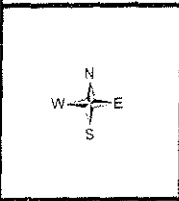
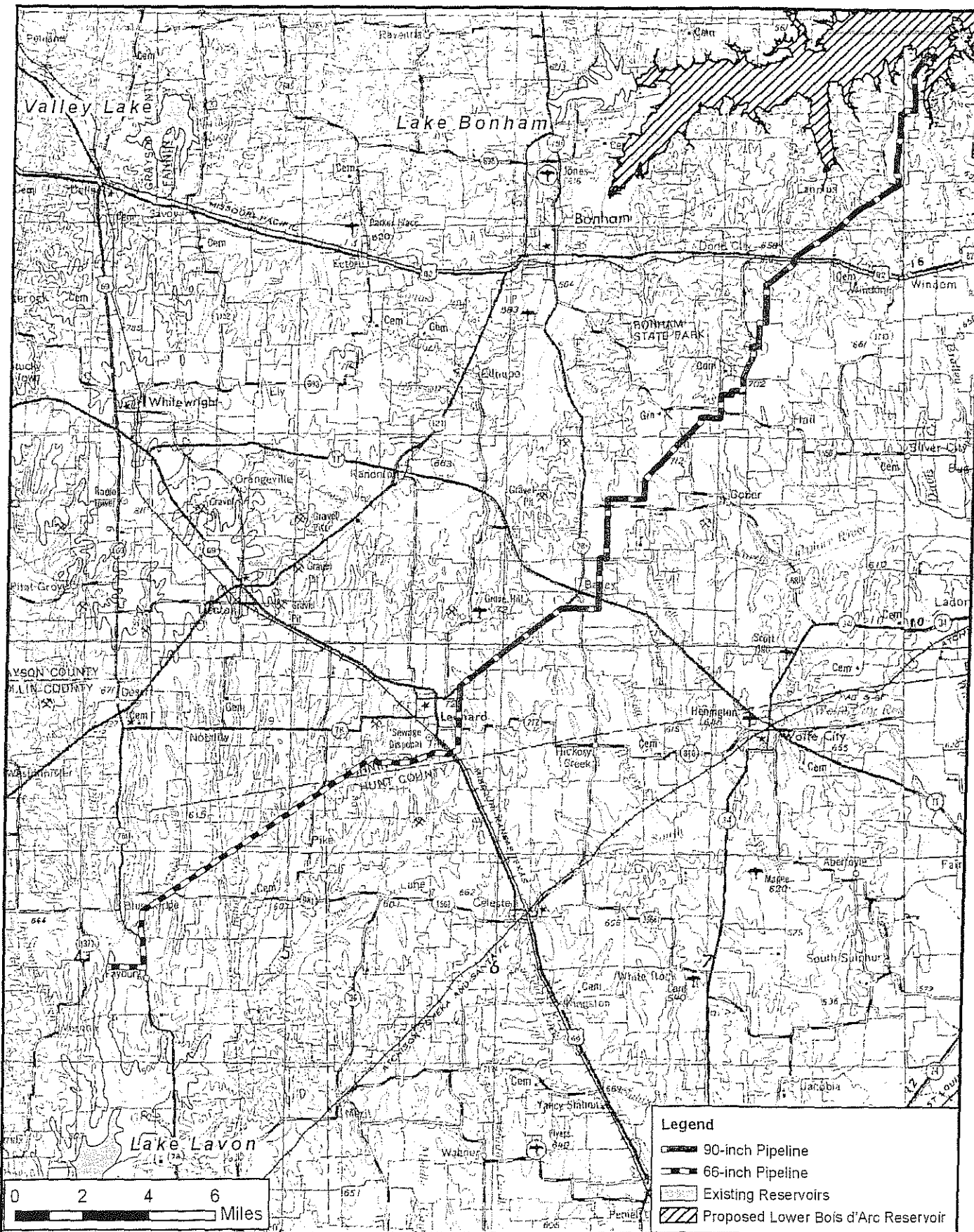
North Texas Municipal Water District  
 Proposed Lower Bois d'Arc Creek Reservoir

**Proposed Dam and Spillway Locations**

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FILE	Figure2.mxd
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DRAFTED	GGJ

