

## Solicitation 04179-11

# Construction, Myers Park Pump Station and Ground Storage Tank Project



Collin County

## Bid 04179-11

# Construction, Myers Park Pump Station and Ground Storage Tank Project

Bid Number 04179-11  
 Bid Title Construction, Myers Park Pump Station and Ground Storage Tank Project

Bid Start Date In Held  
 Bid End Date Aug 4, 2011 2:00:00 PM CDT  
 Question & Answer End Date Jul 29, 2011 5:00:00 PM CDT

Bid Contact Leslie Harper, CPPB  
 Contract Administrator  
 Collin County Purchasing  
 972-548-4122  
 lharper@co.collin.tx.us

Contract Duration 60 days  
 Contract Renewal Not Applicable  
 Prices Good for 30 days  
 Pre-Bid Conference Jul 22, 2011 9:00:00 AM CDT

**Attendance is mandatory**

Location: A MANDATORY PRE-BID CONFERENCE will be held by Collin County at the Myers Park Conference Room located at 7117 CR 166, McKinney, TX 75071 on July 22, 2011 at 9:00 am in order for bidders to ask questions regarding the proposed work. All bidders desiring to bid the work should have a representative at the pre-bid conference; bidders that do not attend the pre-bid conference shall not be considered in the evaluation for award of a contract per Texas Local Government Code 262.0256. Attendance shall be mandatory at the pre-bid conference.

Standard Disclaimer \*\*\*Note to Bidders/Offerors~The following standard disclaimer applies to Invitation to Bid (IFB), Competitive Sealed Proposal (CSP), and Request for Proposal (RFP) ONLY, not applicable to Request for Qualifications (RFQ) or Request for Information (RFI).\*\*\*

Prices bid/proposed shall only be considered if they are provided in the appropriate space(s) on the Collin County bid form(s). For consideration, any additions or deductions to the bid/proposal prices offered must be shown under the exceptions section of the bid/proposal in the case of electronic submittal, ONLY in the case of a hard copy submittal will an additional attachment be allowed. Extraneous numbers, prices, comments, etc. or bidder/offeror generated documents appearing elsewhere on the bid or as an additional attachment shall be deemed to have no effect on the prices offered in the designated locations.

All delivery and freight charges (F.O.B. inside delivery at Collin County designated locations) are to be included as part of the bid/quote/proposal price. All components required to render the item complete, installed and operational shall be included in the total bid/quote/proposal price. Collin County will pay no additional freight/delivery/installation/setup fees.

Bid Comments Contract will be a general contract for construction of booster pump station, ground storage tank, water well pump repair and yard piping.

Item Response Form

Item **04179-11--01-01 - Galvanized Steel Storage Tank**  
 Quantity **1 lump sum**  
 Unit Price   
 Delivery Location **Collin County**  
Collin County - See P.O.  
 2300 Bloomdale Rd., Ste. 3160  
 \*\* See P.O. for Job Site \*\*  
 McKinney TX 75071  
**Qty 1**

**Description**

Furnish and install 33,000 gallon bolted galvanized steel storage tank with appurtenances as specified.

Item **04179-11--01-02 - Pump Station Building Construction**  
 Quantity **1 lump sum**  
 Unit Price   
 Delivery Location **Collin County**  
Collin County - See P.O.  
 2300 Bloomdale Rd., Ste. 3160  
 \*\* See P.O. for Job Site \*\*  
 McKinney TX 75071  
**Qty 1**

**Description**

Construct complete pump station building with appurtenances as specified.

Item **04179-11--01-03 - Electrical Controls**  
 Quantity **1 lump sum**  
 Unit Price   
 Delivery Location **Collin County**  
Collin County - See P.O.  
 2300 Bloomdale Rd., Ste. 3160  
 \*\* See P.O. for Job Site \*\*  
 McKinney TX 75071  
**Qty 1**

**Description**

Furnish and install electrical & controls for well & pump station building with appurtenances as specified.

Item **04179-11--01-04 - Yard Piping**  
 Quantity **1 lump sum**  
 Unit Price   
 Delivery Location **Collin County**  
Collin County - See P.O.  
 2300 Bloomdale Rd., Ste. 3160  
 \*\* See P.O. for Job Site \*\*  
 McKinney TX 75071  
**Qty 1**

**Description**

Furnish and install yard piping with appurtenances as specified.

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Item **04179-11--01-05 - Chlorination Equipment**

Quantity **1 lump sum**

Unit Price

Delivery Location

**Collin County**

Collin County - See P.O.

2300 Bloomdale Rd., Ste. 3160

\*\* See P.O. for Job Site \*\*

McKinney TX 75071

**Qty 1**

**Description**

Furnish and install chlorination equipment with appurtenances as specified.

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Item **04179-11--01-06 - Wellhead Piping**

Quantity **1 lump sum**

Unit Price

Delivery Location

**Collin County**

Collin County - See P.O.

2300 Bloomdale Rd., Ste. 3160

\*\* See P.O. for Job Site \*\*

McKinney TX 75071

**Qty 1**

**Description**

Furnish and install wellhead piping with appurtenances as specified.

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Item **04179-11--01-07 - Repair Water Well Pump and Motor**

Quantity **1 lump sum**

Unit Price

Delivery Location

**Collin County**

Collin County - See P.O.

2300 Bloomdale Rd., Ste. 3160

\*\* See P.O. for Job Site \*\*

McKinney TX 75071

**Qty 1**

**Description**

Pull and repair water well pump and motor and reinstall water well pump and motor, electrical cable & column pipe with appurtenances as specified.

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Item **04179-11--01-08 - Deduct Construction of Pump Station Building**

Quantity **1 lump sum**

Unit Price

Delivery Location

**Collin County**

Collin County - See P.O.

2300 Bloomdale Rd., Ste. 3160

\*\* See P.O. for Job Site \*\*

McKinney TX 75071

**Qty 1**

**Description**

Deduct for the construction of pump station building.



**CONTRACT DOCUMENTS AND SPECIFICATIONS**

FOR

**MYERS PARK PUMP STATION and  
GROUND STORAGE TANK PROJECT**

TO SERVE

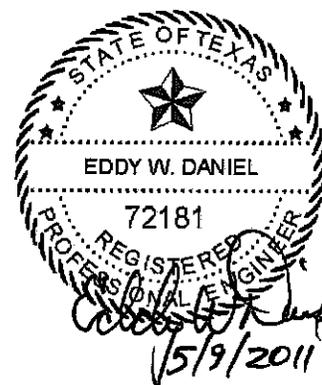
**COLLIN COUNTY**

**COLLIN COUNTY, TEXAS**

April 2011



**DANIEL & BROWN INC.**  
ENGINEERS/CONSULTANTS/PLANNERS  
P.O. Box 606, Farmersville, Texas 75442  
972-784-7777  
FIRM REGISTRATION #: F-002225



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**SECTION 00100 - ADVERTISEMENT FOR BIDS**

BY ORDER OF the Collin County Commissioners Court, Collin County, Texas, bids will be received electronically through the BidSync web site located at [www.bidsync.com](http://www.bidsync.com). Bidders are encouraged to submit bids electronically by utilizing the BidSync System. However, you may submit a sealed hard copy paper bid to the Office of the Collin County Purchasing Agent. All bids, both electronic or hard copy paper form must be submitted as stated below:

**SUBMIT BIDS HARD COPY PAPER  
BIDS TO:**

Office of the Purchasing Agent  
Collin County Administration Building  
2300 Bloomdale Road, Suite 3160  
McKinney, Texas 75071

**\*\*NOTE:**

All Correspondence must include suite number to assist in proper delivery.\*\*

**SUBMIT NO LATER THAN:**

2:00 P.M., Thursday, August 4, 2011

**MARK ENVELOPE:**

IFB No. 04179-11  
Construction, Myers Park Pump Station and  
Ground Storage Tank Project

***ALL BIDS MUST BE RECEIVED IN THE OFFICE OF THE PURCHASING AGENT  
BEFORE OPENING DATE AND TIME***

SCOPE OF WORK INCLUDES all materials, labor, equipment and services to produce or be incorporated in such construction. Contract will be a general contract for construction of booster pump station, ground storage tank, water well pump repair and yard piping.

Payment for the contract work shall be made pursuant to the terms of the Contract Documents.

Collin County uses BidSync for the notification and dissemination of all solicitations for commodities and services. The receipt of solicitations through any other company may result in your receipt of incomplete specifications and/or addendums which could ultimately render your bid non-compliant. Collin County accepts no responsibility for the receipt and/or notification of solicitations through any other company.

COLLIN COUNTY APPRECIATES your time and effort in preparing a bid. Hard copy paper bid must be in a separate sealed envelope, manually signed in ink by a person having the authority to bind the firm in a contract and marked clearly on the outside as outlined above. Please note that all bids must be received at the designated location by the deadline shown. Bids received after deadline shall be considered void and unacceptable. Collin County is not responsible for lateness of mail, carrier, etc. and time/date stamp clock in the Collin County Purchasing Department shall be the official time of receipt. All bid forms provided in this Invitation for Bid must be completed prior to submission. Failure to complete the forms shall render your bid null and void. We

would appreciate you indicating on your "NO BID" response any requirements of this bid request which may have influenced your decision to "NO BID".

BIDS WILL BE publicly opened in the Office of the Purchasing Agent, 2300 Bloomdale Rd, Suite 3160, McKinney, TX 75071, at the date and time indicated above.

A MANDATORY PRE-BID CONFERENCE will be held by Collin County at the Myers Park Conference Room located at 7117 CR 166, McKinney, TX 75071 on July 22, 2011 at 9:00 am in order for bidders to ask questions regarding the proposed work. All bidders desiring to bid the work should have a representative at the pre-bid conference; bidders that do not attend the pre-bid conference shall not be considered in the evaluation for award of a contract per Texas Local Government Code 262.0256. Attendance shall be mandatory at the pre-bid conference.

Immediately following the pre-bid there will be an opportunity to view the job site. No other dates will be available to view the site.

No oral, telegraphic, telephonic or facsimile bids will be considered. IFB's, RFP's, RFQ's and RFI's may be submitted in electronic format via BidSync at [www.bidsync.com](http://www.bidsync.com).

**BID SECURITY:** All Bidders must submit, prior to the bid opening time, a Cashier's Check or acceptable Bid Bond payable without recourse to Collin County in the amount of not less than five percent (5%) of the total bid plus alternates as submitted.

1. Bid Bond or Cashier's Check may be mailed or hand delivered to the Office of the Collin County Purchasing Agent, Collin County Administration Building, 2300 Bloomdale Road, Ste 3160, McKinney, TX 75071 and shall be delivered in an envelope, marked plainly on the outside with the Bid Name and Number.
2. Bid Bond may be faxed to the Purchasing Department at 972-548-4694.
3. Bid Bond may be e-mailed to: [lharp@collincountytexas.gov](mailto:lharp@collincountytexas.gov)

Regardless of delivery method, all Bid Bonds shall be received prior to the bid opening time to be considered.

The original Bid Bond shall be received in the Collin County Purchasing Department **no later than** close of business on the third working day after the bid opening. Late receipt of original Bid Bond shall be cause for rejection of bid.

**BONDS:** Contractor must furnish a performance bond, payment bond, and a one (1) year maintenance bond within ten (10) consecutive calendar days following award of contract. The bonds shall be issued by a corporate surety in accordance with all Texas Law, including but not limited to, Chapter 2253 of the Texas Government Code and Chapter 3503 of the Texas Insurance Code, for public works projects.

**INFORMATION AND BIDDING DOCUMENTS:** Drawings, specifications, instructions to bidders, and bidding and contract documents may be examined without charge at the following locations:

Daniel & Brown, Inc.  
118 McKinney Street  
Farmersville, TX 75442  
Phone: (972) 784-7777  
Fax: (972) 782-7721

FW Dodge McGraw Hill  
9155 Sterling Dr.  
Suite 160  
Irving, Texas 75063  
Phone: (972) 819-1310  
Fax: (775) 429-0593

iSqFt  
14109 Inwood Rd.  
Dallas, Texas 75244  
Phone: (888) 601-5761  
Fax: (866) 570-8187

North Texas Construction Report  
2828 Trinity Mills Pkwy., Suite 330  
Carrollton, Texas 75006  
Phone: (972) 820-9020  
Fax: (972) 820-8910

BIDDERS MAY SECURE copies of the Bidding Documents for \$50.00 per set from the office of the engineer – Daniel & Brown Inc., 118 McKinney Street, Farmersville, Texas, Phone: (972) 784-777, Fax: (972) 782-7721.

Partial sets of Drawings and Specifications will not be available.

**END OF SECTION**

**Revised 11/2008**

## SECTION 00200 - INSTRUCTIONS TO BIDDERS

### PART 1 - GENERAL REQUIREMENTS

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

#### 1.2 DEFINITIONS

- A. All definitions set forth in the General Conditions of the Contract for Construction or in other Contract Documents are applicable to these Bidding Documents.
- B. Bidding Documents include the Advertisement or Invitation for Bids, Instructions to Bidders, the bid form, other sample bidding and contract forms and the proposed Contract Documents including any Addenda issued prior to receipt of bids.
- C. Addenda are written or graphic instruments issued prior to the opening of the Bidding Documents, which modify or interpret the Bidding Documents, including Drawings and Specifications, by additions, deletions, clarifications or corrections. Addenda will become part of the Contract Documents when the Construction Contract is executed.
- D. "Eddy Daniel, P.E." will be hereafter referred to in the Project Manual as "Engineer" and all correspondence shall be addressed to: Eddy Daniel, P.E., Daniel & Brown, Inc. P.O. Box 606, Farmersville, TX 75442.
- E. "David Rogers" will be hereinafter referred to in this Project Manual as "Project Manager".
- F. "Collin County" will be hereafter referred to in this Project Manual as "Owner".
- G. A Bid is a complete and properly signed submittal to do the Work for designated portion thereof for the sums stipulated therein, submitted in accordance with the Bidding Documents.
- H. The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which work may be added or from which work may be deleted for sums stated in Alternate Bids.
- I. An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid in the corresponding change in the Work, as described in the Bidding Documents or in the proposed Contract Documents.
- J. A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials or service as described in the Bidding Documents or in the proposed Contract Documents.
- K. A Bidder is a person or entity who submits a Bid.
- L. A Sub-Bidder is a person or entity who submits a bid to a Bidder for materials or labor for a portion of the work.
- M. A Contractor is a person or entity who is determined to be the lowest responsible and responsive bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.

- N. The Bid Requirements and Other General Conditions, as provided under the Division of the North Central Texas Council of Governments Standard Specifications for Public Works Construction will be applicable to this project, unless noted otherwise in the Contract Documents

### 1.3 EXAMINATION OF DOCUMENTS AND SITE

- A. Each bidder, by making his/her Bid, represents that he/she has read and understands the Bidding Documents.
- B. Each Bidder, by making his/her Bid, represents that he/she has visited the site, performed investigations and verifications as he/she deems necessary, and familiarized himself/herself with the local conditions under which the Work is to be performed and will be responsible for any and all errors in his/her bid resulting from his/her failure to do so.
- C. The location and elevations of the various utilities and pipe work included within the scope of the work are offered as a general guide only, without guarantee as to accuracy. The Contractor shall verify and investigate to his/her own satisfaction the location and elevation of all utilities, pipe work, and the like and shall adequately inform himself/herself of their relation to the work before submitting a bid.
- D. Before submitting a bid each bidder will, at bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information (surface, subsurface, and underground facilities) at or contiguous to the site, or otherwise which may affect cost, progress, performance or furnishing of the work and which bidder deems necessary to determine its bid for performing and furnishing the work in accordance with the time, price and other terms and conditions of the Contract Documents. Bidder will rely solely on its own site investigation and assumes the risk of any site conditions not discovered that may result in additional costs and all errors in the bid.
- E. On request in advance, Owner will provide each bidder access to the site to conduct explorations and tests as each bidder deems necessary for submission of a bid. Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations.
- F. The lands upon which the work is to be performed, right-of way and easement for access thereto and other lands designated for use by Contractor in performing the work are identified in the Contract Documents.
- G. Each bidder by making his/her bid represents that his/her bid is based upon the materials, systems, and equipment required by the Bidding Documents without exception.

### 1.4 BIDDING DOCUMENTS

- A. Complete sets of Bidding Documents shall be used in preparing bids; neither County, nor Engineer assume any responsibility for errors or misinterpretations resulting from use of incomplete sets of Bidding Documents.
- B. County or the Engineer, in making copies of the Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

### 1.5 BIDDING PROCEDURES

- A. All bids shall be prepared on the forms provided by the Engineer and submitted in accordance with the Instruction to Bidders. The Engineer or owner will furnish bidders with

bid forms which will provide for the following bid items. Bidders shall provide all requested information. Prices bid/proposed shall *only* be considered if they are provided in the appropriate space(s) on the Collin County bid form(s). For consideration, any additions or deductions to the bid/proposal prices offered must be shown under the exceptions section of the bid/proposal in the case of electronic submittal, **ONLY** in the case of a hard copy submittal will an additional attachment be allowed. Extraneous numbers, prices, comments, etc. or bidder/offeror generated documents appearing elsewhere on the bid or as an additional attachment shall be deemed to have no effect on the prices offered in the designated locations.

1. A single contract price for each bid item as detailed and described in these specifications.
  2. Acknowledgment of Addenda.
  3. Number of consecutive calendar days to complete project.
  4. Additional price if a performance bond is required.
  5. Alternate bids.
  6. Unit prices.
- B. A bid (electronic or hard copy) is invalid if it has not been deposited at the designed location prior to the time and date for receipt of bids indicated in the Advertisement or Invitation For Bid, or prior to any extension thereof issued to the bidders. Bids received in County Purchasing Department after submission deadline shall be returned unopened and will be considered void and unacceptable. Owner is not responsible for lateness of mail, carrier, etc. and time/date stamp clock in County Purchasing Department shall be the official time of receipt.
- C. Unless otherwise provided in any supplement to these Instructions to Bidders, no bidder shall modify, withdraw or cancel his/her bid or any part thereof for ninety (90) consecutive calendar days after the time designated for the receipt of bids in the Advertisement or Invitation For Bid.
- D. Bids shall not contain any recapitulation of the Work to be done.
- E. The Bidder shall make no additional stipulations on the Bid Form nor limit or qualify his/her bid in any other manner. Bids so qualified will be subject to disqualification.
- F. Collin County is by statute exempt from the State Sales Tax and Federal Excise Tax; therefore, the prices submitted shall not include taxes.

## 1.6 DISCREPANCIES AND AMBIGUITIES

Any interpretations, corrections and/or changes to an Invitation For Bid and related Specifications or extensions to the opening/receipt date will be made by addenda to the respective document by the Collin County Purchasing Department. Questions and/or clarification requests must be submitted no later than seven (7) days prior to the opening/receipt date. Those received at a later date may not be addressed prior to the public opening. Sole authority to authorize addenda shall be vested in Collin County Purchasing Agent as entrusted by the Collin County Commissioners' Court. Addenda may be transmitted electronically via BidSync, by facsimile, E-mail transmission or mailed via the US Postal Service.

- 1.6.1 Addenda will be transmitted to all that are known to have received a copy of the IFB and related Specifications. However, it shall be the sole responsibility of the Bidder to verify issuance/non-issuance of addenda and to check all avenues of document availability (i.e. BidSync at [www.bidsync.com](http://www.bidsync.com); telephoning Purchasing Department directly, etc.) prior to

opening/receipt date and time to insure Bidder's receipt of any addenda issued. Bidder shall acknowledge receipt of all addenda.

## 1.7 SUBSTITUTIONS

- A. Each bidder represents that his/her bid is based upon the materials and equipment described in the Bidding Documents.
- B. No substitution will be considered unless written request has been submitted to the Engineer for approval at least seven (7) consecutive calendar days prior to the date for receipt of bids.
- C. If the Engineer and Owner approves a proposed substitution, such approval will be set forth in an Addendum.

## 1.8 QUALIFICATION OF BIDDERS

- A. Within seven (7) consecutive calendar days following bid opening, the apparent low bidder shall submit with a properly executed Contractor's Qualification Statement as evidence to establish bidder's financial responsibility, experience and possession of such equipment as may be needed to prosecute the work in an expeditious, safe and satisfactory manner. This Statement shall include:
  - 1. List of current projects.
  - 2. List of projects completed within the past five years.
  - 3. Experience of key individuals of the organization.
  - 4. Trade and Bank references.
  - 5. A recent financial statement to confirm that the bidder has suitable financial status to meet obligations incidental to performing the work. Audited financial statements are not mandatory. Unaudited financial statements will be accepted. If bidder's firm does, however, have audited statements, please include a copy with your bid.
  - 6. A statement of cost for each major item of Work included in the Bid.
  - 7. A designation of the Work to be performed by the Bidder with his/her own forces.
  - 8. A list of names of the Subcontractors or other persons or organizations (including those who are to furnish materials or equipment fabricated to a special design) proposed for each portion of the Work. The Bidder will be required to establish to the satisfaction of the Engineer and Owner the reliability and responsibility of the proposed Subcontractors. Prior to the award of the Contract, the Engineer will notify the Bidder in writing if either the County or the Engineer, after due investigation, has reasonable and substantial objection to any person or organization on such lists. If Owner or Engineer has a reasonable and substantial objection to any person or organization on such list, and refuses in writing to accept such person or organization, the Bidder may, at his/her option, withdraw his/her Bid without forfeiture of Bid Security or provide an acceptable substitute. Subcontractors and other persons and organizations proposed by the Bidder and accepted by Owner and Engineer must be used on the Work for which they were proposed and accepted, and shall not be changed except with the written approval of Owner and the Engineer.
- B. Bidders may be disqualified and their bids not considered for any of the following specific reasons:
  - 1. Reason for believing collusion exists among bidders.
  - 2. The bidder being interested in any litigation against Owner.
  - 3. The bidder being in arrears on any existing contract or having defaulted on a previous contract.
  - 4. Lack of competency as revealed by the financial statement, experience and equipment, questionnaires, or qualification statement.

5. Uncompleted work which in the judgment of Owner will prevent or hinder the prompt completion of additional work if awarded.
- C. Minimum Standards For Responsible Prospective Bidders: A prospective Bidder must meet the following minimum requirements:
1. have adequate financial resources, or the ability to obtain such resources as required;
  2. be able to comply with the required or proposed delivery/ completion schedule;
  3. have a satisfactory record of performance;
  4. have a satisfactory record of integrity and ethics; and
  5. be otherwise qualified and eligible to receive an award.

Collin County may request representation and other information sufficient to determine Bidder's ability to meet these minimum standards listed above.

- D. In determining to whom to award the contract, the Owner may consider;
1. the purchase price;
  2. the reputation of the bidder/contractor/vendor and of the bidder/contractor/vendor's goods or services;
  3. the quality of the bidder/contractor/vendor's goods or services;
  4. the extent to which the goods or services meet the Owner's needs;
  5. the bidder/contractor/vendor's past relationship with the Owner;
  6. the total long-term cost to the Owner to acquire the bidder/contractor/vendor's goods or services; and
  7. any other relevant factors specifically listed in the Instruction to Bidders..

## 1.9 PREPARATION OF BID

- A. Bidder shall submit his/her bid on the forms furnished by the Engineer. All blank spaces in forms shall be correctly filled in and the bidder shall state the prices, written in words and in figures. Where there is discrepancy between the price written in words and the price written in figures, the price written in words shall govern. If bid is submitted by an individual, his/her name must be signed by him/her or his/her duly authorized agency. If the bid is submitted by a firm, association or partnership, the name and address of each member must be given, and the bid must be signed by an official or duly authorized agent. Powers of attorney authorizing agents or others to sign bids must be properly certified and must be in writing and submitted with the bid.
- B. Bidder shall bear any/all costs associated with it's preparation of any bid, proposal or submittal.
- C. Public Information Act: Collin County is governed by the Texas Public Information Act, Chapter 552 of the Texas Government Code. All information submitted by prospective bidders during the bidding process is subject to release under the Act.

- D. The Bidder shall comply with Commissioners' Court Order No. 2004-167-03-11, County Logo Policy.

#### 1.10 BID SECURITY

- A. Each bid must be accompanied by Bid Security (in accordance with instructions set forth in section 00100-Advertisement For Bids) made payable to Owner in an amount of five percent (5%) of the bidder's maximum bid price and in the form of a Cashier's Check or a Bid Bond, duly executed by bidder as principal and having as surety thereon, a corporate surety authorized and admitted to do business in the State of Texas and licensed to issue such bond, as a guarantee that the bidder will enter into a Contract and execute required Performance, Payment, and one (1) year Maintenance Bonds within ten (10) consecutive calendar days of Collin County Commissioners' Court award of Contract.
- B. The Bid Security of the contractor will be retained until such bidder has executed the Contract Agreement and furnished the required Contract Security, whereupon, the Bid Security will be returned. If the contractor fails to execute and deliver the Agreement and furnish the required Contract Security within ten (10) consecutive calendar days of Collin County Commissioners' Court award of Contract, Owner may annul the award of contract and the Bid Security of that bidder will be forfeited. The Bid Security of the other bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the seventh (7th) consecutive calendar day after the effective date of the Agreement or the ninety-fifth (95th) consecutive calendar day after the bid opening, whereupon, the Bid Security furnished by such bidders will be returned. Bid Security with bids which are not competitive will be returned within seven (7) consecutive calendar days after the contract award.
- C. Should the bidder to whom the Contract is awarded refuse or neglect to execute and file the contract and bonds within ten (10) consecutive calendar days of Collin County Commissioners' Court award of Contract, Owner may annul award of Contract and the Bid Security filed with the bid shall become the property of Owner, not as a penalty, but as liquidated damages. Owner reserves the right to award canceled Contract to next responsible, lowest and best bidder as it deems to be in the best interest of the County.
- D. Owner will have the right to retain the bid security of all bidders until either:
1. the Contract has been executed and the bonds have been furnished, or
  2. the specified time has elapsed so that bids may be withdrawn, or
  3. all bids have been rejected.

#### 1.11 PERFORMANCE BOND, LABOR & MATERIAL PAYMENT BOND

- A. The Contractor shall post with Owner, not later than ten (10) consecutive calendar days of Collin County Commissioners' Court award of Contract, a Performance Bond in the amount of one hundred percent (100%) of the total contract price in such form as is satisfactory to Owner, in compliance with Chapter 2253 of the Texas Government Code and all other applicable Texas Law, and on the form specified in the Contract Documents. This bond shall be executed by a corporate surety company duly authorized and admitted to do business in the State of Texas and licensed to issue such a bond in the State of Texas. The Contractor shall notify its corporate surety of any Contract changes.
- B. The Contractor shall post with Owner, not later than ten (10) consecutive calendar days of Collin County Commissioners' Court award of Contract, a Payment Bond in the amount of one hundred percent (100%) of the total contract price in such form as is satisfactory to Owner, in compliance with Chapter 2253 of the Texas Government Code and all other

applicable Texas Law, and on the form specified in the Contract Documents. This bond shall be executed by a corporate surety company duly authorized and admitted to do business in the State of Texas and licensed to issue such a bond in the State of Texas. The Contractor shall notify its corporate surety of any Contract changes.

- C. The Contractor shall post with Owner, not later than ten (10) consecutive calendar days of Collin County Commissioners' Court award of Contract, a Maintenance Bond in the amount of ten percent (10%) of the total contract price in such form as is satisfactory to Owner, in compliance with Chapter 2253 of the Texas Government Code and all other applicable Texas Law, and on the form specified in the Contract Documents. This bond shall be executed by a corporate surety company duly authorized and admitted to do business in the State of Texas and licensed to issue such a bond in the State of Texas. The Contractor shall notify its corporate surety of any Contract changes.
- D. The Contractor must demonstrate to Owner that it can secure the required performance and payment bonds, issued by a corporate surety company authorized and admitted to do business in the State of Texas and licensed to issue such a bond in the State of Texas. Contractor must also demonstrate that the bond is not in excess of ten percent (10%) of the corporate surety company's capital and surplus. To the extent the amount of the bond exceeds ten percent (10%) of the corporate surety company's capital and surplus, such bond will not be accepted unless bidder provides written certification that the corporate surety company has reinsured the portion of the risk that exceeds ten percent (10%) of the corporate surety company's capital and surplus with one or more insurers who are duly authorized, accredited or trusted to do business in the State of Texas. The amount reinsured by any reinsurer must not exceed ten percent (10%) of the reinsurer's capital and surplus.
- E. The Contractor must file with the performance bond and payment bond, all documents and information necessary to establish that the agent signing the bond is authorized to write the bond in the amount requested, and if applicable, that reinsurance requirements, have been met, including limits and ratings or other evidence of company solvency.
- F. If the corporate surety company on any bond furnished by Contractor to Owner is declared bankrupt or becomes insolvent or such corporate surety company's right to do business in the State of Texas is revoked, the Contractor shall within five (5) consecutive calendar days thereafter substitute another bond and corporate surety company, both of which shall be acceptable to Owner.

#### 1.12 FILING BID

- A. All Bids, proposals, or submittalssubmitted in hard copy paper form shall be submitted in a sealed envelope, plainly marked on the outside with the Invitation for Bid (IFB) number and name. A hard copy paper form bid, proposal, or submittal shall be manually signed in ink by a person having the authority to bind the firm in a contract. Submittals, bids or proposals shall be mailed or hand delivered to the Collin County Purchasing Department.
- B. No oral, telegraphic or telephonic submittals will be accepted. Bids, proposals, or submittals may be submitted in electronic format via BidSync at [www.bidsync.com](http://www.bidsync.com).
- C. All Bids, submittals or proposals submitted electronically via BidSync at [www.bidsync.com](http://www.bidsync.com) shall remain locked until official date and time of opening as stated in the Special Terms and Conditions of the IFB.
- D. For hard copy paper form bids, proposals, or submittals, any alterations made prior to opening date and time must be initialed by the signer of the bid, proposal, or submittal, guaranteeing authenticity. Bids, proposals, or submittals cannot be altered or amended after submission deadline.

- E. No bid, proposal, or submittal will be considered unless it is filed with the Owner Purchasing Department within the time limit for receiving bids as stated in the Advertisement for Bids or IFB. Each hard copy paper bid shall be in a sealed envelope plainly marked with the word "BID", and the name and bid number of the project as designated in the Advertisement for Bids or IFB.

#### 1.13 MODIFICATION AND WITHDRAWAL OF BID

- A. No bid, proposal, or submittal may be withdrawn or modified after the bid opening except where the award of the contract has been delayed beyond ninety (90) consecutive calendar days after date of bid opening or as per Texas Local Government Code, Title 8, Chapter 262, Subchapter C., Section 262.0305. Modifications after Award.

#### 1.14 IRREGULAR BID

- A. It is understood that Collin County, Texas reserves the right to accept or reject any and/or all Bids, proposals, or submittals for any or all products and/or services covered in an Invitation For Bid (IFB) and to waive informalities or defects in submittals or to accept such submittals as it shall deem to be in the best interest of Collin County.

#### 1.15 REJECTION OF BID

- A. The bidder acknowledges the right of Owner to reject any or all bids and to waive any informality or irregularity in any bid received. In addition, the bidder recognizes the right of Owner to reject a bid if the bidder failed to furnish any required Bid Security, or to submit the data required by the Bidding Documents, or if the bid is in any way incomplete or irregular.

#### 1.16 METHOD OF AWARD

- A. In evaluating bids, Owner will consider whether or not the bids comply with the prescribed requirements, base prices, any alternates, unit pricing, completion time, bidder's qualifications, bidder's proposed subcontractors, suppliers, etc., and other data as may be requested in the Bid Documents.
- B. Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any bid and to establish the responsibility, qualifications and financial ability of bidder, proposed subcontractors, suppliers and other persons and organizations to perform and furnish the Work in accordance with the Bidding Documents to Owner's satisfaction within the prescribed time.
- C. If the contract is to be awarded, it will be awarded to the lowest and best responsible bidder whose evaluation, by Owner, indicates to be in the best interests of the project. If no alternates are selected by Owner, the Owner may award the contract to a responsible bidder who submits the lowest and best bid.
- D. Evaluation of Alternates - Any and/or all or none of the alternates may be considered in evaluation. Owner may award Contract on base bid plus any and/or all or none of the alternates.
- E. Owner anticipates award within ninety (90) consecutive calendar days after bid opening.
- F. The bid, when properly accepted by the County, shall constitute a Contract equally binding between the contractor and Owner. No different or additional terms will become part of this Contract with the exception of a written Change Order, signed by both parties.

- G. No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be made in writing by Collin County Purchasing Agent.

#### 1.17 EXECUTION OF CONTRACT

- A. The person or persons, partnership, company, firm, association or corporation to whom a contract is awarded shall within ten (10) consecutive calendar days after such award, sign the necessary contract agreements and submit the required bonds entering into the required Contract with Owner. No contract shall be binding on Owner until it has been executed by Owner or his/her duly authorized representative, and delivered to the Contractor.

#### 1.18 FAILURE TO EXECUTE CONTRACT

- A. The failure of the Bidder to execute the required bonds or to sign the required Contract within ten (10) consecutive calendar days after the Contract is awarded, shall be considered by Owner as abandonment of his/her Bid, and Owner may annul the award, at the Owner's sole discretion.

#### 1.19 PURCHASE ORDER

- A. A purchase order(s) shall be generated by Owner to the contractor. The purchase order number **must** appear on all itemized invoices. Collin County will not be responsible for any orders placed or delivered without a valid purchase order number.

#### 1.20 NOTICE TO PROCEED

- A. Upon the execution and delivery of Bonds, Executed Contract by Contractor, progress schedule, proof of insurance, and all other documents required prior to commencing work herein, Owner will issue a written Notice to Proceed to the Contractor requesting that he/she proceed with construction, and the Contractor shall commence work within ten (10) consecutive calendar days after the date of Notice to Proceed.

#### 1.21 PAYMENT PROCEDURES

- A. Contractor shall submit Applications for Payment in accordance with the Contract, and payments shall be made in accordance with the Contract Documents.
- C. Final Payment: Upon final completion and acceptance of the work, Owner shall pay the remainder of the contract price as recommended by Engineer, in accordance with Texas Government Code, Title 10, Subtitle F., Chapter 2251. Contractor(s) is required to pay subcontractors within ten (10) days after the contractor has received payment from the County.
- D. The Contractor understands, acknowledges and agrees that if the Contractor subcontracts with a third party for services and/or material, the primary Contractor (awardee) accepts responsibility for full and prompt payment to the third party. Any dispute between the primary Contractor and the third party, including any payment dispute, will be promptly remedied by the Contractor. Failure to promptly render a remedy or to make prompt payment to the third party (subcontractor) may result in the withholding of funds from the primary Contractor by Collin County for any payments owed to the third party.

#### 1.22 AFFIDAVIT OF BILLS PAID

- A. Prior to final acceptance of this project by Owner, the Contractor shall execute an affidavit that all bills for labor, materials, and incidentals incurred in the project construction have been paid in full, and that there are no claims pending.

#### 1.23 EXEMPTION FROM STATE OF TEXAS AND LOCAL SALES TAX ON MATERIALS

- A. Owner qualifies for exemption from State and Local Sales Tax pursuant to the provisions of Chapter 151, Section 151.309 of the Texas Limited Sales, Excise and Use Tax Act. The Contractor performing this Contract may purchase all materials, supplies, equipment consumed in the performance of this Contract by issuing to his/her suppliers an exemption certificate in lieu of the tax. .

#### 1.24 CONFLICT OF INTEREST

- A. No public official shall have interest, direct or indirect, in this contract, in accordance with Texas Local Government Code Title 5, Subtitle C, Chapter 171.

#### 1.25 ETHICS

- A. The bidder/contractor shall comply with Commissioners Court Order No. 96-680-10-28, Establishment of Guidelines & Restrictions Regarding The Acceptance of Gifts by County Officials & County employees.

#### 1.26 BID COMPLIANCE

- A. Bid must comply with all federal, state, county and local laws concerning this type of project and the fulfillment of all ADA (Americans With Disabilities Act) requirements.
- B. Design, strength, quality of materials and workmanship must conform to the highest standards of manufacturing and engineering practice.
- C. All products must be new and unused, unless otherwise specified, in first-class condition and of current manufacture.

#### 1.27 DRUG FREE

- A. All bidders shall provide any and all notices as may be required under the Drug-Free Work Place Act of 1988, 41 U.S.C. 701, and Collin County Commissioners' Court Order No. 90-455-06-11, to its employees and all sub-contractors to insure that Owner maintains a drug-free work place. The use, possession or being under the influence of drugs and/or alcohol while working on this bid project or while on County property is prohibited and may result in removal of an individual from the project and/or immediate termination of contract. The County reserves the right to review drug testing records of any personnel involved in this bid project. The County may require, at contractor's expense, drug testing of contractor's personnel if no drug testing records exists or if such test results are older than six (6) months.
- B. Substances and cut-off levels are as follows:

<u>SUBSTANCE</u>	<u>MAXIMUM LEVEL</u>
Amphetamines	1000 NG/ML
Barbiturates	300 NG/ML
Benzodiazepines	300 NG/ML
Cocaine Metabolite	300 NG/ML
Opiates	300 NG/ML

Phencyclidine (PCP)	25 NG/ML
THC (Marijuana) Metabolite	100 NG/ML
Methadone, Urinary	300 NG/ML
Methaquaone, Urine	300 NG/ML
Propoxyphene	300 NG/ML

## 1.28 INDEMNIFICATION

- A. To the fullest extent permitted by law, Contractor shall defend, indemnify and save harmless Collin County and all its past, present and future officers, agents and employees and all entities, their officers, agents and employees who are participating in this contract from all suits, claims, actions, damages (including personal injury and or property damages), or demands of any character, name and description, (including attorneys' fees, expenses and other defense costs of any nature) brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of Contractor's breach of the contract arising from an award, and/or any negligent act, error, omission or fault of the Contractor, or of any agent, employee, subcontractor or supplier of Contractor in the execution of, or performance under, any contract which may result from an award. Contractor shall pay in full any judgment with costs, including attorneys' fees and expenses which is rendered against Collin County and/or participating entities arising out of such breach, act, error, omission and/or fault.

## 1.29 CONSTRUCTION SCHEDULE

- A. The time for completion is set forth herein and will be included in the Contract. All work shall be completed within the consecutive calendar day count shown in the Contractor's bid. The calendar day count shall commence ten (10) consecutive calendar days after the date of the Notice to Proceed.
- B. Prior to the issuance of the Notice to Proceed by Owner, the Contractor shall submit a detailed progress and schedule chart to Owner for review. This chart will be used to assure completion of the job within the number of consecutive calendar days stated in bid documents.

## 1.30 DELAYS AND EXTENSIONS OF TIME

- A. If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Engineer, or of an employee of either, or of a separate contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control, or by delay authorized by the Owner pending mediation and arbitration, or by other causes which the Engineer determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Engineer may determine.
- B. If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that the weather conditions had an adverse effect on the scheduled construction.
- C. Contractor's sole remedy for any delays in the project, which are not the fault of the Contractor, shall be an equitable extension of time to perform the work, required by the Contract. In no event shall the Contractor be entitled to make a claim for delay, impact or acceleration damages against the Owner.

## 1.31 DAMAGES

- A. Refer to Specification 0500

### 1.32 TERMINATION

This contract shall remain in effect until any of the following occurs:

- A. completion of project;
- B. acceptance of work ordered; or
- C. termination by either party pursuant to the terms of the Contract with a thirty (30) days written notice prior to cancellation that must state therein the reasons for such cancellation.
- D. Breach of the contract by the Contractor for failure
  - 1. to meet completion schedules, or
  - 2. otherwise perform in accordance with these specifications.

Breach of contract or default authorizes the County to purchase elsewhere and charge the full increase in cost and handling to the defaulting Contractor.

### 1.33 PATENTS - COPYRIGHTS

- A. The contractor agrees to protect Owner from any claims involving infringements of patents and/or copyrights. In no event shall Owner be liable to a contractor for any/all suits arising on the grounds of patent(s) or copyright(s) infringement.

### 1.34 VENUE; GOVERNING LAW

- A. This contract will be governed by the laws of the State of Texas. Should any portion of this contract be in conflict with the laws of the State of Texas, the State laws shall invalidate only that portion. The remaining portion of the contract shall remain in effect. This contract is performable in Collin County, Texas.

### 1.35 ASSIGNMENT

- A. The contractor shall not sell, assign, transfer or convey this contract, in whole or in part, without the prior written approval from Collin County Commissioners' Court.

### 1.36 SILENCE OF SPECIFICATION

- A. The apparent silence of any part of the specification as to any detail or to the apparent omission from it of a detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of the specification shall be made on the basis of this statement.

### 1.37 PROVISION CONCERNING ESCALATOR CLAUSES

- A. Bid(s) containing any condition which provides for changes in the stated bid prices due to increase or decrease in the costs of materials, labor, or other items required for this project, will be rejected and returned to the bidder without being considered.

### 1.38 ESTIMATES OF QUANTITIES

- A. The quantities listed in the Bid Form will be considered as approximate and will be used for the comparison of bids. Payments will be made to the Contractor only for the actual quantities of work performed or materials furnished in accordance with the contract. The quantity of work to be done and the materials may be increased or decreased as provided for in the Contract Documents.

**1.39 TREE PROTECTION OUTSIDE LIMITS OF WORK**

- A. The Contractor will be required to obtain written authorization from Owner for the removal of any tree three inches (3") in diameter or greater for any area outside the limits of the street right-of-way or slope easement. It is the intent of Owner to preserve as much as possible the natural condition of the floodplains.

**1.40 EXCAVATION/TRENCH SAFETY****A. TRENCH SAFETY**

The CONTRACTOR shall be responsible for complying with state laws and federal regulations relating to trench safety, including those which may be enacted during the performance under this contract. The CONTRACTOR shall be responsible for selecting an appropriate method of providing trench safety after due consideration of the job conditions, location of utilities, pavement conditions and other relevant factors. Slope-back methods which may result in unnecessary displacement of utilities and/or destruction of pavement may not be used without permission from the OWNER. The CONTRACTOR shall be responsible for providing to the OWNER an acceptable trench safety plan signed and sealed by a Professional Engineer qualified to do such work and registered in Texas. Devices used to provide trench safety such as trench shields and shoring systems will be likewise certified by professional engineers registered in the State of Texas or by a professional engineer registered in the state of manufacture of the shield.

**B. PAYMENT FOR TRENCH SAFETY**

Payment for trench safety shall be by the lineal feet of trench exceeding a depth of five (5) ft. Excavation for slope-back methods shall be subsidiary to the trench safety pay item including replacement and recompaction. Excess excavation for other trench safety methods is also subsidiary to the trench safety pay item. Costs relating to the preparation of the trench safety plan including geotechnical investigation, testing and report preparation fees are all subsidiary to the pay item for trench safety. Should trench safety measures be required during contract performance where no pay item has been provided, then the CONTRACTOR shall immediately notify the OWNER and, if directed to do so, provide trench safety under the provisions of the contract. Should the OWNER fail to authorize the work, then the CONTRACTOR shall proceed under the provisions of the Contract. Trench safety requirements are mandatory and may not be waived.

**C. PAYMENT FOR SPECIAL SHORING**

Payment for special shoring, if any, shall be based on the square feet of shoring used.

- D. The Contractor must be made aware that on construction projects in which trench excavation will exceed a depth of five feet (5'), the uniform set of general conditions must require that the bid documents and the contract include detailed plans and specifications for adequate safety systems that meet Occupational Safety and Health Administration standards that will be in effect during the period of construction of the project. The Contractor shall provide a separate pay item for trench excavation safety in accordance with the Texas Health & Safety Code Chapter 756. The Contractor shall verify that these plans and specifications include a

pay item for these same trench excavation safety systems, in accordance with Texas Government Code, Title 10, Section 2166.303, Uniform Trench Safety Conditions. The contractor shall insure that drainage from adjacent properties is not blocked by his/her excavations. Measurement and payment for excavation/trench safety systems will not be made directly, but considered subsidiary to the work.

- E. The Contractor shall be responsible for obtaining and paying for all surveys and testing, including geotechnical surveys and testing, necessary to insure it can comply with all laws regarding adequate trench excavation safety.

#### 1.41 CONSTRUCTION STAKING

- A. Engineer will provide the Contractor with primary horizontal and vertical control to consist of one construction baseline and two benchmarks.
- B. The Contractor shall take all necessary precautions to preserve any and/or all markings and staking. Payment for costs of restaking shall be the responsibility of the Contractor.

#### 1.42 PERMITS

- A. Contractor shall be responsible for obtaining all necessary permits.

#### 1.43 MATERIALS TESTING

- A. Owner will be responsible for all materials testing.

#### 1.44 WAGE SCALE

- A. In accordance with Texas Government Code, Title 10, Section 2258, Prevailing Wage Rates, the general prevailing wage rate has been determined for this locality for the craft or type of workman needed to execute work of a similar character of the project listed herein. The Contractor shall pay the prevailing wage rate in this locality to all his/her employees and subcontractors performing work on this project, and in no event shall the Contractor pay less than the rate shown in the following schedule.

GENERAL DECISION: TX20100057 03/12/2010 TX57

Date: March 12, 2010

General Decision Number: TX20100057 03/12/2010

Superseded General Decision Number: TX20080057

State: Texas

Construction Type: Building

Counties: Collin and Denton Counties in Texas.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes and apartments up to and including 4 stories). Use current heavy and highway General Wage Determination for Paving and Utilities incidental to Building Construction.)

Modification Number	Publication Date
0	03/12/2010

\* IRON0263-001 06/01/2009

Rates

Fringes

IRONWORKER (Structural).....\$ 21.60 4.40

\* SUTX1989-002 11/01/1989

	Rates	Fringes
Acoustical Installer.....	\$ 12.27	
CARPENTER (Excluding Acoustical Installers & Drywall Hangers).....	\$ 12.36	1.38
DRYWALL HANGER.....	\$ 12.17	
ELECTRICIAN.....	\$ 13.10	1.97
Laborer, Unskilled (Excluding Landscape Laborers).....	\$ 7.25	.86
Painters:		
Brush & Spray.....	\$ 10.15	
Painters doing drywall finishing only.....	\$ 10.08	
PAPERHANGER.....	\$ 12.50	2.20
Plumbers and Pipefitters (Including HVAC Work).....	\$ 12.47	1.87
Power Equipment Operator Cranes.....	\$ 15.00	2.85
ROOFER, Including Built Up, Composition and Single Ply Roofs.....	\$ 10.17	1.10
Sheet metal worker (Including HVAC Duct Work).....	\$ 10.94	1.45
SPRINKLER FITTER.....	\$ 12.00	2.30

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WELDERS - Receive rate prescribed for craft performing  
operation to which welding is incidental.  
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WELDERS - Receive rate prescribed for craft performing  
operation to which welding is incidental.  
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Unlisted classifications needed for work not included within  
the scope of the classifications listed may be added after  
award only as provided in the labor standards contract clauses  
(29CFR 5.5 (a) (1) (ii)).

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In the listing above, the "SU" designation means that rates  
listed under the identifier do not reflect collectively  
bargained wage and fringe benefit rates. Other designations  
indicate unions whose rates have been determined to be  
prevailing.  
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## WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

- B. Except for work on legal holidays, the "General Prevailing Rate of Per Diem Wage" for the various crafts or type of workers or mechanics is the product of (a) the**

number of hours worked per day, except for overtime hours, times (b) the above respective rate per hour.

- C. For legal holidays, the "General Prevailing Rate of Per Diem Wage" for the various crafts or type of workers or mechanics is the product of (a) one and one-half times the above respective rate per hour, times (b) the number of hours worked on the legal holiday.
- D. For overtime work, the "General Prevailing Rate of Per Diem Wage" for the various crafts or type of workers or mechanics is the product of (a) one and one-half times the above respective rate per hour, times (b) the number of hours worked on overtime.
- E. Under the provisions of Texas Government Code, Title 10, Section 2258, Prevailing Wage Rates, the contractor or subcontractor of the contractor shall forfeit as a penalty to the entity on whose behalf the contract is made or awarded, sixty dollars (\$60.00) for each calendar day, or portion thereof, that the worker is paid less than the wage rates stipulated in the contract.
- F. If the construction project involves the expenditure of Federal funds in excess of \$2,000, the minimum wages to be paid various classes of laborers and mechanics will be based upon the wages that will be determined by the Secretary of Labor to be prevailing for the corresponding classes of laborers and mechanics employed on the project of a character similar to the contract work.

1.45 Collin County Purchasing Department shall serve as Contract Administrator or shall supervise agents designated by Collin County.

1.46 All warranties shall be stated as required in the Uniform Commercial Code.

1.47 The Contractor and Collin County agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code.

1.48 Contractor shall not fraudulently advertise, publish or otherwise make reference to the existence of a contract between Collin County and Contractor for purposes of solicitation. As exception, Contractor may refer to Collin County as an evaluating reference for purposes of establishing a contract with other entities.

1.49 Contractor shall provide Collin County with diagnostic access tools at no additional cost to Collin County, for all Electrical and Mechanical systems, components, etc., procured through this contract.

1.50 **CRIMINAL HISTORY BACKGROUND CHECK:** If required, ALL individuals may be subject to a criminal history background check performed by the Collin County's Sheriff's Office prior to access being granted to Collin County property or facilities. Upon request, Contractor shall provide list of individuals to Collin County Purchasing Department within five (5) working days.

1.51 Vendors/Contractors/Providers must be in compliance with the Immigration and Reform Act of 1986 and all employees specific to this solicitation must be legally eligible to work in the United States of America.

1.52 **CERTIFICATION OF ELIGIBILITY:** This provision applies if the anticipated Contract exceeds \$100,000.00 and as it relates to the expenditure of federal grant funds. By submitting a bid or proposal in response to this solicitation, the Bidder/Quoter/Offeror certifies that at the time of submission, he/she is not on the Federal Government's list of suspended, ineligible, or debarred contractors. In the event of placement on the list between the time of bid/proposal submission and

time of award, the Bidder/Quoter/Offeror will notify the Collin County Purchasing Agent. Failure to do so may result in terminating this contract for default.

- 1.53 **NOTICE TO CONTRACTORS:** The Collin County Detention Facility houses persons who have been charged with and/or convicted of serious criminal offenses. When entering the Detention Facility, you could: (1) hear obscene or graphic language; (2) view partially clothed male inmates; (3) be subjected to verbal abuse or taunting; (4) risk physical altercations or physical contact, which could be minimal or possibly serious; (5) be exposed to communicable or infectious diseases; (6) be temporarily detained or prevented from immediately leaving the Detention Facility in the case of an emergency or "lockdown"; and (7) subjected to a search of your person or property. While the Collin County Sheriff's Office takes every reasonable precaution to protect the safety of visitors to the Detention Facility, because of the inherently dangerous nature of a Detention Facility and the type of the persons incarcerated therein, please be advised that the possibility of such situations exist and you should carefully consider such risks when entering the Detention Facility. By entering the Collin County Detention Facility, you acknowledge that you are aware of such potential risks and willingly and knowingly choose to enter the Collin County Detention Facility.
- 1.54 Contractors doing business with OWNER agree to comply with Federal Executive Order 13465 E-Verify. It is OWNER's intention and duty to comply and support the Immigration and Nationality Act (INA) which includes provisions addressing employment eligibility, employment verification and non-discrimination. According to the INA, contractors/employers may hire only persons who may legally work in the United States. Subsequently, contractors and subcontractors doing business with OWNER must confirm their enrollment in the E-Verify system which verifies employment eligibility through completion and checking of I-9 forms. OWNER reserves the right to audit contractors process to verify enrollment compliance.

## 1.55 INSURANCE REQUIREMENTS

### A CONTRACTOR'S INSURANCE

1. Before commencing work, the CONTRACTOR and each subcontractor shall be required, at its own expense, to furnish the Collin County Purchasing Agent with certified copies of all insurance certificate(s) required by Texas Law, and the coverages required herein, indicating the coverage is to remain in force throughout the term of this Contract. Without limiting any of the other obligations or liabilities of the CONTRACTOR, during the term of the Contract the CONTRACTOR and each subcontractor at their own expense shall purchase and maintain the herein stipulated minimum insurance with companies duly approved to do business in the State of Texas and satisfactory to the OWNER. Certificates of each policy shall be delivered to the OWNER before any work is started, along with a written statement from the issuing company stating that said policy shall not be canceled, nonrenewed or materially changed without 30 days advance written notice being given to the OWNER.
2. In addition to any coverage required by Texas Law, the CONTRACTOR shall provide the following coverages at not less than the specified amounts:

- B. Workers Compensation insurance required by Texas Law at statutory limits, including employer's liability coverage at minimum limits. In addition to these, the CONTRACTOR must comply with all the requirements of the Texas Department of Insurance, Division of Workers' Compensation; (Note: If you have questions concerning these requirements, you are instructed to contact the DWC.)

1. By signing this contract or providing or causing to be provided a certificate of coverage, the CONTRACTOR is representing to the OWNER that all employees of the CONTRACTOR and its subcontractors who will provide services on the Project will be covered by workers compensation coverage for the duration of the Project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the CONTRACTOR to administrative penalties, criminal penalties, civil penalties, or other civil actions.
  2. The CONTRACTOR'S failure to comply with any of these provisions is a breach of Contract by the Contractor which entitles the OWNER to declare the Contract void if the CONTRACTOR does not remedy the breach within ten (10) days after receipt of notice of breach from the OWNER.
- C. Broad form commercial general liability insurance, including independent contractor's liability, completed operations and contractual liability, written on an occurrence form, covering, but not limited to, the liability assumed under the indemnification provisions of this contract, fully insuring CONTRACTOR'S (or subcontractor's) liability for injury to or death of OWNER'S employees and third parties, extended to include personal injury liability coverage with damage to property, with minimum limits as set forth below:
- General Aggregate \$2,000,000
  - Products — Components/Operations Aggregate \$1,000,000
  - Personal and Advertising Injury \$ 1,000,000
  - Each Occurrence \$ 1,000,000
1. The policy shall include coverage extended to apply to completed operations, asbestos hazards (if this project involves work with asbestos) and XCU (explosion, collapse and underground) hazards. The completed operations coverage must be maintained for a minimum of one year after final completion and acceptance of the work, with evidence of same filed with OWNER.
- D. Comprehensive automobile and truck liability insurance, covering owned, hired and non-owned vehicles, with a combined bodily injury and property damage minimum limit of \$600,000 per occurrence; or separate limits of \$500,000 for bodily injury (per person), \$500,000 for bodily injury (per accident) and \$100,000 for property damage. Such insurance shall include coverage for loading and unloading hazards.
- E. OWNER'S PROTECTIVE LIABILITY INSURANCE  
 CONTRACTOR shall obtain, pay for and maintain at all times during the prosecution of the work under this contract an OWNER'S protective liability insurance policy naming the OWNER as insured for property damage and bodily injury, which may arise in the prosecution of the Work or CONTRACTOR'S operations under this Contract. Coverage shall be on an "occurrence" basis, and the policy shall be issued by the same insurance company that carries the CONTRACTOR'S liability insurance with a combined bodily injury and property damage minimum limit of \$1,000,000 per occurrence and \$2,000,000 aggregate.

F. "UMBRELLA" LIABILITY INSURANCE

CONTRACTOR shall obtain, pay for and maintain umbrella liability insurance during the contract term, insuring CONTRACTOR for an amount of not less than \$1,000,000 per occurrence combined limit for bodily injury and property damage that follows from and applies in excess of the primary liability coverages required hereinabove. The policy shall provide "drop down" coverage where underlying primary insurance coverage limits are insufficient or exhausted. OWNER shall be named as an additional insured.

G. RAILROAD PROTECTIVE INSURANCE

When required in the Special Provisions, CONTRACTOR shall obtain, maintain and present evidence of railroad protective insurance (RPI). The policy shall be in the name of the railroad company having jurisdiction over the right-of-way involved. The minimum limit of coverage shall meet the specifications provided by the railroad company. The OWNER shall specify the amount of RPI necessary.

H. POLICY ENDORSEMENTS AND SPECIAL CONDITIONS

1. Each insurance policy to be furnished by CONTRACTOR shall include the following conditions by endorsement to the policy:

- (a) each policy shall name the OWNER as an additional insured as to all applicable coverage;
- (b) each policy shall require that 30 days prior to the cancellation, nonrenewal or any material change in coverage, a notice thereof shall be given to OWNER by certified mail;
- (c) the term "OWNER" shall include all past, present or future, authorities, boards, bureaus, commissions, divisions, departments and offices of the OWNER and individual members, elected official, officers, employees and agents thereof in their official capacities and/or while acting on behalf of the OWNER;
- (d) the policy phrase "other insurance" shall not apply to the OWNER where the OWNER is an additional insured on the policy;
- (e) all provisions of the contract concerning liability, duty and standard of care together with the indemnification provision, shall be underwritten by contractual liability coverage sufficient to include such obligations within applicable policies;
- (f) each policy shall contain a waiver of subrogation in favor of OWNER, and its, past, present and future, officials, employees, and volunteers; and,
- (g) each certificate of insurance shall reference the Project and Contract number, contain all the endorsement required herein, and require a notice to the OWNER of cancellation.

2. Insurance furnished by the CONTRACTOR shall be in accordance with the following requirements:

- (a) any policy submitted shall not be subject to limitations, conditions or restrictions deemed inconsistent with the intent of the insurance requirements to be fulfilled by the CONTRACTOR. The OWNER'S decision thereon shall be final;

- (b) all policies are to be written through companies duly licensed to transact that class of insurance in the State of Texas with a financial ratings of B+ VII or better as assigned by BEST Rating Company or equivalent; and
- (c) All liability policies required herein shall be written with an "occurrence" basis coverage trigger.

3. CONTRACTOR agrees to the following:

- (a) CONTRACTOR hereby waives subrogation rights for loss or damage to the extent same are covered by insurance. Insurers shall have no right of recovery or subrogation against the OWNER, it being the intention that the insurance policies shall protect all parties to the Contract and be primary coverage for all losses covered by the policies;
- (b) Companies issuing the insurance policies and CONTRACTOR shall have no recourse against the OWNER for payment of any premiums or assessments for any deductibles, as all such premiums and deductibles are the sole responsibility and risk of the CONTRACTOR;
- (c) Approval, disapproval or failure to act by the OWNER regarding any insurance supplied by the CONTRACTOR (or any subcontractors) shall not relieve the CONTRACTOR of full responsibility or liability for damages and accidents as set forth in the Contract Documents. Neither shall the bankruptcy, insolvency or denial of liability by the insurance company exonerate the CONTRACTOR from liability; and
- (d) No special payments shall be made for any insurance that the CONTRACTOR and subcontractors are required to carry; all are included in the Contract Price and the Contract unit prices. Any of such insurance policies required under this section may be written in combination with any of the others, where legally permitted, but none of the specified limits may be lowered thereby.

**SECTION 00410 - BID FORM**

Bid of \_\_\_\_\_ Date \_\_\_\_\_  
 (Name of Firm)

**BID NO.:** INVITATION FOR BID 04179-11

**TO:** COLLIN COUNTY, TEXAS (Owner)

**FOR:** Construction, Myers Park Pump Station and Ground Storage Tank Project

The undersigned, as Bidder, declares that the only person or parties interested in this bid are those principals named herein, that his/her bid is made without collusion with any other person, firm or corporation, that he/she has carefully examined the Contract Documents including the Form of Contract, Invitation to Bidders, Instruction to Bidders, Specifications and the Drawings, therein referred to and has carefully examined the locations, conditions and classes of materials for the proposed work, and agrees that he/she will provide all the necessary labor, machinery, tools, equipment, apparatus and other items incidental to construction and will do all the work and furnish all the materials called for in the Contract Documents in the manner prescribed therein.

It is understood that the following quantities of work to be done at unit prices are approximate only and are intended principally to serve as a guide in evaluating bids.

It is agreed that the quantities of work to be done at unit prices and materials to be furnished may be increased or diminished as may be considered necessary in the opinion of Collin County to complete the work fully as planned and contemplated, and that all quantities of work, whether increased or decreased, are to be performed at the unit prices set forth below except as provided for in the Contract Document.

It is understood and agreed that the Bid Security accompanying this bid will be returned to the bidder, unless in case of the acceptance of the bid the Bidder shall fail to execute a contract and file a Performance Bond, a Payment Bond, a Maintenance Bond and a Certificate of Insurance within ten (10) consecutive calendar days after its acceptance, in which case the Bid Security shall become the property of the Owner and shall be considered as payment for damages caused by delay and other inconveniences suffered by the Owner because of such failure of the Bidder.

It is understood and agreed that all work under this Contract will be completed within \_\_\_\_\_ consecutive calendar days. The contractor shall enter the number of calendar days to complete the project. Completion date will be established in the Notice to Proceed.

The undersigned proposes and agrees to perform all work of whatever nature required, in strict accordance with the drawings and specifications for the following sum of prices, to-wit:

Labor and Material Breakdown:

A: Total Material Cost Incorporated in Project\* \$ \_\_\_\_\_

B: Total Labor Cost Incorporated in Project\* \$ \_\_\_\_\_

C. Bid Grand Total\* \$ \_\_\_\_\_

\*Item A & B Must Add Up to C. the Bid Grand Total.

\* Bid Grand Total (written in words) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\*NOTE: The contract award will be based on Total Bid Price

*NOTE: The Bidder will also complete the attached "Basis of Bid" form to determine the bid prices for specific items and also to determine the deductive price for the construction of the pump building.*

Collin County would like to offer the option for successful bidder to accept credit card payments for services rendered. Collin County currently uses MasterCard as its credit card provider.

Would your company be willing to accept monthly credit card payments? Yes No

If applicable, does your company offer any additional discounts for timely payment with or without credit card payment? Yes No

If yes, please explain \_\_\_\_\_

Receipt is hereby acknowledged of the following Addenda to the Contract Documents.

