



CITY OF TRINIDAD TRINIDAD, COLORADO

The City Council will hold its regular Work Session on
Tuesday, June 28, 2011 at 1:30 p.m.
City Hall Council Chambers, Third Floor, City Hall

AGENDA

1. Introduction of Carnegie Library Advisory Board Applicants
2. Request to address City Council regarding federal transportation funding– Terry Sears
3. Consideration of proposed resolution of the City Council determining that an election is required and accompanying Intergovernmental Agreement with Las Animas County for the conduct of the coordinated election – Audra Garrett, City Clerk
4. Presentation of Trinidad Police Department 2010 Annual Report – Chief Charles Glorioso
5. Consideration of proposed ordinance to rezone a 6,500 square foot property located at 900 Arizona Avenue from E-LDR (Established – Low Density Residential) to E – CC (Established - Community Commercial) – Ed Gil de Rubio, City Manager
6. Consideration of proposed resolution to update the City of Trinidad Three-Mile Plan, Ed Gil de Rubio, City Manager
7. Consideration of proposed resolution adopting the City of Trinidad Way-finding Signage Plan – Ed Gil de Rubio, City Manager
8. Update on North Lake Dam Reservoir Rehabilitation and Multiple Use Project – Jim Fernandez, Utilities Superintendent
9. Discussion of other agenda items

Search Mail Search the Web [Show search options](#)
[Create a filter](#)

Tech and Science Grants - Funding for innovative solutions to optical sensing challenges. - blueoceangrants.com About these ads < >

◀ Back to Inbox Archive Report spam Delete Move to Labels More actions ▶ Newer 13 of 117 Older ▶

Compose mail

Inbox (42)

- Buzz
- Starred
- Sent Mail
- Drafts
- Personal
- Travel
- 7 more ▾

Chat

Search, add, or invite

TJ Sears

- Call phone
- afetoodalu
- Carol Howe
- Carol Howe
- G Humberstad
- jaimmeg90723
- kevin dugoncevic
- noreply
- Rosie Von Bek
- terrywinki
- trysears

Invite a friend

Give Gmail to:

Send Invite: 50 left

[Preview Invite](#)

House Appropriators May Zero National Network Inbox X

Ross Capon, NARP to me

[show details](#) Jun 13 (3 days ago)

[Reply](#)



NATIONAL ASSOCIATION OF RAILROAD PASSENGERS

TRAINS: A TRAVEL CHOICE AMERICANS WANT

June 13, 2011

[NARP Links](#)

House Appropriators May Zero National Network

The appropriations process determines how much money federal programs will get in Fiscal 2012, which starts October 1, 2011. Although the first step in the formal House appropriations process is not expected until mid-July, in speaking with Congressional offices NARP has discovered that the House Appropriations Subcommittee on transportation will almost certainly impose a crushing funding reduction on Amtrak, possibly zeroing out the national network and limiting capital funding to the bare minimum needed to avoid bankruptcy.

The most effective response is to meet with legislators, to speak up for trains at their 'town meetings,' and to write letters to the editor of your local newspaper. The letter should mention at least one of your legislators (Representative, two Senators) by name pointing out their ability to influence the outcome of the debate on transportation funding.

- [NARP Website](#)
- [Hotline](#)
- [NARP Blog](#)
- [Renew](#)
- [Contact Us](#)

Write your newspaper



You have received this email through your affiliation with the National Association of Railroad Passengers. If you no longer wish to receive emails from NARP, [unsubscribe here](#).



[Reply](#) [Forward](#)

[New window](#)

[Print all](#)

Ads

Obama in 2012?

Should Obama be re-elected? Share your opinion here. www.newsmax.com/surveys

Microsoft Office 365@

Your Favorite Office Programs Are Now Available Anytime, Anywhere. www.microsoft.com/office365

Dodd-Frank Act

FedCentral radio: Deloitte leaders on Dodd-Frank implementation. www.deloitte.com/us

Free Government Bids

Receive Government Bids Daily Get your 45 day Free Email Alert! www.GovernmentBids.com

Govt Mortgages: 2.8% APR

\$160,000 Mortgage for \$499/mo. No Hidden Points, Fees or Costs. government-mortgage-bill.lendgo.com

Mortgage Rate at 2.37%

\$200,000 home mortgage for \$771/mo. See New Payment. No S Required. Mortgage.LeadSteps.com

Need Investors?

Angel Investors, Loans, Grants. Investors are waiting online. www.Funded.com

More about...

[Funding »](#)

[Federal Grant »](#)

[Arts Funding Grants »](#)

[DOD Federal Budget »](#)

[About these links](#)

2

RESOLUTION NO.

A RESOLUTION OF THE CITY COUNCIL DETERMINING THAT AN ELECTION IS REQUIRED TO CONSIDER ONE OR MORE BALLOT ISSUES AND TO ELECT THE MAYOR AND THREE CITY COUNCIL MEMBERS AND THAT SUCH ELECTION SHOULD BE HELD AS A COORDINATED ELECTION

WHEREAS, the City of Trinidad and Las Animas County entered into an Intergovernmental Agreement on August 20, 1993 for the administration of their respective duties concerning the conduct of the coordinated election held on November 2, 1993; and

WHEREAS, although the Agreement provides for automatic renewal unless terminated by one of the parties, actual use of the Agreement for any election by the City requires City Council to make a determination by Resolution, that an election is required and should be held as a coordinated election; and

WHEREAS, an election is required to consider one or more ballot issues and to elect the Mayor and three City Council Members; and

WHEREAS, City Council has determined that it is in the best interest of the City that the election to be held on November 1, 2011 should be held for the reasons set forth in the Intergovernmental Agreement

Work Session
acc
IGA W for
LAC for
elect IF

THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF TRINIDAD, COLORADO, that:

1. An election is required to consider one or more ballot issues and to elect the Mayor and three City Council Members.
2. The election to be held on November 1, 2011 should be held as a coordinated election.
3. A copy of this Resolution shall be delivered to the County Clerk at least one hundred (100) days prior to the date of the election.

INTRODUCED, READ AND ADOPTED this 5th day of July, 2011.

JENNIE GARDUNO, Mayor

ATTEST:

AUDRA GARRETT, City Clerk

3

RENEWAL OF INTERGOVERNMENTAL AGREEMENT

This Renewal of Intergovernmental Agreement is made and entered into this 5th day of July, 2011 by and between the City of Trinidad ("City") and Las Animas County ("County"), collectively referred to herein as the "Parties", for continued administration of their respective duties concerning the conduct of the coordinated election to be held November 1, 2011.

WHEREAS, the "Parties" entered into the Intergovernmental Agreement ("Agreement") on August 20, 1993; and

WHEREAS, automatic renewal of the Agreement is subject to the provisions in Article 1 Purpose and General Matters, Section 1.04. Term, Renewal and Activation, Subsections A and B; and

WHEREAS, the City agrees to pay its proportional share of the actual costs incurred in conduct of the coordinated election upon receipt of an itemized statement by the "County". The actual costs are to be determined by the number of jurisdictions participating in the coordinated election to be held on November 1, 2011.

THEREFORE, the Parties agree that the Intergovernmental Agreement shall be renewed for conduct of a coordinated election to be held on November 1, 2011.

IN WITNESS WHEREOF, the Parties hereto have signed this RENEWAL OF INTERGOVERNMENTAL AGREEMENT, to be effective as of the date first written above.

CITY OF TRINIDAD

ATTEST:

Jennie Garduno, Mayor

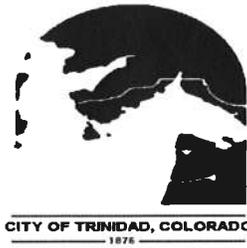
Audra Garrett, City Clerk

LAS ANIMAS COUNTY

Bernard Gonzales, Clerk and Recorder

Date _____

3-2



MEETING DATE: June 14th, 2011

TO: City Council

FROM: City Staff

SUBJECT: Kenneth Gegelman (Application # 2011-05) - Request to rezone a 6,500 square foot property located at 900 Arizona Avenue from E-LDR (Established – Low Density Residential) to E-CC (Established – Community Commercial). Said property lies entirely within the E-LDR zoning district.

GENERAL INFORMATION:

Applicant: Kenneth Gegelman

Property Owner: Kenneth Gegelman

Purpose of Application: To rezone 900 Arizona Avenue from E-LDR to E-CC.

Location: 900 Arizona Avenue.

Size: Approximately ¼ acre.

Existing Land Use: Vacant commercial building.

Surrounding Land Uses: North: E-CC, Retail and Service
East: E-LDR, Detached single-family homes
South: T-NS, Yoga Studio
West: E-LDR, Detached single-family homes

Existing Zoning: E-LDR

POLICY & STANDARDS FOR REZONING

- (1) Section 14-112 requires that a rezoning will be allowed only if the applicant demonstrates by clear and convincing evidence that the rezoning is necessary because of one or more of the following reasons:

- (a) The land to be rezoned was zoned in error and as presently zoned is inconsistent with the policies and goals of the City Comprehensive Plan; or

The subject property contains an historic commercial building that was obviously intended for commercial use even though it is included in the E-LDR district. The building has not been used for commercial purposes for over one year and has therefore lost its non-conforming status. A rezone will therefore be necessary to allow the establishment of another commercial operation in the building. The rezone is supported by the following comprehensive plan policy statements:

Policy ED-02: The City shall encourage the preservation and renovation of historic structures.

The applicability of this policy statement is readily apparent – if this historic building remains unutilized and unoccupied, it will surely fall into a state of disrepair. Further, the building is obviously suited for commercial purposes and is bordered by commercial uses to the north and south.

- (b) The area for which rezoning is requested has changed or is changing to such a degree that it is in the public interest to encourage a redevelopment of the area or a new approach to development; or

The subject property contains an historic commercial building that was obviously intended for commercial use even though it is included in the E-LDR district.

- (c) The proposed rezoning is necessary in order to provide land for a community related use which was not contemplated at the time of development of the comprehensive plan.

The subject property contains an historic commercial building that was obviously intended for commercial use even though it is included in the E-LDR district.

- (2) In addition, no rezoning will be allowed unless the following conditions have been met:

- (a) That a change in zoning will advance a more effective use of land in harmony with the City's Comprehensive Plan; and,

The subject property contains an historic commercial building that was obviously intended for commercial use even though it is included in the E-LDR district. A rezone to E-CC will allow the building to be utilized for its

5-2

intended purpose, thus advancing a more effective use of the land in harmony with the City's Comprehensive Plan.

(b)The public interest has been met.

The re-utilization of a vacant historic building serves the public interest.

In regards to this application, the Planning Commission must determine which of the above requirements are met if the Commission recommends that the City Council approves this application.

LEGAL ISSUES

Because this is a quasi-judicial matter, the decision-makers shall not have direct contact with the parties involved in this matter prior to a decision to avoid ex parte communication. Any possible or potential conflict of interest matters should be disclosed and/or discussed with the City Attorney prior to any public hearing on the matter. If you have any questions, please contact the City Attorney.

RECOMMENDATION:

The Commission should adopt the above as its findings and conditions, amending it as it is determined necessary, in the consideration of their recommendation to the City Council.

5-3



MICKENSE PLUMBING AND HEATING
1113 S. 10th St. - Anchorage, Alaska 99509
Phone: 261-1111

5-4



5-5

RESOLUTION NO.

A RESOLUTION OF THE CITY OF TRINIDAD, COLORADO, UPDATING THE CITY OF TRINIDAD THREE-MILE AREA PLAN

WHEREAS, in June, 2008, the Trinidad City Council adopted the City of Trinidad Three-Mile Area Plan, pursuant to C.R.S. 31-12-105(e) and Resolution No. 1332; and

WHEREAS, a review of the Three-Mile Area Plan is required to be conducted annually and updates made accordingly; and

WHEREAS, Resolution No. 1344, adopted June, 2009, updated the original Three-Mile Area Plan; and

WHEREAS, Resolution No. 1356, adopted June, 2010, updated the Three-Mile Area Plan as revised in 2009; and

WHEREAS, the 2011 annual review of the Three-Mile Area Plan concludes that no updates are required to the plan as revised in 2010;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF TRINIDAD, COLORADO:

1. The City of Trinidad hereby designates the City of Trinidad Three-Mile Area Plan, dated June, 2008, and all subsequent revisions to said plan, as the Major Street Plan for the City of Trinidad, in conformance with the provisions of Section 31-23-212 of the Colorado Revised Statutes.
2. The City Clerk is directed to file a certified copy of the Updated Three-Mile Area Plan as the City's Major Street Plan, with the Las Animas County Clerk & Recorder.

INTRODUCED, READ, AND ADOPTED this 1st day of June, 2010.

JENNIE GARDUNO, Mayor

ATTEST:

AUDRA FATUR, City Clerk

6

2010 UPDATE: THREE-MILE AREA PLAN CITY OF TRINIDAD, COLORADO

INTRODUCTION

The City of Trinidad Three-Mile Area Plan is prepared and updated annually to comply with Section 31-12-105(1)(e)(l) of the Colorado Revised Statutes, as follows:

"... [N]o annexation may take place that would have the effect of extending a municipal boundary more than three miles in any direction from any point of such municipal boundary in any one year. Within said three-mile area, the contiguity required...may be achieved by annexing a platted street or alley, a public or private right-of-way, a public or private transportation right-of-way or area, or a lake, reservoir, stream, or other natural or artificial waterway. Prior to the completion of any annexation within the three-mile area, the municipality shall have in place a plan for that area that generally describes the proposed location, character, and extent of streets, subways, bridges, waterways, waterfronts, parkways, playgrounds, squares, parks, aviation fields, other public ways, grounds, open spaces, public utilities, and terminals for water, light, sanitation, transportation, and power to be provided by the municipality and the proposed land uses for the area. Such plan shall be updated at least once annually. Such three-mile limit may be exceeded if such limit would have the effect of dividing a parcel of property held in identical ownership if at least fifty percent of the property is within the three-mile limit. In such event, the entire property held in identical ownership may be annexed in any one year without regard to such mileage limitation. Such three-mile limit may also be exceeded for the annexation of an enterprise zone."

GENERAL DESCRIPTION

The location and extent of physical features, such as streams (waterways), lakes (waterfronts), open spaces (forested and agricultural), and public ways (streets, bridges, aviation fields, etc.) within the Three-Mile Area are described on the attached map. In addition, the character of these and other Three-Mile Area components (parks, playgrounds, squares, grounds, public utilities, terminals, etc.) are described and classified into the following three categories:

Transportation

Within the three-mile area of Trinidad, streets are delineated as interstate highway, U.S. or State highway, and County road. Streets within the City of Trinidad are functionally classified as principal arterial, minor arterial, major collector, and local roads.

In general, CDOT is responsible for the maintenance and improvement of regional arterial roads and bridges, inclusive of interstate highways (I-25), U.S. highways (US 160, US 350), and State highways (SH 12, SH 239). Las Animas County is responsible for the maintenance and improvement of County roads and bridges. The City of Trinidad is responsible for the maintenance and improvement of approximately 78.4 miles of arterial, collector and local roads and bridges within its boundaries that are not otherwise maintained by either CDOT or Las Animas County.

One aviation field serves the region, yet it is located outside the Three-Mile Plan Area. The Perry Stokes Airport, located 10 miles northeast of Trinidad off US 350, provides general aviation services, including hanger rental, tie downs, and fueling.

