

CONTRACT DOCUMENTS

FOR

SERVICE CENTER PROJECT

TO SERVE THE

CITY OF FARMERSVILLE

COLLIN COUNTY, TEXAS

June 2014



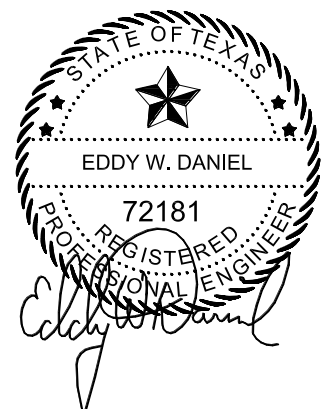
DANIEL & BROWN INC.

ENGINEERS/CONSULTANTS/PLANNERS

P.O. Box 606, Farmersville, Texas 75442

972-784-7777

FIRM REGISTRATION #: F-002225



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Proposal provided by

KW Brown Construction LLC

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KW Brown Construction LLC

359 Rains CR 4325
EMORY, TEXAS 75440
PH 903 473-3215 Fax 903 474-9566
Kwconstr11@verizon.net

April 14, 2014

CITY OF FARMERSVILLE
SERVICE CENTER ADDITION & REMODEL

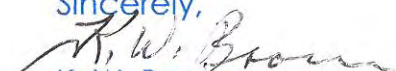
We appreciate the opportunity to quote this project and will want to complete it to the satisfaction the owner expects.

Please review the following comments for content and pricing.

Our construction plan makes it necessary for the owner to remove all items not to be demoed from the break, restroom, and storage area prior to start of construction. Items that will be reused may be stored in the shop area until this new construction is complete.

1. It is believed that the existing electrical service and panel remain and a replacement is not included.
2. Fire Extinguishers-**Allow \$200 ea.** for three each as specifications do not list quantity, size or type.
3. The interior finish out includes the security system-Cameras, card readers, access system and an information technology system for a total of \$14,065.00 which may be deducted from our total price if desired.
4. There is different specifications for the plumbing fixtures on the plans and the specification sheet. we have included the more expensive in our quote in all cases.
5. We did not include a smoke alarm with this quote.
6. Quality control inspection and testing to be furnished by owner.

Sincerely,


K. W. Brown

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**PROPOSAL
CITY OF FARMERSVILLE, TEXAS
SERVICE CENTER PROJECT**

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Proposal Price</u>
1	Construction of subgrade and concrete foundation, as specified, for the sum of:	LS	1	\$ <u>45,248.</u>
2	Construction of pre-engineered metal building, as specified, for the sum of:	LS	1	\$ <u>30,520.</u>
3	Construction of interior framing and wall/ceiling covering, as specified, for the sum of:	LS	1	\$ <u>50,400.</u>
4	Installation of plumbing, as specified, for the sum of:	LS	1	\$ <u>16,753.</u>
5	Installation of electrical, as specified, for the sum of:	LS	1	\$ <u>40,992.</u>
6	Installation of HVAC, as specified, for the sum of:	LS	1	\$ <u>16,219.</u>
7	Installation of interior finish-out, as specified, for the sum of:	LS	1	\$ <u>50,665.</u>
Base Proposal Total				\$ <u>250,797.</u>
Total Calendar Days for Completion of Project				<u>90</u>

ALTERNATE PROPOSAL PRICES (Individually Subject to City Approval):

1800 s.f. \$16.25

Alt 1	Construction of equipment shed, as specified, for the sum of:	PER SF	900 SF MIN	\$ <u>16.65</u>
Alt 2	Construction of 4-inch thick concrete flat-work, as specified, for the sum of:	PER SF	100 SF MIN	\$ <u>4.00</u>

By signature hereon affixed, the Offeror hereby certifies that the Offeror will meet the minimum standards established by the City of Farmersville, TX and the RFP document, plans and specifications for the City of Farmersville, TX SERVICE CENTER PROJECT and will perform such services accordingly. Any exceptions to the City of Farmersville, TX minimum standards or RFP document, plans or specifications are hereby noted:

SIGNED



NAME (PLEASE PRINT) Kenneth W. Brown

TITLE President

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THE AMERICAN INSTITUTE OF ARCHITECTS



AIA Document A310

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we
KW Brown Construction, LLC, 359 RCR 4325, Emory, TX 75440
as Principal, hereinafter called the Principal, and
SureTec Insurance Company
9737 Great Hills Trail, Suite 320
Austin, Texas, 78759

(Here insert full name and address or legal title of Surety)

a corporation duly organized under the laws of the State of **TX**
as Surety, hereinafter called the Surety, are held and firmly bound unto

City of Farmersville

(Here insert full name and address or legal title of Owner)

as Obligor, hereinafter called the Obligor, in the sum of

***** FIVE PERCENT OF BID AMOUNT *****

Dollars (**5%**)

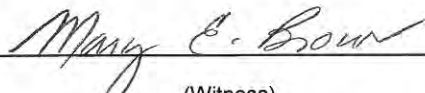
for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind
ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by
these presents.

WHEREAS, the Principal has submitted a bid for
City of Farmersville, Service Center

(Here insert full name, address and description of project)


NOW, THEREFORE, if the Obligor, shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligor,
in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with
good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in
the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the
Principal shall pay to the Obligor, the difference not to exceed the penalty hereof between the amount specified in said bid and such
larger amount for which the Obligor, may in good faith contract with another party to perform the Work covered by said bid, then this
obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this **14th** day of **April, 2014**


(Witness)

KW Brown Construction, LLC
(Principal)

(Seal)


(Title) **President**

SureTec Insurance Company

(Surety) (Seal)


(Witness)


(Title) **Attorney-in-Fact**

SureTec Insurance Company

LIMITED POWER OF ATTORNEY

Know All Men by These Presents, That SURETEC INSURANCE COMPANY (the "Company"), a corporation duly organized and existing under the laws of the State of Texas, and having its principal office in Houston, Harris County, Texas, does by these presents make, constitute and appoint

Steven E. Burleson, Staci Gross, Julie Smith

its true and lawful Attorney-in-fact, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver any and all bonds, recognizances, undertakings or other instruments or contracts of suretyship to include waivers to the conditions of contracts and consents of surety for:

Five Million and 00/100 Dollars (\$5,000,000.00)

and to bind the Company thereby as fully and to the same extent as if such bond were signed by the President, sealed with the corporate seal of the Company and duly attested by its Secretary, hereby ratifying and confirming all that the said Attorney-in-Fact may do in the premises. Said appointment shall continue in force until 12/31/2015 and is made under and by authority of the following resolutions of the Board of Directors of the SureTec Insurance Company:

Be it Resolved, that the President, any Vice-President, any Assistant Vice-President, any Secretary or any Assistant Secretary shall be and is hereby vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions:

Attorney-in-Fact may be given full power and authority for and in the name of and of behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements or indemnity and other conditional or obligatory undertakings and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be binding upon the Company as if signed by the President and sealed and effected by the Corporate Secretary.

Be it Resolved, that the signature of any authorized officer and seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signature or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached. (Adopted at a meeting held on 20th of April, 1999.)

In Witness Whereof, SURETEC INSURANCE COMPANY has caused these presents to be signed by its President, and its corporate seal to be hereto affixed this 21st day of March, A.D. 2013.

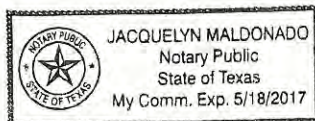
SURETEC INSURANCE COMPANY

By: [Signature]
John Knox Jr., President

State of Texas ss:
County of Harris



On this 21st day of March, A.D. 2013 before me personally came John Knox Jr., to me known, who, being by me duly sworn, did depose and say, that he resides in Houston, Texas, that he is President of SURETEC INSURANCE COMPANY, the company described in and which executed the above instrument; that he knows the seal of said Company; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said Company; and that he signed his name thereto by like order.



[Signature]
Jacquelyn Maldonado, Notary Public
My commission expires May 18, 2017

I, M. Brent Beaty, Assistant Secretary of SURETEC INSURANCE COMPANY, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Company, which is still in full force and effect; and furthermore, the resolutions of the Board of Directors, set out in the Power of Attorney are in full force and effect.

Given under my hand and the seal of said Company at Houston, Texas this 14th day of April, 2014, A.D.

[Signature]
M. Brent Beaty, Assistant Secretary

Any instrument issued in excess of the penalty stated above is totally void and without any validity.
For verification of the authority of this power you may call (713) 812-0800 any business day between 8:00 am and 5:00 pm CST.

Notice of Award

Dated: _____

Project: Service Center Project	Owner: City of Farmersville	Owner's Contract No.:
Contract:		Engineer's Project No.:
Bidder: KW Brown Construction LLC		
Bidder's Address: (send Certified Mail, Return Receipt Requested)		
359 Rains CR 4325		
Emory, Texas 75440		

You are notified that your Bid dated April 14, 2014 for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for the Service Center Project.

The Contract Price of your Contract is Two Hundred fifty thousand seven hundred ninety seven and 00/100 Dollars (\$ 250,797.00).

_____ copies of each of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

_____ sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner _____ fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders (Article 20), [and] General Conditions (Paragraph 5.01) [and Supplementary Conditions (Paragraph SC-5.01).]
3. Other conditions precedent:

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

Owner
By: _____
Authorized Signature

Title

Copy to Engineer

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CONTRACT AGREEMENT

THIS AGREEMENT is by and between City of Farmersville

(Owner) and KW Brown Construction LLC

(Contractor).

Owner and Contractor, in consideration of the mutual covenants set forth herein, agree as follows:

ARTICLE 1 - WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: construction of a Service Center Project.

ARTICLE 2 - THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows: construction of a Service Center Project.

ARTICLE 3 - ENGINEER

3.01 The Project has been designed by Daniel & Brown Inc.

Daniel & Brown, who is to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 - CONTRACT TIMES

4.01 Time of the Essence

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Days to Achieve Substantial Completion and Final Payment

A. The Work will be substantially completed within _____ days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within _____ days after the date when the Contract Times commence to run.

4.03 Liquidated Damages

A. Contractor and Owner recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$200.00 for each day that expires after the time specified in Paragraph 4.02 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$200.00 for each day that expires after the time specified in Paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 - CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A, 5.01.B, and 5.01.C below:

A. For all Work other than Unit Price Work, a Lump Sum of:

_____ (\$ _____)
(words) (numerals)

All specific cash allowances are included in the above price and have been computed in accordance with paragraph 11.02 of the General Conditions.

B. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in this paragraph 5.01.B:

As provided in Paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the General Conditions. Unit prices have been computed as provided in Paragraph 11.03 of the General Conditions.

Unit Price Work

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Estimated</u>
1	Construction of subgrade and concrete foundation, as specified, for the sum of:	LS	1	<u>\$45,248.00</u>	<u>\$45,248.00</u>
2	Construction of pre-engineered metal building, as specified, for the sum of:	LS	1	<u>\$30,520.00</u>	<u>\$30,520.00</u>
3	Construction of interior framing and wall/ceiling covering, as specified, for the sum of:	LS	1	<u>\$50,400.00</u>	<u>\$50,400.00</u>
4	Installation of plumbing, as specified, for the sum of:	LS	1	<u>\$16,753.00</u>	<u>\$16,753.00</u>
5	Installation of electrical, as specified, for the sum of:	LS	1	<u>\$40,992.00</u>	<u>\$40,992.00</u>
6	Installation of HVAC, as specified, for the sum of:	LS	1	<u>\$16,219.00</u>	<u>\$16,219.00</u>
7	Installation of interior finish-out, as specified, for the sum of:	LS	1	<u>\$50,665.00</u>	<u>\$50,665.00</u>
Total of All Estimated Prices (Words)		Two hundred fifty thousand seven hundred ninety seven and 00/100			
Total of All Bid Prices		\$250,797.00			

C. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6 - PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 Progress Payments; Retainage

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 1st day of each month during performance of the Work as provided in Paragraphs 6.02.A.1 and 6.02.A.2 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements:

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions:

a. 95 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, Owner, on recommendation of Engineer, may determine that as long as the character and progress of the Work remain satisfactory to them, there will be no additional retainage; and

b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

2. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 95 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions.

6.03 Final Payment

A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

ARTICLE 7 - INTEREST

7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the maximum legal rate.

ARTICLE 8 – CONTRACTOR’S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Agreement Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which has been identified in the Supplementary Conditions as provided in Paragraph 4.06 of the General Conditions.

E. Contractor has obtained and carefully studied (or assumes responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance

of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.

F. Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

I. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 - CONTRACT DOCUMENTS

9.01 Contents

A. The Contract Documents consist of the following:

1. This Agreement (pages 1 to 6, inclusive).
2. Performance bond (pages _____ to _____, inclusive).
3. Payment bond (pages _____ to _____, inclusive).
4. Other bonds (pages _____ to _____, inclusive).
 - a. _____ (pages _____ to _____, inclusive).
 - b. _____ (pages _____ to _____, inclusive).
 - c. _____ (pages _____ to _____, inclusive).
5. General Conditions (pages 1 to 42, inclusive).
6. Supplementary Conditions (pages 1 to 10, inclusive).
7. Specifications as listed in the table of contents of the Project Manual.
8. Location and plan sheets as listed in the table of contents of the Project Manual.
9. Addenda (numbers _____ to _____, inclusive).
10. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages 1 to 6, inclusive).
 - b. Documentation submitted by Contractor prior to Notice of Award (pages _____ to _____, inclusive).

c. Exhibit "A".

11. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:

- a. Notice to Proceed (pages 1 to 1, inclusive).
- b. Work Change Directives.
- c. Change Order(s).

B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 10 - MISCELLANEOUS

10.01 Terms

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 Assignment of Contract

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 Successors and Assigns

A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 Severability

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in duplicate. One counterpart each has been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or identified by Owner and Contractor or on their behalf.

This Agreement will be effective on _____, _____ (which is the Effective Date of the Agreement).

OWNER:

City of Farmersville

By: _____

Title: _____

[CORPORATE SEAL]

Attest: _____

Title: _____

Address for giving notices:

205 S. Main Street

Farmersville, Texas 75442

972-782-6151

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Owner-Contractor Agreement.)

CONTRACTOR:

KW Brown Construction LLC

By: K.W. Brown

Title: President

[CORPORATE SEAL]

Attest: _____

Title: _____

Address for giving notices:

359 Rains CR 4325

Emory, Texas 75440

903-473-3215

License No.: _____
(Where applicable)

Agent for service or process: _____

(If Contractor is a corporation or a partnership, attach evidence of authority to sign.)

Notice to Proceed

Dated: _____

Project: Service Center Project	Owner: City of Farmersville	Owner's Contract No.:
Contract:		Engineer's Project No.:
Contractor: KW Brown Construction LLC		
Contractor's Address: [send Certified Mail, Return Receipt Requested]		
359 Rains CR 4325		
Emory, Texas 75440		

You are notified that the Contract Times under the above contract will commence to run on _____. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the number of days to achieve Substantial Completion is ____, and the number of days to achieve readiness for final payment is ____.

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also, before you may start any Work at the Site, you must [add other requirements]:

KW Brown Construction LLC	City of Farmersville
(Contractor)	Owner
Received by: <u><i>K. W. Brown</i></u>	Given by: _____
<u><i>President</i></u>	Authorized Signature
(Title)	Title
<u><i>6/19/2014</i></u>	Date
(Date)	

Copy to Engineer

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EXHIBIT "A"

REQUEST FOR PROPOSALS

FOR

SERVICE CENTER PROJECT

TO SERVE THE

CITY OF FARMERSVILLE

COLLIN COUNTY, TEXAS

March 2014



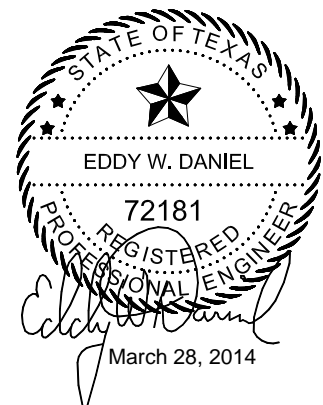
DANIEL & BROWN INC.

ENGINEERS/CONSULTANTS/PLANNERS

P.O. Box 606, Farmersville, Texas 75442

972-784-7777

FIRM REGISTRATION #: F-002225



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**INVITATION TO SUBMIT PROPOSAL
SERVICE CENTER PROJECT
CITY OF FARMERSVILLE, TEXAS**

Sealed PROPOSALS addressed to:

City of Farmersville
c/o Daniel & Brown Inc.
118 McKinney St
Farmersville, Texas 75442
972-784-7777

Will be accepted until 4:00 PM on Monday, April 14th, 2014 for the Service Center Project.
Specifications and scope of the project are available from the office of the engineer of Farmersville, TX:

Daniel & Brown Inc.
118 McKinney St
Farmersville, Texas 75442
972-784-7777

The City of Farmersville reserves the right to accept or reject any and all proposals and to accept only those proposals which are in the best interest of the City.

Benjamin White, P.E., City Manager
City of Farmersville

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**CITY OF FARMERSVILLE, TEXAS
REQUEST FOR PROPOSAL (RFP)
SERVICE CENTER PROJECT**

TERMS AND CONDITIONS

Submission of Proposal

Proposals shall be submitted in a sealed envelope upon the blank forms provided and plainly marked,
PROPOSAL FOR SERVICE CENTER PROJECT, CITY OF FARMERSVILLE, TEXAS.

Deadline

All proposals must be submitted prior to 4:00 P.M. on Monday, April 14, 2014. Proposals must be mailed or delivered to City of Farmersville, c/o Daniel & Brown Inc., City Engineer, 118 McKinney Street, Farmersville, Texas 75442.

Name of Offeror

Offeror party must give full firm name and address. Failure to manually sign the proposal will disqualify it. Person signing the proposal should show TITLE and AUTHORITY TO BIND HIS FIRM IN A CONTRACT.

Contract

This proposal, when properly accepted by the City of Farmersville, Texas ("The City") shall constitute a contract equally binding between the successful Offeror and The City. The City may delay acceptance of proposals for 30 days from date of opening.

Alterations by Offeror

Proposals cannot be altered or amended after opening time. Any alterations made before opening time must be initialed by Offeror or his authorized agent. No proposal may be withdrawn after opening, without approval, and based on a written acceptable reason.

Addenda

The City reserves the right to revise or amend the specifications prior to the date set for opening proposals. Such revisions or amendments, if any, will be announced by addenda or addendum to these specifications, copies of such addenda so issued will be furnished to all prospective offering parties.

Assignment

The successful Offeror shall not sell, assign, transfer or convey this contract in whole or in part, without prior written consent of The City.

Venue

This agreement will be governed and construed according to the laws of the State of Texas. This agreement is performable in Collin County.

Documentation

Offeror shall provide all documentation required by this invitation to proposal. Failure to provide this information may result in rejection of proposal.

Knowledge Of Conditions

The Offeror shall satisfy himself as to the nature of the work and general and local conditions. He or she shall gain full knowledge of working conditions and other facilities in the area, which will have a bearing on the performance of his or her work. Any failure by the Offeror to acquaint himself/herself with all of the available information shall not relieve the Offeror from any responsibility for performing all work properly. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR CONDITIONS INCREASING THE OFFEROR'S COST, WHICH WERE NOT KNOWN, OR SHOULD HAVE BEEN KNOWN, OR ANTICIPATED BY, THAT OFFEROR WHEN SUBMITTING THEIR PROPOSAL.

The City may consider non-responsive any proposal not prepared and submitted in accordance with the provisions hereof. Offerors shall understand that The City will not be responsible for any errors or omissions by the Offeror in their response.

All materials submitted become the property of The City, and may be returned only at The City's option. The City has the right to use any or all ideas presented in any reply to the request for proposal. Selection or rejection of the proposal does not affect this right.

Minimum Standards For Responsible Prospective Offerors

A prospective must affirmatively demonstrate Offeror's responsibility. A prospective Offeror must meet the following 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 schedule.
3. Have a satisfactory record of performance.
4. Have a satisfactory insurance/bonding for the project.
5. Be otherwise qualified and eligible to receive an award.

The City may request information sufficient to determine Offeror's ability to meet the minimum standards listed above.

Termination For Default

The City reserves the right to enforce the performance of this contract in any manner prescribed by law or deemed to be in the best interest of The City in the event of a breach or default of this contract. The City reserves the right to terminate the contract immediately in the event the successful Offeror fails to:

1. Meet schedules;
2. Pay any required fees; or,
3. Otherwise perform in accordance with the proposal specifications.

In the event the successful Offeror shall fail to perform, keep or observe terms and conditions of this proposal, The City shall provide written notice of such default; and in the event said default is not remedied to the satisfaction and approval of The City within two (2) working days of receipt of such notice by the successful Offeror, default may be declared and all the successful Offeror's rights shall terminate.

