

Texas Water

Development Board

City of Roscoe

DWSRF GREEN PROJECT RESERVE BUSINESS CASE EVALUATION

STATE FISCAL YEAR 2011 INTENDED USE PLAN

PROJECT NUMBER 62503

COMMITMENT DATE: May 04, 2011

DATE OF LOAN CLOSING: November 29, 2011

July 14, 2011

Frank Porter, Mayor
City of Roscoe
P.O. Box 340
Roscoe, TX 79545-0340

**Re: SFY 2011 Drinking Water State Revolving Fund
Green Project Eligibility**

Dear Mayor Porter:

The Texas Water Development Board (TWDB) received Green Project Information Worksheets from the City of Roscoe (City of) for project #8514 in response to the Drinking Water State Revolving Fund (DWSRF) invitation dated September 27, 2010. The invitation states that the City was listed on the Project Priority List as having green costs greater than or equal to 30% of the total project cost. After reviewing the worksheets, TWDB staff determined that the City has eligible green costs based on the following:

- The City's Green Project Information Worksheets requested that \$464,000 of the City's \$1,765,000 2011 Water Improvements project be considered eligible for the DWSRF Green Project Reserve (GPR). The green element is described as distribution pipe replacement or rehabilitation to reduce water loss and prevent water main breaks.
- The Environmental Protection Agency's (EPA's) *Green Project Reserve Guidance for Determining Project Eligibility* (TWDB-0161) lists water efficiency projects such as distribution pipe replacement to reduce water loss and prevent water main breaks as business case eligible for the GPR (Part B, Section 2.5-2).
- Information presented on the Green Project Information Worksheets and its attachments provided sufficient information to confirm the eligibility of the proposed water distribution improvements for the GPR in accordance with TWDB-0161, Part B, Section 2.5-2.
- Therefore, at this time the TWDB considers project costs associated with distribution pipe replacement or rehabilitation in the amount of \$464,000 to be eligible for the DWSRF GPR.

Mayor Frank Porter
July 14, 2011
Page 2

The TWDB appreciates the City's interest in the DWSRF program. If you have any questions regarding green project eligibility, please feel free to contact John Muras, Project Engineer, by phone at 512-463-1706 or by email at john.muras@twdb.state.tx.us.

Sincerely,



Stacy L. Barna
Director of Program Development
Project Finance Division

TEXAS WATER DEVELOPMENT BOARD

Green Project Reserve

Green Project Information Worksheets

**Work 2011 Intended Use Plan
Drinking Water State Revolving Fund**

The Federal Appropriation Law for the current fiscal year Clean Water and Drinking Water State Revolving Fund programs contains the Green Project Reserve (GPR) requirement. The following Green Project Information Worksheets have been developed to assist TWDB Staff in verifying eligibility of potential GPR projects.

TWDB-0163
Prepared 7/14/2010

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TEXAS WATER DEVELOPMENT BOARD
DRINKING WATER STATE REVOLVING FUND (DWSRF)
GREEN PROJECT INFORMATION WORKSHEETS

PART I – GREEN PROJECT INFORMATION SUMMARY

Check all that apply and complete applicable worksheets:

Categorically Eligible

- Green Infrastructure \$ _____
- Water Efficiency \$ _____
- Energy Efficiency \$ _____
- Environmentally Innovative \$ _____

Business Case Eligible

- Green Infrastructure \$ _____
- Water Efficiency \$ 464,000
- Energy Efficiency \$ _____
- Environmentally Innovative \$ _____

Total Requested Green Amount \$ 464,000

Total Requested Funding Amount \$ 1,765,000

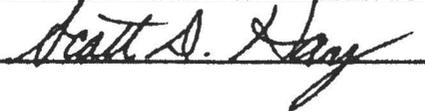
Type of Funding Requested:

- PAD (Planning, Acquisition, Design)
- C (Construction)

Completed by:

Name: Scott D. Hay

Title: Vice President

Signature: 