The Burlington Northern Santa Fe (BNSF) railroad runs through the Three Mile Area, Burlington Northern Santa Fe provides freight rail service to the region, and shares track rights with the Union Pacific Railroad. Passenger rail service is provided by Amtrak's Southwest Chief route.

Bus service is operated by the Texas, New Mexico, and Oklahoma transit service (TNM&O). TNM&O is a subsidiary of Greyhound Lines that primarily operates on the I-25 corridor.

There are no existing or proposed subways in the Three-Mile Plan Area.

Utilities

The City of Trinidad provides treated water within its service areas, which includes approximately 550 customers outside the City limits and within the Three-Mile Plan Area. Although the City's water sources (North Lake and Monument Lake) and treatment facility are located outside of the Three-Mile Plan Area, a 5.0 million gallon water tank and the majority of the water distribution system are located within the incorporated limits of Trinidad.

The City of Trinidad also provides wastewater collection service within its service areas. The City of Trinidad Wastewater Treatment Plant is located on a 22.2-acre parcel north of the US 160 bypass and east of Interstate Highway 25.

The City of Trinidad owns and maintains approximately 70 miles of an electric distribution system, serving 5,100 customer accounts within the Three-Mile Plan Area. Although it formerly generated its own power and still owns a power plant, the City purchases its power from the Arkansas River Power Authority. The City power plant is now used for emergency generation.

The City of Trinidad also owns and maintains a natural gas distribution system within the Three-Mile Plan Area. Natural gas is currently supplied by the National Public Gas Association through a master meter located just east of the City limits.

Refuse service is provided by private contractors within the Three Mile Area and the landfill is located on State Street. The landfill has an estimated life of 24 years. Recycling is available at the Las Animas County Rehabilitation Center on Congress Drive in the City's Industrial Park.

Recreation

Trinidad State Recreation Area and the Las Animas County Fairgrounds are located within the Three-Mile Plan Area. In addition, there are nine developed public parks (several with playgrounds) and two golf courses within the Trinidad city limits. The Trinidad Riverwalk provides a recreational trail within the Three-Mile Area, with future expansion planned.

PROPOSED LAND USE

The proposed land use for the Three-Mile Plan Area is classified into the following five categories:

Agricultural

The Agricultural land use category is intended to be consistent with the objectives of the Las Animas County Agriculture (A) zoning district. The Agricultural category is for the purpose of

protecting productive agricultural lands and preserving the visual and cultural values associated with agricultural lifestyles within the Three-Mile Plan Area.

Ranchette

The Ranchette land use category is intended to be consistent with the objectives of the Las Animas County Ranchette (R) zoning districts. The Ranchette category is for the purpose of allowing rural residential development compatible with agricultural uses.

Rural Residential

The Rural Residential land use category is intended to be consistent with the objectives of the Las Animas County Rural Residential (RR) zoning district. The Rural Residential category is for the purpose of allowing low density residential development generally in those areas on the fringes of Trinidad which are more conducive to development because of the general availability of public services and facilities.

Urban Residential

The Urban Residential land use category is intended to be consistent with the objectives of the Las Animas County Urban Residential (U-R) zoning district. The Urban Residential category allows development in those areas immediately adjacent to the City of Trinidad, which would be conducive to more intense development because of the availability of utility systems.

Planned Unit Development

The Planned Unit Development land use category is intended to be consistent with the objectives of the Las Animas County Planned Unit Development (PUD) zoning district. The Planned Unit Development land use category is for the purpose of encouraging creative planning. The overall density of a PUD may exceed the density specified in the zoning districts in which it is located, with variances from the normal zoning and subdivision requirements, such as those governing setbacks.

Upon annexation, the City of Trinidad reserves the municipal authority to zone land consistent with the City of Trinidad Comprehensive Plan, and the objectives of the Trinidad City Council and the annexing land owner/developer.

POLICIES

TMAP-1

All annexations shall be in conformance with the provisions of Section 31-12 of the Colorado Revised Statutes. In particular, a community of interest shall exist between the City of Trinidad and any area proposed for annexation, with clear support by existing and/or potential City residents. The Three-Mile Area Plan shall be reviewed and updated annually, incorporating any municipal boundary adjustments and related three-mile area boundary adjustments as necessary.

TMAP-2

As required, a fiscal impact report shall be completed and submitted concurrent with a petition for annexation of ten acres or more. Fiscal impacts associated with an annexation shall be adequately offset by a) increased tax base within the annexation area, b) increased tax base elsewhere within the City of Trinidad, and/or c) the overall economic benefit to the City of Trinidad.

6-4

TMAP-3

The Three-Mile Area Plan shall be filed with the Las Animas County Clerk as the Major Street Plan for the City of Trinidad, in conformance with the provisions of Section 31-23-212 of the Colorado Revised Statutes. All right-of-way for arterial, collector and local streets shall be dedicated in accordance with City of Trinidad subdivision regulations.

TMAP-4

The City of Trinidad shall maintain its capability to provide adequate levels of service. Petitioners are responsible for meeting the provisions contained in Section 29-20-303 through 305 of the Colorado Revised Statutes relating to an adequate water supply prior to the submittal of an annexation request. Annexation or annexation agreements, as determined by the City, shall be required as a condition of connecting to the City of Trinidad water and/or sanitary sewer system. Lands needed for public purposes (parks, trails, fire stations, etc.) shall be dedicated to the City of Trinidad or other appropriate public entity. Direct costs of services and infrastructure associated with an annexation shall be borne by the petitioner. All improvements shall be constructed in accordance with City of Trinidad or other appropriate public entity design standards, with performance surety in place.

TMAP-5

All annexation shall be consistent with sound land use planning principles, furthering the purposes of managing growth, ensuring compatibility between urban and rural development patterns, containing urban form, and protecting environmental resources. The existing and/or proposed land use associated with annexation shall be in conformance with the City of Trinidad Comprehensive Plan. All development associated with annexation shall be in compliance with the City of Trinidad Municipal Code.

TMAP-6

Corridor Planning Areas (CPA's) shall be established for major entry corridors into Trinidad. CPA's shall correspond to the major gateways of Trinidad, including I-25, US Highway 160, and State Highway 12, where urban services are available or may become available. The City of Trinidad shall coordinate land use planning activities with Las Animas County in CPA's.

RESOLUTION NO.

A RESOLUTION OF THE CITY COUNCIL ADOPTING THE CITY OF TRINIDAD WAYFINDING SIGNAGE PLAN

WHEREAS, the City of Trinidad and its Tourism Board recognizes the need for a coherent, unified wayfinding signage system; and

WHEREAS the Planning, Zoning and Variance Commission conducted two public workshops on March 8, 2011 and April 12, 2011, regarding the development of a wayfinding signage system for Trinidad; and

WHEREAS, the Planning, Zoning and Variance Commission conducted a public hearing on the City of Trinidad Wayfinding Signage Plan on June 14, 2011 and unanimously recommended approval of the plan to the City Council; and

WHEREAS, the City Council conducted a public hearing on the City of Trinidad Wayfinding Signage Plan on July 5, 2011; and

WHEREAS, the Planning, Zoning and Variance Commission and City Council believe it is in the best interest of the City that the City of Trinidad Wayfinding Signage Plan be adopted.

NOW THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF TRINIDAD, COLORADO, that the Wayfinding Signage Plan be adopted as proposed.

INTRODUCED, READ AND ADOPTED this 5th day of July, 2011.

Jennie Garduno, Mayor

ATTEST:

AUDRA FATUR, City Clerk

CC: Jerod Beatty
Ed Del de Rubio ✓



DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURCES

John W. Hickenlooper,
Governor
Mike King
Executive Director
Dick Wolfe, P.E.
Director and
State Engineer

June 13, 2011



Mr. James Fernandez
Utilities Superintendent
City of Trinidad
135 N. Animas Street
Trinidad, CO 81082

CERTIFIED NO.: 7004 0550 0001 0703 6938

When replying please refer to:
NORTH LAKE DAM
Water Division 2, DAMID 190116

RE: Reservoir Restriction Order 5 feet Below Emergency Spillway Crest

Dear Mr. Fernandez:

I understand that you have had several recent meetings with my staff to discuss our on-going safety concerns with North Lake Dam. I also understand that the City of Trinidad is trying to obtain grant money to construct the safety modifications to the dam that your engineer has designed. We applaud this effort and hope you are successful. However, in the meantime we believe artesian pressures in the dam's foundation create an unsafe condition when the reservoir is full, such as has been documented in a geotechnical report by your engineer. We believe you have had adequate time to attempt to fix the problem and that the time has come where we must act to restrict the reservoir level. We are also concerned about seismic activity in the area of the dam and the elevated risk it creates for potential failure modes associated with your dam.

In light of these events and in order to increase the safety of the dam, **the reservoir is hereby restricted to a level 5.0 feet below the emergency spillway crest or gage height 60.0 feet.** As my staff has discussed with you, the reservoir shall be drawn down slowly, at a rate of approximately 1 foot per month, during which time the reservoir and piezometric levels shall be monitored and recorded at least one time per week. Please provide the data to my office on a monthly basis. During this period the dam shall be monitored visually on a daily basis with particular attention to cracking of soils at the downstream toe of the dam and any new seepage or change in the rate or increase in turbidity of the existing seepage or for any other new or unusual conditions. We recommend that you cut herbaceous vegetation and remove large vegetation at the toe and groins of the dam in order to facilitate close visual

8

inspection. Please notify the Dam Safety Branch when the full 5 foot reservoir restriction has been attained. At that time, the reduction in the piezometric level in the foundation will be evaluated to determine if additional restrictions are needed to achieve a significant drop in pressure.

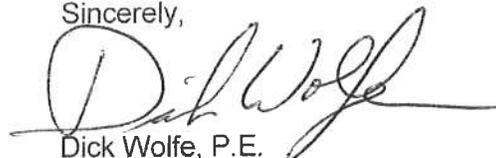
I also understand that there is a historical slide area along Colorado Highway 12 on the north rim of the reservoir that could be re-activated if the reservoir is dropped quickly. Please contact your local CDOT staff in charge of monitoring the slide area and inform them of the planned drawdown of the reservoir.

By copy of this letter the Division Engineer is directed to enforce the restriction; however, the primary responsibility rests with you as the dam owner. This restriction is the minimum action you can take to improve the safety of your dam. Additional actions may be necessary based upon the recommendations of your engineer. You are reminded that, as owner, you are liable for the safety of this structure and these minimum requirements do not relieve you of that liability.

Failure to comply with this order will result in our office initiating legal action in accordance with Colorado Revised Statute 37-87-114. Court action could result in the imposition of a fine of not less than \$500 per day, and a District Court Order requiring the breach of the dam.

We appreciate your cooperation in this matter. Should you have any questions, please contact Mark Perry at 719-542-3368, ext 2109.

Sincerely,



Dick Wolfe, P.E.
Director and State Engineer

xc: Steve J. Witte, Division 2 Division Engineer
Mark Haynes, Chief, Safety of Dams Program
Mark Perry, Division 2 Dam Safety Engineer
Jeff Montoya, Division 2 W.D. 19 Water Commissioner
Robert Huzjak, RJH Consultants Inc.

8-2

NORTH LAKE DAM RESERVOIR
Las Animas County, Colorado
Rehabilitation & Multiple Use Project
ARKANSAS RIVER BASIN ROUNDTABLE



Water Supply Reserve Account
Grant Application
June 2011

Prepared by:
James Fernandez
Utility Superintendent, C.O.T.



COLORADO WATER CONSERVATION BOARD



WATER SUPPLY RESERVE ACCOUNT
2011 GRANT APPLICATION FORM

NORTH LAKE RESERVOIR: Rehabilitation & Multiple Use
Arkansas River Basin

Name of Water Activity/Project

River Basin Location

Box containing the amount \$739,235.00

\$739,235.00

Basin Account checkbox

Basin Account

Yes checkbox (checked)

Yes

Statewide Account checkbox (checked)

Statewide Account

No checkbox

No

Amount of Funds Requested

Please Check Applicable Box

Approval Letter Signed By
Roundtable Chair and
Description of Results of
Evaluation and Approval Process

* For the Basin Account, the Application Deadline is 60 Days Prior to the Bimonthly CWCB meeting. The CWCB meetings are posted at www.cwcb.state.co.us and are generally the third week of the month.

* For the Statewide Account, the Application Deadline is 60 Days Prior to the March and September CWCB Board Meetings.

* In completing the application you may attach additional sheets if the form does not provide adequate space. If additional sheets are attached please be sure to reference the section number of the application that you are addressing (i.e., A.1. etc.).

Instructions: This application form must be submitted in electronic format (Microsoft Word or Original PDF are preferred). The application can be emailed or a disc can be mailed to the address at the end of the application form. The Water Supply Reserve Account Criteria and Guidelines can be found at http://cwcb.state.co.us/TWMD/. The criteria and guidelines should be reviewed and followed when completing this application. You may attach additional sheets as necessary to fully answer any question, or to provide additional information that you feel would be helpful in evaluating this application. Include with your application a cover letter summarizing your request for a grant. If you have difficulty with any part of the application, contact Rick Brown of the Intrastate Water Management and Development (Colorado Water Conservation Board) for assistance, at (303) 866-3514 or email Rick at rick.brown@state.co.us.

Generally, the applicant is also the prospective owner and sponsor of the proposed water activity. If this is not the case, contact the Rick Brown before completing this application.

Handwritten number 8-4

Part A. - Description of the Applicant (Project Sponsor or Owner);

1. Applicant Name(s):

CITY OF TRINIDAD, COLORADO

Mailing address:

P.O. Box 2440
Trinidad, CO 81082

Taxpayer ID#:

00-000000

Email address:

jim@historictrinidad.com

Phone Numbers: Business:

719-846-9843

Home:

719-846-9365

Fax:

719-846-4140

2. Person to contact regarding this application if different from above:

Name:

Ed Gil de Rubio

Position/Title

City Manager

3. *Provide a brief description of your organization below: see "Description of Applicant" in Part 2 of Criteria and Guidance for required information.*

Organization & History: The City of Trinidad, Colorado, submits its application as an eligible applicant under the guidelines of Senate Bill 06-179. The City of Trinidad was incorporated in 1876 and is the County seat of Las Animas County, Colorado. The City of Trinidad is the primary provider of treated drinking water for the City, the rural area encompassing the City, the Colorado Department of Corrections State Prison, the U.S. Army Pinon Canyon Maneuver Site, and approximately 867 rural customers served through twenty-two (22) rural water associations. These entities represent a customer base of 3,759 urban and rural residential water customers 963 urban and rural commercial customers. In addition to providing water to these customers, the City of Trinidad currently supplies untreated water from its municipal pool in Trinidad Lake for augmentation purposes to other rural customers who must augment their use of well or stream water. North Lake is the primary source of Trinidad's drinking water located approximately 46 miles west of Trinidad in Las Animas County. The lake has a capacity of approximately 4,300 acre feet of water and is fed by the North Fork stream, all in the Arkansas River Basin of the State of Colorado. The original North Lake dam was built in the 1930's, but was expanded in 1964. It is an earthen dam with a concrete control tower and concrete spillway. The dam currently has a "conditional" approval from the State Water Engineer's office for full storage. The State of Colorado has issued a mandate to the City that certain improvements must be made to the dam or else the water level in the lake would be lowered to what the State deems a "safe level". To this end, the City engaged the services of a professional engineer, GEI Consultants, to design and rebuild the intake piping and control valves within the existing tower, installed a new drain pipe, and emergency relief outlet works at the base of the dam at a cost of \$847,232.59. Other costs were incurred at the City's secondary Lake as well. The two immediate remaining areas of work remaining to be accomplished are the reinforcement of the earthen dam as it is leaking at the groin area of the dam and the replacement of the concrete spillway with a pipe spillway. The remaining work to be done has already

2. *Describe how the water activity meets these Threshold Criteria.*

Project Summary (Inserted here for clarity): The Colorado State Engineer has threatened to place a restriction of water level in North Lake's storage capacity due to safety considerations. North Lake currently contains approximately 4,300 acre feet of water. The earthen dam is leaking at the groin of the dam and the concrete spillway is significantly deteriorated. The groin leak has been a serious and long-standing seepage problem on the dam. Continuing deterioration and loss of structural integrity of the dam are causing serious concerns, and thus North Lake dam is listed as a "high hazard" dam due to number of homes and ranches below the dam. The dam was originally constructed in the 1930's, but was expanded in 1964. The source of the water for North Lake is the North Fork stream through a diversion pipeline. The importance of North Lake is evident by the number of urban and rural residential customers, urban and rural commercial customers, the Colorado Department of Corrections prison and the U.S. Army Pinon Canyon maneuver site it serves. If water levels were restricted, the seriousness of this matter manifests itself in the possibility of a reduced water supply for all these customers.