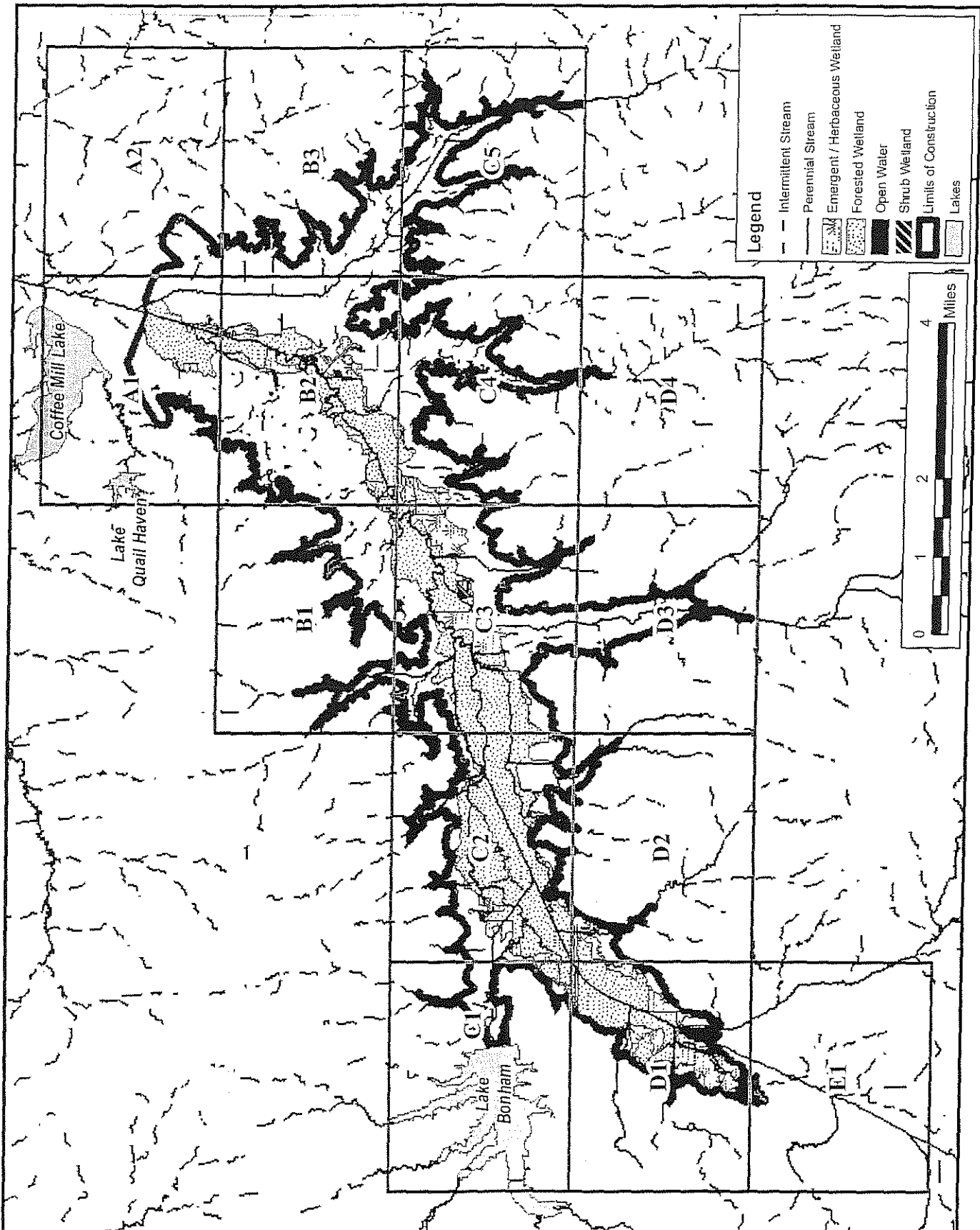
**2**

**FIGURE**

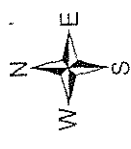


**North Texas Municipal Water District**  
**Proposed Lower Bois d'Arc Creek Reservoir**  
  
**Preliminary Raw Water Pipeline Alignment**  
**USGS 250K Topographic Map**

PI JOB NO	NTD07405	<b>3</b>
FILE	File3.mxd	
DATE	February 11, 2008	
SCALE	1:250,000	
DESIGNED	BME	
DRAFTED	BME	<b>FIGURE</b>