Date: March 25, 2011

**TEXAS WATER DEVELOPMENT BOARD
DRINKING WATER STATE REVOLVING FUND (DWSRF)
GREEN PROJECT INFORMATION WORKSHEETS**

PART III - BUSINESS CASE ELIGIBLE

Complete this worksheet for projects being considered for the Green Project Reserve (GPR) as business case eligible. Business case eligible projects or project components are described in the following sections of the EPA GPR guidance (TWDB-0161):

| | |
|----------------------------|-----------------------------|
| Green Infrastructure | Part B, Section 1.4 |
| Water Efficiency | Part B, Section 2.4 and 2.5 |
| Energy Efficiency | Part B, Section 3.4 and 3.5 |
| Environmentally Innovative | Part B, Section 4.4 and 4.5 |

Information provided on this worksheet should be of sufficient detail and should clearly demonstrate that the proposed improvements are consistent with EPA and TWDB GPR guidance for business case eligible projects. Refer to **Information on Completing Worksheets** for additional information.

Section 1 - General Project Information

Applicant: City of Roscoe PIF #: 8514

Project Name: Roscoe 2011 Water Improvement

Contact Name: Scott D. Hay

Contact Phone and e-mail: 325-698-5560 scott.hay@e-ht.com

Total Project Cost: \$1,765,000 Green Amount: \$464,000
(Business Case Eligible)

Brief Overall Project Description:

Installation of a reverse osmosis water treatment system to remove nitrates from the City of Roscoe water wells. The unit will be sized to treat a portion of the well production then the treated water will be blended with the well water in the appropriate ratio to ensure the blended water stream meets the water quality standards of the TCEQ. Additionally, a portion of the project will include a building to house the treatment equipment and a system to dispose of the waste stream from the treatment process by routing it to the City's sewer system. In addition to installing the reverse osmosis water treatment system, the City will also be replacing dilapidated lines that are currently costing the city in manpower, funds, and wasted water.

Section 3 – Water Efficiency

Certain water efficiency improvements may be considered business case eligible for the GPR. Refer to EPA and TWDB GPR guidance for a complete list and description of business case eligible GPR Projects. For all water efficiency business case eligible projects Section 3.1 must be completed. A common water efficiency project that may be considered business case eligible is water line replacements to address water loss. For this type of project complete Section 3.2 of the worksheet. For any other water efficiency improvement being considered for business case eligibility, complete Section 3.3

Section 3.1 - System and Water Loss Information

Section 3.1 is required for all water efficiency business case eligible projects. Attach a copy of most recent Water Audit, if available. Otherwise, complete and attach Water Audit Worksheet or provide water audit data in a similar format. Additional information on water loss and water audits as well as a copy of the Water Audit Worksheet is available at: [http://www.twdb.state.tx.us/assistance/conservation/Municipal/Water Audit/wald.asp](http://www.twdb.state.tx.us/assistance/conservation/Municipal/Water%20Audit/wald.asp)

Reference and attach water loss audit and/or any other completed planning or engineering studies:

- 2009 Municipal Water Use Survey
- 2010 Water Audit
- October 27, 2010 Summary Letter

Section 3.2 - Water Line Replacement

Proposed pipe to be replaced:

| Length (LF) | Existing Pipe | | | Proposed Pipe | |
|-------------|-----------------|----------|-----------|---------------|----------|
| | Material | Age (yr) | Dia. (in) | Dia. (in) | Material |
| 7,000 | Asbestos-Cement | n/a | 8 | 6 | PVC |
| 1,000 | Cast Iron | n/a | 8 | 6 | PVC |
| 1,000 | Asbestos-Cement | n/a | 6 | 6 | PVC |
| 1,000 | Cast Iron | n/a | 6 | 6 | PVC |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Percent of distribution lines being replaced: approximately 10 percent

Number of breaks/leaks/repairs recorded in past 24 months for areas being replaced : 60

Estimated water loss from pipe being replaced (provide calculations on following page): 1.8 million