The City has already conducted engineering, hydrological and hydraulic studies and designs of all structures to be funded by this proposal (the Project). The engineering design has identified the best approach to restore capacity to the reservoir by improving the dam and replacing the old concrete spillway. The objective of this funding will be to remove the State-imposed restrictions on storage and to restore full operating efficiencies to North Lake. This will allow Trinidad to hold and control water; and enhance its ability to provide the basic necessity of life, water, in times of drought it will also allow the City to continue to serve third parties, provide for and greatly improve fisheries, and wildlife habitat.

1. The water activity meets the eligibility requirements outlined in Part 2 of the Criteria and Guidelines.
 - The City of Trinidad is proposing an eligible water activity, as identified in Senate Bill 06-179, involving the performance and implementation of existing design and engineering towards a multi-use facility in order to correct long-standing seepage problems and failing water storage and conveyance structures into resources with expanded, cultural, environmental, wildlife, and recreational uses.
 - The North Lake dam improvements project is an eligible entity, as described in SB 06-179 and this proposal is submitted in accordance with CWCB guidelines for this funding proposal.
 - The City of Trinidad is requesting funds of \$500,000 from the State account, and will comply with all applicable submission criteria and deadlines.

2. The water activity is consistent with Section 37-75-102 Colorado Revised Statutes. The requirements/language from the statute is provided in Part 3 of the Criteria and Guidelines.
 - This water activity meets the eligibility requirements in Part 2 of the criteria and guidelines as detailed above.

 - The water activity is consistent with Section 37-75-102 C.R.S. because this project utilizes prior studies, implements engineering and hydrology studies which have been completed prior to structural repairs and upgrades on existing structures, and performs a multi-use project resulting in the optimization of, North Lake water supply and recreational area. This project therefore does not supersede, abrogate, or otherwise impair the State's current system of allocating water within Colorado nor does it in any manner repeal or amend the existing water rights adjudication system. This project

does not affect the State constitution's recognition of water rights as a private usufructuary property right nor is it intended to restrict the ability of the holder of a water right to use or to dispose of that water right in any manner permitted under Colorado law.

3. Evaluation and approval of the North Lake dam project water activity by the Arkansas Basin Roundtable (ABRT) is requested. The City of Trinidad is seeking general agreement by the roundtable. This information, including any opposition (if any) of who opposed the activity and why they opposed it will be included in writing from the roundtable chair.
 - This information will be submitted to the CWCB, within this proposal.
4. The water activity meets the provisions of Section 37-75-104(2), Colorado Revised Statutes. The requirements/language from the statute is provided in Part 3 of the Criteria and Guidelines.
 - This water activity meets the provisions of Section 37-75-104 (2) (c), C.R.S. regarding the results of SWSI in fulfilling its water use goals and storage objectives. The source of water stored by this reservoir generates from established historical and adjudicated water rights on the North Fork stream. North Lake is a multiple use facility and provides benefits to rural and urban water customers and as a recreational fishing area. The Project will provide more efficient use of consumptive and non-consumptive needs of the Arkansas River Basin. This will include the potential to store water at North Lake's maximum potential for all parties. The threat of loss of storage will be eliminated. In addition, the SWSI goal to increase non-consumptive uses associated with recreation (fishing and boating) will be met and enhanced by successful funding of this project.
 - In this process, the City of Trinidad consulted with and obtained the active support of the Purgatoire River Water Conservancy District (PRWCD), and the Colorado Division of Water Resources. For effects upon recreation, wildlife, and flood control the Boards of Commissioners of Las Animas County support this project. Letters of support express the advice and input the City of Trinidad has counted on from many stakeholders as it prepares to conduct the necessary repairs to restore North Lake Reservoir to its full functionality and potential.
3. *For Applications that include a request for funds from the Statewide Account, describe how the water activity meets the Evaluation Criteria. See Part 3 of Criteria and Guidelines.*
 - Promoting Collaboration and Cooperation
 - a. *The water activity addresses multiple needs or issues, including consumptive and/or non-consumptive needs, or the needs and issues of multiple interests.*

This Project addresses multiple needs and issues by addressing and proposing cures to the deficiencies in a complex reservoir-stream system. The project will focus on historic consumptive and non-consumptive water use practices which have been negatively impacted by the State Water Engineer's Office. North Lake dam has been plagued by decades of leaks and seeps. Not only have these problems caused water losses and inefficient use of storage water, but also diminishes the ability to improve on and to take advantage of potential non-consumptive resources. Successful funding

of this project will not only cure the leaks and seeps but will also address and overcome many of the limitations and possible adverse effects of imposed water level restrictions on a state fishing and recreational area, on wildlife, for a productive fishery, and for improving their ability to sustain and increase the natural habitat. Sustainable reservoir storage also enables the City of Trinidad to respond to water demands in case of an uncontrollable situation such as a drought. This project will afford a greater control and flexibility in the operation of the reservoir especially in a time of unpredictable snow pack and precipitation. Not only will the general public benefit from this project but it will serve the purposes of wildlife by providing a full reservoir and source of water in drought years.

b. The number and types of entities represented in the application and the degree to which the activity will promote cooperation and collaboration among traditional consumptive water interests and/or non-consumptive interests, and if applicable, the degree to which the water activity is effective in addressing intrabasin or interbasin needs or issues.

This application represents excellent collaboration between the City of Trinidad, the Department of Water Resources, the US Forest Service, and the CDOW, with open channels to address multiple non-consumptive water interests and traditional consumptive interests. The CDOW also has direct concerns regarding water availability for its non-consumptive needs associated with the North Lake fishery. This emphasizes the importance of enlarging present storage-and- release capabilities throughout the year to include transmountain water, (if any), thus promoting and maintaining fish populations and recreational activities. In addition, this will assist in the efficient delivery of water for all customers at all times of the year.

By rehabilitating the North Lake dam and maintaining its history of multiple uses, this Project addresses the present day issues and future water supplies. The City of Trinidad will conform to established bid processes and will search for the contractor best suitable to perform the work. This Project, when funded, will address storage/release for flood control and improved water supply, and will factor in the opportunity to enhance the fishery and recreation associated with North Lake. This Project will enable the City of Trinidad to operate at top efficiency and assurance that it will continue to meet its delivery obligations.

- **Facilitating Water Activity Implementation**

c. Funding from this Account will reduce the uncertainty that the water activity will be implemented. For this criterion the applicant should discuss how receiving funding from the Account will make a significant difference in the implementation of the water activity (i.e., how will receiving funding enable the water activity to move forward).

Funds from the Water Supply Reserve Account (WSRA) are critical for the City of Trinidad to complete this project. The City Water Department does maintain a Reserve account emergency fund. It is Board policy that this operating reserve is only to be utilized as a last resort or in the case of unforeseen needs.

d. There is an urgency of need for the water activity and/or any compelling "window of opportunity" that may be missed without funding from the Account.

The Colorado State Engineer has warned the City of Trinidad of impending water level restrictions to be placed upon North Lake storage capacity due to safety considerations. The spillway is significantly deteriorated and there is a serious and long-standing problem on the left embankment, where seepage water comes out of the embankment and runs into the face of the dam. Dam inspectors over the years have seen this as a critical deficiency, causing them to place North Lake on "conditional" storage. These problems are the principal reason for proposing this project, and to this end, specific studies, engineering design and specifications have been completed. Continuing deterioration and loss of structural integrity of the dam are major concerns to the proper operation of the reservoir. These repairs are long overdue. The longer it takes to cure the seepage problem, for instance, the greater the risk of compromising the structural integrity of the entire system. The window of opportunity for obtaining funding imposes some urgency in bringing to fruition the current multi-use perspective of this project. The improvements are to be considered not just as an operation-and-maintenance challenge, but should be viewed in the context of a greater purpose. The hydraulic and hydrological studies represent a great deal of work as part of the overall engineering and design of North Lake dam. Although the effects of prolonged leaks and seepage rates are small relative to daily stream base flows, it is important to assess, and to project into the future, the effects upon the fishery and wildlife. More critically, the challenge of increasingly unpredictable climate in coming years emphasizes the critical role of North Lake for water storage. High snow pack years and high spring run-off, which are normally ideal conditions, would not and could not be taken advantage of in a restricted water level condition. Short term, our window of opportunity is to accomplish the timely completion of this work.

e. The length of time needed to implement the water activity; preference will be given to activities which can be implemented in the least amount of time taking into consideration the complexity of the activity.

It is anticipated that with additional funding, the Project will be completed in year 2011. However, depending on the time the work commences, plus whatever permitting time is required will determine the actual completion date.

f. The applicant has the expertise and ability to implement the proposed activity.

The City of Trinidad contracted with a professional engineering consultant to prepare studies, specifications and final design of the North Lake dam improvements. The firm of RJH Engineering has accomplished this task and will also perform construction inspection duties as part of their activities within the project. The firm's experience with other similar Colorado projects includes dams over 100 feet high, with multilevel piping outlets with varying capacities, spillways, river diversions, and related pipeline requirements. The City of Trinidad is satisfied that the engineering firm has the expertise and ability to implement all phases of this Project, and has submitted the project plans to the State Engineer's Office (SEO) for approval. Initial review of the plans has been completed, and minor changes or adjustments have been implemented. Accompanying this proposal is the detailed engineer's "Opinion of Probable Construction Cost" for each task in the Scope of Work.

g. The applicant is providing matching funds and the amount of matching funds or is obtaining partial funding from other sources and the amount and source of such other funds or is providing demonstrable in-kind contributions.

Based upon the engineer's Opinion of Probable Construction Cost, the cost of this project is estimated at \$1,848,086.00. The City of Trinidad is prepared to contribute \$369,616.00 (20%) of the project. The City of Trinidad is striving to obtain the remaining balance of \$1,478,468.80 in grant funds. If we are met with success in obtaining CWCB funding in the amount of \$739,235.00 (40%), it is anticipated that this funding would be leveraged to obtain other grant funds to complete the project.

h. The applicant has a demonstrated need for financial assistance based on the inability or difficulty obtaining funding elsewhere.

The City of Trinidad is not in a position to afford the entire cost of this project. The Arkansas Basin Roundtable process and the availability of S.B. 179 funds will certainly go a long way in reaching the objective to perform the North Lake dam improvements project. This proposal represents a direct request for a funding opportunity, offering the most direct and relevant way to solve a long-standing problem. The City of Trinidad has also requested funding for the implementation of this project from the Department of Local Affairs, Energy and Mineral Impact Assistance Program. However, due to State budget shortfalls, no funding has been awarded through this Office.

• Meeting Water Management Goals and Objectives and Identified Water Needs

i. The water activity helps complete a needs assessment, including consumptive and/or non-consumptive needs, that was not fully funded from other sources.

This water activity helps complete the needs assessment for consumptive and non-consumptive needs. Our approach is not simply to overcome the operation-and-maintenance problems caused by these seeps and leaks, but to look widely and creatively at all existing and potential assets, and to develop a multi-use inventory of systems which will benefit from the stability and sustainability of these resources. Many mutual benefits are obtained by meeting the consumptive water management goals traditionally expected of a City facility as well as the nonconsumptive water management goals of the CDOW, recognizing that consumptive and non-consumptive uses apply to both entities. Storage is being allowed under "conditional" status by the State Dam Inspector.

j. The water activity meets one or more of the water management objectives identified in the Statewide Water Supply Initiative, helps implement projects and processes identified as helping meet Colorado's future water needs, and/or addresses the gap areas between available water supply and future need as identified in the Statewide Water Supply Initiative or a roundtable's basin-wide water needs assessment done in accordance with the Colorado Water for the 21st Century Act.

The Arkansas River Basin Roundtable has determined that the single most critical water issue confronting the Basin is the current unsustainable management of surface and ground water. This project optimizes, and makes sustainable, existing and future water supplies in

the North Lake Reservoir. The reservoir has been and is currently being used primarily to store raw untreated water for treatment at the City of Trinidad water treatment plant for historical rural and urban customers. In addition to storage for these entities as needed, North Lake's multiple uses include spectacular high altitude recreational fishing and boating, and wildlife habitat. CDOW makes use of the reservoir reaching its water use goals and objectives. The CDOW maintains a regular fish stocking schedule for the lake. Through this project, and by mutual agreement, the CDOW will be able to continue stocking North Lake with fresh water trout for the beneficial use as a productive fishery. With this additional reservoir storage the City of Trinidad is also in a much better position to answer water demands in case of an uncontrollable situation such as a drought. Storing additional water also allows flexibility in how and when water is distributed to different areas, depending on needs and available resources. This operational flexibility and cost effectiveness allows for the development of new ideas and practices that will ultimately be useful to wildlife as well as to the public. Cooperative and innovative efforts which effectively and efficiently provide multiple uses throughout the Arkansas River Basin system will benefit all users and should be incorporated into water management plans. In all these ways, this project effectively addresses the Statewide Water Supply Initiative's Management Objectives and the Arkansas River Basin Roundtable's concerns regarding sustainability, restoring North Lake Reservoir to optimal operational reliability, and, in the process, complying with all applicable laws and regulations.

k. The water activity promotes water conservation and efficiency.

Conservation and efficient management of water in storage has become a critical part of ensuring a safe and abundant water supply throughout the year for all beneficiaries. The drought of 2002 impressed upon the minds of our customers the need to conserve water and the individual responsibility to not waste this precious commodity. This project will allow for conservation of water which has for decades been lost to leaks and seepage. One of the most important aspects of being prepared to face drought conditions is the availability of having full reservoirs. This project therefore improves the ability of the City of Trinidad water system to hold and more effectively manage the supply of drinking water and provide for a basic recreation need at the same time, now and into the future.

l. The applicant has an existing water conservation plan.