Silence Of Specifications

The apparent silence of these specifications, terms, and conditions to any detail, or to the apparent omission of a detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

Proposal Bond

A bid/proposal bond equal to 5.0% of the proposal amount shall be required by The City. The proposal/bid bond shall be submitted with the proposal.

Payment/Performance Bonds

Payment and Performance bonds shall be required for this project. A 1-year maintenance bond will be required.

Award

The City will award the proposal to either the lowest responsible Offeror or the Offeror who provides the goods or services at the best value for The City. In awarding the proposal, the following criteria will be used:

1. The proposal price; and
2. The reputation of the Offeror and the quality of the Offeror's goods or services; and
3. The extent to which the goods or services meet The City's needs;

**CITY OF FARMERSVILLE, TEXAS
REQUEST FOR PROPOSAL (RFP)
SERVICE CENTER PROJECT**

The City Of Farmersville, TX ("The City") is seeking to enter into a contract with a qualified contractor to perform building construction services for the City, as specified in the requirements below:

I. SCOPE OF WORK

The firm awarded the contract shall:

1. Perform demolition as required;
2. Prepare and stabilize subgrade and construct concrete foundation as specified;
3. Construct pre-engineered metal building as specified;
4. Construct interior framing and finish-out as specified;
5. Construct electrical, plumbing and HVAC as specified;
6. Provide a performance based, turn-key & fully completed construction project.

The firm awarded the contract shall do all work associated with the above items and as indicated on the accompanying plan sheets and specifications but not limited by any discoveries. Offeror will contact City Engineer, Eddy Daniel, P.E., with Daniel & Brown Inc., to identify any additional scope of work items for the project at 972-784-7777.

II. STATEMENT OF QUALIFICATIONS

The firm selected will be required to have experience in building construction services.

III. ASSURANCE AND COMMITMENTS

The Offeror shall provide the following performance assurance and commitments including:

1. The Offeror will perform all services under all applicable federal, state and local laws and codes.
2. The Offeror will perform all services with the highest regard for safety of the public and the citizens of the City.
3. The Offeror shall be responsible for any damages/ repairs/remediation caused by Offeror's equipment, employees and/or subcontractors.
4. The Offeror shall indemnify and hold harmless the City and the City Engineer from any claim, damage or cause of action and name the City as a certificate holder on all liability, casualty, automobile, equipment and other applicable insurance coverages.
5. Required insurance coverage and limits for this project as indicated below.
(Note: The City and Engineer shall be certificate holders):

- | | |
|------------------------------------|---|
| 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/Equipment | \$500,000 Combined Single Limit |
| d. Builders' Risk (All-Risk) | Coverage as may be required for any loss. |

V. COMPENSATION

The City will pay in accordance with the submitted proposal for unit price or lump sum price as work is performed minus a 5% retainage until the end of the project.

**PROPOSAL
CITY OF FARMERSVILLE, TEXAS
SERVICE CENTER PROJECT**

<u>Item No.</u>	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Proposal Price</u>
1	Construction of subgrade and concrete foundation, as specified, for the sum of:	LS	1	\$ _____
2	Construction of pre-engineered metal building, as specified, for the sum of:	LS	1	\$ _____
3	Construction of interior framing and wall/ceiling covering, as specified, for the sum of:	LS	1	\$ _____
4	Installation of plumbing, as specified, for the sum of:	LS	1	\$ _____
5	Installation of electrical, as specified, for the sum of:	LS	1	\$ _____
6	Installation of HVAC, as specified, for the sum of:	LS	1	\$ _____
7	Installation of interior finish-out, as specified, for the sum of:	LS	1	\$ _____
Base Proposal Total				\$ _____
Total Calendar Days for Completion of Project				_____

ALTERNATE PROPOSAL PRICES (Individually Subject to City Approval):

Alt 1	Construction of equipment shed, as specified, for the sum of:	PER SF	900 SF MIN	\$ _____
Alt 2	Construction of 4-inch thick concrete flat-work, as specified, for the sum of:	PER SF	100 SF MIN	\$ _____

By signature hereon affixed, the Offeror hereby certifies that the Offeror will meet the minimum standards established by the City of Farmersville, TX and the RFP document, plans and specifications for the City of Farmersville, TX SERVICE CENTER PROJECT and will perform such services accordingly. Any exceptions to the City of Farmersville, TX minimum standards or RFP document, plans or specifications are hereby noted:

SIGNED _____

NAME (PLEASE PRINT) _____

TITLE _____

NAME OF FIRM_____

ADDRESS _____

PHONE _____

PROPOSAL DEADLINE: Monday, April 14, 2014 at 4:00 p.m.

(This page is intentionally left blank)

BID BOND

Any singular reference to Bidder, Surety, Owner, or other party shall be considered plural where applicable.

BIDDER (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

BID

Bid Due Date:

Project (Brief Description Including Location):

BOND

Bond Number:

Date (Not later than Bid due date):

Penal sum _____ (Words) _____ (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

SURETY

Bidder's Name and Corporate Seal

(Seal)

Surety's Name and Corporate Seal

(Seal)

By: _____
Signature and Title

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title

Attest: _____
Signature and Title

Note: Above addresses are to be used for giving required notice.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Surety's liability.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.
12. **IMPORTANT** – Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):
Business):

SURETY (Name and Address of Principal Place of

OWNER (Name and Address):

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

(Space is provided below for signatures of additional parties, if required.)

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title

SURETY

(Seal)

Surety's Name and Corporate Seal

By: _____
Signature and Title
(Attach Power of Attorney)

Attest
:

Signature and Title:

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

2. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.

3. If there is no Owner Default, Surety's obligation under this Bond shall arise after:

3.1. Owner has notified Contractor and Surety, at the addresses described in Paragraph 10 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and

3.2. Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 3.1; and

3.3. Owner has agreed to pay the Balance of the Contract Price to:

1. Surety in accordance with the terms of the Contract;
2. Another contractor selected pursuant to Paragraph 4.3 to perform the Contract.

4. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:

4.1. Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or

4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or

4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or

4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
2. Deny liability in whole or in part and notify Owner citing reasons therefor.

5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 4.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.

6. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

6.1. The responsibilities of Contractor for correction of defective Work and completion of the Contract;

6.2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph 4; and

6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

7. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.

8. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

11. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. Definitions.

12.1. Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.

12.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

12.3. Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

12.4. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY – Name, Address and Telephone
Surety Agency or Broker
Owner's Representative (engineer or other party)

PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

CONTRACT

Date:

Amount:

Description (Name and Location):

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By: _____

Signature and Title

(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest: _____

Signature and Title

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By: _____

Signature and Title

(Attach Power of Attorney)

Attest: _____

Signature and Title:

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
 - 2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
 - 4.1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2. Claimants who do not have a direct contract with Contractor:
 1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
 2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
 - 6.1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 6.2. Pay or arrange for payment of any undisputed amounts.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
15. DEFINITIONS
 - 15.1. Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
 - 15.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
 - 15.3. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

**FOR INFORMATION ONLY – Name, Address and Telephone
Surety Agency or Broker:
Owner's Representative (engineer or other party):**

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.

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SPECIFICATIONS

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Outline Specifications for Proposed Farmersville Service Center Construction City of Farmersville

Property Address: 302 South Johnson Street
Farmersville, Texas 75442
County of Collin
State of Texas

This outline specification is intended to be used in conjunction with the construction plans. In all the cases noted below see the construction plans for additional detail. Cut sheets for all items shall be provided prior to installation for approval by customer.

Code Conformance

The structure design and construction shall meet the following standards as well as building standards for the City of Farmersville. In the event of a conflict between the standards listed below and the plans the standards listed below shall preside.

1. National Fire Protection Association (NFPA) 101 Life Safety Code Year 2009,
2. National Fire Code (2006)
3. National Fuel Gas Code (2006)
4. National Electric Code (2008)
5. International Building Code (2006)
6. International Mechanical Code (2006)
7. International Plumbing Code (2006)
8. Comply with Americans with Disability Act (ADA)

Critical Dimensions

1. Existing slab square footage: 3,200.0
2. Proposed slab square footage: 1,920.0
3. Framed downstairs conditioned space: 973.0
4. Framed upstairs conditioned space: 827.8
5. Total working space: 5,947.8

Excavation

1. Remove all obstructions as required for construction of slab and drive and as indicated on the construction documents. Trees will be felled and roots removed - not cut and ground. Root holes and other sinkholes will be filled with structural fill and compacted.
2. Existing soil will be cut away to eliminate as much top vegetation and surface roots as possible.
3. Fill to grade as required. The exact amount of fill will be determined by the finished floor elevation as specified in the Construction Documents. Fill shall be compacted in 6" lifts as required.
4. Swallows may be incorporated in the general site contouring to expedite run-off to area drainage.