Estimated annual water savings (provide calculations on following page): 1.2 million

Estimated annual cost savings (provide calculations on following page): \$104,000.00 in lost revenue

Provide detailed description of the propose improvements and provide supporting calculations. Description should include a description of the methodology used to select pipes for replacement (attach additional pages if necessary):

Replace pipe that is currently leaking in an effort to save water that is lost due to the leaking distribution system. The methodology used to select pipes for replacement are based upon past maintenance and repairs made by the City. Areas that were prone to leaks were given higher priority than those that have not experienced leaks. Also, those areas that have older pipe materials were selected to be replaced.

The lines preliminarily selected for replacement will be thoroughly reviewed during the planning phase of the project. Should additional information become available during that process that would warrant changing the location of line replacement, such changes will be made in the Final Engineering Design Report.

With the leaks fixed, less water will need to be pumped therefore reducing the overall amount of energy required. The attached Municipal Water Loss Survey provided to the TWDB by the City of Roscoe documents the estimated annual water loss of 18,318,540 gallons. At the current water rates (\$17.06 per 3,000 gallons) this equates to an annual lost revenue of approximately \$104,000.00.

Green amount associated with water line replacement: \$464,000.00
(Attach detailed cost estimate if necessary)

TEXAS WATER DEVELOPMENT BOARD
 Municipal Water Use Survey (Short Form) for the Calendar Year Ending December 31, 2009
 ANSWER SHEET

System Name: City of Roscoe
 Mailing Address: P. O. Box 340
Roscoe, Texas 75545
 TWDB Code: 742900
 Primary County: Nolan
 River Basin: _____
 TCEQ PWS Number: 1770001



RECEIVED
 JUL 12 2010

PUMPED GROUNDWATER (SELF-SUPPLIED)

| | SOURCE 1 | SOURCE 2 | SOURCE 3 | SOURCE 4 | SOURCE 5 |
|---------------------------|----------|----------|----------|----------|----------|
| 1. Aquifer Name | Edwards | | | | |
| 2. County Where Pumped | Nolan | | | | |
| 3. Number of Active Wells | 3 | | | | |
| | OR | OR | OR | OR | OR |

SURFACE WATER UNDER A TCEQ WATER RIGHT (SELF-SUPPLIED)

| 4. Reservoir or River | | | | | |
|------------------------|----|----|----|----|----|
| 5. County of Diversion | | | | | |
| 6. TCEQ Water Right # | | | | | |
| | OR | OR | OR | OR | OR |

PURCHASED WATER

| 7. Name of Water Provider | | | | | |
|---------------------------|-----|-----|-----|-----|-----|
| 8. Type of Water | | | | | |
| 9. Name of Source | | | | | |
| 10. Source County | | | | | |
| | AND | AND | AND | AND | AND |

VOLUME OF WATER INTAKE (IN GALLONS)

| | | | | |
|-------------------------|------------|--|--|--|
| 11. January | 3,827,000 | | | |
| 12. February | 3,484,000 | | | |
| 13. March | 4,392,000 | | | |
| 14. April | 4,721,000 | | | |
| 15. May | 3,520,000 | | | |
| 16. June | 5,004,000 | | | |
| 17. July | 5,764,000 | | | |
| 18. August | 5,851,000 | | | |
| 19. September | 4,348,000 | | | |
| 20. October | 8,721,000 | | | |
| 21. November | 3,387,000 | | | |
| 22. December | 4,180,000 | | | |
| 23. Total Annual Intake | 67,410,000 | | | |
| 24. Meters or Meters | | | | |
| 25. Meters (if any) | | | | |
| 26. Meters (if any) | | | | |