Due to the onset of drought conditions in 2002, the City of Trinidad established a water conservation plan including water restriction schedules. The plan is a tiered system which allows for greater restrictions upon water users as drought conditions persisted or allows those restrictions to be relaxed as the water supply became more abundant. Unfortunately, one of the results of conservation was a reduction in revenues for the water department.

m. The water activity will make new water available for use.

Although no actual "new" water will be produced as defined under water law, in effect, maximum use will be made of established historical water rights. Should North Lake water level restrictions be put into place by the State Water Engineer's Office, whatever that amount of water reduction becomes, would bypass North Lake and move downstream, thus reducing the capability of storing water to the maximum

decree afforded to North Lake. This project captures these losses, thereby producing “new” water which becomes available for multiple uses.

n. The water activity involves reoperation, enlargement, or rehabilitation of existing facilities.

The North Lake Dam Improvement Project reflects a rehabilitation of the dam. The reservoir has a maximum capacity of 4,300 acre feet of storage, however, that maximum level would not be sustained under the scenario of a reduced lake level as would be imposed by the SEO. Maintaining the maximum amount of water available for storage not only benefits the potable water customers, but also those who would take advantage of a high mountain fishing lake. This project epitomizes the Arkansas River Basin Roundtable goal of developing storage facilities to their highest degree and becomes a model of working towards diminishing the projected 50 year gap in water supply.

• **The Water Activity Addresses Issues of Statewide Value**

o. The water activity helps sustain agriculture, and open space, or meets environmental or recreational needs.

The source of water to North Lake reservoir is the North Fork stream direct flow water rights that date back to 5-31-1861. The lake itself has storage rights that date back to 9-14-1905. North Lake Reservoir has been used primarily to store raw, untreated water for its ultimate use as potable drinking water after being delivered approximately two miles downstream by pipeline to the City water filtration plant. The treatment plant originally had a capacity of only 6.0 million gallons per day, but after renovation and modification, that plant capacity is now at 8.4 million gallons per day. Although there is a secondary source of water for the treatment plant, it is considered only as a back up or emergency supply. North Lake serves a combined population of approximately 15,000 people in the city of Trinidad and the surrounding rural communities. North Lake is not only a basic component of the region’s water system, it is a vital component with so many people depending on the water that comes from the reservoir. The multiple use factor as a spectacular high altitude recreational fishing and boating facility add to its tremendous value to the area.

p. The water activity assists in the administration of compact-entitled waters or addresses problems related to compact entitled waters and compact compliance and the degree to which the activity promotes maximum utilization of state waters.

The effects of this project help to ensure Colorado’s continuing ability to meet its Compact obligations. Maximum utilization of State waters is implied by the Arkansas River Basin Roundtable’s priority of maintaining sustainable water supplies and by ensuring that North Lake will have the operational flexibility to adapt to changing conditions. This project addresses both of those goals. The North Lake Reservoir provides a uniform and stable supply of water as a recreational tool for the CDOW and as a reliable source of storage for the Trinidad valley area.

8-12

q. The water activity assists in the recovery of threatened and endangered wildlife species or Colorado state species of concern.

The North Lake Reservoir by and through the agreement with CDOW promotes the maintenance of fish populations and recreational activities. Specifically, Rainbow trout, Stream Trout and German Brown trout are stocked in the lake by the CDOW. The lake area is frequented by mule deer and elk. Brown Eagles nest in areas near the Lake. Brown bears are common to the area as well as number of smaller species of animals. The North Fork stream area which feeds North Lake is a natural habitat for all of these creatures but in a greater number. By maintaining a full and operation reservoir, the City of Trinidad will continue to meet its objectives as supporter of wildlife. The reservoir allows the City and CDOW to add to degree of flexibility in planning for the most beneficial use to wildlife. What is now a seepage problem will become a positive condition that increases a productive fishery and increases the support of wildlife habitat and specifically assists in the protection of these many other species. The North Lake dam improvement project provides a high level of benefit to Colorado in relationship to the amount of funds requested.

The benefits of a completely full reservoir which will be accomplished by his project satisfy all of the objectives outlined in the Colorado Water Conservation Board's 2004 Statewide Water Supply Initiative Study. This water activity reduces soil erosion, enhances water supplies, improves water quality, increases wildlife habitat, and reduces potential damages which would be caused by flooding if the dam were to fail. Public benefits also include protecting the natural resources that help sustain high-value environmental quality in the North Lake area, while supporting continued economic development, recreation, and scenic beauty. The amount the City of Trinidad is requesting for this rehabilitation and multiple use project, \$795,235, is more than offset by the high value which accrues to Colorado from this Project:

s. The water activity is complementary to or assists in the implementation of other CWCB programs.

This water activity is another beneficiary of Arkansas River Basin Roundtable's efforts to provide technical assistance and funding support to its members, assisting them in planning and funding projects which might otherwise be beyond their scope. Although not directly related to each other, each project benefits from the Roundtable's collective wisdom, quite often sharing technical advice and expertise across our network. Improving the North Lake reservoir is related, through this network, to other SB 179 projects such as the Santa Maria, Continental Reservoir which stores Rio Grande Compact water, San Luis Valley Water Conservancy District water, CDOW water, and Trans-Mountain water. The San Luis Valley Irrigation District is completing a multi-use enlargement study of the Rio Grande Reservoir, with goals very similar to this project's. The deterioration of reservoirs and spillways, imposed limitations on storage, and outlet mechanisms that are past their useful life are problems this project shares with many other reservoirs throughout the state that have seen restrictions imposed upon them by the State Engineer's Office. Terrace Reservoir and Platoro Reservoir, are two other projects in the process of seeking CWCB assistance at this time. Another was the San Luis Valley Resource Conservation & Development project on the Alamosa River for the Alamosa River Watershed Restoration Foundation. Upcoming projects to CWCB

will include proposals from Alamosa Riverkeepers and Terrace Irrigation Company to upgrade Terrace Reservoir, and a riparian stabilization project by the Colorado Rio Grande Restoration Foundation.

t. The water activity helps support the State's economic vitality and competitiveness in national and international markets.

A reliable, dependable and high quality source of potable drinking water for established urban and rural residential and commercial customers is essential for economic growth and sustainability. Tourism is a main driver of the economy within the State of Colorado and the North Lake reservoir is a component of the state's recreational attractions. This project, by restoring the integrity of the system, helps to support the State's economic vitality and competitiveness by meeting its obligations to the individuals and businesses that have come to rely and depend on this water throughout the region. The State's economic vitality is further enhanced by completing this project so that the final project, when complete, results in enhancing the diverse mix of consumptive and nonconsumptive needs and uses described above, including wildlife, fisheries, tourism, recreation, and conservation.

4. ***Please provide an overview of the water project or activity to be funded including – type of activity, statement of what the activity is intended to accomplish, the need for the activity, the problems and opportunities to be addressed, expectations of the participants, why the activity is important, the service area or geographic location, and any relevant issues etc. Please include any relevant TABOR issues that may affect the Contracting Entity. Please refer to Part 2 of Criteria and Guidance document for additional detail on information to include.***

The Colorado State Engineer has warned the City of Trinidad that it intends to place a restriction on the water level of North Lake reservoir due to safety considerations. The dam is currently listed as a "high hazard" dam due to the fact that should it fail, there would be serious property damage and perhaps even loss of life. Also, the concrete spillway is significantly deteriorated and there is a serious and long-standing seepage problem on the dam. Continuing deterioration and loss of structural integrity of the dam are serious concerns and the City of Trinidad has not taken them lightly. The city has accepted the responsibility to ensure to its citizens that North Lake will remain a viable and dependable source of water to the City and the surrounding communities. To this end, the City has contracted with the engineering firm of GEI Consultants to design/build the new piping system within the reservoir including a new drain pipe within the dam and a completely new concrete outlet works. This was accomplished at a cost of \$847,232.59. The City of Trinidad then obtained the services of the professional engineering firm, RGH Consultants to design the dam reinforcement and spillway replacement project. The cost for this engineering design is to date is \$296,317.68. The final design drawings and specifications have been submitted to the State Engineer's Office and we are awaiting final review and approval. The Project to be funded by this proposal is to conduct the actual construction of the dam reinforcement and replace the deteriorated concrete spillway with a new pipe conveyance. Hydrological and hydraulic studies of the structure were also completed as part of the engineering endeavor. The Engineer's Opinion of Probable Construction Cost identifies the amount of \$1,848,086.00 in additional funding needed for the project. Included in this dollar figure are Direct Construction Costs, Construction Engineering and Administration, Materials Testing, City Administration and Construction Contingencies. A copy of the cost estimate is attached. The requested funding from the State fund for this project is \$739,235.00. The result of this project, if funded, will be to remove the threat of State-imposed restrictions on

storage and to restore full operating efficiencies to the reservoir. This will allow North Lake to hold and control additional North Fork stream water; improve the City of Trinidad's ability to hold and more effectively manage drinking water which will increase the system's value in and its ability to respond in times of drought; increase the City of Trinidad's options and ability to serve third parties and greatly improve and enlarge a high mountain recreational fishery and place of wildlife habitat.

Type of Activity:

This project requests construction funding to perform the actual North Lake dam improvements described above. The project addresses both consumptive and nonconsumptive water needs. The design work has already been accomplished and the State Engineer's Office is currently reviewing the plans and specifications for the project. The end result of the project will allow the City of Trinidad to store water in the reservoir to its maximum content taking advantage of the North Fork stream which is the source of water for the reservoir. A schematic drawing of the delivery system is described in the attached drawing titled City of Trinidad Mountain Water System.

Goals and Objectives:

The City of Trinidad is requesting \$739,235 in order to perform the actual construction of the North Lake dam rehabilitation and spillway replacement project as designed by the firm of RGH Consultants, thereby removing the threat of conditional storage and restricted water levels in the reservoir. The project will allow the full use of the reservoir up to its allotted storage right of 4,300 acre feet of water. Specific goals and outcomes of this project are as follows:

- Address the cause of seepage and resolve seepage problems at the dam.
- Return North Lake reservoir to its full storage capability
- Eliminate limitations which could be placed on the reservoir by the SEO.
- Provide stability of the dam embankment.
- Resolve questions on permeability parameters of downstream reservoir dam embankment
- Improve reservoir capacity as a primary source of water for urban and rural customers.
- Provide an economic driver as sustainable water source for residential and commercial customers.
- Maximize potential for fishery and recreation resources.

Need:

The cost of the project described herein is estimated at \$1,848,086.00. The City of Trinidad has expended \$847,232.59 to date on the North Lake dam rehabilitation project and simply does not have the funds to execute and complete this project. The City undertook a Waste Water Reclamation Plant expansion and improvement project in 2000 under a twenty year loan. That project was required by State of Colorado Public Health Department mandate. There are approximately nine years remaining on the note, which prevents Trinidad from additional borrowing due to bonded indebtedness. However, as part of this grant request, the City of Trinidad is committed to contribute at least 20% (\$369,616.00) towards this project.

Problems and Opportunities:

North Lake Reservoir is facing the problem of not being able to be used at its full available capacity. In the event that the State Water Engineer imposes restrictions on the water level in the lake due to safety concerns, much needed and extremely valuable storage water would be reduced. This is especially critical in times of low precipitation and drought.

8-15

It appears that this portion of Southern Colorado is in a drought condition and may remain that way for a long time to come. The earthen dam is leaking and there is seepage at the groin area of the dam. Also the existing concrete spillway has deteriorated to the point where it must be replaced. Studies, plans and design specifications have been completed and are in place. The SEO has provided review of the project plans but has yet to provide its final approval. A summary of the problems follows:

- (1) The Colorado State Engineer has warned the City of Trinidad that it intends to place a restriction on the North Fork Reservoir if rehabilitation measures are not undertaken. Rehabilitation involves reinforcement of the earthen dam with additional earth fill at the base of the dam and replacement of the existing concrete spillway.
- (2). Excessive seepage through the left abutment/groin is problematic, causing concern as to present and future deterioration of the reservoir. The condition and capacity of the spillway also requires replacement. Engineering has been completed and this is basically a "shovel ready" project.
- 3) The designed objective of this reservoir is to store water in North Lake Reservoir up to its full capacity of 4,300 acre feet of water. Water is currently being stored under a "conditional" basis as allowed by the State Engineer's Office. Furthermore, the dam is classified as a "high hazard" dam due to the probability of serious property damage and potential loss of life in the event of dam failure.
- 4) The reservoir is considered a high value fishery, with multiple opportunities to enhance fish habitat and to expand the public recreational value of the area.

Expectations of the Participants:

A rehabilitated North Lake dam will restore the reservoir's designed capacity, providing improved options for efficient water management of raw water which is piped to the City water filtration plant. This water facility is the only water purveyor in the entire area, serving Trinidad and multiple water user associations connected to the water distribution system. There is an established expectancy by current rural and urban households that the water they have been accustomed to receiving will always be there. Indeed, as the region's only water supplier and purveyor, this responsibility weighs heavily on the City of Trinidad. To have the reservoir level reduced from its maximum content of 4,300 acre feet could be devastating especially in times of severe drought. As a fishery, its value to recreation in the area and to the State of Colorado generally are of extremely high value. The requested funding in the amount of \$795,235 will accomplish the following tasks: (See "Exhibit A" for detailed project description).

Task 1.1 Contractor mobilization, erosion and sediment control, clearing and grubbing and reservoir control.

Task 1.2 Dewatering, site access road improvements and crest earthwork.

Task 1.3 Construct new spillway structure, new spillway pipe and removal of existing spillway.

Task 1.4 Perform secondary pipe grouting, gate tower repair and outlet works disposal.

Task 1.5 Furnish and place low permeability fill, furnish and place berm fill, furnish and place filter sand and furnish and place drain gravel.

Task 1.6 Place topsoil, type M riprap, type L modified riprap and riprap bedding.

Task 1.7 Install outlet works pipe, manhole, toe drain pipe, instrumentation, seeding and other remaining miscellaneous work.

Importance:

A statewide benefit of this project is that increased storage capacity in North Lake Reservoir provides new options to store and control additional North Fork stream water and expands opportunities to serve the water storage and management objectives of third parties. North Lake's multiple uses include spectacular high altitude recreational fishing and boating, and wildlife habitat. In the Arkansas River Basin, as is the case throughout most of Colorado, water is overallocated, demands are growing, and river flows and uses are vulnerable to drought and climate change. As of March, 2011, snowpack in the upper Purgatoire watershed (Whiskey Creek snotel) was approximately 50% of average. Serious drought conditions began in 2002 requiring water consumption restrictions to be put into place and it appears this pattern is continuing. In the 2002 drought diversions were severely curtailed, in-stream flows were diminished, reservoir storage was reduced, and extensive diversions threatened endangered species. In such times high drought impacts have drastically reduced stream depths or caused them to be completely dry, increasing the importance of water held in storage for all users and for the protection and enhancement of wildlife potential. When water levels are sufficient to maintain minimum stream flows, the streambeds and the reservoir support good to excellent trout fisheries.