Category	Specification
Concrete Foundation	
Soil Preparation	<ol style="list-style-type: none"> 1. Undisturbed Natural Subsoil: No preparation required. 2. Disturbed Natural Subsoil: Compacted to proctor density of 95% in 6 inch lifts. 3. Subsoil: select fill in compacted 6 inch lifts to proctor density of 95%. 4. Sand: 4 inch minimum cushion sand.
Slab	<ol style="list-style-type: none"> 1. Minimum Thickness: 6 inches (unless shown otherwise on plans) 2. Strength: 3500 PSI 3. Reinforcing: see details
Slab Beams	<ol style="list-style-type: none"> 1. Width: 15 inches (unless shown otherwise on plans) 2. Strength: 3500 PSI 3. Reinforcing: see details
Foundation Wall	<ol style="list-style-type: none"> 1. Strength: 3500 PSI 2. Reinforcing: see plan details
Piers	<ol style="list-style-type: none"> 1. Strength: 3500 PSI 2. Reinforcing: see details
Waterproofing	0.006 inch polyethylene sheet
Termite protection	As applicable for existing soil and environmental conditions
Rebar	<ol style="list-style-type: none"> 1. #4 bars shall be placed on 12" centers minimum. See plan details. 2. Number 6 bars shall be placed in all beams See plan details. 3. Chairs shall be in place as required.
Finish	Smooth
Slope	Zero slope unless otherwise noted in the plans
Exterior Wall Anchoring	Foundation anchor bolts or ram-set every 4 feet on center
Interior Wall Anchoring	None required

Category	Specification
Concrete Driveways and Walks	
Soil Preparation	<ol style="list-style-type: none"> 1. Undisturbed Natural Subsoil: No preparation required. 2. Disturbed Natural Subsoil: Compacted to proctor density of 95% in 6 inch lifts. 3. Subsoil: select fill in compacted 6 inch lifts to proctor density of 95%. 4. Sand: 4 inch minimum cushion sand.
Slab	<ol style="list-style-type: none"> 1. Minimum Thickness: 6 inches (unless shown otherwise on plans) 2. Strength: 3500 PSI 3. Reinforcing: see details
Piers	<ol style="list-style-type: none"> 1. Strength: 3500 PSI 2. Reinforcing: see details
Waterproofing	None required
Termite protection	None required
Rebar	<ol style="list-style-type: none"> 1. #4 bars shall be placed on eighteen inch (12") centers minimum. See plan details. 2. Chairs shall be in place.
Finish	Broomed finished
Slope	Slope away from the structure to ensure proper drainage, unless otherwise noted
Wall Framing	
Framing Wood	<ol style="list-style-type: none"> 1. Yellow pine or "Standard and Better Fir" grades. 2. Grade: Number 2 or better. 3. Finger joint wood when acceptable. 4. All framing wood shall come from certified sustainable forest via the Sustainable Forest Initiative (SFI) or equivalent.
Exterior Wall Frame Construction	<ol style="list-style-type: none"> 1. 2" X 6" studs 16" on center 2. Double 2" X 6" top plate 3. Single 2" X 6" treated base plate. 4. Oriented Strand Board (OSB): Georgia-Pacific OSB Radiant Barrier Sheathing or approved equivalent. Thermal barrier towards living area. 5. Plate gasket: Owens Corning, FoamSealR or approved equivalent. 6. Siding: JamesHardie, HardiePanel® or approved equivalent, zone: pattern Sierra 8, color: Arctic White, size: 4' X 8' X 5/16". 7. Corner trim: JamesHardie, HardieTrim® 4/4 Boards, zone: HL10, pattern: smooth, color: Arctic White, size: 5 1/2" X 3/4" or approved equivalent. 8. Insulation: spray-in open cell urethane foam (or equivalent R value spray foam) with insect inhibitor as necessary. Insulate exterior walls.

Category	Specification
Interior Wall Frame Construction	<ol style="list-style-type: none"> 1. 2" X 4" studs 16" on center. 2. Double 2" X 4" top plate. 3. Single 2" X 4" treated base plate. 4. Conditioned space wall board: ½" mold resistant drywall (gypsum). Installation shall be screwed. 5. Base trim: 1" X 4" fir or equivalent.
Assembly	Job site assembled panels or pre-fabricated panels
Upstairs Floor Joist Framing	
Framing Wood	<ol style="list-style-type: none"> 1. Yellow pine or "Standard and Better Fir" grades. 2. Grade: Number 2 or better. 3. All framing wood shall come from certified sustainable forest via the Sustainable Forest Initiative (SFI) or equivalent.
Construction	<ol style="list-style-type: none"> 1. Dimensions: 2" X TBD" standard or engineered floor joist. 2. Spacing: TBD". 3. ¾" interior grade plywood decking. 4. No Insulation except at exterior walls. Spray-in open cell urethane foam (or equivalent R value spray foam) with insect inhibitor as necessary.
Assembly	Job site installed.
Ceiling/Roofing Framing	
Framing Wood	<ol style="list-style-type: none"> 1. Yellow pine or "Standard and Better Fir" grades. 2. Grade: Number 2 or better. 3. All framing wood shall come from certified sustainable forest via the Sustainable Forest Initiative (SFI) or equivalent.
Construction	<ol style="list-style-type: none"> 1. 2" X TBD" engineered truss. 2. Spacing: TBD". 3. No plywood sheathing. 4. Insulation: spray-in open cell urethane foam (or equivalent R value spray foam) with insect inhibitor as necessary.
Assembly	Job site installed
Lath, Plaster, and Paint	
Downstairs Framed Conditioned Space	<ol style="list-style-type: none"> 1. Drywall on walls and ceilings. 2. Material: ½" mold resistant drywall. 3. Drywall shall be installed with screws. 4. Joint treatment: tape and float. 5. Finish: orange peel/splatter texture and painted. 6. Paint color selected by customer.
Upstairs Framed Conditioned Space	<ol style="list-style-type: none"> 1. Drywall on walls and ceilings. 2. Material: ½" mold resistant drywall. 3. Drywall shall be installed with screws. 4. Joint treatment: tape and float. 5. Finish: orange peel/splatter texture and painted. 6. Paint color selected by customer.

Category	Specification
Doors and Trim	
Downstairs Framed Conditioned Area	<ol style="list-style-type: none"> 1. Exterior glass and metal door to shop area: 3'-0" X 6'-8" commercial duty entry door with lockable entry. Equipped with fire egress hardware (bump exit). ADA compliant door knob. (or approved equivalent). 2. Interior restroom door: 3'-0" X 6'-8" commercial door. ADA compliant door knob. Appropriate ADA compliant placard. 3. Door knobs and deadbolt locks are brushed nickel finish. 4. Existing knob/locking hardware will be replaced with new and rekeyed to match. 5. Existing entrance doors will be replace with new. 6. Baseboard material: 1" X 4" straight grade fir or equivalent.
Windows	
Entry Window	<ol style="list-style-type: none"> 1. Replace downstairs framed conditioned area windows with low-e, double pane, gas filled windows. With screens. Pella 25 Series with colonial grilles (or approved equivalent).
Exterior Detail	
Exterior Paint	<ol style="list-style-type: none"> 1. No paint required except as touch-up. 2. Caulk and seal joints as required with color matching caulk.
Cabinets and Interior	
Restroom	<ol style="list-style-type: none"> 1. Mirror with no frame over sink: 30" wide X 36" high. Held by mirror clips. 2. Wall cabinet (over toilet): Shenandoah, valet cabinet, VC2436 BUTT, Winchester Square Thermofoil. 3. ADA compliant stainless steel handicap rail over and around toilet. 4. Commercial motion activated rolled paper towel dispenser. ADA compliant height. San Jamar Smart System Electronic Touchfree Roll Towel Dispenser T1400TBK (or approved equivalent). 5. Bathroom stalls: TBD
Locker Room	<ol style="list-style-type: none"> 1. Custom cabinet. 2. No particle board allowed. 3. Painted white or natural maple (sealed).

Category	Specification
Kitchen	<ol style="list-style-type: none"> 1. Cabinets: Shenandoah Cabinetry, Sydney, natural maple finish (or approved equivalent). <ol style="list-style-type: none"> a. Door pull selection by customer b. 2. Countertop: Laminate, Formica 3689-77, Himalayan Slate honed finish, waterfall edge. 3. Backsplash: Full laminate to wall cabinet, no sheetrock, Formica 3689-77, Himalayan Slate honed finish 4. Guardian III Wet Chemical Extinguishing Unit <ol style="list-style-type: none"> a. Model G300-A, Electric Shut-Off b. Manual Remote Pull Station, G309-A, location specified by customer c. Interface Enclosure Assembly, G317-A
Meeting Area	<ol style="list-style-type: none"> 1. Window sills: laminate, color by customer.
Flooring and Floor Treatments	
Downstairs Framed Conditioned Area	<ol style="list-style-type: none"> 1. Epoxy floor coating system. Behr Concrete & Garage Floor Epoxy Colors 2 Part System (or approved equivalent). Tan with decorative color flakes. 2. Color per customer. Confirm color with customer.
Upstairs Framed Conditioned Area	<ol style="list-style-type: none"> 1. Vinyl. 2. Color per customer. Confirm color with customer.
Shop Area	<ol style="list-style-type: none"> 1. Epoxy floor coating system. Behr Concrete & Garage Floor Epoxy Colors 2 Part System (or approved equivalent). Gray. 2. Color per customer. Confirm color with customer.
Restroom Plumbing	
Sink	<ol style="list-style-type: none"> 1. Wall mount bathroom sink. Kohler Hudson® Model K-2812, single hole, white (or approved equivalent).
Soap Dispenser	<ol style="list-style-type: none"> 1. Recessed wall mount soap dispenser with soap vessel, stainless. Bobrick model B-306 (or approved equivalent)
Toilet	<ol style="list-style-type: none"> 1. ADA compliant, Kohler Kelston K11453-0, top spud, white (or approved equivalent). 2. Plastic/Nylon toilet seat. No wood. 3. Touchless flushometer.
Urinal	<ol style="list-style-type: none"> 1. ADA Compliant, Kohler Branham™ K-4920-T (or approved equivalent). 2. Touchless flushometer.
Faucet	<ol style="list-style-type: none"> 1. Kohler Electronic Faucet with mixer, K-7415 centerset, deck mount, chrome, 2538-MPU (or approved equivalent).
Kitchen Plumbing	
Sink	<ol style="list-style-type: none"> 1. Stainless steel, Kohler Taccata™ K-3847-4 four hole (or approved equivalent).
Sink Faucet	<ol style="list-style-type: none"> 1. Moen Extensa®, model 7560, bright chrome (or approved equivalent).

Category	Specification
Water Filtration	1. Whirlpool under sink water purifier, model #: WHEMB40 (or approved equivalent).
Insta-Hot	1. InSinkErator, chrome, hot/cold, model #: HC-WAVEC-SS (or approved equivalent).
Soap Dispenser	1. Moen model 3942 bright chrome (or approved equivalent), quantity 2
Disposal	1. In sinkErator, Evolution, ¾ HP (or approved equivalent).
Dishwasher	1. KitchenAid, Built-In Dishwasher with Stainless Steel Tub (Stainless Steel), Model KDFE304DSS, (or approved equivalent)
Refrigerator	1. Frigidaire, 26-cu ft side-by-side, stainless steel, Model #: FFHS2622MH, (or approved equivalent)
Range	1. Frigidaire, 30-in, smooth surface, freestanding, 5.4-cu ft, self-cleaning convection electric range, stainless steel, model # FFEF3019MS, (or approved equivalent)
Vent Hood	1. Frigidaire, 36-in undercabinet, stainless steel, Model #: FHWC3640MS, (or approved equivalent)
General Plumbing	
Hot Water Heater	1. 40 gallon capacity minimum 2. Gas
Piping	1. ¾" PEX unless otherwise noted
Deluge Shower	1. Sparkman, SE-227-SCV-XPR Lifesaver® Emergency Shower, (or approved equivalent)
Eye Wash Station	1. Wall mounted, Sparkman, SE-1000, (or approved equivalent)
Hose Bib	1. Frost free.
Heating, Ventilation, and Air Conditioning	
Air Conditioning/Heating Unit	1. Trane brand. 2. Gas heat. 3. Two units, one up, one down.
Restroom Exhaust Fan	1. Broan XB110 or approved equivalent
Thermostat	2. Honeywell 7 day, touch screen, Model RTH9580 Wi-Fi
Electrical	
Downstairs Framed Conditioned Area	1. In wall wiring. 2. Smoke alarm. 3. All smoke alarms interconnected. One alarms, all alarm.
Upstairs Framed Conditioned Area	1. In wall wiring. 2. Smoke alarm. 3. All smoke alarms interconnected. One alarms, all alarm.
Shop area	1. Surface mount metal conduit 2. Smoke alarm.