REUSE/TREATED EFFLUENT (SELF-SUPPLIED OR PURCHASED)

| | SOURCE 1 | SOURCE 2 | SOURCE 3 |
|--|----------|----------|----------|
| 27. Reuse Water Source (self-treated or purchased) | n/a | | |
| 28. Source County | n/a | | |
| 29. If Purchased, Seller's Name | n/a | | |
| 30. Direct or Indirect Reuse | n/a | | |
| 31. If Indirect Reuse, TCEQ Water Right Number | n/a | | |
| 32. Total Annual Volume (in gallons) | n/a | | |
| 33. Percent used for Irrigation | n/a | | |
| 34. Percent used for In-filtration | n/a | | |
| 35. Percent used for Agriculture | n/a | | |
| 36. Percent used for Other | n/a | | |

WHOLESALE WATER SALES TO OTHER WATER SYSTEMS

| | 37 Name of Buyer | 38 Type of Water | 39 Source of Water | 40 Source County | 41 Total Annual |
|--------|------------------|------------------|--------------------|------------------|-----------------|
| SALE 1 | n/a | n/a | n/a | n/a | n/a |
| SALE 2 | n/a | | | | |
| SALE 3 | n/a | | | | |

WHOLESALE WATER SALES TO INDUSTRIAL PRODUCTION FACILITIES

| | 42 Name of Buyer | 43 Type of Water | 44 Source of Water | 45 Source County | 46 Total Annual |
|--------|------------------|------------------|--------------------|------------------|-----------------|
| SALE 1 | n/a | | | | |
| SALE 2 | n/a | | | | |
| SALE 3 | n/a | | | | |

DIRECT RETAIL CONNECTIONS TO ADDITIONAL CITIES/COUNTIES

| | CITY 1 | CITY 2 | CITY 3 | CITY 4 | CITY 5 |
|--------------------------|--------|--------|--------|--------|--------|
| 47 City Name | n/a | | | | |
| 48 Number of Connections | n/a | | | | |

| | COUNTY 1 | COUNTY 2 | COUNTY 3 | COUNTY 4 | COUNTY 5 |
|--------------------------|----------|----------|----------|----------|----------|
| 49 County Name | | | | | |
| 50 Number of Connections | | | | | |

WATER SYSTEM INFORMATION

51 What is the estimated total full-time residential population served directly by this system? 1378

| | Total Connections (Metered & Unmetered) | Single-Family Residential (Including Duplexes) | Multi-Family Units (NOT Service Connections) | Commercial / Institutional | Other Metered Connections |
|-------------------------|---|--|--|----------------------------|---------------------------|
| 52 Total Connections | 494 | 437 | 1 | 49 | N/A |
| 53 Total Annual Revenue | N/A | 32,032,000 | 203,000 | 4,858,001 | |

54 What is the estimated volume (IN GALLONS) of the known unmetered water usage? 500,000

55 What is the water loss volume (IN GALLONS) for the system (include means all sales, metered sales, unmetered usage, and known unmetered sources)? 18,834,999

56 What is the total number of service connections that are unmetered? 1

Please complete or make any revisions to the areas below:

Contact Name: Cody Thompson
 Contact Title: City Administrator
 Email Address: _____
 Phone: 325-766-3871 Phone Extension: _____

Please provide any additional comments or remarks below. Attach additional sheets if needed.

TEXAS WATER DEVELOPMENT BOARD

P.O. BOX 13231, CAPITOL STATION

AUSTIN, TX 78711-3231

WATER AUDIT REPORTING FORM 2010

If further assistance is needed, contact Mark Mathis at Mark.Mathis@twdb.state.tx.us or 512.463.0987.