Such fluctuations in flow require North Lake Reservoir to be as stable and to maintain optimum operational flexibility as much as is humanely possible. In coming years, just this kind of high variability in the availability of water resources is predicted. Good planning for sustainability in the management of reservoir systems requires increasing the operational flexibility of North Lake Reservoir to its maximum capability – and all reservoirs in the basin -- in order to provide a regular supply that meets water demands. By addressing and curing long-standing deficiencies in the system, North Lake provides important multi-use safeguards for the uncertain times which lie ahead. There are also other lower impact activities associated with the lake such as wildlife viewing, bird watching, outdoor photography, nature research, and related pursuits. The fall season brings an influx of hunters into the region. These activities also represent a source of income to the CDOW and offer lower management costs to public agencies. It's a very important project.

Service Area – Geographic Location:

North Lake Reservoir is located in Section 19, Range 68 West, Township 33 South, in Las Animas County, on a tributary of the North Fork stream, in the Sangro de Christo Mountain range of southern Colorado. The water rights have a remarkable history and are listed as follows:

Priority 1, 05-31-1861, 1.59 cfs.

Priority 3, 11-30-1861, 2.00 cfs.

Priority 4, 01-01-1862, 2.35 cfs.

Priority 6, 04-01-1862, 1.78 cfs.

Priority 13, 01-01-1864, 0.45 cfs.

Priority 155, 09-14-1905, 57.6 cfs.

The storage priority water rights also dates back to 1905. The original dam was built in the 1930's, and the lake was expanded in 1964 to its present configuration. The old original dam still lies in place under the lake. The high water elevation of the lake is 8,586 feet, the crest of the dam is at 8,592 feet. The reservoir can be located on the Stonewall USGS quad topographical map.

Other Relevant Issues: (none)

TABOR issues: There are none involved.

8-17

5. *Please summarize the proposed scope of work. Please refer to Part 2 of the Criteria and Guidance document for detailed requirements. On the following page there is an example format for the Scope of Work. You can use the example format or your own format, provided that comparable information is included.*

The scope of work should outline by task how the water activity will be accomplished. It is important that the scope of work detail the specific steps, activities/procedures that will be followed to accomplish the water activity and the specific products/deliverables that will be accomplished. The scope of work should include but not be limited to: task description, key personnel, budget, schedule and deliverables and the final report/project documentation upon completion of the water activity.

SCOPE OF WORK

The City of Trinidad selected the best engineering and consulting firm for this proposed North Lake dam rehabilitation project. Following are the basic segments of the Scope of Work. This information is elaborated upon in the attached "Exhibit A" – RGH Consultants Design Summary Report/SEO Review Submittal.

Task Description:

1. Specific tasks which have been accomplished and or completed by the engineering firm of RGH Consultants: Performed the necessary hydrologic, hydraulic geotechnical, seismic, structural and conduit evaluations and other work to determine required spillway size and method of reinforcing the earthen dam. Determined the hydrologic/hydraulic adequacy of spillway, according to State's regulations, so as to lift current restrictions. In addition, completed a complete construction report with recommendations to accomplish the work at hand. A copy of the report is included as "Exhibit A" attached herein.
2. RJH Consultants have prepared complete written specifications, design drawings of the necessary dam improvements to mitigate leakage and seepage through the dam groin area, new spillway design and other appurtenant work tasks. Engineering expenses to accomplish these tasks are just under \$300,000 to date.
3. Following the acquisition of funding, the task will be to actually construct the project. The engineer's "Opinion of Probable Construction Cost" identifies a total amount of \$1,848,086.00. A crucial component of this expense is the Construction Engineering and Administration costs for the Engineering firm's representatives to be on site during construction. This factor has an estimated cost of \$260,000, included in the total amount.

II. Key Personnel:

Robert Huzjak, professional Engineer, RGH Consultants and representatives; State Engineer's Office dam inspectors; City of Trinidad utility department personnel.

III. Budget:

The City of Trinidad has previously expended funds in the amount of \$847,232.59 towards the rehabilitation of the North Lake dam. That work consisted primarily of replacement of pipes and valving in the control tower and construction of new outlet channel at the base of the dam. The preliminary cost estimate to accomplish the remaining dam rehabilitation is \$1,848,086.00. The City of Trinidad is prepared to contribute to \$369,616.00. towards the project which equates to 20% of

the total cost. The funding request herein from the State Water Supply Reserve Account is \$739,235.00 or 40% of the total. The remaining balance is \$739,235.00 (40%) which will be funded by additional grant requests by the City of Trinidad, most likely requested through the Energy and Mineral Impact Assistance Program of the Department of Local Affairs (D.O.L.A.). A copy of the engineer's "Opinion of Probable Construction Cost" is included and attached as "Exhibit B".

IV. Schedule:

Assuming the grant request is approved and funding is obtained by this fall, the project will then be advertised for construction with bids to be received this winter. It is anticipated that actual construction would begin in the Spring of 2012.

V. Final Report/Project Documentation:

Upon completion of the work by a suitable and qualified constructor, the details of the project will then be summarized in a written report with to include photographs of the work efforts. A number of original documents will be created, one for the engineering firm's record, several for the City of Trinidad's records, and several for the entities awarding the grant funds (CWCB, DOLA, etc.)

- 6. *Water Availability and Sustainability – this information is needed to assess the viability and effectiveness of the water project or activity. Please provide a description of each water supply source to be utilized for, or the water body to be affected by, the water activity. For water supply sources being utilized, describe its location, yield, extent of development, and water right status. For water bodies being affected, describe its location, extent of development, and the expected effect of the water activity on the water body, in either case, the analysis should take into consideration a reasonable range of hydrologic variation.***

Water supplies to North Lake Reservoir include flows from the North Fork stream which also includes the old priorities of Burroughs Ditch and Clark No. 1 and Clark No. 2. The only direct flow to North Lake is through a diversion canal from the North Fork over and into North Lake. Flows from this mountain stream are primarily regulated by the Water Commissioner for Division 2 of the Arkansas River Basin. Flows are based on reservoir requirements and storage rights within the reservoir. The effect of this water project will be to increase storage at North Lake Reservoir and to provide a full lake which is an extremely important component as a fishery for the CDOW. This Project has the effect of increasing the flexibility of CDOW to use the lake more effectively and to the greatest benefit for a variety of wildlife and wildlife habitat. Water stored in the reservoir is released to meet residential and commercial needs of both urban and rural customers' needs of potable drinking water after the reservoir flow is treated at the City's Water Filtration Plant. A secondary multiple use is for fish propagation as administered by the CDOW. Recreational fishing and boating, deer and elk big game wildlife, and waterfowl nesting are sustained and kept in balance with a full reservoir.

- 7. *Please provide a brief narrative of any related or relevant previous studies.***

As detailed above, the engineering firm of RGH Consultants has already prepared the hydraulic and hydrological studies, the geotechnical and seismic studies and the analysis of the existing structure and conduits that enabled them to prepare a complete set of written specifications and a complete set of design drawings for the construction of the North Lake dam rehabilitation project. Engineering cost to date total \$296,317.68.

8. *Additional Information – If you feel you would like to add any additional pertinent information please feel free to do so here.*

Additional information is provided for the North Lake dam rehabilitation project by several attached documents as follows:

- 1) “Exhibit A” – RGH Consultants Design Summary Report/SEO Review Submittal.
- 2) “Exhibit B” – Engineer’s Opinion of Probable Construction Costs.
- 3) “Exhibit C” – EIAF Report of previously expended funds.
- 4) “Exhibit D” – Letters of Support.
- 5) “Exhibit E” – Map of the City of Trinidad Mountain Water System
- 6) “Exhibit F” – Topographical map of under water survey of North Lake.

The above statements are true to the best of my knowledge:

Signature of Applicant: _____

Print Applicant’s Name: _____

Project Title: _____

Date: _____

Applicant’s Telephone/FAX/E-Mail Address _____

Return this application to:

Mr. Rick Brown
Intrastate Water Management and Development Section
COLORADO WATER CONSERVATION BOARD
1580 Logan Street, Suite 600
Denver, CO 80203

To submit applications by Email, send to: rick.brown@state.co.us

To submit applications by Fax, send to: (303) 894-2578

8-20

EXHIBIT "A"

8-21



GEO TECHNICAL AND
WATER RESOURCES ENGINEERING

**DESIGN SUMMARY REPORT
SEO REVIEW SUBMITTAL**

**NORTH LAKE DAM REHABILITATION PROJECT
LAS ANIMAS COUNTY, COLORADO**

Submitted to
City of Trinidad
P.O. Box 880
Trinidad, Colorado 81082

Submitted by
RJH Consultants, Inc.
9800 Mt. Pyramid Court, Suite 330
Englewood, Colorado 80112
303-225-4611
www.rjh-consultants.com

October 2009
Project 07104

Robert J. Huzjak, P.E.
Project Manager

8-22

TABLE OF CONTENTS

TABLE OF CONTENTS	1
SECTION 1 – INTRODUCTION	1
1.1 PURPOSE	1
1.2 BACKGROUND.....	1
1.2.1 General.....	1
1.2.2 Previous Studies	2
1.3 SCOPE OF WORK.....	4
1.4 AUTHORIZATION.....	5
SECTION 2 - PROJECT DESCRIPTION	6
2.1 EXISTING SITE DESCRIPTION	6
2.2 PRIMARY PROJECT COMPONENTS	7
SECTION 3 - BASIS OF DESIGN.....	9
3.1 REGULATORY AUTHORITY.....	9
3.2 OPERATIONAL REQUIREMENTS.....	9
3.3 DESIGN CRITERIA	10
3.3.1 Dam Classification and Hazard Classification	10
3.3.2 Hydrologic/Hydraulic	10
3.3.3 Geotechnical	10
3.3.4 Seismic	11
3.3.5 Structural.....	11
3.3.6 Conduits	12
3.4 SURVEY CONTROL AND TOPOGRAPHIC BASE MAP	12
SECTION 4 - GEOTECHNICAL INFORMATION AND MATERIAL PROPERTIES	13
4.1 GENERAL.....	13
4.2 MATERIAL PROPERTIES	13

SECTION 5 - DEMOLITION AND ABANDONMENT OF EXISTING FACILITIES	16
5.1 GENERAL.....	16
5.2 SPILLWAY.....	16
5.2.1 Demolition.....	16
5.2.2 Backfill.....	16
5.3 OUTLET WORKS.....	17
5.4 MISCELLANEOUS SITE ABANDONMENT FEATURES.....	17
5.5 GATE TOWER UPPER INLET PIPE.....	17
5.6 SECONDARY GROUTING OF 15-INCH PIPE FROM OLD DAM.....	18
SECTION 6 - OUTLET WORKS OPERATION AND RATING CURVE	19
SECTION 7 - EMBANKMENT	21
7.1 KEY CONDITIONS AFFECTING DESIGN.....	21
7.2 GENERAL DESIGN CONCEPT AND GEOMETRY.....	21
7.3 ANALYSES AND DESIGN CONSIDERATIONS.....	22
7.3.1 Seepage.....	22
7.3.2 Liquefaction.....	23
7.3.3 Stability.....	23
7.3.4 Settlement.....	24
7.3.5 Surface Drainage.....	25
7.3.6 Filter Compatibility Analysis.....	25
SECTION 8 - SPILLWAY	27
8.1 KEY CONDITIONS AFFECTING DESIGN.....	27
8.2 GENERAL DESIGN CONCEPT AND GEOMETRY.....	27
8.3 REGULATORY CRITERIA.....	27
8.4 HYDRAULIC DESIGN.....	28
8.4.1 Intake/Control Structure.....	28
8.4.2 Concrete Conduit.....	29
8.4.3 Stilling Basin.....	30
8.4.4 Discharge Channel.....	31
8.5 GEOTECHNICAL ANALYSES AND CONSIDERATION.....	31



8-24

8.6	STRUCTURAL DESIGN	32
SECTION 9 - INSTRUMENTATION		34
9.1	GENERAL.....	34
9.2	PIEZOMETERS	34
9.3	SURVEY MONUMENTS	34
9.3.1	Spillway Monuments	34
9.3.2	Stability Berm Monuments.....	34
9.3.3	Outlet Works Monuments.....	35
9.4	DRAIN OUTLET STRUCTURES.....	35
SECTION 10 - GENERAL SITE DESIGN		36
10.1	BORROW AREA	36
10.2	SITE CLEARING AND RECLAMATION	36
10.3	ACCESS ROADS.....	36
10.4	EROSION PROTECTION AND RECLAMATION	36
10.5	CREST IMPROVEMENTS.....	37
SECTION 11 - CONSTRUCTION CONSIDERATIONS		38
11.1	EXCAVATIONS	38
11.2	PUBLIC ACCESS SAFETY.....	39
11.3	PROTECTION OF PUBLIC WATER SUPPLY.....	39
11.4	EXISTING UTILITIES	39
11.5	CDOT RIGHT-OF-WAY	39
11.6	CONSTRUCTION SEQUENCE.....	40
11.7	RESERVOIR CONTROL.....	41
11.8	DEWATERING.....	41
11.8.1	General.....	41
11.8.2	Site Conditions and Groundwater	42
11.8.3	Dewatering Options.....	43
11.9	CONSTRUCTION WATER	43
11.10	CONSTRUCTION MATERIALS.....	43
11.11	PROTECTION OF SUBGRADE BELOW STRUCTURES.....	44

11.12 CONCRETE PLACEMENTS..... 44

11.13 CONTRACTOR STAGING AREA 45

SECTION 12 – OPERATIONS AND MAINTENANCE.....46

12.1 GENERAL..... 46

12.2 OPERATIONS..... 46

12.3 ROUTINE MAINTENANCE..... 46

12.4 PERIODIC MAINTENANCE 47

12.5 SAFETY 48

SECTION 13 – LIMITATIONS49

SECTION 14 - REFERENCES.....50

LIST OF TABLES

Table 3.1 Factors of Safety Required for Slope Stability Design

Table 4.1 Material Properties

Table 7.1 Factors of Safety for Slope Stability

Table 7.2 Riprap Gradation Specification

Table 7.3 Filter Sand Gradation

Table 7.4 Drain Gravel Gradation

Table 8.1 Geotechnical Properties for Structural Design

Table 8.2 Stability of Structures

LIST OF FIGURES

Figure 1.1 Site Vicinity Map

Figure 2.1 General Plan of Existing Conditions

Figure 2.2 General Plan of Modifications

Figure 3.1 IDF and 100-Year Inflow Hydrographs

Figure 4.1 Maximum Section of Existing Dam

Figure 5.1 Typical PVC Pipe Tie-In

Figure 6.1 Outlet Works Replacement Plan and Profile

Figure 7.1 Stability Berm Plan and Profile

Figure 7.2 Seepage Collection

Figure 7.3 Existing Embankment Stability Section – Maximum Section

Figure 7.4 Modified Embankment Stability Section – Incised Channel

Figure 7.5 Modified Embankment Stability Section – Valley Bottom

Figure 8.1 Spillway Replacement Plan and Profile



Figure 8.2 Spillway and Reservoir Capacity Curves

Figure 8.3 Spillway Structures

APPENDICES

Appendix A Material Properties

Appendix B Outlet Works Design

Appendix C Embankment Design

Appendix D Spillway Design

Appendix E General Reservoir and Site Design

SECTION 1 – INTRODUCTION

1.1 Purpose

The City of Trinidad (City) retained RJH Consultants, Inc. (RJH) to provide design engineering services to address outstanding dam safety issues at North Lake Dam. The primary elements of the North Lake Dam Rehabilitation Project (Project) include:

- A seepage collection system and stability berm to address seepage and high embankment foundation pressures downstream of the dam and to improve downstream slope stability. Replacement of the outlet works pipe at the downstream toe of the dam is required due to external loading concerns from the new stability berm.
- A new pipe spillway on the left abutment of the dam and abandonment of the existing spillway to address structural and hydraulic deficiencies with the existing spillway.
- Abandonment of the upper inlet pipe into the gate tower because the pipe is separated within the embankment near the gate tower.
- Secondary grouting of a 15-inch pipe located below the dam that extends from the original dam to complete abandonment of the pipe. Primary grouting of the pipe was performed in 2001.

