

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

FOR NPS USE ONLY
RECEIVED
DATE ENTERED
FEB 24 1977
AUG 29 1977

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY -- NOMINATION FORM

SEE INSTRUCTIONS IN HOW TO COMPLETE NATIONAL REGISTER FORMS
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC

* 1894 Tyler Hydraulic-Fill Dam

AND/OR COMMON

1894 Tyler Waterworks Dam or Bellwood Lake Dam

2 LOCATION

STREET & NUMBER *W of Tyler off RR 31*
On the northwest side of Bellwood Lake, 1/4
miles southwest of the picnic area.

CITY, TOWN

Tyler *via*

VICINITY OF

NOT FOR PUBLICATION

CONGRESSIONAL DISTRICT

4

STATE

Texas

CODE

48

COUNTY

Smith

CODE

423

3 CLASSIFICATION

CATEGORY

- DISTRICT
- BUILDING(S)
- STRUCTURE
- SITE
- OBJECT

OWNERSHIP

- PUBLIC
- PRIVATE
- BOTH
- PUBLIC ACQUISITION**
- IN PROCESS
- BEING CONSIDERED

STATUS

- OCCUPIED
- UNOCCUPIED
- WORK IN PROGRESS
- ACCESSIBLE**
- YES: RESTRICTED
- YES: UNRESTRICTED
- NO

PRESENT USE

- AGRICULTURE
- COMMERCIAL
- EDUCATIONAL
- ENTERTAINMENT
- GOVERNMENT
- INDUSTRIAL
- MILITARY
- MUSEUM
- PARK
- PRIVATE RESIDENCE
- RELIGIOUS
- SCIENTIFIC
- TRANSPORTATION
- OTHER:

4 OWNER OF PROPERTY

NAME

City of Tyler

STREET & NUMBER

City Hall

CITY, TOWN

Tyler

VICINITY OF

STATE

Texas 75201

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE,
REGISTRY OF DEEDS, ETC.

Smith County Courthouse

STREET & NUMBER

CITY, TOWN

Tyler

STATE

Texas

6 REPRESENTATION IN EXISTING SURVEYS

TITLE

Texas Historic Engineering Site Inventory

DATE

1975

FEDERAL STATE COUNTY LOCAL

DEPOSITORY FOR
SURVEY RECORDS

History of Engineering Program, Texas Tech University

CITY, TOWN

Lubbock

STATE

Texas

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
<input checked="" type="checkbox"/> EXCELLENT	<input type="checkbox"/> DETERIORATED	<input type="checkbox"/> UNALTERED	<input checked="" type="checkbox"/> ORIGINAL SITE
<input type="checkbox"/> GOOD	<input type="checkbox"/> RUINS	<input checked="" type="checkbox"/> ALTERED	<input type="checkbox"/> MOVED DATE _____
<input type="checkbox"/> FAIR	<input type="checkbox"/> UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

In May of 1894, J. M. Howell, C.E., conceived the idea of impounding water in a reservoir for the Tyler Water Works by a hydraulic-jet and sluicing method. According to his plans, water was pumped against a neighboring hill to provide necessary earth materials. Total cost for the equipment and materials of this project was 4.75 cents per cubic yards.

The Tyler Hydraulic-Fill Dam which Howell designed is 575 feet long, 32 feet high, and contains 24,000 cubic yards of earthen material. Its impounded water covers 177 acres and contains 1770 acre feet of water with a maximum depth of 26 feet.

During construction, water was forced through a 6-inch pipe by a Worthington steam pump of 750,000 gallons daily capacity which belonged to the old Tyler Waterworks pump station. Forced water was pumped halfway up the hill to a common hydrant with a 2.5-inch outlet where a fire hose with a 1.5-inch diameter nozzle was connected. Pressure of not more than 100 pounds was directed against a 150-foot hill at the west end of the dam site. Washing was carried into the hill on a 3 percent up-grade to a maximum working face of 36 feet of vertical height. By directing the nozzle at the foot of the slope, the face was undermined as quickly as possible. Experimentation and observation led to the conclusion that 65 percent of the mass washed into the dams was sand and 35 percent was clay.