Category	Specification
Lighting	
Shop Area Lighting	<ol style="list-style-type: none"> 1. Florescent technology, industrial high bay, T5HO double pin, electronic ballast. 2. Illuminance: TBD.
Conditioned Area Lighting	<ol style="list-style-type: none"> 1. Under counter lighting <ol style="list-style-type: none"> a. LED technology. b. Illuminance: TBD footcandles minimum. 2. General lighting <ol style="list-style-type: none"> a. Florescent technology. b. Recessed, white, swing door frame, clear prismatic acrylic lens. c. Illuminance: TBD footcandles minimum. 3. Restroom lighting <ol style="list-style-type: none"> a. Florescent technology. b. Recessed, white, swing door frame, clear prismatic acrylic lens. c. Illuminance: TBD footcandles minimum. 4. Locker area lighting <ol style="list-style-type: none"> a. Florescent technology. b. Recessed, white, swing door frame, clear prismatic acrylic lens. c. Illuminance: TBD footcandles minimum.
Security System	
Camera System	1. 8 camera security system with DVR capability.
Door Access	1. 6 door card reader access system.
Garage Door Operator	1. Match existing door operator brand. Lift Master
Information Technology	
WiFi Bridge	1. Wireless bridge with antenna. Place equipment upstairs.
Switch	1. 8 port switch. Place equipment upstairs.
Router	1. Wireless router. Place equipment upstairs.
Wiring	1. Hardwire CAT-5 cable drops to multi-function plates (CAT-5, cable, telephone)
Fire Extinguisher	
Downstairs Framed Conditioned Area	1. ABC or CO ₂ fire extinguisher. Quantity, size, and type to be specified by Collin County Fire Equipment Group
Upstairs Framed Conditioned Area	1. ABC or CO ₂ fire extinguisher. Quantity, size, and type to be specified by Collin County Fire Equipment Group
Shop Area	1. ABC or CO ₂ fire extinguisher. Quantity, size, and type to be specified by Collin County Fire Equipment Group

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 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>	Slump in inches	
	Maximum	Minimum
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 1/4 inch when measured at the edge of each form.
 - d. The maximum allowable deviation from any plan dimension is plus or minus 1/4 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 ($\pm \frac{1}{2}''$).
 - c. Stirrups, ties and spirals: or minus one-half inch ($\pm \frac{1}{2}''$).
 - 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 ($\frac{3}{8}''$).
 - b. Minimum spacing between bars: one-quarter inch ($\frac{1}{4}''$)
 - c. Top bars in slabs or beams.
 - i. Members eight (8'') inches deep or less: one-quarter inch ($\frac{1}{4}''$).
 - ii. Members more than eight inches (8''), but not over, two feet (2') deep: plus or minus one-half inch ($\pm \frac{1}{2}''$).
 - 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 cementitious 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-fitting 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 .006 inch thick polyethylene film vapor barrier under slabs on grade. Film shall be factory fabricated into large sheets. Stretch and weight sheets until sealed together.
- B. Lap joints a minimum of 8-12 inches and seal with tape or mastic..
- 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 $\frac{1}{2}$ " in ten (10') feet and within plus or minus $\frac{1}{4}$ " 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 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 Mils 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 Mils 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. Chemical lines shall have letters and color banding. Letters shall be placed along the pipe at five foot intervals. The color code is as follows:

Letters	Color of Pipe	Tnemec Color
Potable Water	Light Blue	26BL (Clear Sky)
Raw Water	Tan	04BR (Desert Sand)
Settled Water	Green	09SF (Safety Green)
Filter Effluent	Light Blue	26BL
Backwash Supply	Light Blue	26BL
Backwash Waste	Dark Grey	34GR (Deep Space)
Drain	Dark Grey	34GR
Compressed Air	Light Green	37GN (Irish Spring)
Instrument Air	Light Green with Dark Green Bands	37GN w/ 21GN (Fairway)
Chlorine (gas, liquid, or vent)	Yellow	02SF (Safety Yellow)
Chlorine (solution)	Yellow with Red Bands	02SF with 06SF (Safety Red)
Liquid Alum	Yellow with Orange Bands	02SF with 04SF (Safety Orange)
Alum (solution)	Yellow with Green Bands	02SF with 09SF
Ammonia	Yellow with Brown Bands	02SF with 84BR (Weathered Bark)
Chlorine Dioxide (solution)	Yellow with Blue Bands	02SF with 11SF (Safety Blue)
Ferric chloride	Brown with Red Bands	84BR with 06SF
Ferric sulfate	Brown with Yellow Bands	84BR with 02SF
Polymers	White with Green Bands	00WH (Tnemec White) with 09SF
Liquid caustic	White with Red Bands	00WH with 06SF
Caustic (solution)	White with Orange Bands	00WH with 04SF
Fluoride	White with Yellow Bands	00WH with 02SF

Ozone	Stainless Steel with White Bands	00WH
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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.

Protective Coating System	Surface Preparation	Number of Coats	Dry Mils Per Coat
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:

Protective Coating System	Surface Preparation	Number of Coats	Dry Mils Per Coat
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.

Protective Coating System	Number of Coats
Primer: Block Filler	1
Finish Coat: Exterior Latex Paint	1

Interior masonry walls: Color as selected by OWNER.

Protective Coating System	Number of Coats
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.

Protective Coating System	Number of Coats
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.

Protective Coating System	Number of Coats
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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

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SECTION 806

PRE-ENGINEERED STEEL BUILDING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes pre-engineered steel building and components.

1.2 REFERENCES

- A. AISC - Specification for Structural Steel Buildings, Allowable Stress Design (ASD).
- B. AISC - Code of Standard Practice for Structural Steel Buildings and Bridges.
- C. ASTM A 36 - Carbon Structural Steel.
- D. ASTM A 123 - Zinc (Hot Dipped Galvanized) Coatings on Iron and Steel Products.
- E. ASTM A 153 - Zinc Coating (Hot Dip) on Iron and Steel Hardware.
- F. ASTM A 325 - Structural Bolts, Steel, Heat-Treated, 120/105 ksi Minimum Tensile Strength.
- G. ASTM A 449 - Tempered Steel Bolts and Studs.
- H. ASTM A 500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
- I. ASTM A 501 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
- J. ASTM A 563 - Carbon and Alloy Steel Nuts.
- K. ASTM A 992 - Steel for Structural Shapes for Use in Building Framing.
- L. ASTM F 959 - Compressible-Washer-Type Direct Tension Indicators for Use with Structural Fasteners.
- M. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination.
- N. AWS D1.1 - Structural Welding Code - Steel.
- O. SSPC Paint 20 - Zinc-Rich Primers (Type I - "Inorganic" and Type II - "Organic").
- P. SSPC SP 3 - Power Tool Cleaning.

1.3 SUBMITTALS

- A. Shop Drawings:
 - 1. Indicate profiles, sizes, spacing, and locations of steel building lay-out with structural members, openings, attachments, and fasteners.
 - 2. Connections.
 - 3. Cambers.
 - 4. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths.
 - 5. Calculations for connections.
- B. Mill Test Reports: If required, submit indicating structural strength, destructive and non-destructive test analysis.
- C. Manufacturer's Mill Certificate: Certify that products meet or exceed specified requirements.
- D. Welders Certificates: If required, certify welders employed on the Work, verifying AWS qualification within the previous 12 months.
- E. AISC Certification: If required provide documentation to verify fabricator certification per AISC quality certification program.
- F. Direct Tension Indicator Devices: If direct tension indicator devices are used to provide product data and test data to show correct tension in bolts.

1.4 QUALITY ASSURANCE

- A. Fabricate, furnish, and erect a complete steel building in accordance with AISC Code of Standard Practice.
- B. Fabricator Qualifications: Company specializing in performing the Work of this section with five years applicable experience, minimum, and holding current AISC Certification.

- C. Erector Qualifications: Company specializing in performing the Work of this section with five years applicable experience, minimum.
- D. Provide structural steel fabrication and erection by an organization experienced in structural steel work of equivalent magnitude. Provide detailing, fabrication, and correct fitting of structural members. Consider connections for any part of the structure not shown on the contract Drawings, as simple shear connections. Design and detail in accordance with pertinent provisions of AISC, Specification for Structural Steel Buildings, ASD. Substitution of sections or modification of connection details will not be accepted unless approved by the Architect/Engineer.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All beams and columns: ASTM A 36.
- B. Miscellaneous Bracing Angles, Column Base Plates, Plates, Connection Angles, Stiffener Plates or Angles and Other Miscellaneous Metal: ASTM A 36.
- C. Structural Tubing: ASTM A 500, Grade B.
- D. Pipe: ASTM A 501
- E. Bolts, Nuts, and Washers: ASTM A 325 bolts, ASTM A 563 nuts, where indicated bolts to be galvanized in accordance with ASTM A 153.
- F. Anchor Bolts: ASTM A 36.
- G. Welding Materials: AWS D1.1; type required for materials being welded.
- H. Grout: Non-shrink type, pre-mixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing additives, capable of developing a minimum compressive strength of 7,000 psi at 28 days.
- I. Shop and Touch-Up Primer: SSPC Paint 15, Type 1, and red oxide.
- J. Touch-Up Primer for Galvanized Surfaces: SSPC Paint 20, Type I Inorganic.
- K. Direct Tension Indicator Devices: ASTM F 959.

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.
- B. Shop prime structural steel, and miscellaneous components. Do not prime surfaces to be field welded or in contact with concrete.