Addendum No. 1 dated \_\_\_\_\_ Received \_\_\_\_\_

Addendum No. 2 dated \_\_\_\_\_ Received \_\_\_\_\_

Addendum No. 3 dated \_\_\_\_\_ Received \_\_\_\_\_

Addendum No. 4 dated \_\_\_\_\_ Received \_\_\_\_\_

The undersigned Bidder hereby declares that he/she has visited the site of the Work and has carefully examined the Contract Documents pertaining to the Work covered by the above Bid, and he/she further agrees to commence work within ten (10) consecutive calendar days after date of written Notice to Proceed and to substantially complete the work on which he/she has bid within \_\_\_\_ consecutive calendar days subject to such extensions of time allowed by Specifications.

The undersigned Bidder agrees that this bid shall be good and may not be withdrawn for a period of ninety (90) consecutive calendar days after closing time for receiving bids.

The undersigned Bidder agrees that if he/she is notified of the acceptance of this bid within ninety (90) consecutive calendar days of the time set for opening of bids, he/she will execute a contract for the Work for the stated prices, and will execute and deliver to Owner within ten (10) consecutive calendar days after Collin County awards the contract, a Performance Bond and a Payment Bond for the total amount of the

Contract, and a one (1) year Maintenance Bond for ten percent (10%) of the total amount of the Contract and a Certificate of Insurance, as stipulated in the Contract Documents.

The undersigned Bidder further agrees that the enclosed Bid Security in the amount of five percent (5%) of the Greatest Amount of Bid is the agreed amount of liquidated damages which Collin County, Texas will suffer by the failure of the undersigned Bidder to execute the Contract and to furnish the Performance, Payment and Maintenance Bonds and by reason of such failure on the part of the undersigned Bidder, the Bid Security will immediately be forfeited to Collin County, Texas.

The undersigned Bidder also understands that the Commissioners' Court of Collin County, Texas reserves the right to reject any and/or all bids covered in this bid request and to waive informalities or defects in bids or to accept such bids as it shall deem to be in the best interest of Owner.

It is understood that the work proposed to be done will be accepted when fully completed in accordance with the Contract Documents.

Accompanying this bid, is a certified check, cashier's check or Bid Bond in the amount of five percent (5%) of the total amount bid. Also accompanying this bid, all the information required in Section 00200 – Instructions to Bidders.

The undersigned certifies that the bid prices contained in this bid have been carefully checked and are submitted as correct and final. The unit prices have been shown in words and figures for each item listed in this bid and it is understood that in the event of a discrepancy, the words shall govern.

Respectfully submitted,

Contractor: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_

Seal and Authorization  
(If a Corporation)

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

E-mail  
Address: \_\_\_\_\_

END OF SECTION

**SECTION 00410 - BID FORM****BASIS OF BID****ARTICLE 1 – BASIS OF BID**

1.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Bid Unit Price</u>	<u>Bid Price</u>
1	Furnish and install 33,000 gallon bolted galvanized steel storage tank with appurtenances as specified	LS	1	\$ _____	\$ _____
2	Construct complete pump station building with appurtenances as specified	LS	1	\$ _____	\$ _____
3	Furnish and install electrical & controls for well & pump station building with appurtenances as specified	LS	1	\$ _____	\$ _____
4	Furnish and install yard piping with appurtenances as specified	LS	1	\$ _____	\$ _____
5	Furnish and install chlorination equipment with appurtenances as specified	LS	1	\$ _____	\$ _____
6	Furnish and install wellhead piping with appurtenances as specified	LS	1	\$ _____	\$ _____
7	Pull and repair water well pump and motor and reinstall water well pump and motor, electrical cable & column pipe with appurtenances as specified	LS	1	\$ _____	\$ _____

Deductive alternate bid items are listed in the following table:

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Bid Unit Price</u>	<u>Bid Price</u>
<b>Note:</b> For deduction from the project as specified the following L.S. price shall apply:					
A	Deduct for the construction of the pump station building.	LS	1	\$ _____	\$ _____

**00430 BID BOND**

STATE OF TEXAS §  
COUNTY OF COLLIN §

**KNOW ALL MEN BY THESE PRESENTS:**

**THAT** \_\_\_\_\_, a corporation organized and existing under the laws of the State of \_\_\_\_\_, and fully authorized to transact business in the State of Texas, whose address is \_\_\_\_\_ of the City of \_\_\_\_\_ County of \_\_\_\_\_, and State of \_\_\_\_\_, (hereinafter referred to as "Principal"), and \_\_\_\_\_ (hereinafter referred to as "Surety", a corporation organized under the laws of the State of \_\_\_\_\_ and authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto \_\_\_\_\_ (hereinafter referred to as "Owner") and unto all persons, firms and corporations who may furnish materials for or perform labor upon the buildings, structures or improvements referred to in the attached Contract, , in the penal sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) in lawful money of the United States, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents:

**SIGNED, SEALED and DATED** this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

**WHEREAS**, the Principal is herewith submitting its proposal for IFB # 04179-11, Construction, Myers Park Pump Station and Ground Storage Tank Project

The condition of the above obligations are such that if the aforesaid Principal shall be awarded the Contract, the said Principal will, within the time required, enter into a Contract and give Bonds, if required, for the faithful performance of the Contract and the prompt payment for labor and materials in the prosecution thereof, then this obligation shall be null and void; otherwise the Principal and Surety will pay unto the OWNER the full penal sum hereof, as liquidated damages, it being difficult and impractical to determine accurately the actual amount of damages occurring to OWNER by reason of Principal's failure to execute said Contract and Bonds.

**PROVIDED FURTHER**, that if any legal action be filed on this Bond, venue shall lie in Collin County, Texas.

The Resident Agent of the Surety for delivery of notice and service of process is:

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone Number: \_\_\_\_\_

**WITNESS**

\_\_\_\_\_

**PRINCIPAL**

\_\_\_\_\_  
Printed/Typed Name \_\_\_\_\_  
Title: \_\_\_\_\_  
Company: \_\_\_\_\_  
\_\_\_\_\_  
Address: \_\_\_\_\_

**WITNESS**

\_\_\_\_\_

**SURETY**

\_\_\_\_\_  
Printed/Typed Name \_\_\_\_\_  
Title: \_\_\_\_\_  
Company: \_\_\_\_\_  
\_\_\_\_\_  
Address: \_\_\_\_\_

**NOTE: CERTIFIED COPY OF POWER-OF-ATTORNEY SHOULD BE ATTACHED HERETO.**

**Revised 11/2008**

## 00500 CONSTRUCTION AGREEMENT

THIS CONSTRUCTION AGREEMENT is made and entered into by and between \_\_\_\_\_, a \_\_\_\_\_ corporation (hereinafter referred to as "Contractor"), and COLLIN COUNTY, TEXAS, a political subdivision of the State of Texas (hereinafter referred to as "County" or "OWNER"), to be effective from and after the date hereinafter provided.

For and in consideration of the covenants and agreements contained herein, and for the mutual benefits to be obtained hereby, the parties hereto agree as follows:

### CONTRACT SUM

The County shall pay the Contractor in current funds for the performance of the work, subject to additions and deductions by Change orders as provided in the Contract Documents. The contract sum shall be the amount of \_\_\_\_\_ ( )

### EFFECTIVE DATE

This Construction Agreement, having been previously approved by the Commissioners' Court of Collin County, Texas, shall be effective upon the date of delivery and execution by Contractor, provided the County executes the same within five (5) consecutive calendar days after said delivery and execution by Contractor.

## I. CONTRACT GENERAL PROVISIONS

### 1.1 DEFINITIONS

Words which have well-known technical or construction industry meanings shall have their commonly understood meanings in the Contract Documents, unless a different meaning is stated in the Contract Documents. The following words and expressions, or pronouns used in their place, shall wherever they appear in this contract be construed as follows, unless a different meaning is clear from the context:

**Addendum, Bulletin or Letter of Clarification:** Any additional contract provisions, or change, revisions or clarification of the Contract Documents issued in writing by the OWNER, to prospective bidders prior to the receipt of bids.

**Contract or Contract Documents:** The written agreement covering the performance of the work. The Contract and Contract Documents include this written Construction Agreement between OWNER and CONTRACTOR, Advertisement for Bids, Instructions to Bidders, Requests for Proposal, all Addenda, the Specifications, including the general and supplemental special and technical conditions, Drawings, provisions, plans or working drawings — and any supplemental changes or agreements pertaining to the Work or materials therefor; and bonds and any additional documents incorporated by reference in the above.

**CONTRACTOR:** The person, persons, partnership, firm, corporation, association or organization, or any combination thereof, entering into the contract for the execution of the work, acting directly or through a duly authorized representative.

**Other CONTRACTORS:** Any contractor, other than the CONTRACTOR or his subcontractors, who has a direct contact with the OWNER for work on or adjacent to the site of the work.

**Contract Work or Work:** Everything expressly or impliedly required to be furnished and done by the CONTRACTOR by the Contract Documents.

**Engineer:** The term "Engineer" means the Engineer or his duly authorized representative. The Engineer shall be understood to be the engineer of the OWNER, and nothing contained in the Contract Documents shall create any contractual or agency relationship between the Engineer and the CONTRACTOR.

**Architect:** The term "Architect" means the Architect or his duly authorized representative. The Architect shall be understood to be the Architect of the OWNER, and nothing contained in the Contract Documents shall create any contractual or agency relationship between the Architect and the CONTRACTOR.

**Extra Work:** Work other than that which is expressly or impliedly required by the Contract Documents at the time of the execution of the contract.

**Change Order:** A written order to the CONTRACTOR authorizing and directing an addition, deletion or revision in the work within the general scope of the Contract Documents, or authorizing an adjustment in the Contract Price or the Contract time.

**Contract Price:** The total amount of money payable to the CONTRACTOR under the terms and conditions of the Contract Documents. When used in such context, it may also mean the unit price of an item of work under the Contract terms.

**OWNER'S Representative:** The Architect or Engineer or other duly authorized assistant, agent, engineer, inspector or superintendent acting within the scope of their particular duties.

**Drawings or Contract Drawings:** Those drawings that are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, including but not limited to, the plans, elevations, sections, details, schedules, diagrams, any bulletin, or any detailed drawing furnished by the OWNER, pertaining or supplemental thereto.

**Specifications:** Those portions of the Contract Documents that specify the requirements for materials, equipment, systems, standards and workmanship for performance of the Work, and related services.

**Inspector:** Any representative of the OWNER designated to inspect the work.

**Materialman or Supplier:** Any subcontractor contracting with the CONTRACTOR, or any of his subcontractors, to fabricate or deliver or who actually fabricates or delivers materials, supplies or equipment to be consumed or incorporated into the Work.

**Notice:** Written notice effective the date of the postmark thereon, or if hand delivered, effective the date of hand delivery.

**OWNER:** COLLIN COUNTY, TEXAS, a political subdivision of the State of Texas. The term OWNER means the OWNER or its authorized representative.

**Payment Bond:** A bond in the amount of the Contract executed by a corporate surety in accordance with all Texas Law, including but not limited to, Chapter 2253 of the Texas Government Code and Chapter 3503 of the Texas Insurance Code, for public works projects as security furnished by the CONTRACTOR and his sureties solely for the protection of payment bond beneficiaries supplying labor and materials in the prosecution of the Contract Work.

**Performance Bond:** A bond in the amount of the Contract executed by a corporate surety in accordance with all Texas Law, including but not limited to, Chapter 2253 of the Texas Government Code and Chapter 3503 of the Texas Insurance Code, for public works projects as security furnished by the CONTRACTOR and his sureties solely for the protection of the Owner, conditioned on the faithful performance of the Contract Work in accordance with the plans, specification, and Contract Documents.

**Maintenance Bond:** A bond executed by a corporate surety for 10% of the Contract Price that complies with all Texas Laws, including but not limited to, Chapter 3503 of the Texas Insurance Code, guaranteeing the prompt, full and faithful performance of the general guaranty and warranty contained in the Contract Documents, and Texas Law.

**Project:** The total construction of the work described in the Contract Documents performed by the Contractor, Other Contractor or the Owner in whole or part.

**Proposal:** The written statement or statements duly submitted to the OWNER by the person, persons, partnership, company, firm, association or corporation proposing to do the Work contemplated, including the approved form on which the formal bids for the Work are to be proposed.

**Plan, or Plans:** The plans are the drawings or reproductions therefrom made by the Owner or Owner's Representative and approved by the Owner showing the dimensions, location, design and position of the various elements of the Project and

Work, including plans, elevations, sections, details, schedules, diagrams, working drawings, preliminary drawings, and such supplemental drawings as the Owner may issue to clarify other drawings or for the purpose of showing changes in the Contract Work authorized by the Owner, or for showing details not shown therein.

**Special Provisions or Conditions:** The special clauses of the Contract, or Contract Documents, setting forth conditions or requirements peculiar to the specific Project involved, supplementing the standard or general specifications and taking precedence over any conditions or requirements of the standard or general specifications with which they are in conflict.

**Specifications or Contract Specifications:** All of the general, special and technical conditions or provisions, and all addendum or supplements thereto consisting of written requirements for materials, equipment, systems, standards and performance of the work.

**Site:** The area upon or in which the CONTRACTOR'S operations are carried on, and such other areas adjacent thereto as may be designated as such by the OWNER.

**Subcontractors:** Any persons, firm or corporation, other than employees of the CONTRACTOR, who or which contracts with the CONTRACTOR to furnish, or who actually furnishes, labor and/or materials and equipment at or about the site.

**Sureties:** The corporate bodies which are bound by such bonds as are required with and for the CONTRACTOR. The sureties engaged to be responsible for the entire and satisfactory fulfillment of the Contract and for any and all requirements as set out in the specifications, Contract or plans.

**The Work:** All work including the furnishing of all labor, materials, tools, equipment, required submittals and incidentals to be performed by the CONTRACTOR under the terms of the Contract.

**Directed, Required, Approved and Words of Like Import:** Whenever they apply to the Work or its performance, the words "directed," "required," "permitted," "ordered," "designated," "established," "prescribed" and words of like import used in the Contract, specifications or upon the drawings shall imply the direction, requirement, permission, order, designation or prescription of the OWNER; and "approved," "acceptable," "satisfactory" and words of like import shall mean approved by, acceptable to or satisfactory to the OWNER.

**Equal:** Materials, articles or methods which are of equal or higher quality than those specified or shown on the drawings and as further defined in the "or equal" clause. Substitution of Materials shall be determined by the Architect or Engineer at his or her discretion, and approved by the Owner.

**Working Time, Completion Time or Contract Time:** The time set forth in the Contract for the performance and completion of the Work contracted for. The time may be expressed as calendar days, working days or a specific date.

**Calendar Day or Days:** Any successive days of the week or month, no days being excepted.

**Working Day:** A working day is defined as a calendar day not including Saturdays, Sundays or those legal holidays as specified in the list prepared by the OWNER for contract purposes. Nothing in this definition shall be construed as prohibiting the CONTRACTOR from working on Saturdays if he so desires, however permission of the OWNER shall be necessary if the CONTRACTOR chooses to work on Saturday. Work on Sundays shall not be permitted without the written permission of the OWNER. If Saturday or Sunday work is permitted, working time shall be charged on the same basis as week days. Where the working time is expressed as calendar days or a specific date, the concept of working days shall no longer be relevant to the contract.

## CONTRACT DOCUMENTS

- 1.2 The parties agree that the Contract Documents shall consist of the following documents in addition to any other documents referenced or incorporated herein:
- A. This written Construction Agreement, including any changes or modifications;
  - B. All addenda including the following listed and numbered addenda:  
Addendum No. 1 dated \_\_\_\_\_ Received \_\_\_\_\_
  - C. Advertisement for Bids, Instructions to Bidder, the Invitation to Bid and Bid Form;
  - D. The Special/Supplemental Conditions;
  - E. The Specifications and the Project Drawings (if any);
  - F. The Construction Details shown on plans;
  - G. The Standard Specifications and Standard Drawings from the Public Works Construction Standards-North Central Texas Council of Governments, 2004 edition and all subsequent addendums;
  - H. The Performance Bond in the sum of ONE HUNDRED PERCENT (100%) of the total Contract Price;
  - I. The Payment Bond in the sum of ONE HUNDRED PERCENT (100%) of the total Contract Price; and,
  - J. The Maintenance Bond in the sum of TEN PERCENT (10%) of the total Contract Price.

### 1.2.1 PRIORITY OF THE CONTRACT DOCUMENTS

These Contract Documents (A through J above) form the Construction Agreement and are a part of this Construction Agreement as if fully set

forth herein. In the event of an inconsistency in any of the provisions of the Contract Documents, the inconsistency shall be resolved by giving precedence to the Contract Documents in the order in which they are listed above.

### 1.2.2 THE CONTRACT

The Contract Documents form the Contract. The Contract represents the entire integrated agreement between the OWNER and the CONTRACTOR and supercedes all prior negotiations, and representations by either party.

## 1.3 CORRELATION AND INTENT OF DOCUMENTS

The Contract Documents are complementary and what is called for by any one shall be as binding as if called for by all. The intent of the documents, unless otherwise specifically provided, is to produce complete and finished work, which the CONTRACTOR undertakes to do in full compliance with the Contract Documents. It is not intended to mention every item of work in the specifications which can be adequately shown on the drawings nor to show on the drawings all items of work described or required by the specifications. All materials or labor for work shown on the drawings or reasonably inferable therefrom as being necessary to produce a finished job shall be provided by the CONTRACTOR whether or not same is expressly covered in the specifications. No verbal conversation, understanding or agreement with any officer or employee or agent of the OWNER, either before or after the execution of the Contract, shall affect or modify any of the terms, conditions or obligations contained in the Contract Documents.

### 1.3.1 CONTRACT DRAWINGS AND SPECIFICATIONS

The OWNER shall furnish the CONTRACTOR one copy of the Contract Drawings and any supplemental drawings and specifications reasonably necessary for the proper execution of the work. At least one copy of all drawings and specifications shall be accessible at all times to the OWNER at the job site.

### 1.3.2 SUPPLEMENTAL DRAWINGS AND SPECIFICATIONS

In order to carry out the intent of the Contract Documents and to assist the CONTRACTOR in performing its work, the OWNER, after the execution of the Contract, may, by supplemental drawings, specifications or otherwise, furnish additional information or instructions as may be necessary for construction purposes.

All such supplemental drawings, specifications or instructions are intended to be consistent with the Contract Documents and reasonably inferable

therefrom. Therefore, no extra costs shall be allowed by the OWNER on a claim that particular supplemental drawings, specifications or instructions differ from the requirements of the Contract Documents, incurring extra costs, unless the CONTRACTOR has first brought the matter, in writing, to the OWNER'S attention for adjustment before proceeding with the work covered by such.

If the OWNER decides that there is no departure from the requirements of the Contract Documents, the CONTRACTOR shall then proceed with the work as shown, specified or directed. If the OWNER shall decide that extra work is involved, he shall so modify the supplemental drawings, specifications or instructions to eliminate the extra work, or cause a written Change Order to be issued in accordance with the Contract Documents.

### 1.3.3 ERRORS AND CORRECTIONS IN DRAWINGS AND SPECIFICATIONS

The CONTRACTOR shall not take advantage of any apparent errors, omissions or discrepancies in the drawings or specifications; and the Architect or Engineer shall be permitted to make such corrections or interpretations as may be necessary for the fulfillment of the intent of the Contract Documents. In case of any errors, omissions or discrepancies in the drawings or specifications, the CONTRACTOR shall promptly submit the matter to the OWNER or OWNER'S Representative in writing who, in turn, shall promptly make a determination and issue the necessary instructions in writing. Any adjustment by the CONTRACTOR without this determination and instructions shall be at the CONTRACTOR'S own risk and expense. The Work is to be made complete as intended by the Contract Documents.

### 1.3.4 EXISTING STRUCTURES

The plans show the general locations of some known surface and subsurface structures. The locations of many gas mains, water mains, conduits, sewers, other utilities, etc., however, are unknown, and the OWNER assumes no responsibility for failure to show any or all of these structures on the plans or to show them in their exact locations. It is mutually agreed that such failure shall not be considered sufficient basis for claims for additional compensation for Extra Work or for increasing the pay quantities in any manner whatsoever. The CONTRACTOR shall be solely responsible for locating all gas mains, water mains, conduits, sewers, other utilities etc., so as to perform the Work without damaging the same.

## **II. THE WORK**

### **2.1 SCOPE OF WORK**

Contractor shall provide all labor, supervision, materials, and equipment necessary to perform all work required by the Contract Documents in connection with IFB 04179-11, Construction, Myers Park Pump Station and Ground Storage Tank Project.

### **2.2 CHANGE OR MODIFICATION OF CONTRACT**

#### **2.2.1 ALTERATION OF PLANS AND SPECIFICATIONS**

The OWNER reserves the right to make such changes in the plans and specifications and in the character of the work as may be necessary or desirable to insure completion in the most satisfactory manner, provided such changes do not materially alter the original plans and specifications or change the general nature of the Work as a whole. Such changes shall not be considered as waiving or invalidating any condition or provision of the Contract or bonds. Such changes shall be issued by the Architect or Engineer.

#### **2.2.2 INCREASED OR DECREASED QUANTITIES OF WORK**

The OWNER reserves the right and may from time to time, by written order, and without notice to any surety, make changes in the quantity or time of performance of the Work, as may be considered necessary or desirable and such changes shall not be considered as waiving or invalidating any conditions or provisions of the Contract or bonds. The CONTRACTOR shall perform all the Contract Work in strict compliance with the Contract Documents, and shall not make any changes to the Work without prior written authorization from the OWNER, in the form of a written Change Order. If such changes increase or decrease either the cost or the time necessary for the performance of the Work, then the parties will mutually agree upon an equitable adjustment to the price or time to perform the Work pursuant to the terms of the Contract.

#### **2.2.3 EXTRA WORK/CHANGE ORDERS**

When any work is necessary to the proper completion of the Project and for which no prices are provided for in the Bid or Proposal and Contract, the CONTRACTOR shall do such work, but only when and as ordered in writing by the OWNER. The OWNER may order changes in the Work without invalidating Contract. Payment for Extra Work shall be made as provided herein. Contractor agrees that overhead and profit for Extra Work shall not exceed 10% of the total cost of the Extra Work. The Contractor shall not be entitled to any additional funds for any work or

extra work performed on the Project, unless a Change Order is issued and signed by the Owner. The CONTRACTOR shall perform the work as altered, whether increased or decreased, and no allowances shall be made for anticipated profits. Nothing in this section shall give rise to any claims for any delay or acceleration damages, and the CONTRACTORS sole remedy for any delays in the Project shall remain an equitable extension of time as provided for in the Contract Documents. CONTRACTOR acknowledges and agrees to waive all rights or claims for compensation for any additional or other work not specifically authorized by the OWNER.

### 2.3 DISPUTED WORK AND CLAIMS FOR ADDITIONAL COMPENSATION

If the CONTRACTOR is of the opinion that (a) the work necessary or required to accomplish the result intended by this Contract, or (b) any work ordered to be done as Contract Work by the OWNER is extra work or additional work and not Contract Work, or (c) any determination or order of the OWNER violates the terms and provisions of this Contract, the CONTRACTOR shall promptly, either before proceeding with such work or complying with such order or determination, notify the OWNER in writing of his contentions with respect thereto and request a final determination thereof.

Such determination of the OWNER shall be given in writing to the CONTRACTOR. If the OWNER determines that the work in question is Extra Work and not Contract Work, or that the order complained of requires performance by the CONTRACTOR beyond that required by the Contract or violates the terms and provisions of the Contract, thereupon the OWNER shall cause either (a) the issuance of a written Change Order covering the Extra Work as provided herein, or (b) the determination or order complained of to be rescinded or so modified so as to not require performance beyond that required by the terms and provisions of the Contract.

If the OWNER determines that the work in question is Contract Work and not Extra Work, or that the determination or order complained of does not require performance by the CONTRACTOR beyond that required by the Contract or violate the terms and provisions of the Contract, he shall direct the CONTRACTOR to proceed, and the CONTRACTOR must promptly comply. In order to reserve his right to claim compensation for such work resulting from such compliance, however, the CONTRACTOR must, within 20 calendar days after receiving the OWNER'S determination and direction, notify the OWNER in writing that the work is being performed, or that the determination and direction is being complied with, under protest.

If the CONTRACTOR fails to so appeal to the OWNER for a determination or, having so appealed, should the CONTRACTOR thus fail to notify the OWNER in

writing of his protest, the CONTRACTOR shall be deemed to have waived any claim for extra compensation or damages therefore. No oral appeals or oral protests, no matter to whom made, shall be deemed even substantial compliance with the provisions of this item.

In addition to the foregoing requirements, the CONTRACTOR shall, upon notice from the OWNER, produce for examination and audit at the CONTRACTOR'S office, by the representatives of the OWNER, all his books and records showing all of his acts and transactions in connection with contractual performance as well as relating to or arising by reason of the matter in dispute. At such examination a duly authorized representative of the CONTRACTOR may be present.

Unless the aforesaid requirements and conditions are complied with by the CONTRACTOR, the OWNER shall be released from all claims arising under, relating to or by reason of disputed work or extra work. It is further stipulated and agreed that no conduct on the part of the OWNER or any agent or employee of the OWNER shall ever be construed as a waiver of the requirements of this section, when such requirements constitute an absolute condition precedent to any approval of any claim for extra compensation, notwithstanding any other provisions of the Contract Documents; and in any action against the OWNER to recover any sum in excess of the contract amount, the CONTRACTOR must allege and prove strict compliance with the provisions of this section. The CONTRACTOR ASSUMES THE RISK OF NONPAYMENT, for failing to comply with any of the requirements of this section.

### **III. CONTRACTORS RESPONSIBILITIES**

#### **3.1 CONTRACTOR'S REPRESENTATIONS, WARRANTIES AND ASSURANCES.**

In consideration of, and to induce the award of this contract to him, the CONTRACTOR represents and warrants: (a) That he is financially solvent, and sufficiently experienced and competent to perform the work; (b) That the facts stated in the proposal and the information given by him pursuant to the bidding documents are true and correct in all respects; (c) That he has read, understood and complied with all the requirements set forth in the bidding documents; (d) That he is familiar with and understands all laws and regulations applicable to the work; and (e) unless otherwise specifically provided for in the Contract Documents, the CONTRACTOR shall do all the Work and shall furnish all the tools, equipment, machinery, materials, labor and appliances, except as herein otherwise specified, necessary or proper for performing and completing the work required by this Contract, in the manner and within the time herein prescribed.

By executing the contract, the CONTRACTOR represents that he has visited the site of Work, has fully familiarized himself with the local and on-site conditions under which the work is to be performed and has correlated his observation with

the requirements of the Contract Documents. In addition, the CONTRACTOR represents that he has satisfied himself as to subsurface conditions at the site of the Work. Information, data and representations contained in the Contract Documents pertaining to the conditions at the site, including subsurface conditions, are for information only and are not warranted or represented in any manner to accurately show the conditions at the site of the Work. The CONTRACTOR agrees that he shall make no claims for damages, additional compensation or extension of time against the OWNER because of encountering actual conditions in the course of the Work which vary or differ from conditions or information contained in the Contract Documents. All risks of differing subsurface conditions shall be borne solely by the CONTRACTOR.

The CONTRACTOR shall carefully study and compare the Contract Documents and shall at once report to the OWNER any error, inconsistency or omission he may discover. The CONTRACTOR shall perform no portion of the Work at any time without Contract Documents or, where required, approved shop drawings, product data or samples for such portion of the work.

### 3.1.1 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. Shop drawings are drawings, diagrams, schedules and other data specially prepared for the work by the CONTRACTOR or any subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

B. Product data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the CONTRACTOR to illustrate a material, product or system for some portion of the work.

C. Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the work shall be judged.

D. the CONTRACTOR shall provide, review, approve and submit to the Architect or Engineer with reasonable promptness and in such sequence as to cause no delay in the Work or in the work of the OWNER or any separate contractor, all shop drawings, product data and samples required by the Contract Documents. The Work will be performed in accordance with submittals approved by the Architect or Engineer. The CONTRACTOR shall not be relieved responsibility for deviations from the requirements of the Contract Documents by errors or omissions by the OWNER, Architect or Engineer in approving Shop Drawings, Product Data, samples or any other submittals.

E. By approving and submitting shop drawings, product data and samples, the CONTRACTOR represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, or shall do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

F. As the Architect's or Engineer's review is only for general conformance with the requirements of the Contract Documents, the CONTRACTOR shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Architect's or Engineer's approval of shop drawings, product data or samples unless the CONTRACTOR has specifically informed the Architect and Engineer in writing of such deviation at the time of submission and the Architect and Engineer have given written approval to the specific deviation. The CONTRACTOR shall not be relieved from responsibility for errors or omissions in the shop drawings, product data or samples by the Architect's or Engineer's approval thereof. The CONTRACTOR shall direct specific attention, in writing or on resubmitted shop drawings, product data or samples, to revisions other than those requested by the Architect or Engineer on previous submittals.

G. the CONTRACTOR shall be responsible for delays caused by rejection of the submittal of inadequate or incorrect shop drawings, product data or samples. The CONTRACTOR shall be responsible for seeing that any "approved" copies of shop drawings bearing the approval of the Architect or Engineer are allowed on the job site. The CONTRACTOR shall be responsible for providing all copies of approved shop drawings necessary for the construction operations.

H. the CONTRACTOR shall keep adequate records of submittal and approvals so that an accurate up-to-date record file is maintained at the job site at all times.

I. No portion of the work requiring submission of a shop drawing, product data or sample shall be commenced until the submittal has been approved by the Architect or Engineer. All such portions of the work shall be in accordance with approved submittals.

### 3.1.2 SURETY BONDS

With the execution and delivery of the contract, the CONTRACTOR shall furnish and file with the OWNER in the amounts herein required, the surety bonds specified hereunder. Without exception, the OWNER'S bond forms, attached hereto as Section 00610 and 00611 must be used, and

exclusive venue for any lawsuit in connection with such bonds shall be specified as the county in which the OWNER'S principal office is located. Such surety bonds shall be in accordance with Texas Law, including but not limited to, the provisions of Chapter 2253 of the Texas Government Code and Chapter 3503 of the Texas Insurance Code. These bonds shall automatically be increased by the amount of any change order or supplemental agreement which increases the contract price with or without notice to the surety, but in no event shall a change which reduces the contract amount reduce the penal amount of such bonds.

A. Performance Bond. A good and sufficient bond in an amount not less than 100 percent of the total amount of the Contract Price guaranteeing the full and faithful execution of the Work and performance of the Contract in accordance with the plans, specifications and Contract Documents, including any extensions thereof, for the protection of the OWNER. This bond shall provide for the repair and/or replacement of all defects due to faulty materials and workmanship that appear within a period of one year from the date of completion and acceptance of the improvement by the OWNER or such lesser or greater period as may be designated in the Contract Documents.

B. Payment Bond. A good and sufficient bond in an amount not less than 100 percent of the total amount of the Contract Price guaranteeing the full and proper protection of all payment bond beneficiaries and claimants supplying labor and material in the prosecution of the work provided for in said Contract and for the use of each claimant.

C. Maintenance Bond. A good and sufficient bond in an amount not less than one hundred percent (100%) of the total amount of the Contract Price guaranteeing the project against defects.

D. Sureties. No sureties shall be accepted by the OWNER who are now in default or delinquent on any bonds or who are interested in any litigation against the OWNER. All bonds shall be made on forms furnished by the OWNER and shall be executed by not less than one corporate surety authorized to do business in the State of Texas and acceptable to the OWNER. The sureties shall be listed in the most current Federal Register Treasury List. Each bond shall be executed by the CONTRACTOR and surety. Each surety shall designate an agent resident in the OWNER'S jurisdictional area acceptable to the OWNER to whom any requisite notices may be delivered and on whom service of process may be had in matters arising out of such suretyship. The OWNER reserves the right to reject any and all sureties.

E. Additional or Substitute Bonds. If at any time the OWNER is or becomes dissatisfied with any surety, then upon the performance or payment bond, the CONTRACTOR shall, within five days after notice from the OWNER to do so, substitute an acceptable bond (or bonds), or provide an additional bond, in such form and sum and signed by such other surety or sureties as may be satisfactory to the OWNER. The premiums on such bonds shall be paid by the CONTRACTOR without recourse to the OWNER. No further payments under the contract shall be deemed due or payable until the substitute or additional bonds shall have been furnished and accepted by the OWNER.

### 3.1.3 PERMITS AND FEES

The CONTRACTOR shall secure and pay for all building permits and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work which are normally and legally required for the construction of similar projects in the State of Texas. The CONTRACTOR will give all notices required by laws, ordinances, rules, regulations and lawful orders of authorized public authorities required for the proper and legal performance of the Work.

### 3.14 CONTRACT DOCUMENTS AT SITE

The CONTRACTOR shall keep and maintain at the Project site one record copy of the Contract Documents, including but not limited to, the Drawings, Specifications, addenda, Change Orders, submittals, Product Data, Samples and other modifications, in good order and marked to show the current construction of the Project. These documents shall be available to the OWNER, Architect or Engineer to review at any time and shall be submitted to the OWNER upon completion of the Project, along with a complete set of as built drawings.

## 3.2 CONTRACTOR'S RESPONSIBILITIES

### 3.2.1 PERFORMANCE OF THE WORK

In addition to those matters elsewhere expressly made the responsibility of the CONTRACTOR, the CONTRACTOR shall have the full and direct responsibility for the performance and completion of the Work under this Contract and for any act or neglect of the CONTRACTOR, his agents, employees or subcontractors. He shall bear all losses, if any, resulting on account of the amount and character of the Work, or because the conditions under which the work must be done are different from what were estimated or anticipated by him, or because of weather, floods, elements or other causes.

### 3.2.2 MEANS AND METHODS OF CONSTRUCTION

Unless otherwise expressly provided in the contract drawings, specifications or bulletins, the means and methods of construction shall be such as the CONTRACTOR may choose; subject, however, to the OWNER'S right to prohibit means and methods proposed by the CONTRACTOR which in the OWNER'S judgment:

- A. shall constitute a hazard to the Work, or to persons or property, or shall violate express requirements of applicable laws or ordinances; or
- B. shall cause unnecessary or unreasonable inconvenience to the public; or
- C. shall not produce finished work in accordance with the requirements of the Contract Documents; or
- D. shall not assure the Work to be completed within the time allowed by the contract.

The OWNER'S approval of the CONTRACTOR'S means or methods of construction, or the OWNER'S failure to exercise his right to prohibit such means or methods, shall not relieve the CONTRACTOR of his responsibility for the Work or of his obligation to accomplish the result intended by the Contract Documents; nor shall the exercise or non-exercise of such rights to prohibit create a cause of action for damages or provide a basis for any claim by the CONTRACTOR against the OWNER. The CONTRACTOR shall be solely responsible for, the construction means and methods, techniques, sequences, procedures, and for the safety precautions and programs in connection with the Work or the Project.

If the Contract Documents specify any means, methods, techniques, sequences or procedures, the CONTRACTOR shall evaluate said specifications and determine that they are safe for the proper prosecution of the Work. The CONTRACTOR shall be solely responsible for the job site safety of such means, methods, techniques, sequences or procedures. If the CONTRACTOR determines the the specified means, methods, techniques, sequences or procedures may not be safe, the CONTRACTOR shall immediately notify the OWNER and Architect or Engineer and shall not proceed without further instructions.

### 3.2.3 CONSTRUCTION SCHEDULE

The CONTRACTOR, immediately after being awarded the contract, shall prepare and submit for the OWNER, and Architect or Engineer's information an estimated progress schedule for the work. The progress

schedule shall be related to the entire Project to the extent required by the Contract Documents and shall provide for expeditious and reasonable execution of the work, not to exceed the time limits for completion provided in the Contract Documents. The progress schedule shall be updated as the Work proceeds or the schedule changes and immediately upon request by the OWNER. The CONTRACTOR shall also prepare a schedule of submittals that allows for a reasonable time for the OWNER, Architect or Engineer to review the submittals so as not to delay the Project.

#### 3.2.4 TIME OF PERFORMANCE OF THE WORK

The CONTRACTOR shall begin the work to be performed under this Contract not later than 10 days from the date specified in the purchase or work order and shall conduct the work in such a manner and with sufficient equipment, material and labor as is necessary to insure its completion within the working time. It is the intent of this specification to provide a continuous construction operation without delay except as occasioned by unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, and it shall be the CONTRACTOR's responsibility to execute the work in the most expeditious manner.

Work shall be done only during the regular and commonly accepted and prescribed working hours. No work shall be done on nights, Sundays or regular holidays unless permission is given by the OWNER

Time is of the Essence for the performance of the Work by the CONTRACTOR. CONTRACTOR agrees that the time allotted for the performance of the Work is reasonable.

#### 3.2.5 PERFORMANCE OF EXTRA OR DISPUTED WORK

While the CONTRACTOR or his subcontractor is performing Extra Work in accordance with the OWNER'S written order, the cost of which is to be determined on a time and material basis, or is performing disputed work or complying with a determination or order under protest, the CONTRACTOR shall, on the Monday following the performance of the work, furnish the OWNER'S representative at the site with three copies of verified statements showing:

A. the name and number of each workman employed on such extra work or engaged in complying with such determination or order, the character of extra work each is doing and the wages paid to

him, including the rate and amount of payroll taxes, contributions for insurance, and federal social security; and

B. the nature, cost and quantity of any materials, plant equipment or construction equipment furnished or used in connection with the performance of such extra work or in complying with such determination or order, and from whom purchased or rented.

The CONTRACTOR and his subcontractors, when required by the OWNER, must also produce for inspection and audit by designated OWNER representatives, any and all of his books, vouchers, records, daily job diaries and reports, canceled checks, etc. showing the nature and quantity of labor, materials and equipment actually used in the performance of the extra work; the amounts expended therefore; and the costs incurred for insurance premiums and other items of expense directly chargeable to such extra work. The CONTRACTOR must permit the OWNER'S representatives to make extracts therefrom or copies thereof as may be desired.

Failure of the CONTRACTOR to comply strictly with the requirements of this section shall constitute a waiver of any claim for extra compensation on account of the performance of such extra work.

### 3.3 QUALITY OF WORK

#### 3.3.1 INSPECTION AND TESTS

The CONTRACTOR shall furnish the OWNER with every reasonable accommodation and opportunity to ascertain whether or not the work performed is in accordance with the requirements and intent of the plans and specifications. Any work done or materials used without suitable inspection by the OWNER may be ordered removed and replaced at the CONTRACTOR'S expense. The CONTRACTOR shall not be relieved from his obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the OWNER in his administration of the contract, or by inspections, tests or approvals required or performed by persons other than the CONTRACTOR.

Unless otherwise provided, the CONTRACTOR shall make arrangements for all tests, inspections and approvals with an independent testing laboratory or entity required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction over the Work or items to be tested, inspected or approved. If additional testing or inspection is required they shall be performed at the CONTRACTOR'S expense.

### 3.3.2 REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK

All work which has been rejected or condemned shall be repaired, or if it cannot be repaired satisfactorily, it shall be removed and replaced at the CONTRACTOR'S expense. Defective materials shall be immediately removed from the site of the work. Work done without line and grade having been given, work done beyond the lines or not in conformity with the grades shown on the plans or as given, save as herein provided, work done without written authority and prior agreement in writing as to process, shall be done at the CONTRACTOR'S risk and shall be considered unauthorized and at the option of the OWNER may be ordered removed at the CONTRACTOR'S expense.

Upon failure of the CONTRACTOR to repair satisfactorily or to remove and replace, if so directed, rejected, unauthorized or condemned work or materials immediately after receiving notice from the OWNER, the OWNER shall, after giving written notice to the CONTRACTOR, have the authority to cause defective work to be remedied or removed and replaced, or to cause unauthorized work to be removed and to deduct the cost thereof from any monies due or to become due the CONTRACTOR. Alternatively, the OWNER may, at its option, declare the CONTRACTOR in default.

### 3.3.3 WORKING AREA; COORDINATION WITH OTHER CONTRACTORS; FINAL CLEANUP

The CONTRACTOR shall confine his equipment, storage of materials and construction operations to the area shown on the contract drawings or stated in the specifications, prescribed by ordinance, laws, or permits or as may be directed by the OWNER, and shall not unreasonably encumber the site or public right-of-way with his construction equipment, plant or materials.

Such area shall not be deemed for the exclusive use of the CONTRACTOR. Other contractors of the OWNER may enter upon and use such portions of the area and for such items as determined by the OWNER are necessary for all purposes required by their contracts. The CONTRACTOR shall give to such other contractors all reasonable facilities and assistance to the end that the work on this and other contracts shall not be unduly or unreasonably delayed. Any additional areas desired by the CONTRACTOR for his use shall be provided by him at his own cost and expense.

The CONTRACTOR is responsible for cutting, fitting or patching any parts of the Work where such work is necessary to make the Work complete, for parts to fit together, or for any damage to the Work prior to Final Acceptance.

The CONTRACTOR shall keep the Project and the surrounding area clean and free from the accumulation of waste materials or trash. Upon completion of the work and before final acceptance and final payment shall be made, the CONTRACTOR shall completely clean and remove from the site of the work surplus and discarded materials, temporary structures and debris of every kind. He shall leave the site of the work in a neat and orderly condition equal to that which originally existed, or as called for in the Contract Documents. Surplus and waste materials removed from the site of the work shall be disposed of at locations satisfactory to the OWNER, and at the CONTRACTOR'S sole cost.

### 3.4 LEGAL RESPONSIBILITIES

#### 3.4.1. PATENTS AND COPYRIGHTS

The CONTRACTOR shall pay all royalties and license fees and shall provide, by suitable legal agreement with the patentee or owner, for the use of any design, device, material or process covered by letters, patent or any copyright. The CONTRACTOR shall indemnify, defend, hold and save the OWNER and its officers, employees and agents harmless from all liability and claims for infringement of any patent or copyright.

In the event that any claims, suit or action at law or in equity of any kind whatsoever is brought against the OWNER, or its officers, employees or agents involving any such patents, copyrights or license rights, then the OWNER shall have the right to and may retain from any money due or to become due to the CONTRACTOR such sum deemed necessary by the OWNER for its protection until such claim or suit shall have been settled and satisfactory evidence to that effect shall have been furnished the OWNER.

#### 3.4.2 INDEMNIFICATION

To the fullest extent permitted by law, the CONTRACTOR and his sureties shall indemnify, defend and hold harmless the OWNER and all of its, past, present and future, officers, agents and employees from all suits, cause of action, claims, liabilities, losses, fines, penalties, liens, demands, obligations, actions, proceedings, of any kind, character, name and description brought or arising, on account of any injuries or damages received or sustained by any person, destruction or damage to any property

on account of, in whole or part, the operations of the CONTRACTOR, his agents, employees or subcontractors; or on account of any negligent act or fault of the CONTRACTOR, his agents, employees or subcontractors in the execution of said Contract; failing to comply with any law, ordinance, regulation, rule or order of any governmental or regulatory body including those dealing with health, safety, welfare or the environment; on account of the failure of the CONTRACTOR to provide the necessary barricades, warning lights or signs; and shall be required to pay any judgment, with cost, which may be obtained against the OWNER growing out of such injury or damage. In no event shall OWNER be liable to CONTRACTOR for indirect or consequential damages or loss of income or profit irrespective of the cause, fault or reason for same. CONTRACTOR'S duty to indemnify herein shall not be limited by any limitation on the type or amount of damages payable by or for CONTRACTOR or any Subcontractor under workman's compensation acts, disability benefit acts or any other employee benefit acts.

In addition, the CONTRACTOR likewise covenants and agrees to, and does hereby, indemnify and hold harmless the OWNER from and against any and all injuries, loss or damages to property of the OWNER during the performance of any of the terms and conditions of this Contract, arising out of or in connection with or resulting from, in whole or in part, any and all alleged acts or omissions of officers, agents, servants, employees, contractors, subcontractors, licenses or invitees of the CONTRACTOR.

The rights and responsibilities provided in this indemnification provision shall survive the termination or completion of this Contract.

### 3.5 SUPERVISION AND CONSTRUCTION PROCEDURES

#### 3.5.1. SUPERVISION BY CONTRACTOR

The status of the CONTRACTOR is that of an independent CONTRACTOR under Texas law and the work under this Contract shall be under the direct charge and superintendence of the CONTRACTOR. Except where the CONTRACTOR is an individual and gives his personal superintendence to the work, the CONTRACTOR shall provide a competent superintendent or general foreman on the work site at all times during progress with full authority to act for the CONTRACTOR. The CONTRACTOR shall also provide an adequate staff for the coordination and expediting of the Work.

The superintendent and staff shall be satisfactory to the OWNER. The superintendent or general foreman shall not be changed during this Contract except with the written consent of the OWNER or unless the

superintendent or general foreman proves unsatisfactory to the CONTRACTOR and ceases to be in his employ.

If the superintendent should be or become unsatisfactory to the OWNER, he shall be replaced by the CONTRACTOR upon written direction of the OWNER, and in such event, the CONTRACTOR shall not be entitled to file a claim for any additional working time or money from the OWNER.

### 3.5.2 EMPLOYEES

The CONTRACTOR shall employ only competent, efficient workmen and shall not use on the work any unfit person or one not skilled in the work assigned to him and shall at all times maintain good order among its employees. Whenever the OWNER shall inform the CONTRACTOR in writing that, in his opinion, any employee is unfit, unskilled, disobedient, or is disrupting the orderly progress of the work, such employee shall be removed from the work and shall not again be employed on it. Under urgent circumstances, the OWNER may orally require immediate removal of an employee for cause, to be followed by written confirmation.

The CONTRACTOR shall supervise and direct all the work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences, procedures and safety procedures and for coordinating all portions of the Work under the Contract. The CONTRACTOR shall be responsible to the OWNER for the acts and omissions of his employees, subcontractors and their agents, employees and subcontractors performing any of the work under a contract with the CONTRACTOR.

### 3.5.3 LABOR AND MATERIALS

Unless otherwise provided in the Contract Documents, the CONTRACTOR shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation and other facilities and services necessary for the proper execution and completion of the work, whether temporary or permanent and whether or not incorporated or to be incorporated into the work.

The CONTRACTOR shall at all times enforce strict discipline and good order among his employees and shall not employ on the work site any unfit person or anyone not skilled in the task assigned to him.

The rate of progress shall be such that the whole work shall be performed and the premises cleaned up in accordance with the Contract within the

working time established in the Contract, unless an extension of time is made in the manner hereinafter specified.

3.5.4 WAGE SCALE

In accordance with The Texas Government Code, Title 10, Chapter 2258, Prevailing Wage Rates, the general prevailing wage rate has been determined for this locality for the craft or type of workman needed to execute work of a similar character of the project listed herein. The Contractor shall pay the prevailing wage rate in this locality to all his/her employees and subcontractors performing work on this project, and in no event shall the Contractor pay less than the rate shown in the following schedule.

GENERAL DECISION: TX20100057 03/12/2010 TX57

Date: March 12, 2010

General Decision Number: TX20100057 03/12/2010

Superseded General Decision Number: TX20080057

State: Texas

Construction Type: Building

Counties: Collin and Denton Counties in Texas.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes and apartments up to and including 4 stories). Use current heavy and highway General Wage Determination for Paving and Utilities incidental to Building Construction.)

Modification Number	Publication Date
0	03/12/2010

\* IRON0263-001 06/01/2009

	Rates	Fringes
IRONWORKER (Structural).....	\$ 21.60	4.40
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\* SUTX1989-002 11/01/1989

	Rates	Fringes
Acoustical Installer.....	\$ 12.27	
CARPENTER (Excluding Acoustical Installers & Drywall Hangers).....	\$ 12.36	1.38
DRYWALL HANGER.....	\$ 12.17	
ELECTRICIAN.....	\$ 13.10	1.97
Laborer, Unskilled (Excluding Landscape Laborers).....	\$ 7.25	.86

Painters:		
Brush & Spray.....	\$ 10.15	
Painters doing drywall finishing only.....	\$ 10.08	
PAPERHANGER.....	\$ 12.50	2.20
Plumbers and Pipefitters (Including HVAC Work).....	\$ 12.47	1.87
Power Equipment Operator Cranes.....	\$ 15.00	2.85
ROOFER, Including Built Up, Composition and Single Ply Roofs.....	\$ 10.17	1.10
Sheet metal worker (Including HVAC Duct Work).....	\$ 10.94	1.45
SPRINKLER FITTER.....	\$ 12.00	2.30

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.  
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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.  
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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

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WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the

Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

Except for work on legal holidays, the "General Prevailing Rate of Per Diem Wage" for the various crafts or type of workers or mechanics is the product of (a) the number of hours worked per day, except for overtime hours, times (b) the above respective rate per hour.

For legal holidays, the "General Prevailing Rate of Per Diem Wage" for the various crafts or type of workers or mechanics is the product of (a) one and one-half times the above respective rate per hour, times (b) the number of hours worked on the legal holiday.

For overtime work, the "General Prevailing Rate of Per Diem Wage" for the various crafts or type of workers or mechanics is the product of (a) one

and one-half times the above respective rate per hour, times (b) the number of hours worked on overtime.

Under the provisions of Texas Government Code, Title 10, Chapter 2258, Prevailing Wage Rates, the contractor or subcontractor of the contractor shall forfeit as a penalty to the entity on whose behalf the contract is made or awarded, sixty dollars (\$60.00) for each calendar day, or portion thereof, that the worker is paid less than the wage rates stipulated in the contract.

If the construction project involves the expenditure of Federal funds in excess of \$2,000, the minimum wages to be paid various classes of laborers and mechanics will be based upon the wages that will be determined by the Secretary of Labor to be prevailing for the corresponding classes of laborers and mechanics employed on the project of a character similar to the Contract Work.

- 3.5.5 Contractors doing business with Owner agree to comply with Federal Executive Order 13465 E-Verify. It is Owner's intention and duty to comply and support the Immigration and Nationality Act (INA) which includes provisions addressing employment eligibility, employment verification and non-discrimination. According to the INA, contractors/employers may hire only persons who may legally work in the United States. Subsequently, contractors and subcontractors doing business with Owner must confirm their enrollment in the E-Verify system which verifies employment eligibility through completion and checking of I-9 forms. Owner reserves the right to audit contractors process to verify enrollment compliance.

### 3.5.6 COMPLIANCE WITH LAWS

The CONTRACTOR shall fully comply with all local, state and federal laws, including all codes, ordinances and regulations applicable to this Contract and the Work to be done thereunder, which exist or which may be enacted later by governmental bodies having jurisdiction or authority for such enactment.

All work required under this Contract is intended to comply with all requirements of law, regulation, permit or license. If the CONTRACTOR finds that there is a variance, he shall immediately report this to the OWNER for resolution.

#### 3.5.6.1 EQUAL EMPLOYMENT OPPORTUNITY

The CONTRACTOR shall comply with all local, state and federal employment and discrimination laws and shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, national origin or any other class protected by law.

### 3.5.7 RAILWAY CROSSINGS

Where the Work encroaches upon any right-of-way of any railway, the OWNER shall secure the necessary easement for the work. Where railway tracks are to be crossed, the CONTRACTOR shall observe all the regulations and instructions of the railway company as to methods of doing the work or precautions for safety of property and the public. All negotiations with the railway company, except for right-of-way, shall be made by the CONTRACTOR. The railway company shall be notified by the CONTRACTOR not less than five days prior to commencing the work. The CONTRACTOR shall not be paid separate compensation for such railway crossing but shall receive only the compensation as set out in the proposal.

### 3.5.8 OTHER CONTRACTORS; OBLIGATION TO COOPERATE

The OWNER reserves the right to perform construction on the Project with its own forces or may award other contracts for additional work on this Project, and the CONTRACTOR shall fully cooperate with such other contractors and shall coordinate and fit his work to be done hereunder to such additional work as may be contracted by the OWNER. The CONTRACTOR shall not commit or permit any act which shall interfere with the performance of work by any other contractor.

Upon receiving written notice from the CONTRACTOR that the OWNER or another contractor is failing to coordinate his work with the Work under this Contract as directed by the OWNER, the OWNER shall promptly investigate the charge and take such necessary action as the situation may require. However, the OWNER shall not be liable to the CONTRACTOR for damages suffered by the CONTRACTOR due to the fault or negligence of another contractor or through failure of another contractor to carry out the directions of the OWNER. Should any interference occur between contractors, the Architect or Engineer may furnish the CONTRACTOR with written instructions designating priority of effort, whereupon the CONTRACTOR shall immediately comply with such direction. In such event, the CONTRACTOR shall be entitled to an extension of working time only for unavoidable delays verified by the Architect or Engineer; however, no increase in the Contract Price shall be due the CONTRACTOR.

### 3.5.9 SUBCONTRACTS

The CONTRACTOR shall not make any subcontract for performing any portion of the Work included in the contract without written notice to the OWNER. This contract having been made pursuant to the bid submitted

by the CONTRACTOR and in reliance with the CONTRACTOR'S personal qualifications and responsibility, the OWNER reserves the right to withhold approval of any subcontractor which the OWNER may deem would not be in the OWNER'S best interest.

The CONTRACTOR shall, as soon as practicable after signing the Contract, submit a separate written notice to the OWNER identifying each proposed subcontractor. Upon request of the OWNER, the CONTRACTOR shall promptly furnish additional information tending to establish that any proposed subcontractor has the necessary facilities, skill, integrity, past experience and financial resources to perform the work in accordance with the terms and conditions of this Contract.

If the OWNER determines that any proposed subcontractor is unacceptable, he shall so notify the CONTRACTOR, who may thereupon submit another proposed subcontractor unless the CONTRACTOR decides to do the work himself. Disapproval by the OWNER of any proposed subcontractor shall not provide a basis for any claim by the CONTRACTOR.

If an approved subcontractor fails to properly perform the work undertaken, he shall be removed from the job upon request of the OWNER, following notification to the CONTRACTOR in writing of the request for removal and the reasons therefore.

Each subcontract entered into shall provide that the provisions of this Contract shall apply to such subcontractor and his officers and employees in all respects as if he and they were employees of the CONTRACTOR. The OWNER'S decision not to disapprove of any subcontract shall not relieve the CONTRACTOR of any of his responsibilities, duties and liabilities hereunder. The CONTRACTOR shall be solely responsible for the acts, omissions, negligence or defaults of his subcontractors and of such subcontractor's officers, agents and employees, each of whom shall, for this purpose, be deemed to be the agent or employee of the CONTRACTOR to the extent of his subcontract.

The CONTRACTOR agrees to bind each subcontractor and each subcontractor agrees to be bound by the terms of the Contract Documents insofar as applicable to his work. The CONTRACTOR and each subcontractor jointly and severally agree that nothing in the Contract Documents or otherwise shall create or be deemed to create any rights in favor of a subcontractor against the OWNER; nor shall be deemed or construed to impose upon the OWNER any obligation, liability or duty to a subcontractor; or to create any contractual relation whatsoever between a subcontractor and the OWNER.

The provisions contained herein shall likewise apply to any sub-subcontracts.

### 3.6 PROTECTION OF WORK AND OF PERSONS AND PROPERTY

#### 3.6.1 PROTECTION OF WORK

During performance and up to date of final acceptance, the CONTRACTOR shall be under the absolute obligation to protect the finished work against any damage, loss or injury. In the event of such damage, loss or injury, the CONTRACTOR shall promptly replace or repair such work, whichever the OWNER shall determine to be preferable. The obligation to deliver finished work in strict accordance with the Contract prior to final acceptance shall be absolute and shall not be affected by the OWNER'S approval of or failure to prohibit means and methods of construction used by the CONTRACTOR. All risk of loss or damage to the work shall be borne solely by the CONTRACTOR until final completion and acceptance of all work by the OWNER, as evidenced by the OWNER'S issuance of a certificate of acceptance.

#### 3.6.2 PROTECTION OF PERSONS AND PROPERTY

The CONTRACTOR shall have the responsibility to provide and maintain all warning devices and take all precautionary measures required by law or otherwise to protect persons and property while said persons or property are approaching, leaving or within the work site or any area adjacent to said work site. No separate compensation shall be paid to the CONTRACTOR for the installation or maintenance of any warning devices, barricades, lights, signs or any other precautionary measures required by law or otherwise for the protection of persons or property.

The CONTRACTOR shall assume all duties owed by the OWNER to the general public in connection with the general public's immediate approach to and travel through the work site and the area adjacent to said work site.

Where the work is carried on in or adjacent to any street, alley, sidewalk, public right-of-way or public place, the CONTRACTOR shall at his own cost and expense provide such flagmen and watchmen and furnish, erect and maintain such warning devices, barricades, lights, signs and other precautionary measures for the protection of persons or property as may be prudent or necessary, or as are required by law. The CONTRACTOR'S responsibility for providing and maintaining flagmen, watchmen, warning devices, barricades, signs and lights and other precautionary measures shall not cease until the project shall have been completed and accepted by

the OWNER, and shall cease when the certificate of acceptance is issued by the OWNER pursuant to the Contract Documents.

If the OWNER discovers that the CONTRACTOR has failed to comply with the applicable federal and state law (by failing to furnish the necessary flagmen, warning devices, barricades, lights, signs or other precautionary measures for the protection of persons or property), the OWNER may order the CONTRACTOR to take such additional precautionary measures as required by law to be taken to protect persons and property.

In addition, the CONTRACTOR shall be held responsible for all damages to the work and other public or private property due to the failure of warning devices, barricades, signs, lights or other precautionary measures in protecting said property; and whenever evidence is found of such damage, the OWNER may order the damaged portion immediately removed and replaced by and at the cost and expense of the CONTRACTOR.

### **3.6.3 SAFETY; TRENCH SAFETY; UNDERGROUND UTILITY SAFETY; PUBLIC CONVENIENCE AND SAFETY;**

The CONTRACTOR shall be responsible for complying with state laws and federal regulations relating to safety, trench safety, and underground utility safety, including those which may be enacted during the performance under this Contract. The CONTRACTOR shall comply with the provisions of the The Standard Specifications and Standard Drawings from the Public Works Construction Standards-North Central Texas Council of Governments, 2004 edition and all subsequent addendums and the Instructions to Bidders regarding trench safety, public convenience and safety, and sanitary provisions. The CONTRACTOR shall be sole responsible for, the construction means and methods, techniques, sequences, or procedures, or for the safety precautions and programs in connection with the Work and the Project.

### **3.7 MATERIALS AND WORKMANSHIP; WARRANTIES AND GUARANTEES**

Unless otherwise expressly provided in the contract drawings or specifications, the work shall be performed in accordance with the best modern practice with materials and workmanship of the highest quality and suitable for their purpose. The OWNER shall judge and determine the CONTRACTOR'S compliance with these requirements.

#### **3.7.1 MATERIALS AND EQUIPMENT**

The CONTRACTOR shall be free to secure the approved materials, equipment and articles from sources of his own selection. However, if the OWNER finds that the work shall be delayed or adversely affected in any way because a selected source of supply cannot furnish a uniform product in sufficient quantity and at the time required and a suitable source does exist, or the product is not suitable for the Work, the OWNER shall have the right to require the original source of supply changed by the CONTRACTOR. The CONTRACTOR shall have no claim for extra cost or damage because of this requirement.

The CONTRACTOR warrants to the OWNER that all materials and equipment furnished under this contract shall be new unless otherwise specified in the Contract Documents and that same shall be of good quality and workmanship, free from faults and defects and in conformance with the Contract Documents. All materials and equipment not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective and shall be promptly repaired or replaced by the CONTRACTOR at the CONTRACTOR's sole cost upon demand of the OWNER. If required by the OWNER, the CONTRACTOR shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

#### 3.7.1.1 "OR EQUAL" CLAUSE

A. Whenever a material or article required is specified or shown on the plans, by using the name of a proprietary product or of a particular manufacturer or vendor, any material or article which the Architect or Engineer determines shall perform adequately the duties imposed by the general design or which the Architect or Engineer deems to be of similar appearance (in cases where appearance is of importance) shall be considered equal and satisfactory, provided the material or article so proposed is of equal substance and function. Authorization for any substitution of materials or articles must be obtained by the CONTRACTOR from the Architect or Engineer before proceeding with such substitution.

B. Should an authorized substitution require redesign of a portion of the work or alterations to the plans or specifications in order for the materials or articles which are to be substituted to properly fit or in other ways to be satisfactory, the Architect or Engineer shall accomplish such redesigns and alterations. The CONTRACTOR shall

bear all reasonable costs associated with redesign and alteration efforts performed by the Architect or Engineer.

### 3.7.2 WORKMANSHIP

The CONTRACTOR shall promptly correct or replace all work rejected by the OWNER as defective or as failing to conform to the Contract Documents whether observed before or after substantial completion and whether or not fabricated, installed or completed. The CONTRACTOR shall bear all costs of correcting such rejected work, including costs incurred for additional services made necessary thereby.

## 3.8 WARRANTIES

### 3.8.1 SPECIAL WARRANTY

If within one year after final acceptance of the work by the OWNER, as evidenced by the final certificate of acceptance or within such longer or shorter period of time as may be prescribed by law or by the terms of any other applicable special warranty on designated equipment or portions of work as required by the Contract Documents, any of the work is found to be defective or not in accordance with the Contract Documents, the CONTRACTOR shall correct it promptly after receipt of a written notice from the OWNER to do so. This obligation shall survive termination or completion of the Contract. The OWNER shall give such notice promptly after discovery of the condition.

The CONTRACTOR shall remove from the site all portions of the work which are defective or nonconforming and which have not been corrected unless removal is waived in writing by the OWNER.

### 3.8.2 SUBCONTRACTORS' AND MANUFACTURERS' WARRANTIES

All subcontractors', manufacturers' and suppliers' warranties and guarantees, express or implied, respecting any part of the work and any materials used therein, shall be obtained and enforced by the CONTRACTOR for the benefit of the OWNER without the necessity of separate transfer or assignment thereof.