In the beginning of construction a four-foot trench was excavated and refilled with sluiced puddle clay. Clay and sand were held on the dam by low sand ridges at the slope lines, which were maintained as the dam rose in height. Builders constantly moved a shallow stream over the embankment and into the levees, depositing sand and clay while water was drawn off from time to time.

Material was transported from the source on the hill to the dam by a 13-inch iron pipe held together with loose joints in a stove pipe fashion. Sand and clay ran through this pipe across the center line of the dam. When the grade nearest the wash bank reached full height the pipe was raised on a trestle to give it sufficient grade to reach the far side of the dam.

Today, the Tyler Hydraulic-Fill Dam remains in sound condition. In 1934 a Civil Works Administration project made some improvements to the dam, but it is practically in its original state except for the CWA added concrete spillway.

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
<input type="checkbox"/> PREHISTORIC	<input type="checkbox"/> ARCHEOLOGY-PREHISTORIC	<input type="checkbox"/> COMMUNITY PLANNING	<input type="checkbox"/> LANDSCAPE ARCHITECTURE	<input type="checkbox"/> RELIGION
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> ARCHEOLOGY-HISTORIC	<input type="checkbox"/> CONSERVATION	<input type="checkbox"/> LAW	<input type="checkbox"/> SCIENCE
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> ECONOMICS	<input type="checkbox"/> LITERATURE	<input type="checkbox"/> SCULPTURE
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> ARCHITECTURE	<input type="checkbox"/> EDUCATION	<input type="checkbox"/> MILITARY	<input type="checkbox"/> SOCIAL/HUMANITARIAN
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> ART	<input checked="" type="checkbox"/> ENGINEERING	<input type="checkbox"/> MUSIC	<input type="checkbox"/> THEATER
<input checked="" type="checkbox"/> 1800-1899	<input type="checkbox"/> COMMERCE	<input type="checkbox"/> EXPLORATION/SETTLEMENT	<input type="checkbox"/> PHILOSOPHY	<input type="checkbox"/> TRANSPORTATION
<input type="checkbox"/> 1900-	<input type="checkbox"/> COMMUNICATIONS	<input type="checkbox"/> INDUSTRY	<input type="checkbox"/> POLITICS/GOVERNMENT	<input type="checkbox"/> OTHER (SPECIFY)
		<input type="checkbox"/> INVENTION		

SPECIFIC DATES 1894 BUILDER/ARCHITECT J.M. Howell, C.E.

STATEMENT OF SIGNIFICANCE

The hydraulic-fill dam constructed for the waterworks of Tyler, Texas in 1894 was one of the earliest hydraulic-fill dams of its size in the United States.

In 1891 the operators of the Tyler Water Company, a private organization, recognized the need for additional water facilities for the community. The company purchased 85 acres on Indian Creek, about 4 miles southwest of the town square. In 1893 B. B. Cain purchased the Tyler Water Works and in the following year added more land to its holdings on Indian Creek. This purchase, in addition to the land acquired when the company passed into Cain's ownership, brought the total to 120 acres. In order to furnish water for domestic use and fire protection, Cain made plans to build a reservoir. In 1894, J. M. Howell conceived the idea of building a reservoir by impounding water behind a hydraulic-jet and sluicing type dam, and Cain agreed to the plan.

The entire cost of the dam was \$1140, an incredibly low sum considering the amount of water which is impounded by the dam. The location of the structure proved to be an improvement over the older system due to the fact that it reduced the amount of pipe which had to be laid. The average cost per acre foot was 65 cents. In 1909, John Wiley and Sons published an article by James Dix Schuyler in which he stated that the dam had no apparent defects and was giving satisfactory results.