A. Water Utility General Information

1. Water Utility Name: CITY OF ROSCOE

2. Contact:

2a. Name Cody Thompson

2b. Telephone # (325)-766-3021

2c. Email Address codymt81@hotmail.com

3. Reporting Period: From 1/1/2010 To 12/31/2010

4. Source Water Utilization, percentage: Surface Water 0.00 % Ground Water 100.0 %
0

5. Population Served:

5a. Retail Population Served 1,271

5b. Wholesale Population Served 0

Assessment
Scale

6. Utility's Length of Main Lines, miles 20.00 5

7. Number of Wholesale Connections Served 0

8. Number of Retail Service Connections Served 543

9. Service Connection Density 27.15
(Number of retail service connections/Miles of main lines)

10. Average Yearly System Operating Pressure (psi) 80.00 5

11. Volume Units of Measure: G

B. System Input Volume

12. Water Volume from own Sources 52,860,000.00 5

13. Production Meter Accuracy (enter percentage) 98.00 % 4

14. Corrected Input Volume 53,938,775.51

15. Wholesale Water Imported 0.00 5

| | | |
|--|----------------------|---------------------|
| 16. Wholesale Water Exported | <u>0.00</u> | <u>5</u> |
| 17. System Input Volume (Corrected input volume, plus imported water, minus exported water) | <u>53,938,775.51</u> | |
| C. Authorized Consumption | | |
| | | Assessment Scale |
| 18. Billed Metered | <u>34,946,000.00</u> | <u>5</u> |
| 19. Billed Unmetered | <u>0.00</u> | <u>5</u> |
| 20. Unbilled Metered | <u>0.00</u> | <u>5</u> |
| 21. Unbilled Unmetered | <u>674,234.69</u> | <u>1</u> |
| 22. Total Authorized Consumption | <u>35,620,234.69</u> | |
| D. Water Losses | | |
| 23. Water Losses (Line 17 minus Line 22) | <u>18,318,540.82</u> | |
| E. Apparent Losses | | |
| 24. Average Customer Meter Accuracy (Enter percentage) | <u>98.00 %</u> | <u>3</u> |
| 25. Customer Meter Accuracy Loss | <u>713,183.67</u> | |
| 26. Systematic Data Handling Discrepancy | <u>349,460.00</u> | <u>1</u> |
| 27. Unauthorized Consumption | <u>134,846.94</u> | <u>1</u> |
| 28. Total Apparent Losses | <u>1,197,490.61</u> | |
| F. Real Losses | | |
| 29. Reported Breaks and Leaks (Estimated volume of leaks & breaks repaired during the audit period) | <u>800,000.00</u> | <u>3</u> |
| 30. Unreported Loss (Includes all unknown water loss) | <u>16,321,050.21</u> | <u>3</u> |
| 31. Total Real Losses (Line 29, plus Line 30) | <u>17,121,050.21</u> | |
| 32. Water Losses (Apparent + Real) (Line 28 plus Line 31) = Line 23 | <u>18,318,540.82</u> | |
| 33. Non-revenue Water (Water Losses + Unbilled Authorized Consumption) | <u>18,992,775.51</u> | |

(Line 32, plus Line 20, plus Line 21)

G. Technical Performance Indicator for Apparent Loss

34. Apparent Losses Normalized 6.04
(Apparent Loss Volume/# of Retail Service Connections/365)

H. Technical Performance Indicators for Real Loss

35. Real Loss Volume (Line 31) 17,121,050.21

36. Unavoidable Annual Real Losses, volume (calculated) 5,531,940.00

37. Infrastructure Leakage Index (calculated) 3.09495
(Equals real loss volume divided by unavoidable annual real losses)

38. Real Losses Normalized 86.38
(Real Loss Volume/# of Service Connections/365)
(This indicator applies if service connection density is greater than 32/mile)

39. Real Losses Normalized 2,345.35
(Real Loss Volume/Miles of Main Lines/365)
(This indicator applies if service connection density is less than 32/mile)

I. Financial Performance Indicators

Assessment
Scale

40. Total Apparent Losses (Line 28) 1,197,490.61

41. Retail Price of Water \$0.00330 5

42. Cost of Apparent Losses \$3,951.72
(Apparent loss volume multiplied by retail cost of water, Line 40 x Line 41)

43. Total Real Losses (Line 31) 17,121,050.21

44. Variable Production Cost of Water* \$0.00330 4
(*Note: in case of water shortage, real losses might be valued at the retail price of water instead of the variable production cost.)