**Freese and Nichols**  
 4955 International Plaza, Suite 200  
 Fort Worth, TX 76109 - 4695  
 Phone - (817) 735 - 7300



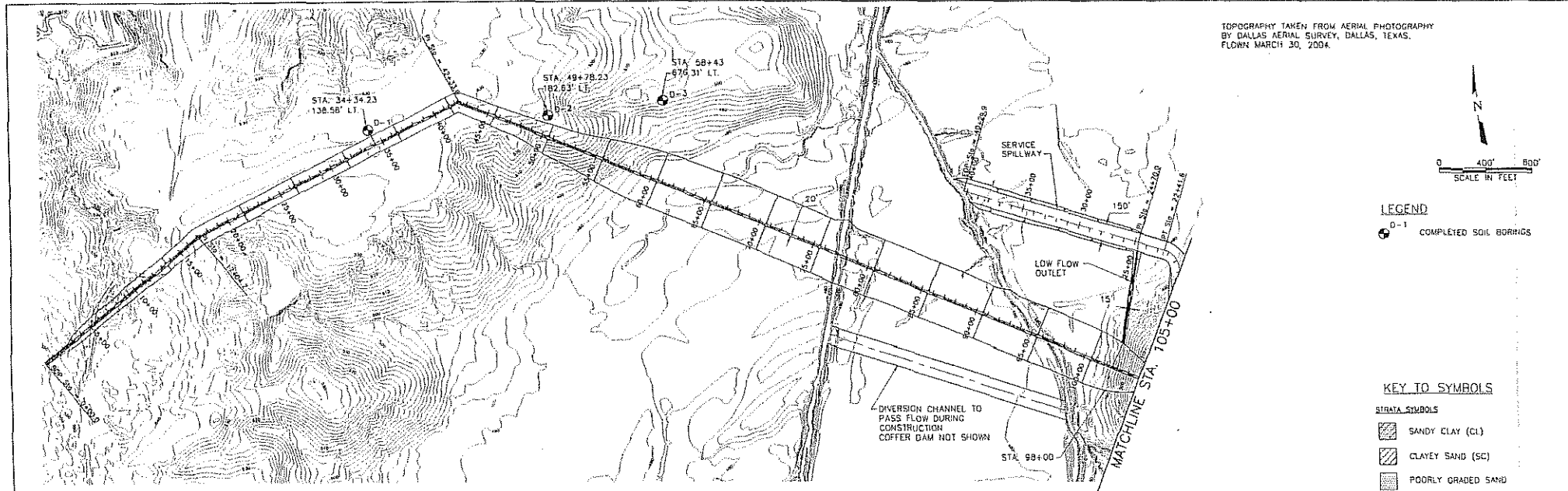
North Texas Municipal Water District  
 Proposed Lower Bois d'Arc Creek Reservoir

Waters of the United States

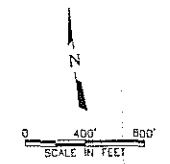
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FILE	Figure4.mxd
DATE	April 2008
SCALE	1:110,000
DESIGNED	MPV
DRAFTED	BME