### 3.8.3 CORRECTED WORK WARRANTY

Any work repaired or replaced, pursuant to this section, shall be subject to the provisions of this section to the same extent as work originally performed.

### 3.8.4 RIGHTS AND REMEDIES

The rights and remedies of the OWNER provided in this section are in addition to, and do not limit, any rights or remedies afforded to the OWNER by law or any other provision of the Contract Documents, or in any way limit the OWNER'S right to recovery of damage due to default under the Contract. No action or inaction by the OWNER shall constitute a waiver of a right or duty afforded it under the Contract.

#### IV. INSURANCE

##### 4.1 CONTRACTOR'S INSURANCE

Before commencing work, the CONTRACTOR and each subcontractor shall be required, at its own expense, to furnish the Collin County Purchasing Agent with certified copies of all insurance certificate(s) required by Texas Law, and the coverages required herein, indicating the coverage is to remain in force throughout the term of this Contract. Without limiting any of the other obligations or liabilities of the CONTRACTOR, during the term of the Contract the CONTRACTOR and each subcontractor at their own expense shall purchase and maintain the herein stipulated minimum insurance with companies duly approved to do business in the State of Texas and satisfactory to the OWNER. Certificates of each policy shall be delivered to the OWNER before any work is started, along with a written statement from the issuing company stating that said policy shall not be canceled, nonrenewed or materially changed without 30 days advance written notice being given to the OWNER.

In addition to any coverage required by Texas Law, the CONTRACTOR shall provide the following coverages at not less than the specified amounts:

- 4.2 Workers Compensation insurance required by Texas Law at statutory limits, including employer's liability coverage at minimum limits. In addition to these, the CONTRACTOR must comply with all the requirements of the Texas Department of Insurance, Division of Workers' Compensation; (Note: If you have questions concerning these requirements, you are instructed to contact the DWC.)

By signing this contract or providing or causing to be provided a certificate of coverage, the CONTRACTOR is representing to the OWNER that all employees of the CONTRACTOR and its subcontractors who will provide services on the Project will be covered by workers compensation coverage for the duration of the Project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the CONTRACTOR to administrative penalties, criminal penalties, civil penalties, or other civil actions.

The CONTRACTOR'S failure to comply with any of these provisions is a breach of Contract by the Contractor which entitles the OWNER to declare the Contract void if the CONTRACTOR does not remedy the breach within ten (10) days after receipt of notice of breach from the OWNER.

- 4.3 Broad form commercial general liability insurance, including independent contractor's liability, completed operations and contractual liability, written on an occurrence form, covering, but not limited to, the liability assumed under the indemnification provisions of this contract, fully insuring CONTRACTOR'S (or subcontractor's) liability for injury to or death of OWNER'S employees and third parties, extended to include personal injury liability coverage with damage to property, with minimum limits as set forth below:

General Aggregate \$2,000,000

Products — Components/Operations Aggregate \$1,000,000

Personal and Advertising Injury \$ 1,000,000

Each Occurrence \$ 1,000,000

4.3.1 The policy shall include coverage extended to apply to completed operations, asbestos hazards (if this project involves work with asbestos) and XCU (explosion, collapse and underground) hazards. The completed operations coverage must be maintained for a minimum of one year after final completion and acceptance of the work, with evidence of same filed with OWNER.

- 4.4 Comprehensive automobile and truck liability insurance, covering owned, hired and non-owned vehicles, with a combined bodily injury and property damage minimum limit of \$600,000 per occurrence; or separate limits of \$500,000 for bodily injury (per person), \$500,000 for bodily injury (per accident) and \$100,000 for property damage. Such insurance shall include coverage for loading and unloading hazards.

#### 4.5 OWNER'S PROTECTIVE LIABILITY INSURANCE

CONTRACTOR shall obtain, pay for and maintain at all times during the prosecution of the work under this contract an OWNER'S protective liability insurance policy naming the OWNER as insured for property damage and bodily injury, which may arise in the prosecution of the Work or CONTRACTOR'S operations under this Contract. Coverage shall be on an "occurrence" basis, and the policy shall be issued by the same insurance company that carries the CONTRACTOR'S liability insurance with a combined bodily injury and property damage minimum limit of \$1,000,000 per occurrence and \$2,000,000 aggregate.

#### 4.6 "UMBRELLA" LIABILITY INSURANCE

CONTRACTOR shall obtain, pay for and maintain umbrella liability insurance during the contract term, insuring CONTRACTOR for an amount of not less than \$1,000,000 per occurrence combined limit for bodily injury and property damage that follows from and applies in excess of the primary liability coverages required hereinabove. The policy shall provide "drop down" coverage where underlying primary insurance coverage limits are insufficient or exhausted. OWNER shall be named as an additional insured.

#### 4.7 RAILROAD PROTECTIVE INSURANCE

When required in the Special Provisions, CONTRACTOR shall obtain, maintain and present evidence of railroad protective insurance (RPI). The policy shall be in the name of the railroad company having jurisdiction over the right-of-way involved. The minimum limit of coverage shall meet the specifications provided by the railroad company. The OWNER shall specify the amount of RPI necessary.

#### 4.8 POLICY ENDORSEMENTS AND SPECIAL CONDITIONS

Each insurance policy to be furnished by CONTRACTOR shall include the following conditions by endorsement to the policy:

- A. each policy shall name the OWNER as an additional insured as to all applicable coverage;
- B. each policy shall require that 30 days prior to the cancellation, nonrenewal or any material change in coverage, a notice thereof shall be given to OWNER by certified mail;
- C. the term "OWNER" shall include all past, present or future, authorities, boards, bureaus, commissions, divisions, departments and offices of the OWNER and individual members, elected official, officers, employees and agents thereof in their official capacities and/or while acting on behalf of the OWNER;
- D. the policy phrase "other insurance" shall not apply to the OWNER where the OWNER is an additional insured on the policy;
- E. all provisions of the contract concerning liability, duty and standard of care together with the indemnification provision, shall be underwritten by contractual liability coverage sufficient to include such obligations within applicable policies;
- F. each policy shall contain a waiver of subrogation in favor of OWNER, and its, past, present and future, officials, employees, and volunteers; and,
- G. each certificate of insurance shall reference the Project and Contract number, contain all the endorsement required herein, and require a notice to the OWNER of cancellation.

Insurance furnished by the CONTRACTOR shall be in accordance with the following requirements:

A. any policy submitted shall not be subject to limitations, conditions or restrictions deemed inconsistent with the intent of the insurance requirements to be fulfilled by the CONTRACTOR. The OWNER'S decision thereon shall be final;

B. all policies are to be written through companies duly licensed to transact that class of insurance in the State of Texas with a financial ratings of B+ VII or better as assigned by BEST Rating Company or equivalent; and

C. All liability policies required herein shall be written with an "occurrence" basis coverage trigger.

CONTRACTOR agrees to the following:

A. CONTRACTOR hereby waives subrogation rights for loss or damage to the extent same are covered by insurance. Insurers shall have no right of recovery or subrogation against the OWNER, it being the intention that the insurance policies shall protect all parties to the Contract and be primary coverage for all losses covered by the policies;

B. Companies issuing the insurance policies and CONTRACTOR shall have no recourse against the OWNER for payment of any premiums or assessments for any deductibles, as all such premiums and deductibles are the sole responsibility and risk of the CONTRACTOR;

C. Approval, disapproval or failure to act by the OWNER regarding any insurance supplied by the CONTRACTOR (or any subcontractors) shall not relieve the CONTRACTOR of full responsibility or liability for damages and accidents as set forth in the Contract Documents. Neither shall the bankruptcy, insolvency or denial of liability by the insurance company exonerate the CONTRACTOR from liability; and

D. No special payments shall be made for any insurance that the CONTRACTOR and subcontractors are required to carry; all are included in the Contract Price and the Contract unit prices. Any of such insurance policies required under this section may be written in combination with any of the others, where legally permitted, but none of the specified limits may be lowered thereby.

## **V. OWNERS RIGHTS AND RESPONSIBILITIES**

### **MONTHLY ESTIMATE, PARTIAL PAYMENTS AND FINAL PAYMENTS**

5.1 Progress and final payments shall be paid to the Contractor based upon the progress of the Project as indicated by the approved Applications for Payment, certificates of acceptance, or Certificates for Payment, that include an approved Schedule of Values that will be submitted by the CONTRACTOR to the OWNER prior to the commencement of the Work and in accordance with the following:

5.2 MONTHLY ESTIMATES

The CONTRACTOR shall deliver to the OWNER an itemized Application for Payment that shall include the work completed, materials stored at the Project site but not incorporated into the work, materials ready to be installed and stored at another agreed location, and the percentage of Work completed, through the 20<sup>th</sup> day of each month, on an Application for Payment with a schedule of values previously submitted by the Contractor and approved by the Owner. Prior to release of funds in connection with any Application for Payment, the Owner may request, and the Contractor must provide, properly executed statements of full or partial releases of claims acceptable to Owner in form and content, for all persons or entities supplying labor or materials to the Project.

5.2.1 The Application for Payment is a representation by the CONTRACTOR to the OWNER that the construction has progressed to the point indicated, the quality of the Work covered by the application is in accordance with the Contract Documents, and the Contractor is entitled to payment in the amount requested.

#### 5.2.2 INSPECTION AND PARTIAL PAYMENTS

Whenever the CONTRACTOR shall submit an Application for Payment to the OWNER for work performed by the CONTRACTOR, the CONTRACTOR shall notify the Architect or Engineer that the improvement is ready for inspection. The Architect or Engineer shall then make such inspection, and will have the authority to reject work that does not conform to the Contract Documents. If the work is satisfactory and in accordance with the specifications and Contract Documents, the Architect or Engineer shall issue a Certificate for Payment.

5.2.3 Within thirty (30) days of the Owner's receipt of a properly submitted and correct Application for Payment, and the issuance of a Certificate for Payment, the Owner shall make payment to the Contractor, in the amount approved by the Owner less 5% retainage. Such payment shall be adjusted for work that is incomplete or not in accordance with the Contract Documents or that is the subject of a separate contract, or subcontract or supplier claim or lien against the Contractor or the payment bonds for the project.

5.2.4 No partial or final payment or the entire use or occupancy of the Project by the OWNER shall be considered acceptance of work that does not strictly comply with the Contract Documents or release the CONTRACTOR of any of his responsibilities under the Contract.

#### 5.2.5 PAYMENT FOR LABOR AND MATERIAL; NO LIENS

The CONTRACTOR for himself or any of his subcontractors shall pay all indebtedness which may become due to any person, firm or corporation having furnished labor, material or both in the performance of this Contract. It shall be the responsibility of each person, firm or corporation claiming to have furnished labor, materials or both, in connection with this Contract, to protect his or its interest in the manner prescribed by applicable laws of the State of Texas, provided, however, that as this Contract provides for a public works project, no lien of any kind shall ever exist or be placed against the Work or any portion thereof, or any public funds or retainage held by the OWNER; and any subcontractor shall look solely to the CONTRACTOR and the payment bond surety, and not the OWNER, for payment of any outstanding amounts due for labor, materials or any other indebtedness in connection with the Work. However, the OWNER may, at any time prior to making final payment, require the CONTRACTOR to furnish a Consent of Surety to any payment due the CONTRACTOR for completed work and may, at the discretion of the OWNER or the request of the Surety, make the check jointly payable to the CONTRACTOR and the Surety. The Owner shall have no obligation under this Agreement to pay or to be responsible in any way for payment to any Architect, Engineer, another design professional, contractor, subcontractor or supplier performing portions of the Work, pursuant to a contract with the Contractor.

#### 5.2.6 PAYMENT WITHHELD

In addition to express provisions elsewhere contained in the contract, the OWNER may withhold from any payment otherwise due the CONTRACTOR such amount as determined necessary to protect the OWNER'S interest, or, if it so elects, may withhold or retain all or a portion of any progress payment or refund payment on account of:

- A. unsatisfactory progress of the Work not caused by conditions beyond the CONTRACTOR'S control,
- B. defective work not corrected,
- C. CONTRACTOR'S failure to carry out instructions or orders of the OWNER or his representative,
- D. a reasonable doubt that the Contract can be completed for the balance then unpaid,
- E. work or execution thereof not in accordance with the Contract Documents,
- F. claim filed by or against the CONTRACTOR or reasonable evidence indicating probable filing of claims,
- G. failure of the CONTRACTOR to make payments to subcontractor or for material or labor,
- H. damage to another contractor,

I. unsafe working conditions allowed to persist by the CONTRACTOR,  
 J. failure of the CONTRACTOR to provide work schedules as required by the OWNER,  
 K. use of subcontractors without the OWNER'S approval or,  
 L. failure of the CONTRACTOR to keep current as-built record drawings at the job site or to turn same over in completed form to the OWNER.  
 When the above grounds are removed, payment shall be made for amounts withheld because of them, and OWNER shall never be liable for interest on any delayed or late payment.

#### 5.2.7 PAYMENT FOR EXTRA WORK

The extra work done by the CONTRACTOR as authorized and approved by the Architect or Engineer shall be paid for in the manner hereinafter described, and the compensation thus provided shall be accepted by the CONTRACTOR as payment in full for all labor, materials, tools, equipment and incidentals and all superintendents' and timekeepers' services, all insurance, bond and all other overhead expense incurred in the performance of the extra work.

Payment for extra work shall be made by one of the following methods:

A. Method "A" — by unit prices agreed on in writing by the OWNER and CONTRACTOR before said extra work is commenced, subject to all other conditions of the contract.

B. Method "B" — by lump sum price agreed on in writing by the OWNER and the CONTRACTOR before said extra work is commenced, subject to all other conditions of the contract.

#### 5.2.8 SUBSTANTIAL COMPLETION

The Project will be considered substantially complete when the OWNER can utilize the Project for its intended purpose and the Work is in conformance with the Contract Documents.

#### 5.3 APPLICATION FOR FINAL PAYMENT.

Upon full performance of all the Contract Work and the full performance of all the provisions of the Contract, the CONTRACTOR shall submit a final application for payment to the OWNER, the CONTRACTOR shall notify the Architect or Engineer that the improvement is ready for inspection. All warranties and guaranties required of the CONTRACTOR by the Contract Documents shall be assembled and delivered by the CONTRACTOR to the OWNER as Part of the final Application for Payment. The Contractor will assign to the Owner all

manufacturer's warranties relating to materials and labor used in the work and will perform the Work in such a manner as to preserve all such manufacturer's warranties. The CONTRACTOR will deliver a certificate evidencing that insurance and bonds required by the Contract Documents will remain in full force and effect pursuant to the requirements of the Contract. The final Certificate for Payment will not be issued until all such warranties and guaranties have been received and accepted by the Owner, and a Certificate of Acceptance is issued by the Architect or Engineer.

### 5.3.1 FINAL INSPECTION AND ACCEPTANCE

Whenever the improvements provided for by the Contract shall have been completely performed on the part of the CONTRACTOR, the CONTRACTOR shall notify the OWNER, and Architect or Engineer that the improvement is ready for final inspection. The Architect or Engineer shall then make such final inspection, and if the work is satisfactory and in accordance with the specifications and Contract Documents, the CONTRACTOR shall be issued a certificate of acceptance.

### 5.3.2 FINAL PAYMENT

Whenever the improvements provided for by the Contract shall have been completely performed on the part of the CONTRACTOR, as evidenced in the certificate of acceptance, and all required submissions provided to the OWNER, a final estimate showing the value of the work shall be prepared by the Architect or Engineer as soon as the necessary measurements and computations can be made. All prior estimates upon which payments have been made are subject or necessary corrections or revisions in the final payment. The amount of this final estimate, less any sums that have been previously paid, or deducted under the provisions of the Contract, shall be paid the CONTRACTOR within 30 days after the final acceptance, provided that the CONTRACTOR has furnished to the OWNER a consent of surety and an affidavit or other satisfactory evidence that all indebtedness connected with the Work and all sums of money due for any labor, materials, apparatus, fixtures or machinery furnished for and used in the performance of the work have been paid or otherwise satisfied, or that the person or persons to whom the same may respectively be due have consented to such final payment.

The acceptance by the CONTRACTOR of the final payment as aforesaid shall operate as and shall be a release to the OWNER from all claims or liabilities under the Contract, including all subcontractor claims, for anything done or furnished or relating to the Work under the Contract or for any act or neglect of said OWNER relating to or connected with the Contract.

All warranties and guarantees shall commence from the date of the certificate of acceptance. No interest shall be due the CONTRACTOR on any partial or final payment or on the retainage.

### **5.3 MODIFICATIONS TO CONTRACT WORK OR TIME OF PERFORMANCE**

#### **5.3.1 OWNER'S RIGHT TO TEMPORARILY SUSPEND WORK**

#### **5.3.2 REASONS FOR SUSPENSION**

The OWNER shall have the right by written order to temporarily suspend the work, in whole or in part, whenever, in the judgment of the OWNER, such temporary suspension is required:

- A. in the interest of the OWNER generally,
- B. due to government or judicial controls or orders which make performance of this contract temporarily impossible or illegal,
- C. to coordinate the work of separate contractors at the job site,
- D. to expedite the completion of a separate contract even though the completion of this particular Contract may be thereby delayed,
- E. because of weather conditions unsuitable for performance of the Work, or
- F. because the CONTRACTOR is proceeding contrary to contract provisions or has failed to correct conditions considered unsafe for workmen.

The written order of the OWNER to the CONTRACTOR shall state the reasons for suspending the work and the anticipated periods for such suspension. Upon receipt of the OWNER'S written order, the CONTRACTOR shall suspend the work covered by the order and shall take such means and precautions as may be necessary to properly protect the finished and partially finished work, the unused materials and uninstalled equipment, including the providing of suitable drainage about the work and erection of temporary structures where necessary. The CONTRACTOR shall not suspend the Work without written direction from the OWNER and shall proceed with the work promptly when notified by the OWNER to resume operations.

#### **5.3.3 NO ADDITIONAL COMPENSATION**

No additional compensation shall be paid to the CONTRACTOR for a temporary suspension of the Work by the OWNER or otherwise where same is caused by the fault of the CONTRACTOR. Where such temporary

suspension is not due to the fault of the CONTRACTOR, he shall be entitled to:

A. an equitable extension of working time for the completion of the work, not to exceed the delay caused by such temporary suspension, as determined by the OWNER; and

B. the actual and necessary costs of properly protecting the finished and partially finished work, unused materials and uninstalled equipment during the period of the ordered suspension as determined by the OWNER as being beyond the Contract requirements, such costs, if any, to be determined pursuant to the terms of the Contract; and

C. where the CONTRACTOR elects to move equipment from the job site and then return it to the site when the work is ordered resumed, the actual and necessary costs of these moves, in an amount determined by the OWNER pursuant to the terms of the Contract.

#### 5.3.4 USE OF COMPLETED PORTIONS OF WORK

The OWNER may, after written notice to the CONTRACTOR, and without incurring any liability for increased compensation to the CONTRACTOR, take over and use any completed portion of the Work prior to the final completion and acceptance of the entire work included in the Contract, and notwithstanding that the time allowed for final completion has not expired. The OWNER and CONTRACTOR agree that occupancy of portions of the Work by the OWNER shall not in any way evidence the substantial completion of the entire work or signify the OWNER's acceptance of the Work.

The CONTRACTOR shall not object to, nor interfere in any way with, such occupancy or use after receipt of the OWNER'S written notice. Immediately prior to such occupancy and use, the OWNER shall inspect such portion of the Work to be taken over and shall furnish the CONTRACTOR a written statement of the work, if any, still to be done on such part. The CONTRACTOR shall promptly thereafter complete such unfinished work to permit occupancy and use on the date specified in the OWNER'S written order, unless the OWNER shall permit specific items of work to be finished after the occupancy and use by the OWNER.

In the event the CONTRACTOR is unreasonably delayed by the OWNER exercising its rights under this section, the CONTRACTOR may submit a request for an extension of time; CONTRACTOR'S sole remedy for an

unreasonable delay shall be an extension of time and shall not be entitled to any additional compensation.

#### 5.4 COMMENCEMENT; TIME OF COMPLETION; DELAYS; EXTENSION OF TIME; LIQUIDATED DAMAGES

##### 5.4.1 COMMENCEMENT; TIME OF COMPLETION

Contractor shall commence work within ten (10) consecutive calendar days after receiving from County a notice to proceed. Contractor agrees and covenants that the number of consecutive calendar days allowed to complete all work following a notice to proceed shall be as follows:

*Time of Completion as per Engineer or Contractor*

##### 5.4.2. LIQUIDATED DAMAGES FOR FAILURE TO COMPLETE ON TIME

Time is of the essence in the progress and completion of this Contract. For each calendar day that any Work shall remain uncompleted after the time specified in the proposal and the Contract, or the increased time granted by the OWNER, or as equitably increased by additional work or materials ordered after the Contract is signed, the sum per day given in the following schedule, unless otherwise specified in the special provisions, shall be deducted from the monies due the CONTRACTOR:

Five Hundred Dollars (\$500.00) per day.

The sum of money thus deducted for such delay, failure or noncompletion is not to be considered as a penalty, but shall be deemed, taken and treated as reasonable liquidated damages, per calendar day that the CONTRACTOR shall be in default after the time stipulated in the Contract for completing the Work. The said amounts are fixed and agreed upon by and between OWNER and CONTRACTOR because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER in such event would sustain; and said amounts are agreed to be the amount of damages which the OWNER would sustain and which shall be retained from the monies due, or that may become due, the CONTRACTOR under this Contract; and if said monies be insufficient to cover the amount owing, then the CONTRACTOR or his surety shall pay any additional amounts due.

##### 5.4.3 EXTENTIONS OF TIME

The CONTRACTOR shall be entitled to an extension of working time under this Contract only when claim for such extension is submitted to the OWNER in writing by the CONTRACTOR within seven days from and after the time when any alleged cause of delay shall occur, and then only

when such time is approved by the OWNER. In adjusting the Contract working time for the completion of the Project, unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including, acts of God or the public enemy, acts of the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or delays of subcontractors due to such causes beyond their control shall be taken into consideration.

If the satisfactory execution and completion of the Contract should require work and materials in greater amounts or quantities than those set forth in the Contract, requiring more time for completion than the anticipated time, then the contract working time shall be equitably increased, but not more than in the same proportion as the cost of the additional work bears to the cost of the original work contracted for. No allowances shall be made for delays or suspension of the performance of the Work due to the fault of the CONTRACTOR.

No adjustment to working time shall be made if, concurrently with the equitable cause for delay, there existed a cause for delay due to the fault or negligence of the CONTRACTOR, his agents, employees or subcontractors; and no adjustment shall be made to the Contract Price and the CONTRACTOR shall not be entitled to claim or receive any additional compensation as a result of or arising out of any delay resulting in adjustment to the working time hereunder, including delays caused by the acts or negligence of the OWNER. Notwithstanding any other provision of the Contract Documents, all claims for extension of working time must be submitted in accordance with the provisions of this Contract, and no act of the OWNER shall be deemed a waiver or entitlement of such extension.

## 5.5 TERMINATION FOR CONVENIENCE OF THE OWNER

### 5.5.1 NOTICE OF TERMINATION

The performance of the Work under this Contract may be terminated by the OWNER in whole or from time to time in part, in accordance with this section, whenever the OWNER shall determine that such termination is in the best interest of the OWNER. Any such termination shall be effected by mailing a notice of termination to the CONTRACTOR specifying the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective. Receipt of the notice shall be deemed conclusively presumed and established when the letter is placed in the United States Mail by the OWNER. Further, it shall be deemed conclusively presumed and established that such termination is made with just cause as therein stated; and no proof in any claim, demand

or suit shall be required of the OWNER regarding such discretionary action.

#### 5.5.2 CONTRACTOR ACTION

After receipt of a notice of termination, and except as otherwise directed by the OWNER, Architect or Engineer, the CONTRACTOR shall:

- A. stop work under the Contract on the date and to the extent specified in the notice of termination;
- B. place no further orders or subcontracts for materials, services or facilities except as may be necessary for completion of such portion the Work under the Contract as is not terminated;
- C. terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the notice of termination;
- D. transfer title to the OWNER and deliver in the manner, at the times, and to the extent, if any, directed by the OWNER, Architect or Engineer:
  - 1. the fabricated or unfabricated parts, work in process, completed work, supplies and other material produced as a part of, or acquired in connection with the performance of, the work terminated by the notice of termination; and
  - 2. the completed or partially completed plans, drawings, information and other property which, if the Contract had been completed, would have been required to be furnished to the OWNER.
- E. complete performance of such part of the work as shall not have been terminated by the notice of termination; and
- F. take such action as may be necessary, or as the Architect or Engineer may direct, for the protection and preservation of the property related to its Contract which is in the possession of the CONTRACTOR and in which the OWNER has or may acquire an interest.

At a time not later than 30 days after the termination date specified in the notice of termination, the CONTRACTOR may submit to the OWNER a list, certified as to the quantity and quality, of any or all items of termination inventory not previously disposed of, exclusive of items the disposition of which has been directed or authorized by the Architect or Engineer. Not later than 15 days thereafter, the OWNER shall accept title to such items and remove them or enter into a storage agreement covering the same, provided that the list submitted shall be subject to verification by the Architect or Engineer upon removal of the items, or, if the items are stored, within 45 days from the date of submission of the list, and provided

that any necessary adjustments to correct the list as submitted shall be made prior to final settlement.

#### 5.5.3 TERMINATION CLAIM

Within 60 days after notice of termination, the CONTRACTOR shall submit his termination claim to the Architect or Engineer in the form and with the certification prescribed by the OWNER. Unless one or more extensions in writing are granted by the OWNER upon request of the CONTRACTOR, made in writing within such 60-day period or authorized extension thereof, any and all such claims shall be conclusively deemed waived.

#### 5.5.4 AMOUNTS

The CONTRACTOR and OWNER may agree upon the whole or any part of the amount or amounts to be paid to the CONTRACTOR by reason of the total or partial termination of work pursuant hereto, provided that such agreed amount or amounts shall never exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the Contract Price of work not terminated. The contract shall be amended accordingly, and the CONTRACTOR shall be paid the agreed amount. No amount shall be due for lost or anticipated profits. Nothing prescribing the amount to be paid to the CONTRACTOR in the event of failure of the CONTRACTOR and the OWNER to agree upon the whole amount to be paid to the CONTRACTOR by reason of the termination of work pursuant to this section, shall be deemed to limit, restrict or otherwise determine or affect the amount or amounts which may be agreed upon to be paid to the CONTRACTOR pursuant to this paragraph.

#### 5.5.5 FAILURE TO AGREE

In the event of the failure of the CONTRACTOR and the OWNER to agree, as provided herein, upon the whole amount to be paid to the CONTRACTOR by reason of the termination of work pursuant to this section, the OWNER shall determine, on the basis of information available to it, the amount, if any, due to the CONTRACTOR by reason of the termination and shall pay to the CONTRACTOR the amounts determined. No amount shall be due for lost or anticipated profits.

#### 5.5.6 DEDUCTIONS

In arriving at the amount due the CONTRACTOR under this section, there shall be deducted (a) all unliquidated advance or other payments on

account theretofore made to the CONTRACTOR, applicable to the terminated portion of this contract; (b) any claim which the OWNER may have against the CONTRACTOR in connection with this Contract; and (c) the agreed price for or the proceeds of sale of any materials, supplies or other things kept by the CONTRACTOR or sold, pursuant to the provisions of this clause, and not otherwise recovered by or credited to the OWNER.

#### 5.5.7 ADJUSTMENT

If the termination hereunder be partial prior to the settlement of the terminated portion of this Contract, the CONTRACTOR may file with the Owner a request in writing for an equitable adjustment of the price or prices specified in the Contract relating to the continued portion of the Contract (the portion not terminated by the notice of termination), and such equitable adjustment as may be agreed upon shall be made in such price or prices; nothing contained herein, however, shall limit the right of the OWNER and the CONTRACTOR to agree upon the amount or amounts to be paid to the CONTRACTOR for the completion of the continued portion of the Contract when said contract does not contain an established contract price for such continued portion.

#### 5.5.8 NO LIMITATION OF RIGHTS

Nothing contained in this section shall limit or alter the rights which the OWNER may have for termination of this Contract under any other provision of this Contract or any other right which OWNER may have for default or breach of contract by CONTRACTOR.

#### 5.6 CONTRACTOR DEFAULT: OWNER'S RIGHT TO SUSPEND WORK AND ANNUL CONTRACT

The Work or any portion of the Work under contract shall be suspended immediately on written order of the OWNER declaring the CONTRACTOR to be in default. A copy of such notice shall be served on the CONTRACTOR'S surety. The contract may be annulled by the OWNER for any good cause or causes, among others of which special reference is made to the following:

- A. failure of the CONTRACTOR to start the work within 10 days from date specified in the written work order issued by the OWNER to begin the work;
- B. evidence that the progress of the work being made by the CONTRACTOR is insufficient to complete the work within the specified working time;

- C. failure of the CONTRACTOR to provide sufficient and proper equipment, materials or construction forces for properly executing the Work;
- D. evidence that the CONTRACTOR has abandoned the Work or discontinuance of the performance of the Work or any part thereof and failure to resume performance within a reasonable time after notice to do so;
- E. evidence that the CONTRACTOR has become insolvent or bankrupt, or otherwise financially unable to carry on the Work;
- F. deliberate failure on the part of the CONTRACTOR to observe any requirements of the specifications or to comply with any orders given by the Architect or Engineer as provided for in the specifications;
- G. failure of the CONTRACTOR to promptly make good any defects in materials or workmanship, or any defects of any nature, the correction of which has been directed in writing by the OWNER;
- H. evidence of collusion for the purpose of illegally procuring a contract or perpetrating fraud on the OWNER in the construction of work under contract;
- I. repeated violations of safe working procedures;
- J. the filing by the CONTRACTOR of litigation against the OWNER prior to final completion of the Work. When the Work is suspended for any of the causes itemized above, or for any other cause or causes, the CONTRACTOR shall discontinue the Work or such part thereof as the OWNER shall designate, whereupon the surety may either at its option assume the Contract or that portion thereof which the OWNER has ordered the CONTRACTOR to discontinue and perform the same or, with the written consent of the OWNER, sublet the same, provided, however, that the surety shall exercise its option within two weeks after the written notice to discontinue the work has been served upon the CONTRACTOR and upon the surety or its authorized agents. The surety in such event shall assume the CONTRACTOR'S place in all respects and shall be paid by the OWNER for all work performed by it in accordance with the terms of the Contract, but in no event shall such payments exceed the contract amount, regardless of the cost to the surety to complete the Work.

In the event that the surety assumes the CONTRACTOR'S place, duties and responsibilities in the Contract, all monies remaining due the CONTRACTOR at the time of his default shall thereupon become due and payable to the surety as the work progresses, subject to all terms of the Contract. In case the surety does not, within the hereinabove specified time, exercise its obligation to assume the Contract or that portion thereof which the OWNER has ordered the CONTRACTOR to discontinue, then the OWNER shall have the power to complete by contract or otherwise, as it may determine, the Work herein described or such part thereof as it may deem necessary; and the CONTRACTOR hereto agrees that the OWNER shall have the right to take possession of or use any or all

of the materials, plans, tools, equipment, supplies and property of every kind provided by the CONTRACTOR for the purpose of the Work and to procure other tools, equipment and materials for the completion of the same and to charge to the account of the CONTRACTOR the expense of said contract for labor, materials, tools, equipment and expenses incident thereto. The expense so charged shall be deducted by the OWNER out of such monies as may be due or may at any time thereafter become due the CONTRACTOR under and by virtue of the Contract or any part thereof.

The OWNER shall not be required to obtain the lowest bid for the work of completing the Contract, but the expenses to be deducted shall be the actual cost of such work. In case such expense is less than the sum which would have been payable under the contract if the same had been completed by the CONTRACTOR, then in such case the OWNER may pay the CONTRACTOR the difference in the cost, provided that the CONTRACTOR shall not be entitled to any claim for damages or for loss of anticipated profits.

In case such expense shall exceed the amount which would have been payable under the Contract if the same had been completed by the CONTRACTOR, the CONTRACTOR and his surety shall pay the amount of the excess to the OWNER on notice from the OWNER for excess due including any costs incurred by the OWNER, such as inspection, legal fees and liquidated damages. When any particular part of the Work is being carried out by the OWNER by contract or otherwise under the provisions of this section, the CONTRACTOR shall continue the remainder of the Work in conformity with the terms of the contract and in such manner as not to hinder or interfere with the performance of workmen employed as above provided by the OWNER or surety.

#### 5.7 SUSPENSION BY COURT ORDER AGAINST THE OWNER

The CONTRACTOR shall suspend such part or parts of the Work pursuant to a court order issued against the OWNER and shall not be entitled to additional compensation by virtue of such court order; neither shall the CONTRACTOR be liable to the OWNER in the event the Work is suspended by such court order, unless such suspension is due to the fault or negligence of the CONTRACTOR. A delay of the CONTRACTOR due to a court order against the OWNER, or due to the OWNER'S failure to secure right-of-way at the time required or because of a conflict of a utility with the Work, shall not be cause for additional compensation for damages sustained by the CONTRACTOR, but may be a cause for extension of contract working time only. The CONTRACTOR'S sole remedy for any suspensions of the Work is an equitable extension of time to perform the Work.

#### 5.8 NO WAIVER OF RIGHTS OR ESTOPPEL

The OWNER, or any officer or agent thereof, shall not be precluded at any time, either before or after final completion and acceptance of the Work and final payment therefore from:

A. showing the true and correct amount, classifications, quality and character of the Work done and materials furnished by the CONTRACTOR or any other person under this Contract, or from showing at any time that any determination, return, decision, approval, order, letter, payment or certification is untrue and incorrect or improperly made in any particular, or that the Work or the materials or any parts thereof do not in fact conform to the contract requirements; and (b) demanding the recovery from the CONTRACTOR of any overpayments made to him, or such damages as the OWNER may sustain by reason of the CONTRACTOR'S failure to perform each and every part of this Contract in strict accordance with its terms; or both.

## **VI. AUTHORITY OF THE ARCHITECT OR ENGINEER**

6.1 All work shall be performed in a good and workmanlike manner and to the satisfaction of the Architect or Engineer. The Architect or Engineer shall decide all questions which arise as to the quality and acceptability of materials furnished, work performed, manner of performance, rate of progress of the work, sequence of the construction, interpretation of the plans and specifications, acceptable fulfillment of the Contract, compensation, mutual rights between contractors under these specifications and suspension of the Work. He shall determine the amount and quality of work performed and materials furnished, and his decisions and estimates shall be final. His estimate in such event shall be a condition precedent to the right of the CONTRACTOR to receive money due him under the Contract.

### **6.2 OWNER'S REPRESENTATIVES**

Where the Contract Documents indicate that determinations, directions or approvals shall be made by the OWNER or "Owner's representatives," this shall mean the OWNER acting directly, or through duly authorized persons acting within the limit of authority delegated to them. Any determination, direction or approval of such authorized representatives shall be subject to review by the OWNER. For purposes of administering the schedule or the payment provisions of this Contract the Architect or Engineer may act as the Owner's representative for purposes of approving payments, changes, scheduling, or acceptance of the Work, at the OWNER'S discretion.

### **6.3 INSPECTIONS OF WORK PROGRESS**

The Architect or Engineer shall visit the site at during construction of the Project as necessary as the Owner's Representative to verify that the Work is being performed in compliance with the Contract Documents and shall be given total access to the Project by the CONTRACTOR. Site visits or inspections by the Architect or Engineer shall in no way relieve the CONTRACTOR of any of its responsibilities or duties pursuant to the Contract Documents. The Architect or Engineer will neither have control over, nor be responsible for, the construction means and methods, techniques, sequences, or procedures, or for the safety precautions and programs in connection with the Work or the Project. The CONTRACTOR shall be soley responsible for, the construction means and methods, techniques, sequences, or procedures, or for the safety precautions and programs in connection with the Work or the Project.

#### 6.4 CONSTRUCTION STAKES

Architect/Engineer will provide the Contractor with primary horizontal and vertical control to consist of one construction baseline and two benchmarks.

The Contractor shall take all necessary precautions to preserve any and/or all markings and staking. Payment for costs of restaking shall be the responsibility of the Contractor.

#### 6.5 APPROVAL OF SUBMITTALS

The Architect or Engineer shall review and approve or take other appropriate action the CONTRACTOR's submittals such as Shop Drawings, Product Data and Samples, for the purpose of checking for conformance with the Contract Documents. The Architect or Engineers review of the submittals shall not relieve the CONTRACTOR of any of its obligations to perform the Work in strict compliance with the Contract Documents. The Architect or Engineer's review shall not be considered approval of safety precautions, means and methods, techniques, sequences or procedures that are the responsibility of the CONTRACTOR.

### VII. CLAIMS OR DISPUTES

#### 7.1 CLAIMS AGAINST OWNER AND ACTION THEREON.

No claim against the OWNER under the Contract or for breach of the Contract or additional compensation for extra or disputed work shall be made or asserted against the OWNER under the Contract or in any court action, unless the CONTRACTOR shall have strictly complied with all requirements relating to the giving of notice and information with respect to such claim as required by the Contract.

#### 7.2 CLAIM AGAINST OFFICERS, EMPLOYEES OR AGENT OF THE OWNER.

No claim whatsoever shall be made by the CONTRACTOR against any, past, present or future, officer, employee or agent of the OWNER for or on account of, anything done or omitted to be done in connection with this Contract.

### **VIII. MISCELLANEOUS PROVISIONS**

#### **8.1 FINANCIAL INTEREST IN ANY CONTRACT BY OWNER'S OFFICERS, EMPLOYEES OR AGENTS**

No officer, employee or agent of the OWNER shall have a financial interest, direct or indirect, in any contract with the OWNER or be financially interested, directly or indirectly, in the sale to the OWNER of any land, materials, supplies or services, except on behalf of the OWNER as an officer or employee. Any willful violation of this article shall constitute malfeasance in office, and any officer or employee guilty thereof shall thereby forfeit his office or position. Any violation of this article with the knowledge, expressed or implied, of the persons, partnership, company, firm, association or corporation contracting with the OWNER shall render the contract involved voidable by the OWNER.

#### **8.2 SERVICE OF NOTICES**

The OWNER and the CONTRACTOR shall each designate addresses where all notices, directions or other communication may be delivered or to which they may be mailed.

Notices to the surety or sureties on contract bonds shall be directed or delivered to the home office, or to the agent or agents who executed the bonds on behalf of the surety or sureties, or to their designated agent for delivery of notices.

Actual delivery of any such notice, direction or communication to the aforesaid places or depositing it in a postpaid wrapper addressed thereto in any post office regularly maintained by the United States Postal Service shall be conclusively deemed to be sufficient service thereof upon the above persons as of the date of such delivery or deposit.

The designated addresses may be changed at any time by an instrument in writing executed by the party changing the addresses and delivered to the other party.

Nothing herein contained shall, however, be deemed to preclude or tender inoperative the service of any notice, direction or communication upon the above parties personally or, if the CONTRACTOR be a corporation, upon any officer or director thereof.

#### **8.3 UNLAWFUL PROVISIONS DEEMED STRICKEN**

In the event a term, condition, or provision of this Agreement is determined to be void, unenforceable, or unlawful by a court of competent jurisdiction, then that term, condition, or provision shall be deleted and the remainder of the Agreement shall remain in full force and effect.

#### 8.4 ALL LEGAL PROVISIONS INCLUDED

It is the intent and agreement of the parties to this contract that all legal provisions of law required to be inserted herein shall be and are inserted herein. If through mistake or oversight, however, any such provision is not herein inserted, or is not inserted in proper form, then upon application of either party, the contract shall be amended so as to strictly comply with the law and without prejudice to the rights of either party hereunder.

#### 8.5 ASSIGNMENTS

The CONTRACTOR shall not assign, transfer, convey or otherwise dispose of this contract, or his right to execute it, or his right, title or interest in it or any part thereof without the previous written consent of the surety company and the written approval of the OWNER.

The CONTRACTOR shall not assign, either legally or equitably, by power of attorney or otherwise, any of the monies due or to become due under this Contract or its claim thereto without the prior written consent of the surety company and the written approval of the OWNER.

The approval of the OWNER of a particular assignment, transfer or conveyance shall not dispense with such approval to any further or other assignments.

The approval by the OWNER of any assignment, transfer or conveyance shall not operate to release the CONTRACTOR or surety hereunder from any of the Contract and bond obligations, and the CONTRACTOR shall be and remain fully responsible and liable for the defaults, negligent acts and omissions of his assignees, their agents and employees, as if they were his own.

#### 8.6 STATE AND LOCAL SALES AND USE TAXES

The OWNER qualifies for exemption from the state and local sales and use taxes, pursuant to the provisions of Section 151.309 of the Texas Limited Sales, Excise and Use Tax Act. Therefore, the CONTRACTOR shall not pay such taxes which would otherwise be payable in connection with the performance of this Contract.

The CONTRACTOR shall issue an exemption certificate in lieu of the tax on the purchase, rental or lease of:

- A. all materials, supplies, equipment and other tangible personal property incorporated into the real property being improved; and
- B. all materials, supplies, equipment and other tangible personal property used or consumed by the CONTRACTOR in performing the Contract with the OWNER. Materials and supplies "used in the performance of a contract" include only those materials actually incorporated into the property being improved and those supplies directly used to incorporate such materials into the property being improved. Overhead supplies and supplies used indirectly or only incidental to the performance of the Contract with the OWNER are not included in the exemption.

Under "reasons said purchaser is claiming this exemption" in the exemption certificate, the CONTRACTOR must name the OWNER and the project for which the equipment, material and supplies are being purchased, leased or rented.

#### 8.7 VENUE AND GOVERNING LAW

The parties agree that the laws of the State of Texas shall govern the interpretation, validity, performance and enforcement of this Construction Agreement, and that the exclusive venue for any legal proceeding involving this Construction Agreement shall be in Collin County, Texas.

#### 8.8 NO WAIVER OF LEGAL RIGHTS

Inspection by the Architect, Engineer, or OWNER; any order, measurement, quantity or certificate by the Architect or Engineer; any order by the OWNER for payment of money; any payment for or acceptance of any work; or any extension of time or any possession taken by the OWNER shall not operate as a waiver of any provisions of the contract or any power therein reserved to the OWNER of any rights or damages therein provided. Any waiver of any breach of contract shall not be held to be a waiver of any other or subsequent breach. The OWNER reserves the right to correct any error that may be discovered in any estimate that may have been paid and to adjust the same to meet the requirements of the Contract Documents. The OWNER reserves the right to recover by process of law sums as may be sufficient to correct any error or make good any deficiency in the Work resulting from such error, dishonesty or collusion by the CONTRACTOR or his agents, discovered in the Work after the final payment has been made.

Neither final acceptance of the Work, nor final payment shall relieve the CONTRACTOR of responsibility for faulty materials or workmanship, and the CONTRACTOR shall promptly remedy any defects due thereto and pay for any damage to other work resulting therefrom. Likewise, neither final acceptance nor final payment, nor partial or entire use or occupancy of the work by the OWNER shall constitute acceptance of work not done in accordance with the Contract Documents or relieve CONTRACTOR of liability with respect to any expressed

or implied warranties or responsibility for faulty materials or workmanship, whether same be patently or latently defective.

**8.9 OBLIGATION TO PERFORM FUNCTIONS**

Any failure or neglect on the part of OWNER, Architect or Engineer or inspectors to enforce provisions herein dealing with supervision, control, inspection, testing or acceptance and approval of the work shall never operate to relieve CONTRACTOR from full compliance with the Contract Documents nor render OWNER liable to CONTRACTOR for money damages, extensions of time or increased compensation of any kind.

**8.10 SUCCESSORS AND ASSIGNS**

Subject to the limitations upon assignment and transfer herein contained, this contract shall be binding upon and inure to the benefit of the parties hereto, their respective successors and assigns.

**8.11 HEADINGS**

The title and headings contained in the Contract Documents and the subject organization are used only to facilitate reference, and in no way define or limit the scope of intent of any of the provisions of this Contract.

**8.12 ENTIRE AGREEMENT; AMENDMENTS; BINDING EFFECT**

This Construction Agreement, including the Contract Documents and all the documents incorporated therein represents the entire and integrated agreement between the OWNER, Collin County, and the CONTRACTOR, and supersedes all prior negotiations, representations, or agreements, either written or oral. This Construction Agreement may be amended only by written instrument signed by both, the OWNER, Collin County, and the CONTRACTOR.

**8.13 INTERPRETATION**

Although this Agreement is drafted by the OWNER, Collin County, should any part be in dispute, the parties agree that this Construction Agreement shall not be construed more favorable for either party. No rule of construction requiring that ambiguities in this Contract shall be construed more favorably for either party shall apply.

IN WITNESS WHEREOF, the parties have executed this Construction Agreement upon the year and date indicated beneath their signatures hereto.

**CONTRACTOR:**

\_\_\_\_\_  
By: \_\_\_\_\_

Date: \_\_\_\_\_

**ATTEST:**

\_\_\_\_\_  
Secretary

**COLLIN COUNTY, TEXAS:**

By: \_\_\_\_\_  
Franklin Ybarbo, Purchasing Agent

Date: \_\_\_\_\_

\_\_\_\_\_  
Collin County Commissioners' Court Order No.

**ATTEST:**

\_\_\_\_\_  
Secretary

**APPROVED AS TO FORM:**

\_\_\_\_\_

**ACKNOWLEDGMENTS**

**STATE OF TEXAS** §

**COUNTY OF \_\_\_\_\_** §

**BEFORE ME,** \_\_\_\_\_ on this day personally appeared \_\_\_\_\_, of \_\_\_\_\_, a \_\_\_\_\_ corporation, known to me (or proved to me on the oath of) \_\_\_\_\_ or through \_\_\_\_\_ (description of identity card or other document) to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same as the act and deed of the corporation, for the purposes and consideration therein expressed and in the capacity therein stated.

**GIVEN UNDER MY HAND AND SEAL OF OFFICE,** this the \_\_\_ day of \_\_\_\_\_, 2011

\_\_\_\_\_  
Notary Public, State of Texas

\_\_\_\_\_  
Printed Name

My Commission expires on the \_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

**STATE OF TEXAS** §

**COUNTY OF COLLIN** §

**BEFORE ME,** \_\_\_\_\_ on this day personally appeared \_\_\_\_\_, Purchasing Agent of COLLIN COUNTY, TEXAS, a political subdivision of the State of Texas, known to me (or proved to me on the oath of) \_\_\_\_\_ or through \_\_\_\_\_ (description of identity card or other document) to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same as the act and deed of COLLIN COUNTY, TEXAS, for the purposes and consideration therein expressed and in the capacity therein stated.

**GIVEN** under my hand and seal of office this the \_\_\_\_\_ day of \_\_\_\_\_, 2011.

\_\_\_\_\_  
Notary Public, State of Texas

\_\_\_\_\_  
Printed Name

My Commission expires on the \_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

**00610 PERFORMANCE BOND**

STATE OF TEXAS §  
COUNTY OF COLLIN §

**KNOW ALL MEN BY THESE PRESENTS:**

That \_\_\_\_\_, a corporation organized and existing under the laws of the State of \_\_\_\_\_, and fully authorized to transact business in the State of Texas, whose address is \_\_\_\_\_ of the City of \_\_\_\_\_ County of \_\_\_\_\_, and State of \_\_\_\_\_, (hereinafter referred to as "Principal"), and \_\_\_\_\_ (hereinafter referred to as "Surety", a corporation organized under the laws of the State of \_\_\_\_\_ and authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto \_\_\_\_\_ (hereinafter referred to as "Owner") and unto all persons, firms and corporations who may furnish materials for or perform labor upon the buildings, structures or improvements referred to in the attached Contract, in the penal sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) (not less than 100% of the approximate total amount of the Contract as evidenced in the proposal plus 10-percent of the stated penal sum as an additional sum of money representing additional court expenses, attorneys' fees, and liquidated damages arising out of or connected with the below identified Contract) in lawful money of the United States, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents:

**WHEREAS**, the Principal has entered into a certain written contract with the Owner, dated the \_\_\_\_\_ day of \_\_\_\_\_, 201\_\_\_\_, to which said Contract is hereby referred to and made a part hereof and as fully and to the same extent as if copied at length herein for the construction of IFB 04179-11, Construction, Myers Park Pump Station and Ground Storage Tank Project.

**NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH**, that if the said Principal fully and faithfully executes the work and performance of the Contract in accordance with the plans specifications, and Contract Documents, including any extensions thereof which may be granted with or without notice to Surety, during the original term thereof, and during the life of any guaranty required under the Contract, and according to the true intent and meaning of said Contract and the plans and specifications hereto annexed, if the Principal shall repair and/or replace all defects due to faulty materials or workmanship that appear within a period of one year from the date of final completion and final acceptance of the work by OWNER; and if the Principal shall fully indemnify and save harmless the OWNER from all costs and damages which OWNER may suffer by reason of failure to so perform herein and shall fully reimburse and repay OWNER all outlay and expense which the OWNER may incur in making good any default or deficiency, then this obligation shall be void; otherwise, to remain in full force and effect; and in case said CONTRACTOR shall fail to do so, it is agreed that the OWNER may do said work and supply such materials and charge the same against said CONTRACTOR and Surety on this obligation. Provided further, that if any legal action be filed on this Bond, venue shall lie in Collin County, Texas.

**"PROVIDED, HOWEVER**, that this bond is executed pursuant to the provisions Texas Government Code, Chapter 2253, as amended, and Chapter 3503 of the Texas Insurance Code, as amended, and all liabilities on this bond shall be determined in accordance with the provisions of said articles to the same extent as if they were fully copied at length herein.

Surety, for value received, stipulates and agrees that the bond shall automatically be increased by the amount of any Change Order or supplemental agreement which increases the Contract price with or without notice to the Surety, but in no event shall a Change Order or Supplemental Agreement which reduces the Contract price decrease the penal sum of the Bond. And further that no change, extension of time, alteration, or addition to the terms of the Contract, or to the work performed thereunder, or the plans, specifications, or drawings accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work to be performed thereunder.

Surety agrees that the bond provides for the repairs and/or replacement of all defects due to faulty materials and workmanship that appear within a period of one (1) year from the date of completion and acceptance of the improvement by the OWNER.

The undersigned and designated agent is hereby designated by Surety herein as the agent resident to whom any requisite notice may be delivered and on whom service of process may be had in matters arising out of such suretyship.

**IN WITNESS WHEREOF**, the said Principal and Surety have signed and sealed this instrument this \_\_\_\_\_ day of \_\_\_\_\_ 201\_\_\_\_.

**WITNESS**

**PRINCIPAL**

\_\_\_\_\_  
Printed/Typed Name \_\_\_\_\_  
Title: \_\_\_\_\_  
Company: \_\_\_\_\_  
\_\_\_\_\_  
Address: \_\_\_\_\_

**SURETY**

\_\_\_\_\_  
Printed/Typed Name \_\_\_\_\_  
Title: \_\_\_\_\_  
Company: \_\_\_\_\_  
\_\_\_\_\_  
Address: \_\_\_\_\_

**WITNESS**

The Resident Agent of the Surety for delivery of notice and service of process is:  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone Number: \_\_\_\_\_

**Note:** Date of Bond must NOT be prior to date of contract.

Revised 11/2008

**00610 PAYMENT BOND**

STATE OF TEXAS §  
COUNTY OF COLLIN §

**KNOW ALL MEN BY THESE PRESENTS:**

That \_\_\_\_\_, a corporation organized and existing under the laws of the State of \_\_\_\_\_, and fully authorized to transact business in the State of Texas, whose address is \_\_\_\_\_ of the City of \_\_\_\_\_ County of \_\_\_\_\_, and State of \_\_\_\_\_, (hereinafter referred to as "Principal"), and \_\_\_\_\_ (hereinafter referred to as "Surety", a corporation organized under the laws of the State of \_\_\_\_\_ and authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto \_\_\_\_\_ (hereinafter referred to as "Owner") and unto all persons, firms and corporations who may furnish materials for or perform labor upon the buildings, structures or improvements referred to in the attached Contract, in the penal sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) (not less than 100% of the approximate total amount of the Contract as evidenced in the proposal) in lawful money of the United States, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents:

WHEREAS, the Principal has entered into a certain written contract with the Owner, dated the \_\_\_\_\_ day of \_\_\_\_\_, 201\_\_\_\_, to which said Contract is hereby referred to and made a part hereof and as fully and to the same extent as if copied at length herein for the construction of IFB 04179-11, Construction, Myers Park Pump Station and Ground Storage Tank Project.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that the bond guarantees the full and proper protection of all claimants supplying labor and material in the prosecution of the work provided for in said Contract and for the use of each claimant, and that conversely should the Principal faithfully perform said Contract and in all respects duly and faithfully observe and perform all and singular the covenants, conditions, and agreements in and by said Contract, agreed to by the Principal, and according to the true intent and meaning of said Contract and the claims and specifications hereto annexed, and any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modification to Surety being hereby waived, then this obligation shall be void; otherwise, to remain in full force and effect. Provided further, that if any legal action be filed on this Bond, venue shall lie in Collin County, Texas.

"PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions Texas Government Code, Chapter 2253, as amended, and Chapter 3503 of the Texas Insurance Code, as amended, and all liabilities on this bond shall be determined in accordance with the provisions of said articles to the same extent as if they were fully copied at length herein.

Surety, for value received, stipulates and agrees that the bond shall automatically be increased by the amount of any Change Order or supplemental agreement which increases the Contract price with or without notice to the Surety and that no change, extension of time, alteration or addition to the terms of the Contract, or to the work performed thereunder, or the plans, specifications, or drawings accompanying the same, shall in anyway affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder.

The undersigned and designated agent is hereby designated by Surety herein as the agent resident to whom any requisite notice may be delivered and on whom service of process may be had in matters arising out of such suretyship.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this \_\_\_\_\_ day of \_\_\_\_\_ 201\_\_\_\_.

**WITNESS**

\_\_\_\_\_

**PRINCIPAL**

\_\_\_\_\_

Printed/Typed Name \_\_\_\_\_

Title: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

**SURETY**

\_\_\_\_\_

Printed/Typed Name \_\_\_\_\_

Title: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

**WITNESS**

\_\_\_\_\_

The Resident Agent of the Surety for delivery of notice and service of process is:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Note: Date of Bond must NOT be prior to date of contract.

**00611 MAINTENANCE BOND**

STATE OF TEXAS §  
COUNTY OF COLLIN §

**KNOW ALL MEN BY THESE PRESENTS:**

That \_\_\_\_\_, a corporation organized and existing under the laws of the State of \_\_\_\_\_, and fully authorized to transact business in the State of Texas, whose address is \_\_\_\_\_ of the City of \_\_\_\_\_ County of \_\_\_\_\_, and State of \_\_\_\_\_, (hereinafter referred to as "Principal"), and \_\_\_\_\_ (hereinafter referred to as "Surety"), a corporation organized under the laws of the State of \_\_\_\_\_ and authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto \_\_\_\_\_ (hereinafter referred to as "Owner") and unto all persons, firms and corporations who may furnish materials for or perform labor upon the buildings, structures or improvements referred to in the attached Contract, in the penal sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) in lawful money of the United States, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents:

WHEREAS, the Principal has entered into a certain written contract with the Owner, dated the \_\_\_\_\_ day of \_\_\_\_\_, 201\_\_\_\_, to which said Contract is hereby referred to and made a part hereof and as fully and to the same extent as if copied at length herein for the construction of IFB 04179-11, Construction, Myers Park Pump Station and Ground Storage Tank Project.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that the bond guarantees the full and proper maintenance and repair of the work herein contracted to be done and performed for a period of \_\_\_\_\_ year(s) from the date of acceptance and Principal will do all necessary backfilling that may arise on account of sunken conditions in ditches, or otherwise, and do and perform all necessary work and repair any defective condition growing out of or arising from the improper laying or construction of same, or on account of any breaking of same caused by said CONTRACTOR in construction of same, or on account of any defect arising in any of said work laid or constructed by said CONTRACTOR or on account of improper excavation or backfilling, it being understood that the purpose of this section is to cover all defective conditions arising by reason of defective materials, work or labor performed by said CONTRACTOR, then this obligation shall be void; otherwise, to remain in full force and effect; and in case said CONTRACTOR shall fail to do so, it is agreed that the OWNER may do said work and supply such materials and charge the same against said CONTRACTOR and Surety on this obligation. Provided further, that if any legal action be filed on this Bond, venue shall lie in Collin County, Texas.

"PROVIDED, HOWEVER, that said Surety, for value received, stipulates and agrees the bond shall automatically be increased by the amount of any Change Order or supplemental agreement which increases the Contract price with or without notice to the Surety and that no change, extension of time, alteration or addition to the terms of the Contract, or to the work performed thereunder, or the plans specifications, or drawings accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work to be performed thereunder.

The undersigned and designated agent is hereby designated by Surety herein as the agent resident to whom any requisite notice may be delivered and on whom service of process may be had in matters arising out of such suretyship.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this \_\_\_\_\_ day of \_\_\_\_\_ 201\_\_\_\_.

WITNESS

PRINCIPAL

Printed/Typed Name \_\_\_\_\_  
Title: \_\_\_\_\_  
Company: \_\_\_\_\_  
Address: \_\_\_\_\_

WITNESS

SURETY

Printed/Typed Name \_\_\_\_\_  
Title: \_\_\_\_\_  
Company: \_\_\_\_\_  
Address: \_\_\_\_\_

The Resident Agent of the Surety for delivery of notice and service of process is:

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone Number: \_\_\_\_\_

Note: Date of Bond must NOT be prior to date of contract.

Revised 11/2008

**SECTION 108  
SUPPLEMENTAL GENERAL CONDITIONS**

**Changes in the Work:**

Article 10 of the General Conditions shall be amended by the addition of the following:

The **Owner** may add or delete items of the work specified by these Contract Documents. Changes in the contract amount caused by such additions or deletions shall be computed based upon the unit prices or lump sum prices specified by the Bid Schedule for such items of work. If the **Owner** adds or deletes items of work specified by these Contract Documents, the Contractor shall not assert a claim for extra compensation based upon any item of cost, such as overhead, bonds, insurance, and other direct and indirect costs, if such items are not listed in the Bid Schedule.

**Subsurface Conditions:**

Article 4.2 of the General Conditions shall be amended by the addition of the following paragraph:

The foregoing notwithstanding, trench excavation and structural excavation shall include removal of all types of materials encountered, without exception. All excavations shall be made to the lines and grades indicated on the drawings and/or specified herein. The Contractor shall not assert a claim for extra compensation based upon the character of material excavated.

**Insurance:**

Article 5 of the General Conditions shall be amended to establish limits of liabilities as follows (Note: **Owner** and **Engineer** shall be named as insured):

A. Workmen's Compensation	State Statutory Requirements
B. Comprehensive General Liability	\$1,000,000 each occurrence bodily injury
	\$1,000,000 each occurrence on property damage
C. Automobile	\$500,000 Combined Single Limit
D. Builders Risk	\$ Coverage as may be required for the project.
E. Other	Other coverage as required or for specific provisions.

**Engineer's Authority:**

Article 9 of the General Conditions shall be amended to add the following clarification:

Contractor shall not assert a claim of delay or additional compensation based upon Engineer's response or lack of response to Contractor's requests for clarifications or interpretations about requirements of the Contract Documents that are clearly stated or that can reasonably be inferred.

**General:**

The provisions of this Section of the Supplemental General Conditions shall govern in the event of any conflicts between them and the "Standard General Conditions" or the specifications.

**Abbreviations:**

Whenever any of the following abbreviations appear in these Specifications, their meanings shall be as follows:

*AWWA	American Water Works Association
*ASTM	American Society for Testing Materials
AASHTO	American Assn. of State Highway Officials, The Standard Specifications for Road and Bridge Construction adopted by the Texas State Department of Highways, January, 1972, with subsequent revisions
C.S.	Commercial Standards
NSF	National Sanitation Foundation
C.I.	Cast Iron
PVC	Polyvinyl Chloride
C.E.	Ductile Iron
*Latest revision	

**As-Built Information:**

The Contractor will be responsible for recording and providing to the Owner and Engineer all information concerning changes from the original Plans as to water line location for transfer to the "As-Built" Plans.

**Barricades, Warning and Detour Signs:**

Street and highway closures and traffic control shall be accomplished according to the instructions of the City Street Department and the Texas Department of Highways and Public Transportation, as applicable. When any street or high way is closed or traffic flow is restricted, the Contractor shall furnish and maintain adequate barricades, warning and directing signs, lights, and red flags at each end of the street and at all intersections along the street within the limits of the work. All lights shall be kept burning between sunset and sunrise.

**Clean Up:**

The Contractor shall at all times keep the site and structures or facilities thereon, free from accumulation of waste material, debris, or rubbish caused by his employees or work. At the completion of the work, he shall remove from the site all his tools, surplus materials, debris, and shall leave the site and his work "broom clean," or its equivalent, unless otherwise noted on the drawings or specified herein. Final acceptance of the complete project work shall be given by the **Owner**.

**Contractor's Use of Premises:**

The Contractor shall restrict his operations and employees to the designated rights-of-way, routes, and areas of construction.

**Coordination of Work:**

The Contractor shall closely coordinate all construction work with the **Owner** and/or the **Engineer**. Field changes from the Plans and Specifications will only be allowed upon approval of the **Owner** and/or the **Engineer**.

**Copies of Plans and Specifications:**

Three (3) copies of the plans and specifications will be furnished the Contractor. Additional copies can be furnished at the cost of reproduction.