The purposes of this report are to document the design analyses and design decisions for the Project and to meet the requirements and guidelines of the Colorado Office of the State Engineer (SEO).

1.2 Background

1.2.1 General

The dam is located about 35 miles west of Trinidad, Colorado, along Colorado State Highway 12, in Las Animas County, as shown on Figure 1.1. The project site (Site) is located in Section 19, Township 32 South, Range 68 West of the 6th Principal Meridian. The dam is owned and operated by the City and provides raw water storage for municipal use. The reservoir is filled from two sources: North Fork of the Purgatoire River through an aqueduct about 2,000 feet long that drains into the upper part of the reservoir, and from precipitation from a 0.76 square-mile watershed basin upstream of the dam. A smaller dam was constructed before 1950 in a location upstream of the existing dam, but

has since been abandoned. The following is a summary of construction and engineering evaluation activities that have occurred at the existing North Lake Dam:

- 1964: Construction of the existing dam.
- 1977: First identification of clear, steady seepage from a concentrated source on the right abutment downstream of the dam.
- 1998: The SEO identified possible safety concerns including insufficient slope stability, seepage issues, and deterioration of the auxiliary outlet conduit.
- 1999: GEI Consultants, Inc. (GEI) completed a geotechnical investigation and an engineering evaluation of the dam. GEI identified deterioration and holes in the auxiliary outlet conduit, high foundation pressures, and shallow fractured bedrock conveying seepage in the right abutment.
- 2001: The SEO identified additional safety concerns including spillway deterioration and uplift pressures below the spillway. Also in 2001, additional investigations were performed to confirm the stability of the upstream slope, and to observe the condition of the inlet pipes to the gate tower. The upstream slope of the dam was determined to have an acceptable stability with no limit on the rate of reservoir drawdown. A pipe separation was identified in the upper inlet pipe to the gate tower.
- 2002: The topography of the reservoir floor was surveyed and an updated stage-capacity relationship was developed. The total storage at normal pool was computed to be 4,214 acre-feet (ac-ft). The auxiliary outlet conduit was abandoned by grouting and the downstream impact basin was removed. Grouting of the 15-inch outlet works pipe that extends below the dam to the original dam was completed. All valves in the gate tower were replaced and a new stream release structure was constructed between the downstream toe and the existing valve house. A small sinkhole above the upper inlet pipe and adjacent to the gate tower was filled.

1.2.2 Previous Studies

A bibliography of previous reports and design documents is presented in the Geotechnical Data Report (RJH, 2008a). A brief summary of previous reports for North Lake Dam is summarized below:

- *Geotechnical Evaluation of North Lake Dam*, GEI, October 1999. Data was presented from five borings, and the results were used to perform initial stability and seepage analyses. Based on the results, safety issues were identified for

seepage, stability, and potential piping into and along the auxiliary outlet conduit. Several repair alternatives were recommended.

- *Upstream Slope Stability Evaluation During Rapid Drawdown*, GEI, April 2001. Data was presented from three borings upstream of the dam crest, and the results were used to perform stability analyses for the upstream slope. Based on the results, the upstream slope was determined to have an acceptable slope stability factor of safety under rapid drawdown conditions.
- *Construction Drawings and Technical Specifications for North Lake Dam Stilling Basin Modifications*, GEI, August 2002. This included adding a tee connection on the outlet pipe, a plug valve in the new pipe, and a new reinforced outlet works stream release structure.
- *Storage Capacity Report*, GEI, November 2002. Bathymetric survey results were presented for both North Lake and Monument Lake.
- *Technical Memorandum: North Lake Dam Relief Well Project*, GEI, December 2002. Hydraulic conductivities were selected for various dam and foundation materials based on seepage modeling. A series of relief wells were designed to improve stability of the downstream slope and the foundation.
- *Construction Drawings and Specifications – North Lake Dam Foundation Pressure Relief Project*, GEI, July 2003. Drawings and technical specifications for a series of relief wells were approved by the SEO, but the project was not constructed.
- *Spillway Assessment Report*, GEI, May 2005. The existing spillway was evaluated for structural and hydraulic performance. As a result of the investigation and analyses, abandonment of the existing spillway and construction of a new spillway were recommended.
- *North Lake Dam Letter and Memorandum*, GEI, June 2005. The preliminary option of probable cost for spillway repair was presented for the construction of a new pipe spillway on the left abutment.
- *Construction Completion Report – North Lake Dam Outlet Works Modifications*, GEI and RJH, April 2007. This report documented modifications to the outlet works including abandonment of the auxiliary outlet conduit, repairs to the gate tower, and abandonment of the old dam 15-inch pipe. Video surveys of outlet works pipes were presented.

- Construction Drawings for North Lake Dam Outlet Works Rehabilitation Project, GEI, July 2007. As-constructed conditions were presented for the work described in the Construction Completion Report.
- *Hydrology Report - North Lake Dam Rehabilitation Project*, RJH, June 2008. RJH performed hydrologic and hydraulic analyses to develop the Inflow Design Flood (IDF) for use in the final design of a replacement spillway.
- *Geotechnical Data Report - North Lake Dam Rehabilitation Project*, RJH, December 2008. This report documented the geotechnical data collected to support design of the primary elements of the Project.

1.3 Scope of Work

RJH performed the following services for final design of the project:

- Evaluated the collected geotechnical field and laboratory data and developed material properties for the foundation and embankment materials.
- Performed settlement analyses to estimate the expected settlement of the existing outlet pipe from construction of the berm and evaluated ground modifications to reduce settlement.
- Performed seepage analyses and two-dimensional limit equilibrium stability analyses to size a downstream stability berm and confirm that the final stability berm configuration provides the required factors of safety.
- Performed seepage, flow analyses, and filter compatibility to design the drainage system under the stability berm.
- Performed reservoir flood routings using the information in the *Hydrology Report* (RJH, 2008b) to design the spillway intake structure, spillway conduit, and stilling basin (outlet) structure.
- Performed structural analyses to design the spillway.
- Performed hydraulic analyses for the outlet works rehabilitation. Hydraulic analyses included an evaluation of the hydraulic impacts of the proposed outlet works rehabilitation on the system discharge capacity including abandonment of the upper inlet pipe and replacement of the 24-inch-diameter outlet pipe.
- Performed hydrologic analyses to design the surface drainage ditches and a new access road crossing downstream of the dam.
- Prepared this report documenting the final design of the Project.

SECTION 2 - PROJECT DESCRIPTION

2.1 Existing Site Description

North Lake Dam is a 72-foot-high, high hazard, earthen embankment with a total storage capacity of 4,214 acre-feet (ac-ft) at normal pool. The dam was built in 1964 as a replacement for a smaller, older dam located about 900 feet upstream. The existing dam has a maximum normal pool at Elevation (El.) 8586.5, which corresponds to a gage height of 67 feet. The dam crest is at about El. 8591.5. The crest is about 20 feet wide and 630 feet long, with an upstream slope at approximately 3 horizontal to 1 vertical (3H:1V) and a downstream slope at approximately 2H:1V as shown on Figure 2.1.

Record drawings of the existing dam are not available, but based on construction drawings, the dam should have a low permeability upstream shell, a very low permeability core extending to bedrock, and a random-fill downstream shell. There are no internal drains or filters. Based on data from previous geotechnical investigations, bedrock near the maximum section is about 117 feet below the crest of the dam and the general internal configuration of the dam appears to agree with the design drawings. The bedrock consists of moderately to intensely weathered claystone. The upper 5 to 10 feet of the bedrock is intensely weathered.

The spillway is a reinforced concrete chute at about the maximum section of the dam. The spillway has a crest width of about 6 feet at El. 8586.5. Transverse cracks are present along the chute. Slabs are cracked and separated at all major transitions in the spillway including the upstream end of the crest, the downstream end of the crest, and the transition to the stilling basin. At the spillway approach area on the upstream slope of the dam, the concrete apron is separated from embankment material by up to 1 foot.

The outlet works consists of a concrete wet-well gate tower located in the upstream face of the dam. The gate tower has three inlet pipes at different elevations and a single outlet pipe. The inlet pipes are 20-inch steel pipes with 24-inch butterfly valves located in the gate tower. The outlet pipe is a 30-inch-diameter, concrete-lined, welded steel pipe. Near the downstream toe of the embankment, the outlet pipe transitions to a 24-inch-diameter, 10-gauge, asbestos-bonded, double-riveted, asphalt-dipped pipe. The top of the pipe is about 4 feet below the existing ground. The pipe extends to a valve house about 190 feet downstream of the toe of the dam.

One 15-inch pipe extends from the old dam to the toe of the existing dam. The upstream end of the pipe is about 920 feet upstream of the existing dam centerline. The old dam 15-inch pipe has been partially abandoned on the lower end by previous grouting operations. The grouting apparatus on the downstream end of the pipe consists of a 5-inch-diameter grout pipe, with a 6-inch gate valve. The 5-inch grout pipe daylight to the right of the 24-inch-diameter outlet pipe about 40 feet downstream of the toe of the dam. The end of the partially-abandoned 15-inch pipe is encased in filter sand, and a 4-inch-diameter PVC drainpipe extends from the filter sand to the ditch downstream of the spillway. Additional information is provided in the *Construction Completion Report – North Lake Dam Outlet Works Rehabilitation* (GEI, 2007).

A 24-inch CMP auxiliary outlet located to the left of the spillway has been abandoned by grouting and the outlet structure and grouting apparatus have been removed. The end of the auxiliary outlet is encased in filter sand, and a 4-inch-diameter PVC drainpipe extends from the filter sand to the ditch downstream of the spillway. Additional information is provided in the *Construction Completion Report - North Lake Dam Outlet Works Rehabilitation* (GEI, 2007).

The lower half of the downstream shell of the dam is moist at the surface, and surface soils at the toe are soft and wet. The extent of the wet area is outlined on Figure 2.1. The source of the moisture appears to be seepage primarily through a concentrated flow on the right groin. The beginning of channelized flow is located about 20 feet downstream of the dam at about El. 8544. This seepage flows into a small swale on the right groin, which connects to the streambed downstream of the spillway stilling basin. About 50 feet from the end of the ditch, a sharp-crested weir is installed to measure the quantity of seepage.

2.2 Primary Project Components

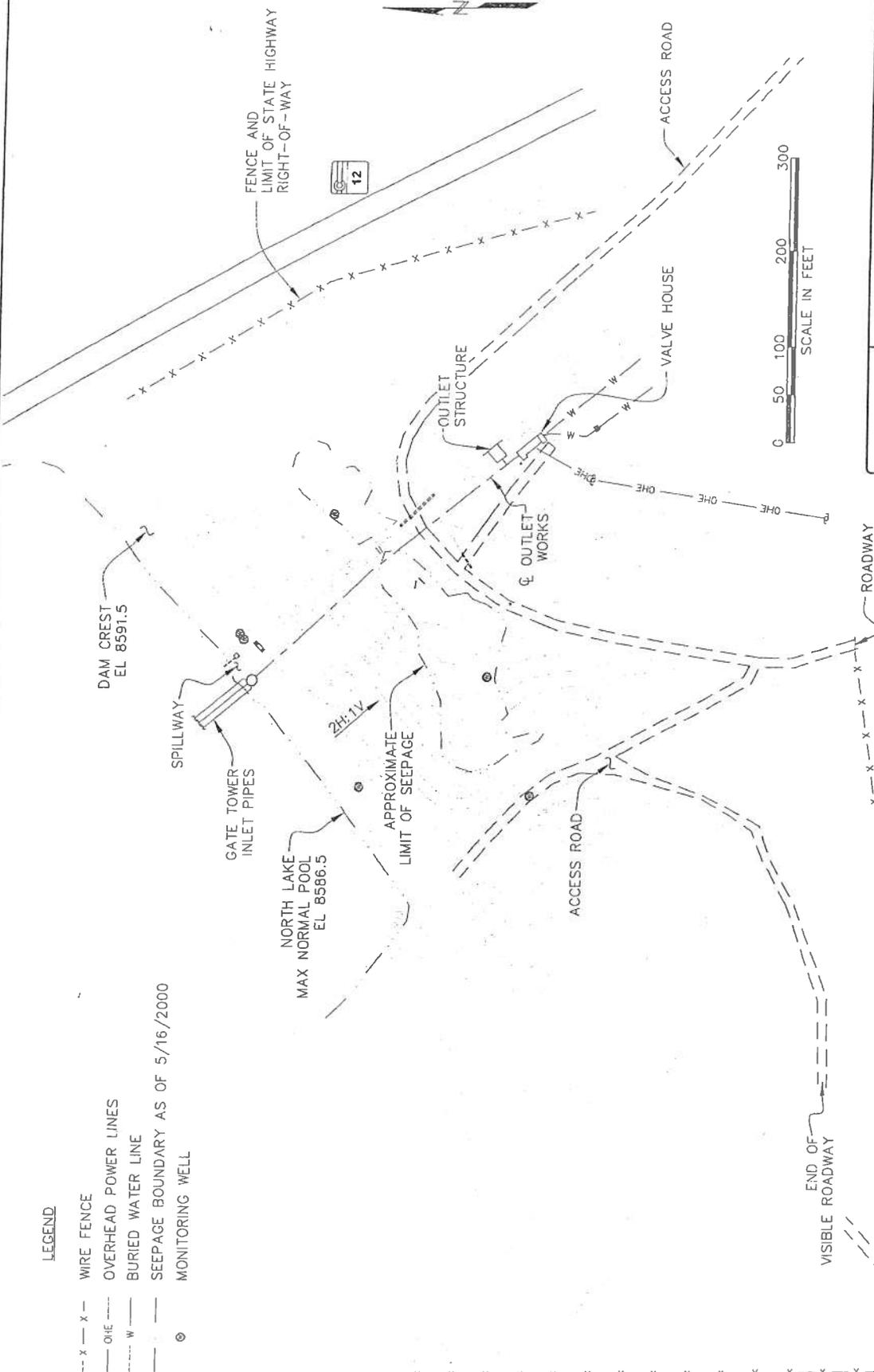
The primary components of the North Lake Rehabilitation Project are shown on Figure 2.2 and described as follows:

- **DOWNSTREAM STABILITY BERM:** An 80-foot-wide berm with a crest at El. 8550 and a downstream slope of 2.75H:1V will be constructed on the downstream slope of the dam across the entire valley. A filter drain system will be placed below the berm to collect seepage. The rehabilitation will require replacement of a section of the lower 24-inch outlet pipe with a manhole with sleeve couplings and a 30-inch-diameter outlet pipe.