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.
- B. Field weld components indicated on Drawings.
- C. Install bolted members in accordance with of ASTM A 325. The turn-of-nut tightening, calibrated wrench or direct tension indicator devices may be used to install bolted connections.
- D. Do not field cut or alter structural members without approval of Architect/Engineer.

- E. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete.
- F. Grout under base plates. Trowel grouted surface smooth, splay neatly to 45 degrees. Grout to be placed in a fluid flowable state. Confine grout in a form and cure per manufacturer's recommendations. Grout under base plate after structural has been plumbed.
- G. Install expansion joint as indicated on the Drawings.

3.2 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: 1/4-inch per 10 feet, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4-inch.
- C. Additional Tolerances: Conform to AISC Code of Standard Practice.

3.3 FIELD QUALITY CONTROL

- A. Independent Testing Laboratory to perform the following testing services:
 - 1. Review mill test reports for compliance with specifications.
 - 2. Review welder's certificates.
 - 3. Visually inspect all field fillet welds and prepare reports.
 - 4. Visually inspect 10 percent of shop fillet welds after members are delivered to the site and prepare report.
 - 5. Visually inspect all field full penetration welds.
 - 6. Provide ultrasonic testing on 60 percent of all field full penetration welds.
 - 7. Provide ultrasonic testing on 20 percent of all field fillet welds.
 - 8. Observe installation of bolted connections and verify compliance with specified requirements. Turn-of-nut tightening, calibrated wrench tightening or direct tension indicator tightening per ASTM A 325 to install bolted connections may be used as an option.
 - 9. Verify that structure has been erected per the specified tolerances.
 - 10. Confirm that anchor bolts have been properly tightened and grout has been installed under column base plates.
 - 11. Verify proper installation of expansion joint assembly where indicated on Drawings.

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.

In the design of primary framing members, wind pressure shall be applied as prescribed by the U.S. Navy Bureau of Yards and Docks Publication, "NAVDOCKS DM-2", and by the Metal Building Manufacturers Association, or the AISC Publication, Plastic Design in Steel. The design wind pressures shall be 20 psf.

All wall girts and roof purlins to be designed as simple beams with shear connections on each end and shall be supported in a manner to eliminate bearing of the member against the flange of the supporting beam. Each interior rigid frame will therefore carry equal loads.

The building manufacturer shall furnish a letter, sealed by a professional ENGINEER, certifying the design loads. The manufacturer is also to furnish complete erection drawings, anchor bolt setting

plans, flashing details. Accessory installation details shall be furnished with all parts clearly indicated with part numbers for proper assembly.

Structural Framing: All framing members shall be shop fabricated for bolted field assembly.

Nomenclature:

1. Primary structural framing shall refer to rigid frames, rafter beams, and wind bracing.
2. Secondary structural framing shall refer to purlins girts, eave struts, flange bracing, clips, etc.

All hot rolled steel sheet, plate, and strip shall have a minimum of 42,000 psi yield strength. All strip for light gage purlins and girts shall have a minimum yield point of 50,000 psi.

All field connections shall be bolted. All bolts for secondary framing to be a minimum of ½ inch diameter machine bolts. All primary structural members to be field bolted with ASTM Specification A-325 bolts and nuts. All bolts, nuts, and washers to be cadmium plated.

All framing members shall be marked for identification and erection.

Rigid Frames, Wing Unit frames, Canopy Beams: - All members shall be mill sections or welded built up "I" shapes either constant depth or tapered. All flange-to-web welding for built-up sections shall be done by an automatic submerged arc process.

Purlins and Girts: Purlins and girts shall be roll-formed "C" or "Z" sections of a depth and gage as needed to conform to the particular design criteria.

Eave Struts: Eave Struts shall be 14 gage, 8" deep, "C" sections used to properly and adequately receive both the roof sheets and wall sheets and to serve as a compression member to transfer endwall wind loads.

Wind Bracing: Wind bracing shall consist of diagonal rods in both the roof and sidewalls. The size and number of rods required depends on the amount of wind load to be transferred to the foundation footings.

Flange Bracing: The compression flange shall be laterally supported that the allowable compressive stress is not exceeded.

Base Trim: The fastening of the bottom of the wall panels is accomplished by using a full girt section as a base girt located off the floor slab, or a base angle anchored to the floor slab.

Painting: All structural framing members, which are not galvanized or otherwise coated, shall be cleaned and painted as specified under Item 501, "General Painting".

Roof and Wall Covering:

1. Roof covering shall be 26 gage "Galvalum" steel sheet, "Ultra-dek 124" standing seam snap-together system.
2. Side covering shall be 26 gage galvanized steel ribbed panels.
3. The walls and roof shall be insulated with 2" of fiberglass. The insulation shall have a white vinyl or PVC backing.

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.

Sealer: Sealer for sidelaps, endlaps, and flashing shall be ½" wide by 3/32" thick, gray pressure sensitive tape as manufactured by Schnee-Morehead Chemicals, Inc., or equal.

Flashing, Closures, 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 and wall 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.

Building Anchorage: The building anchor bolts and related anchorage shall be designed to resist the column reactions resulting from the design loads. The sizes and design of the bolts shall be as specified by the building manufacturer.

Single Source: Prefabricated Metal Building shall be designed, fabricated and all materials supplied by one manufacturer. The manufacturer shall have a minimum of five years experience. Approved Manufacturers are: Athens Steel Building, Butler Manufacturing, General Steel, Mesco Metal Building, Mueller and Red Dot Corporation.

Erection of the Metal Building Shall Be Performed By:

1. Authorized Dealer or Builder of manufacturer's.
2. Building manufacturer's crew.

Other erectors authorized by manufacturer as trained and qualified to erect that manufacturer's product. In this case, metal building manufacturer shall inspect the work and certify its' correctness in writing to Engineer and Owner.

Metal Doors and Frames:

Furnish and install all metal doors and frames as called for on the plans and herein specified.

Metal Frames:

1. All metal door frames to have four (4) jamb anchors per jamb.
2. 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.
3. Metal frames to be of the size and shape as detailed on the plans, equal to Amweld or an approved equal. Unless otherwise noted, all frames shall be 16 GA.
4. All frames shall be approved by Owner.

Metal Doors:

1. Doors shall be hollow metal of size and design as shown on the plans.
2. All doors shall be 16 GA. Cold-rolled steel.
3. When glass is shown on plans exterior doors shall have insulated with Low-E tempered glass. Interior doors shall have insulated tempered glass.
4. All metal doors on this project shall be furnished with wire reinforced glass, kickplates, closers, thresholds, weather-stripping, and door holders.
5. All doors shall be approved by Owner.

Hardware:

1. Furnish and install all builder's hardware including doorclosers, thresholds, weather-stripping, and kickplates necessary to make a complete installation.
2. Furnish and install all builder's hardware including door-closers, thresholds, weather-stripping, and kick plates necessary to make a complete installation.
3. Interior door knobs shall be Schlage Satin Nickel Round Residential Passage Door Knob or equivalent. Interior privacy door knobs shall be Schlage Satin Nickel Round

- Push Button-Lock Residential Privacy Door Knob or equivalent
4. Locksets:
 - a. All exterior door locksets shall be manufactured by YALE series grade 1 and be commercial grade heavy duty, unless otherwise specified.
 - b. All exterior door locksets shall be keyed of knob type.
 5. All hardware shall be approved by the Owner.

Windows:

Furnish and install all windows and frames as called for on the plans and herein specified.

1. Exterior windows shall be insulated with Low-E glass
2. Interior windows shall be insulated with tempered glass.
3. All windows shall be approved by the OWNER/ENGINEER.

END OF SECTION

SECTION 812 ROLLING DOOR SERVICE

PART 1 - GENERAL

1.1 GENERAL

Furnish all labor, materials, equipment and incidentals required to install a commercial grade overhead roll-up door with support frames as shown on the Drawings or specified. Doors shall be designed for 20,000 cycles. Doors shall be designed to withstand a 20 PSF wind load.

PART 2 - PRODUCTS

- 2.1 Curtain: shall be assembled from interlocking Type A (2 5/8" x 7/8") curved slats or Type T (2 5/8" x 3/4") flat slats, roll-formed from galvanized steel strip. Slat shall be 22 gauge minimum on doors to 16'-0" wide, 20 gauge minimum on doors over 16'-0" wide. Endlocks shall be riveted to ends of alternate slats. Wind locks shall be riveted to ends of slats when required to meet design wind load
- 2.2 Finish:
- a. Curtain slats and hood shall be galvanized in accordance with ASTM A 653 and receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester top coat.
 - b. Non-galvanized exposed ferrous surfaces shall receive one coat of rust-inhibitive primer.
 - c. Top Coat Color: shall be powder coating finish in color as selected by Owner from manufacturer's standard colors
- 2.3 Bottom Bar: shall be formed by two 2" x 2" x 1/8" minimum extruded aluminum bolted together and attached to bottom of curtain. Vinyl weather-strip shall be provided on bottom of bottom bar.
- 2.4 Guides: shall be formed 3/16" steel channels sized to retain curtain. Channels shall be bolted to 3/16" minimum structural steel wall angles, sized to support door. When wind locks are provided on curtain, channels shall be formed with windsock retainers. Guides shall be assembled and attached to wall with 3/8" minimum bolts no more than 24" on center. Removable curtain stops shall be provided. Roll-formed galvanized steel shapes attached to continuous galvanized steel wall angle.
- 2.5 Barrel: shall be 6 5/8" minimum diameter steel pipe, sized to contain counterbalance assembly and support curtain with a maximum deflection of 0.03" per ft. of width. Counterbalance assembly shall consist of torsion spring(s) and fittings mounted to a continuous cold finished steel shaft. Precision ground grease packed sealed bearings shall be used to support each end of counterbalance assembly. Spring tension shall be adjustable by adjusting wheel outside bracket.
- 2.6 Brackets: shall be 3/16" minimum steel plates bolted to wall angles. Plates shall be sized to support counterbalance, curtain and barrel and provided with 1/8" flanges for hood attachment. Bracket on operator side shall be fitted with a precision ground grease packed sealed bearing
- 2.7 Counterbalance: shall be helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch per foot of span. Counterbalance is adjustable by means of an adjusting tension wheel
- 2.8 Hood: shall be formed from 24 gauge minimum galvanized steel sheet with top and bottom reinforcements to reduce deflection. Intermediate support(s) shall be provided when necessary.
- a. Manual Operation: shall be manual push up for doors up to 108 SF and chain hoist for doors over 108 SF
- 2.9 Locking: shall be interior bottom bar slide bolt for manually operated doors and chain keeper locks for chain hoist operation
- 2.10 Wall Mounting Condition: as shown on drawings.