**Correction of Work:**

If the work completed under this contract is found to be subject to faulty materials, improper workmanship, or injury due to proper and usual wear during the period of the Contractor's guarantee, then the Contractor shall replace, correct, or re-execute such work within five (5) days of receipt by him of notice from the Owner that unacceptable materials, workmanship, or injury has been discovered. If the Contractor fails to repair such defects in the work, the Owner may make the necessary repairs and charge the Contractor the cost thereby incurred.

**Cutting, Patching, and Fitting:**

The Contractor shall perform all cutting, patching, or fitting of his work that may be required to make its several parts come together properly and fit it to existing facilities or the work of others as shown or reasonably implied by the drawings and/or specifications for the completed project.

**Damage to Public or Private Property:**

Any damage to sidewalks, street pavements, curb and gutter, driveways, drainage structures, street signs, or other public or private property caused by the Contractor's operations shall be repaired at the Contractor's expense, unless otherwise provided.

**Deductions from Wages:**

The Contractor shall deduct from all workmen's wages Social Security, Withholding Tax, and other deductions required by law. He shall not make any deductions other than those required or authorized by law.

**Disposal of Surplus Material:**

Surplus material not required for other parts of the work and not otherwise specifically covered by the drawings or specifications shall become the property of the Contractor for disposal by him by a safe and legal method.

**Engineer:**

The word "**Engineer**" shall refer to:

Daniel & Brown Inc.  
P.O. Box 606  
Farmersville, Texas 75442  
972-784-7777

**Guarantee:**

The Contractor shall deliver to the Engineer upon completion of all work under the Contract his written guarantee, made out to the Owner and in a form satisfactory to the Engineer, guaranteeing (and he does hereby guarantee) all the work under the Contract to be free from faulty materials in every particular and free from improper workmanship, and against injury from proper and usual wear, and agreeing (and he does hereby agree) to replace or to re-execute without cost to the Owner such work as may be found to be improper or imperfect, and to make good all damage caused to the other work or materials, due to such required replacement or re-execution. This guarantee shall be made to cover (and does cover) a period of one (1) year from the date of completion of all work under the Contract as evidenced by the Engineer's final certificate, or for a longer period where so stipulated in the Contract Documents.

This guarantee must be furnished to the Engineer and approved by him before acceptance and final payment is made.

Neither the final certificate, nor payment, nor any provision in the Contract Documents shall relieve the Contractor of responsibility for neglect or faulty materials or workmanship during the period covered by the guarantee.

**Inconvenience to the Public:**

It is the declared and acknowledged intent of these specifications that all work and cleanup or other such operations shall be conducted in such manner that the public is not unnecessarily inconvenienced nor a hazard to public safety created.

**Inspection:**

The Contractor shall at all times provide adequate access to the **Owner** and Engineer for inspection of all improvements. Work will be subject to final inspection by the Engineer after completion, and this inspection shall take precedence over all other inspections. The Contractor shall inspect his materials and works in progress and assure conformance to the plans and specifications.

**Inspector Duties:**

The resident inspector will provide periodic on-site inspection of the construction projects. The inspections will be in addition to the general engineering oversight provided by the Engineer. Duties of the resident inspector will include general oversight and monitoring of the projects to insure general conformance with the plans and specifications. The inspector will record project status, construction delays, weather conditions, contractor personnel and equipment on-site for each project. The information gathered will be recorded on an inspection report. The resident inspector will be a resource for the Engineer and Owner to help identify potential construction related problems and evaluate potential change orders. The resident inspector's undertaking hereunder shall not relieve the contractor of contractor's obligation to perform the work in conformity with the drawings and specifications and in a workmanlike manner; shall not make the Resident Inspector or the Engineer an insurer of the contractor's performance; and shall not impose upon the Resident Inspector or the Engineer any obligation to see that the work is performed in a safe manner.

**Intent of Plans and Specifications:**

The intent of the plans and specifications is to prescribe a complete work which the Contractor understands to do in full compliance with the Contract Documents. The Contractor shall do all work as provided by the Contract Documents and shall do such additional work as may be necessary to complete the work in a satisfactory and acceptable manner. The Contractor shall furnish all labor, tools, materials, machinery, equipment, and incidentals necessary to the satisfactory prosecution and completion of the work. The prices bid in the proposal shall be full compensation for all material, labor, equipment, and incidental items required to complete the project according to the Contract Documents ready for use. Items of work specified by the plans and/or specifications, but not identified by the Bid

Proposal, shall be accomplished according to the plans and/or specifications and there shall be no separate payment for such items of work.

**“Kickback” Prohibition:**

The Contractor shall comply with the Copeland “Anti Kickback” Act (18 U.S.C.874) as supplemented in The Department of Labor regulations (29 CFR Part 3).

**Lines and Grades:**

Lines and grades for construction will be established by the Contractor according to the Standard General Conditions. The plan drawings show points established by the Engineer for horizontal and vertical control.

Engineer may check the lines, elevations, reference marks, batter boards, etc., set by Contractor, and Contractor shall correct any errors disclosed by such check. Such a check shall not be considered as approval of Contractor's work and shall not relieve Contractor of the responsibility for accurate construction of the entire work. Contractor shall furnish personnel to assist Engineer in checking lines and grades.

Setting of lines and grades shall be performed under the direction and supervision of a registered Professional Engineer or a Professional Land Surveyor engaged by the Contractor.

**Materials and Workmanship:**

No materials which have been used by the Contractor for any temporary purpose whatever are to be incorporated in the permanent structure. All materials to be used shall be new. All materials and workmanship shall be first-class according to the standards of the trade. Unless otherwise specified, all materials shall be the best of their respective kinds and shall be in all cases fully equal to samples conforming to the specifications.

**Minimum Wage Rates:**

Wage rates for the workmen engaged on the project shall not be less than the minimum amounts specified by applicable local, state, or federal statutes.

**Owner:**

The word “Owner” shall be identified on the Notice to Bidders

**Payment for Work:**

The contractor shall submit monthly invoices to the Engineer for work completed and/or materials stored during the previous month. Upon verification and approval, the Engineer shall submit the pay request to the Owner for consideration and payment. A five percent (5%) retainage will be withheld from all pay estimates until completion of the project.

**Permits:**

Permits and licenses of a temporary nature necessary for completion of the work shall be secured and paid for by the Contractor. Permits, licenses and easements for permanent changes shall be secured and paid for by the Owner, unless otherwise specified.

**Prevention of Accident:**

The Contractor shall at all times during the course of construction of this project exercise such precautions as are necessary for the prevention of accidents. The safety provisions, as outlined in the “Manual of Accident Prevention in Construction,” published by the Associated General Contractors of America, shall be observed to such extent that such provisions do not conflict with existing Federal, State and City laws.

**Project Conferences:**

The following meetings and conferences shall be conducted and shall be attended by the Contractor:

- Pre-bid Conference
- Pre-construction Conference
- Substantial Completion Inspection
- Pre-final Inspection
- Final Inspection

**Property Corners and Monuments:**

Contractor shall protect all property line and property corner markers and monuments encountered during the work. If the work shall require that any property line or property corner markers or monuments be disturbed then the Contractor shall provide licensed surveyors to reference the marker(s) or monuments(s) and reset them following completion of the work.

**Protection of Existing Utilities and Improvements:**

The Contractor shall take adequate measures to protect all existing structures, improvements and utilities which may be encountered.

The utility lines and conduits shown on the plans are for information only and are not guaranteed by the Owner or the Engineer to be accurate as to location and depth. They are shown on the plans as the best information available from the owners of the utilities involved and from evidences found on the ground.

The Contractor shall determine the exact location of all existing utilities and conduct his work so as to prevent interruption of service or damage to them. The Contractor shall be responsible for the replacement of any utility damaged by him and shall likewise be responsible for losses to the utility owner due to any disruption to the service of the utility caused by the Contractor.

All work necessary for the relocation or adjustment of any existing utilities will be the responsibility of the Owner of the particular utility involved except where indicated in the plans and specifications of this contract and such work is not a part of this contract.

**Protection of Trees, Plants, and Shrubs:**

The Contractor shall exercise all reasonable precautions to protect trees, plants, and shrubs during construction of this project. The Owner may require the contractor to replace to the satisfaction of the Engineer any trees, plants, or shrubs which in the judgment of the Engineer were unjustifiably damaged. Trees, plants, and shrubs in landscaped areas shall be restored to their original condition. Lawns shall be re-sodded.

**Requirements for Road Crossings:**

The Contractor shall conform to all requirements of the Owner, State Department of Highways and Public Transportation and railroad companies pertaining to the road crossings in this project, including licensing, insurance, construction procedures, and such other items as may be specified. No extra charge to the Owner for conformance to City, Department, and railroad company requirements will be allowed.

**Rights-of-way and Easements:**

The Owner will furnish the necessary rights-of-way and easements for the permanent project. Unless otherwise specified or set forth in the Contract Documents, the site is to be ready for occupancy by the Contractor upon signing of the Contract.

**Safety Restrictions - Work near High Voltage Lines:**

The following procedures will be followed regarding the subject item on this contract:

- A. A warning sign not less than five inches by seven inches, painted yellow with black letters that are legible at twelve feet, shall be laced inside and outside vehicles such as cranes, derricks, power shovels, drilling rigs, pile drivers, hoisting equipment or similar apparatus. The warning sign shall read as follows: "Warning - Unlawful to Operate this Equipment within Six Feet of High Voltage Lines."
- B. Equipment that may be operated within ten feet of high voltage lines shall have an insulating cage type of guard about the boom or arm, except backhoes or dippers, and insulator lines on the lift hook connections.
- C. When necessary to work within six feet of high voltage electric lines, notify the power company, who will erect temporary mechanical barrier, de-energize the line, or raise or lower the line. The work done by the power company shall not be at the expense of the Owner. The notifying department shall maintain an accurate log of all such calls to the power company and shall record action taken in each case.
- D. If the Contractor is required to make arrangements with the power company for the temporary relocation or raising of high voltage lines, that relocation will be at the Contractor's sole cost and expense.

- E. No person shall work within six feet of a high voltage line without protection having been taken as outlined in Paragraph C.

**Sanitary Facilities:**

Contractor shall provide sanitary facilities at or near the site for the duration of the regular work. The Contractor shall establish and enforce among his employees acceptable sanitary regulation. All sanitary facilities will be subject to the approval of the Engineer or local health authority.

**Scope of Work:**

This project shall be identified in the Plans and Specifications. In the event of a conflict between this specification and project plans (drawings) then the plans will take precedence.

**Shop Drawings:**

The Contractor shall furnish drawings, schematics, data, etc., on materials and equipment for approval by the Engineers prior to purchase, fabrication or shipment. Sufficient sets shall be furnished to provide four (4) sets for the Engineer, one (1) set for the Owner and one (1) set for approval for a total of six (6) sets. Additional sets shall be furnished as required by the Contractor.

**Site Investigation:**

The information contained in these Contract Documents in regard to original topography, subsurface soils, subsurface structures, subsurface utilities, and any quantities based thereon, is furnished solely for the convenience of the Contractor. The completeness and accuracy of this information is not guaranteed and its use in no way relieves the Contractor or others of any responsibility for loss due to inaccuracies or deviations there from which may be encountered.

For the purposes of this project, it is stipulated, and Contractor agrees to stipulate, that Contractor shall discover and shall be aware of all water utility facilities, all sanitary sewer facilities, all storm sewer facilities, all gas utility facilities, all telephone utility facilities, all electric utility facilities, and all other subsurface pipelines and utilities that may impede Contractor's work whether shown or indicated or not shown or not indicated by these Contract Documents, that the Contractor has considered the presence of such utilities in preparing his bid and negotiating the contract amount, and that the discovery of such utilities shall not be cause for additional compensation to the Contractor.

**Specifications:**

Titles to divisions and paragraphs in these Contract Documents are introduced for convenience and are not to be taken as a correct or complete segregation of the several units of material and labor. No responsibility, either direct or implied, is assumed by the Engineer for omissions or duplications by the Contractor or his subcontractors, due to real or alleged error in arrangement of matter in these Contract Documents.

**Spoil:**

All excavated material unfit for backfill, waste material accumulated on the job, and any material surplus to that needed in the prosecution of the work shall be removed from the site by the Contractor and disposed of at his expense. Upon specific approval by the Owner, any or all of the material may be disposed of on site in an approved manner.

**Submittals:**

Submittals required of the Contractor or successful Bidder by the Contract Documents are listed as follows:

- Executed Contract and Bonds
- Certificates of Insurance
- Materials Submittals
- Shop Drawings
- Proposals for Alternatives
- Application for Progress Payment
- Notice of Substantial Completion
- Notice of Final Completion
- Application for Final Payment
- Contractor's Certification and Guarantee
- Consent of Surety

**A. Measurement and Payment**

Separate measurement or payment will not be made for work required under this Section. All costs in connection with the work specified herein will be considered to be included with the item of work in the bid Schedule of the Bid Form, or incidental to the Work.

**B. List of Materials Sources**

The Contractor shall submit to the Engineer a list of the Contractor's sources of materials. The list shall be submitted in sufficient time to permit proper inspections and testing of materials to be furnished from such listed sources in advance of their use.

**C. Submittal Requirements**

1. **Professional Seal Required:** Submittals involving engineering design services when specified or required by governing codes and regulations shall be sealed and signed by a professional engineer, currently registered in the State of Texas for the discipline involved.
2. **Review Period**
  - a. Prepare submittals sufficiently in advance so that approval may be given before commencement of related work.
  - b. Allow 30 calendar days after receipt by the Engineer for review of each submittal, including resubmittals.
3. **Submittal Delivery:** Ship submittals prepaid or deliver by hand directly to the Engineer.
4. **Changes in Approved Submittals:** Changes in approved submittals will not be allowed unless those approved submittals with changes have been resubmitted and approved, in the same manner as the original submittal.
5. **Supplemental Submittals:** Supplemental submittals initiated by the Contractor for consideration of corrective procedures shall contain sufficient data for review. Make supplemental submittals in the same manner as initial submittals.

**D. Contractor's Responsibilities**

1. **Contractor's Review and Approval:**
  - a. Each submittal shall be reviewed, stamped, and signed as reviewed and approved by the Contractor prior to submission. The Contractor's approval shall indicate review and approval with respect to the following responsibilities:
  - b. The Contractor shall be responsible for:
    - i. The correctness of the drawings, for shop fits and field connections, and for the results obtained by the use of such drawings.
    - ii. Verification of catalog numbers, and similar data.
    - iii. Determination and verification of field measurements and field construction criteria.
    - iv. Checking and coordinating information in the submittal with requirements of the Work and of the Contract Documents.
    - v. Determination of accuracy and completeness of dimensions and quantities.
    - vi. Confirmation and coordination of dimensions and field conditions at the site.
    - vii. Safety precautions.
    - viii. Errors or omissions on submittals.
    - ix. Coordination and performance of work of all trades.
    - x. Identification of deviation(s) from Contract requirements.
  - c. The Contractor shall coordinate each submittal with the requirements of the Work,

placing particular emphasis upon assuring that each submittal of one trade is compatible with other submittals of related work. Ensure submittal is complete with all relevant data required for review.

- d. The Contractor shall stamp, initial or sign the submittal, certifying:
    - i. Dimensional compatibility of the product with the space in which it is intended to be used.
    - ii. Review of submittals for compliance with Contract requirements.
  - e. Do not start work for that requires approval by the Engineer until submittals have been returned to the Contractor with official indication that approval has been granted by the Engineer.
  - f. If the submittal is designated to be sent to the Engineer for information, approval by the designated approval authority shall take place before submission to the Engineer.
  - g. Approval of drawings and associated calculations by the Engineer shall not relieve the Contractor from the responsibility for errors or omissions in the drawings and associated calculations, or from deviations from the Contract Documents, unless submittals containing such deviations were submitted to the Engineer and the deviations were specifically called to the attention of the Engineer in the letter of transmittal and within the submittal, and approved specifically by the Engineer as a Contract change.
  - h. Approval of the Contractor's submittal by the Engineer shall not relieve the Contractor of any responsibility, including responsibility for accuracy and agreement of dimensions and details.
2. Distribution of Submittals after Review: Distribute prints or copies of approved submittals, bearing the Engineer's or designated approval authority's stamp and signature, to the Contractor's field office; to affected and concerned Subcontractors, Suppliers, and fabricators; and to affected and concerned members of the Contractor's workforce.

#### E. Engineer's Review

1. Submittals will be reviewed for conformance with requirements of the Contract Documents. Review of a separate item will not constitute review of an assembly in which the item functions. Review will not relieve the Contractor from Contractor's responsibility for accuracy of submittals, for conformity of submittals to requirements of Contract Documents, for compatibility of described product with other provided products and the rest of the system, or for prosecution and completion of the Contract in accordance with the Contract Documents.
2. The Engineer will indicate its reviews of submittals and the action taken (approvals and nonapprovals) by means of its review stamp. The review stamp/label will be affixed by the Engineer, the action block will be marked, and the stamp/label will be signed and dated.
3. The review-stamp/label action-black marks will have the following meanings:
  - a. The mark APPROVED is an acceptance, and means that the submittal appears to conform to the respective requirements of the Contract Documents; that fabrication, assembly, manufacture, installation, application, and erection of the illustrated and described product may proceed; and that the submittal need not be resubmitted.
  - b. The mark APPROVED AS CORRECTED is an acceptance, and means that the submittal appears to conform to the respective requirements of the Contract Documents upon incorporation of the reviewer's corrections, and that fabrication, assembly, manufacture, installation, application, and erection of the illustrated and described product may proceed. Submittals so marked need not be resubmitted unless the Contractor challenges the reviewer's exception.

- c. The mark NOT APPROVED is a disapproval, and means that the submittals is deficient to the degree that the reviewer cannot correct the submittal with a reasonable degree of effort, has not made a thorough review of the submittal, and that the submittal needs revision and is to be corrected and resubmitted.

**Subsidiary Items:**

Subsidiary items including, but not limited to grading, backfill, blocking, testing, and cleanup, which are not pay items in the proposal shall be considered subsidiary to the job and no extra pay shall be allowed.

**Substitutions:**

In these specifications are specified certain equipment and/or materials deemed most suitable for the service anticipated. This is not done, however, to eliminate others equally as good and efficient. The Contractor shall prepare his bid on the basis of the particular equipment and/or materials specified for the purpose of determining the low bid. The awarding of the contract shall constitute a contractual obligation to furnish the specified equipment and/or materials unless the Contractor desires to follow the following procedure:

After the execution of the contract, substitution of equipment and/or materials of makes other than those named in the contract will be considered for one reason only; that the equipment and/or materials proposed for substitution is superior or equal in construction quality and/or efficiency to that named in the contract.

In the event the Contractor obtains the Engineer's approval on equipment other than that for which the plant was originally laid out, the contractor shall, at his own expense, make any changes in the structures, piping, or electrical equipment necessary to accommodate the equipment.

To receive consideration on any alternate, full descriptive material must be submitted to the Engineer at least seven (7) days before the scheduled letting to allow sufficient item for issuance of addenda.

**Taxes:**

The Contractor shall be held to have studied all tax laws for the jurisdiction in which the work is being done, and shall pay all the taxes for which he may be held liable as a consumer or user of goods, or otherwise, without addition to the Contract price.

**Testing:**

Testing and inspection of materials required by these specifications shall be performed by a commercial testing laboratory selected by the **Owner**. Except as otherwise noted, the cost of laboratory tests will be paid by the **Owner**. The Contractor shall pay the cost of all tests where the tested material fails and the cost of re-testing the material. This payment will be made direct to the testing laboratory by the Contractor. The Contractor shall furnish, at his own expense, all materials or specimens for testing.

Tests of the performance of equipment and constructed works such as leakage tests, bacteriological tests, deflection tests, tests of electrical circuitry, pumping tests, equipment tests, etc., shall be performed as required by these specifications at the expense of the Contractor.

**Tie-in:**

The cost for making the tie-in with associated appurtenances to the new water main shall be included in the price bid for the project unless otherwise noted on the plans. Note: Cost of tie-in also will include removal of any blocking required by the water line.

**Time of Completion:**

The time of completion for the project is stipulated by Contract Agreement. Time commences to run on a date specified by a "Notice to Proceed". "Substantial Completion" shall be interpreted according to the General Conditions and the project will be considered completed and ready for final payment upon final completion of all work including correction of all deficiencies identified by Engineer and final cleanup of all work areas.

**Topsoil:**

In all agricultural areas, whether grazing or crop land, and in all landscaped areas, topsoil shall be stripped to a depth of 12" for the total width of the excavation. Topsoil that is stripped shall be stockpiled near the project site in a manner that will preserve the character and quantity of the material. After the

work is completed, the topsoil shall be replaced and dressed to a uniform finish.

**Trade Names:**

Except as specified otherwise, whenever in the plans or specifications an article or class of material is designated by a trade name, or by the name or catalogue number of any maker, patentee, manufacturer, or dealer, such designation shall be taken to mean and specify the articles described or another equal thereto in quality, finish, and serviceability, for the purpose intended.

**Traffic Control:**

The Contractor will be required to plan and execute the construction work in such a manner that the residents in the area of the improvement will have access to their property with a minimum of interruption. The Contractor shall maintain all traffic lanes and/or detours to the satisfaction of the Engineer.

**Water and Utilities for Construction:**

The Contractor shall make his own arrangements for water and other utilities necessary for the construction. Securement of water and utilities for use in this project shall respect all rights of ownership, rights of way, and all laws, rules and regulations, which may be applicable to such securement.

## SECTION 201 EARTHWORK

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK

- A. The earthwork consists of operations required for excavation, non-expansive earth fill; structure backfill and general earth fill, as may be required during development of the project. The term "embankment" as used in this section refers to the compacted earth fill required for structure pads, roadway embankment fill, and miscellaneous related fill. The "subgrade" refers to the surface of the cleared and stripped areas that are designated to receive fill roadways or structures.
- B. The CONTRACTOR shall inform and satisfy himself as to the character, quantity, and distribution of material to be excavated.
- C. In the event of a conflict between this specification and project plans (drawings) then the plans will take precedence.

#### 1.2 WORK AFFECTING EXISTING UTILITIES

Above or below grade utilities, which are to remain, shall be protected by the CONTRACTOR. Existing utilities shall not be taken out of service without specific written authorization by the OWNER.

#### 1.3 PROTECTION

- A. Protect trees, shrubs, lawns, and other features remaining as part of the final landscaping.
- B. Protect benchmarks, existing structures (not being removed), fences, roads, and paving.
- C. Notify the ENGINEER of unexpected subsurface conditions.
- D. Where damage could result from continuing work, discontinue work in area until ENGINEER notifies CONTRACTOR of the required modifications.

### PART 2 - PRODUCTS

#### 2.1 EQUIPMENT

- A. CONTRACTOR shall furnish, operate and maintain all equipment required to complete this project, including, but not limited to, the following:
- B. Grading Equipment: Equipment necessary to produce uniform layers, sections, and smoothness of grade for compaction and drainage.
- C. Miscellaneous Equipment: Scarifiers, disks, spring tooth or spike tooth harrows, earth hauling equipment and other equipment suitable for removal of material from excavations and for the construction of fills.

#### 2.2 TOPSOIL

Source: Topsoil shall be obtained from excavation and fill areas. Strip and stockpile the top six (6) inches of material from such areas.

### PART 3 - EXECUTION

#### 3.1 CLEARING, GRUBBING AND STRIPPING

- A. All areas to be excavated or to receive earth fill, roadways, structures, or other such facilities, shall be cleared, grubbed, and stripped prior to excavation and subgrade preparation.
- B. Clearing and grubbing shall consist of the removal of all trees, large vegetation, abandoned structures, and debris, including all roots 1 inch or larger in diameter, to a minimum depth of eighteen (18) inches below the proposed subgrade level. For areas to be planted or sodded and surfaced to a depth of a (24") twenty-four inches below finished grade in areas to be covered by a building or structure.

- C. Stripping shall consist of the removal of all topsoil, roots, vegetation, and rubbish not removed by the clearing and grubbing operation. Additionally, any other unsatisfactory material shall be removed from the subgrade area of future compacted fills or embankments, and from the surfaces underneath the future roadways or other structures. The stripped areas shall be observed to determine if additional excavation is required to remove weak or otherwise unsuitable materials that would adversely affect the fill placement.
- D. Dispose of removed obstructions and debris off-site in accordance with local requirements.

## 3.2

**SUBGRADE PREPARATION**

- A. The subgrade shall be firm and able to support the construction equipment without displacement. Soft or yielding subgrade shall be corrected and made stable before construction proceeds. The subgrade shall be proof rolled to detect soft spots, which if exist, shall be reworked. Proof rolling shall be performed using a heavy pneumatic tired roller, loaded dump truck, or similar equipment weighing approximately 25 tons. The proof rolling operations will be observed by the project geotechnical engineer. The sides of stump holes or other similar cavities or depressions shall be broken down to flatten the slopes (no steeper than 4 horizontal to 1 vertical), with the sides of the cuts or holes being scarified to provide bond between the foundation soils and the embankment fill. Each depression or hole shall be filled with the same type of material, which is to be placed immediately above the foundation soil.
- B. Existing hillsides or slopes, which will receive fill, shall be loosened by scarifying or plowing to a depth of not less than 8 inches. The fill material shall be benched into the existing slope in such a manner as to provide adequate bonding between the fill and slope, as well as to allow the fill to be placed in essentially horizontal lifts.
- C. Prior to placement of compacted fill in any section of the embankment, after depressions and holes have been filled, the foundation of such sections shall be compacted to the same density and moisture requirement as the embankment.
- D. In areas of the subgrade, which are too soft, wet or otherwise unstable to allow embankment construction to begin, the use of plating and/or plating in combination with "GEOGRID" soil reinforcement or approved equal, may be required.
- E. The traffic of heavy equipment, including heavy compaction equipment, may create pumping and general deterioration of the shallower clay soils. Therefore, it shall be anticipated that some construction difficulties will be encountered during periods when these soils are saturated. The clayey, sandy, and silty soils may have to be excavated, mixed, dried, and replaced. At times, excavating and replacing with selected soils, the use of lime or cement treatment, or the use of geo-synthetic materials may be required before an adequate subgrade can be achieved.

3.3 **PLACING OF MATERIAL**

- A. Embankment materials shall be placed on a properly prepared subgrade as recommended above. The combined excavation, placing and spreading operation shall be done in such a manner to obtain blending of material, and to provide that the materials, when compacted in the embankment, will have the most practicable degree of compaction and stability. Materials excavated from cut sections and hauled to construct fills must be mixed and not segregated. Sands and clayey sands shall be blended with sandy clays and clays, rather than having lifts of non-cohesive sandy materials.
- B. If the surface of the embankment is too smooth and hard to bond properly with a succeeding layer, the surface shall be roughened and loosened by disking before the succeeding layer is placed.
- C. Where fill is to be placed next to existing fill, that fill shall be removed to unweathered, dense material. Each layer shall be benched and disked as adjoining lifts are placed. Material hauling equipment shall be so routed over the embankment surface to distribute the added compaction afforded by the rolling equipment, and to prevent the formation of ruts on the embankment surface.
- D. The surface of the fill shall be graded to drain freely and maintained throughout construction. During the dumping and spreading process, all roots and debris and all rocks greater than four (4) inches in maximum dimension shall be removed from the embankment materials. No rocks shall be allowed within the final 8 inches of subgrade.

### 3.4 PROCESSING AND MOISTURE-DENSITY CONTROL

- A. Following the spreading and mixing of the soil on the embankment, it shall be processed by disking or pulverizing throughout its thickness to break up and reduce clod size, and provide additional blending of materials. Processing shall consist of at least five passes of a fully penetrating disc plow or three passes of a fully penetrating roto-till pulverize. Additional passes of the processing equipment shall be performed as necessary to accomplish breaking up, reduction of clod size, and blending the fill. Each successive pass of the processing equipment shall be in a direction perpendicular to the previous pass, where working space permits. The maximum recommended loose lift thickness prior to compaction is eight (8) inches. The moisture content of the soil shall be adjusted, if necessary, by either aeration or the addition of water to bring the moisture content within the recommended range. Water required for sprinkling to bring the fill material to the proper moisture content shall be applied evenly through each layer.
- B. Any layers, which become damaged by weather conditions, shall be reprocessed to meet recommended requirements. The compacted surface of a layer of fill shall be lightly loosened by disking before the succeeding layer is placed.
- C. When the moisture content and the condition of the fill layer are satisfactory, compaction shall be performed with a heavy tamping foot roller with fully penetrating feet (feet long enough to penetrate into the previous lift) towed either by a crawler-type tractor or by the self-propelled type. The tamping foot roller shall weigh no less than 2,000 pounds per linear foot of drum width. Vibratory tamping rollers are recommended for compacting sandier fill materials.
- D. The in-place density of the fill shall be no less than 95 percent of the maximum dry density as determined by ASTM D698, Standard Proctor. At a moisture content between optimum and 5 percentage points wet of optimum moisture content for all low-permeability earth fill zones (liners, cores, etc.), and between 2 percentage points below to 5 percentage points above optimum moisture content for non-expansive earth fill zones and general earth fill zones. The moisture content and density of all fill material shall be maintained at the specified range of moisture and density. These moisture ranges represent the maximum limits. It is possible under some circumstances or with some soils, that a more narrow range, within the recommended limits, will be necessary to consistently achieve the recommended density. In order to help provide a homogeneous earth fill mass, a minimum of eight passes of the tamping foot roller shall be provided, even if the recommended density is achieved with fewer passes.
- E. Field density tests (including moisture content) shall be taken as each lift of fill material is placed. A minimum of one field density test per lift for each 2,500 square feet of compacted area is required. For small or critical areas, the frequency of testing shall be reduced to one test per 1,000 square feet or less. A minimum of two density tests shall be taken on each lift, regardless of size. The earthwork operations will be observed and tested on a continuing basis by an experienced geotechnical technician working in conjunction with the project geotechnical engineer.
- F. Each lift shall be compacted, tested, and approved before another lift is added. The actual quality of the fill, as compacted, shall be the responsibility of the CONTRACTOR and satisfactory results from the tests shall not be considered as a guarantee of the quality of the CONTRACTOR's filling operations.

### 3.5 STRUCTURE BACKFILL PLACEMENT AND COMPACTION

The backfill material shall be placed in maximum 8-inch lifts and compacted to a density ranging between 95 and 100 percent of maximum Standard Proctor (ASTM D698) dry density at a moisture content ranging from 2 percentage points below optimum to 5 percentage points above optimum for the backfill materials. Caution shall be exercised not to over compact the backfill. Hand-operated tampers or other lightweight compactors are required in the 5-foot area adjacent to the wall or other structure. Non-expansive earth fill shall be used for structure backfill. The lift thickness shall be reduced to 4 inches for those areas where hand-operated compactors are required. The backfill surface shall slope away from the structure on a gradient of 1.5 to 3 percent, such that surface water does not pond adjacent to the structure within the backfill zone. Topsoil and seeding shall be

accomplished to help prevent drying and cracking of the backfill surface. The slope shall be maintained on a 1.5 to 3 percent gradient after topsoil is placed.

### 3.6 TRENCH BACKFILL

- A. Trench backfill for pipelines or other utilities shall be properly placed and compacted. Non-expansive earth fill shall be used for trench backfill. Free draining granular material shall not be used. The non-expansive soil backfill shall be placed in approximate 4 to 6 inch loose lifts. The density and moisture content shall be as recommended for non-expansive fill in Subsection 3.4 Processing and Moisture-Density Control, of this specification, except all non-expansive backfill above the spring line of the pipes, in sections of the trench underneath pavements, shall be compacted to a minimum of 100 percent of maximum dry density (ASTM D698). In areas where granular backfill is used, it shall be compacted, with a vibratory compactor, to a minimum of 95 percent of maximum density as determined by ASTM D4253, at a moisture content that will facilitate compaction. A minimum of one field density test shall be taken per lift for each 150 linear feet of trench, with a minimum of two tests per lift. In restricted areas where compaction of non-expansive earth fill is not practical, flowable fill shall be used.
- B. Where lean concrete fill or flowable fill is used, each lift or section shall be allowed to reach initial set as required to provide the intended support, prior to the next lift or section being placed. The lean concrete fill or flowable fill will not require compaction.

### 3.7 EARTH FILL AND FLOWABLE FILL MATERIALS

- A. The following information is provided to define the requirements for the various earth fill and flowable fill materials for construction of the project:
- B. **Non-Expansive Earth Fill:** The non-expansive earth fill shall consist of soil materials with a liquid limit of 35 or less, a plasticity index between 8 and 20, a minimum of 35 percent passing the No. 200 sieve, a minimum of 85 percent passing the No. 4 sieve, and which are free of organics or other deleterious materials. When compacted to the recommended moisture and density, the material shall have a maximum free swell value of 0.5 percent under a maximum seating pressure of 2 psi and a maximum hydraulic conductivity (permeability) of 1 E-05 cm/sec, as determined by laboratory testing of remolded specimens of the actual materials proposed for the non-expansive earth fill.
- C. **Low-Permeability Earth Fill:** The low-permeability earth fill shall consist of soil materials classified as CH or CL in accordance with ASTM D2487 - *Classification of Soils for Engineering Purposes*. The materials also shall have a minimum liquid limit of 35, a minimum plasticity index of 18, a minimum of 85 percent passing the No. 4 sieve, and shall be free of organics or other deleterious materials. The material shall have Percent Dispersion of less than 20 when tested in accordance with ASTM D4221, STANDARD TEST METHOD FOR DISPERSIVE CHARACTERISTICS OF CLAY SOIL BY DOUBLE HYDROMETER. When compacted to the recommended moisture and density, the material shall have a maximum hydraulic conductivity of 1 E-07 cm/sec, as determined by laboratory testing of remolded specimens of the actual materials proposed for the low-permeability fill.
- D. **General Earth Fill:** The general earth fill shall consist of any soil materials which have a minimum plasticity index of 8, a minimum of 20 percent passing the No. 200 sieve, a minimum of 85 percent passing the No. 4 sieve, and which are free of organics or other deleterious material.
- E. **Flowable Fill:** Flowable fill shall consist of a low-cement content ready-mix material with high flow properties. The mix shall consist of approximately one part Portland cement to three parts fly ash, by weight with sufficient amounts of aggregate, high air generator or foaming agent, and water to produce a 28-day compressive strength in the range of 25 to 200 psi. The flowable fill shall have a maximum hydraulic conductivity of one (1) E-05 cm/sec after curing for seven (7) days. The material shall have an initial set time (walkable surface) of 24 hours or less. The flowable fill shall provide full support to pipeline, adjacent earth walls, structures, or other such facilities, after initial set, but shall be of a low enough compressive strength after reaching final strength to allow future excavation with ordinary small excavation equipment.
- F. The CONTRACTOR shall be required to submit an appropriate mix design along with laboratory test results on the flowable fill prior to beginning work on this item.

- G. **Solid Rock:** In order for any rock material to be considered as solid rock, it shall meet all of the following criteria:
1. The rock shall be massive and in a continuous layer at least 2 feet thick.
  2. The rock shall have an unconfined compressive strength greater than 80 ksf.
  3. The rock shall not be able to be ripped from a starter trench in an open cut excavation with a D-9 "Caterpillar" (or equivalent) bulldozer with a single tooth ripper. Or in a trench excavation with a 235C "Caterpillar" (or equivalent) track hoe excavator equipped with a nominal 30-inch wide extreme service trenching bucket with front and rear mounted rock ripper teeth.

Boulders and cobbles, whether in densely spaced layers or occasional occurrence, shall not be classified as solid rock, regardless of the hardness of the individual boulders or cobbles.

- H. **Compliance Testing** Representative samples of the actual soil materials proposed for use in the various earth fill zones shall be initially tested for compliance with the recommendations by the project geotechnical engineer, prior to use of the materials as fill. The testing program shall continue through construction as a means to verify that the earth fill materials being placed continue to meet the recommended requirements.

### 3.8 EARTH FILL ZONE

- A. Table 1 specifies for the various earth fill zones.

TABLE 1 – EARTH FILL ZONES		
ITEM	ZONE	EARTH FILL MATERIAL
Embankment Fill for structures, pavements and flatwork	Top 10 Feet	Non-Expansive
Embankment Fill for structures, pavement and flatwork	Below 10 Feet	General
Structure Backfill	All	Non-Expansive
Trench Backfill beneath present or future structures, pavements and flatwork	All (exclusive of lean concrete or flowable fill zones)	Non-Expansive
Trench Backfill more than 5 feet outside the limits of present or future structures, pavements and flatwork	To 1 foot above top of pipe (exclusive of lean concrete or flowable fill zones)	Non-Expansive
Trench Backfill more than 5 feet outside the limits of present or future structures, pavements and flatwork	From 1 foot above top of pipe and upward pavements and flatwork	General
General Embankments more than 5 feet outside the limits of present and future structures, pavements	All	General
General Site Grading where no slopes or deep fills are involved	Top 1 Foot	General
General Site Grading where no slopes or deep fills are involved	Below 1 Foot	Common
Seepage plugs around pipes, and liners/barriers	All	Low-Permeability

- B. Other specific recommendations for earth fill materials and for aggregate fill materials are also presented in other sections of these Specifications.

### 3.9 ACCEPTANCE OF IMPORTED FILL

Any soil imported from off-site sources shall be tested for compliance with the recommendations for the particular application and approved by the project geotechnical engineer prior to the materials

being used. The OWNER will also require the CONTRACTOR to obtain a written, notarized certification from the landowner of each proposed off-site soil borrow source stating that to the best of the landowner's knowledge and belief there has never been contamination of the borrow source site with hazardous or toxic materials. The certification shall be furnished to the OWNER prior to proceeding to furnish soils to the site. The CONTRACTOR shall be required to provide the services of an EPA approved laboratory to perform, as a minimum, a toxic contaminant scan of composite soil. Samples representative of each separate proposed borrow source, in accordance with EPA protocol for the list of contaminants contained in the 40 CFR, Part 261, Appendix VIII, by EPA methods SW-846, prior to importing the soil borrow. Any potential off-site borrow on which the test results indicate the presence of contaminants above background levels shall be rejected. Soil materials derived from the excavation of underground petroleum storage tanks shall not be used as fill on this project.

### 3.10 EXCAVATION

- A. Temporary slopes of 2-horizontal to 1-vertical and flatter shall be used for this site. In all cases, the requirements of the Occupational Safety and Health Administration (OSHA) must be followed. The CONTRACTOR shall monitor the slope stability by observation and measurement, and to prevent excessive loads (especially heavy vibratory loads) from being applied to the slope. The CONTRACTOR shall be responsible for maintaining the slopes in a safe condition during construction and the use of slope stability monitoring equipment shall be used.
- B. The side slopes of excavations through the overburden soils shall be made in such a manner to provide for their stability during construction. Structures, pipelines or other facilities which are constructed prior to or during the currently proposed construction and which require excavation, shall be protected from loss of end bearing or lateral support.
- C. Temporary construction slopes and/or permanent embankment slopes shall be protected from surface runoff water. Site grading shall be designed to allow drainage at planned areas where erosion protection is provided, instead of allowing surface water to flow down unprotected slopes.
- D. Drainage: During excavation, maintain grades for complete drainage. Install temporary drains or drainage ditches as needed to intercept or divert surface water and prevent interference or delay the work. The pumping of water shall be included in the bid items. No separate payment will be made for drainage control and pumping.
- E. The CONTRACTOR shall comply with all applicable safety regulations concerning trench safety and excavations, including, but not limited to OSHA regulations.

### 3.11 DEWATERING OF EXCAVATIONS

- A. Ground water may be encountered within the excavations. The CONTRACTOR shall be responsible for selecting and providing appropriate excavation dewatering systems for use during construction.
- B. The dewatering method selected shall be capable of lowering and continuously maintaining the ground water surface a minimum of 3 feet below the base of all excavations throughout the construction period. The CONTRACTOR shall be required to provide adequate personnel and equipment to operate and maintain the dewatering system on a 24-hour basis, as required.

### 3.12 SOIL CORROSION AND REACTION POTENTIAL

The clays at this site may be corrosive. Standard construction practices for protecting metal pipe and similar facilities in contact with these soils shall be used.

### 3.13 EROSION AND SEDIMENT CONTROL

All disturbed areas shall be protected from erosion and sedimentation during construction, and all permanent slopes and other areas subject to erosion or sedimentation shall be provided with permanent erosion and sediment control facilities. All applicable ordinances and codes regarding erosion and sediment control shall be followed.

END OF SECTION

## SECTION 205 WATERLINE INSTALLATION

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK

This work consists of constructing water mains and service branches, including fire hydrants, water meters, service stops, valves, fittings and boxes. The CONTRACTOR shall provide all tools and equipment required for installing these items. The work also includes furnishing all materials, excavating, bedding, laying pipe, jointing, backfilling, hydrostatic testing, disinfection, restoration of disturbed facilities and surfaces, line (location) and grade, disposal of all surplus excavation and discarded materials, and other work necessary to complete the items. In the event of a conflict between this specification and the project plans (drawings) then the plans will take precedence.

#### 1.2 JOB CONDITIONS

A. Control of Water: Provide sufficient pumping equipment in good working order, available at all times, to remove any water that accumulates in excavations. Where the waterline crosses natural drainage channels, conduct work in such a manner that unnecessary damage or delays in the prosecution of the work will be prevented. Make provisions for the satisfactory disposal of surface water pumped so as to prevent damage to public or private property.

B. Protection of Existing Utilities: It shall be the responsibility of the CONTRACTOR to verify the existence and location of all underground utilities along the route of the work. The omission from or the inclusion of utility locations on the Plans is not being considered as the non-existence of, or a definite location of existing underground utilities.

The CONTRACTOR shall take the necessary precautions to protect existing utilities from damage due to his operations. The CONTRACTOR shall notify DIG TESS, Texas One-Call System, and all other utility locator services to request utility locates. In addition, other utilities within the project area shall be notified to locate their utilities. CONTRACTOR shall keep a notebook of all location requests. Each notation will contain the following information: Date, Time, Brief Location Summary, Request ID Number, and Call Back Repair Number. Any damage to the utilities, whether marked or unmarked, will be repaired at the CONTRACTORS expense.

C. Protection of Trees, Plants and Shrubbery:

1. Where trees, plants and shrubbery are adjacent to the line of the work and are not to be removed and replaced, protect such trees, plants, shrubbery, etc., by substantial wooden boxes and guards and do not permit machinery or employees to scrape, tear the limbs from or damage or attach guy cables to them and if, in the opinion of the ENGINEER, such trees, plants and shrubbery would be damaged by machinery, etc., hand excavation may be required. The CONTRACTOR shall be responsible for all damages to adjacent trees, plants and shrubbery.

2. Where waterlines cross lawns, remove the sod for the full width of the excavation. Lawns are defined as those areas where, in the opinion of the ENGINEER, grasses such as Bermuda, St. Augustine, Fescue or other similar grasses generally cover the area being excavated and generally have been kept mowed to a height of 6" or less. Remove sod in squared cut out with a sharp spade, and of such sizes that they may be handled conveniently without breaking. The sod shall be removed in one layer not less than 3" in depth, and shall be carefully stored and given proper attention. During hot, dry weather, the stored sod shall be protected by covering with canvas or burlap. After backfilling is completed, replaced sod, tamp and water sod thoroughly.

D. Protection of Streets and Roadways:

1. Where waterlines cross public streets, no more than one-half of the street may be closed at one time and that one-half for only 24 hours. Where waterlines cross plant roadways, an all access road shall be constructed if required to maintain access to any facility served by the severed road. Cover trenches crossing roadways and streets with 1" minimum thickness steel plates until backfill is complete and compacted. On heavily traveled streets as determined by the ENGINEER, steel plates are to remain in place until street pavement

repair is completed. After backfilling trenches in roadways and streets (either crossing or parallel), keep roadways and streets passable at all times. Cover and maintain the top of the trench with at least 4" of compacted flexible base until pavement repair is complete. Keep top of ditch elevation within plus or minus 2" of elevation of adjacent roadway or street. The work described above is not a separate pay item and the cost of labor and materials required to protect streets and roadways is to be included in the lump sum amount or unit price, as applicable.

2. Protect existing pavement, including plant roadways, from damage from heavy equipment and vehicles with lugs throughout construction. Saw cut pavement with a concrete saw before beginning excavation. Saw cuts are to be straight and parallel to the line of work.

### 1.3 GUARANTEE

- A. Guarantee the backfilling of excavation and trenches against excessive (as determined by the ENGINEER) settlement for a period of one year after the final completion of the contract under which the work is performed.
- B. Guarantee the backfilled ditch against erosion and erosional rivulets exceeding 3" in depth. The CONTRACTOR may, at his own cost, place erosion protection including jute mats, sodding, seeding and the like on erosion prone areas.
- C. Make all repairs or replacements necessary by settlement or erosion including refilling and compacting the upper portion of the ditch and repairing broken or settled pavements within ten (10) days after notice from the ENGINEER or OWNER.

### 1.4 PAYMENT FOR COMPLETED PORTIONS

The OWNER will pay for eighty-five (85%) percent of the actual quantity of pipe laid and backfilled until the right-of-way is finish graded and cleaned up. The payment for installed pipe is further subject to the project retainage.

## PART 2 - PRODUCT

### 2.1 CONCRETE AND REINFORCING STEEL DESCRIPTION

This section covers the materials and installation of concrete and reinforced concrete for paving, structures, slabs, riprap, blocking and encasement.

- A. Concrete: Concrete materials and construction methods should conform to Texas Highway Department 1982 Standard Specifications for Construction of Highways, Streets and Bridges except as modified and amended below.

Concrete for manhole base construction, blocking and encasement shall be Class B concrete with a maximum slump of 4".

Concrete for structures and riprap shall be Class A concrete with a maximum slump of 3".

Exposed concrete slabs shall have a steel troweled finish. Exposed riprap shall be float finished.

Concrete for paving shall be Class A concrete with a slump of 1" to 3".

The concrete finish for walking surfaces exposed to the weather shall be broom finished.

- B. Reinforcing Steel: Reinforcing steel shall conform to Texas Highway Department 1982 Standard Specifications for *Construction of Highways, Streets and Bridges, Item 440, Grade 60*.
- C. Expansion Joint: Expansion joint material shall be 1/2" asphalt impregnated fiberboard conforming to ASTM D 1751.
- D. Testing: Compression strength tests shall be performed on all reinforced concrete. The CONTRACTOR shall retain an approved testing laboratory which shall make one compression test set of three cylinders for each day's run or separate pour. Cylinders shall be continuously cured in water until tested. The CONTRACTOR shall pay for and provide two (2) copies of test results to the ENGINEER.

### 2.2 PIPE MATERIALS

No materials shall be utilized which have been used for any purpose other than the convenience of drinking water. All materials covered in this specification shall be of domestic origin only, unless noted otherwise. Similarly, all materials in this specification shall be America National Standards

Institute/National Sanitation Foundation (ANSI/NSF) and America Water Works Association (AWWA) approved. Materials utilized shall conform to applicable current American Society of Testing Materials (ASTM) Standards. The pipe shall be transported to the job site by acceptable transportation methods and the front end of the pipes shall be covered with a tarp to prevent foreign materials from entering pipes. Each load of pipe and other materials delivered to the job-site will be inspected, before unloading, by the INSPECTOR or ENGINEER to assure that it meets specifications. The ENGINEER or OWNER shall have the right to reject any load of pipe that he feels does not meet the specifications. It will be the CONTRACTOR's and pipe manufacturer's responsibility to determine if any laboratory testing is warranted. The cost of any such testing will be borne by the CONTRACTOR. Any pipe with bell or gasket damage shall be immediately rejected and replaced at no additional cost to the OWNER.

The use of pipes and pipe fittings that contain more than 8.0% lead or solder and flux that contains more than 0.2% lead is prohibited.

All plastic pipe used in public water systems must also bear the National Sanitation Foundation Seal of Approval (NSF-pw) and have an ASTM design pressure rating of at least 150 psi or a standard dimension ratio of 26 or less.

- A. **PVC Pipe Materials:** PVC pipe shall conform to AWWA C900, AWWA C905, or ASTM D2241. Pipe joints shall be push-on type with a thickened bell, and shall conform to ASTM D3139 with a rubber gasket conforming to ASTM F477.

Qualification for potable-water service: PVC, PE, or PB compounds used to make pipe and couplings, as well as solvent cements used, shall contain no ingredient in an amount that has been demonstrated to migrate into water in quantities considered to be toxic, as tested in accordance with Sections 3 and 4 of National Sanitation Foundation (NSF) Standard Number 14. Such compounds or products shall be tested and certified as suitable for portable-water distribution products by the NSF Testing Laboratory or the Canadian Standards Association Testing Laboratory, or any other similarly accredited testing agency acceptable to the Laboratory.

- B. **Steel Pipe Materials:** Steel casing pipe shall conform to ASTM A252 Grade 2 with a minimum wall thickness of 0.250 inch.
- C. **Ductile Iron Pipe Materials:** Ductile iron pipe shall conform to ANSI/AWWA C151/A21.51 and to ANSI/AWWA C150/A21.50 for thickness design. The pipe shall be furnished with a cement mortar lining conforming to ANSI/AWWA C104/A21.4. A gasket conforming to ANSI/AWWA for each length of pipe and suitable for the type of joint of the pipe shall be furnished and shipped in a separate container.

Push-on and mechanical joints shall conform to ANSI/AWWA C111/A21.11.

Boltless restrained joints shall conform to ANSI/AWWA C111/A21.11. The restraint shall be an approved design which provides a positive lock against joint separation. Steel locking segments molded into a gasket to grip the pipe do not meet the requirements for this joint.

Ball and socket joints are suited for underwater installations and may be used for other types of installations where an appreciable amount of joint deflection and a positive lock against joint separation are required.

Fittings for ductile iron pipe shall be manufactured in accordance with ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53, and ANSI/AWWA C111/A21.11. Fittings 406 mm (16-inch) or larger shall be manufactured of ductile iron only. Fittings shall be cement mortar lined in accordance with ANSI/AWWA C104/A21.4.

- D. **Polyethylene Pipe Materials:** PE pipe and fittings shall conform to AWWA C901. The pressure class shall be 200 unless otherwise indicated on the plans. Material shall be furnished with plain ends and meet the requirements of DR9 IPS for potable waterlines.
- E. **Copper Tubing Materials:** Copper service branches shall conform to ASTM B 88M (B 88) Type K, and be assembled using flare-type compression fittings conforming in AWWA C800. Minimum working pressure for the branches shall be 1.0 MPa (150 psi). The material shall be either coil type (temper 060 annealed) or drawn type (temper H). Fittings for copper service branches shall be high quality copper brass with AWWA C800 dimensions.

- F. **Brass Materials:** Brass shall conform to the requirements of current specification ANSI B 16.5 and ASTM B584.

### 2.3 FIRE HYDRANTS:

Fire hydrants shall be Mueller or approved equal, and shall conform strictly to the latest edition of AWWA specification C-502, with the following changes or additions and supplementary details where applicable:

- Type of shut-off shall be compression.
- Inlet connection shall be 6" standard mechanical joint, complete with all joint accessories. Inlet valve shall have not less than a 5" opening.
- All hydrants shall be equipped with two 2-1/2" hose nozzles and one 4-1/2" steamer nozzle.
- The hydrant bury shall be 3-1/2" plus the diameter of the main to which it is connected, rounded to the nearest half foot or as shown on plans.
- A drain opening will be required and drain valves operating by springs or gravity is not acceptable.
- All fire hydrants shall open by turning to the left (counterclockwise).
- All fire hydrants shall be primed with a suitable rust inhibiting metal primer. After installation, hydrants shall be painted with two coats of bright red machinery enamel or color as indicated on plans.
- The body of the hydrant shall be equipped with a breakable flange, or breakable cast iron flange bolts just above the grade line.
- All hydrants shall be of such design as will permit their extension without excavating in case of future grade changes.
- The complete hydrant shall be of such design that when the hydrant barrel is broken through traffic collision, it may be replaced without excavating or breaking the pavement. The barrel and operating mechanism shall be so designed that in case of accident, damage or breaking of the hydrant above or near the grade level, the main valve will remain reasonably tight against leakage or flooding.
- All hydrant installations shall include a swivel coupling as may be necessary.
- Fire hydrants shall be located as shown on the plans or as directed by the ENGINEER and shall be set truly vertical at finish grade height with the base resting up on a stone or concrete slab four (4) inches thick approximately twelve (12) inches square. The base of the hydrant shall be surrounded by not less than five (5) cubic feet of clean crushed stone or gravel, size one (1) inch to two (2) inches. Pipe joints shall be made as specified for pipe laying. The hydrants shall be carefully and substantially blocked against firm trench walls with sound stone, sound slabs of old concrete or 2,000 psi concrete, but no additional pay will be allowed for same.
- Where required by local code requirements or as shown on the plan sheets, street reflectors indicating the presence of a fire hydrant shall be installed.
- All fire hydrants shall be painted in accordance with the local code requirements, manufacturer's specifications, and OWNER's requirements unless otherwise shown on the plan sheets.

### 2.4 SERVICE LINES:

The service lines shall be as follows: 3/4" and 1" -- Type K Copper or HDPE Polyethylene 1-1/2" and larger -- Type K Copper, HDPE Polyethylene, or 200 psi PVC or other material as may be shown on the plans.

### 2.5 METER BOXES:

Meter boxes shall be as indicated on the plan sheets and approved by the ENGINEER or OWNER.

## 2.6 VALVES

- A. **Gate Valves:** Gate valves shall be designed for a minimum water working pressure of not less than 150 psi. Valves shall be FIP, Flanged or MJ as required for the piping in which they are installed. Valves shall be resilient seat only. Gate valves shall have a clear waterway equal to the full nominal diameter of the valve, and shall be opened by turning counterclockwise. The operating nut (underground) or wheel (above ground) shall have an arrow, cast in the metal, indicating the direction of opening. Each valve shall have the maker's initials, pressure rating and a year of manufacture cast on the body. Prior to shipment from the factory, each valve shall be tested by hydraulic pressure equal to twice the specified hydrostatic working pressure. Valves two inches and larger shall be square operating nut, brass mounted, double disc, non-rising screw and shall conform to the requirements of the AWWA Standard C515, or to Federal Specification WW V-58, Class A. Smaller valves shall be brass or bronze, in accordance with Federal Specification WW-V-54. Gate valves shall be Mueller Mechanical Joint Resilient Seat Gate Valve Open Left or approved equivalent. Handwheel valves only allowed in above ground application.

All valves shall be installed as shown on the plans, and in accordance with the appropriate material specifications. For each gate valve, the CONTRACTOR shall furnish and install a valve box as shown on plans.

Valves shall be carefully handled and lowered into position in such a manner as to prevent damage to any parts of the valve. Gate valves shall be supported by a concrete block.

Valves shall be placed in such positions as indicated on the plans with the stem in a vertical position and securely held until all connections have been made.

Gate valves and pipefittings shall be set and jointed to new pipe in the manner described herein for cleaning, laying and jointing pipe. Mechanical joint valves will be installed unless specified otherwise.

- B. **Check Valves:** Unless otherwise specified, all check valves for service taps will be the silent spring loaded double check type as approved by the ENGINEER or OWNER.  
Water Distribution check valves shall be weight and lever type as manufactured by Watts, Mueller, Clow, or approved equal or as shown on plans.
- C. **Air Valves:** Air valves shall be the float and lever type, or equal, or the vacuum breaker type, as is manufactured by the APCO No. 145C or approved equal or as shown on plans.
- D. **Miscellaneous Valves:** Flush, blow-off, air relief and pressure-regulating valves shall be of types and sizes and at the location shown on the Plans. All valves and associated materials shall be of domestic origin. Pressure regulating valves shall be of the quality to provide the utmost protection for service lines. Air-relief and pressure regulating valves shall be Cla-Val or approved equal. Gate valves used on flush valve assemblies shall be Mueller FIP Resilient Seat Gate Valve, or approved equal.

## 2.7 VALVE BOXES

Valve boxes shall be 6" PVC, SDR-35 pipe complete with valve box mushroom lid, Tyler cast iron adjustable, or as shown on the Detail Sheet. Boxes shall be installed over each outside gate valve and shall rise to a height of 6" above natural ground at the valve location. Valve boxes shall be firmly supported and maintained centered and plumb over the wrench nut of the gate valve. The box cover shall be set flush with the surface of the ground or at such other level as may be directed. If valve is located in a ditch, the riser may need to be extended more than 6" above natural ground. Locations for these extended risers shall be designated by ENGINEER or OWNER. Valve box covers to have "W" imprinted on them. Signs to be placed at each valve box for each valve. However, only one valve sign is required per valve cluster. Valve boxes shall be installed where shown on the drawings and as directed by the ENGINEER. Valve boxes shall be centered on the valves. Where feasible, valves shall be located outside the limits of roads and streets. Earth fill shall be carefully tamped around each valve box to a distance of 4 feet on all sides of the box, or to the undisturbed trench face, if less than 4 feet.

## 2.8 VALVE EXTENSIONS

Valve extensions shall be placed on all valves greater than or equal to 5 feet below grade.

## 2.9 FITTINGS

Fittings 2" and larger shall be compact mechanical joint ductile iron with appropriate accessory sets to match the outside diameters of mainline piping. Fittings shall conform to ANSI/AWWA G153 and joints shall be in accordance with ANSI/AWWA C-111/A21.11. The working pressure rating shall be 350 psi for all sizes of piping and fittings. Flanged fittings shall have full body dimensions and also be rated for a working pressure of 350 Psi. Underground fittings shall be asphalt coated outside in accordance with ANSI/AWWA C151. Above ground fittings shall be painted if shown on the Plans. Fittings shall have cement mortar lining inside in accordance with ANSI/AWWA C104. All coated fittings shall meet or exceed the requirements of NSF-61. Fittings shall be manufactured by Tyler or approved equal. Gaskets for mechanical joints shall conform to ANSI/AWWA C-111. Gaskets for flanged joints shall be 1/8 inch thick rubber, either ring or full face, conforming to dimensions in ANSI/AWWA C-115. All accessory packs must match brand of fitting. Accessory packs shall be Tyler or approved equal.

Fittings, smaller than 2", shall be PVC or as shown on plans as manufactured by Harco or equal. Plastic fittings shall be joined by solvent weld.

All valves and fittings shall be restrained with Mega-Lug 2000 or Series 1100 Ford Uni-Flange Series 1500-S or equal style restraining devices as may be shown on plans or as approved by the ENGINEER at each connection point. Restraint for PVC pipe joined with standardized mechanical joint fittings shall be incorporated in the design of the follower gland and shall provide full circle contact and support of the pipe wall. Restraint shall be accomplished by a series of ring segments mechanically retained inside the gland housing and designed to grip the pipe wall in an even and uniform manner. Restraining ring segments shall be actuated by bolts featuring "Auto-Tork" twist off heads to ensure proper installation torque is applied. A safety stop on the Auto-Tork bolt shall limit the force applied to the ring segment against the pipe. All components of the restrainer, including the gland, bolts, and restraint segments shall be of high strength ductile iron, ASTM A536, Grade 65-45-12. The manufacturer of the retainer glands shall be registered to the International Standards Organization for the ISO 9001 standard (as a minimum) for quality. The saddles shall be listed in the Underwriters Laboratories Listing of Drinking Water System Components in Accordance with ANSI/NSF 60 & 61.

Bell and spigot joints for piping immediately upstream and downstream of fittings shall be restrained with Ford Uni-Flange Series 1390 or approved equal as may be required. Restraint devices for PVC pipe shall incorporate a series of machined serrations (not "as cast") on the inside diameter to provide positive restraint, exact fit, and 360° contact and support of the pipe wall. Restraint devices shall be manufactured of high strength ductile iron, ASTM A536, grade 65-45-12. Bolts and connecting hardware shall be manufactured of high strength, low alloy material in accordance with ANSI/AWWA C-111. All restraint devices shall have a working pressure equivalent to the full rated pressure of the PVC pipe on which they are installed, with a minimum 2:1 safety factor when tested in a dead end situation. Restraint devices shall meet or exceed the requirements of Uni-B 13-94 *Recommended Performance Specification for Joint Restraint Devices for Use with Polyvinyl Chloride Pipe*.

One-Bolt epoxy coated ductile iron with integral restrained joints fittings may be substituted for the conventional ductile iron fittings with external restraining devices if shown on plans or approved by OWNER/ENGINEER.

## 2.10 TRACER TAPE

The tracer tape shall be a minimum of 2" metallic tape detectable mesh for marking and detecting buried underground utilities if required.

## 2.11 TRACER WIRE

The tracer wire shall be designed specifically for the purpose of detecting buried utilities. Tracer wire shall be solid-core 12 AWG (minimum) copper wire coated with a 30-mil (minimum) polyethylene jacket designed specifically for buried use, or equal as approved by ENGINEER.

**2.12 TEST STATION**

The test station is designed specifically for the purpose of terminating tracer tape or tracer wire and shall have a minimum of two leads, Little Fink manufactured by COTT Manufacturing or equivalent approved by the ENGINEER. Blue is the color of choice for waterlines.

**2.12 TAPPING VALVES AND SLEEVES**

Tapping valves shall be in accordance with Gate Valves of this specification. Ends shall be flanged by mechanical joint. Sleeves shall be cast iron and epoxy coated as manufactured by Smith-Blair or approved equivalent. Bolts shall be stainless steel.

**2.13 INSULATION**

All exposed piping, fittings, and valves shall be insulated with a pre-formed fiberglass insulation such as Johns-Manville's Micro-Loc 650 with aluminum jacket or equal.

**2.14 FLUSH VALVES AND HYDRANTS**

Flush valves shall be as shown on plans. If designated, flush hydrants shall be installed and shall be Eclipse Post Hydrant #2 or equal with on 2-1/2" NST nozzle and 2" MJ inlet or as shown on plans.