The 1894 Tyler Waterworks Dam remains intact and still impounds Lake Bellwood. Although the reservoir no longer supplies water to the city of Tyler, it remains a favorite recreational site for area residents.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

"History of Water Distribution and Water Plant of the City of Tyler." MS. May 19, 1936. 6 lvs. Original manuscript in Historical Files, Water Department, City of Tyler, Tyler, Texas.
 Schuyler, James Dix. Reservoirs for Irrigation, Water-Power and Domestic Water-Supply. New York: John Wiley & Sons, 1909.

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY 2 acres

UTM REFERENCES

A 15 27.7043 3579428
 ZONE EASTING NORTHING

B
 ZONE EASTING NORTHING

C
 ZONE EASTING NORTHING

D
 ZONE EASTING NORTHING

VERBAL BOUNDARY DESCRIPTION

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

NAME / TITLE

William L. Cumiford, and Paul D. Hutchison, Research Assistants

ORGANIZATION

History of Engineering Program

DATE

10-7-76

STREET & NUMBER

Texas Tech University, P. O. Box 4089

TELEPHONE

(806) 742-3593

CITY OR TOWN

Lubbock

STATE

Texas 79409

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL

STATE xx

LOCAL

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

W. L. Cumiford
 SHPO

TITLE

DATE

February 8, 1977

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION

KEEPER OF THE NATIONAL REGISTER

ATTEST:

Charles [Signature]

DATE

8/29/77

DATE

8.25.77

KEEPER OF THE NATIONAL REGISTER

Property 1894 Tyler Hydraulic-Fill Dam

77001543

State Iowa

Working Number 2.24.77.350

Smith

TECHNICAL

Photos 4
Maps 1

CONTROL

pl
OK 2.24.77

HISTORIAN

accept
B Grosvenor
5/6/77

ARCHITECTURAL HISTORIAN

Accept
Lebowich
4.27.77

ARCHEOLOGIST

OTHER

Early example of an important type of dam, & its unaltered condition is especially noteworthy as most earthen dams have been extensively re-worked. Eligible

To HAER
Inventory X

Review *accept 6/27/77*
Donald C. Jackson

REVIEW UNIT CHIEF

Accept
Cole
8-22-77

BRANCH CHIEF

King
8.25.77

KEEPER

Wing
8/29/77

National Register Write-up _____
Federal Register Entry 10-4-77

Send-back _____
Re-submit _____

Entered AUG 29 1977

INT:2106-74



PROPERTY OF THE NATIONAL REGISTER

FEB 24 1977

1894 Tyler Hydraulic-Fill Dam
Tyler, Tx , Smith Co.
1975

History of Eng. Program, C. E. Dept.
Texas Tech University, Lubbock, Tx

Looking wouthwest across the Tyler
Hydraulic-Fill Dam to a view
showing the east and west sides.

AUG 29 1977

#1 of 4



PROPERTY OF THE NATIONAL REGISTER

1894 Tyler Hydraulic-Fill Dam
Tyler, Tx., Smith Co.
1976

FEB 24 1977

History of Eng. Program, C. E. Dept.
Texas Tech University, Lubbock, Tx

Looking southwest across the primary structure of the
dam.

#2 of 4

AUG 29 1977



PROPERTY OF THE NATIONAL REGISTER

FEB 24 1977

1894 Tyler Hydraulic-Fill Dam
Tyler, Tx, Smith Co.
1976
History of Eng. Program, C.E. Dept.
Texas Tech University, Lubbock, Tx

Looking northwest to a view of the dam and its
north abutment.