- **SPILLWAY:** The existing spillway will be demolished and removed and the excavation will be restored by placing fill. A new spillway consisting of a reinforced concrete intake structure with trashrack, a 36-inch diameter reinforced concrete pipe (RCP), and a reinforced concrete stilling basin will be constructed in the left abutment.
- **UPPER INLET PIPE ABANDONMENT:** The separated upper inlet pipe to the gate tower will be abandoned by filling 14 feet of the pipe immediately upstream of the gate tower with grout, removing the 24-inch butterfly valve, and placing a blind flange on the pipe at the tower.
- **SECONDARY GROUTING OF THE OLD DAM 15-INCH PIPE:** Low mobility grout will be injected into the pipe through the existing grouting apparatus to plug voids that resulted from the Phase I grouting to complete the abandonment of the pipe.
- **ACCESS ROAD:** A segment of the access road will be relocated. The approximately 400-foot-long segment is located downstream of the dam in the vicinity of the proposed stability berm. The new alignment will be downstream of the outlet works stream release stilling basin. An embankment with a culvert will be constructed where the road crosses the incised channel in the center of the valley. The new access road will tie in to the existing access road on either side of the valley.
- **SITE WORK:** Additional site work will include crest regrading, riprap-lined ditches along the downstream groin of the embankment, reclamation of work areas, and instrumentation.

LEGEND

- x--x-- WIRE FENCE
- OHE--- OVERHEAD POWER LINES
- W--- BURIED WATER LINE
- SEEPAGE BOUNDARY AS OF 5/16/2000
- ⊙ MONITORING WELL



NORTH LAKE DAM
REHABILITATION PROJECT

GENERAL PLAN OF
EXISTING CONDITIONS

October 2009

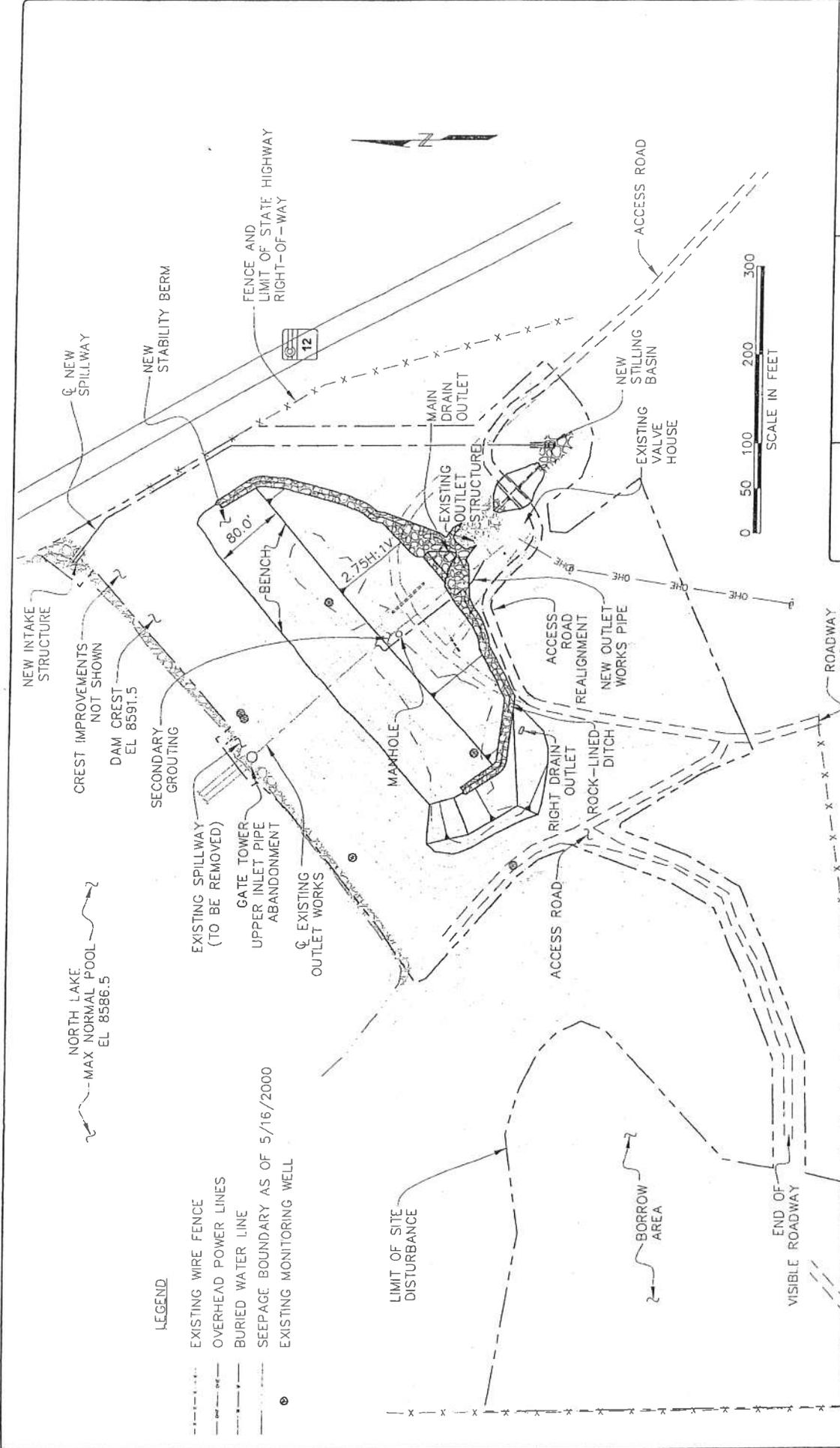
Figure 2.1

PROJECT NO. 07104

NOTE: TOPOGRAPHIC SURVEYING WAS PERFORMED BY TERRY LAND SURVEYING, INC. IN MAY, 2000 AND JULY, 2007. COORDINATES WERE OBTAINED BY GPS AND PROJECTED TO A LOCAL COORDINATE SYSTEM.

8-35

P:\07104 - N. LAKE DAM\CAD\DWG\REPORT\07104 GENERAL DAM MODS\DWG 10/15/2009 1:15 PM



	GENERAL PLAN OF MODIFICATIONS	Figure 2.2
	NORTH LAKE DAM REHABILITATION PROJECT	October 2009
PROJECT NO. 07104		

8-36

EXHIBIT "B"

8-38



June 28, 2010
Project 07104

Mr. Jim Fernandez
City of Trinidad
P.O. Box 880
Trinidad, CO 81082

**Re: North Lake Dam Rehabilitation Project
Opinion of Probable Construction Costs**

Dear Jim:

RJH Consultants, Inc. (RJH) developed an Opinion of Probable Construction Cost (OPCC) to implement the modifications described in the SEO Submittal design drawings and technical specifications for the North Lake Dam Rehabilitation Project.

This OPCC is based on professional opinion. Actual costs would be affected by a number of factors beyond current control, such as supply and demand for the types of construction required at the time of bidding and in the project vicinity; changes in material supplier costs; changes in labor rates; the competitiveness of contractors and suppliers; changes in applicable regulatory requirements; and changes in design standards. Therefore, conditions and factors that arise as project development proceeds through bidding and construction may result in construction costs that differ from the estimate provided in this letter.

The lump sum item costs are based on qualitative estimates of the summation of the various activities required for a particular item of work. Quantities for unit price items are based on the drawings. The line items in the attached cost opinion correspond to the items in the bid tabulation that will be used for bidding. Estimated unit prices and costs of the listed work items were derived from the following sources:

- Published and non-published bid price data for similar work from similar projects.
- R.S. Mean Heavy Construction Cost Data for 2009.
- Manufacturer's budgetary price quotes.
- Engineering News Record (ENR).

- RJH's experience on similar construction work and engineering judgment.

The sum of the bid items is defined for this study as the "Direct Construction Subtotal" (DCS). We anticipate the DCS would represent a contractors' "bid price." We have included allowances to the DCS to account for other project costs. These allowances include the following:

- 15 percent of the DCS to account for construction contingencies. This allowance is intended to cover unanticipated items and issues that may arise during construction.
- 3 percent of the DCS for City administration.
- Approximately 20 percent of the DCS for construction engineering.
- Approximately 3 percent of the DCS for materials testing during construction.

The Opinion of Probable Construction Costs (OPCC) is the sum of the DCS and the above allowances. A summary of our OPCC for this project is presented in the following table.

OPINION OF PROBABLE CONSTRUCTION COST

Item	Quantity	Unit	Unit Price (\$)	Total Cost (\$)
1 – Mobilization	1	LS	75,000.00	75,000.00
2 – Erosion Protection and Sediment Control	1	LS	20,000.00	20,000.00
3 – Clearing and Grubbing	9	Acre	2,500.00	22,500.00
4 – Reservoir Control	1	LS	55,000.00	55,000.00
5 – Dewatering	1	LS	70,000.00	70,000.00
6 – Site Access Road Improvements	1	LS	12,500.00	12,500.00
7 – Crest Earthwork	1	LS	7,500.00	7,500.00
8 – New Spillway Structure	1	LS	60,000.00	60,000.00
9 – Spillway Pipe	536	LF	200.00	107,200.00
10 – Removal of Existing Spillway	1	LS	25,000.00	25,000.00
11 – Secondary Pipe Grouting	1	LS	5,000.00	5,000.00
12 – Gate Tower Repair	1	LS	15,000.00	15,000.00
13 – Outlet Works Disposal	1	LS	30,000.00	30,000.00
14 – Furnishing and Placing Low-Permeability Fill	210	CY	12.50	2,625.00
15 – Furnishing and Placing Berm Fill	32,000	CY	3.00	96,000.00
16 – Furnishing and Placing Filter Sand	3,700	CY	50.00	185,000.00
17 – Furnishing and Placing Drain Gravel	1,550	CY	50.00	77,500.00
18 – Topsoil	7,300	CY	5.50	40,150.00
19 – Type M Riprap	220	CY	70.00	15,400.00
20 – Type L Modified Riprap	410	CY	170.00	69,700.00
21 – Riprap Bedding	85	CY	60.00	5,100.00
22 – Outlet Works Pipe	1	LS	120,000.00	120,000.00
23 – Manhole	1	LS	15,000.00	15,000.00
24 – Toe Drain Pipe	525	LF	100.00	52,500.00
25 – Instrumentation	1	LS	15,000.00	15,000.00
26 – Seeding	9	Acre	2,500.00	22,500.00
27 – All Other Work Not Listed Separately	1	LS	95,000.00	95,000.00

Direct Construction Subtotal (DCS)	1,316,175.00
Construction Engineering and Administration	260,000.00
Materials Testing	35,000.00
City Administration at 3 Percent of DCS	39,485.00
Construction Contingencies at 15 Percent of DCS	197,426.00
Opinion of Probable Construction Cost (OPCC, 2010)	\$1,848,086.00

Mr. Jim Fernandez

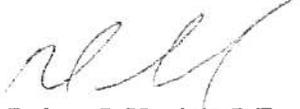
-3-

June 28, 2010

Please call if you have any questions or require additional information.

Sincerely,

RJH CONSULTANTS, INC.



Robert J. Huzjak, P.E.
Project Manager

RJH/jmm

EXHIBIT "C"

8-42

Jim 7

EXPENSE CHECK REGISTER REPORT
EIAF #4120 Trinidad North Lake Dam

EIAf Grant 300,000
 City Share 550,000
 Total Budget 850,000

Vendor	Date Paid	Check No.	EXPENSE INCURRED (Budget Line Item)				Subtotal	Monument Lake Stabilization	Total Project Expense
			Repair & Replace Piping	Enbankment Stabilization	Spillway Repair				
GEl Consultants, Inc.	06-30-00	4028	9,458.44	882.50		10,340.94		10,340.94	
Engineering Serv	06-30-00	4028	20,544.12	10,172.50		30,716.62		30,716.62	
" "	07-31-00	4262	9,097.66	380.00		9,477.66		9,477.66	
" "	08-31-00	4510	9,623.00	1,420.00		11,043.00		11,043.00	
" "	09-15-00	4650	6,209.86	0.00		6,209.86		6,209.86	
" "	10-31-00	5018	37,862.35	37,168.00		75,030.35		75,030.35	
" "	11-15-00	5153	97,777.28	2,141.75		99,919.03		99,919.03	
" "	12-31-00	5488	33,410.71	0.00		33,410.71		33,410.71	
" "	01-31-01	5665	11,104.18	3,488.50		14,592.68		14,592.68	
" "	01-15-01	6110	52,908.49	0.00		52,908.49		52,908.49	
" "	03-31-01	6225	2,795.42	3,009.50		5,804.92		5,804.92	
" "	05-31-01	6699	68,850.08	3,435.47		72,285.55		72,285.55	
" "	06-15-01	6856	89,885.76	502.50		90,388.26		90,388.26	
" "	06-15-01	6856	34,274.46	0.00		34,274.46		34,274.46	
" "	07-31-01	7227	4,205.58	0.00		4,205.58		4,205.58	
" "	09-30-01	7740	444.50	0.00		444.50		444.50	
" "	10-31-01	7978	370.00	0.00		370.00		370.00	
" "	10-31-01	7978	1,064.00	0.00		1,064.00		1,064.00	
COSTS INCURRED 6-30-00 THRU 10-31-01)			489,885.89	62,600.72	0.00	552,486.61		552,486.61	
GEl Consultants, Inc.	12-31-01	8452	2,718.18	0.00		2,718.18		2,718.18	
Engineering Serv	01-31-02	8752	1,533.76	0.00		1,533.76		1,533.76	
" "	01-31-02	8752	2,766.95	0.00		2,766.95		2,766.95	
" "	03-15-02	9070	7,237.51	0.00		7,237.51	4,289.22	11,526.73	
" "	04-15-02	9269	1,861.45	0.00		1,861.45	36,295.04	38,156.49	
" "	04-30-02	9385	940.50	0.00		940.50	2,548.10	3,488.60	
" "	05-31-02	9631	260.00	0.00		260.00	520.35	780.35	
" "	06-30-02	9875	989.01	0.00		989.01	1,468.69	2,457.70	
" "	07-31-02	10102		8,800.95		8,800.95	1,641.37	10,442.32	
" "	08-15-02	10252		8,375.89		8,375.89	30,587.96	38,963.85	
" "	09-30-02	10595		12,859.71		12,859.71	5,374.50	18,234.21	
" "	10-31-02	10845		51,971.41		51,971.41		51,971.41	
" "	12-31-02	11294		6,679.25		6,679.25	96,298.37	102,977.62	
" "	12-31-02	11294		18,121.01		18,121.01	7,155.52	25,276.53	
" "	01-15-03	11408		3,397.39		3,397.39		3,397.39	
" "	02-28-03	11832	1,785.00		2,024.43	3,809.43	4,278.56	8,087.99	
" "	03-31-03	12073	410.40		1,317.72	1,728.12	8,850.00	10,578.12	
" "	04-30-03	12317				0.00	1,656.94	1,656.94	
" "	05-15-03	12470		2,781.46	2,770.97	5,552.43		5,552.43	
" "	06-30-03	12865		4,325.00	4,820.91	9,145.91	3,365.70	12,511.61	
" "	07-31-03	13124		3,047.50		3,047.50	27,153.63	30,201.13	
" "	08-31-03	13396		3,220.15		3,220.15	18,144.50	21,364.65	
" "	09-30-03	13642		2,492.00	5,766.13	8,258.13	742.80	9,000.93	
" "	11-15-03	14059		408.50	220.44	628.94		628.94	
" "	12-15-03	14305		2,814.09	2,353.80	5,167.89		5,167.89	
" "	12-31-03	14401		8,568.46	4,841.82	13,410.28	1,104.50	14,514.78	
" "	03-31-04	15155				0.00	2,962.10	2,962.10	
" "	04-30-04	15421				0.00	1,165.04	1,165.04	
" "	04-30-04	15421		978.61		978.61	39,768.51	40,747.12	
" "	05-31-04	15669				525.00	525.00	1,050.00	
" "	06-30-04	15944				12,915.62	12,915.62	25,831.24	
" "	07-31-04	16228					827.14	827.14	
" "	08-15-04						17,709.50	17,709.50	
Schrepler Industries	10-15-01	7904			20,000.00	20,000.00		20,000.00	
" "	12-15-01	8379			27,746.00	27,746.00		27,746.00	
" "	01-31-02	8755			21,746.80	21,746.80		21,746.80	
" "	03-15-02	9113			8,999.20	8,999.20		8,999.20	
" "	06-30-02	9907			19,353.00	19,353.00		19,353.00	
COSTS INCURRED 11-02-02 THRU 06-30-04			20,502.76	138,841.38	121,961.22	294,745.98	327,348.66	622,094.64	
TOTAL PROJECT EXPENDITURES			510,388.65	201,442.10	121,961.22	847,232.59	327,348.66	1,174,581.25	
LESS: ADVANCE PAYMENT GRANT REQUEST								(30,000.00)	
CITY SHARE TO-DATE								552,486.61	
								874,581.25	