4

FIGURE



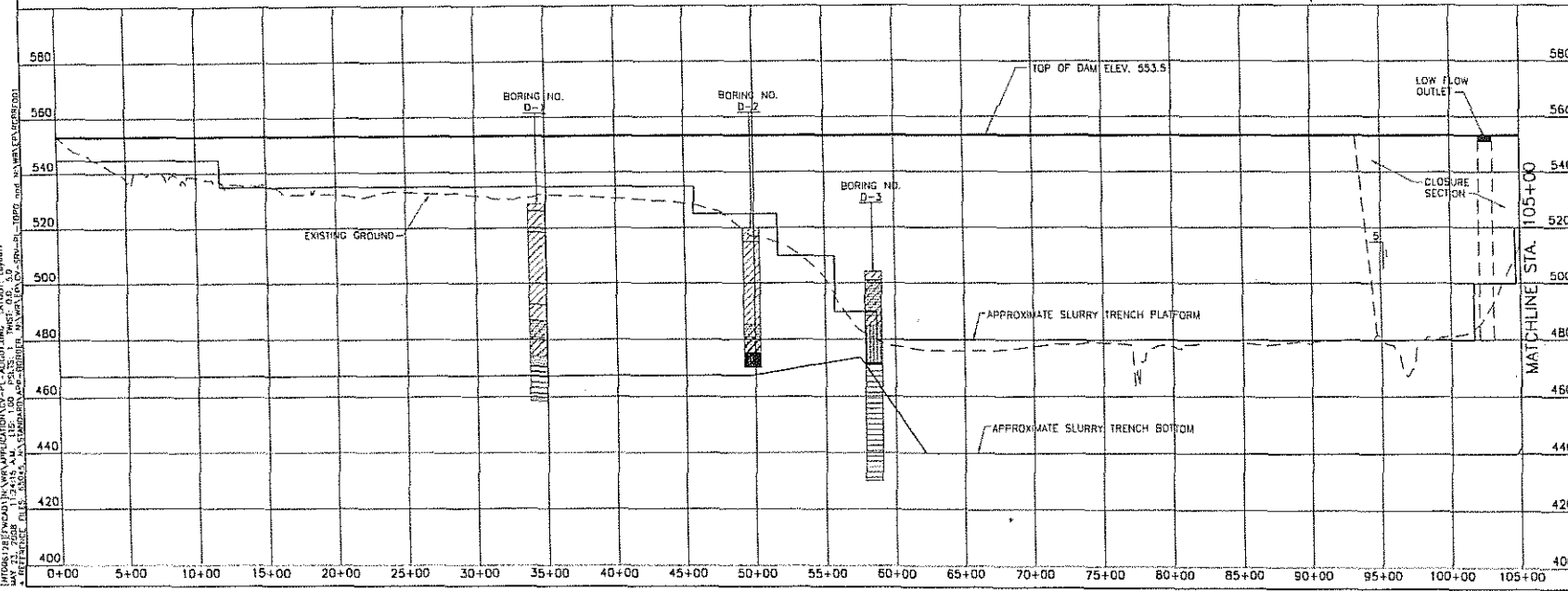
TOPOGRAPHY TAKEN FROM AERIAL PHOTOGRAPHY  
BY DALLAS AERIAL SURVEY, DALLAS, TEXAS,  
FLOREN MARCH 30, 2004.



**LEGEND**  
D-1 COMPLETED SOIL BORINGS

**KEY TO SYMBOLS**

- STRATA SYMBOLS**
- SANDY CLAY (CL)
  - CLAYEY SAND (SC)
  - POORLY GRADED SAND
  - SHALE
  - SANDY CLAY (CH)
  - LOW PLASTICITY CLAY (CL)
  - SILTY SAND
  - WEATHERED SHALE