**2.15 VALVE, WATERLINE, TEST STATION MARKERS**

A high visibility, flexible, durable white marker post, 4" x 66", with sharp blue contrasting color incorporating the international "no Dig" symbol and all weather decal WARNING WATER PIPELINE; Rhino 3-Rail or equivalent or as shown on plans.

**2.16 COLD WATER METERS**

The cold-water meters shall conform to AWWA Standard C-700-6 1 T. All meters shall be as shown on plans.

**2.17 MISCELLANEOUS METER MATERIALS**

A. Meter tapping Saddles: Service Saddles shall conform to AWWA Standard C-800 and latest revisions. C83 600 and AWWA C-800. Saddles 1-1/2" through 8" shall be of the one-piece design style and have its top and bottom section hinged together with a silicon bronze pin. A slotted hex head screw (5/16" x 1-1/2" long for 1-1/2" through 8" Saddles) is used to tighten the upper and lower castings around the pipe (two screws for 1-1/2" & 2" taps). The saddle shall provide 360-degree support of the pipe, at least 2" wide. This specification is for 1-1/2" through 8" nominal pipe size saddles. The saddles shall conform to the Uni-Bell PVC Pipe Association and the American Water Works Association recommendations for saddles used on PVC pipe. The saddle shall be manufactured in the United States and submitted for listing in the Underwriters Laboratories Listing of Drinking Water System Components in Accordance with ANSI/NSF 60 & 61. Saddles shall be Ford or Mueller Series or approved equal.

B. Corporation Stop: The 3/4" corporation stop shall have 3/4" male iron pipe taper thread (MIPT) inlet by 3/4" compression outlet connections and conform to AWWA Standard C800 and latest revisions regarding thread types and diameters. The 3/4" Corporation Stops shall be Ford or Mueller or approved equal.

Two-inch (2") Corporation Stops shall be of the ball valve type, meeting AWWA Standard C800. The Inlet connection shall be 2" male iron pipe threads. All thread types and diameters shall conform to AWWA C800. Corporation Stop outlets will be supplied with 2" female iron pipe threads or copper compression as shown on plans. 2" Corp Stops shall be Ford or Mueller or approved equal.

C. Angle Stop Ball Valve: The 3/4" angle stop shall have 3/4" copper compression inlet by meter swivel nut outlet connections and conform to AWWA Standard C800 and latest revisions regarding thread types and diameters. The valve shall be a substantial tee head for opening and closing with a 360-degree rotation of a standard slotted wrench and shall have padlock wings to lock the valve in the closed position. The manufacturer of the Angle Stops shall be registered to the International Standards Organization for the ISO 9001 standard (as a minimum) for quality. The Angle Stop shall be manufactured in the United States and submitted for listing in the Underwriters Laboratories Listing of Drinking Water System Components in Accordance with ANSI/NSF 60 & 61. Angle Stop Ball Valves shall be Ford or Mueller or approved equal.

- D. **Meter Couplings:** This specification covers Meter Couplings for 5/8" x 3/4" meters. The service line connection shall be 3/4" NPT, Male Iron Pipe. The meter coupling shall conform to AWWA Standard C700 or latest revision, regarding thread types and diameters. The meter swivel nut shall rotate freely without binding and shall be drilled with a hole for a seal wire. The manufacturer of the couplings shall be registered to the International Standards Organization for the ISO 9001 standard (as a minimum) for quality. The Corporation Stop shall be manufactured in the United States and submitted for listing in the Underwriters Laboratories Listing of Drinking Water System Components in Accordance with ANSI/NSF 60 & 61. Couplings shall be Ford or Mueller or approved equal.

## 2.18 EXCAVATION MATERIALS

### A. SELECT MATERIAL

Excavated material which is free of rocks, lumps, organic material, clods or debris which are larger than 6" in the largest dimension or other maximum size indicated on the plans, whichever is smaller.

### B. GRANULAR MATERIAL (SAND)

Material which is free of detrimental quantities of clay, debris or organic material and which when tested by standard laboratory methods meets the following requirements:

Maximum liquid limit	45
Maximum plasticity index	15
Minimum plasticity index	4
Maximum percent passing No. 200 sieve	15
Minimum percent passing 3/4" sieve	100

The material shall be free flowing and when wet shall not adhere to form a ball when pressed in the hand.

### C. CRUSHED STONE - STANDARD GRADATION

Crushed stone consisting of hard durable limestone or quartzite particles and meeting the following requirements:

Passing 2" sieve	100%
Passing 1½" sieve	95 - 100%
Passing ¾" sieve	35 - 70%
Passing 3/8" sieve	0 - 15%
Passing No. 4 sieve	0 - 5%
Passing No. 10 sieve	Less than 2%

### D. CONCRETE

Conform to ASTM C94. The compressive strength of the concrete shall contain at least 2000 psi and shall contain at least four (4) sacks of cement per cubic yard.

## PART 3 - EXECUTION

### 3.1. EXCAVATION

CONTRACTOR shall have certified excavation-competent operators, with a minimum five (5) years experience, on job site at all times.

- A. **General:** All excavation shall be unclassified and will not be measured or paid for as a separate bid item. The cost of excavation shall be included in the contract price for the related items of work in the Bid Proposal. Excavation shall include the removal of any trees, stumps, brush, debris or other obstacles that may obstruct the line of work, and the excavation and removal of

all earth, rock or other materials to the extent necessary to install the pipe and appurtenances in conformance with the line and grades shown in Plans, or as specified. The CONTRACTOR shall keep the area free of spoil for a sufficient distance back from the edge of the excavation in order to avoid overloading and to prevent slides or caving. The excavated materials shall be kept trimmed in such a manner as to be of as little inconvenience as possible to the public and adjoining property owners. At street crossings, sidewalks, and other places where the ENGINEER deems necessary, the trenches shall be bridged in a secure manner so as to prevent serious interruption of travel and to provide access to fire hydrants and public and private premises. Such bridging shall be approved by the ENGINEER.

**B. TRENCH AND EXCAVATION SAFETY**

1. After award, the CONTRACTOR shall submit to the OWNER six (6) sets of a trench excavation plan for record purposes. This excavation plan must be designed and sealed by a professional engineer registered in the State of Texas with professional experience in Soil Mechanics.
2. The CONTRACTOR is responsible for obtaining borings and soil analysis as required for plan design. The trench excavation plan shall be designed in conformance with OSHA standards and regulations.
3. No trenching in excess of 5 feet below existing grade will be allowed until this plan is reviewed. Any changes in the trench excavation plan after initiation of construction will not be cause for extension of time or change order and will require the same review process. The CONTRACTOR accepts sole responsibility for compliance with all applicable safety requirements.
4. The plan is for information and record purposes only.

- C. Maximum and Minimum Width of Trenches:** The sides of all trenches shall be cut as nearly vertical as possible. Unless otherwise specified on the Plans, the minimum width of trench in which the pipe may be installed shall not be less than 12" plus the outside diameter of the pipe, and the maximum width shall not be more than 20" plus the outside diameter of the pipe, measured at an elevation in the trench which is 12" above the top of the pipe when it is laid to grade.
- D. Clearing:** The entire work area shall be cleared of all trees, stumps, brush and other matter except for such trees and brush as may be designated by the ENGINEER or OWNER to be saved. Trees and brush designated to save shall be marked and trimmed and shall be protected from scarring and other damage during construction. Any cuts or scarring shall be painted with an acceptable pruning paint as approved by the ENGINEER.
- E. Grubbing:** All areas required for construction of structures, channels, embankments, or pavements shall have stumps and roots removed to a depth of a minimum of 2 feet below the excavated elevation.
- F. Fencing:** All fences which are interfered with during construction shall be removed, salvaged, reconstructed and/or replaced after completion of the work. Fences shall be replaced or repaired to an equal or better condition than original. Temporary fences shall be placed and removed where livestock or security is required at the CONTRACTORS expense and at the direction of the ENGINEER or OWNER.
- G. Dewatering Excavations:** The CONTRACTOR shall immediately remove all surface or seepage water from sewers, drains, ditches, and other sources which may accumulate during the excavation and the construction work, by providing the necessary under-drains or otherwise, and by doing he necessary pumping, bailing or draining. The CONTRACTOR shall have available at all times sufficient pumping equipment in proper working order for doing the work herein required. All water removed from excavations shall be disposed of in an approved manner, so as not to create unsanitary conditions, nor to cause injury or damage to persons or property, or damage to the work in progress, nor to interfere unduly with the use of streets, private driveways or entrances. Pumping, bailing and draining, under-drains, and ditches shall be considered as incidental work and will not be paid for as separate items, but their cost shall be included in such contract prices as are provided in the contract.

- H. **Shoring:** Trenches shall be sheeted, braced or shored to the extent necessary to maintain sides of the trench in a safe manner. Excavations, trenching and shoring shall be in accordance with Subpart P, Construction Industry, OSHA Safety and Health Standards or other applicable standards.
- I. **Subgrade in Natural Soil:** Where a firm and stable foundation for the pipe can be obtained in a natural soil and where special embedment is not specified or shown on the plans, the bottom of the trench shall be carefully and accurately trimmed to fit the lower portion of the pipe barrel. Should the excavation be carried below grade, except where specified, the CONTRACTOR shall at his own expense refill the trench to the proper grade with selected backfill material approved by the ENGINEER. The backfill material shall then be compacted by methods approved by the ENGINEER.
- J. **Subgrade in Rock:** If the bottom of the excavation for the waterline is found to be in rock or other hard material that cannot be excavated to a true sub-grade and shaped to provide uniform bearing for the pipe barrel, the rock or other material shall be removed to a depth not less than three inches below sub-grade and the bottom of the trench brought to true sub-grade elevations by filling with pea gravel or suitable rock cuttings and shavings from the excavation and compacting by means of tamping until a firm and uniformly unyielding foundation is obtained, as specified by the ENGINEER. No extra payment will be made for this work unless specified elsewhere herein.
- K. **Soft Subgrade:** Where soft or sponge material is encountered in excavation at subgrade level to the degree that a firm foundation cannot be obtained for the pipe line, the unsuitable materials shall be removed upon direction of the ENGINEER to such a depth that by replacing the unsuitable material with sand or gravel a firm and stable foundation can be secured. No extra payment will be made for this work unless specified elsewhere herein.
- L. **Disposal of Excavated Materials:** Suitable excavated materials shall be piled adjacent to the work to be used for backfilling. Excavated materials unsuitable for the backfilling, or in excess of that required for backfilling, shall be disposed of by the CONTRACTOR at locations designated on the Plans or approved by the ENGINEER. Desirable top soil, sod, etc., shall be carefully piled separately and replaced in its original position when required. Excavated materials shall be handled at all times in such a manner as to minimize the inconvenience to public travel and to permit safe and convenient access to private and public property adjacent to or along the line or work. In parkways and easements where it is necessary to deposit excavated materials on lawns or other green areas during the work, burlap or similar materials shall be placed on the lawn to prevent contact between excavated materials and the lawn. No extra payment will be made for this work unless specified elsewhere herein.
- M. **Private Road Crossings:** Where the waterline crosses private or farm roads the CONTRACTOR shall conduct his work so as to cause the least inconvenience to the property OWNER involved and upon completion of backfilling shall restore the road to a condition as good as, or better than, that in which it was originally, as determined by the ENGINEER. Replacement will be of the same type and quality as the original surface as shown on the Plans or as specified below.
- N. **Street, Roadway and Railroad Crossing Excavation:** Where the waterline crosses a street, roadway, driveway, highway or railroad the method of excavation shall meet the requirements set forth herein and as shown on the Plans. Public Street, roadway, railroad crossings shall be bored regardless of pavement type, unless clearly designated as open cut on the Plans.
1. **Open Cut** Where open cuts are allowed through roadways the side of the trench shall be kept as nearly vertical as possible and, where necessary, shall be sheeted and braced to prevent caving. The trenches shall be backfilled as shown on the Plans and compacted to 95% Standard Proctor. The pavement replacement shall be of the same type and quality as the original surface as shown on the Plans or as specified below.
- PAVED ROADWAYS will not be open cut, unless specifically noted on the Plans. In all cases when open cuts are allowed through pavements, the methods of construction must meet the requirements of the appropriate agency in all respects, superceding these requirements and those shown on the Plans.

2. **Boring, Jacking or Drilling:** Where indicated on the Plans and/or as directed, the pipe will be pushed or jacked under roadways; or the pipe will be installed in a casing that has been placed under the roadway by boring, jacking or drilling. Casing shall be steel (0.25 minimum wall thickness), PVC SDR-21, or Polyethylene SDR-21 as indicated on plans. Casing shall have casing spacers and molded end seals (Maloney Type or Equal), where indicated on plans. Spacers shall be appropriate for the weight of the carrier pipe and shall be spaced along the pipe as recommended by the manufacturer. In the absence of such guidelines, three spacers shall be equally spaced on each pipe joint for all pipe sizes. Molded rubber casing end seals shall be installed using stainless steel bands on both the carrier pipe as well as the casing. Overlapping, adhesive-type end seals are not acceptable.

- a) **Bores and Encasement Description:** Work under this item shall consist of furnishings all materials, equipment and labor for installing complete Street Bore, Highway Bore, or Railroad Bore and Encasement where required.

The OWNER will obtain a permit from the City, County, Texas Department of Transportation and/or the railroad company for these crossings. The CONTRACTOR will be required to abide by the terms of these permits. This will include the CONTRACTOR giving proper notice of the time he expects to begin work on each crossing, to the proper railroad or highway official at the appropriate time.

**Materials:** Encasement pipe shall be heavy weight steel pipe of sufficient size to permit passage of carrier pipe. The minimum length of encasement pipe shall be determined as indicated on the plans. The encasement pipe shall be tightly jointed to prevent leakage. The ends of the pipe shall be plugged with clay core to prevent entrance of excessive ground water.

Carrier pipe shall be of the size and class shown on the plans.

**Construction:** The encasement shall be installed with even bearing throughout its length and all voids between earth and encasement pipe shall be filled with grout or other methods approved by the ENGINEER. Any settlement or damage to highway caused by boring and encasement operations will be the CONTRACTOR's responsibility and his own expense.

For boring the CONTRACTOR will be permitted a tolerance from exact grade or alignment of 1" per 100 feet.

All excavations within the right-of-way and not under surfacing shall be backfilled by tamping in 6" horizontal layers or by ponding. All surplus material shall be removed from the right-of-way and the excavation finished flush with surrounding natural ground.

Where sodding is disturbed by excavation or backfilling operations, such areas shall be replaced by mulch sodding on all slopes of 2% or less. All slopes over 2% shall be replaced by block sodding.

Highway crossing under surfaced roads and under surfaced cross roads and surfaced driveways within the right-of-way shall be placed by boring.

Operations along highways shall be performed in such manner that all excavation material be kept off the pavements at all times, as well as all operating equipment.

Barricades and warning signs and flagmen when necessary shall be provided by the CONTRACTOR or OWNER.

- b) **Driveway Bore Description:** Work under this item shall consist of furnishing all materials, equipment, labor and incidentals for installing a complete driveway bore.

**Materials:** The proposed crossing or bore shall not require encasement pipe unless shown on plans. The carrier pipe shall be of the type and class as called for on the Plans.

**Construction:** Carrier shall be installed by boring. All voids between carrier pipe and the bored hole shall be filled with grout, soil cement, or other materials approved by the ENGINEER.

Carrier pipe joints shall be so arranged that the middle of the carrier pipe, when installed, shall be directly in line with the centerline of the driveway.

Any chipping or other damage of the concrete driveway being bored shall be repaired to its original condition all at the CONTRACTORS expense.

3. **Street and Drive Repair Description:**

This item shall govern the repair of streets or driveway pavement which has been damaged by the construction of underground utilities.

**Excavation and Backfilling:** The CONTRACTOR shall excavate the trench with every effort made to keep the trench width to a minimum. Asphalt and oil pavement cuts shall be made in a neat and workmanlike manner and concrete pavement shall be saw-cut unless otherwise approved by the ENGINEER.

After the pipe has been laid and bedded, the trench shall be backfilled with select material free from rock, large lumps, or other unsuitable material. The backfill material shall be placed in layers not exceeding 4" of thickness and shall be tamped on both sides of the pipe. Mechanical tamping will not be allowed until there is a minimum of 12" of soil covering the pipe. The backfill shall be completely tamped from bottom to top and shall have a minimum of 95% Mod ASTM 1557 density.

**Pavement Patch:** Street and driveway pavements shall be replaced as shown on the plans for the particular type of pavement.

The pavement patch is to be constructed in a neat and workman like manner, and the CONTRACTOR shall make every effort to provide a smooth riding surface.

- O. **Use of Explosives:** Unless prior written permission is received from the ENGINEER and OWNER, no blasting will be allowed on this project. Bonds may be required from the blaster prior to receiving such permission. If approved, the CONTRACTOR shall advise the ENGINEER and OWNER regarding the scheduling of such work. Should the CONTRACTOR elect to use explosives in the performance of the work, they shall be used with utmost precaution, and no blasting shall be done within one hundred (100) feet of the completed work or exposed pipes, conduits, and other related materials, and the CONTRACTOR shall assume all liability for any injury or damage to persons or property resulting from such usage. Only a sufficient quantity of explosives for the immediate day's work shall be kept on hand by the CONTRACTOR. Caps, exploders, and explosives shall be stored separately. The CONTRACTOR shall be responsible for, and shall make good any damage caused by blasting or accidental explosion.
- P. **Depth of Trench:** All piping and associated appurtenances shall have a minimum cover 36" or as shown on plans. Depth of excavation should not exceed 60", unless required by significant grade changes. The CONTRACTOR is responsible for providing an OSHA-approved trench safety system in the event that the excavation depth exceeds 60". See Section 1002 for trench excavation safety systems.
- Q. **Pipe Laying:**
1. **Pipe Handling:** Pipe shall be handled in such a manner as will prevent damage to the pipe, pipe lining or coating. Pipe and fittings shall be loaded, unloaded, and placed using hoists and slings in a manner so as to avoid shock or damage. Under no circumstances shall they be dropped or skidded, or rolled against other pipe.
  2. **Pipe Cutting:** Whenever it becomes necessary to cut a length of pipe, pipe ends shall be square with the longitudinal axis of the pipe and otherwise smoothed so that good connections can be made. Pipe shall be cut by cutters recommended by the manufacturer. Ductile iron pipe shall not be cut by oxyacetylene torch. Field-cut pipe lengths shall be filed or ground to obtain a chamfer on the outside of the pipe, according to the manufacturer's recommendations. Rough or sharp edges shall be removed from the cut end.
  3. **Pipe Laying:** Pipe and fittings shall be clean when laid. Precautions shall be taken to prevent floating. The pipe shall be placed on the trench bottom or bedding. After the pipe has been aligned, jointed, and thrust blocking placed, the pipe shall be secured in place with approved backfill material. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by a watertight plug.

4. **Pipe Laying on Curves:** If the pipe is shown curved in the plans, the curves shall be accomplished by special fittings or by deflecting the joints in accordance with the manufacturer's recommendations. Joint deflections shall not be permitted at valves.  
When rubber-gasketed pipe is laid on a curve, the pipe shall be jointed in a straight alignment and then deflected to the curved alignment. Trenches shall be made wider on curves for this purpose.
5. **Pipe Laying where earth grading is necessary:** Where a pipe is to be placed within an embankment or the top of the pipe is above the existing ground, the embankment shall be constructed to at least 150 mm (6 inches) above the top of the pipe before trenching for the pipe. The trench shall then be excavated to the minimum width necessary for the proper placing and backfilling of the pipe.
6. **Tracer Tape:** Tracer tape shall be installed over copper and non-metallic water lines including service lines **only if shown on plans**. The tracer tape shall be placed approximately 0.3 m (1 foot) above the top of the line and shall extend its full length. Tracer tape shall be a detectable type and shall be marked "WATER". Tracer tape shall also be brought up at distances not to exceed 1,000 feet in test stations as shown on Detail Sheet. After installation, tracer tape shall be spot-tested to ensure continuity.
7. **Tracer Wire:** Tracer wire shall be installed in the same trench with nonmetallic pipe during pipe installation. The tracer wire shall be designed specifically for the purpose of detecting buried utilities. It shall be taped with vinyl electric tape to the pipe at a minimum of 3 locations per joint (not to exceed 6-½ foot spacing) or as required by ENGINEER or INSPECTOR to insure that the wire remains on top of pipe. The tracer wire shall be securely bonded together at all wire joints with waterproof, jelly-filled wire nut splice connectors to provide electrical continuity. Tracer wire shall also be brought up at distances not to exceed 1,000 feet in test stations as shown on Detail Sheet. After installation, tracer wire shall be spot-tested to ensure continuity.
8. **Test Stations:** Test stations shall be installed at approximately 1,000' intervals next to a physical barrier i.e. utility pole, fence line, tree, etc to provide physical security for the test station.
9. **Valve and Test Station Markers:** shall be installed next to the item to identify physical location of and provide security. Waterline markers shall be installed at property/fence lines and road crossings.
10. **Blocking and Wedging:** Fire hydrants, valves and fittings shall be laid on concrete blocks and held in position by hardwood wedges. Blocks shall be bedded firmly in the bottom of the trench with uniform bearing and with the long dimension of the block perpendicular to the pipe barrel. Blocks shall be level across the trench and the proper number of blocks placed one upon the other to bring the fittings to the required grade for jointing.
11. **Thrust blocking:** Plugs, caps, tees, hydrants, and elbows or bends having a deflection of 1 1/4 degree or greater shall be provided with concrete thrust blocking. The blocking shall be 499 Class C concrete placed between firm original undisturbed earth and the fitting to be anchored. The concrete thrust blocking shall be placed and shaped in a manner satisfactory to the ENGINEER with the thrust force contained by the blocking. The blocking placement shall allow for pipe and joint accessibility or repair.
12. **Restrained joints and fittings:** Where conditions at an elbow, tee or bulkhead are not conducive to the use of thrust blocking, push-on or mechanical joints and fittings shall be restrained by bent or straight tie-rods, straps, clamps or other devices, with required hardware. The devices shall be protected against corrosion by the application of an asphaltic coating. Mechanical joints may also be restrained by a wedge action type joint restraint having twist-off nuts. If polyethylene encasement is specified, the encasement shall cover the entire assembly. Restraining devices may be used in lieu of concrete thrust blocking only when approved by the ENGINEER.

### 3.2 BACKFILLING

**No backfilling shall occur until the OWNER or ENGINEER has approved the installation.**

Backfilling shall include the refilling and consolidating of the fill in trenches and excavations up to the surrounding ground surface or road grade at crossings.

Backfilling shall be done with good earth, sand or gravel as shown on plans and shall be free from large rocks or hard lumpy materials unless the rocks or lumps are not more than approximately 4" in greatest diameter and are scattered in the spoil. No material of a perishable, spongy, or otherwise deleterious nature shall be used in backfilling. If rock is encountered, sand bedding free of lumpy clay shall be used around piping. See Detail Sheet for sand bedding.

Excavated material, which is suitable for backfilling, and excess material shall be disposed of in a manner approved by the ENGINEER. Except in cultivated fields, surplus spoil may be neatly distributed and spread on the right-of-way, which shall be left in a clean and sightly condition.

Where construction enters the limits of State or County rights-of-way, the CONTRACTOR shall comply with the special requirements of those agencies with respect to backfilling.

- A. **Embedment:** Work under this item shall be installed as per the plans and specifications around all pipes except where otherwise noted. Granular embedment material shall be free flowing sandy or gravel material which contains no clay and is free of organic material. The material shall be approved by the ENGINEER.
- B. **Borrow:** Where sufficient fill and backfill materials are not available in such quantity as necessary to properly backfill, borrow material shall be provided by the CONTRACTOR at his expense and shall be approved by the ENGINEER.
- C. **Testing:** Tests may be required by the ENGINEER for backfill or embedment density. Initial tests shall be at the expense of the OWNER. In the event of a test failure CONTRACTOR shall be responsible for additional costs associated with additional testing.

### 3.3 BLOCKING TRAFFIC AND BARRICADES

The CONTRACTOR will not be allowed to completely block traffic on any major thoroughfare or dead end street, and shall keep inconvenience to the public to a minimum. It shall be the CONTRACTORS responsibility to provide any signs, barricades, or lights needed to warn the public about construction, or obstructions on the road, and to inform the City of his approximate schedule of construction.

### 3.4 TESTS FOR WATER LINES

- A. **Hydrostatic Pressure Test:** After the pipe is laid, the joints completed, and the trench
  1. **Description:**
    - a. This section specifies hydrostatic testing all pipes having a pressure rating more than 20 psi. Follow AWWA C605-94, Underground Installation of PVC Pressure Pipe and Fittings for Water and/or AWWA C600, Installation of Cast Iron Water Mains, Section 13, Hydrostatic Tests.
    - b. Test waterlines in sections so that the maximum pressure at the lowest point in the section being tested does not exceed 120 percent at the nominal pressure rating of the pipe and the minimum pressure at the highest point in the section being tested is at least 80 percent of the pressure rating. The nominal pressure rating for all potable water systems is not less than 150 psi. Permission to vary from these pressure ratings shall be obtained from the ENGINEER.
  2. **Leakage Allowance:**
    - a. No pipe installation will be accepted until the leakage is less than a rate equal to ten (10) gallons per inch of nominal diameter of waterline per mile over a twenty-four (24) hour period.
    - b. Leakage is defined as the quantity of water supplied into the newly laid pipe, or any valved section of it, necessary to maintain the specified leakage test after the pipe has been filled with water and the air expelled.
  3. **By Contractor:**

Furnish pump, pipe connection and all necessary apparatus including gages and meters to allow continuous pumping at specified constant pressure for duration of test. Also, provide

all test plugs required to test the line. CONTRACTOR is responsible for costs associated with all bacteriological tests.

4. **By Owner:**  
The OWNER will furnish water for filling lines and any 3<sup>rd</sup> party tests (except bacteriological tests) through existing mains or fire hydrants the first time. Subsequent fillings and tests shall be at the expense of the CONTRACTOR.
5. **Test Procedure:**
  - a. Slowly fill the piping system with water and supply the specified test pressure by means of a pump connected to the pipe in a satisfactory manner.
  - b. Before applying the specified test pressure, expel all air from the pipe. To accomplish this, make taps, if necessary, at the points of highest elevation and afterwards tightly plug them.
  - c. The duration of each pressure test shall be a minimum of four hours after the line has been brought up to test pressure. Maintain pressure within the limits specified in paragraph 1.1. Continue all pressure tests until the ENGINEER is satisfied that the waterline meets the requirements of these specifications.
  - d. At intervals during the test, inspect the entire route of the waterline to find any leaks or breaks. Remove and replace any defective joints, cracked or defective pipe, fittings or valves discovered in consequence of this pressure test with sound material in the manner provided, and repeat the test until satisfactory results are obtained.
  - e. Should any test of pipe in place show greater leakage than that specified, the CONTRACTOR shall at own expense, find and repair the defective joints until the leakage is within the specified allowance.
  - f. Bear the cost of purchasing water for refilling the line should any section of line fail to pass the pressure test.

B. **Removal of Air:** In the event air is admitted to the waterline after being expelled for the hydrostatic tests, such air shall be removed prior to completion of the system and acceptance by the OWNER. In no case shall the system be placed in operation prior to the removal of the air.

C. **Disinfection of Water Mains:**

1. **Description:**
  - a. This section specifies the procedure for disinfection of the potable water system, and overall conforms to AWWA C651, Disinfecting Water Mains.
  - b. During the construction operations, workers shall be required to use utmost care to see that parts of the structures, inside pipes, fittings, jointing materials, valves, etc., the surface of which contact potable water, are maintained in a sanitary condition.
  - c. Every effort must be made to keep the inside of the pipe, fittings, and valves free of all foreign matter, sticks, dirt, rocks, etc. As each joint of pipe is being laid, it must be effectively swabbed so that all foreign matter is removed. Placing dry powdered chlorine in the waterline will not be permitted. All fittings and exposed open ends of pipe must be blocked or capped until the line is completed.
  - d. Disinfection of the line or any section thereof shall not be commenced until the ENGINEER review of the method, apparatus, disinfecting agent and the section of the line has been obtained.
2. **Chlorine (Cl<sub>2</sub>):** Seventy (70) percent calcium hypochlorite or equal.
3. **Disinfection Procedure:**

When the entire waterline or certain selected sections thereof have been completed, tested and made ready for turning over to the OWNER, ready for use, the line or section of line shall be thoroughly disinfected according to the following procedure:

  - a. The CONTRACTOR shall provide all necessary taps to complete this section of the specifications.

- b. The line shall be flushed out, completely replacing its entire volume with water furnished by the OWNER.
  - c. Chlorine will be injected into the section of line being disinfected so that its entire capacity will be filled with water containing chlorine with at least 50 ppm or other concentration determined by the ENGINEER. The disinfecting agent shall be introduced at one end of the section and the water released from the opposite end until the disinfecting agent is present at the discharge end in such quantity as to indicate a residual chlorine of more than 50 ppm or as otherwise determined by the ENGINEER. All valves shall be closed and the disinfecting solution permitted to remain in the waterline section for not less than twenty-four (24) hours.
4. Flushing and Testing:
- a. At the end of the disinfecting period, the disinfecting solution shall be discharged from the pipe and replaced with water furnished by the OWNER. Meet T.C.E.Q. requirements regarding discharge of chlorinated water.
  - b. Take a sample of water from the disinfected main (not through a fire hydrant) from a suitable tap under the supervision of the ENGINEER or his inspector and submit to an approved testing laboratory of the T.C.E.Q for analysis.
  - c. A minimum of one sample for each 1,000 feet of completed waterline will be required or at the next available sampling point beyond 1,000 feet as designated by the design ENGINEER. Bacteriological samples shall be taken to a lab that is approved by the OWNER or ENGINEER.
  - d. If the test shows a satisfactory quality of water, the so disinfected shall then be placed in service by the CONTRACTOR who shall notify the ENGINEER and assist the ENGINEER in location and operation of all valves installed by the CONTRACTOR.
  - e. If the sample shows unsatisfactory quality of water, the process of disinfection shall be repeated until a satisfactory water sample is obtained. The CONTRACTOR shall furnish to the OWNER, a certified copy of the laboratory report of satisfactory disinfection of the main.
  - f. All water used by the CONTRACTOR to disinfect water mains beyond the first test shall be purchased from the OWNER. The CONTRACTOR shall bear all costs of disinfecting. The CONTRACTOR shall also bear all costs of retesting.

### 3.5 FINAL CLEAN UP

Upon completion of the installation of the water lines, distribution systems, and appurtenances, all debris, including PVC scraps resulting from trenching through abandoned distribution system piping, shall be removed from work areas as disposed of by the CONTRACTOR. In addition, all above ground structures of abandoned valve clusters shall be removed and disposed of by CONTRACTOR. Reusable valve signs, risers, riser tops and mushroom lids in locations of abandoned valve clusters shall be given to OWNER. Scraps shall not be buried on private, county, or state properties. This does not relieve the CONTRACTOR of the responsibility of ongoing and routine clean-up operations related to the line laying work. All surplus excavated materials resulting from the work shall be removed from the site or spread on site as directed by ENGINEER / OWNER / STATE / COUNTY. Excess materials shall be mounded along trench lines in order to channel water away from fresh pipe trenches. Excess materials in areas of steep grades shall be utilized to channel water away from trench lines and constructing terracing berms to prevent erosion. ALL disturbed areas shall be seeded according to the Seeding Rate Section of this Specifications Book and fertilized at 200 pounds per acre with 13-13-13. The costs associated with seeding and final clean up shall be included in the line item bid prices of the CONTRACTOR.

END OF SECTION

## SECTION 219 DISINFECTION OF WATER TANKS

### PART 1 – GENERAL

#### 1.1 SCOPE OF WORK

- A. This section specifies the procedure for disinfection of potable water tanks, and overall conforms to C652-02, Disinfection of Water-Storage Facilities.
- B. During the construction operations, workers shall be required to use utmost care to see that parts of the structures, inside pipes, fittings, jointing materials, valves, etc., the surface of which contact potable water, are maintained in a sanitary condition.
- C. Every effort must be made to keep the inside of the pipe, fittings, and valves free of all foreign matter, sticks, dirt, rocks, etc. As each joint of pipe is being laid, it must be effectively swabbed so that all foreign matter is removed. Placing dry powdered chlorine in the pipeline will not be permitted. All fittings and exposed open ends of pipe must be blocked or capped until the line is completed.
- D. Disinfection of the tank or any portion thereof shall not be commenced until ENGINEER review of the method, apparatus, disinfecting agent and the tank has been obtained.
- E. In the event of a conflict between this specification and project plans (drawings) then the plans will take precedence.

### PART 2 - PRODUCT

#### 2.1 CHLORINE

Calcium hypochlorite or equal.

### PART 3 - EXECUTION

#### 3.1 DISINFECTION PROCEDURE

When the entire tank has been completed, tested, free of all debris and made ready for turning over to the OWNER and ready for use, the tank shall be thoroughly disinfected according to the following procedure:

- A. After completion of the tank, and before acceptance, the tank shall be sterilized with a chlorine ( $\text{Cl}_2$ ) solution to destroy any organisms present. This shall be accomplished by filling the tank with water to 10% of capacity. This 10% capacity shall have a 50 parts per million (ppm) chlorine ( $\text{Cl}_2$ ) concentration. Close all tank valves and tank access ways to allow the disinfecting water to disinfect for 24 continuous hours undisturbed. No tank valves shall be operated and no tank hatches or access ways shall be opened during this period.
- B. After the twenty-four (24) continuous hour period has elapsed a tank fill valve is opened to fill the tank to overflow capacity.
- C. After the tank is filled to overflow capacity a chlorine ( $\text{Cl}_2$ ) residual test is performed. The CONTRACTOR shall demonstrate a Texas Commission on Environmental Quality (TCEQ) compliant chlorine ( $\text{Cl}_2$ ) residue.
- D. After the CONTRACTOR has demonstrated a TCEQ compliant chlorine ( $\text{Cl}_2$ ) residual a bacteriological sample shall be taken.
- E. After the CONTRACTOR has demonstrated a satisfactory bacteriological test a tank distribution system valve may be opened to allow delivery of water to the distribution system.

**Note:** Chlorine is very corrosive. Do not handle with bare hands. If spilled on skin or clothing, flush area with water immediately.

END OF SECTION

219-1

DISINFECTION OF  
WATER TANKS

## SECTION 301 CONCRETE

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK

The work performed under this section of the Specifications shall consist of:

- Furnishing and installing formwork for cast-in-place concrete, with shoring, bracing, anchorage and all necessary accessories. Openings in the formwork for other work shall be provided. All stripping activities shall be included under this section.
- Furnishing and installing reinforcing steel bars, welded wire fabric and accessories for cast-in-place concrete.
- Mixing, placing and curing of cast-in-place concrete.
- Furnishing and installing bolts, anchors, expansion anchors, hangers and brackets, equipment, grating and floor plate(s) for equipment and metal fabrication.
- Furnishing and installing grout.
- Furnishing and installing waterstops.
- Testing.

In the event of a conflict between this specification and project plans (drawings) then the plans will take precedence.

#### 1.2 SUBMITTALS

- A. Shop Drawings: Indicate bar sizes, spacings locations and quantities of reinforcing steel or welded wire fabric, bending and cuffing schedules, supporting and spacing devices, and joint and splice locations. Setting drawings and templates for location and installation of anchorage devices.
- B. Samples: Representative samples of bolts, anchors, and inserts as may be requested for review by the OWNER or ENGINEER. Review will be for type and finish only. Compliance with all other requirements is the exclusive responsibility of CONTRACTOR.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Submit for review manufacturer's specifications and installation instructions for all proprietary products, including sleeves for welded splices.
- E. Submit copies of manufacturer's specifications, materials, load tables, dimension diagrams, and installation instructions for anchorage devices.
- F. Submit a catalog brochure of the waterstop to be used showing dimensions and configuration.

#### 1.3 REFERENCES

- ACI 117 — Standard Specifications for Tolerances for Concrete Construction and Materials.
- ACI 301 — Standard Specifications for Structural Concrete.
- ACI 306 — Recommended Practice for Cold Weather Concreting
- ACI 315— Details and Detailing of Concrete Reinforcement.
- ACI 318/318R — Building Code Requirements for Structural Concrete and Commentary.
- ACI 347 — Recommended Practice for Concrete Formwork.
- ACI 350 — Environmental Engineering Concrete Structures.
- ACI 614 — Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete
- SP-66 — ACI Detailing Manual.
- ANSI/ASTM A82 — Cold Drawn Steel Wire for Concrete Reinforcement.
- ANSI/ASTM A185 — Welded Steel Wire Fabric for Concrete Reinforcement
- ASTM A307 — Carbon Steel Externally and Internally Threaded Standard Fasteners.
- ASTM A320 — Alloy-Steel Bolting Materials for Low-Temperature Service.
- ANSI/ASTM A496 — Deformed Steel Wire Fabric for Concrete Reinforcement.
- ANSI/ASTM A497 — Welded Deformed Steel Wire Fabric for Concrete Reinforcement.
- ASTM A615 — Deformed and Plain Billet Steel Bars for Concrete Reinforcement.

- ANSI/AWS D1.4 — Structural Welding Code for Reinforcing Steel.
- ANSI/AWS D12.1 — Reinforcing Steel Welding Code.
- ACT 347 — Recommended Practice for Concrete Formwork
- ASTM C33 — Standard Specifications for Concrete Aggregate.
- ASTM C94 — Specification for Ready Mix Concrete
- ASTM C109 — Compressive Strength of Hydraulic Cement Mortars (using, two inch or fifty millimeter Cube Specimens).
- ASTM C144 — Aggregate for Masonry Mortar.
- ASTM C150 — Portland Cement.
- ASTM C260 — Air-Entraining Admixtures for Concrete
- ASTM C309 — Liquid Membrane-Forming Compounds for Curing Concrete
- ASTM C494 — Chemical Admixtures for Concrete
- ASIM C191 — Time of Setting of Hydraulic Cement by Vicat Needle.
- CRD C588 — Specifications for Non-Shrink Grout.
- CRSI — Concrete Reinforcing Steel Institute Manual of Practice.
- CRSI 63 — Recommended Practice for Placing Reinforcing Bars.
- CRSI 65 — Recommended Practice for Placing bar Supports.
- PS-1 — Construction and Industrial Plywood.

#### 1.4 DELIVERY, STORAGE AND HANDLING

Store sensitive materials off ground in a ventilated and protected manner to prevent deterioration from moisture.

Waterstops are to be stored under tarps to protect from oil, dirt and sunlight.

Grout materials from manufacturers shall be delivered in unopened containers and shall bear intact manufacturer's labels. Grout materials shall be stored in a dry shelter and shall be protected from moisture.

## PART 2 - PRODUCTS

### 2.1 CONCRETE

Conforming to ASTM C150, Type I, II or III. Type I shall be used unless type II or III are specifically called for on plans.

- A. **Strength:** As indicated in applicable specifications or as shown on plans.
- B. **Slump:** The following limits of slump shall be used of control of the design and placing of concrete:

<u>Type of Construction</u>	<u>Slump in inches</u>	
	<u>Maximum</u>	<u>Minimum</u>
Case drilled shafts	8	5
Foundations and slabs on the ground	5	3
Slabs, beams and walls	5	3

- C. **Minimum Cement Content:** The minimum cement content expressed in sacks per cubic yard of concrete shall be not less than the following:

<u>Design Strength</u>	<u>Minimum Cement Content</u>
2500 psi	5 sacks (470 lb.)
3000 psi	5.5 sacks (517 lb.)
3500 psi	6 sacks (564 lb.)
4000 psi	6.5 sacks (611 lb.)

**D. Aggregate Gradation****1. Fine Aggregate:**

<u>Sieve</u>	<u>Percent Passing</u>
¾"	100
No. 4	95-100
No. 8	80-100
No. 16	50
No. 30	25-60
No. 50	10-30
No. 100	2-10

Fine aggregate shall not have more than 40% retained between any two consecutive sieves of those listed above, and its fineness modulus shall not be less than 2.3 nor more than 3.1.

Certified sieve analysis of the proposed fine aggregate shall be submitted to the ENGINEER for approval before use.

**2. Coarse Aggregate (11,40 nominal):**

<u>Sieve</u>	<u>Percent Passing</u>
2	100
1 1/2"	95-100
¾"	35-70
3/8"	10-30
No.4	0-5
No. 200	Less than 1

Other nominal aggregate sizes may be used with written permission of the ENGINEER. All aggregate gradations shall conform to ASTM C-33.

**E. Admixtures**

1. A water-reducing retarder shall be used in all structural concrete. The materials shall be used in quantities recommended by the manufacturer. Conforming to ASTM C494, Type A; Grace "WRDA-HC" or approved equal.
2. An air entraining agent shall be used for all exposed exterior concrete. The total volumetric air content of concrete after placement shall be 4 percent plus or minus 1 percent. Conforming to ASTM C260; Grace "Datex AEA," "Master Builders" MB or approved equal.
3. No admixtures containing calcium chloride may be used.

**F. Membrane Curing Compound:** conforming to ASTM C309; Gifford-Hill "Sealco 800" or approved equal.

**G. Polyethylene Film:** 8 mil thickness.

**H. Paint:** Shall be Perma-Shield manufactured by Secure Incorporated, or approved equal. Color shall be Dove Gray or as approved by OWNER/ENGINEER.

**I. Mixing:** Job-mixed concrete may only be used with special permission of the ENGINEER. The batch mixer used shall conform to the Mixer Manufacturers Bureau of the Associated General Contractors requirements and ACI 614.

**J. Concrete Design Mix:** Furnish a design mix that has been used on another project which meets these specifications along with acceptable compressive test results proving performance according to these specifications. If no design mix is available that meets these specifications, pay for the services of a registered engineer to prepare a concrete mix design for each reinforced concrete mix proposed to be used.

**K. Ready-Mixed Concrete**

1. Conform to the requirements of ASTM C94.
2. The truck mixer shall be provided with a closed watertight drum, suitably mounted and fitted with adequate blades capable of combining aggregates, cement and water into a

- thoroughly mixed and uniform mass of concrete and to discharge the concrete without segregation.
3. The truck mixer shall be equipped with a revolution counter. Do not place concrete until the concrete has been mixed for 100 revolutions.
  4. Submit a delivery ticket to the ENGINEER's field representative at the time of delivery for each load of concrete. Include the following information on the ticket:
    - a. Quantity delivered.
    - b. Amount of each material in the batch.
    - c. Time at which the mixer was charged.

## 2.2 FORM WORK

### A. Design Requirements

CONTRACTOR shall be responsible for the design, engineering and construction of formwork, shoring and bracing to conform to design and code requirements; resultant concrete to conform to required shape, line and dimension. Design and construction of formwork shall take into account live loads, dead loads, weight of moving equipment operating on formwork, concrete mix, height of concrete drop, vibrator frequency, temperature, foundation pressures, stresses, lateral stability and other factors pertinent to the safety of personnel and structures.

CONTRACTOR shall provide shores, struts, and trussed supports as necessary.

### B. Facing Materials

1. Unexposed Finish Concrete: Any standard form materials that produce structurally sound concrete. Provide lumber dressed on at least two edges and one side for tight fit.
2. Exposed Finish Concrete: Materials selected to offer optimum smooth, stain free final appearance and minimum number of joints. Provide materials with sufficient strength to resist hydrostatic head without bow or deflection in excess of allowable tolerances, and as follows:
  - a. Plywood: PS-1 "B-B (Concrete Form) Plywood," Class I, waterproof, resin bonded, Exterior Grade, mill-oiled and edge-sealed.
  - b. Lumber: Southern Pine special, No. 2 grade, with stamp grade clearly visible.
  - c. Steel: Minimum 16 gauge sheet, well matched and tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearances of finished concrete surfaces.
  - d. Glass Fiber Fabric Reinforced Plastic Forms: Matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished concrete surfaces.

### C. Accessories

1. Form Ties:
  - a. Metal form ties, snap-off type, 1-1/2 inch break back dimension, galvanized metal, with waterproof washer at mid-point of rod, shall be used to hold forms in place. The ties, when removed, shall leave a smooth opening in the concrete surface not larger than 7/8 inch in diameter. After the tie rods are broken back, the holes shall be thoroughly cleaned to remove all grease and loose particles; then non-shrink cement-sand mortar, as dry as practicable, shall be carefully placed into the holes in small quantities. After the holes are completely filled, all excess mortar shall be struck off flush and the surface finished in such a manner as to render the filled hole as inconspicuous as possible. If these patches appear to be darker than the other surface of the concrete, white cement shall be used in the mortar as required.
  - b. "Supertie" fiberglass form tie system as manufactured by RJD Industries, or approved equal. Provide spreader rod, ties, gripper and all necessary accessories and installation devices. Provide gray color rod. Install fiberglass form tie system in accordance with supplier's instructions. After removal of forms, grind fiberglass form tie system flush to walls.

2. Form Release Agent: Colorless mineral oil which will not stain concrete, absorb moisture or impair natural bonding or color characteristics of coating intended for use on concrete.
3. Corners: Chamfered, rigid plastic or wood strip type; 3/4" x 3/4" size; maximum possible lengths. Accurately formed to produce uniformly straight lines and tight edge joints.
4. Nails, Spikes, Lag bolts, Through bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.
5. Water stops:
  - a. Resilient Type: Polyvinyl chloride, minimum 2,000 psi tensile strength, minimum 50°F (15°C) working temperature range, 6-inch wide for construction joints, 9-inch wide for expansion joints, maximum possible lengths, ribbed profile, preformed corner sections, heat welded jointing; "Wire Stop" as manufactured by Paul Murphy Plastic Co., or approved equivalent.
  - b. Soft Type: Blend of refined hydrocarbons, resins, plasticizing compounds, and mineral fillers extruded in a 5/8 inch by 1-1/2 inch oxidize or evaporate. Water stop shall be: As manufactured by Synko- flex, 2100 Travis, Houston, Texas 77002, (713) 686-8203; "Swellseal" Plus as manufactured by Deneef America, Inc., 122 North Mill Street, St. Louis, Missouri 48880, (517) 681-5791; or approved equivalent. Install in accordance with manufacturer's recommendations. Use primer recommended by manufacturer on surfaces.

D. Allowable Tolerances

- a. The maximum deflection of form work for surfaces exposed to view is 1/240 of the span between supports. Camber form work where necessary to compensate for anticipated deflections in form work due to loads imposed by fresh concrete and construction loads.
- b. The maximum allowable deviation from a true plane is 1/8 inch in six (6') feet for all exposed surfaces.
- c. The maximum deviation from a true circle for circular structures is plus or minus ¼ inch when measured at the edge of each form.
- d. The maximum allowable deviation from any plan dimension is plus or minus ¼ inch.

## 2.3 REINFORCEMENT

### A. Materials

1. Reinforcing bars including column ties, beam ties, and stirrups: New, deformed billet steel conforming to ASTM A615, Grade 60 for nonweldable bars and ASTM A706, Grade 60 for weldable bars.
2. Welded Wire Fabric: ASTM A185 for smooth wire and ASTM A457 for deformed wire.
3. Quality: Submit certified copies of mill test report of reinforcement materials analysis, if required.

### B. Accessories

1. Tie Wire: Minimum 16-gauge annealed type conforming to ASTM A165, Grade 40.
2. Supports for Reinforcement: Conform to CRSI 63.
3. Special Chairs, Bolsters, Bar Supports, Spacers Adjacent to Weather Exposed Concrete Surfaces: plastic coated steel or stainless steel type.
4. Splices:
  - a. Mechanical Connections:
    - i. Compression: Gateway Building Products "G-Loc" or approved equivalent.
    - ii. Tension: Lenton Anchor or approved equivalent. Connection device shall develop 125 percent of yield strength of bar.
  - b. Welded Splices: "Cadweld", "Thermoweld" or approved equivalent. Size device to develop 125 percent of yield strength of bar.

### C. Fabrication

1. Fabricate concrete reinforcing in accordance with CRSI Manual of Practice.

2. Locate reinforcing splices not indicated on Plans at point of minimum stress. Review location of splices with ENGINEER.

D. Allowable Tolerances

1. Fabrication Tolerances

- a. Sheared length: plus or minus one inch ( $\pm 1"$ ).
- b. Depth of truss bars: plus or minus one-half inch ( $\pm 1/2"$ ).
- c. Stirrups, ties and spirals: or minus one-half inch ( $\pm 1/2"$ ).
- d. Other bends: plus or minus one inch ( $\pm 1"$ ).

2. Placing Tolerances.

- a. Concrete cover to formed surface: plus or minus three-eighths inch ( $3/8"$ ).
- b. Minimum spacing between bars: one-quarter inch ( $1/4"$ )
- c. Top bars in slabs or beams.
  - i. Members eight (8") inches deep or less: one-quarter inch ( $1/4"$ ).
  - ii. Members more than eight inches (8"), but not over, two feet (2') deep: plus or minus one-half inch ( $\pm 1/2"$ ).
  - iii. Members more than two feet (2') deep: plus or minus one inch ( $\pm 1"$ ).
- d. Cross of member: spaced evenly within two inches (2").
- e. Lengthwise of member: plus or minus two inches ( $\pm 2"$ ).

## 2.4 EXPANSION JOINTS

### A. Design Requirements

Expansion joints and devices to provide for expansion and contraction shall be constructed as indicated herein or on as shown on plans.

The bearing area under the expansion ends of concrete slabs, prestressed concrete beams, girders, and slab and girder spans, shall be given a steel trowel finish. These areas shall be finished to the exact grades required. Separation of these surfaces from the substructure concrete shall be made in accordance with the plans.

### B. Fabrication

Preformed fiber joint material, wherever used, shall be anchored to the concrete on one side of the joint by means of copper wire or nails not lighter than No. 12 B & S gauge. Such anchorage shall be sufficient to preclude the tendency of the material to fall out of the joint.

### C. Workmanship

Careful workmanship shall be exercised in the construction of all joints to insure that the concrete sections are separated completely by an open joint or by the joint material and to insure that the joints will be true to the outline indicated. Immediately after the removal of forms and again where necessary after surface finishing, all projecting concrete shall be removed along exposed edges in order to secure full effectiveness of the expansion joints.

## 2.5 CONSTRUCTION JOINTS

### A. Design Requirements

The joint formed by placing plastic concrete in direct contact with concrete that has attained its initial set shall be deemed a construction joint. When concrete in a structure or a portion of a structure is specified to be placed monolithic, the term monolithic shall be interpreted to mean that the manner and sequence of concrete placing shall be such that construction joints will not be created.

Construction joints will be of the type and at the locations shown on the plans. Additional joints will not be permitted without written authorization from the Engineer. Any additional construction joints shall have details equivalent to those shown on the plans for joints in similar locations.

### B. Fabrication

Unless otherwise provided, construction joints shall be square and normal to the forms. Bulkheads shall be provided in the forms for all joints except horizontal joints.

If shown on the plans, construction joints shall be provided with concrete keyways, reinforcing steel dowels, and/or metal flashing strips or plastic water stop. The method of forming keys in keyed joints shall be such as to permit the easy removal of forms without chipping, breaking, or damaging the concrete in any manner.

## 2.6 ANCHOR BOLTS, EXPANSION ANCHORS AND CONCRETE INSERTS

### A. Design Requirements

When the size, length or load carrying capacity of an anchor bolt, expansion anchor or concrete insert is not shown on the Plans, provide the size, length and capacity required to carry the design load times a minimum safety factor of four

Determine design loads as follows:

1. For equipment anchors, use the design load recommended by the manufacturer and approved by the OWNER or ENGINEER.
2. For pipe hangers and supports, use one half the total weight of pipe, fittings, valves, accessories and water contained in pipe, between the hanger or support in question and adjacent hangers and supports on both sides.
3. Allowances for vibration are included in the safety factor specified above.

### B. Materials

#### 1. Anchor Bolts:

- a. Provide bolts complying with ASTM A320.
- b. In buried or submerged locations, provide stainless steel bolts complying with ASTM A320, AISI Type 316. Other AISI types may be used subject to OWNER's or ENGINEER's approval.

#### 2. Expansion Anchors:

- a. Zinc plated anchors complying with ASTM A320, AISI Type 316. Other AISI types may be used subject to ENGINEER's approval.
- b. Size required for the concrete strength specified.
- c. Stud type (male thread) or flush type (female thread), as required.
- d. UL or FM approved.
- e. In buried or submerged locations, provide stainless steel anchors complying with ASTM A320, AISI Type 316. Other AISI types may be used, subject to OWNER's or ENGINEER's approval.
- f. Product and Manufacturer: Provide anchors by one of the following:
  - i. Molly Division of USM Corporation.
  - ii. Hilti, Incorporated.
  - iii. Or approved equivalent.

### C. Adhesive Anchors (capsule anchors): Adhesive anchors shall consist of all- thread anchor rod, nut, washer, and adhesive capsule. Anchor rods to be manufactured from:

1. Materials meeting the requirements of ASTM A36.
2. A 4140, 4142, 4140H, OR 4145H meeting the requirements of ASTM A193, Grade B-
3. AISI 316 stainless steel, which meets the requirements of ASTM F593-80. Anchor rods shall have rolled threads. The adhesive capsules used shall contain a vinylester resin, quartz and aggregate and hardener as equal to the Hilti HEA adhesive capsules or Molly Parabond capsule anchor.

### D. Concrete Inserts:

1. For piping, grating, and floor plate provide malleable iron inserts.
2. Provide those recommended by the manufacturer for the required loading.
3. Finish shall be black.
4. UL and FM approved.
5. Product and Manufacturer: Provide one of the following inserts:
  - i. ITT Grinnell, Figure 282.
  - ii. Hohmann and Barnard, Inc., No. 380.

iii. Or approved equivalent.

E. Powder actuated fasteners and other types of bolts and fasteners not specified herein shall not be used unless approved by OWNER or ENGINEER.

## 2.7 GROUT

### A. Materials

1. Non-metallic, 100 percent solids, and high strength epoxy grout: Use clean, well graded sand with epoxy resins suitable for use on dry or damp surfaces.  
Product and Manufacturer:
  - Euco High Strength grout by the Euclid Chemical Company.
  - Sikadur Hi-Mod Grout by Sika Chemical Company.
  - Five Star Epoxy Grout by U.S. Grout Corporation.
2. Non-Shrink, Non-Metallic Grout: Pre-mixed non-staining cementious grout requiring only the addition of water at the jobsite.  
Product and Manufacturer:
  - Euco N-S by the Euclid Chemical Company.
  - Masterflow 713 by Master Builders Company.
  - Five Star by U.S. Grout Corporation.
3. Ordinary Cement-Sand Grout: Except where otherwise specified, use one part cement to three parts sand complying with the following:
  - Cement: ASTM C150, Type II.
  - Sand: ASTM C33.

Where water repelling and shrinkage reducing requirements are shown or specified, use admixtures.

4. Product and Manufacturers:
  - Integral Waterpeller by the Euclid Chemical Company.
  - Omicron, Type OM by Master Builders Company
  - Hydrocide Powder by Sonneborn-Contech

B. Water: Use clean, fresh, potable water free from injurious amounts of oils, acids, alkalies, or organic matter.

## 2.8 WATERSTOPS

Waterstop manufacturer shall demonstrate 5 year (minimum) continuous, successful experience in production of waterstops

### A. Materials

1. Bituminous (Plastic) Waterstops
  - a. Meet or exceed all requirements of Federal Specifications SS-S-00210, "Sealing Compound, Preformed Plastic for Expansion Joints, Type I or Type II Such plastic waterstop shall be equal to Synko-Flex as manufactured by Synko-Flex Products Company, Houston, Texas. No asbestos fiber shall be used in the manufacture of the waterstop.
  - b. The plastic waterstop shall be produced from blends of refined hydrocarbon resins and plasticizing compounds, and shall contain no solvents, irritating fumes or obnoxious odors. The waterstop shall not contain asbestos. The plastic waterstop shall not depend on oxidizing, evaporating or chemical action for its adhesive or cohesive on oxidizing, evaporating or chemical action for its adhesive or cohesive strength. It shall be supplied in extruded form of suitable cross section and of a size to seal the joint areas of concrete sections. The plastic waterstop shall be protected by a suitable removable two-piece wrapper. The two-piece wrapper shall be so designed that one-half may be removed longitudinally without disturbing the other half, to facilitate application of the sealing compound.

## PART 3 - EXECUTION

### 3.1 EXCAVATION

- A. Excavate footing trenches below the frost line to lines and grades shown on the Plans.
- B. Footing trenches are to be level, without soft spots, plumb with firm and even side walls.
- C. When excavation is essentially complete, verify depths and dimensions as well as soil classification and bearing capacity.
- D. Perform additional excavation only as approved by OWNER.
- E. Correct unauthorized excavation as directed at no cost to OWNER.
- F. Add the required cushion/leveling sand as shown on the Plans.
- G. Before the vapor barrier is installed the footing trenches shall be cleared of debris, loose dirt, organic matter, mud and water.
- H. Fill over-excavated areas under structure bearing surfaces with concrete or compacted select sand fill as required by the OWNER or ENGINEER.
- I. Excavate or place compacted select fill to within 1 foot of final grade or as may be shown on plans, making final excavation or compacted select fill immediately prior to placement of formwork and reinforcing steel. Limit final area to that which is being prepared for concrete placement. Limit exposure of final excavated surface to 24 hours. If surface is exposed longer than 24 hours or is damaged due to weather conditions, CONTRACTOR shall excavate four inches and provide a concrete seal slab. Keep area free of standing water until concrete and backfill operations are complete.
- G. Seal slabs shall be used where called for on the plans or as specified in paragraph I above.

### 3.2 FORM WORK

- A. Examination: Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with Drawings.
- B. Earth Forms: Earth forms are permitted for concrete thrust blocks where practical.
- C. Preparation:
  1. Field measurements: Lay out all necessary dimensions required to establish proper placement of forms. Use string lines, chalk lines or other suitable aids to establish lines and grades for form setters. Check all dimensions of erected form work before placing concrete.
  2. Clean forms before beginning erection.
  3. Install walers, studs, internal ties and other form supports, adequately spaced so proper working stresses are not exceeded.
  4. Lubricate, with an approved commercially prepared form lubricant, all portions of the form that will be in direct contact with concrete.
  5. Install chamfer strips for all exposed corners.
  6. Clean all dirt, mud, water and debris from the forms and any space to be occupied by concrete. All surfaces encrusted with dried concrete from previous placement operations shall be cleaned.
  7. Clean all reinforcing steel projecting from previously placed concrete before placing new concrete.
  8. Sprinkle semi-porous subgrades sufficiently to eliminate absorption of water from the concrete and seal extremely porous subgrades such as gravel or sand with polyethylene film.
  9. The surface of hardened concrete upon which fresh concrete is to be placed shall be rough, clean, and damp. Remove all surface mortar to expose the aggregate. Wash the hardened surface with clean water and keep it saturated before placing the fresh concrete.
  10. Accurately and securely place all embedded items such as anchor bolts, water stops and expansion joints. Use templates to assist in locating all embedment whose location is critical.
  11. Check all aluminum materials that will be in contact with concrete to insure the surfaces have been coated with bituminous coal tar paint. Correct any deficiencies.
- D. Installation: Provide sloped surfaces steeper than 1.5 horizontal to 1 vertical with a top form to hold shape of concrete during placement, unless it can be demonstrated that top forms can be

omitted. Construct the forms to correct shape and dimensions, mortar-tight, of sufficient strength, braced and tied together so that the forms shall be strong enough to maintain their shape under all imposed loads from the movement of workers, equipment, materials, or the placing and vibrating of the concrete. Camber where necessary to assure level finished soffits unless otherwise shown on the Drawings. Verify the horizontal and vertical positions of forms and correct all inaccuracies before placing concrete in any form. Complete all wedging and bracing before placing concrete.

1. Forms for "Smooth Finish" Concrete: Use steel, plywood or lined board forms uniform in size. Clean and smooth plywood and form liners. Free edges and holes from damage. Form lining shall have close-filling square joints between separate sheets and shall not be sprung into place. Sheets of form liners and plywood shall be full size wherever possible and joints shall be taped to prevent protrusions in concrete. Use special care in forming and stripping wood forms to protect corners and edges. Level and continue all horizontal joints. Wet wood forms at all times until stripping.
2. Framing, Studding, and Bracing: Space studs at 16 inches on center maximum for boards and 12 inches on center maximum for plywood. Framing, bracing, centering, and supporting members shall be of adequate size and strength to carry safely, without deflection, all dead and live loads to which forms may be subjected, and shall be spaced sufficiently close to prevent any bulging or sagging of forms. Soffits of all beams forms shall be constructed of material a minimum of 2 inches thick. Distribute bracing loads over base area on which bracing is erected, when placed on ground, protect against undermining, settlement or accidental impact.
3. Erect formwork, shoring and bracing to achieve design requirements, in accordance with the requirements of ACI 301.
4. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.
5. Align joints and make watertight. Keep form joints to a minimum.
6. Obtain approval from OWNER or ENGINEER before framing openings in structural members which are not indicated on Drawings.
7. Provide chamfer strips on exposed edges unless drawings note otherwise.
8. Do not reuse wood formwork more than three times. Do not patch formwork.

**E. Application – Form Release Agent**

1. Apply form release agent on formwork in accordance with manufacturer's recommendations.
2. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
3. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings, which are affected, by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.
4. Reuse and Coating of Forms: Thoroughly clean forms and reapply form coating before each reuse. For exposed work, do not reuse any form which cannot be reconditioned to "like new" condition. Apply form coating to all forms in accordance with the manufacturer's specifications, except where "scored finish" is required as shown on the Drawings. Do not coat forms for concrete that is to receive a "scored finish".

**F. Inserts, Embedded Parts and Openings**

1. Provide formed openings where required for items to be embedded in or passing through concrete work.
2. Locate and set in place items that will be cast directly into concrete.
3. Coordinate with Work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.
4. Provide temporary ports or openings in formwork to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.

5. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly filled so joints will not be apparent in exposed concrete surfaces.

G. Form Cleaning

1. Clean and remove foreign matter within forms as erection proceeds.
2. Clean formed cavities of debris prior to placing concrete.
3. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
4. During cold weather, remove ice and snow from within forms. Do not use deicing salts. Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

- H. Formwork Tolerances: Construct formwork so as to maintain tolerances required by ACI 347, except as otherwise noted.

I. Field Quality Control

2. Independent Testing Agency to inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.
3. Notify the ENGINEER and Independent Testing Agency after placement of reinforcing steel in the forms, but prior to placing any concrete, so that inspection can be made.

3.3 VAPOR BARRIER

- A. Install vapor barrier under slabs on grade.
- B. All joints shall be lapped a minimum of 8 to 12 inches.
- C. Repair any damage by lapping and sealing.
- D. Seal entire vapor barrier.

3.4 PLACEMENT OF REINFORCEMENT

- A. Conform to ACI 318 code for concrete over reinforcement.
- B. Clean reinforcement to remove loose rust, mill scale, oil, earth, ice and other materials which might reduce or destroy bond with concrete.
- C. Accurately position reinforcements on supports, spacers, hangers or other approved supports and secured in place with ties or clips. Supporting reinforcement directly on concrete, brick or rocks instead of specified supports is prohibited.
- D. Splices not shown on the plans may be used provided such splices meet the requirements of ACI 318, except where shown on the drawings welding or tack welding of reinforcement is prohibited.
- E. Do not bend reinforcement that is partially embedded in hardened concrete, unless approved.
- F. Do not displace or damage vapor barrier.
- G. Accommodate placement of formed openings.
- H. Lap welded wire fabric a distance equal to the wire spacing, plus two (2") inches.
- I. Place reinforcement to the held in position such that the concrete cover between the outside of any bar and the concrete form conforms to the following schedule.
  2. Slabs, walls and joints not exposed to weather or in contact with earth or water - one (1") inch.
  3. Concrete exposed to earth or water.
    - a. #5 bars and smaller - one (1") inch.
    - b. #6 bars and larger - two (2") inches.
  4. Concrete cast against earth - three (3") inches.
  5. Beams, girders and columns - (1") inch.

3.5 CONSTRUCTION JOINTS

- A. Install construction joint forms to conform to the details shown in the plans.

- B. Locate construction joints as shown on the drawings or as specified below. Do not use construction joints at other locations without the concurrence of the ENGINEER.
  - 1. Columns and Walls - Locate construction joints at the underside of beams, girders, haunches, drop panels and column capitals and at floor levels.
  - 2. Beams, Girders - Locate construction joint at mid span.
- C. Locate construction joints perpendicular to the planes of their surfaces and parallel to the main reinforcement.

### 3.6 WATERSTOPS

- A. As soon as the form lumber is removed from the joint, brush the joint clean to remove all dust and foreign particles. Immediately apply one brush coat of prime recommended by the waterstop manufacturer.
- B. Remove one face of the protective paper and position in the center of the keyway, lapping strips one (1") inch end to end to form a continuous homogeneous waterstop for the entire length of the section.
- C. Immediately before pouring concrete or placing precast members at the joint, completely clean the joint using brushes and compressed air to remove all debris. Only just before the concrete pour is made, remove the protective paper covering from the waterstop.
- D. Schedule: All joints subject to either hydrostatic or earth pressure on either side of the joint and exposed to view on the other side. Bituminous water stops are not required for the elevated tank or ground storage reservoir foundation except where noted.

### 3.7 TESTING

- A. Slump: A slump test shall be made by the CONTRACTOR for each truckload of concrete delivered to the job. If the slump is greater than that specified, the concrete may be rejected. The slump shall be determined according to ASTM C143. The CONTRACTOR shall perform this test.
- B. Air Content: Make an air content test on the first batch of concrete delivered each day and from each batch of concrete from which concrete compression test cylinders are made. Air content shall be determined according to ASTM C231 (Test for Air Content of Freshly Mixed Concrete by the Pressure Method) or ASTM C173 (Test for Air Content of Freshly Mixed Concrete by the Volumetric Method). The CONTRACTOR shall perform or pay for this test.
- C. Compression Tests:
  - 1. Prepare concrete test cylinders for each concrete pour. The number of sets of concrete test cylinders to be cast for each concrete pour shall be as follows:

No. CY Concrete Poured	Minimum No. of Sets of Cylinders
0-25	1
25-75	2
75-150	3
150-250	4
250-400	5
400-500	6

- 2. Test cylinders are taken mid-way through the truck's load, immediately before placement (e.g. from pump nozzle, if pumped), or as directed by ENGINEER or INSPECTOR.
- 3. A "set" of test cylinders consists of four cylinders, one to be broken at seven (7) days, one broken at fourteen (14) days, and one broken at twenty-eight (28) days, and one to be stored for future use or as directed by ENGINEER. Compression tests will be evaluated according to ACI 214 and ACI 318.
- 4. Make, cure, store and deliver test cylinders to the laboratory according to ASTM C31 and test according to ASTM C39.
- 5. Mark or tag each set of compression test cylinders showing the date and time of day the cylinders were made, the location of the work where the concrete represented by the

cylinders was placed, the delivery truck or batch number, the air content, the slump, air temperature and concrete temperature.

6. Distribute concrete compression test reports to the OWNER, ENGINEER, the ENGINEER's or OWNER's field representative, the CONTRACTOR and other parties designated by the OWNER.

### 3.8 PLACING CONCRETE

- A. Concrete shall not be placed unless the ENGINEER or OWNER's representative has been given 24 hour notice or as maybe agreed to observe the placement of forms, reinforcements and concrete.
- B. Consolidate all concrete by vibration, spading, rodding and forking so that the concrete is thoroughly worked around the reinforcement, around embedded items and into corners of forms, eliminating all air or stone pockets that may cause honeycombing, pitting or planes of weakness. Mechanical vibrators shall have a minimum frequency of 7000 rpm and shall be operated by competent workers. Insert the vibrator into the concrete at intervals from 18 to 30 inches apart, down into the previously placed concrete. Vibrate the concrete sufficiently to consolidate the concrete but avoid over vibrating which may cause segregation of aggregates. The vibrator may not be used to transport the concrete within the forms. Provide a spare vibrator on the job site during all concrete placing operations. Concrete forms are not to be vibrated unless forms are designed for such purposes and approval has been obtained from the ENGINEER.
- C. Place all concrete delivered to the site within 45 minutes after the addition of mixing water to the cement and aggregates, or after the addition of cement to the aggregates when the drum contains residual water. Concrete that had developed initial set when delivered will be rejected.
- D. Cold Weather Concreting
  1. Except upon written authorization by the ENGINEER, do not place concrete when the temperature is below 40° F and falling.
  2. Concrete may be placed when the temperature is 35° F and rising.
  3. No mixed concrete will be accepted which has a temperature of 50° F or less when delivered.
  4. Protect all concrete from freezing temperatures for five days after placement. Use protective coverings, enclosures and/or heat to prevent concrete from freezing. Methods used shall conform to ACI 306 *Recommended Practice for Cold Weather Concreting* and shall maintain a 50° F air temperature around the concrete.
  5. The CONTRACTOR shall be responsible for the quality and strength of concrete under cold weather conditions and all concrete damaged by freezing shall be removed and replaced by the CONTRACTOR at his own expense.
- E. Hot Weather Concreting
  1. Conform to ACI 605, *Recommended Practice for Hot Weather Concreting*.
  2. No mixed concrete will be accepted which has a temperature of 90° F or more when delivered.
  3. Add a retarding agent when the concrete temperature exceeds 75° F or when the air temperature exceeds 85° F.
  4. The CONTRACTOR shall be responsible for the quality and strength of concrete under hot weather conditions and all concrete damaged shall be removed and replaced by the CONTRACTOR at his own expense.
- F. Illumination: Do not place concrete before sunrise or later than will normally permit completion of all finishing operations during sufficient natural light.
- G. Protection
  1. Do not place concrete during rain, sleet or snow or when such precipitation is imminent.
  2. Concrete damaged by rain water or which has been allowed to increase the mixing water will be removed and replaced at the expense of the CONTRACTOR.

### 3.9 REMOVAL OF FORMS

- A. The time for removal of forms shall comply with ACI 318. If curing temperatures are below 50°F (15°C), the time for removal shall be increased by fifty percent (50%). In no case shall the forms or bracing be removed until concrete has gained sufficient strength to carry its own weight and imposed loads.
- B. Loosen forms carefully. Do not wedge pry bars, hammers or tools against finish concrete surfaces scheduled for exposure to view.
- C. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.
- D. Forms for columns, walls, sides of beams and any other concrete member not supporting the weight of the concrete may be removed when concrete strength has reached 1500 psi. Concrete strength may be determined from compression tests on field made cylinders or from strength vs. time curves prepared by a testing laboratory from compression tests of the design concrete mix.
- E. Form work for beam soffits, structural slabs and other parts that support the weight of concrete may be removed only after the compression tests of field made cylinders show the concrete has reached the specified 28-day strength.

### 3.10 CURING

- A. Protect all concrete against the loss of surface moisture for not less than 72 hours from the beginning of the curing operation.
- B. Immediately after the finishing operations have been completed, cover all exterior exposed surfaces of concrete with burlap, or curing compound. Keep burlap wet during the curing process.

### 3.11 REPAIR OF SURFACE DEFECTS

- A. Patch all repairable defective areas immediately after removing the concrete forms.
- B. Repair minor honeycomb areas and air bubble holes by removing all loose material from the area; applying an approved bonding material, then grouting the area flush with surrounding surfaces. In exposed areas, mix the grout to be used for patching to match the color and texture of the area to be patched.
- C. Cure all patched areas for seven (7) days.
- D. All patching will be subject to the approval of the ENGINEER. Other proven methods of patching defects in concrete may be used subject to the prior approval of the ENGINEER.

### 3.12 ANCHOR BOLTS, EXPANSION ANCHORS AND CONCRETE INSERTS

- A. Installation
  1. Drilling equipment used and installation of expansion anchors shall be in accordance with manufacturer's instructions.
  2. Assure that embedded items are protected from damage and are not filled in with concrete.
  3. Expansion anchors may be used for hanging or supporting pipe two inches diameter and smaller. Expansion anchors shall not be used for larger pipe unless otherwise shown or approved by the OWNER or ENGINEER.
  4. Use concrete inserts for pipe hangers and supports for the pipe size and loading recommended by the insert manufacturer.
  5. Unless otherwise shown or approved by OWNER or ENGINEER conform to the following for expansion anchors:
    - a. Minimum embedment depth in concrete: Five diameters.
    - b. Minimum anchor spacing on centers: Ten diameters.
    - c. Minimum distance to edge of concrete: Five diameters.
    - d. Increase dimensions above if required to develop the required anchor load capacity.
- B. Cleaning: After embedding concrete is placed, remove protection and clean bolts and inserts.

### 3.13 GROUT

#### A. General:

1. Place grout as shown in accordance with manufacturer's instructions. If manufacturer's instructions conflict with the Specifications, do not proceed until OWNER or ENGINEER provides clarification.
2. Dry packing will not be permitted.
3. It shall be the CONTRACTOR's responsibility to obtain the services of a qualified, full time employee of the manufacturer to aid in assuring proper use of the product under job conditions
4. Placing grout shall conform to temperature and weather limitations as stated in manufacturer's instructions.

#### B. Equipment Bases:

1. After shimming equipment to proper grade, securely tighten anchor bolts.
2. Properly form around the base plates, allowing sufficient room around the edges for placing the grout.
3. Adequate depth between the bottom of the base plate and the top of concrete base must be provided to assure that the void is completely filled with non-metallic epoxy grout.

#### C. Handrails and Railings:

1. After posts have been properly inserted into the holes or sleeves, fill the annular space between posts and sleeve with the non-shrink, non-metallic grout.
2. Bevel grout at juncture with post so that moisture flows away from post.
3. Side mounted handrails do not require grout.

### 3.14 SURFACE FINISH

#### A. Formed Concrete Surfaces

##### 1. Minimum Finish For Formed Surfaces

- a. After being cleaned and thoroughly dampened, fill the tie holes and air holes completely with patching mortar. Patch all tie holes within seven (7) days after removal of forms.
- b. Remove fins and other surface projections from all formed surfaces except exterior surfaces that will be in contact with earth backfill and are not specified to be dampproofed. Use a power grinder if necessary to remove projections and provide a flush surface.
- c. This finish is required before any of the following finishes are to be applied.

##### 2. Rubbed Finish: Apply the rubbed finish to freshly hardened concrete after all patching and repair specified above has been done. Wet all surfaces to be finished and rubbed with a Carborundum brick or other abrasive until uniform color and texture are produced. No cement grout or slush shall be used other than the cement paste drawn from the green concrete itself by the rubbing process.

- a. All exterior exposed vertical surfaces to a point one (1') foot below ground.
- b. Exposed horizontal surfaces not normally subjected to foot traffic.
- c. All interior vertical surfaces.

##### 3. Paint-Type Finish:

- a. After the concrete has cured a minimum of twenty eight (28) days, remove all efflorescence, flaking coatings, rust, mill scale, dirt, oil and other foreign substances from surfaces to be finished. Point with mortar, all air hole marks and repair all surface blemishes which, in the opinion of the ENGINEER, will not be corrected by applying the paint finish. Apply coatings only to surfaces that are free from surface moisture as determined by light and touch. Formed surfaces are to receive minimum finish before paint is applied. Shield or mask all surfaces that are not to be coated.
- b. Apply the concrete paint as recommended by the manufacturer.

- c. All exterior exposed vertical surfaces of the ground storage reservoir foundation and elevated tank foundation to a point one (1') foot below ground and exposed horizontal surfaces not normally subjected to foot traffic, including the exposed underside of slabs.
- B. Unformed Surfaces**
1. **Float Finish:**
    - a. After the concrete has been properly placed and struck off use a wood float to produce an even, smooth finish.
    - b. The maximum variation in surface tolerance shall be ½" in ten (10') feet and within plus or minus ¼" of plan grade. If variations greater than this exist, the ENGINEER may direct the CONTRACTOR to grind the concrete to bring the surface within the requirements. Patching of low spots will not be permitted.
    - c. This finish is required before any of the following finishes are to be applied.
  2. **Troweled Finish:**
    - a. The finish may be applied using either hand or power trowels. Troweling may be begun as soon as no cement paste clings to the blades. Continue troweling until the surface is dense, smooth and free of all minor blemishes such as trowel marks.
    - b. Apply a final hand troweling to remove slight imperfections left by troweling machines and to bring the surface to a dense, smooth polished surface.
    - c. Finish for all floors inside the building and elevated tank bell.
  3. **Brush Finish:**
    - a. After the surface has received a float finish, lightly broom the surface with a hair broom to produce a smooth but somewhat gritty texture.
    - b. Broom the surface while the concrete is still plastic enough to be lightly marked or scratched by the fibers.
    - c. The degree of surface roughness applied to the concrete shall be as directed by the ENGINEER.
    - d. Apply brush marks parallel to the lines of the plan of the structure.
    - e. All exterior horizontal surfaces normally subject to foot traffic including sidewalks, steps, slabs and the floor of the meter vaults.

**END OF SECTION**

## SECTION 403 BOLTED GALVANIZED STEEL GROUND STORAGE TANK

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK

This specification covers material, design, cylindrical, aboveground, galvanized, bolted, steel water storage tank in accordance with AWWA D-103 and requirements of the Texas Natural Resource Conservation Commission. The nominal height shall be 24 feet. In the event of a conflict between this specification and project plans (drawings) then the plans will take precedence.

### PART 2 - PRODUCT

#### 2.1 MATERIALS SPECIFICATION

Sheet: Steel sheets shall conform to or shall be at least equal to, hot rolled commercial quality per ASTM A415 and with a minimum yield strength of 33,000 psi.

Plates: Steel plates shall conform to, or be at least equal to, the requirements of ASTM A283, Grade C, and with a minimum yield strength of 33,000 psi.

Flanges: Flanges shall be cast iron or steel, except that 12-inch size and larger bolted flanges shall be steel. Flanges shall conform to Specification ASA B16 or API 12B.

Rolled Structural Shapes: Rolled structural shapes shall conform to ASTM A7, A36, or A373.

Bolts: Bolts used in tank joints shall be ½ inch diameter and shall meet the minimum requirements of API 12B and ASTM A153 except bolt heads and nuts may be other than square at the option of tank manufacturer. Other bolts shall conform to, or at least be equal to the requirements of ASTM A307.

#### 2.2 DESIGN AND CONSTRUCTION:

Hot-Dip Galvanizing: Galvanized tanks are recommended for the storage of water. When galvanized tanks are specified by the purchaser, zinc-coating shall be applied to the tank components, after fabrication, in accordance with the recommended practice of the American Hot-Dip Galvanizers Association per ASTM A123 or ASTM A153.

Gaskets and Sealants: The gaskets and sealants shall be among those listed under Category 14 of the "List of Accepted Equipment for Interstate Carriers Use" as published by the Public Health Service, or tested and certified by an authorized testing laboratory.

Size: Refer to plan sheets and drawings.

Component Parts: Component parts of tanks such as bottom sections, wall sections, and roof sections shall conform to the dimensional standards of the American Petroleum Institute standard for bolted production tanks API 12B with walls composed of standard side sheets (staves) having nominal dimensions of 5' wide by 8' high. Special height or width side sheets may be used with API 12B standard joint details.

Tank Bottoms: Minimum thickness of tank bottoms shall be 12 gauge.

Tank Walls: Tank walls shall be properly designed to resist the maximum anticipated dead and live loads, both when the tank is empty and when filled with water having a specific gravity of 1.0. Design live loads shall not be less than the wind, snow, earthquake and other live loads, for the area in which the tank is to be located as specified in ASA A 58.1.

Tank Roofs: Minimum thickness of tank roofs shall be 12 gauge.

Roof Supports: Roof structures shall be designed to support the minimum design loads as specified in ASA A 58.1 Allowable design stresses shall be in accordance with the AISC Code for rolled structural members or the AISI code for cold formed members.

Foundations: The subgrade for the ground storage tank shall be excavated to a depth of 3 feet and replaced with select fill material compacted to 95% standard proctor density. The tank shall be set on the compacted select fill overlaid with filter cloth and with 12 inches of ¾" washed gravel or rock. The rock will be confined by a 12-inch galvanized steel retainer ring.

Manways: The tank shall be equipped with a flush type shell manway so designed that manway cover plates may be removed and replaced without entering the tank.

The tank shall be equipped with a roof manway placed near the outside ladder which shall be provided with hinges and hasp for locking. The hatch shall have a minimum 30-inch diameter or square opening and shall be equipped with a 4-inch lip turned up from the roof and an overlapping cover turned down two inches.

Vent: A suitable vent shall be furnished, above the maximum water level, at the maximum possible rate of the water either entering or leaving the tank, pressures will not be developed which will exceed the roof design loads. The overflow pipe shall not be considered a tank vent. The vent shall be so designed and constructed as to prevent the entrance of birds or animals. The opening shall be protected by a 16-mesh or finer corrosion resistant screening.

Outside Ladder: The tank shall be equipped with a galvanized outside ladder and safety cage. The ladder and cage shall begin 2 feet above ground level and extend 3.5 feet above the top of the tank.

Inside Ladder: The tank shall be equipped with a galvanized inside ladder.

Overflow: The tank shall be equipped with a stub type overflow 6 inches in diameter and extending 6 inches beyond the tank wall. The overflow shall be equipped with a hinged flap valve and shall extend to the bottom of the tank.

Fill Line: The tank fill line shall extend to the top of the tank.

Flanged Outlets: The tank shall have flanged outlets with outside projection located as shown on the site plan.

Painting: Painting of ferrous non-plated appurtenances shall conform to the section on painting.

## PART 3 - EXECUTION

### 3.1 SITE PREPARATION

- A. The CONTRACTOR shall remove and dispose of all obstructions from the construction site. Such obstructions shall be considered to include trees, stumps, bushes, shrubs, curb and gutter, miscellaneous stone, scrap iron, remains of houses, foundations, floor slabs, concrete, brick, lumber, septic tanks, abandoned utilities, and all other debris.
- B. Holes remaining after removal of all obstructions, objectionable material, trees, stumps etc., shall be backfilled and tamped as directed by the ENGINEER. The CONTRACTOR shall complete the operation of preparing the construction site by blading, bull dozing, or other approved methods, so that the construction site shall be free of holes, abrupt changes in elevation, irregularities of contour, and shall drain all runoff away from the tank's foundation.

### 3.2 FOUNDATION

- A. Tank Foundation:
  1. The tank foundation is an integral part of the tank.
  2. The subgrade for the ground storage tank shall be excavated to a depth of 3 feet and replaced with select fill material compacted to 95% standard proctor density. The tank shall be set on the compacted select fill overlaid with filter cloth and with 12 inches of 1/2"-3/4" washed gravel or rock with rounded corners. The rock will be confined by a 12-inch galvanized steel retainer ring.

### 3.3 EROSION CONTROL

The CONTRACTOR shall take necessary temporary measures to prevent erosion of the construction site during construction.

**3.4 TESTING AND DISINFECTION**

1. **Leak Test:** After erection of the tank is complete the tank shall be cleaned and filled to the maximum working level with potable water furnished by the OWNER and checked for leaks for a period of 24 hours. All visible leaks will be repaired in a manner approved by the ENGINEER. Total allowable leakage shall be 131 gallons in a 24 hour period.
2. **Disinfection:** After the tank has been leak tested the CONTRACTOR shall disinfect the tank with a chlorine solution furnished by the CONTRACTOR. The amount of disinfectant applied shall be such as to provide a dosage of not less than 50 mg/l. This disinfectant shall be held in the tank for a period of 24 hours and then drained to waste. The chlorine application method shall meet the approval of the ENGINEER.

**3.5 INSPECTION**

The inspector representing the OWNER shall have free entry at all times while work on the contract of the purchaser is being performed to all parts of the manufacturers' shops which will concern the manufacture of the material ordered. The manufacturer shall afford the inspector, without charge, all reasonable facilities to satisfy him that the material is being manufactured in accordance with this specification. All inspections should be made at the place of manufacture prior to shipment, unless otherwise specified on the purchase order; and shall be so conducted so as not to interfere unnecessarily with the manufacturing operation.

**3.6 WARRANTY**

The tank CONTRACTOR shall guarantee the structure against any defect in materials or workmanship for a period of one year from date of acceptance. If any materials or workmanship prove to be defective within one year they shall be replaced or repaired by the CONTRACTOR.

**3.7 MEASUREMENT AND PAYMENT**

The construction of the tank shall be paid for at the lump sum price in accordance with the bid. The payment shall be full compensation for a complete and working system

**END OF SECTION**

## **SECTION 501 GENERAL PAINTING**

### **PART 1 - GENERAL**

#### **1.1 SCOPE OF WORK**

This specification shall cover the painting throughout the project to make a thoroughly complete job in every respect whether every item is herein specifically mentioned or not. Where items are not mentioned, they shall be finished the same as specified for similar work. In the event of a conflict between this specification and project plans (drawings) then the plans will take precedence.

#### **1.2 EXAMINE SPECIFICATIONS**

The CONTRACTOR shall examine the specifications and shall thoroughly familiarize himself with all of their provisions regarding painting. He shall understand that all materials installed throughout the project, which necessitates painting, and which are left unfinished by the requirements of said other headings of these specifications shall be painted to completion under this contract.

#### **1.3 PROTECTION OF WORK**

The CONTRACTOR shall furnish and lay drop cloths in all areas where painting is being done to protect floors and other work from damage during the prosecution of his work.

#### **1.4 STORAGE**

All materials used on the job shall be stored in a single place designated by the CONTRACTOR. Any oil rags, waste, etc., must be removed from the building every night, and every precaution taken to avoid the danger of fire.

#### **1.5 CLEANING**

Upon completion of the work, the CONTRACTOR shall remove all paint spots from the finish work, shall leave the entire premises free from rubbish caused by his work, and shall remove his equipment from the premises free from rubbish caused by his work, and shall remove his equipment from the premises. The work area shall be clean and free from blemish and all glass surfaces shall be thoroughly washed.

### **PART 2 - MATERIALS**

#### **2.1 MATERIALS**

All painting materials must be delivered in the original containers with seal unbroken and labels intact. All painting materials, linseed oil, shellac, turpentine, etc. shall be pure, the highest quality, and bear an identifying label on the container. All paints shall be pure, the highest quality, and bear an identifying label on the container. All paints shall be from one manufacturer unless otherwise approved by the ENGINEER.

### **PART 3 - EXECUTION**

#### **3.1 WORKMANSHIP**

All workmanship shall be of the very best with all materials evenly spread and smoothly flowed on without runs, sags, skips, or other faults. The CONTRACTOR shall properly prepare all surfaces before painting by cutting, stopping, filling, etc., to insure a smooth and uniform surface without variation of gloss, texture, or blemish. Finish surfaces shall be uniform in gloss, finish, color, and shall be free from brush marks. All metal surfaces shall first be washed with mineral spirits to remove any dirt or grease before applying materials. Where rust or scale is present, it shall be wire brushed or sandpapered clean before painting. Shop coats or prime of paint that have become marred shall be cleaned and touched up with primer specified.

All coats shall be dry before applying succeeding coats. Exterior painting shall not be done while the surface is damp, during rainy or frosty weather, or when the temperature is below 50 degrees Fahrenheit.

#### **3.2 PAINT SCHEDULE**

Paints specified are manufactured by Tnemec Corporation and are set up as standards of quality. Paint may also be Sherwin Williams, Valspar, Pittsburgh Plate Glass, Rust-Oleum, or equivalent.

**3.3 STRUCTURAL STEEL**

Exposed structural frames and secondary members, catwalks, stairways, and etc. not otherwise coated: Color as selected by OWNER.

<u>Protective Coating System</u>	<u>Surface Preparation</u>	<u>Number of Coats</u>	<u>Dry Mills Per Coat</u>
Primer: Epoxy Primer	SP-7 Brush-Off Blast	1	2.0 minimum
Finish: Urethane Enamel	-----	2	2.0 minimum

Unexposed structural steel, enclosed metal building frames and secondary members, etc: Color as selected by OWNER.

<u>Protective Coating System</u>	<u>Surface Preparation</u>	<u>Number of Coats</u>	<u>Dry Mills Per Coat</u>
Primer: Epoxy Primer	SP-7 Brush-Off Blast	1	2.0 minimum
Finish: Hi-Build Epoxy	-----	1	5.0 minimum

**3.4 MECHANICAL**

Color Coding: All piping for the following services shall be color coded. Where scheduled, bands shall be six inches wide and spaced along the pipe at five foot intervals. The color code is as follows:

Potable Water	Light Blue
Raw Water	Tan
Drain	Dark Gray
Compressed Air	Light Green
Chlorine (solution)	Yellow with Red Bands
Chlorine (gas)	Yellow

**3.5 MECHANICAL SCHEDULE**

Metal surfaces submerged in water or wastewater including equipment, machinery, piping, pumps, valves, weirs, gates, rotary distributor arms, etc: Color to be selected by OWNER.

<b>Protective Coating System</b>	<b>Surface Preparation</b>	<b>Number of Coats</b>	<b>Dry Mills Per Coat</b>
First Coat: Hi-Build Epoxy	SP-10 Near White Blast	1	5.0 minimum
Second Coat: Hi-Build Epoxy	-----	1	5.0 minimum

Metal surfaces not submerged, and not included in (1) above, indoors and outdoors including pumps, piping, valves, machinery and equipment and all other surfaces as selected:

<b>Protective Coating System</b>	<b>Surface Preparation</b>	<b>Number of Coats</b>	<b>Dry Mills Per Coat</b>
Primer: Epoxy Primer	SP-7 Brush-Off Blast	1	2.0 minimum
Finish: Urethane Enamel	-----	2	1.5 minimum

**3.6 ARCHITECTURAL**

Exterior masonry walls: Color as selected by OWNER.

<b>Protective Coating System</b>	<b>Number of Coats</b>
Primer: Block Filler	1
Finish Coat: Exterior Latex Paint	1

Interior masonry walls: Color as selected by OWNER.

<b>Protective Coating System</b>	<b>Number of Coats</b>
Primer: Block Filler	1
Intermediate Coat: Chemical Resistant Hi-Build Epoxy	1
Finish Coat: Chemical Resistant Epoxy Enamel	1

All exterior and interior wooden surfaces: Color as selected by OWNER.

<b>Protective Coating System</b>	<b>Number of Coats</b>
Primer: Oil Based Primer	1
Intermediate Coat: Exterior/Interior Latex Paint	1
Finish Coat: Exterior/Interior Latex Paint	1

Interior drywall/masonite: Color as selected by OWNER.

<b>Protective Coating System</b>	<b>Number of Coats</b>
Primer: Latex Primer	1
Finish Coat: Exterior/Interior Latex Paint	2

**3.5 PAYMENT**

Painting shall not be paid for directly, but shall be considered subsidiary to the various bid items.

END OF SECTION

## SECTION 701 ELECTRICAL GENERAL PROVISIONS

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK

The work required by this specification includes furnishing all labor, tools, materials, equipment, and supervision to complete the installation of all electrical systems shown by the plan drawings or specified herein. The CONTRACTOR shall be responsible for visiting the sites and checking the existing conditions. Ascertain the conditions to be met for the work to be performed and allow in bid accordingly. The work shall include but shall not be limited to:

- A. Making all arrangements with the local power company for providing permanent electric service and coordinating with them to insure that the installation conforms to their requirements for electrical service and metering facilities;
- B. Installing power and control circuitry as indicated on plans;
- C. Installing wiring, circuitry, and electrical devices as indicated on plans;
- D. Providing a complete and effective grounding system for all electrical facilities.

These works shall in every respect be completed to a safe, operating and first class condition satisfactory to the OWNER and ENGINEER.

#### 1.2 DEFINITIONS AND TERMS.

The definition of terms used throughout these specifications shall be as specified by the following agencies:

- Underwriters Laboratories
- National Electrical Manufacturers Association
- American National Standards Institute
- Insulated Power Cable Engineers Association
- National Electrical Code
- National Fire Protection Association

#### 1.3 PERMITS, CODES AND UTILITIES

- A. The CONTRACTOR shall secure all permits, licenses, and inspection as required by all authorities having jurisdiction. Give all notices and comply with all laws, ordinances, rules, regulations and contract requirements bearing on the work.
- B. The minimum requirements of the electrical system installation shall conform to the latest edition of the National Electrical Code, and state and local codes.
- C. Codes and ordinances having jurisdiction and specified codes shall serve as minimum requirements, but, if the Contract Documents indicate requirements that are greater than those minimum requirements, then the requirements of the Contract Documents shall be followed. Should there be any conflicts between the Contract Documents and codes, or any ordinances, report these with the bid.
- D. Meter and disconnect shall be provided according to power company requirements. CONTRACTOR shall arrange for any changes to the existing service that are necessary to meet the requirements of the new system.
- E. Determine the exact requirements for the telephone utility service connections, if specified, as set forth by the utility that will serve the project, and pay for initial installation charges. Perform all work as required by that utility.
- F. It shall be the responsibility of the CONTRACTOR to verify the existence and location of all underground utilities along the route of the work. The omission from or the inclusion of utility locations on the Plans is not being considered as the non-existence of, or a definite location of existing underground utilities.

The CONTRACTOR shall take the necessary precautions to protect existing utilities from damage due to his operations. The CONTRACTOR shall notify DIG TESS, Texas One-Call

System, and all other utility locator services to request utility locates. In addition, other utilities within the project area shall be notified to locate their utilities. CONTRACTOR shall keep a notebook of all location requests. Each notation will contain the following information: Date, Time, Brief Location Summary, Request ID Number, and Call Back Repair Number. Any damage to the utilities, whether marked or unmarked, will be repaired at the CONTRACTORS expense.

## **PART 2 - PRODUCTS**

### **2.1 STANDARDS**

- A. All materials and equipment shall conform to the requirements of the Contract Documents. They shall be new, free from defects, and they shall conform to the following standards where these organizations have set standards:
- Underwriters Laboratories (UL)
  - National Electrical Manufacturer's Association (NEMA)
  - American National Standards Association (ANSI)
  - Insulated Cable Engineers Association (ICEA)
- B. All material and equipment of the same class shall be supplied by the same manufacturer, unless specified to the contrary.
- C. All shop built products shall bear UL labels where standards have been set for listing.

### **2.2 SHOP DRAWINGS AND SUBMITTALS**

- A. Shop drawings shall be taken to mean detailed drawings with dimensions, schedules, weights, capacities, installation details and pertinent information that will be needed to describe the material or equipment in detail.
- B. Submittals shall be taken to mean catalog cuts, general descriptive information, catalog numbers and manufacturer's name.
- C. Refer to Contract Documents for submittal requirements.

### **2.3 WORKMANSHIP**

Workmanship shall in every respect be first class and in conformance with applicable codes, laws, and regulations. All electrical work shall be performed by an electrician licensed as such by at least one city in Texas. The works shall be guaranteed by the CONTRACTOR against defective workmanship for a period of one year following acceptance of the work by the OWNER.

### **2.4 MATERIALS**

Materials and equipment furnished and installed shall be new, of best quality and grade, entirely suitable for the purpose intended, and standard products of manufacturers regularly engaged in production of such equipment. Provide the manufacturer's latest standard design for the type equipment specified. All materials shall be approved by and bear the label of the Underwriter's Laboratory, Inc.

### **2.5 CONDUIT**

Conduit shall conform to the following schedule:

- A. Heavy wall rigid galvanized steel for surface mountings inside buildings and at above ground outdoor locations requiring rigid conduit.
- B. Flexible metal conduit for indoor fixtures.
- C. Plastic coated flexible metal conduit for motors, dry type transformers, and outdoor fixtures.
- D. Schedule 40 PVC for underground installation.

Conduit in buildings and at structures shall be rigidly fastened to the structure by clamps bolted or screwed using cinch anchors or expansion shields.

### **2.6 SEAL OFFS**

Conduits in underground, wet or high humidity locations, where the introduction of water or condensation may occur, shall be plugged with seal-offs, immediately prior to the electrical component, and drained as may be applicable to prevent water damage to electrical components.

**2.7 CONDUCTORS**

All conductors shall be appropriately selected according to load, voltage, amperage, distance, exposure and other relevant factors particular to its application and shall conform to all code provisions applicable to its use.

**2.8 MOTOR CONTROLS**

Electrical switches and starters for motors shall conform to the motor manufacturer's recommendations for the motor and service condition. Pump motor power circuit, if specified, shall be equipped with a quick-break NEMA 3 disconnect switch located at the well head or other location according to the drawings.

**2.9 REDUCED VOLTAGE STARTERS**

The following motor ratings shall be required to have reduced voltage starters (soft start), unless otherwise specified by ONWER.

- A. Three-phase: All motors in excess of 30HP.
- B. Single-phase: All motors in excess of 15HP.

**2.10 CIRCUIT PROTECTION**

Control and power circuitry shall be provided with phase failure protectors, lightning arrestors, high/low voltage protection, and ground fault protection.

All conductors, motor frames, raceways, enclosures, and all other equipment and appurtenances shall be grounded according to the requirements of Article 250 of the National Electrical Code and the requirements of the service company. The minimum size ground shall be #6 Cu unless a larger ground is specified by an applicable code or requirement.

**PART 3 - EXECUTION****3.1 EXCAVATION AND BACKFILLING**

- A. Do all excavating and backfilling necessary for the installation of the work. This shall include shoring and pumping in ditches to keep them dry until the work in question has been installed. All shoring required to protect the excavation and safeguard employees shall be properly performed.
- B. All excavations shall be made to proper depth, with allowances made for floors, forms, beams, piping, finished grades, etc. Ground under conduits shall be well compacted before conduits are installed.
- C. All backfilling shall be made with selected soil, free of rocks and debris, and shall be pneumatically tamped in six (6") inch layers to secure a density of 90% Standard Proctor. Backfill under pavement and structures shall be compacted to 95% Standard Proctor Density.
- D. All excavated material not suitable and not used in the backfill shall be removed to the onsite disposal area or as directed by the ENGINEER.
- E. Where the excavation requires the opening of existing walks, drives or other existing pavement, these facilities shall be cut as required to install new lines and to make connections to existing lines. The sizes of the cut shall be held to a minimum, consistent with the work to be installed. After installation of new work is completed and the excavation has been back-filled according to the above, repair existing walks, drives or other existing pavement to match existing installation.

**3.2 CUTTING AND PATCHING**

- A. Cutting and patching required under this section shall be done in a neat skillful manner. Cutting lines shall be uniform and smooth.
- B. Use concrete saws for large cuts in concrete and use core drills for small round cuts in concrete.
- C. Where openings are cut through masonry walls, provide lintel or other structural support to protect the remaining masonry. Adequate support shall be provided during the cutting operation to prevent damage to masonry.
- D. Where large openings are cut through metal surfaces, attach a metal angle around the opening.
- E. Patch concrete openings that are to be filled with nonshrinking cementing compound. Finish concrete patching shall be troweled smooth and shall be uniform with surrounding surfaces.

### 3.3 WATERPROOFING

- A. Provide waterproof flashing for each penetration of exterior walls and roofs.
- B. Penetrations through walls at below ground elevations shall be water proofed by conduit sealing fittings or other methods as indicated.
- C. Interior of raceways that are likely to have water ingress, such as runs from hand holes into below-grade installations, shall have water stops installed to prevent water from entering into installations.
- D. Flashing for conduit penetrations through built-up roofs shall be made with pitch pans filled with pitch. Conduit penetrations through poured concrete roofs shall be made with sleeves and annulus caulked.

### 3.4 INSTALLATION

- A. Locating and Placing Equipment: Except where specifically noted or shown, the locations and elevations of equipment are approximate and are subject to small revisions as may prove necessary or desirable at the time the work is installed.
- B. Coordination with Other Trades: Where equipment is being furnished under another specification, the CONTRACTOR shall request from the ENGINEER an accepted drawing that will show exact dimensions of required locations or connections. Install the required facilities to the exact requirements of the accepted Plans. Arrange for the building in of equipment during structure construction. Where equipment cannot be built-in during construction, arrange for sleeves, box-outs, openings, etc., as required to allow installation of equipment after structure construction is complete.
- C. Unless shown in detail, the Plans are diagrammatic and do not give exact details as to elevations and routing of conduits, nor do they show all offsets and fittings; nevertheless, install the conduit system to conform to the structural and mechanical conditions of the construction.
- D. Holes for raceway penetration into sheet metal cabinets and boxes shall be accurately made with an approved tool. Cutting openings with a torch or other device that produces a jagged, rough cut will not be acceptable.
- E. Cabling inside equipment shall be carefully routed, trained and laced. Cables so placed that they obstruct equipment devices will not be acceptable.
- F. Equipment shall be set level and plumb. Supporting devices installed shall be set and so braced that equipment is held in a rigid, tight-fitting manner.
- G. Verify that equipment will fit support layouts indicated.
- H. Equipment Dimensions and Clearances: Do not use equipment that exceeds the indicated dimensions.
- I. Install equipment in accordance with the manufacturer's instructions.
- J. Equipment Access:
  - 1. Install equipment so it is readily accessible for operation and maintenance. Equipment shall not be blocked or concealed.
  - 2. Do not install electrical equipment such that it interferes with normal maintenance requirements of other equipment.
- K. Outdoor wall-mounted equipment and indoor equipment mounted on earth or water bearing walls shall be provided with corrosion-resistant spacers to maintain ¼-inch separation between the equipment and the wall.
- L. Screen or seal all openings into outdoor equipment to prevent the entrance of rodents and insects.
- M. Equipment fabricated from aluminum shall not be placed in direct contact with earth or concrete.
- N. Anchoring and Supports
  - 1. Provide all necessary anchoring devices and supports.
  - 2. Use supports as detailed on the Plans and as specified.
  - 3. Where not detailed on the Plans or specified, use supports and anchoring devices rated for the equipment load.

4. Supports and anchoring devices shall be rated and sized based on dimensions and weights verified from approved equipment submittals.
  5. Hardware shall be malleable type, corrosion resistant and shall be supported by heavily plated machine screws or brass, bronze or stainless steel bolts.
- O. Do not mount safety switches and external equipment to other equipment enclosures, unless enclosure mounting surface is properly braced to accept mounting of external equipment.
  - P. Provide concrete foundations or pads required for electrical equipment as indicated or specified. All floor-mounted equipment shall be mounted on a 4-inch concrete housekeeping pad whether or not such pad is shown on the Plans. Pad shall be poured on top of the finished floor or slab.
  - Q. Material that may cause rusting or streaking on a building surface shall not be used.
  - R. To avoid interference with structural members and equipment of other trades, it may be necessary to adjust the intended location of electrical equipment. Unless specifically dimensioned or detailed, the CONTRACTOR may, at his discretion, make minor adjustments in equipment location. Minor adjustments are defined as a distance not to exceed one foot.
  - S. Particular attention shall be paid to door swings, piping, radiation, ductwork, and structural steel.
    1. In general, waste and vent lines, large pipe and ductwork shall be given priority for the locations and space shown.
    2. Electrical lighting fixtures shall, in general, be given priority for ceiling space.
    3. No additional compensation will be allowed for the moving of misplaced outlets, wiring, or equipment.
  - T. Provide electrical danger, caution, warning, or safety instruction signs in accordance with Plans and/or code.
  - U. Do not remove or damage fireproofing materials
    1. Install hangers, inserts, supports, and anchors prior to installation of fireproofing.
    2. Repair or replace fireproofing removed or damaged.
  - V. Make all penetrations through roofs prior to installation of roofing. For penetrations required after installation of roofing:
    1. In built-up roofing, provide all curbs, cants and base flashings.
    2. In elastic sheet roofing, arrange and pay for base flashing work by authorized roofer.
  - W. Make all penetrations of electrical work through walls and roofs water and weather-tight.

### 3.5 EQUIPMENT PROTECTION

- A. Provide suitable protection for all equipment, work and property against damage during construction.
- B. Assume full responsibility for material and equipment stored at the site.
- C. Conduit openings shall be closed with caps or plugs during installation. All outlet boxes and cabinets shall be kept free of concrete, plaster, dirt and debris.
- D. Equipment shall be covered and tightly sealed against entrance of dust, dirt and moisture.
- E. All dry transformers before energization shall be protected against moisture and dirt absorption by suitable covering. Also, maintain heat inside the covering by means of 100 watt minimum lamps.
- F. Interiors of switchgear and motor control centers shall be kept clean and dry before energization. Maintain heat inside each unit with one (1) 100 watt lamp at bottom of each vertical section.

### 3.6 COOPERATION WITH WORK UNDER OTHER SPECIFICATIONS

- A. Cooperate with all other trades to facilitate the general progress of their work. Allow all other trades every reasonable opportunity for the installation of their work and the storage of their materials.
- B. The work under this section shall follow the general building construction closely. Set all pipe sleeves, inserts, etc., and see that openings for chases, pipes, etc., are provided before concrete is placed or masonry installed.

- C. Work with other trades in determining exact locations of outlets, conduits, fixtures, and pieces of equipment to avoid interference with lines as required to maintain proper installation of other work.
- D. Make such progress in work that will not delay the work of other trades. Schedule the work so that completion dates as established by the ENGINEER are met. Furnish sufficient labor or work overtime to accomplish these requirements if directed to do so.

### 3.7 INSTALLATION AND CONNECTION OF WORK UNDER ANOTHER SPECIFICATION

- A. Except as otherwise indicated, details of control and signal wiring required are not shown; however, ascertain the requirements and install wiring as required under that specification. If wiring and requirements differ from that shown under that specification, request clarification from the ENGINEER before installation of work.
- B. Verify the electrical capacities of all electrical equipment furnished under other sections, or furnished by the OWNER, and request wiring information from the ENGINEER if wiring requirements are different from that specified under this Section. Do not make rough-ins until equipment verification has been received.
- C. Install all motors, terminal boxes, pilot devices, controllers and miscellaneous items of electrical equipment that are not integrally mounted with the equipment furnished under other specifications. All such equipment shall be securely mounted and adequately supported in a neat and workman like manner.

### 3.8 CLEAN UP

- A. Remove all temporary labels, dirt, paint, grease and stains from all exposed equipment. Upon completion of work, clean equipment and the entire installation to present a first class job. No loose parts or scraps of equipment shall be left on the premises.
- B. Equipment paint scars shall be repaired with paint kits supplied by the equipment manufacturer or with an approved paint.
- C. Clean interiors of each item of electrical equipment. At completion of work all equipment interiors shall be free from dust, dirt and debris.
- D. Replace nameplates or labels damaged during construction.

### 3.9 TESTS

- A. General
  1. Replace equipment and systems found inoperative or defective and re-test.
  2. If equipment or system fails re-test, replace it with products which conform to these specifications.
  3. Continue remedial measures and re-tests until satisfactory results are obtained.
  4. Remedial measures and re-tests will be done at no cost to the OWNER.
  5. Test to ensure all equipment is free of short circuits and improper grounds.
  6. Test to ensure all equipment is operational.
- B. Each run of 600V class power and control wiring shall be tested before connection of line and load. Make tests with 1000 V DC hand-crank ohmmeter. Each run of wiring shall be tested phase-to-phase and/or phase-to-neutral, and phase-to-ground. Test results for each test shall be equal to or greater than 1,500,000 ohms with 1,000 V DC applied. Testing shall be at the convenience of the ENGINEER and the results shall be recorded by the CONTRACTOR.
- C. A ground resistance test shall be made at each point ground connections are made.
- D. A ground fault test shall be conducted of all three phase power systems with a solid neutral. Ground fault tests shall comply with Article 230-95 of the National Electrical Code.
- E. All equipment shall be put through a trial run-in test to ascertain that the performance complies with the intent of the Specifications. All run-in tests shall be made in the presence of the ENGINEER. Phase to phase and phase to ground voltages shall be measured and recorded at the load side of all motor starters,
- F. Perform all tests required or recommended by the equipment manufacturer.

G. All tests described above shall be recorded and copies inserted in the Operation and Maintenance Manual.

**3.10 RECORD DRAWINGS**

- A. At the start and during the progress of the job, keep one separate set of blue-line prints for making construction notes and markups.
- B. Show conduit routing and wiring runs as constructed and identify each.
- C. Record all deviations from the specifications.
- D. Submit set of marked-up drawings for review.

**3.11 OPERATIONS AND MAINTENANCE MANUALS**

- A. Six (6) weeks before the completion of the project, compile an Operations and Maintenance Manual on each item of equipment. These manuals shall include detailed instructions and maintenance as well as spare parts lists.
- B. Submit four (4) copies for review.

**3.12 BASIS OF PAYMENT**

Payment for all equipment, materials, labor, and all other costs associated with electrical work required by this contract will be included in the price bid for completed work as set forth in the Bid Schedule.

**END OF SECTION**

## SECTION 706 SURGE PROTECTION

### PART 1 – GENERAL

#### 1.1 DESCRIPTION

The surge suppression system shall be designed to protect all AC electrical circuits and connected equipment from the destructive, damaging or disruptive effects of lightning, induced transients, normal utility load switching activities and internally generated transients which are caused by the normal operation of connected equipment as well as capacitive and inductive load switching.

#### 1.2 REFERENCE AND RESOURCE PUBLICATION AND STANDARDS

All TVSS devices will be designed, tested, manufactured, listed and installed in accordance with the applicable publications, resources and standards shown below.

ANSI/IEEE C84.1-1989, American National Standard for Electric Power Systems and Equipment Voltage Ratings (60 Hertz)

ANSI/IEEE C62.41-1991, Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits

ANSI/IEEE C62.45-1992, IEEE Guide on Surge Testing for Equipment Connected to Low-Voltage AC Power Circuits

Underwriters Laboratories UL 1449 Standard for Safety - Transient Voltage Surge Suppressers, Revised edition July 2, 1987

Underwriters Laboratories, UL 1283, Standard for Safety - Electromagnetic Interference Filters, August 23, 1993

National Fire Protection Association, National Electrical Code 1993

IEEE Standard 142-1991, IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems (IEEE Green Book)

ANSI/IEEE Standard 141-1986, IEEE Recommended Practice for Electric Power Distribution for Industrial Plants (IEEE Red Book)

IEEE Standard 1100-1992, IEEE Recommended Practice for Powering and Grounding Sensitive Electronic Equipment (IEEE Emerald Book)

FIPS Pub 94, Federal Information Processing Standards Publication - Guideline on Electrical Power for ADP Installations

MIL Standard 220A Method of Insertion-loss Measurement

#### 1.3 QUALITY ASSURANCE AND CONTROL

- A. Units shall be UL 1449 listed and shall bear the suppressed voltage rating issued by UL for all protected modes.
- B. The suppresser manufacturer (or supplier) shall make available experienced, qualified power quality application and field supervision engineering services, on an as-needed (reimbursable) basis.
- C. Only firms that have been regularly engaged in the development, design, testing, listing and manufacture of transient voltage surge suppressers for a period of ten years or more of the types and ratings required and whose products have been in satisfactory use in similar service are acceptable. (Time spent as non-manufacturing private label re-seller shall be excluded.) Upon request, suppliers or manufacturers shall provide a list of not less than three customer references showing satisfactory operation.

#### 1.4 WARRANTY

Manufacturer shall provide a product warranty for a period of not less than 10 years. Warranty shall include free unlimited replacement within the 10-year period.

#### 1.5 SUBMITTALS

For brand names other than specified, submit manufacturer's qualifications:

- A. Prior to purchase of the suppression unit(s), catalog cuts and/or mechanical drawings shall be submitted for approval.
- B. Submittals shall contain the required published specifications and drawings to show conformance with all portions of this specification.

- C. Instructions for installation and connection shall be provided with the suppression unit(s).
- D. All Let - Through voltage data will be measured on an "As installed" lead length basis, simulating actual installation. At the module or at the bus "Zero lead length" data is not acceptable. Testing will be conducted in accordance with UL-1449, ANSI/IEEE C62.41-1991 and ANSI/IEEE C62.45-1992 standards. No testing will be done with "outside of the suppresser" lead lengths less than that specified for the product(s) specified in paragraph 4.0. The lead length parameter must be specified on test documentation.

## PART 2 - PRODUCTS

### 2.1 APPROVED MANUFACTURER:

Innovative Technology, Inc.,  
15470 Flight Path Drive  
Brooksville FL USA 34609  
Telephone: 1-800-647-8877

### 2.2 MATERIALS/CONSTRUCTION

- A. The circuit configuration of the suppression units shall be thermal stress reducing, custom parallel, and solid state.
- B. All modes shall be protected, i.e. Normal (L-L, L-N) and Common (N-G, L-G).
  - 1. The suppressers shall conform in performance and design as described in Section 4 of this specification.
  - 2. No suppression units shall be supplied which require scheduled preventive maintenance or replacement parts (lights, fuses and relays, where applicable, excluded). Units requiring functional testing, special test equipment, or special training to monitor TVSS status are not acceptable.
  - 3. The suppression circuits shall be totally encapsulated by the suppresser manufacturer in a thermally conductive chemical compound to enhance transient energy dissipation, provide hermetic sealing, provide superior dielectric strength, superior protection against mechanical shock and vibration, protection against environmental factors including gases, industrial fumes, humidity, and enhanced thermal stability, reduction of hot spots, and protection against thermal shock. Suppresser manufacturer shall have ten years continuous experience encapsulating suppressers.
  - 4. The manufacturer shall certify that all materials and processes used as a component of the suppression unit(s) and/or used in the process of manufacturing and/or packaging of the suppression unit(s) are in accordance with The Federal Clean Air Act Amendments of 1990, Sections 602 and 611, prohibiting the use of Class I or Class II ozone depleting chemicals.
  - 5. Each unit shall contain a light on the outside of the unit to show the unit is operating properly.

### 2.3 TRANSIENT VOLTAGE SURGE SUPPRESSION SYSTEM COMPONENT REQUIREMENTS

The transient voltage surge suppression units shall be provided with characteristics as described in Section 4 of this specification.

480 volt wye Lift Station service entrances less than 800 amps. Use Innovative Technology, Model P-3Y 277/480 +, or approved equal.

### 2.4 PROTECTION OF TELEPHONE LINE.

Use innovative Technology, Model ITC-RJ1 1-95 or approved equal.

### 2.5 INDIVIDUAL PRODUCT REQUIREMENTS

Each individual product provided shall fully comply with all requirements shown for that size and type of TVSS unit.

- A. 480 volt wyes Lift Station service entrances less than 800 amps. Use Innovative Technology, Model P-3Y 277/480 + or equal.
  - 1. Application: 3 phase, Wyes 277/480 Vrms, 4 wire + ground

2. Maximum Operating Voltage: 320 Vrms (452 Vpk) L-N, L-G, N-G 640 Vrms (905 Vpk) L-L
3. Input Power Frequency: 50, 60, 420 Hz
4. Peak Surge Current: 136,500 Amperes Total (8 X 20 s Waveform, Single Impulse) 39,000 Amperes per Phase; 19,500 N-G
5. Energy: 3,360 Joules Total  
(10 X 1000 S Waveform, Single Impulse) 960 Joules per Phase; 480 Joules
6. EMI/RFI Filter Noise Rejection up to 38 dB Normal Mode; 34 dB Common Mode
7. Response time:  $\leq$  1 nanosecond
8. Protection - AM Modes: Normal Mode (L-N, L-L); Common Mode (L-G, N-G) Bi-directional, Positive and Negative Impulse Protection
9. Let - Through Voltage:  
Phase Angle Test Environment: Dynamic at 90° (D) or Static (S), Positive Polarity, All voltages are peak ( $\pm 10\%$ ), Time base = 1ms. Voltages are measured from the sine wave to the positive peak of the surge.

Test Mode	Cat B3/C1 Impulse 6,000V 3,000A 90°	Cat C3 Impulse 20,000V 10,000A Static
L-N	600 (D)	1,500
L-G	610 (D)	1,600
N-G	950 (S)	1,600
L-L	1,700 (S)	2,400

Note: Testing shall be done in accordance with ANSI/IEEE C62.41-1991 on the complete suppression unit with lead length comparable to that needed to connect the TVSS to the device to be protected. Lead length is defined as the length between the TVSS device enclosure exterior to the connection point. Typical lead length is 6". The lead length parameter must be specified on test documentation and shall not be less than 6", simulating typical installation.

10. Design: Suppressor to be fully encapsulated in thermally conductive material and shall consist of custom parallel circuitry.
  11. Listing/Certification: The entire unit shall bear UL 1449, C-UL listing and CSA certification. Listing of modules, sub-assemblies or components is not acceptable.
  12. Warranty: 10 years
  13. Size: Compact with dimensions no greater than 5" width X 8" height x 4" depth to allow close-to-the-load installation.
- B. Telephone line service surge protector. Use Innovative Technology Model ITC RJ11-95.
1. Application: Standard 3002 unconditioned voice grade phone line.
  2. Baud rate: 4800 bits/sec (throughput of 9600 bits/sec and above with data compression)
  3. Peak Surge Current: 19500 amps (per pair)
  4. Energy: 135 joules (per pair)
  5. Response time:  $\leq$  1 nanosecond
  6. Capacitance:  $\approx$  2500pt Line to Line, Line to Ground
  7. All Mode Protection: Normal/Transverse tip to ring; Common/Longitudinal tip and ring to ground.
  8. Circuit Design: Thermal Stress Reducing, Custom Parallel Design
  9. Warranty: Five Years

10.

<b>LET THROUGH VOLTAGE</b> using AMSI/IEEE C62.41-1991 and C62.45-1987 Test Environment: Static Test, Positive Polarity. <b>ALL VOLTAGES ARE PEAK</b>		
<b>Category B Implus</b>		
<b>Mode</b>	100V, 500A	000V, 3000A
L-L	250	350
L-G	250	350

11.

MODEL	No. of Pairs	Terminal Type	DIMENSIONS (INCHES)					WEIGHT
			A	B	C	D	E	
ITC-RJ11-95	1 (pins 2,3)	RJ-11	2	4	--	1.6	3.5	.5 lb.

**PART 3 - EXECUTION**

- A. The electrical contractor shall verify the proper application of the TVSS (i.e. voltage, phases, etc.) and coordinate with upstream and downstream transient suppression. The electrical contractor shall assure that all Neutral conductors are bonded to the system Ground at the service entrance or the serving isolation transformer prior to installation of the associated TVSS.
- B. The electrical contractor shall furnish all labor, materials, equipment and services necessary for and incidental to the installation of the TVSS system components as specified herein. Only Licensed Electricians shall actually install TVSS units.
- C. The electrical contractor shall install the transient voltage surge suppressers as indicated in manufacturer's installation instructions and in accordance with the applicable portions of NEC and in accordance with recognized industry practices to ensure that product complies with requirements. NEC, State, and Local Codes will prevail.
- D. **Coordination**  
Coordinate with other electrical work as necessary to interface installation of the transient voltage surge suppression systems with other work on the site.

**END OF SECTION**

## **SECTION 708 DISCONNECT SWITCHES**

### **PART 1 - GENERAL**

#### **1.1 SCOPE**

Furnish and install: disconnect switches as indicated on the Drawings and specified herein. All switches are to be NEMA Heavy Duty Type HD, fused or non-fused as shown on the drawings. U.L. label, and meeting Fed. Spec. WS 865c, and NEMA Standard KSI-1975.

#### **1.2 RELATED SPECIFICATIONS**

None

#### **1.3 SUBMITTALS**

Submit disconnect rating, enclosure material and NEMA rating. Contractor to provide catalog number of unit to be provided if it is the specified model listed. If alternative item is used complete data sheets showing ratings, sizes, etc. must be provided.

#### **1.4 ACCEPTABLE MANUFACTURERS**

Furnish units manufactured by General Electric, Siemens, Square D, Cutler Hammer or approved equal.

### **PART 2 - PRODUCTS**

#### **2.1 CONSTRUCTION**

All switches are to have switchblades, which are fully visible in the "OFF" position when the door is open. Switches are to be of dead-front construction with permanently attached arc suppressers hinged or otherwise attached to permit easy access of line-side tugs without removal of the arc suppresser. Lugs to be front removable and U.L. listed for copper cables. All current-carrying parts to be plated through electrolytic processes. Each switch to have a grounding lug for equipment ground wire connection rated for 75°C Copper.

Switches to have load break, quick-make and quick-break operating mechanism, and handles with provision for padlocking in either position, with at least three padlocks. The locking provisions shall be such that the padlock directly interferes with the operating handle and is fully visible. Switches shall have a dual cover interlock to prevent unauthorized opening of the switch door in an ON position or dosing of the switch mechanism with the door open.

#### **2.2 ENCLOSURES**

Switch enclosures to be NEMA 3R steel. Switch shall be pad-lockable in all positions.

#### **2.3 RATINGS**

Switches shall be horsepower rated for 250 Volts AC or DC or 600 Volts AC as required for their service. All switches shall meet the requirement and fuse ratings as shown on drawings.

#### **2.4 FUSES**

Fuses shall be equal to Bussman or Chase-Shawnut, or approved equal, dual element type. Size shall be as shown on drawings.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION**

Install switches at 4'-0" above the finished floor indoors and 3'-0" above finished grade outdoors, unless otherwise noted.

**END OF SECTION**

## SECTION 803 WOOD FRAME BUILDING

### PART 1 - GENERAL

#### 1.1 GENERAL

This item shall govern the work involved with construction of the building as shown on the plan sheets.

#### 1.2 SITE PREPARATION

The Contractor shall over-excavate building foundations a minimum of 3' -0", Scarify the exposed subgrade to a depth of 6", adjust moisture content between optimum and 3% above, and recompact to a minimum of 95% standard Proctor density. The over-excavation shall be filled with select material placed in loose layers not to exceed 9" and compacted to a minimum of 95% standard Proctor density, moisture shall be maintained at optimum +/- 2%. The Contractor will be responsible for obtaining the proper subgrade and finish floor elevations for furnishing, placing, and compacting the sand cushion; and for dressing and cleaning up required in the immediate building area.

### PART 2 - PRODUCTS

#### 2.1 CONCRETE

Concrete work and reinforcing steel shall meet the requirements of all applicable Concrete Specifications as may be included in this book or as shown on the plan sheets and the requirements below:

1. Concrete Finishes (Floor Finishes): As soon as the forms are removed, all undesired fins and other projections shall be removed, offsets leveled, and voids or damaged places immediately saturated with water and repaired with mortar of the same composition as used in the surface. All exposed surfaces shall be rubbed to a smooth and uniform texture and color.
2. All floor finishes, unless otherwise specified, shall be monolithic that is finished at the time of pouring of the slab. For those areas requiring a monolithic finish, immediately after being screened to the proper elevation, it shall be wood floated to a true plane with no coarse aggregate visible. Sufficient pressure with no coarse aggregate visible. Sufficient pressure should be applied to the wood floats to bring moisture to the surface. The concrete shall then be hand troweled to produce a ringing sound of the trowel. Floors to receive a brush finish shall be finished as specified above except that the second troweling may be omitted.
3. Curing and Sealing: Concrete shall be protected against frost and rapid drying for the periods of time required in Concrete Specifications.
4. Curing may be by use of an approved curing compound, curing paper, or other methods receiving prior approval of the Engineer.

#### 2.2 FIBER-CEMENT SIDING

Fiber-Cement Siding is composed of cement, sand, and cellulose fiber that has been autoclaved (cured with pressurized steam) to increase its strength and dimensional stability. The fiber is added as reinforcement to prevent cracking. The planks come in 5¼" to 12" widths and 5/16" and 7/16" thickness is composed of cement, sand, and cellulose fiber that has been autoclaved (cured with pressurized steam) to increase its strength and dimensional stability. The fiber is added as reinforcement to prevent cracking.

### PART 3 - EXECUTION

#### 3.1 STRUCTURAL FRAMING:

Furnish and install structural framing in accordance with the specifications and applicable drawings.