8-43

EXHIBIT "D"

8-44

Las Animas County



Board of County Commissioners

Gary D. Hill
Chairman Pro Tem

Jim D. Montoya
Chairman

James Vigil
Commissioner

June 28, 2010

Ms. Susan Kirkpatrick, Executive Director
Colorado Department of Local Affairs
1313 Sherman Street, Suite 500
Denver, CO 80203

Dear Executive Director Kirkpatrick,

We, the Board of County Commissioners of Las Animas County, wish to express our support for the Energy Impact Assistance Fund grant application submitted by the City of Trinidad, seeking funding support for its project to repair the dam at its North Lake Reservoir.

The North Lake Reservoir holds the City of Trinidad's primary supply of raw water which is then processed and delivered to the City and throughout the Purgatoire River Valley, serving the majority of residents within Las Animas County.

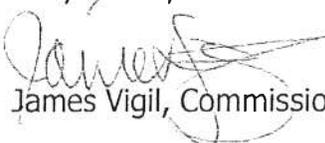
Please take notice that Las Animas County is not submitting an application seeking Energy Impact Assistance Funds so as not to compete with the City of Trinidad and to demonstrate our support for its application.

We respectfully request your favorable consideration of the EIAF application submitted by the City of Trinidad for its North Lake Reservoir.

Sincerely,


Jim D. Montoya, Chairman


Gary D. Hill, Chairman Pro Tem


James Vigil, Commissioner

8-45

PIONEER
NATURAL RESOURCES

Pioneer Natural Resources USA, Inc.
1401 17th Street, Suite 1200
Denver, Colorado 80202
Tel: (303) 298-8100 Fax: (303) 298-7800

July 19, 2010

Lee Merkel
Department of Local Affairs
132 West "B" Street, Suite 260
Pueblo, CO 81003

Dear Mr. Merkel:

Please accept this letter as an indication of Pioneer's support for the application of the City of Trinidad in their submission of a grant to the Department of Local Affairs Energy and Mineral Impact Assistance Program Tier II funding program.

The City of Trinidad is submitting a grant request to provide funding for the North Lake Dam Rehabilitation Project. Additional funding would be provided through a 25% cash match out of the City of Trinidad Water Fund if the grant is approved.

As the largest energy operator and severance tax revenue generator in Las Animas County, we support the city's request that part of the \$23 million in severance tax revenues generated in 2009 for Las Animas County be directed to the City of Trinidad project.

We understand that the project is a response to the State Water Engineer's requirement that the City construct a new spillway and earthen reinforcement for the North Lake reservoir/dam, and that if the project is not completed, the State Water Engineer will require the City to significantly lower the level and volume of water held in the reservoir, which would adversely impact system users throughout Las Animas County.

Discussion with the applicant yielded that the City of Trinidad is unable to borrow money at this time due to restrictions on indebtedness by municipal governments. With limited abilities to borrow, it is critical that the City be able to secure DOLA funds to support the repairs and ensure continued access to adequate volumes of water.

Further, it was explained that this particular project is part of the Water Fund, which is set up as an enterprise fund. It is funded by the utility fees and charges that the Water Department collects. Sales and property taxes fund other programs, and cannot be used for enterprise fund programs.

J-46

PIONEER

NATURAL RESOURCES

Pioneer Natural Resources USA, Inc.
1401 17th Street, Suite 1200
Denver, Colorado 80202
Tel: (303) 298-8100 Fax: (303) 298-7800

Additionally, monies that might normally have come back to the County from various energy related taxes are much lower this year due to the fact that the State has retained nearly all of the Las Animas County and City of Trinidad portions in an effort to get closer to balancing its own budget.

The City has looked at raising rates and determined that such a rate increase at this time is unwarranted. Despite the impact of energy jobs paying well above the state average, the average Las Animas County resident earns below average wages and would be significantly impacted by a rate increase of the magnitude needed to complete this project – possibly putting some ratepayers in financial distress.

In reviewing the Seven Principles of Sustainability, this grant falls squarely within the “Supporting Existing Communities” and will strategically optimize goal driven infrastructure funding to maximize investment, support long term viability and revitalize this community.

From April 2000 to July 2007, the population in Trinidad, Las Animas County and the unincorporated areas increased (4.3%, 9% and 18% respectively.) These increases were due, in part, to impacts from energy development as energy operators responded to increasing gas prices and development opportunities. As activity increased, more employees, contractors, and vendors moved to Las Animas County and the surrounding areas. In addition, many contractors and vendors also filled the local hotels for short to long term stays. This increased activity and part-time to permanent population put extra demands on the City of Trinidad to ensure that basic necessities such as water are available.

As energy operators respond to moderating and increasing gas prices and lower contractor and vendor costs, activity is slowly picking up again in Trinidad. It is critical that the City have adequate and reliable supplies of water for the existing population and be prepared to again address increases in population due to increasing energy development – which includes adequate sources of water. We support this request and urge that the requested funding be made available.

Sincerely,

Pioneer Natural Resources USA, Inc.

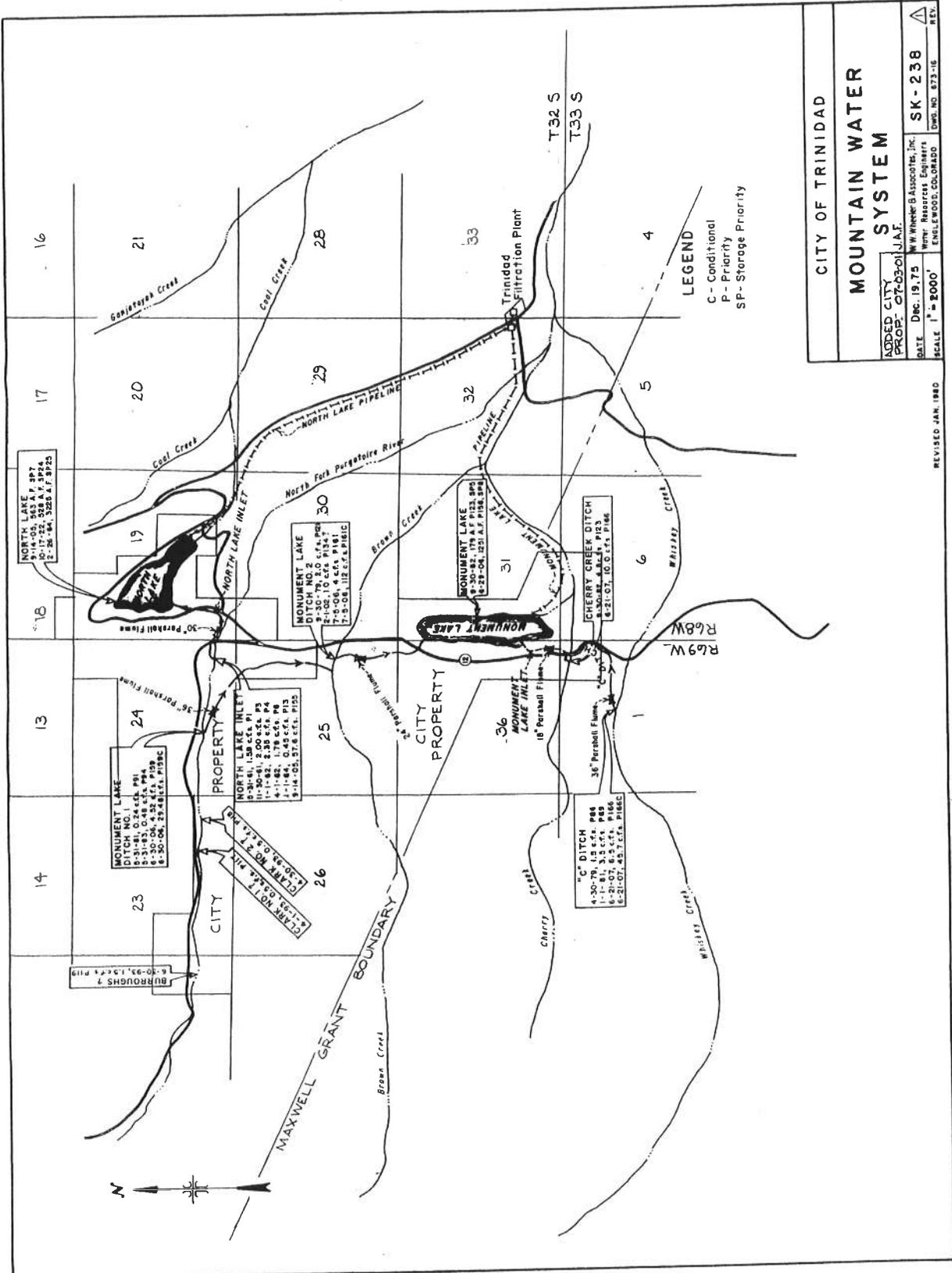
By: _____

Thomas D. Sheffield
Vice President-Rockies Asset Team

8-47

EXHIBIT "E"

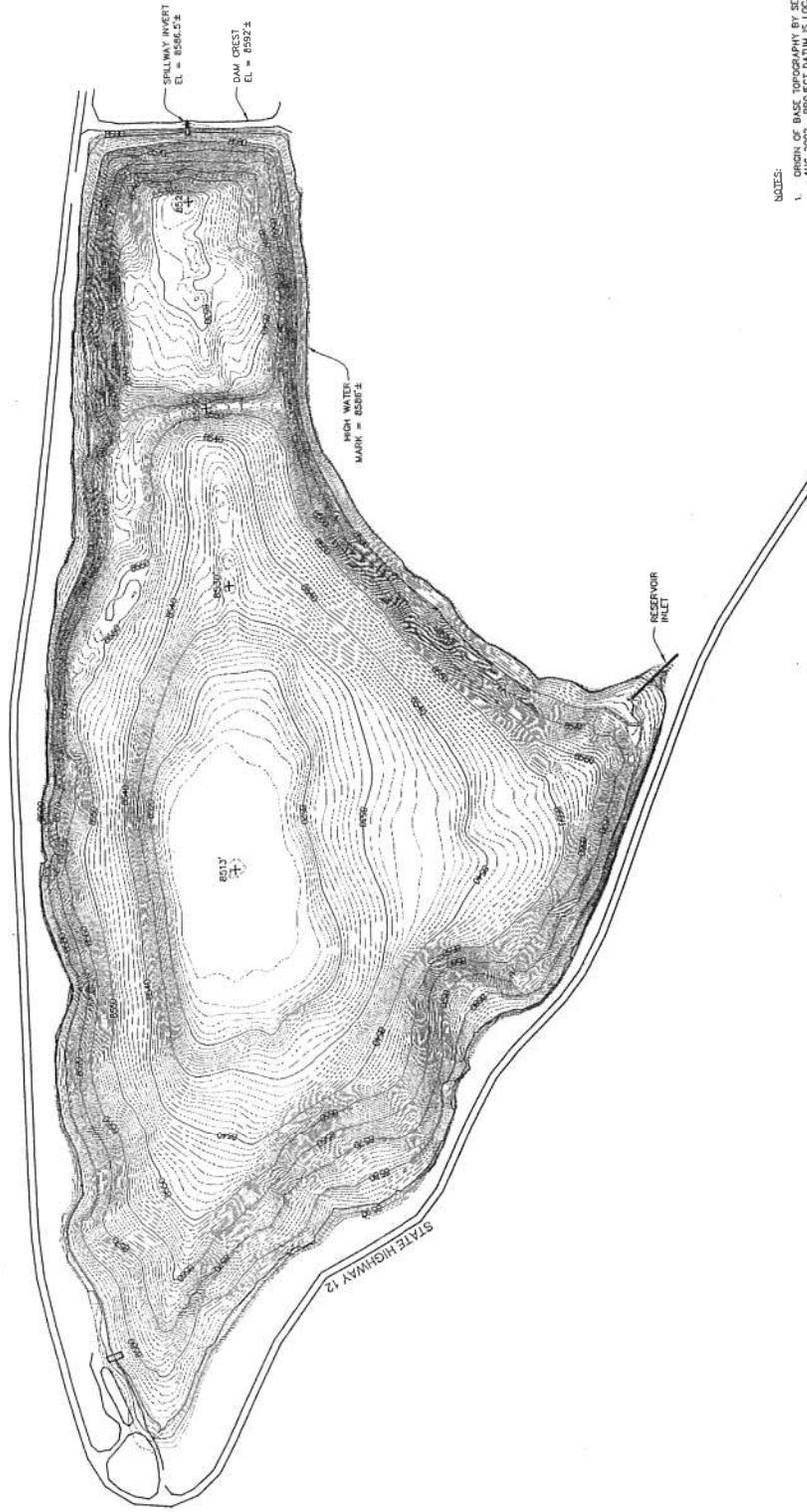
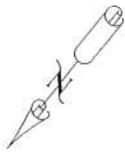
8-48



8-49

EXHIBIT "F"

8-50



NORTH LAKE



NOTES:

1. ORIGIN OF BASE TOPOGRAPHY BY SELLARDS & GRIDG, INC. AUG 2002. PROJECT DATUM IS LOCAL MODIFIED STATE PLANE COORDINATE SYSTEM. ELEVATIONS ARE REFERRED TO MEAN SEA LEVEL. MAP WAS CORRECTED BY THE NATIONAL GEODETIC VERTICAL DATUM OF 1988 (NAVD-88).
2. BLACKHAWK GEOSURVEYS PERFORMED THE UNDERWATER SURVEY.

CITY OF TRINIDAD



GEI Consultants, Inc.

PROJECT MAP

NORTH LAKE

PROJECT NO. 00128

NOV 2002

FIGURE

3.2

15-8