PART 3 – EXECUTION

- 3.1 Doors shall be installed and tested in accordance with manufacture's installation instructions.

END OF SECTION

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**STANDARD DETAILS
FOR
CITY OF FARMERSVILLE
COLLIN COUNTY, TEXAS**



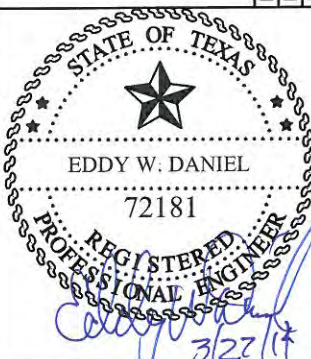
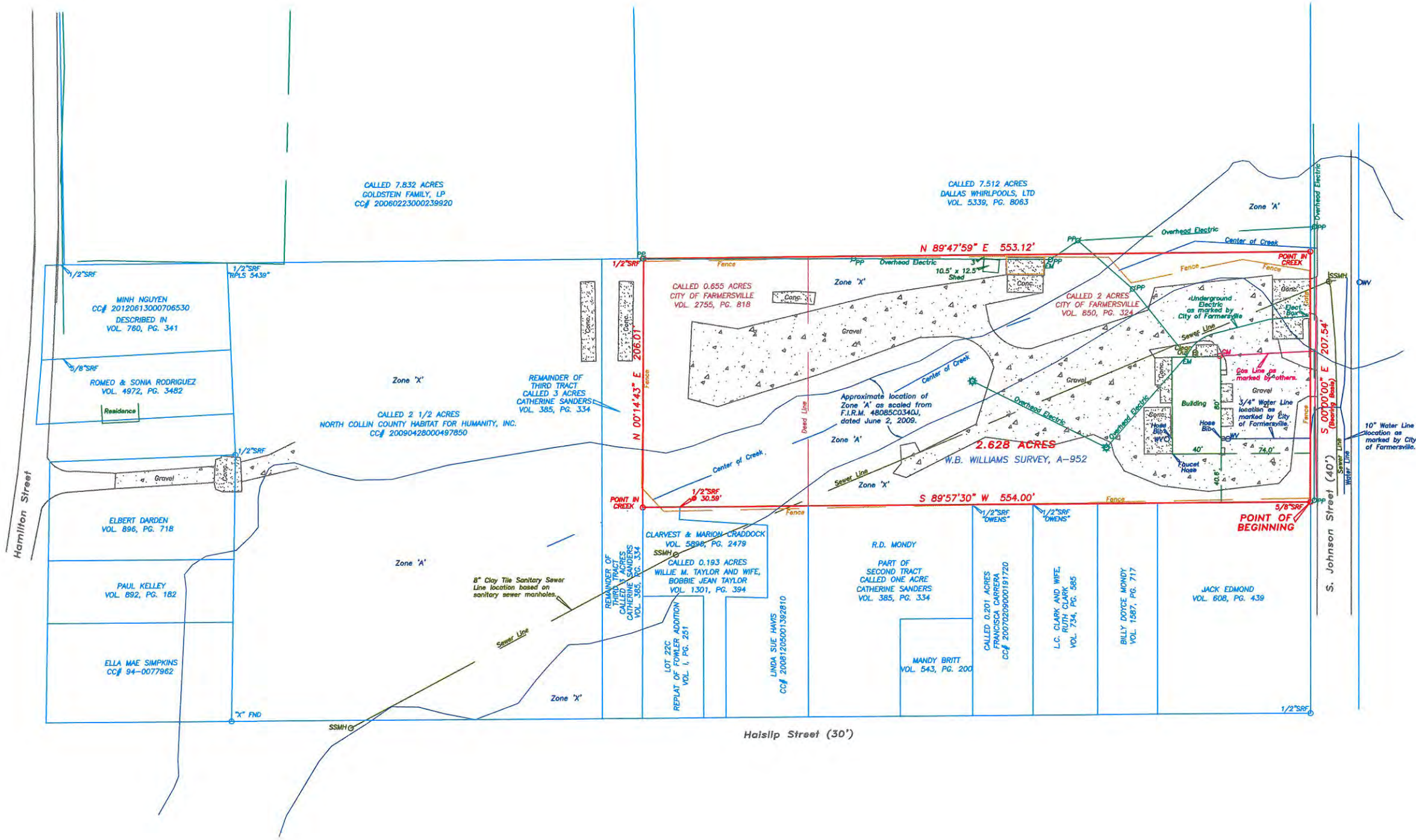
DESIGNED: E.W.D.	DATE: 8/27/2012
DRAWN: K.S.G. / DBI	REVISION: N/C
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GENERAL NOTES



DATE ISSUED
PAGE NUMBER
01/01/00 XNN PAGE TITLE

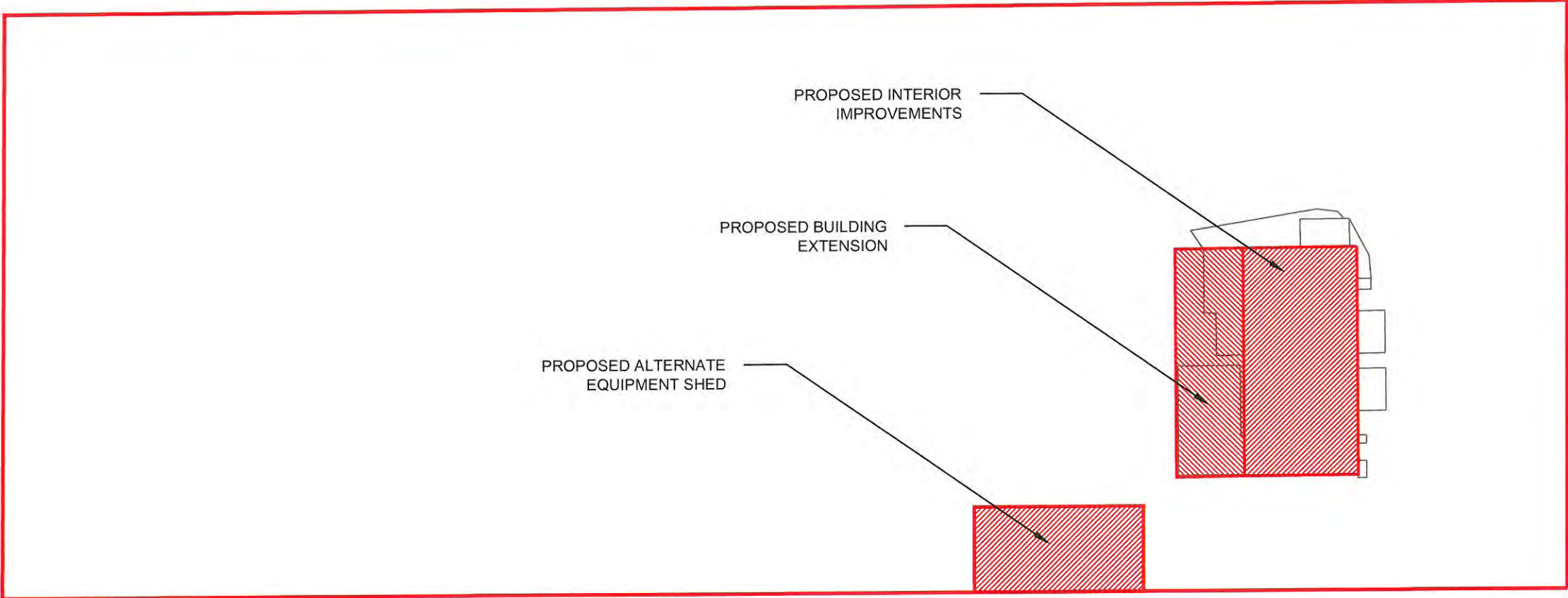
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03/24/2014	MEP02	LIGHTING PLAN 2ND FLOOR
03/24/2014	MEP03	LIGHTING SCHEDULE
03/24/2014	MEP04	HVAC 1ST FLOOR
03/24/2014	MEP05	HVAC 2ND FLOOR
03/24/2014	MEP06	HVAC SYMBOLS / DETAILS
03/24/2014	MEP07	WATER PLAN 1ST FLOOR
03/24/2014	MEP08	WATER PLAN 2ND FLOOR
03/24/2014	MEP09	RESTROOM SCHEDULE
03/24/2014	MEP10	KITCHEN SCHEDULE
03/24/2014	MEP11	SEWER PLAN 1ST FLOOR
03/24/2014	MEP12	SEWER PLAN 2ND FLOOR



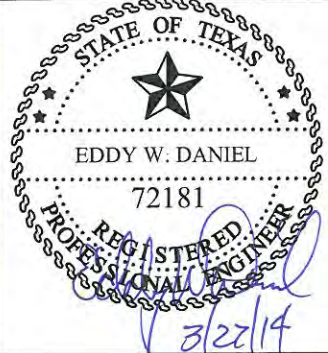
CITY OF FARMERSVILLE SERVICE CENTER
PROJECT
FOR
CITY OF FARMERSVILLE
COLLIN COUNTY, TEXAS

Daniel & Brown Inc.
ENGINEERS/CONSULTANTS/PLANNERS
Phone 972-784-7777
Fax 972-782-7721
www.DanielConsultants.com
118 McKinney St.
P.O. Box 606
Farmersville, Texas 75442

DESIGNED: E.W.D. DATE: 03/24/2014
DRAWN: K.S.G. REVISION: N/C
FIRM REGISTRATION NO.: F-002225
FILE: N:\Farmersville City of Maintenance Building\Maintenance Building 03-28-2014



CITY OF FARMERSVILLE SERVICE CENTER
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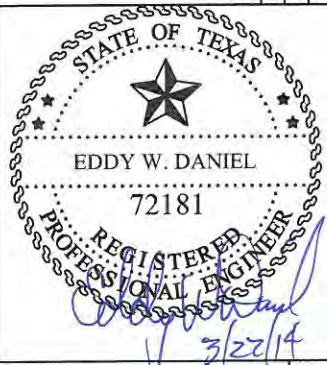
PROPOSED SITE IMPROVEMENTS