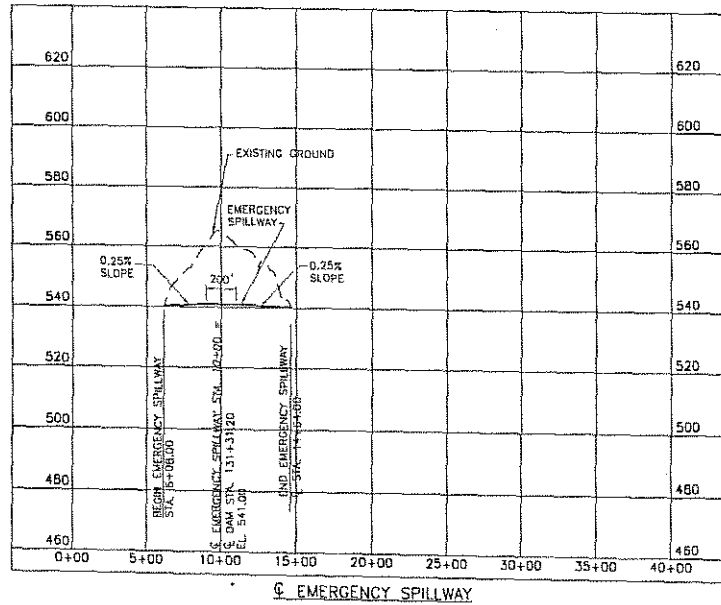
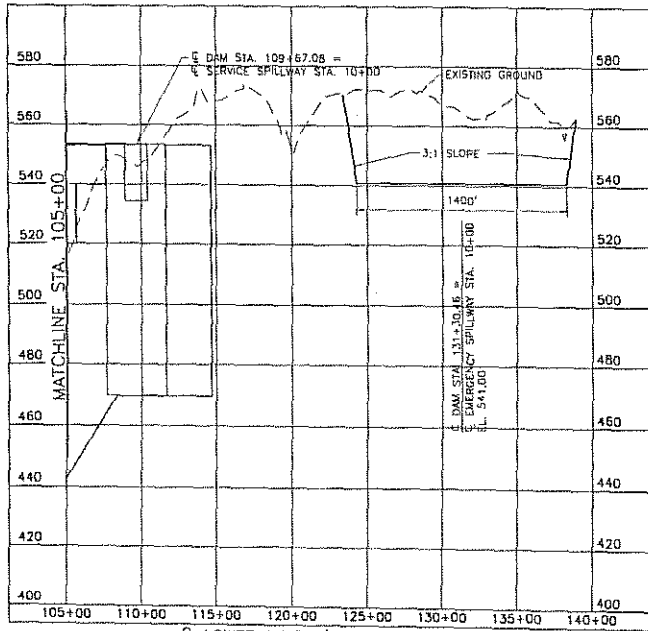
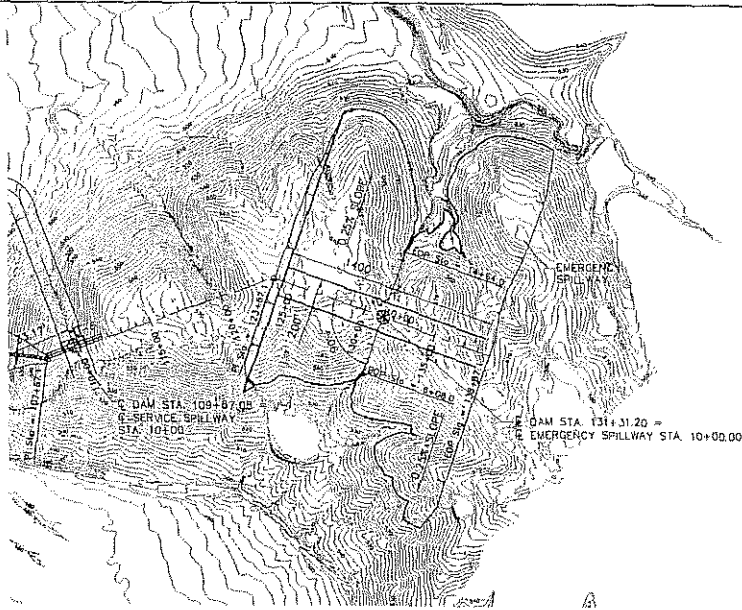
NORTH TEXAS MUNICIPAL WATER DISTRICT  
505 EAST BROWN STREET  
WYLLIE, TEXAS 75098

LOWER BOIS D'ARC CREEK RESERVOIR  
FANNIN COUNTY, TEXAS

**DAM & SPILLWAYS  
PLAN AND PROFILE**

DESIGNED: EJA	FREEST AND NICHOLS, INC. CONSULTING ENGINEERS FORT WORTH, TEXAS	DATE: MAY 29, 2008
DRAWN: HND		SCALE: AS SHOWN
CHECKED: JLR		SHEET 3 OF 6

PROJECT NO. 14659-5, DRAWING NO. 14659-5-1, SHEET NO. 3 OF 6  
 PREPARED BY: JOHN LEE BULLOCK, PROFESSIONAL ENGINEER, STATE OF TEXAS, NO. 55045, EXPIRES 12/31/2008  
 CHECKED BY: JERRY L. RICHARDS, PROFESSIONAL ENGINEER, STATE OF TEXAS, NO. 45812, EXPIRES 12/31/2008  
 DATE: MAY 29, 2008



TOPOGRAPHY TAKEN FROM AERIAL PHOTOGRAPHY  
BY DALLAS AERIAL SURVEY, DALLAS, TEXAS,  
FLOWN MARCH 30, 2004.