AUG 29 1977

#3 of 4



PROPERTY OF THE NATIONAL REGISTER

FEB 24 1977

1894 Tyler Hydraulic-Fill Dam
Tyler, Tx, Smith Co.
1976

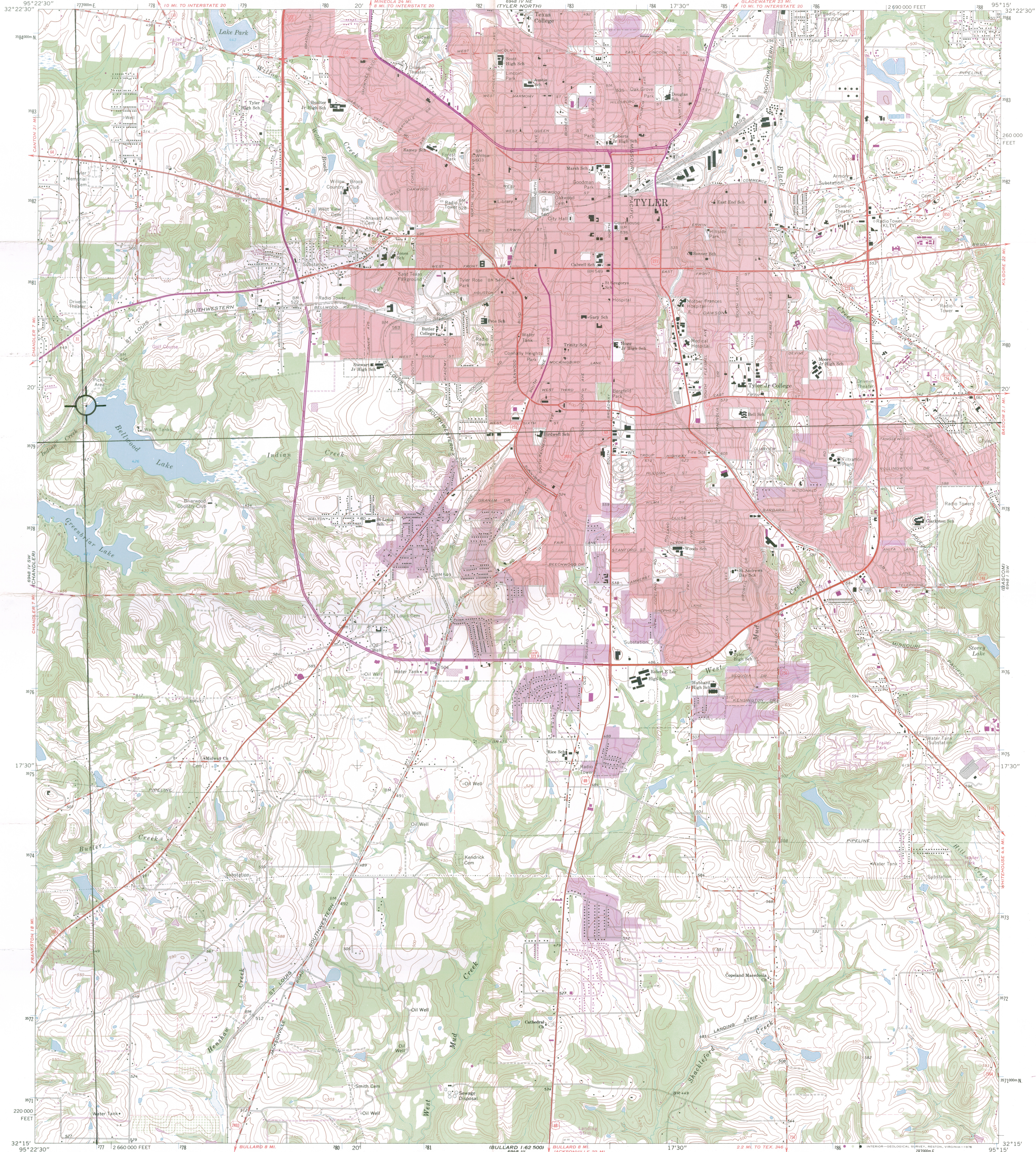
History of Eng. Program, C.E. Dept.
Texas Tech University, Lubbock, Tx

Looking east to a full view of the dam. Note
Bellwood Lake in the background.