45. Cost of Real Losses \$56,499.47
(Real Loss multiplied by variable production cost of water, Line 43 x Line 44)

46. Total Assessment Scale 65

47. Total Cost Impact of Apparent and Real Losses \$60,451.19



October 27, 2010

Mr. John J. Muras, P.E.
Texas Water Development Board
1700 N. Congress Avenue
P.O. Box 13231
Austin, Texas 78711-3231

**Re: Roscoe, Texas – 2011 TWDB DWSRF Water System Improvements
Green Project Reserve**

Dear Mr. Muras:

The full scope of the 2011 TWDB DWSRF Water System Improvements project includes the construction of a reverse osmosis water treatment system to remove nitrates from the City's well water. The reverse osmosis facility will incorporate a building to house the treatment equipment, a piping system to collect the well water from the individual well locations and transport it to the treatment process, and a system to dispose of the waste stream generated by the treatment process. In addition to the reverse osmosis system, the City proposes to replace a portion of the existing water mains that have become problematic for the City. This is the section of the project that falls within the Green Project Reserve.

This project as submitted proposes the replacement of approximately 10,000 linear feet of dilapidated water line in the City of Roscoe. These lines are shown in the attached drawing and are located along various streets along the southern boundary of the City as well as run north along Main Street. The existing lines are both 6-inch and 8-inch lines made up of PVC, cast-iron, asphalt-concrete, and asbestos-cement piping.

There has been minimal work done to the City's water system over the years. Minor improvements have been made as leaks have occurred, but overall the system still needs major improvements. Additionally, as improvements have been made, all residents have not been removed from the old line and connected to the new. This creates problems as the old dilapidated lines are still in service and customers continue to have problems with poor service and the City continues to experience water loss.

It is proposed that approximately 10,000 linear feet of cast-iron and asbestos-cement line be replaced with PVC pipe. The locations that were chosen to be replaced were locations that historically have experienced problems with leaks and are problematic for the City. By replacing these currently leaking pipes, less water will need to be pumped and will therefore not only be saving the City in water costs but will be reducing the overall energy required. The lines preliminarily selected for replacement will be thoroughly reviewed during the planning phase of the project. Should additional information become available during that process that would warrant changing the location of line replacement, such changes will be made in the Final Engineering Design Report.

Environmental, Civil & Geotechnical Engineers

Abilene Office
402 Cedar
Abilene, Texas 79601
P.O. Box 3097
Abilene, Texas 79604
325.698.5560 | 325.691.0058 fax

Lubbock Office
6310 Genoa Avenue, Suite E
Lubbock, Texas 79424
806.794.1100 | 806.794.0778 fax

Granbury Office
1301 Crawford Ave.
Granbury, Texas 76048
817.579.6791 | 817.579.8491 fax

Plano Office
One Preston Park
2301 Ohio Drive, Suite 105
Plano, Texas 75093
972.599.3480 | 972.599.3513 fax

www.e-ht.com

Firm Registration No. 1151

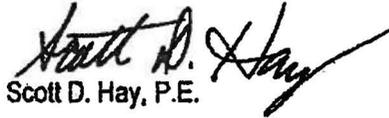


Mr. John J. Muras, P.E.
October 27, 2010
Page 2

With this Business Case is a copy of the completed Green Project Information Worksheets. Thank you for your review of the attached documents. If you should have any questions, or require additional information, please contact me at (325) 698-5560.