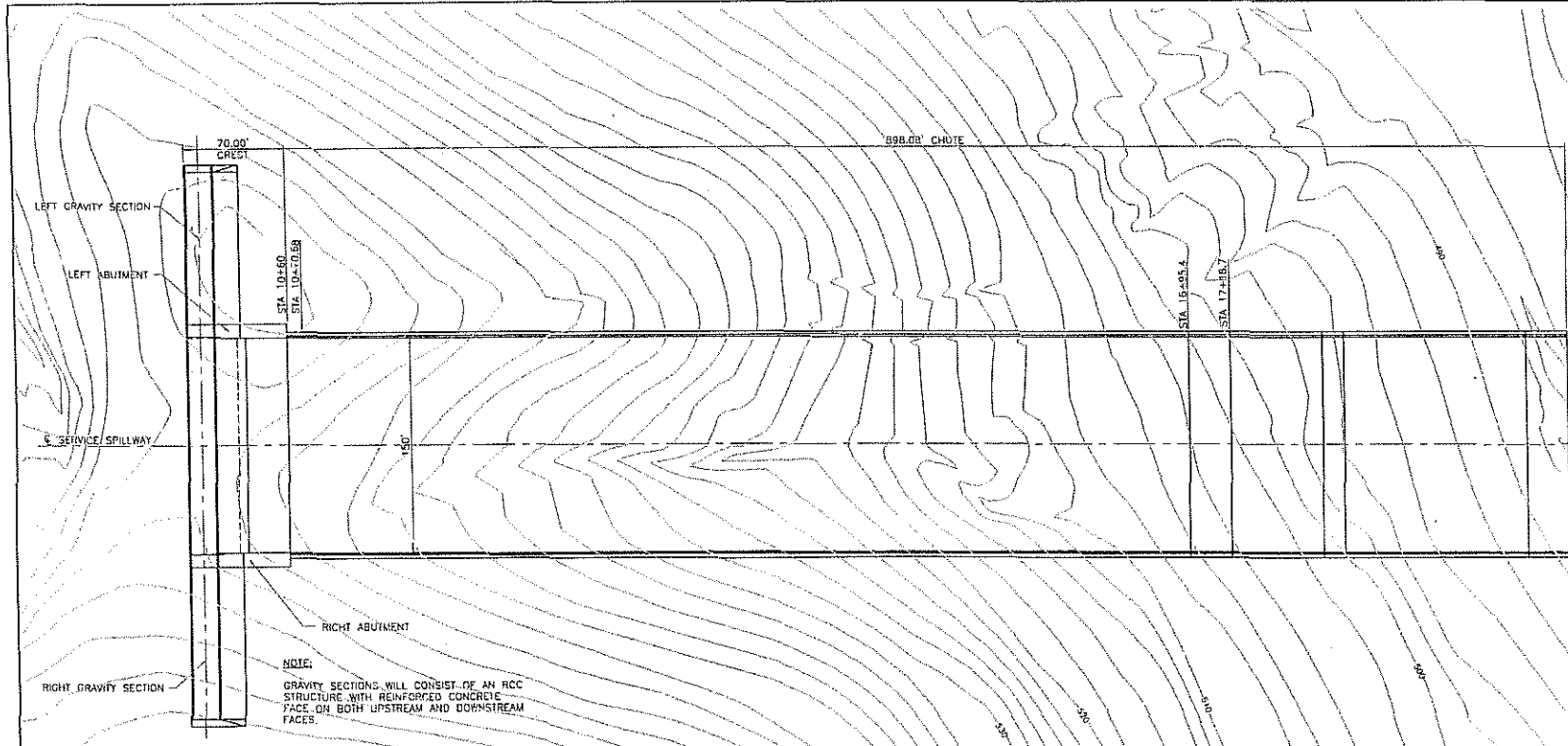
NORTH TEXAS MUNICIPAL WATER DISTRICT 505 EAST BROWN STREET WILHE, TEXAS 75098	
LOWER BOIS D'ARC CREEK RESERVOIR FANNIN COUNTY, TEXAS	
<b>DAM &amp; SPILLWAYS PLAN AND PROFILE</b>	
DESIGNED: GJ	DATE: MAY 22, 2008
DRAWN: NDD	SCALE: AS SHOWN
TRACED: JR	SHEET 4 OF 6
CHECKED: JR	
FREESE AND NICHOLS, INC. CONSULTING ENGINEERS FORT WORTH, TEXAS	