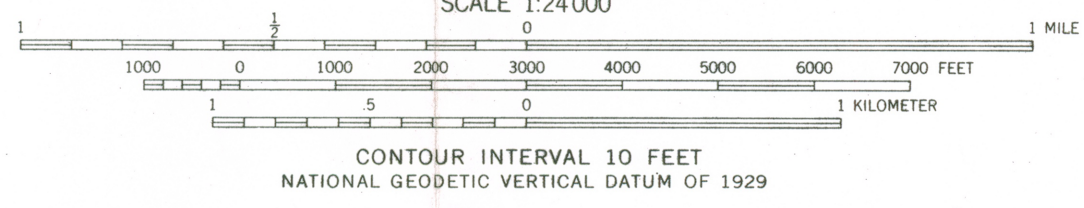
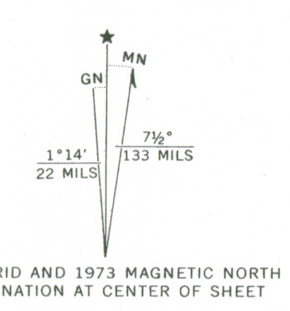
AUG 29 1977

#4 of 4

1894 TYLER HYDRAULIC-FILL DAM
N.W. SHORE OF BELLWOOD LAKE
TYLER, TEXAS
UTM REFERENCE:
15/277043/3579428



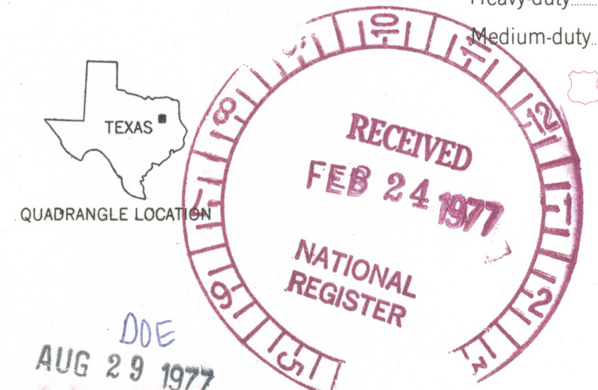
Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography by photogrammetric methods from aerial
photographs taken 1965. Field checked 1966
Polyconic projection. 1927 North American datum
10,000-foot grid based on Texas coordinate system,
north central zone
1000-meter Universal Transverse Mercator grid ticks,
zone 15, shown in blue
Red tint indicates areas in which only landmark buildings are shown
Fine red dashed lines indicate selected fence lines
Revisions shown in purple compiled from aerial photographs
taken 1973. This information not field checked
Purple tint indicates extension of urban areas



ROAD CLASSIFICATION

Heavy-duty	Light-duty
Medium-duty	Unimproved dirt
U.S. Route	State Route

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



TYLER SOUTH, TEX.
SE/4 TYLER 15' QUADRANGLE
N3215—W9515/7.5
1966
PHOTOREVISED 1973
AMS 6948 IV SE—SERIES V882

ENTRIES IN THE NATIONAL REGISTER

STATE TEXAS

Date Entered AUG 29 1977

<u>Name</u>	<u>Location</u>
Irion County Courthouse	Sherwood Irion County
Tyler Hydraulic-Fill Dam	Tyler vicinity Smith County
Bexar County Courthouse	San Antonio Bexar County
Browne-Wagner House	Brownsville Cameron County

Also Notified

Hon. John G. Tower
Hon. Lloyd M. Bentsen
Hon. Robert C. Krueger
Hon. Ray Roberts
Hon. Henry B. Gonzalez
Hon. E. de la Garza

State Historic Preservation Officer
Mr. Truett Latimer
Executive Director
Texas Historical Commission
P. O. Box 12276, Capitol Station
Austin, Texas 78711