- a. Framing shall be wood with vertical studs on standard 16" centers. Base plates shall be treated lumber and secured to concrete with 1/4" anchor bolts.
- b. Exterior wall  
Furnish and install 7/16" fiber cement siding over exterior wall sheathing with an appropriate weather-resistant barrier (WRB), using galvanized nails or screws that penetrate into wall studs. Exterior paint shall be washable and color approved by OWNER/ENGINEER
- c. Interior dry wall  
Furnish and install ½" sheet-rock on walls and ceilings. All joints shall tape and bedded to smooth even finish. Walls and ceilings shall be spray textured and trowel flattened to uniform

pattern. Interior paint shall be washable and color approved by OWNER/ENGINEER.

d. All framing shall be approved by the OWNER/ENGINEER.

### 3.2 WATERPROOFING, PROOFING, and CAULKING

The work required under this section consists of waterproofing, damp proofing and caulking and related items necessary to complete the work indicated on the drawings and described in specification.

#### 1. General Requirements

- a.. Proper Surfaces: Surfaces to which materials under this section are to be applied shall be even, smooth, sound, thoroughly clean, dry, and free of defects that might affect the application.
- b. Work shall be performed by experienced mechanics skilled in execution of type of work required in application of specific materials.
- c. Deliver materials to job site in manufacturer's original, unopened containers with manufacturer's name and brand clearly marked thereon.

#### 2. Caulking

- a. Material shall be gun-grade, oil based caulking compound conforming to Fed. Spec. TT-C-5986. Equivalent to Tremco Caulking Compound. DAP gun grade caulking compound.
- b. Caulk joints masonry-to-wood, masonry-to-metal, around all windows and exterior door frames, metal thresholds, where noted on the drawings and elsewhere at interior and exterior locations to make a complete job free of open joints. Back-up material shall be dry oakum.
- c. Remove excess caulking material from surfaces adjacent to joint.

### 3.3 VAPOR BARRIER UNDER SLAB:

On top of all grades established under the buildings as pads lay .006inch thick polyethylene film. Lap joints 6 inches and seal with tape or mastic. Film shall be factory fabricated into large sheets. Stretch and weight sheets until sealed together.

### 3.4 METAL DOORS and FRAMES:

Furnishing and installing the metal doors and frames specified in accordance with the specifications and the applicable drawings

#### 1. Metal Frames:

- a. All metal door frames to have four (4) jamb anchors per jamb.
- b. Frames shall be full mortised for butts and mortised for lock set. Bolts may be screwed or welded to frame. If welded, grind all welds smooth. All frames shall be free from dirt and oil.
- c. Metal frames to be of the size and shape as detailed on the plan sheets, equal to Amweld or an approved equal. Unless otherwise noted, all frames shall be 16 GA.
- d. All frames shall be approved by OWNER/ENGINEER.

#### 2. Metal Doors:

- a. Doors shall be hollow metal of size and design as shown on the plan sheets.
- b. All doors shall be 16 GA. Cold-rolled steel.
- c. All metal doors on this project shall be furnished with wire reinforced glass, kick-plates, closers, thresholds, weather-stripping, and door holders.
- d. All doors shall be approved by OWNER/ENGINEER.

### 3.5 HARDWARE:

1. Furnish and install all builder's hardware including door-closers, thresholds, weather-stripping, and kick plates necessary to make a complete installation.
2. All hardware shall be approved by the OWNER/ENGINEER.

### 3.6 EXTERIOR LIGHTING:

1. Furnish and install UL Listed exterior surface mount high-pressure sodium lights with photoelectric cells for automatic operation in accordance with the specifications and the applicable drawings.
2. All lighting fixtures shall be approved by the OWNER/ENGINEER.

### 3.7 INTERIOR LIGHTING:

1. Furnish and install UL Listed surface mount 4 ft. 4 bulb fluorescent light fixtures with 100% acrylic non-yellowing smooth white diffusers in accordance with the specifications and the applicable drawings. Fixtures shall be pre-wired with HPF energy saving ballast that meet

federal efficiency standards. Housing shall be white enamel paint color. Install 4 energy efficient GE or equivalent bulbs per fixture.

2. All lighting fixtures shall be approved by the OWNER/ENGINEER.

3.8 INSULATION:

- a. Furnish and install insulation in accordance with the specifications and applicable drawings and local city and county code.
- b. Exterior wall will be filled with expanded Polystyrene Masonry Fill Insulation. Insulation shall be installed in accordance with manufacturer's specifications. Material shall be closed cell, low-density insulation material composed of non-communicating cells. Fill insulation shall be free flowing, pourable, and water resistant. Insulation shall provide thermal conductivity (k value at 75F) of .34. Ceiling will be insulated with batt insulation if applicable. The following manufacturer's products or equivalent shall be used: Owens-Corning, U.S. Gypsum, or Johns-Manfield. Insulation shall be installed in accordance with manufacturer's specifications. Glass or other inorganic fibers and resinous binders formed into flexible blankets having density not less than 1.5 lbs. per cu. ft., thermal conductivity (k-value at 75 F.) of 0.27, paper faced vapor barrier laminated to one face with 1" flanges on long edges. Flame spread not greater than 25 when tested under ASTM E-84. Thickness as required to obtain a rating of R30.
- c. All insulation shall be approved by the OWNER/ENGINEER.

3.9 ALUMINUM WINDOWS:

- a. Furnish and install insulated single hung aluminum windows in accordance with the specifications and applicable drawings. Windows shall be installed according to manufacturer's specifications. H&R Series 300 or equivalent windows shall be required. Windows must meet rating of NFRC 100-99-073-024 or better and must be approved by ANSI AAMA 101-93 standard. Windows must be caulked using silicone paintable lifetime rated caulk around the perimeter after installation. Caulk shall be applied only when temperature is above 40F and dry.
- b. All windows shall be approved by the OWNER/ENGINEER.

3.10 HVAC:

Furnish and install thermostatic controlled, thru wall mounted heating and air conditioning unit as indicated on plan sheets.

3.11 ROOFING:

Furnish and install roofing in accordance with the specifications and applicable drawings.

1. Pre Engineered Metal Roof

Pre Engineered Metal Roof as specified on the plan sheets

2. All material shall be approved by the OWNER/ENGINEER

3.12 GUTTERS AND DOWNSPOUTS

If required, furnish and gutters and downspouts in accordance with the specifications and applicable drawings.

- a. Material shall be .032 thick baked enamel finish sheet aluminum 6" wide in color as selected by OWNER/ENGINEER. Space gutter hangers and braces not more than 36" apart, and secure with screws, bolts, are approved clips. Slope gutters to drain 1" per 20 Ft. Provide six 3" downspouts with concrete splash blocks.
- b. All hardware shall be approved by the OWNER/ENGINEER.

END OF SECTION

## SECTION 811 R-PANEL ROOF

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes steel roof components.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Miscellaneous Bracing Angles, Column Base Plates, Plates, Connection Angles, Stiffener Plates or Angles and Other Miscellaneous Metal: ASTM A 36.
- B. Structural Tubing: ASTM A 500, Grade B.
- C. Bolts, Nuts, and Washers: ASTM A 325 bolts, ASTM A 563 nuts, where indicated bolts to be galvanized in accordance with ASTM A 153.
- D. Anchor Bolts: ASTM A 36.

#### 2.2 FABRICATION

- A. Fabrication to be in accordance with the applicable provisions of AISC Code of Standard Practice. Shop fabricate and assemble to the greatest extent possible. The fabricating plant to be certified under the AISC quality certification program for Category I structural steelwork.
- B. Fabricate connections for bolt, nut, and washer connectors.
- C. Develop required camber for members.

#### 2.3 FINISH

- A. Prepare structural component surfaces in accordance with SSPC SP 3.

### PART 3 - EXECUTION

#### 3.1 ERECTION

- A. Allow for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in true alignment until completion of erection and installation of permanent bracing. Provide design and installation of any required temporary bracing or shoring.

#### 3.4 STEEL BUILDING

**Structural Design:** All structural steel sections and welded plate members shall be designed in accordance with the latest edition of the AISC "Specifications for the Design, Fabrication, and Erection of Steel for Buildings".

All light gage cold formed, structural members and exterior covering shall be designed in accordance with the latest edition of the AISI, "Specifications for the Design of Light Gage Cold-Formed Steel Structural Members".

**Design Criteria:** The roof dead load shall be assumed to be distributed uniformly over the entire roof area.

The roof live load shall be considered to act vertically upon the horizontal projection of the roof.

**Roof and Wall Covering:**

1. Roof covering shall be 24 gage baked enamel steel ribbed panels.

**Panel Materials:** Material for galvanized steel panels shall be formed from that coiled sheet with a minimum yield strength of 55,000 psi and shall be hot dipped galvanized with 1.25 oz. commercial class zinc coating.

**Panel Configuration:** The metal panels shall have 1 1/4 inch deep ribs tapering in width from 1" to 3 5/16" spaced 12" on centers. The flat width between major ribs shall be broken up with two minor ribs. Each panel has a 36" wide net coverage.

**Fasteners:** All self-tapping sheet metal screws shall be No. 14 type "A" with steel backed neoprene washers.

**Finishes:** Color coated screws and washers are to be used with color coated panels.

**Flashing, Closures, Soffits and Trim:** Flashings and/or trim shall be furnished at the rake, corners, and eaves; at framed openings, and wherever necessary to provide finished appearance.

A die formed ridge cap shall be formed to match roof slope and is of the same configuration as the roof panels.

Solid cell, preformed, rubber or neoprene closures matching the profile of the wall and roof panels shall be installed along eave and/or rake where required.

**Color Finish:** Roof panels, flashings, and trims are to be color coated. The manufacturer or supplier is to furnish a written guarantee covering chalking, fading, blistering, checking and peeling. The color is to be selected by the OWNER.

**END OF SECTION**

**SECTION 902  
CLOSE COUPLED END SUCTION HORIZONTAL PUMPS**

**PART 1 - GENERAL**

**1.1 SCOPE OF WORK**

Furnish and install close-coupled horizontal centrifugal type pumps where shown on the plans. Pump curves, horsepower requirements, shut off head, minimum efficiencies, and operating conditions are shown on the plans. Pumps shall be of "all iron" construction. Bronze impellers on fittings are not acceptable.

**PART 2 - PRODUCTS**

**2.1 ACCEPTABLE MANUFACTURES**

- Patterson
- Gould
- Peerless
- Aurora

Manufacturers listed are required to meet all specifications. Manufacturers other than those listed shall submit information adequate to show conformance with the specifications at least 10 calendar days prior to bidding.

**2.2 CASING**

Pumps with discharges 3" and larger shall have 125# ASA flanges. Pumps smaller than 3" discharge shall have NPT connections. Casing shall be cast iron.

**2.3 IMPELLER**

Impeller shall be cast iron statically and hydraulically balanced and keylocked to the shaft. Impeller shall be field removable.

**2.4 MECHANICAL SEAL**

Each pump is to be furnished with a mechanical seal with all metal parts to be stainless steel with Buna flexible members. Ni-Resist seat, and carbon washer. Seal shall be mounted over a stainless steel shaft sleeve.

**2.5 COUPLING**

Each pump shall be close coupled to the motor.

**PART 3 - EXECUTION**

**3.1 MOUNTING**

Install pumps where shown and mount to concrete pad by bolting pumping unit in place.

**3.2 PAINTING**

Pumps shall be factory painted.

**END OF SECTION**

**SECTION 909  
LEVEL SENSING DEVICES**

**PART 1 – SCOPE OF WORK**

The work covered under this section of the specifications shall include the furnishing of all equipment, sensors and devices for installation of level monitoring and control devices.

**PART 2 - ELECTRODES**

- A. General: Electrodes, holders, relays, and appurtenances shall be supplied by a single manufacturer
- B. Relays: Relays shall be double pole, double throw load contacts plug single pole, double throw holding circuit contacts.  
Contact ratings shall be 10 amperes at 120 volt or 240 volt AC or 28 volt DC. Contact shall be silver cadmium oxide.
- C. Electrodes: Shall be all 316 stainless steel construction. Solid rods shall be used generally on applications where electrodes are less than 5 feet in length. For applications more than 5 feet in length electrodes shall be shielded stainless steel wire with shield.  
Titanium Rods shall be used on Ferric Chloride applications.
- D. Flanges: Flange or screwed electrode fittings shall be used as indicated on the plans. Provide standards 125 pound ASA flanges to mate with companion flange.  
The fitting shall accommodate the number and type of electrodes required by the plans. Fittings shall be provided with all appropriate adaptors.  
All fittings shall be from cast iron; except for ferric chloride solutions which shall be PVC.
- E. Acceptable Manufacturers:
- (1) Warrick Company
  - (2) B/W Corporation

END OF SECTION

## SECTION 914 LIQUID CHLORINATION

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK

This specification governs the materials, equipment, manufacture, and installation of a liquid chlorination system.

#### 1.2 DRAWINGS AND SPECIFICATIONS

Construction shall be governed by the OWNER'S drawings and specifications showing general dimensions and construction details.

#### 1.3 SUBMITTALS

- A. This data shall include drawings and descriptive information in sufficient detail to show kind, material, and size, (i.e. catalog cut-sheets for all, items, appurtenances, etc.) and dimensions needed for installation and correlation with other materials and equipment. Information shall be submitted by specifications section. Data submitted shall include drawings showing essential details of any changes proposed by the CONTRACTOR with detailed layouts. If the cut-sheets contain information not pertaining to the supplied equipment, all extraneous information shall be clearly crossed out and pertinent information highlighted.
- B. No work shall be performed in connection with the fabrication or manufacture of materials and equipment nor shall any accessory or appurtenance be purchased until the drawings and data thereof have been approved by the ENGINEER and OWNER, except at the CONTRACTOR's own risk and responsibility.

### PART 2 – PRODUCT

#### 2.1 GENERAL

Chlorinator shall be self contained, factory fabricated, and ready to install. It shall be fully operational as an electric system, which shall be supplied by the contractor as part of the system. The chlorinator shall be manually adjustable to provide concentrations of chlorine in the treated water of 0-10 ppm under flows of 0-7 gpm, and shall automatically supply a constant concentration under varying flow conditions. The chlorinator shall be installed in the building shown on the drawings and specified herein. The disinfectant injection rate shall be proportional to the clarifier effluent discharge flow.

#### 2.2 ACCEPTABLE MANUFACTURERS

- LMI
- Or approved equal

#### 2.3 DESIGN

The metering pump design shall provide for conveying the disinfectant from the storage drum to the injector/back pressure check valve assembly. The metering pump shall be a positive displacement type pump that is UL approved. The pump drive shall be totally enclosed with no exposed moving parts. Solid state electronic pulser shall be fully encapsulated and supplied with quick connect terminals. Electronics shall be housed in chemical resistant enclosure at the rear of the pump for protection against chemical spillage. Output volume shall be adjustable while the pump is in operation from zero to maximum capacity of 7.0 GPH. The metering pump shall be capable, without a hydraulically backed diagram, of injecting solutions against pressures up to 30 psig.

#### 2.4 MATERIALS SPECIFICATION

The liquid metering system shall be comprised of the following: metering pump, pulse rate and stroke, foot valve, injection/back pressure check valve, tubing and a solution drum.

- A. Safety: The metering pump shall automatically stop pulsating when discharge pressure exceeds pump pressure by not more than 35%.
- B. Accuracy: The system shall maintain the liquid feed within 4% of the original setting.
- C. Metering Pump: The pump housing shall be of chemically resistant thermoplastic. All exposed fasteners shall be stainless steel. The valves shall be ball type. Valve seat and seal ring shall be

renewable by replacing the seat-seal ring or valve assembly. Pump head shall be of transparent material capable of resisted the pumped chlorine. Fittings and connections at the pump head shall be PVC or stainless steel. Each vacuum regulator shall mount directly on the gas valve by means of a positive yoke type, gasket connection. Vacuum shall be controlled by a spring opposed diaphragm regulator which shall close tight upon loss of vacuum. Each regulator shall be equipped with a gravity actuated loss of gas indicator.

- D. Pulserate and Stroke: The pulse rate shall be selectable by a 3-position switch as to internal-off-external. Stroke length shall be adjustable by means of a readily accessible dial knob.
- E. Footvalve: The footvalve shall be one piece with an integral strainer.
- F. Injector/back pressure check valve: The injection check valve shall incorporation a dilating orifice which prohibits scale formation and accumulation of crystalline deposits.
- G. Tubing: The tubing shall be polyethylene with compression connections.
- H. Solution Drum: The drum shall be a polyethylene solution drum with a fiberglass cover, a recessed area for setting the metering pump, and a capped opening for refilling the solution tank without removing the cover
- I. Power: Power supply to the drip leg heater shall be 120 Volt A.C., 60 hertz single phase. Power consumption shall not exceed 30 watts.

### PART 3 - EXECUTION

#### 3.1 LIQUID CHLORINATION INSTALLATION

The CONTRACTOR shall install a complete and operable system. These plans and specifications call for certain essential elements which shall be supplied together with such other devices and components that are necessary for a safe and ready-to-use system completed to a first-rate standard. The CONTRACTOR shall supply 2 full 55 gallon drums of liquid chlorine solution with both housed in the chlorine building.

#### 3.2 OPERATION

The disinfectant pulse rate shall be proportional to the clarifier effluent discharge flow to produce the required permitted chlorine residual.

#### 3.3 FLOW RATE ADJUSTMENT

Flow rate is adjustable by means of a pulse rate, 3-position switch – internal-off-external, and a stroke length knob. The stroke length meters the amount of disinfectant to be injected. The stroke frequency determines the rate of which the disinfectant is injected.

#### 3.4 TESTING

The CONTRACTOR shall test the chlorination equipment to assure that it is adjusted and operating properly and the chlorine contact chamber effluent discharge chlorine residual meets the permitted requirements.

END OF SECTION

## **SECTION 1002 TRENCH EXCAVATION SAFETY SYSTEMS**

### **PART 1 - GENERAL**

#### **1.1 SCOPE OF WORK**

This item governs trench excavation safety systems to be used in conjunction with the installation of utility lines and underground structures. Trench excavation safety systems shall be employed to protect personnel in an excavation from cave-ins, except when excavations are made entirely in stable rock, or when excavations are less than five (5) feet in depth and examination of the ground by a competent person provides no indications of a potential cave-in.

### **PART 2 – PRODUCTS**

#### **2.1 DESCRIPTION**

- A. CONTRACTOR shall develop, design, and implement the trench excavation safety system, and shall bear the sole responsibility for the adequacy of the trench excavation safety system and providing “a safe place to work” for the workman.
- B. Trench excavation safety protection system shall be as prescribed in the current Occupational Safety and Health Standards — Excavations (29 CFR Part 1926, Subpart P). This shall be the minimum governing requirement of the item, and is hereby made a part of this item.
- C. There are no special shoring requirements of the OWNER that are over and above the requirements as prescribed in the current Occupational Safety and Health Standards — Excavations (29 CFR Part 1926, Subpart P).
- D. CONTRACTOR shall, in addition, comply with all other applicable federal, state and local rules, regulations, and ordinances.
- E. CONTRACTOR shall indemnify and hold harmless the OWNER, its employees and agents, from any and all damages, costs (including, without limitation, legal fees, court costs, and the cost of investigation), judgments or claims by anyone for injury or death of persons resulting from the collapse or failure of trenches or excavations constructed under this Contract.
- F. A copy of the geotechnical information obtained by the OWNER for use on the Project is included with the Contract Documents, if information was developed.

### **PART 3 – EXECUTION**

#### **3.1 MEASUREMENT**

Measurement trench excavation safety system as per applicable bid item.

**END OF SECTION**

## SECTION 1102 WATER WELL PUMP

### PART 1 GENERAL

#### 1.1 SCOPE:

This specification governs the removal, repair and reinstallation of one (1) submersible turbine pump. The existing pump and motor, pipe column, and power cable shall be re-used. A new motor starter, well seal, well vent, water level monitoring apparatus, well disinfection, and all other services, appurtenances, and accessories necessary to complete the repair of the pump as shown on the plans. The installation shall be compatible with ANSI/AWWA E101.

### PART 2 - PRODUCTS

#### 2.1 PUMP Performance Specifications:

A. Pump Selection: The existing well pump and motor shall be pulled and re-used on this project.

#### 2.4 MOTOR STARTER:

The motor starter shall meet the specifications of the manufacturer of the pump motor provided. It shall conform to the design, construction, and performance requirements of NEMA and shall be totally enclosed in a NEMA 1 enclosure. It shall have a rating equal to or in excess of the motor controlled and shall provide thermal over load protection in all phases. Heater elements or relays shall be rated specifically for the motor controlled and shall be of the manual reset type. The starter shall be of the reduced-voltage "soft start" type and the "ramp up" time must be such that the motor receives full voltage within two seconds maximum to prevent excessive radial and thrust bearing wear. The starter also shall be provided with a 3-position selector for "Manual-Off-Automatic" operation, fully compatible and operational with the motor overload protection system and the maximum allowable cable length.

#### 2.5 MOTOR SUBMONITOR:

Contractor shall install a SubMonitor motor overload protection system with ambient-compensation and quick-trip overload protection on all three motor lines. The overload protector must trip within 3 seconds of motor stall to protect the motor's windings.

### PART 3 - EXECUTION

#### 3.1 SUBMERSIBLE CABLE:

A. The existing power cable shall be re-used.

#### 3.2 DISCHARGE PIPE COLUMN:

The discharge pipe column shall be re-used. Discharge column shall be equipped with new check valves for each 300 feet of column. Discharge column check valves shall be ANSI Class 250 or ANSI Class 300. Check valve shall be equal to APCO Series 900 Double Door check valve. Check valve connecting pieces shall be designed to transmit pipe loads past the valve.

#### 3.3 SANITARY WELL SEAL:

A split case sanitary well seal with a rubberized compression joint shall be utilized as a surface plate. It shall be strong enough to support the entire weight of the pump assembly when filled with water. It shall provide suitable openings for the power cable, well vent, pump discharge pipe, and water level indicator, and still maintain a water tight seal.

#### 3.4 DEPTH GAUGE:

A water level depth gauge shall be installed consisting of a 1/4 inch copper or 1/4 inch black polyethylene pipe inserted into the well casing and extending to the top of the pump. The pipe shall be provided with a metal tag at the surface on which is stamped the exact length of pipe. There shall be furnished the necessary fittings, altitude gauge calibrated in feet of water, check valve, and air pump connections to permit measuring the water level in the well under all conditions.

#### 3.5 DISCHARGE PIPING AND ACCESSORIES:

- A. The CONTRACTOR shall furnish and install the discharge piping as shown on the plans.
- B. The gate valves shall be flanged cast iron resilient wedge with a hand wheel and shall conform to AWWA standards.

C. The check valve at the well head shall be swing check valve conforming to AWWA C508 and shall be rated for 175 psig working pressure.

D. The cable junction box shall be rated for NEMA Type 3.

**3.6 DISINFECTION:**

The pump assembly, discharge pipe column, cable, depth gauge apparatus and other accessories and appurtenances installed inside the well casing shall be thoroughly cleaned of all foreign substances. Surfaces shall be thoroughly cleaned to remove oil, grease, and joint dope.

Following installation of the pump assembly, a chlorine solution of such volume and strength to obtain a concentration of at least 50 mg/l in all parts of the well, shall be introduced into the well. The chlorine solution shall remain in the well for at least 2 hours.

**3.7 WATER SAMPLES:**

A. Bacteriological: After the disinfection procedure has been completed, the CONTRACTOR shall collect samples according to procedures recommended by the 13th Edition of *Standard Methods for the Examination of Water and Wastewater* and arrange for bacteriological analysis of the samples at a laboratory approved by the Texas Department of Health. Samples shall be collected daily until 3 successive samples are free of coliform organisms. If coliform organisms are found in the samples, the ENGINEER may direct that the disinfection procedure be repeated and the sampling be repeated until the sample analyses indicate that the well is free from coliform organisms.

**3.8 PERFORMANCE TEST:**

After the pumping unit has been installed in the well, a performance test shall be made to demonstrate that the pumps have been properly installed, and that they will meet the requirements of these specifications. The CONTRACTOR shall furnish all electricity, equipment, tools, personnel and supervision required to conduct the test, including an orifice with a manometer, ammeter, volt meter and tachometer. The test shall be conducted over the full range of operating conditions specified for a continuous period of 2 hours. Throughout the test, the motor and pump shall run smoothly without vibration or heating; otherwise the test shall be stopped and not undertaken again until the cause of the vibration or heating has been corrected.

**3.9 GUARANTEE:**

The CONTRACTOR shall guarantee the pump, motor, accessories, and appurtenances against defective materials and workmanship for a period of 1 year following acceptance by the OWNER and shall make good any defects that may develop during this period without cost to the OWNER. The CONTRACTOR shall guarantee the pumping equipment to meet the performance requirements of these specifications.

**3.10 RECORDS AND LOGS:**

On completion of the work, the CONTRACTOR shall furnish the OWNER and ENGINEER with complete, bound records of the well and equipment, including laboratory analysis of the water, pump and motor repair parts lists, and record of pumping tests.

**3.11 MEASUREMENT AND PAYMENT:**

The well pump and motor repair will be compensated at the lump sum price bid as indicated on the Bid Form.

END OF SECTION

# **SAMPLE FORMS**



# Progress Estimate

# Contractor's Application

For (contract):		Application Number:						
TBD		1						
Application Period:		Application Date:						
TBD through TBD		TBD						
Specification Section No.	A Item Description	B		C		E	F	G
		Scheduled Value	Work Completed From Previous Application (C + D)	Work Completed This Period	Materials Presently Stored (not in C or D)			
1	#1 - TBD	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Totals</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Contractor's Application

# Stored Material Summary

For (Contract): TBD		Application Number: 1							
Application Period: TBD through TBD		Application Date: TBD							
A	B	C	D		E		F		G
Invoice	Bid Item or Drawing	Materials Description	Date (Month/Year)	Amount (\$)	Stored this Application Amount (\$)	Subtotal	Date (Month/Year)	Amount (\$)	Materials Remaining in Storage (\$ (D + E - F))
TBD	TBD	TBD	TBD	0.00	0.00	0.00		0.00	0.00
<b>Totals</b>				0.00	0.00	0.00		0.00	0.00

# Certificate of Substantial Completion

Project:	Owner:	Owner's Contract No.:
Contract:	Date of Contract:	
Contractor:	Engineer's Project No.:	

**This [tentative] [definitive] Certificate of Substantial Completion applies to:**

- All Work under the Contract Documents:
  The following specified portions:

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\_\_\_\_\_  
Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [revised tentative] [definitive] list of items to be completed or corrected, is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

**The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:**

- Amended Responsibilities
  Not Amended

Owner's Amended Responsibilities:

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Contractor's Amended Responsibilities:

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The following documents are attached to and made part of this Certificate:

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This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Executed by Engineer	Date
Accepted by Contractor	Date
Accepted by Owner	Date

# Change Order

**Number:**

Date of Issuance:		Effective Date:	
Project: Construction of an FM 2946 Raw Water Intake Structure and Control Building		Owner: Bright Star-Salem Special Utility District	Owner's Contract Number:
Contract:		Date of Contract:	
Contractor:		Engineer's Project Number:	
<b>The Contract Documents are modified as follows upon execution of this Change Order:</b>			
Description:			
Attachments: (List documents supporting change):			
<b>Change in Contract Price:</b>		<b>Change in Contract Times</b>	
Original Contract Price: \$		Original contract times: [working] [calendar] days Substantial completion (days or date): Ready for final payment (days or date):	
[Increase][Decrease] from previously approved change orders No. to No. \$		[Increase][Decrease] from previously approved change orders No. to No. Substantial completion (days): Ready for final payment (days or date):	
Contract price prior to this change order \$		Contract price prior to this change order Substantial completion (days or date): Ready for final payment (days or date):	
[Increase][Decrease] of this change order \$		[Increase][Decrease] of this change order Substantial completion (days or date): Ready for final payment (days or date):	
Contract price incorporating this change order \$		Contract times with all approved change orders: Substantial completion (days or date): Ready for final payment (days or date):	
RECOMMENDED:	ACCEPTED:		ACCEPTED:
By:	By:	By:	
Engineer (authorized signature)	Owner (authorized signature)	Contractor (authorized signature)	
Date:	Date:	Date:	
Approved by funding agency (if applicable):			Date:

# Change Order Instructions

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## A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

## B. COMPLETING THE CHANGE ORDER FORM

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.

**CONTRACTORS AFFIDAVIT**

The State of \_\_\_\_\_ Date \_\_\_\_\_

The County of \_\_\_\_\_

The City of \_\_\_\_\_

\_\_\_\_\_  
(Officer's Name Title) Of \_\_\_\_\_  
(Contractor's Name)

has furnished all labor and material entering into the \_\_\_\_\_  
\_\_\_\_\_ at \_\_\_\_\_  
(Kind of Work) (Name and Location of Plant or Work)

called for in contract(s) dated \_\_\_\_\_ with \_\_\_\_\_  
(Owner's Name)

\_\_\_\_\_ states further that he has full knowledge of all  
(Officer's Name)

obligations for such labor and materials which have entered into and become part of that certain project known and designated above, and he further disposes and says that all debts and other obligations for such labor and materials have been fully and completely paid for in good and lawful money of the United States of America and that there are no suits for damages against them proceeding, prospective or otherwise, in consequence of their operations on the above said project.

The said \_\_\_\_\_ will hold the Owners,  
\_\_\_\_\_, blameless of any and all Mechanic's Liens  
(Owner's Name)

that may be hereafter entered or filed for record. So as to constitute charge against said premises for work or labor done or materials furnished by them.

IN WITNESS WHEREOF, he has heretofore put his hand and seal.

\_\_\_\_\_  
(Officer's Name)

(Seal)

I, \_\_\_\_\_, Notary Public in and for the above named County and

State do hereby certify the \_\_\_\_\_ Personally known to me to be the affiant in the foregoing affidavit, personally appeared before me this day and, having been dully sworn, deposes and say that the facts set forth in the above affidavit are true and correct.

WITNESS my hand and seal this \_\_\_\_\_ day of \_\_\_\_\_, 2009

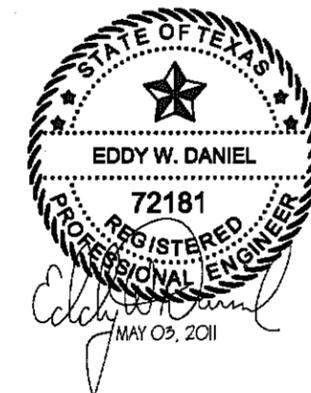
\_\_\_\_\_ My commission expires \_\_\_\_\_

# **LOCATION AND PLAN SHEETS**

# MYERS PARK PUMP STATION & GROUND STORAGE TANK PROJECT FOR COLLIN COUNTY, TEXAS MAY 2011



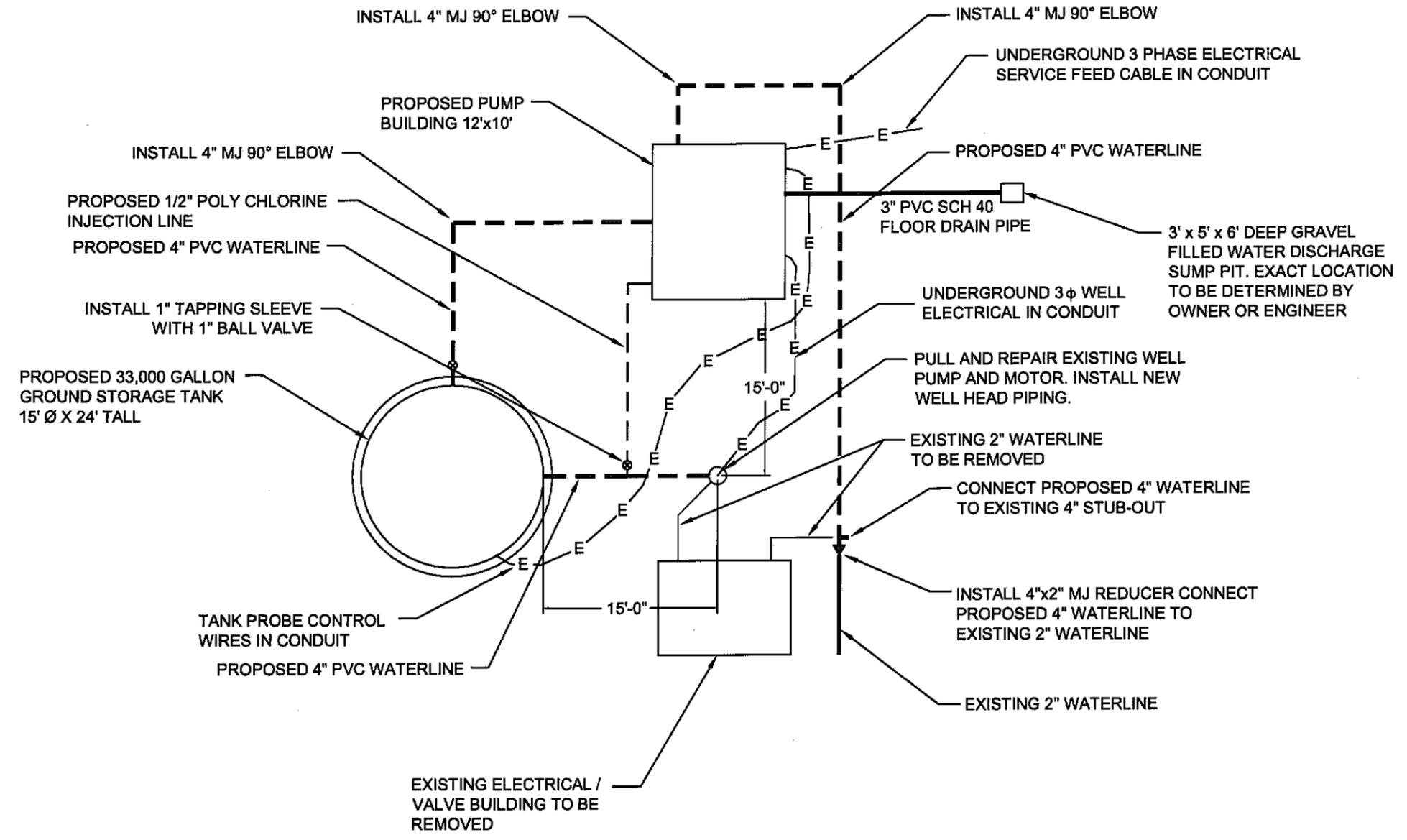
**DBI** DANIEL & BROWN INC.  
ENGINEERS/CONSULTANTS/PLANNERS  
118 McKinney St. Phone 972-784-7777  
P.O. Box 606 Fax 972-782-7721  
Farmersville, Texas 75442 www.DBIconultants.com  
Firm Registration No.: F-002225





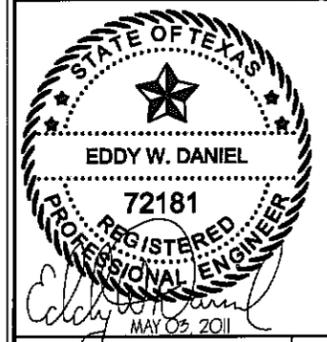
**GENERAL NOTES:**

1. ALL BURIED WATER LINE PIPE SHALL BE CLASS 200 PVC.
2. ALL WATER LINES SHALL BE BURIED WITH 36" COVER. (INCLUDING PIPES LAID IN DITCHES.)
3. ALL VALVES AND FITTINGS WILL BE PROPERLY BLOCKED AND RESTRAINED WITH MEGALUGS AND RETAINER GLANDS INSTALLED ON ALL FITTINGS.
4. CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND SIZE FOR ALL WATER LINES, THE LOCATION OF ALL ELECTRICAL UTILITY LINES, AND THE PRESENCE AND LOCATION OF ALL OTHER EXISTING UTILITIES IN THE AREA.
5. ALL FITTINGS ARE TO BE CAST IRON OR DUCTILE IRON.
6. CONTRACTOR SHALL FINISH GRADE TRENCH LINE TO MATCH EXISTING TERRAIN UPON PROPER SETTLEMENT.
7. NO COVERING OF LINES ALLOWED UNTIL INSPECTED BY OWNER'S APPOINTED REPRESENTATIVE.



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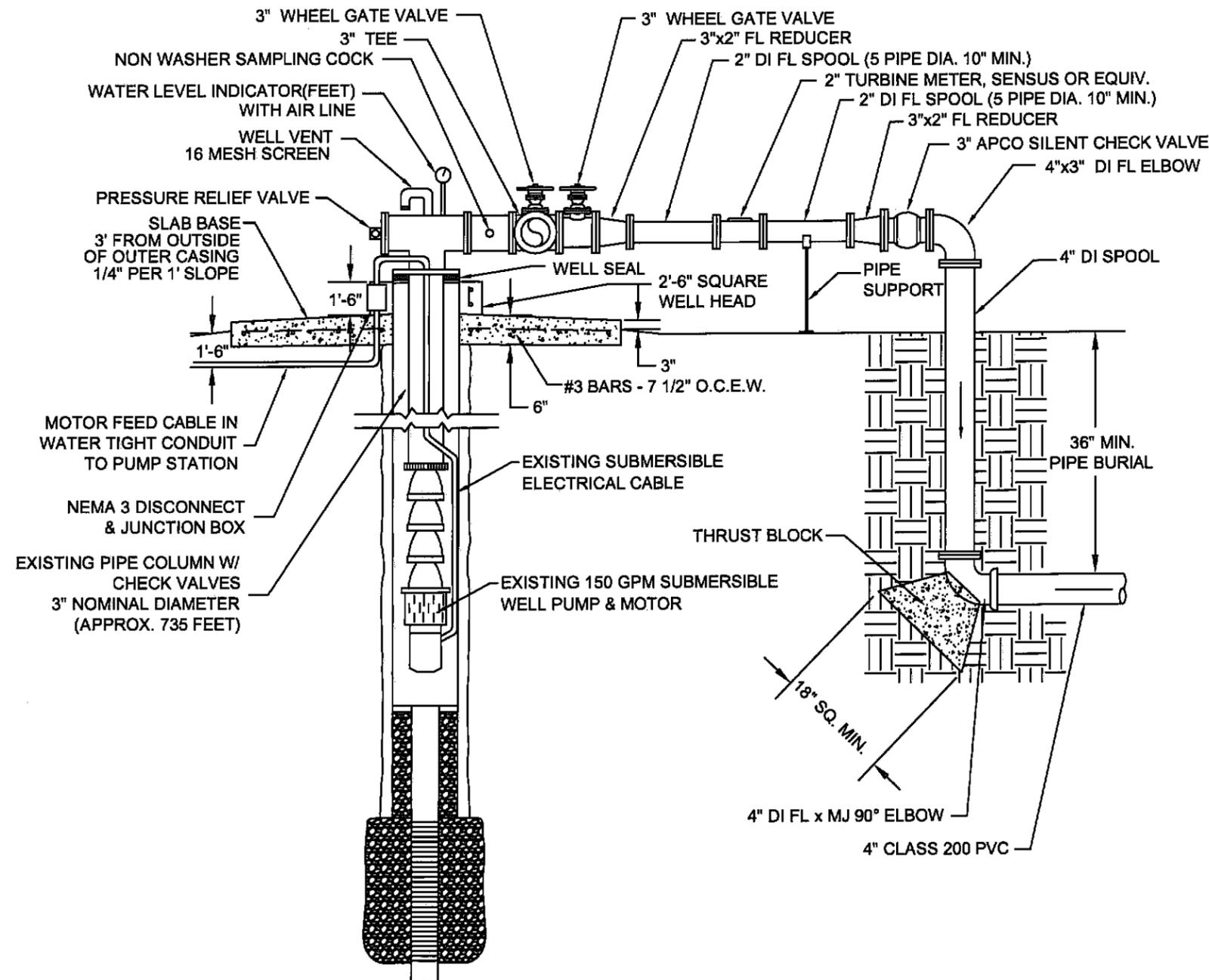


MYERS PARK PUMP BUILDING &  
 GROUND STORAGE TANK PROJECT  
 FOR  
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**SITE PLAN**

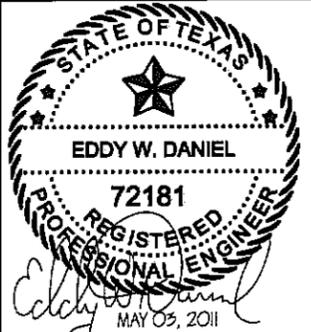
**GENERAL NOTES:**

1. EXISTING 150 GPM WELL PUMP AND MOTOR SHALL BE PULLED AND REPAIRED.
2. EXISTING WELL SUBMERSIBLE ELECTRICAL CABLE SHALL BE SALVAGED AND REINSTALLED WHEN WELL PUMP AND MOTOR ARE REPAIRED AND REINSTALLED.
3. EXISTING WELL COLUMN PIPE SHALL BE SALVAGED AND REINSTALLED WHEN WELL PUMP AND MOTOR ARE REPAIRED AND REINSTALLED.
4. ABOVE GROUND PIPING AND APPURTENANCES SHALL BE INSTALLED AS SHOWN, AFTER WELL PUMP IS REPAIRED AND REINSTALLED.
5. COVER EXTERIOR OF ALL EXPOSED PIPING AND FITTINGS WITH ALUMINUM BACKED INSULATION.
6. SPLASH BLOCK SHALL BE PROVIDED FOR WELL BLOW-OFF. SPLASH BLOCK SHALL BE SIZED TO ACCOMMODATE WELL BLOW-OFF AND PREVENT EROSION.



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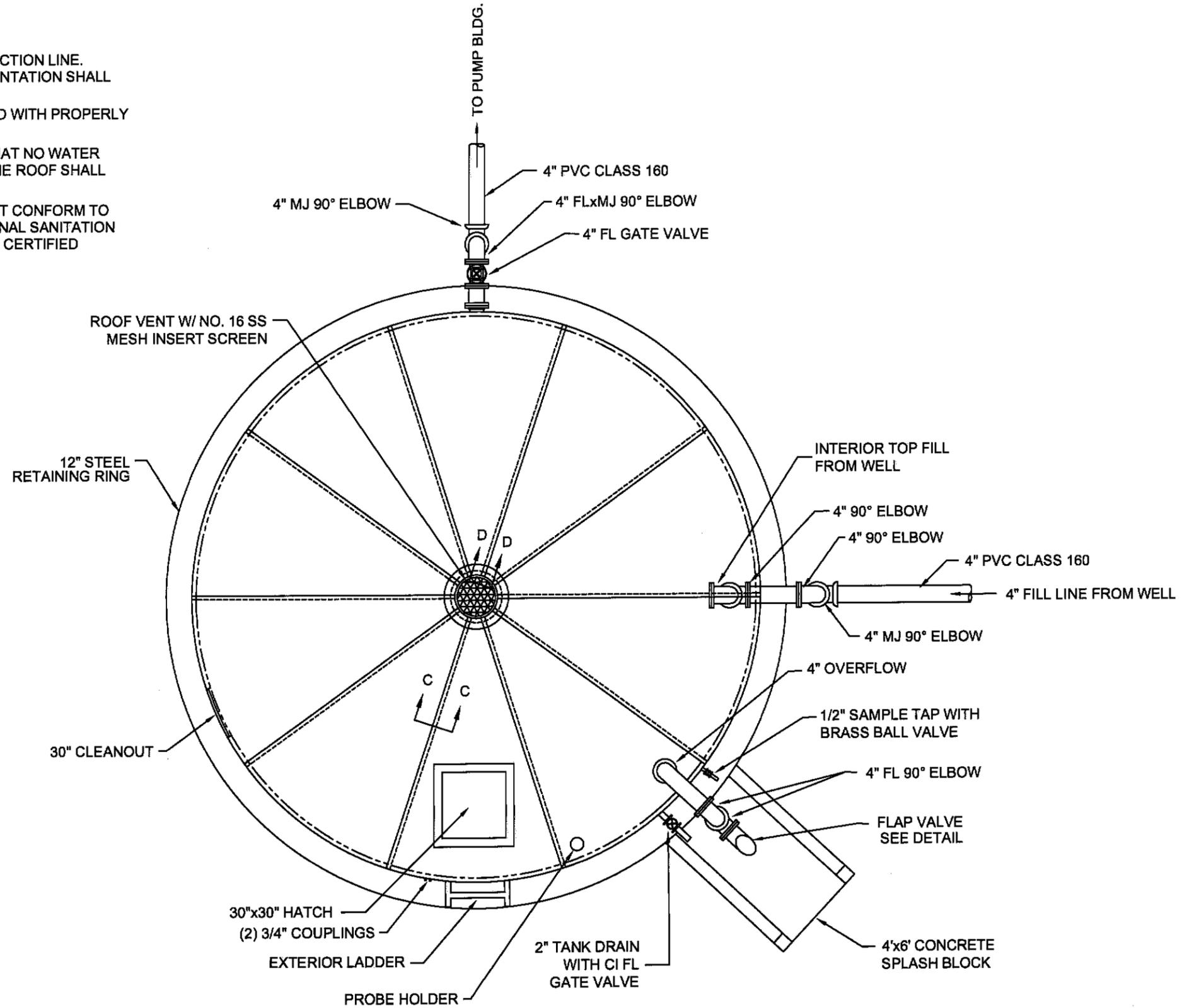


MYERS PARK PUMP BUILDING &  
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WELL HEAD PIPING DETAIL

**NOTES:**

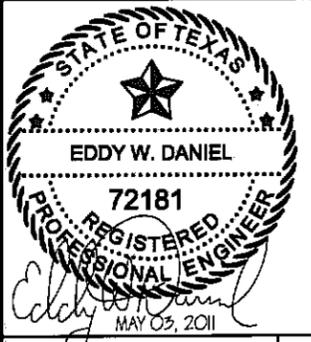
- 1) ALL TANK APPURTENANCES INCLUDING FILL LINE, SUCTION LINE, LEVEL GAUGE, LADDER, OVERFLOW AND DRAIN ORIENTATION SHALL BE VERIFIED BY THE ENGINEER.
- 2) ALL EXPOSED EXTERIOR PIPING SHALL BE INSULATED WITH PROPERLY SIZED PIPE INSULATION AND ALUMINUM SHEATING.
- 3) THE ROOF SHALL BE DESIGNED AND ERECTED SO THAT NO WATER PONDS AT ANY POINT ON THE ROOF. NO AREA OF THE ROOF SHALL HAVE A SLOPE OF LESS THAN 0.75 INCH PER FOOT.
- 4) ALL INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE / NATIONAL SANITATION FOUNDATION (ANSI/NSF) STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI.
- 5) EXTERIOR LADDER & CAGE REQUIRED.



**33,000 GALLON BOLTED GALVANIZED STEEL  
STORAGE TANK PLAN  
NOT TO SCALE**

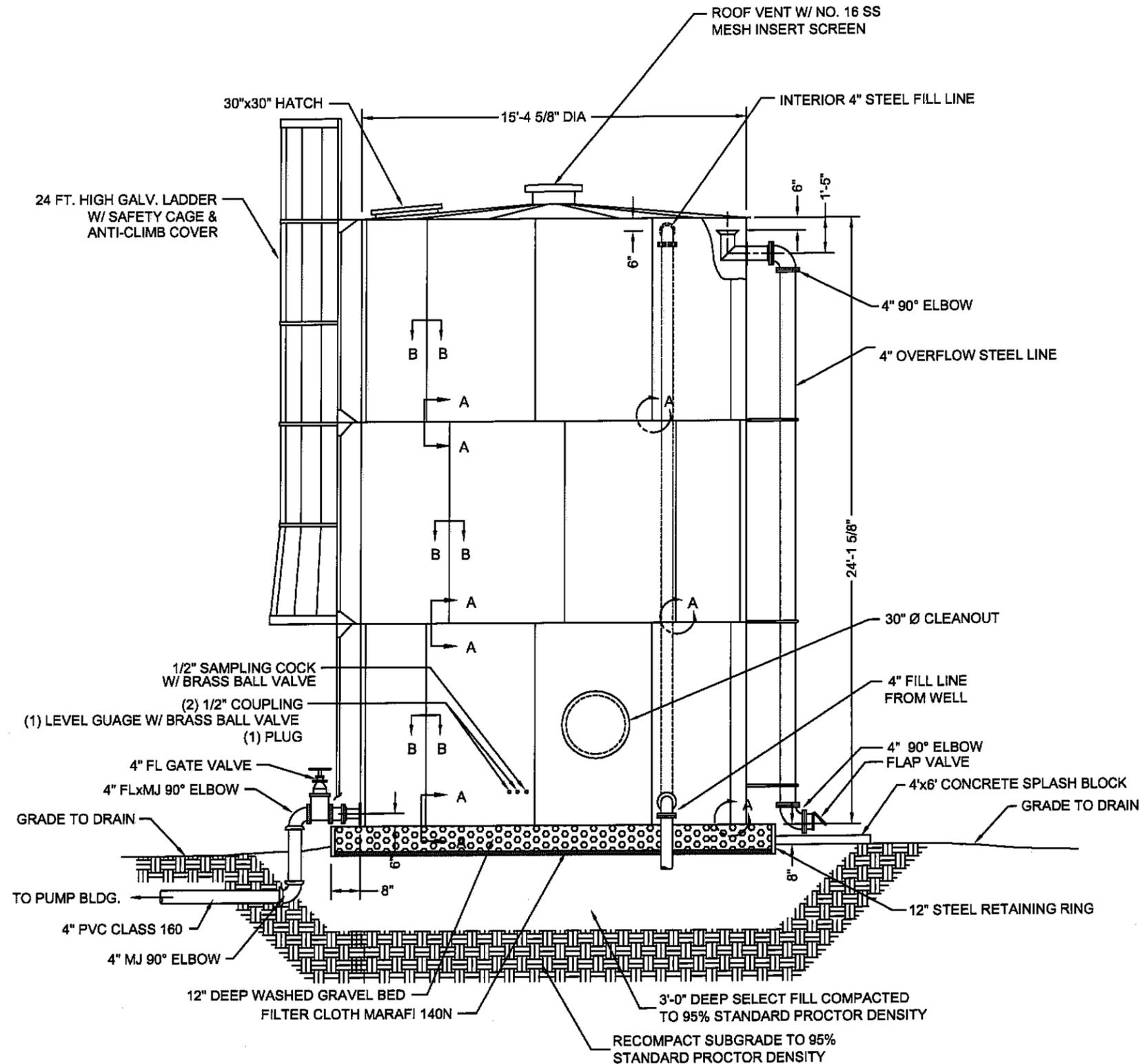
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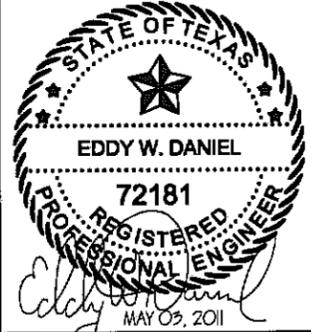
**GROUND STORAGE TANK PLAN**



**33,000 GALLON BOLTED GALVANIZED STEEL  
STORAGE TANK ELEVATION**  
NOT TO SCALE

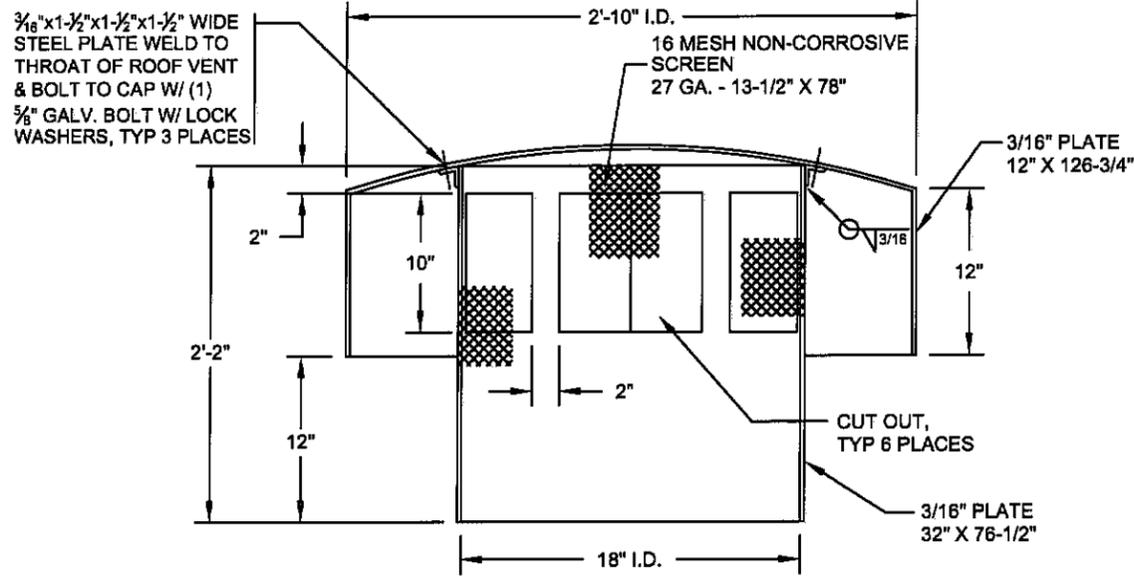
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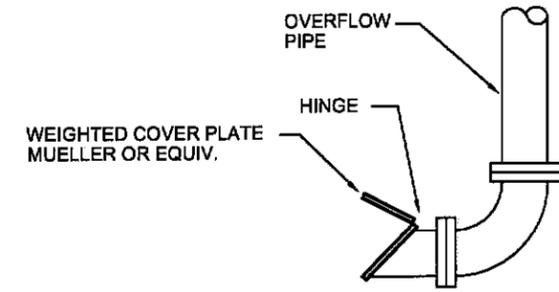
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**GROUND STORAGE TANK ELEVATION**

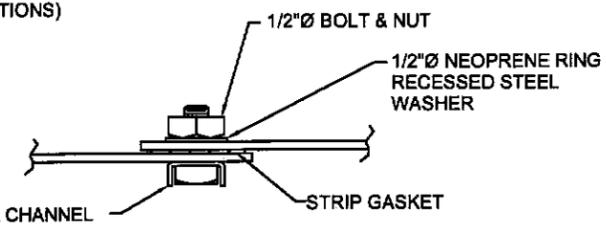


**ROOF VENT**  
NOT TO SCALE

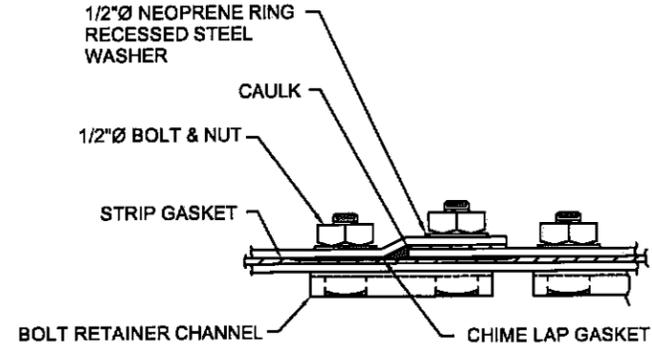
NOTE:  
TANK MANUFACTURER MAY SUBSTITUTE VENT  
DESIGN. (MUST MEET TCEQ SPECIFICATIONS)



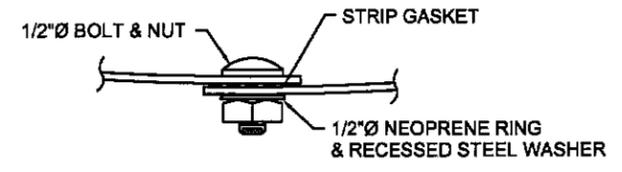
**OVERFLOW PIPE w/FLAP VALVE**  
NOT TO SCALE



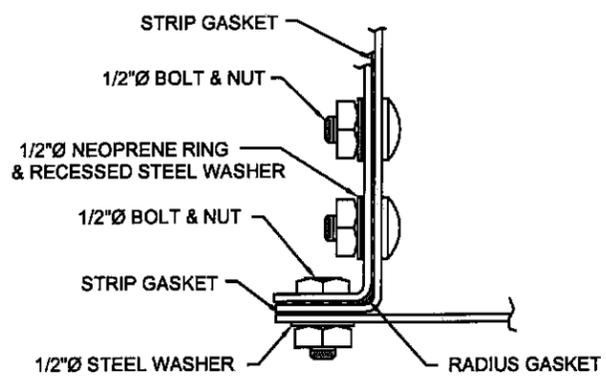
**SECTION C-C**  
BOTTOM SEGMENT LAP



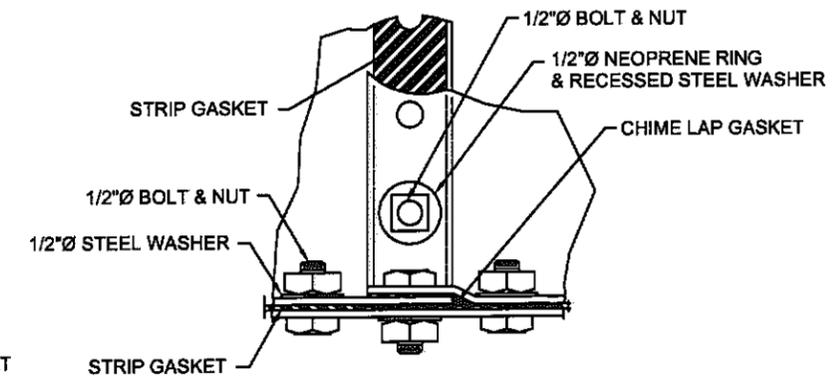
**SECTION D-D**  
BOTTOM SEGMENT LAP



**SECTION B-B**  
SINGLE ROW VERTICAL SEAM  
& CLEANOUT CONNECTION



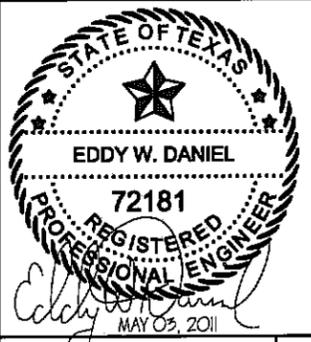
**SECTION A-A**  
SINGLE ROW CHIME LAP



**DETAIL A**  
SINGLE ROW STAVE LAP @ CHIME

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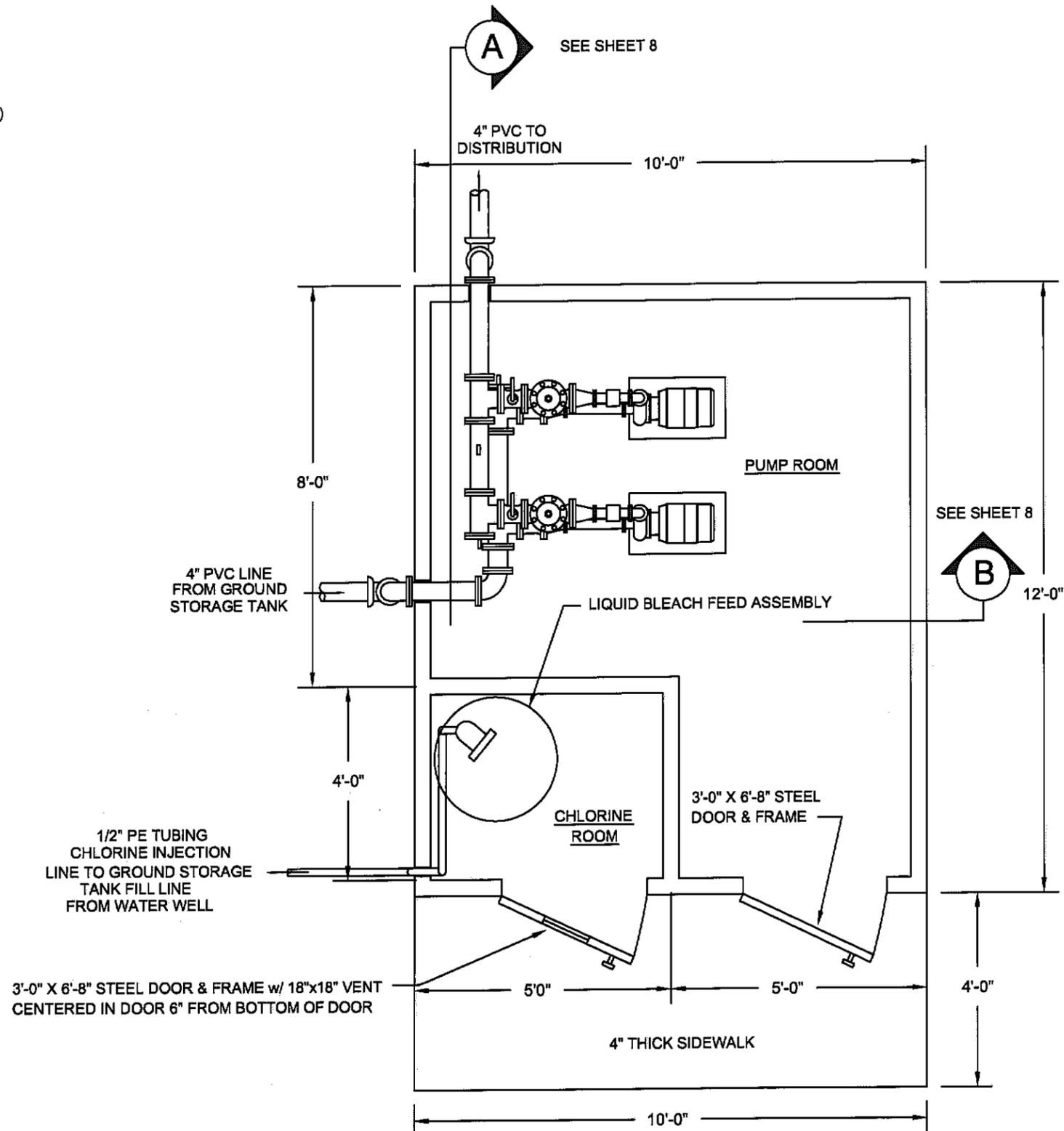
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GROUND STORAGE TANK DETAILS

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**NOTES:**

1. STEEL DOORS WILL HAVE LOCKS WHICH ARE KEYED ALIKE, CORES MANUFACTURED BY BEST.
2. ALL EXTERIOR PIPING SHALL BE INSULATED WITH PROPERLY SIZED PIPE INSULATION AND ALUMINUM SHEATHING.
3. ALL PUMP BLDG. FITTINGS SHALL BE DUCTILE IRON OR CAST IRON.
4. BUTTERFLY VALVES SHALL BE INSTALLED IN PUMP SUCTION AND DISCHARGE MANIFOLDS.
5. ALL INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE / NATIONAL SANITATION FOUNDATION (ANSI/NSF) STANDARD 81 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI.