NORTH TEXAS MUNICIPAL WATER DISTRICT, 505 EAST BROWN STREET, WILHE, TEXAS 75098  
 DRAWN BY: GJ, DATE: MAY 22, 2008  
 CHECKED BY: JR, DATE: MAY 22, 2008  
 PROJECT NO.: 14659-6  
 SHEET NO.: 4 OF 6



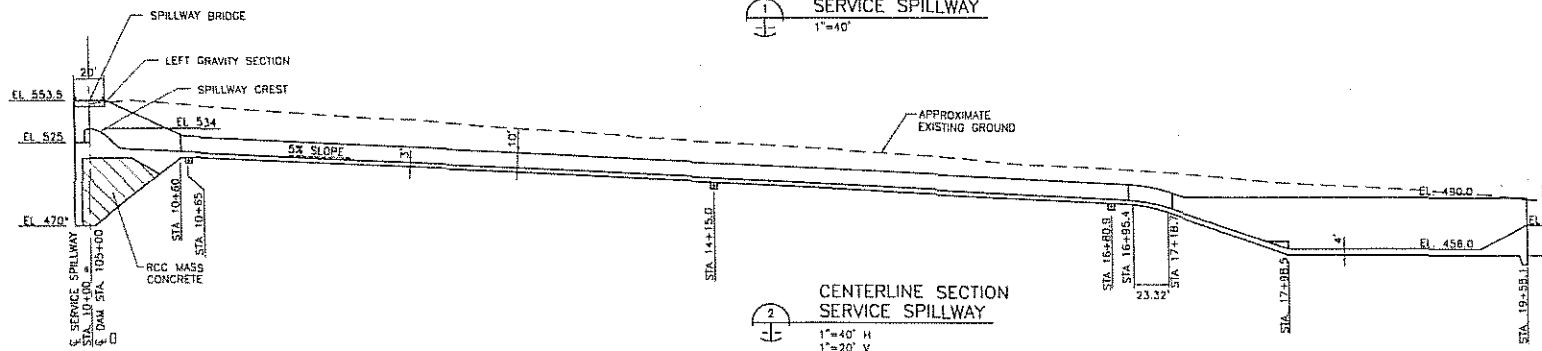


DATE: 11/15/11  
 DRAWN: JAW  
 CHECKED: JAW  
 PROJECT: 14659-8  
 SHEET: 1 OF 3  
 TITLE: SPILLWAY PLAN AND SECTION  
 CLIENT: NORTH TEXAS MUNICIPAL WATER DISTRICT  
 LOCATION: LOWER BOIS D'ARC CREEK RESERVOIR  
 DATE: MAY 23, 2008  
 SCALE: AS SHOWN  
 SHEET # OF #



TOPOGRAPHY TAKEN FROM AERIAL PHOTOGRAPHY BY DALLAS AERIAL SURVEY, DALLAS, TEXAS, FLOWN MARCH 30, 2004.

**PLAN SERVICE SPILLWAY**  
1"=40'



**CENTERLINE SECTION SERVICE SPILLWAY**  
1"=40' H  
1"=20' V

\* TO BE FOUNDED ON UNWEATHERED SHALE. ELEVATION TO BE DETERMINED.



NORTH TEXAS MUNICIPAL WATER DISTRICT 505 EAST BROWN STREET WILLS, TEXAS 75086	
LOWER BOIS D'ARC CREEK RESERVOIR FANNIN COUNTY, TEXAS	
<b>SPILLWAY PLAN AND SECTION</b>	
DESIGNED: CGL DRAWN: CAW CHECKED: JAW	DATE: MAY 23, 2008 SCALE: AS SHOWN SHEET # OF #
FREESE AND NICHOLS, INC. CONSULTING ENGINEERS FORT WORTH, TEXAS	