Regional Director, Southwest Region

8/31/77

Mott

880

NR Data Sheet

DATE: 27 April 77
Reviewer: NR INITIALS: Lebovich
DOE AUG 29 1977

NAME AS IT APPEARS IN FEDERAL REGISTER: Tyler Hydraulic-Fill Dam
OTHER NAMES: 1894 Tyler Waterworks Dam; Bellwood Lake Dam

LOCATION:
STREET & NUMBER W of Tyler off TX 31 at Bellwood Lake

CITY, TOWN CONGRESSIONAL DISTRICT 4th
STATE Texas 48 VICINITY OF Tyler COUNTY code
Smith 423

OWNER OF PROPERTY: (Circle) PRIVATE STATE LOCAL GOV'T MUNICIPAL COUNTY OTHER

ADMINISTRATOR (underline) FEDERAL (AGENCY NAME):
NPS REGION: (CIRCLE) N. ATLANTIC MID ATLANTIC SOUTHEAST MIDWEST
SOUTHWEST ROCKY MOUNTAIN WEST PACIFIC NORTHWEST

FEATURES:

INTERIOR EXTERIOR ENVIRONS
- Substantially intact-1 Substantially intact-2 - Substantially intact-3
- unknown - 4 - unknown - 5 - unknown - 6
 not applicable - 7 - not applicable - 8 - not applicable - 9

CONDITION - EXCELLENT - DETERIORATED - UNALTERED ORIGINAL SITE
- GOOD - RUINS ALTERED - MOVED
- FAIR - UNEXPOSED - Reconstructed - Unknown
- Unexcavated - Excavated

ACCESS - Yes-restricted Yes-unrestricted No access Unknown

historic district? YES NO

WITHIN NATIONAL REGISTER HISTORIC DISTRICT? YES NO
IF YES, NAME:

WITHIN NATIONAL HISTORIC LANDMARK? YES NO
IF YES, NAME:

ADAPTIVE USE: YES NO Saved? YES NO

FUNCTION(S): (use vocabulary words)

then- dam

now- park

SIGNIFICANCE:

ARCHEOLOGY-PREHISTORIC CONSERVATION LANDSCAPE ARCHITECTURE RELIGION entertainment
 ARCHEOLOGY-HISTORIC ECONOMICS LAW/Gov't/politics SCIENCE health
 AGRICULTURE EDUCATION LITERATURE SETTLEMENT recreation
 ARCHITECTURE ENGINEERING MILITARY SOCIAL/HUMANITARIAN settlement
 ART EXPLORATION MUSIC TRANSPORTATION socio/cultural
 COMMERCE INDUSTRY PHILOSOPHY OTHER (SPECIFY) urban & commun
 COMMUNICATIONS INVENTION POLITICS/GOVERNMENT planning

Claims

"first" YES NO "oldest" YES NO "only" YES NO

ARCHITECTURAL STYLE: *N/A*

architect/m.builder: *J.M. HOWELL, C.E.*

engineer:

landscape/garden designer:

artist/artisan:

interior decorator:

builder/contractor:

ETHNIC GROUP:

NAMES:

personal

(label role
&
appropriate date)

events

institutional

DATES:

DATE OF CONSTRUCTION (Specific date or 1/4 of century): *1894*

DATE(S) OF "MAJOR" ALTERATIONS:

HISTORICALLY SIGNIFICANT DATE(S):

SOURCE:

(OF NOMINATION)

PRIVATE

STATE

LOCAL GOV'T

MUNICIPAL

COUNTY

OTHER

FEDERAL AGENCY:

ACREAGE:

(to nearest tenth of an acre)

2 acres

COMMENTS:

(include architectural information here)

575' long, 32' high, 24,000 cubic yards of earthen material

SIGNIFICANCE: (maximum two sentences)

one of the earliest hydraulic fill dams of its size in the US