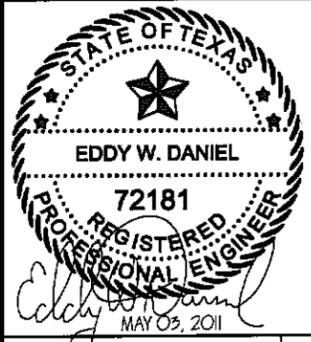


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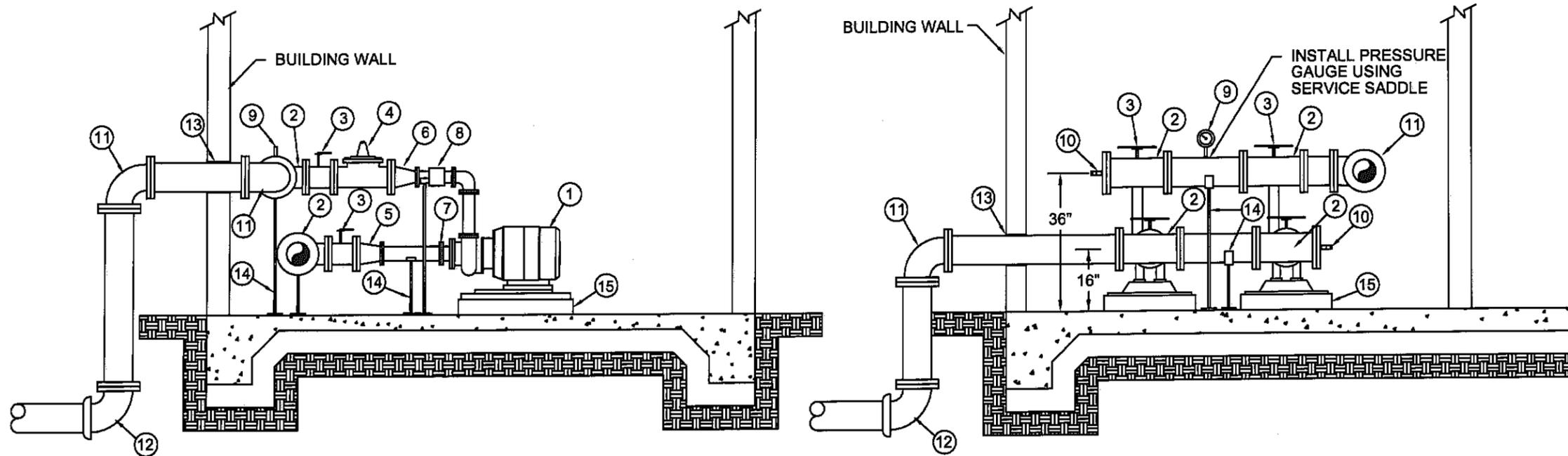
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MYERS PARK PUMP BUILDING &  
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**PUMP BUILDING PLAN**

**LEGEND :**

1. 100 GPM @ 150' T.D.H. END SUCTION CLOSE COUPLED FRAME MOUNTED PUMP W/ 1/4" VALVES ON VOLUTE
2. 4" DI FL TEE
3. 4" DI FL BUTTER-FLY GATE VALVE
4. 4" CHECK VALVE : CLA-VAL HYTROL MODEL 81-02
5. 4" x 2-1/2" DI FL REDUCER
6. 4" x 2" DI FL REDUCER
7. 2-1/2" DI FL COUPLING
8. 2" DRESSER COUPLING
9. PRESSURE GAUGE (0-100 PSI PRESSURE RANGE)
10. 4" DI BLIND FLANGE W/ 1/2" HOSE BIB
11. 4" DI FL 90° ELBOW
12. 4" FL X MJ 90° ELBOW
13. ENCASEMENT THRU BLDG. WALL. LINK SEAL COLLAR BETWEEN ENCASEMENT AND PIPE. GROUT IF NECESSARY CONTRACTOR SHALL SIZE ENCASEMENT.
14. ADJUSTABLE PIPE SUPPORT, AS MANUFACTURED BY MATERIAL RESOURCES, OR EQUIVALENT.
15. 4" CONCRETE PUMP BASE



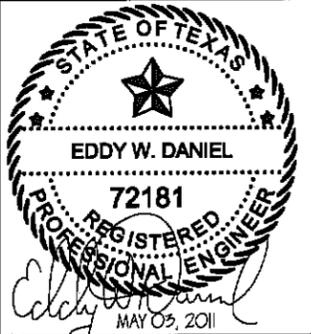
**PUMP BUILDING SECTION B-B**

**PUMP BUILDING SECTION A-A**

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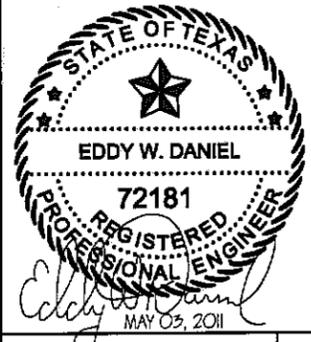
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**PUMP BUILDING SECTIONS**

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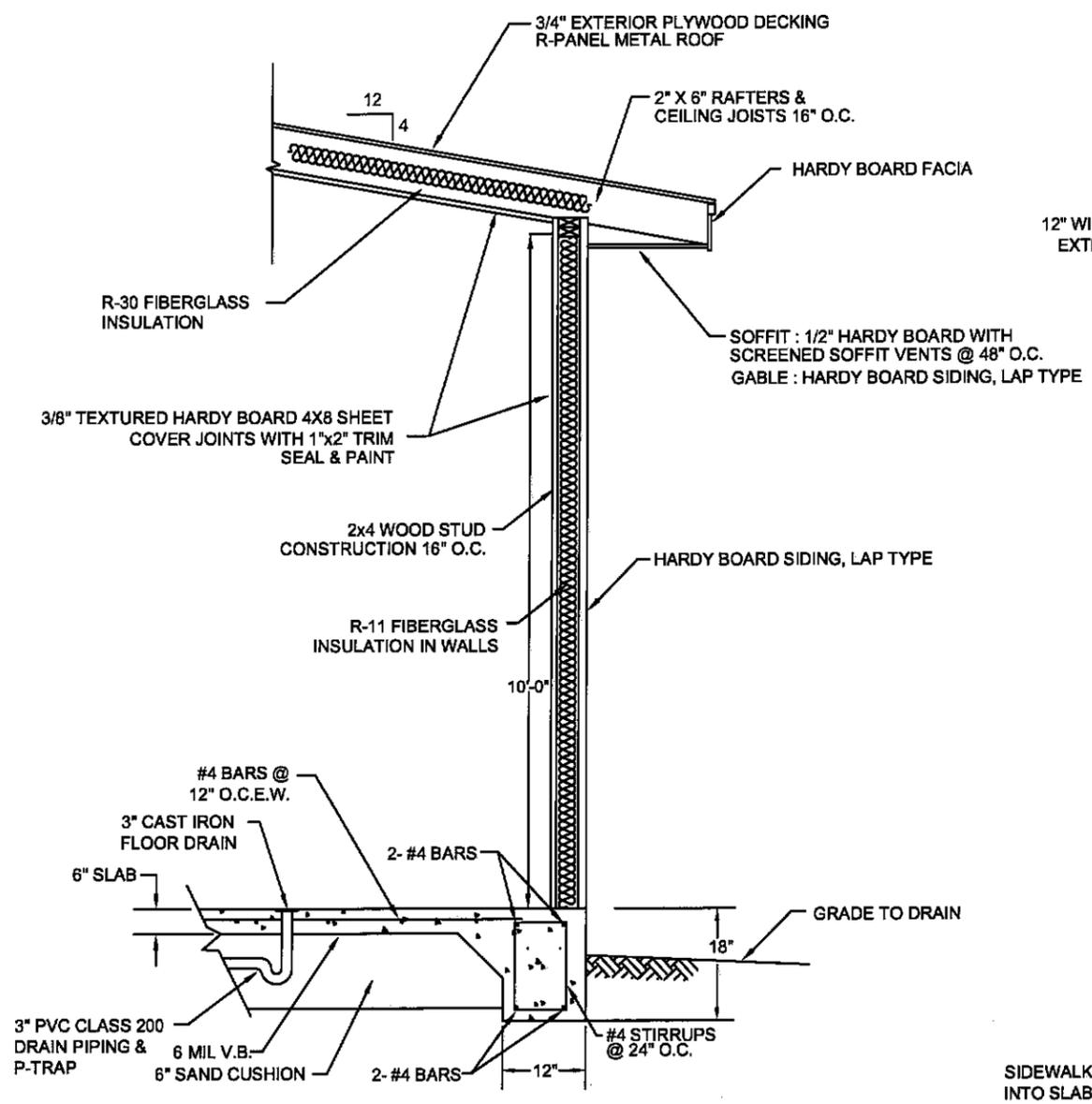
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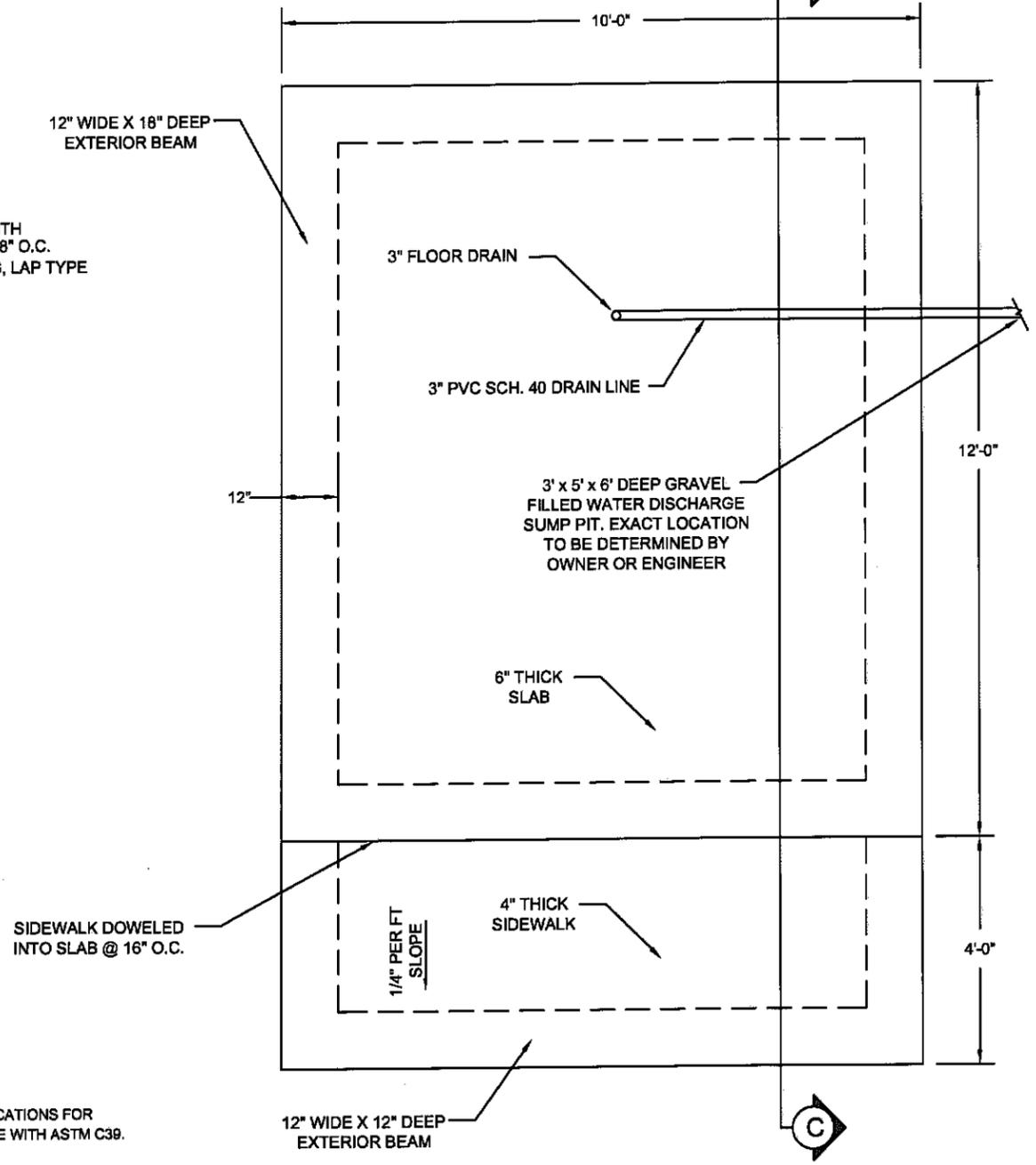
MYERS PARK PUMP BUILDING &  
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PUMP BLDG FOUNDATION & WALL SECTION



**BUILDING SECTION**  
 NOT TO SCALE

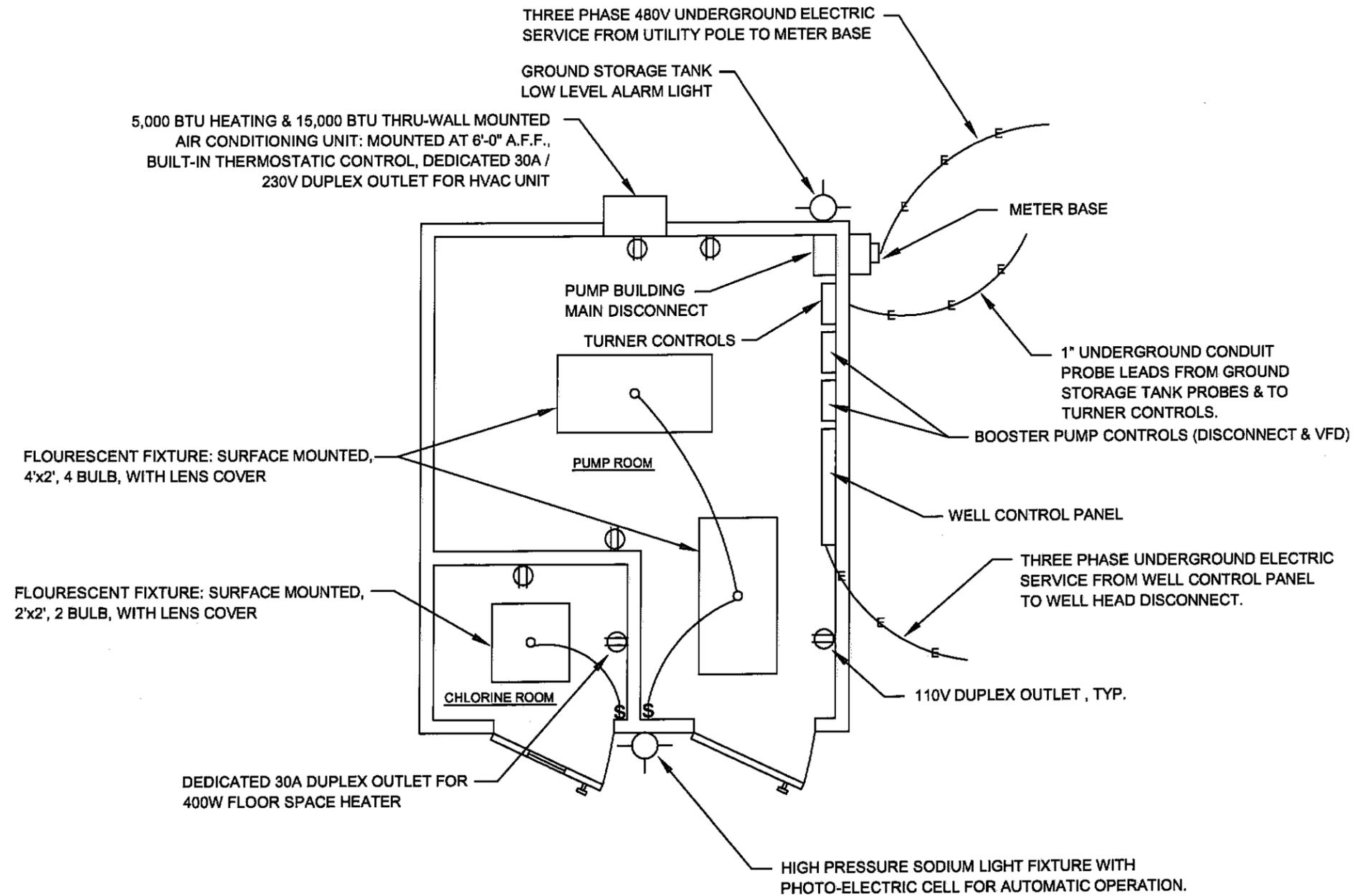
- NOTES:**
1. CONCRETE COMPRESSIVE STRENGTH SHALL MEET SPECIFICATIONS FOR 3000 PSI AT 28 DAYS CURING WHEN TESTED IN ACCORDANCE WITH ASTM C39.
  2. CONCRETE SLAB MUST BE A MINIMUM 6" THICKNESS.
  3. CONCRETE BEAMS SHALL BE 12" WIDE AND 12" DEEP.
  4. CONCRETE SLAB MUST HAVE 6 MIL POLY VAPOR BARRIER (MIN.).
  5. CONCRETE SLAB SHALL BE CONSTRUCTED PER SPECIFICATIONS.
  6. ALL EXTERIOR SURFACES SHALL BE SEALED AND PAINTED.
  7. DOORS SHALL BE STEEL WITH FRAME, THRESHOLD AND HARDWARE, MUST ACCOMMODATE BEST LOCKS.



**FOUNDATION PLAN**  
 NOT TO SCALE

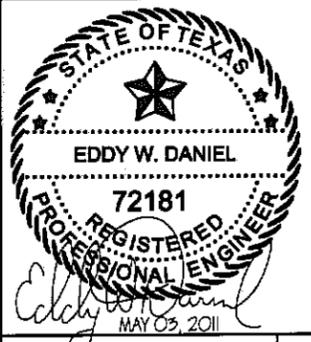
**NOTES:**

1. ELECTRICAL PANEL AND MOTOR CONTROLS SHALL BE MOUNTED ON 3/4" PAINTED WOLMANIZED PLYWOOD.
2. BOOSTER PUMPS SHALL HAVE VARIABLE FREQUENCY DRIVES.
3. ALL EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
4. CONTRACTOR SHALL INSTALL CONTROL SIGNAL LINE FROM GROUND STOR TANK.
5. CONTRACTOR WILL COORDINATE UTILITY SERVICE CONNECTIONS WITH ELECTRICAL UTILITY PROVIDER



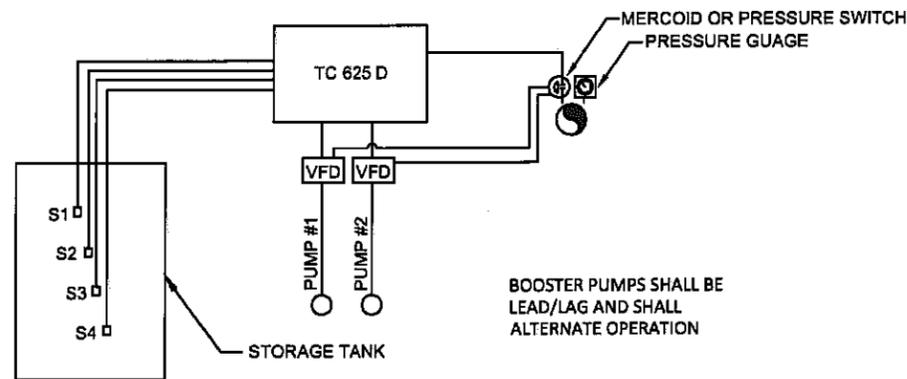
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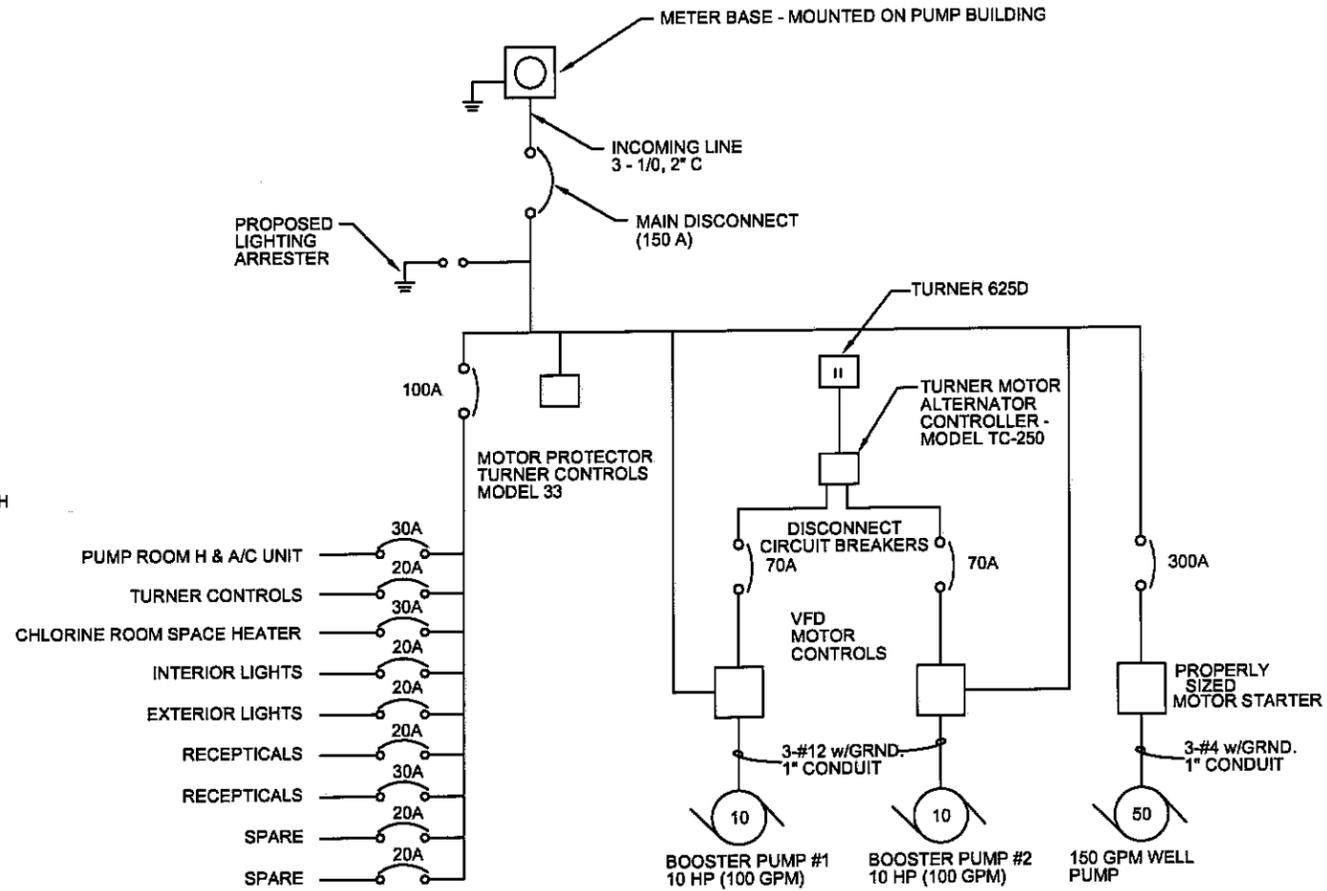


MYERS PARK PUMP BUILDING &  
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**PUMP BUILDING ELECTRICAL PLAN**

WATER LEVEL	ACTION
S1 (RISING)	WELL OFF
S2 (FALLING)	WELL ON
S3 (RISING)	BOOSTER PUMPS RESET
S4 (FALLING)	BOOSTER PUMPS LOW LEVEL LOCKOUT



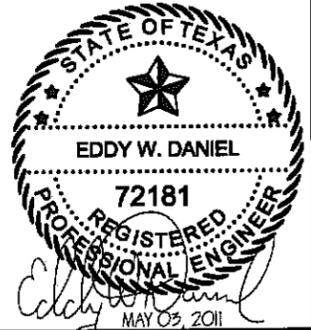
**CONTROL SCHEMATIC DIAGRAM**  
NOT TO SCALE



**ELECTRICAL LINE DIAGRAM**  
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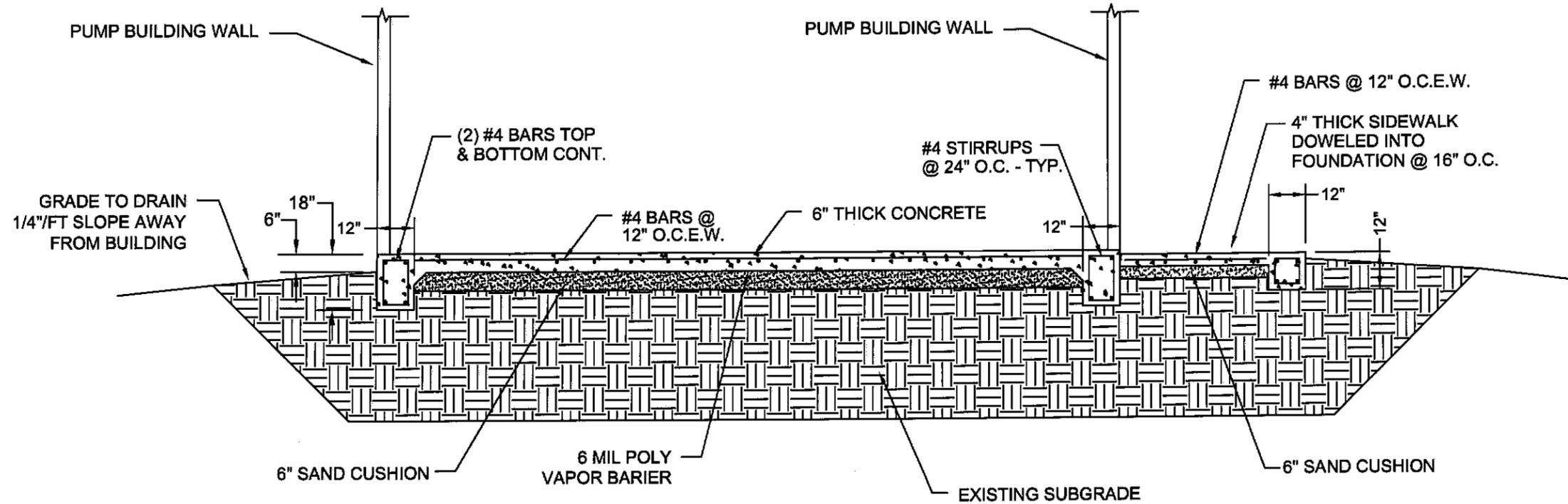


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**ELECTRICAL DETAILS**

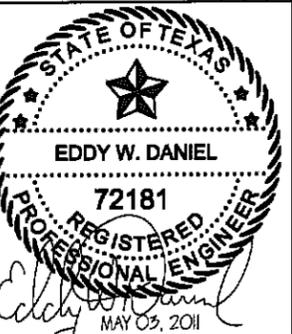
**NOTES:**

1. CONCRETE COMPRESSIVE STRENGTH SHALL MEET SPECIFICATIONS FOR 3000 PSI AT 28 DAYS CURING WHEN TESTED IN ACCORDANCE WITH ASTM C39.
2. CONCRETE SLAB MUST BE A MINIMUM 6" THICKNESS.
3. CONCRETE BEAMS SHALL BE 12" WIDE AND 12" DEEP.
4. CONCRETE SLAB MUST HAVE 6 MIL POLY VAPOR BARRIER (MIN.).
5. CONCRETE SLAB SHALL BE CONSTRUCTED PER SPECIFICATIONS.



**SECTION C - C**  
NOT TO SCALE

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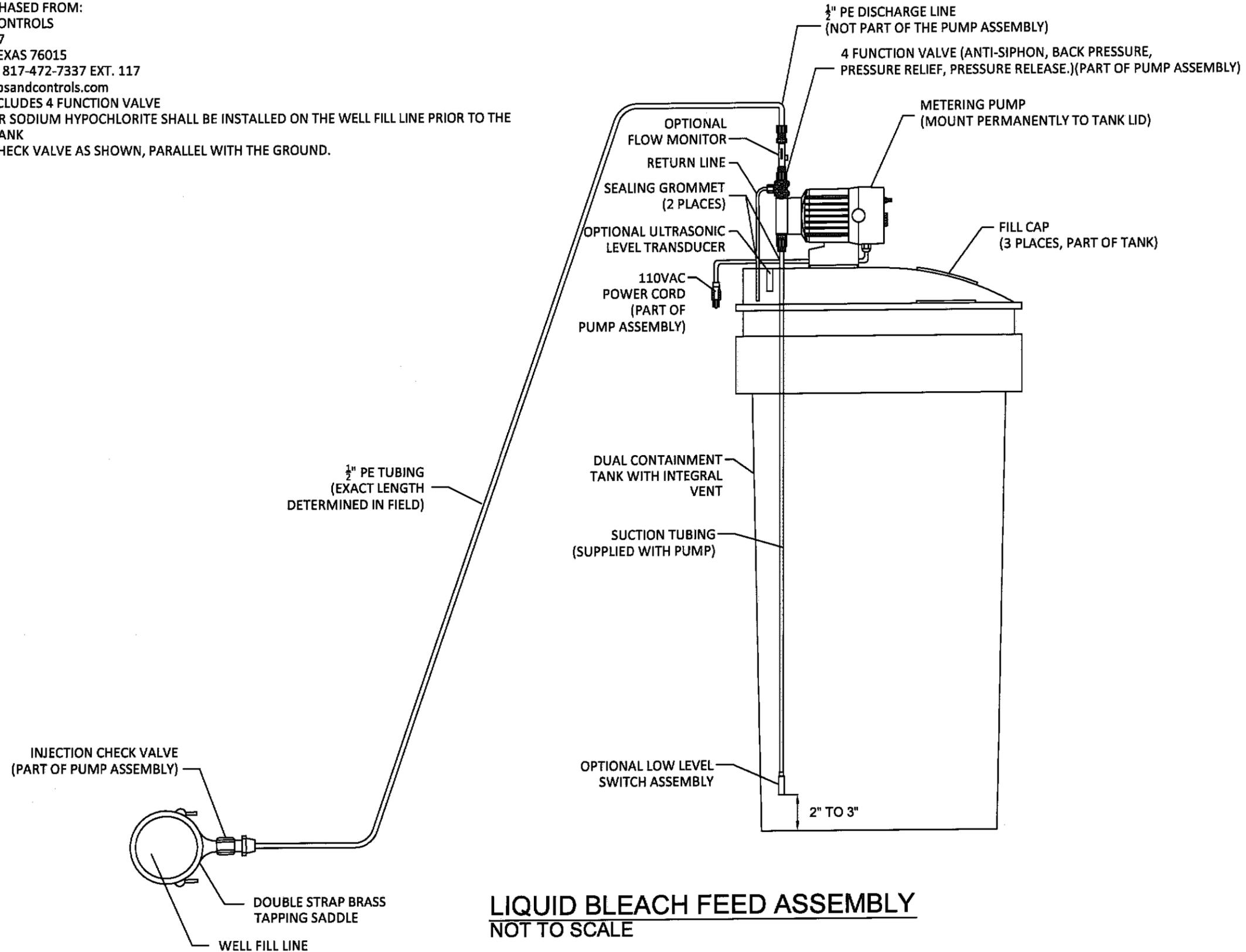
**PUMP BLDG FOUNDATION SECTION**

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**LIQUID BLEACH FEED ASSEMBLY**

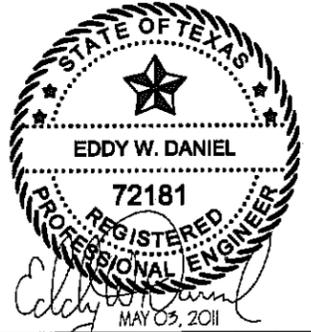
1. METERING PUMP - LMI MODEL C77-265, OR COLLIN CO. APPROVED EQUIVALENT  
 FLOW MONITORING - LMI MODEL FM-300-9, OR COLLIN CO. APPROVED EQUIVALENT  
 LOW LEVEL SW. ASSEMBLY - LM 29190, OR COLLIN CO. APPROVED EQUIVALENT  
 DUAL CONTAINMENT TANK - PUMPS AND CONTROLS MODEL PCT 62DC, OR COLLIN CO. APPROVED EQUIVALENT  
 PVC CLAMP-ON SADDLE - GEORGE FISCHER SIGNET INC. MODEL PV85060, OR COLLIN CO. APPROVED EQUIVALENT
2. PARTS MAY BE PURCHASED FROM:  
 PUMPS AND CONTROLS  
 PO BOX 150207  
 ARLINGTON, TEXAS 76015  
 DAVID PAYNE 817-472-7337 EXT. 117  
 dpayne@pumpsandcontrols.com
3. METERING PUMP INCLUDES 4 FUNCTION VALVE
4. INJECTION POINT FOR SODIUM HYPOCHLORITE SHALL BE INSTALLED ON THE WELL FILL LINE PRIOR TO THE GROUND STORAGE TANK
5. ORIENT INJECTION CHECK VALVE AS SHOWN, PARALLEL WITH THE GROUND.



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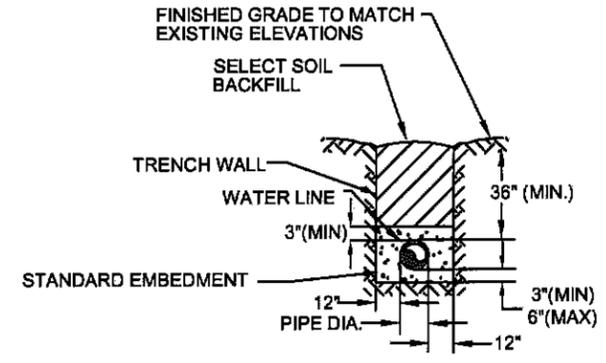


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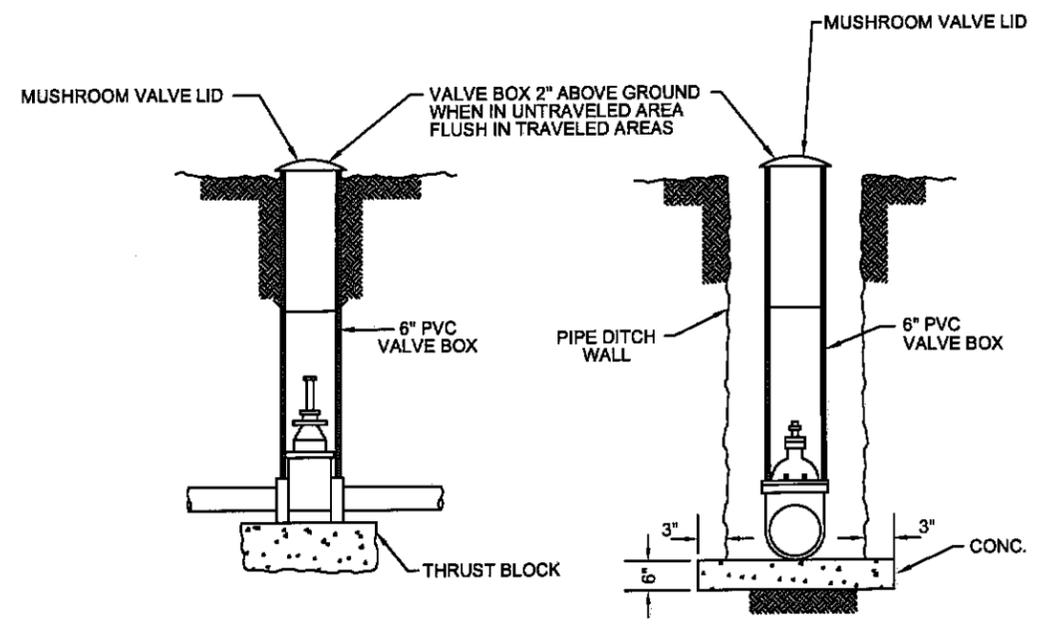
**LIQUID BLEACH FEED ASSEMBLY**

**GENERAL NOTES:**

1. SELECT BACKFILL SHALL BE SOIL MATERIAL. ROCK IN SELECT BACKFILL SHALL BE LIMITED TO 2" MAX. DIMENSION.
2. ABOVE DETAILS SHALL APPLY TO ALL PVC WATER PIPE 8" IN DIAMETER AND SMALLER.



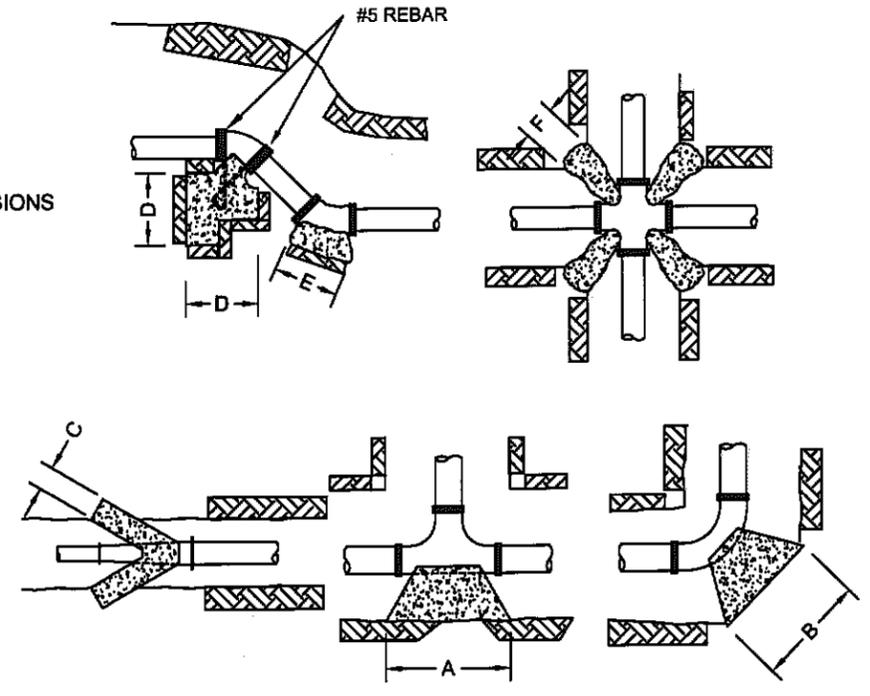
**LAYING DETAIL FOR PVC WATER PIPE**  
NOT TO SCALE



**VALVE BLOCKING DETAIL**  
NOT TO SCALE

**MINIMUM THRUST BLOCK DIMENSIONS**

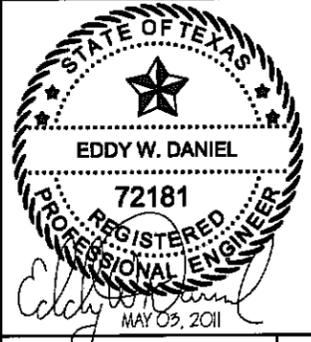
PIPE SIZE	A	B	C	D	E	F
6"	18"	20"	12"	26"	18"	18"
8"	22"	26"	14"	29"	21"	22"
10"	28"	34"	18"	35"	25"	28"
12"	34"	40"	20"	42"	30"	34"



**THRUST BLOCK DETAIL**  
NOT TO SCALE

**DBI DANIEL & BROWN INC.**  
ENGINEERS/CONSULTANTS/PLANNERS  
Phone 972-784-7777  
Fax 972-782-7721  
www.DBIconultants.com  
118 McKinney St.  
P.O. Box 606  
Farmersville, Texas 75442

DESIGNED: E.W.D. DATE: 04/22/2011  
DRAWN: M.K.W. REVISION: N/C  
FIRM REGISTRATION NO.: F-002226  
FILE: N:\Collin County\MYERS PARK PB & GST 02-2011\overall



MYERS PARK PUMP BUILDING &  
GROUND STORAGE TANK PROJECT  
FOR  
COLLIN COUNTY, TEXAS

STANDARD DETAILS

**SIGNATURE FORM  
COLLIN COUNTY, TEXAS**

DELIVERY WILL BE F.O.B. INSIDE DELIVERY AT COLLIN COUNTY DESIGNATED LOCATIONS AND ALL TRANSPORTATION CHARGES PAID BY THE SUPPLIER TO DESTINATION.

DELIVERY TO BE SPECIFIED IN CALENDAR DAYS FROM DATE OF ORDER.

WE **DO NOT** TAKE EXCEPTION TO THE BID SPECIFICATIONS.

WE **TAKE** EXCEPTION TO THE BID SPECIFICATIONS (EXPLAIN):

**COMPANY INFORMATION/PROFILE/REFERENCES**

Preferential Requirement: The County of Collin, as a governmental agency of the State of Texas, may not award a contract to a nonresident bidder unless the nonresident's bid is lower than the lowest bid submitted by a responsible Texas resident bidder by the same amount that a Texas resident bidder would be required to underbid a nonresident bidder to obtain a comparable contract in the state in which the nonresident's principal place of business is located (Government Code, Title 10, V.T.C.A., Chapter 2252, Subchapter A). Bidder shall make answer to the following questions by selecting the appropriate radio button or inserting information in the box provided:

Is your principal place of business in the State of Texas?  Yes  No

If the answer to question is "yes", no further information is necessary; if "no", please indicate:

in which state is your principal place of business is located:

if that state favors resident bidders (bidders in your state) by some dollar increment or percentage:  Yes  No

if "yes", what is that dollar increment or percentage?

**Company Profile: IS YOUR FIRM?**

- Sole Proprietorship  Yes  No
- General Partnership  Yes  No
- Limited Partnership  Yes  No
- Corporation  Yes  No
- Other   Yes  No

List Legal Names in Company:

**List at least three (3) companies or governmental agencies where these same/like products/services, as stated herein, have been provided. Include company name, address, contact name and telephone number.**

AS PERMITTED UNDER TITLE 8, CHAPTER 271, SUBCHAPTER F, SECTION 271.101 AND 271.102 V.T.C.A. AND TITLE 7, CHAPTER 791, SUBCHAPTER C, SECTION 791.025, V.T.C.A., OTHER LOCAL GOVERNMENTAL ENTITIES MAY WISH TO ALSO PARTICIPATE UNDER THE SAME TERMS AND CONDITIONS CONTAINED IN THIS CONTRACT. EACH ENTITY WISHING TO PARTICIPATE MUST ENTER INTO AN INTERLOCAL AGREEMENT WITH COLLIN COUNTY AND HAVE PRIOR AUTHORIZATION FROM VENDOR. IF SUCH PARTICIPATION IS AUTHORIZED, ALL PURCHASE ORDERS WILL BE ISSUED DIRECTLY FROM AND SHIPPED DIRECTLY TO THE LOCAL GOVERNMENTAL ENTITY REQUIRING SUPPLIES/SERVICES. COLLIN COUNTY SHALL NOT BE HELD RESPONSIBLE FOR ANY ORDERS PLACED, DELIVERIES MADE OR PAYMENT FOR SUPPLIES/SERVICES ORDERED BY THESE ENTITIES. EACH ENTITY RESERVES THE RIGHT TO DETERMINE THEIR PARTICIPATION IN THIS CONTRACT. WOULD BIDDER BE WILLING TO ALLOW OTHER LOCAL GOVERNMENTAL ENTITIES TO PARTICIPATE IN THIS CONTRACT, IF AWARDED, UNDER THE SAME TERMS AND CONDITIONS?  Yes  No

By signing and submitting this Bid/Proposal, Bidder/Offeror acknowledges, understands the specifications, any and all addenda, and agrees to the bid/proposal terms and conditions and can provide the minimum requirements stated herein. Bidder/Offeror acknowledges they have read the document in its entirety, visited the site, performed investigations and verifications as deemed necessary, is familiar with local conditions under which work is to be performed and will be responsible for any and all errors in Bid/Proposal submittal resulting from Bidder/Offeror’s failure to do so. Bidder/Offeror acknowledges the prices submitted in this Bid/Proposal have been carefully reviewed and are submitted as correct and final. If Bid/Proposal is accepted, vendor further certifies and agrees to furnish any and all products/services upon which prices are extended at the price submitted, and upon conditions in the specifications of the Invitation for Bid/Request for Proposal.

THE UNDERSIGNED HEREBY CERTIFIES THE FOREGOING BID/PROPOSAL SUBMITTED BY THE COMPANY LISTED BELOW HEREINAFTER CALLED “BIDDER/OFFEROR” IS THE DULY AUTHORIZED AGENT OF SAID COMPANY AND THE PERSON SIGNING SAID BID/PROPOSAL HAS BEEN DULY AUTHORIZED TO EXECUTE SAME. BIDDER/OFFEROR AFFIRMS THAT THEY ARE DULY AUTHORIZED TO EXECUTE THIS CONTRACT; THIS COMPANY; CORPORATION, FIRM, PARTNERSHIP OR INDIVIDUAL HAS NOT PREPARED THIS BID/PROPOSAL IN COLLUSION WITH ANY OTHER BIDDER/OFFEROR OR OTHER PERSON OR PERSONS ENGAGED IN THE SAME LINE OF BUSINESS; AND THAT THE CONTENTS OF THIS BID/PROPOSAL AS TO PRICES, TERMS AND CONDITIONS OF SAID BID/PROPOSAL HAVE NOT BEEN COMMUNICATED BY THE UNDERSIGNED NOR BY ANY EMPLOYEE OR AGENT TO ANY OTHER PERSON ENGAGED IN THIS TYPE OF BUSINESS PRIOR TO THE OFFICIAL OPENING OF THIS BID/PROPOSAL.

Company Name	<input type="text"/>
Street Address of Principal Place of Business	<input type="text"/>
City, State, Zip	<input type="text"/>
Phone of Principal Place of Business	<input type="text"/>
Fax of Principal Place of Business	<input type="text"/>
E-mail Address of Representative	<input type="text"/>
Federal Identification Number	<input type="text"/>
Date	<input type="text"/>
Acknowledgement of Addenda	#1 € #2 € #3 € #4 € #5 € #6 €
Authorized Representative Name	<input type="text"/>
Authorized Representative Title	<input type="text"/>
Signature (Required for paper bid submission)	<input type="text"/>

**AFFIDAVIT OF COMPLIANCE**

I, the undersigned, declare and affirm that my company is in compliance with the Immigration and Reform Act of 1986 and all employees are legally eligible to work in the United States of America.

I further understand and acknowledge that any non-compliance with the Immigration and Reform Act of 1986 at any time during the term of this contract will render the contract voidable.

Name of Company	<input type="text"/>
Title of Officer	<input type="text"/>
Name of Officer	<input type="text"/>
Date:	<input type="text"/>

## CONFLICT OF INTEREST QUESTIONNAIRE FORM CIQ

**For vendor or other person doing business with local governmental entity**

<p>This questionnaire is being filed in accordance with chapter 176 of the Local Government Code by a person doing business with the governmental entity.</p> <p>By law this questionnaire must be filed with the records administrator of the local government not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006, Local Government Code.</p> <p>A person commits an offense if the person violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor.</p>	<p><b>OFFICE USE ONLY</b></p>   <p>Date Received</p>
<p><b>1</b> Name of person doing business with local governmental entity.</p> <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	
<p><b>2</b> <input type="checkbox"/> Check this box if you are filing an update to a previously filed questionnaire.</p> <p>(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than September 1 of the year for which an activity described in Section 176.006(a), Local Government Code, is pending and not later than the 7th business day after the date the originally filed questionnaire becomes incomplete or inaccurate.)</p>	
<p><b>3</b> Name each employee or contractor of the local governmental entity who makes recommendations to a local government officer of the governmental entity with respect to expenditures of money AND describe the affiliation or business relationship.</p> <div style="border: 1px solid black; height: 80px; width: 100%; margin-top: 5px; position: relative;"> <div style="position: absolute; right: -20px; top: 50%; transform: translateY(-50%); border-left: 1px solid black; border-right: 1px solid black; border-bottom: 1px solid black; width: 10px; height: 100%; text-align: center;"> <span style="position: absolute; top: 0; left: 50%; transform: translate(-50%, -50%); font-size: 8px;">▲</span> <span style="position: absolute; bottom: 0; left: 50%; transform: translate(-50%, -50%); font-size: 8px;">▼</span> </div> </div>	
<p><b>4</b> Name each local government officer who appoints or employs local government officers of the governmental entity for which this questionnaire is filed AND describe the affiliation or business relationship.</p> <div style="border: 1px solid black; height: 80px; width: 100%; margin-top: 5px; position: relative;"> <div style="position: absolute; right: -20px; top: 50%; transform: translateY(-50%); border-left: 1px solid black; border-right: 1px solid black; border-bottom: 1px solid black; width: 10px; height: 100%; text-align: center;"> <span style="position: absolute; top: 0; left: 50%; transform: translate(-50%, -50%); font-size: 8px;">▲</span> <span style="position: absolute; bottom: 0; left: 50%; transform: translate(-50%, -50%); font-size: 8px;">▼</span> </div> </div>	

Adopted 11/02/2005

**FORM CIQ**

**CONFLICT OF INTEREST QUESTIONNAIRE**

**Page 2**

**For vendor or other person doing business with local governmental entity**

**5 Name of local government officer with whom filer has affiliation or business relationship.  
(Complete this section only if the answer to A, B, or C is YES.)**

This section, item 5 including subparts A, B, C & D, must be completed for each officer with whom the filer has affiliation or other relationship. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income from the filer of the questionnaire?  Yes  No

B. Is the filer of the questionnaire receiving or likely to receive taxable income from or at the direction of the local government officer named in this section AND the taxable income is not from the local governmental entity?  Yes  No

C. Is the filer of this questionnaire affiliated with a corporation or other business entity that the local government officer serves as an officer or director, or holds an ownership of 10 percent or more?  Yes  No

D. Describe each affiliation or business relationship.

**6**

Signature of person doing business with the governmental entity

Date

Adopted 11/02/2005

**MAINTENANCE BOND**

**Attachment**

**"A-3"**

STATE OF TEXAS -§  
COUNTY OF COLLIN -§

**KNOW ALL MEN BY THESE PRESENTS:**

That [redacted], a corporation organized and existing under the laws of the State of [redacted], and fully authorized to transact business in the State of Texas, whose address is [redacted] of the City of [redacted] County of [redacted], and State of [redacted], (hereinafter referred to as "Principal"), and [redacted] (hereinafter referred to as "Surety", a corporation organized under the laws of the State of [redacted] and authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto [redacted] (hereinafter referred to as "Owner") and unto all persons, firms and corporations who may furnish materials for or perform labor upon the buildings, structures or improvements referred to in the attached Contract, in the penal sum of [redacted] Dollars (\$ [redacted]) in lawful money of the United States, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents:

**WHEREAS**, the Principal has entered into a certain written contract with the Owner, dated the [redacted] day of [redacted], 200[redacted], to which said Contract is hereby referred to and made a part hereof and as fully and to the same extent as if copied at length herein for the construction of [redacted].

**NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH**, that the bond guarantees the full and proper maintenance and repair of the work herein contracted to be done and performed for a period of [redacted] year(s) from the date of acceptance and Principal will do all necessary backfilling that may arise on account of sunken conditions in ditches, or otherwise, and do and perform all necessary work and repair any defective condition growing out of or arising from the improper laying or construction of same, or on account of any breaking of same caused by said CONTRACTOR in construction of same, or on account of any defect arising in any of said work laid or constructed by said CONTRACTOR or on account of improper excavation or backfilling, it being understood that the purpose of this section is to cover all defective conditions arising by reason of defective materials, work or labor performed by said CONTRACTOR, then this obligation shall be void; otherwise, to remain in full force and effect; and in case said CONTRACTOR shall fail to do so, it is agree that the OWNER may do said work and supply such materials and charge the same against said CONTRACTOR and Surety on this obligation. Provided further, that if any legal action be filed on this Bond, venue shall lie in Collin County, Texas.

**"PROVIDED, HOWEVER**, that said Surety, for value received, stipulates and agrees the bond shall automatically be increased by the amount of any Change Order or supplemental agreement which increases the Contract price with or without notice to the Surety and that no change, extension of time, alteration or addition to the terms of the Contract, or to the work performed thereunder, or the plans specifications, or drawings accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work to be performed thereunder.

The undersigned and designated agent is hereby designated by Surety herein as the agent resident to whom any requisite notice may be delivered and on whom service of process may be had in matters arising out of such suretyship.

**IN WITNESS WHEREOF**, the said Principal and Surety have signed and sealed this instrument this [redacted] day of [redacted] 200[redacted].

**WITNESS**

[redacted]

**PRINCIPAL**

[redacted]

Printed/Typed Name [redacted]

Title: [redacted]

Company: [redacted]

**WITNESS**

Address:

**SURETY**

Printed/Typed Name

Title:

Company:

Address:

The Resident Agent of the Surety for delivery of notice and service of process is:

Name:

Address:

Phone Number:

**Note:**

Date of Bond must NOT be prior to date of contract

Revised 11/2008

**PAYMENT BOND**

STATE OF TEXAS            -§  
COUNTY OF COLLIN       -§

**KNOW ALL MEN BY THESE PRESENTS:**

That [redacted], a corporation organized and existing under the laws of the State of [redacted], and fully authorized to transact business in the State of Texas, whose address is [redacted] of the City of [redacted] County of [redacted], and State of [redacted], (hereinafter referred to as "Principal"), and [redacted] (hereinafter referred to as "Surety", a corporation organized under the laws of the State of [redacted] and authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto [redacted] (hereinafter referred to as "Owner") and unto all persons, firms and corporations who may furnish materials for or perform labor upon the buildings, structures or improvements referred to in the attached Contract, , in the penal sum of [redacted] Dollars (\$ [redacted]) (not less than 100% of the approximate total amount of the Contract as evidenced in the proposal) in lawful money of the United States, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents:

**WHEREAS**, the Principal has entered into a certain written contract with the Owner, dated the [redacted] day of [redacted], 200[redacted], to which said Contract is hereby referred to and made a part hereof and as fully and to the same extent as if copied at length herein for the construction of [redacted].

**NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH**, that the bond guarantees the full and proper protection of all claimants supplying labor and material in the prosecution of the work provided for in said Contract and for the use of each claimant, and that conversely should the Principal faithfully perform said Contract and in all respects duly and faithfully observe and perform all and singular the covenants, conditions, and agreements in and by said Contract, agreed to by the Principal, and according to the true intent and meaning of said Contract and the claims and specifications hereto annexed, and any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modification to Surety being hereby waived, then this obligation shall be void; otherwise, to remain in full force and effect. Provided further, that if any legal action be filed on this Bond, venue shall lie in Collin County, Texas.

**"PROVIDED, HOWEVER**, that this bond is executed pursuant to the provisions Texas Government Code, Chapter 2253, as amended, and Chapter 3503 of the Texas Insurance Code, as amended, and all liabilities on this bond shall be determined in accordance with the provisions of said articles to the same extent as if they were fully copied at length herein.

Surety, for value received, stipulates and agrees that the bond shall automatically be increased by the amount of any Change Order or supplemental agreement which increases the Contract price with or without notice to the Surety and that no change, extension of time, alteration or addition to the terms of the Contract, or to the work performed thereunder, or the plans, specifications, or drawings accompanying the same, shall in anyway affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder.

The undersigned and designated agent is hereby designated by Surety herein as the agent resident to whom any requisite notice may be delivered and on whom service of process may be had in matters arising out of such suretyship.

**IN WITNESS WHEREOF**, the said Principal and Surety have signed and sealed this instrument this [redacted] day of [redacted] 200[redacted].

**WITNESS**

[redacted]

**PRINCIPAL**

[redacted]

Printed/Typed Name [redacted]

Title: [redacted]

Company: [redacted]

**WITNESS**

Address:

**SURETY**

Printed/Typed Name

Title:

Company:

Address:

The Resident Agent of the Surety for delivery of notice and service of process is:

Name:

Address:

Phone Number:

**Note:**

Date of Bond must NOT be prior to date of contract

Revised 11/2008

**PERFORMANCE BOND**

STATE OF TEXAS -§  
COUNTY OF COLLIN -§

**KNOW ALL MEN BY THESE PRESENTS:**

That [redacted], a corporation organized and existing under the laws of the State of [redacted] and fully authorized to transact business in the State of Texas, whose address is [redacted] of the City of [redacted] County of [redacted], and State of [redacted], (hereinafter referred to as "Principal"), and [redacted] (hereinafter referred to as "Surety", a corporation organized under the laws of the State of [redacted] and authorized under the laws of the State of Texas to act as surety on bonds for principals, are held and firmly bound unto [redacted] (hereinafter referred to as "Owner") and unto all persons, firms and corporations who may furnish materials for or perform labor upon the buildings, structures or improvements referred to in the attached Contract, , in the penal sum of [redacted] Dollars (\$ [redacted]) (not less than 100% of the approximate total amount of the Contract as evidenced in the proposal plus 10-percent of the stated penal sum as an additional sum of money representing additional court expenses, attorneys' i fees, and liquidated damages arising out of or connected with the below identified Contract) in lawful money of the United States, for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents:

**WHEREAS**, the Principal has entered into a certain written contract with the Owner, dated the [redacted] day of [redacted], 200[redacted], to which said Contract is hereby referred to and made a part hereof and as fully and to the same extent as if copied at length herein for the construction of [redacted].

**NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH**, that if the said Principal fully and faithfully executes the work and performance of the Contract in accordance with the plans specifications, and Contract Documents, including any extensions thereof which may be granted with or without notice to Surety, during the original term thereof, and during the life of any guaranty required under the Contract, and according to the true intent and meaning of said Contract and the plans and specifications hereto annexed, if the Principal shall repair and/or replace all defects due to faulty materials or workmanship that appear within a period of one year from the date of final completion and final acceptance of the work by OWNER; and if the Principal shall fully indemnify and save harmless the OWNER from all costs and damages which OWNER may suffer by reason of failure to so perform herein and shall fully reimburse and repay OWNER all outlay and expense which the OWNER may incur in making good any default or deficiency, then this obligation shall be void; otherwise, to remain in full force and effect; and in case said CONTRACTOR shall fail to do so, it is agreed that the OWNER may do said work and supply such materials and charge the same against said CONTRACTOR and Surety on this obligation. Provided further, that if any legal action be filed on this Bond, venue shall lie in Collin County, Texas.

**"PROVIDED, HOWEVER**, that this bond is executed pursuant to the provisions Texas Government Code, Chapter 2253, as amended, and Chapter 3503 of the Texas Insurance Code, as amended, and all liabilities on this bond shall be determined in accordance with the provisions of said articles to the same extent as if they were fully copied at length herein.

Surety, for value received, stipulates and agrees that the bond shall automatically be increased by the amount of any Change Order or supplemental agreement which increases the Contract price with or without notice to the Surety, but in no event shall a Change Order or Supplemental Agreement which reduces the Contract price decrease the penal sum of the Bond. And further that no change, extension of time, alteration, or addition to the terms of the Contract, or to the work performed thereunder, or the plans, specifications, or drawings accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work to be performed thereunder.

Surety agrees that the bond provides for the repairs and/or replacement of all defects due to faulty materials and workmanship that appear within a period of one (1) year from the date of completion and acceptance of the improvement by the OWNER.

The undersigned and designated agent is hereby designated by Surety herein as the agent resident to whom any requisite notice may be delivered and on whom service of process may be had in matters arising out of such suretyship.

**IN WITNESS WHEREOF**, the said Principal and Surety have signed and sealed this instrument this [redacted] day of [redacted] 200[redacted].

**WITNESS**

[redacted]

**PRINCIPAL**

[redacted]

Printed/Typed Name [redacted]

Title:

Company:

Address:

**WITNESS**

**SURETY**

Printed/Typed Name

Title:

Company:

Address:

The Resident Agent of the Surety for delivery of notice and service of process is:

Name:

Address:

Phone Number:

**Note:** Date of Bond must NOT be prior to date of contract

Revised 11/2008

In order to better serve our bidders, the Collin County Purchasing Department is conducting the following survey. We appreciate your time and effort expended to submit your bid. Please take a moment to complete the below. Should you have any questions or require more information please call (972) 548-4165.

HOW DID YOU RECEIVE NOTICE OF THIS REQUEST FOR BID OR PROPOSALS?

McKinney Courier-Gazette?	€	Yes	€	No
Plan Room?	€	Yes	€	No
Collin County Web-Site?	€	Yes	€	No
Facsimile or email from BidSync?	€	Yes	€	No
Other <input type="text"/>				

HOW DID YOU RECEIVE THE BID DOCUMENTS?

Downloaded from Home Computer?	€	Yes	€	No
Downloaded from Company Computer?	€	Yes	€	No
Requested a Copy from Collin County?	€	Yes	€	No
Other <input type="text"/>				

Thank You,

Collin County Purchasing Department

## Question and Answers for Bid #04179-11 - Construction, Myers Park Pump Station and Ground Storage Tank Project

### OVERALL BID QUESTIONS

There are no questions associated with this bid. If you would like to submit a question, please click on the "Create New Question" button below.