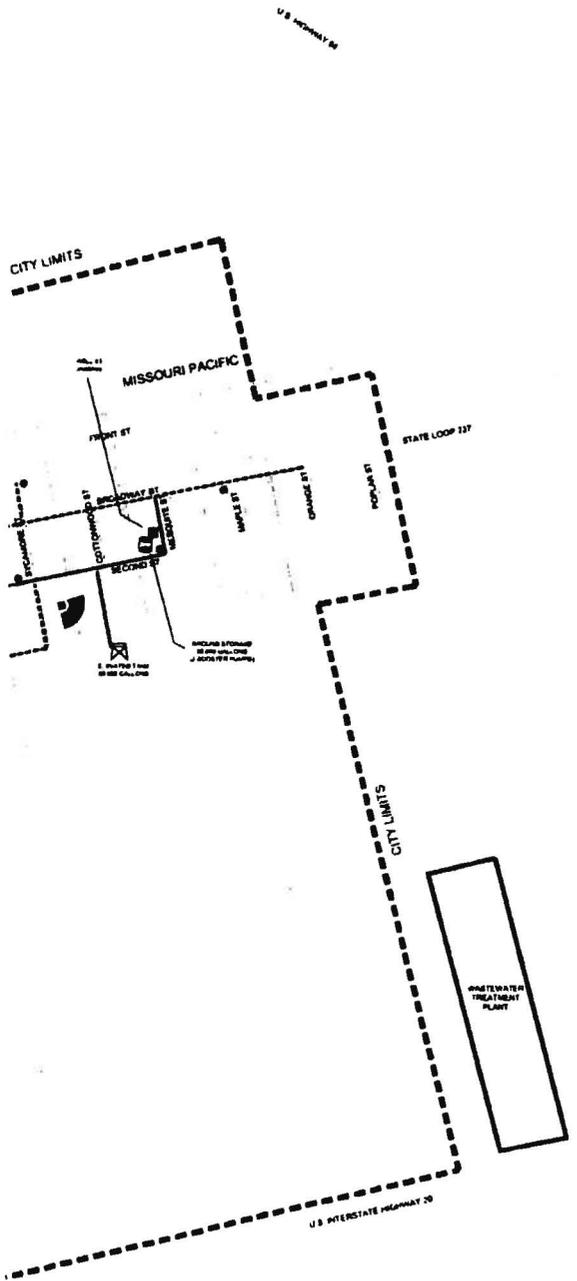
Sincerely,

Enprotec / Hibbs & Todd, Inc.


Scott D. Hay, P.E.

c: Cody Thompson, City Manager, Roscoe, Texas
Project File 5084

P:\Projects\Roscoe, City of\5084 2011 DWSRF Water System Improvements\1. General Correspondence\102610 Green Project Reserve.doc



- LEGEND**
- CITY PARK
 - WATER TOWER
 - SCHOOL
 - CHURCH
 - CITY HALL
 - POST OFFICE
 - HEALTH CENTER
 - ROSCOE MUSEUM
 - ROSCOE COMMUNITY CENTER

EXISTING WATER SYSTEM

- PROPOSED 6" O.D. PVC WATER LINE
- EXISTING 6" WATER MAIN
- 84" EXISTING WATER MAIN
- PVC LINE
- CAST-IRON LINE
- ASPHALT-CONCRETE LINE
- SCH 40
- SUPPLY LINE
- EXISTING ELEVATED WATER STORAGE TANK
- EXISTING GROUND STORAGE TANK
- EXISTING WELL
- EXISTING FIRE HYDRANT

ATTENTION

BE CAREFUL TO CHECK FOR ANY LINES AND MARKS REPRESENTING UTILITIES BEFORE ANY CONSTRUCTION AND BEFORE ANY EXCAVATION OR OTHER CONSTRUCTION OPERATIONS. CITY ENGINEERS SHALL BE CONTACTED TO DETERMINE THE EXACT LOCATION OF ALL LINES AND MARKS REPRESENTING UTILITIES.

ENPROTEC/HIBBS & TODD, INC.
 ENVIRONMENTAL AND CIVIL ENGINEERING
 402 Cedar Street
 Austin, Texas, 78701
 P.E. Registration No. 1181

**2011 DWSRF
 WATER SYSTEM IMPROVEMENTS
 FOR THE
 CITY OF ROSCOE, TEXAS**

10-5084
 PROJECT NO.
 10.26.2010
 DATE
 JJP
 DESIGNED BY
 IK
 DRAWN BY
 VJH
 CHECKED BY
 1 OF 1