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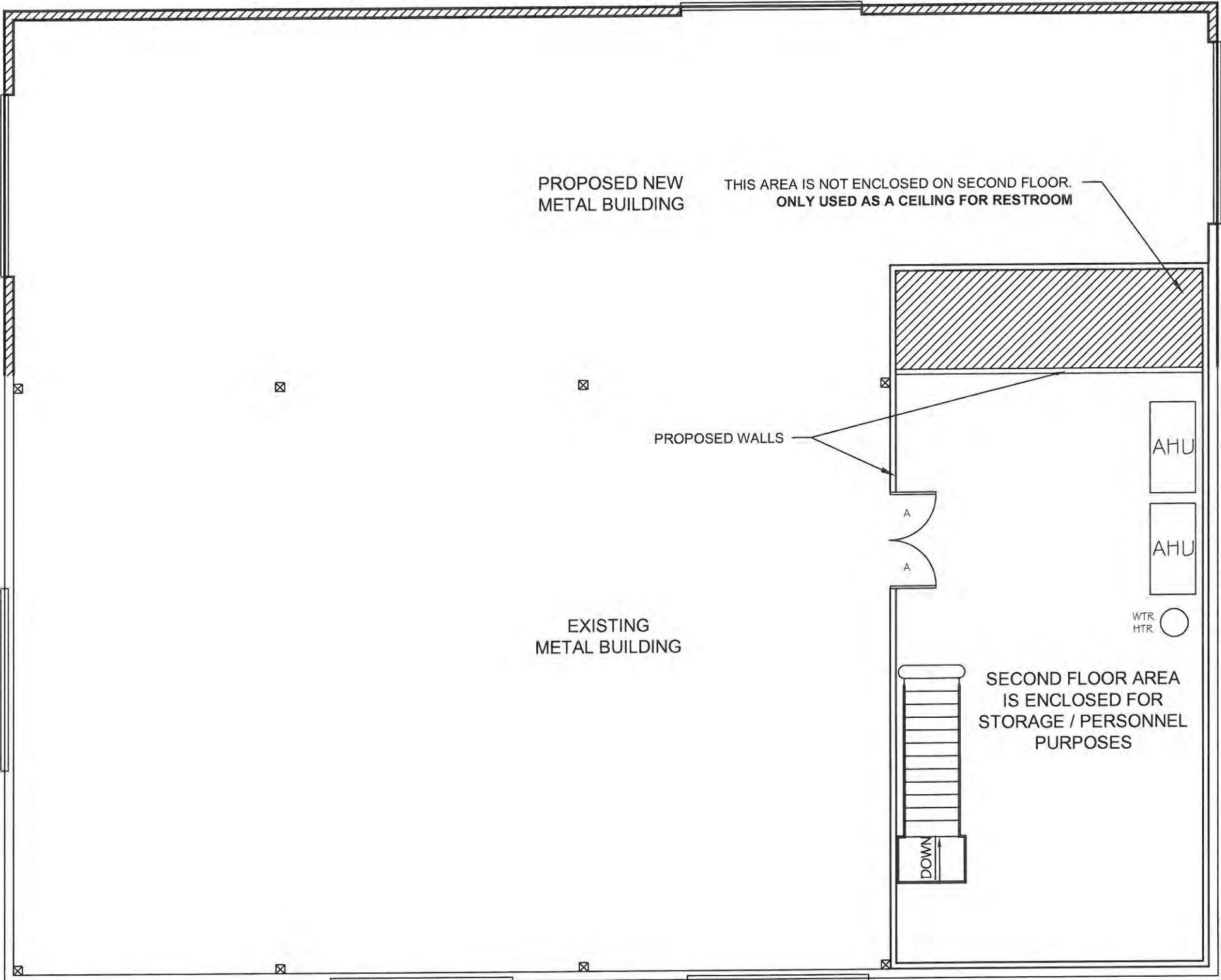
DESIGNED: E.W.D. DATE: 03/24/2014
DRAWN: K.S.G. REVISION: N/C
FIRM REGISTRATION NO.: F-002225
FILE: N:\Farmersville City of Maintenance Building\Maintenance Building 03-28-2014



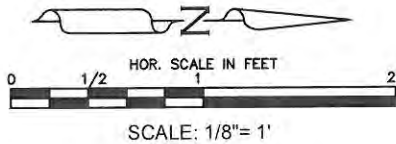
CITY OF FARMERSVILLE SERVICE CENTER
PROJECT
FOR
CITY OF FARMERSVILLE
COLLIN COUNTY, TEXAS

GENERAL NOTES

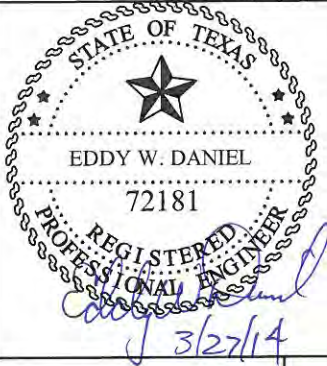
DOOR SCHEDULE	
A	3'-0"
B	2'-8"



SECOND FLOOR

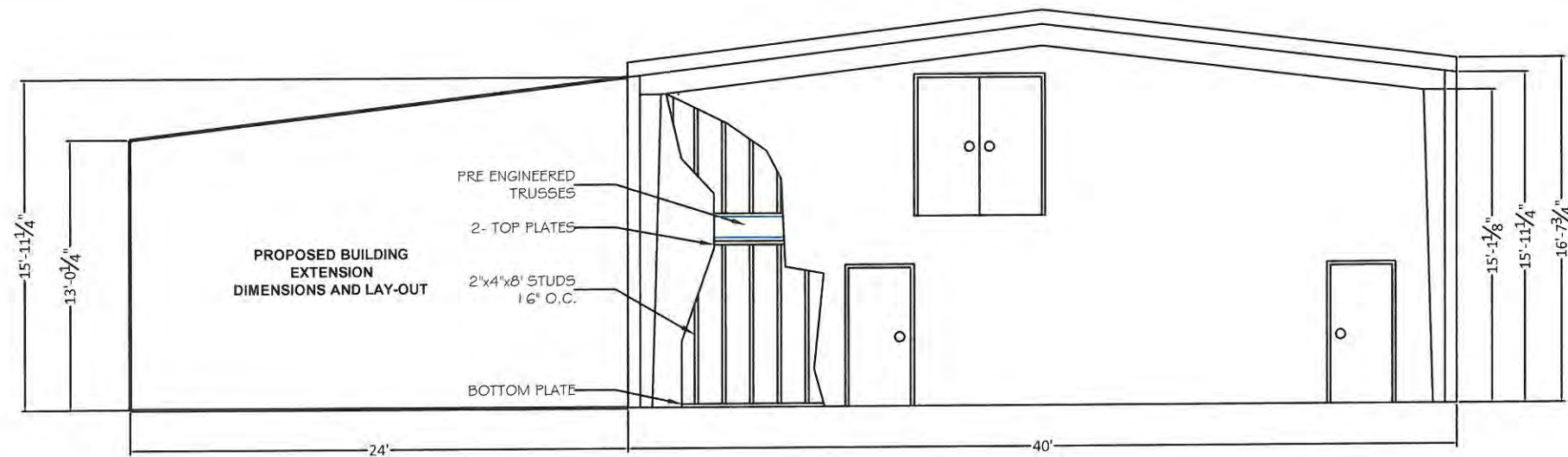


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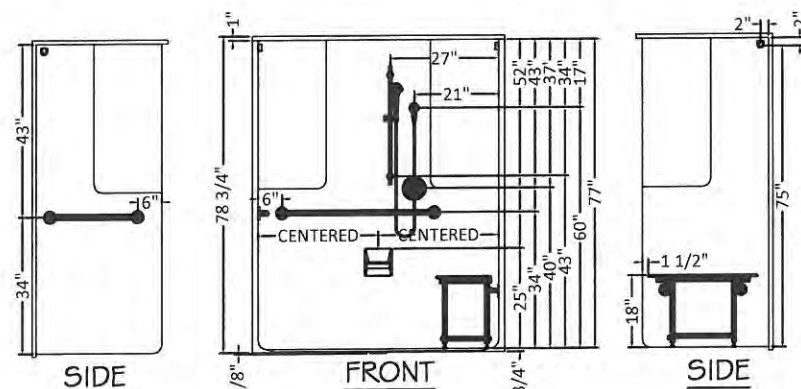
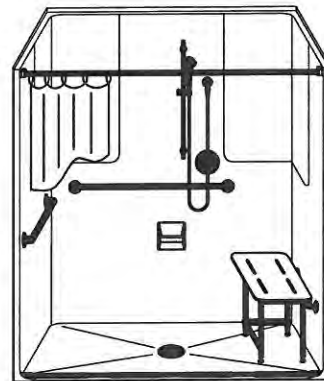


**CITY OF FARMERSVILLE SERVICE CENTER
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COLLIN COUNTY, TEXAS**

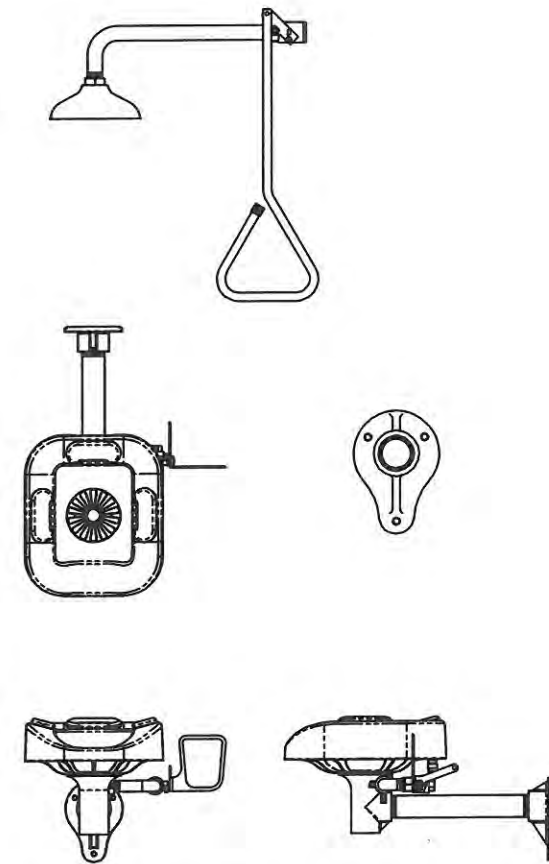
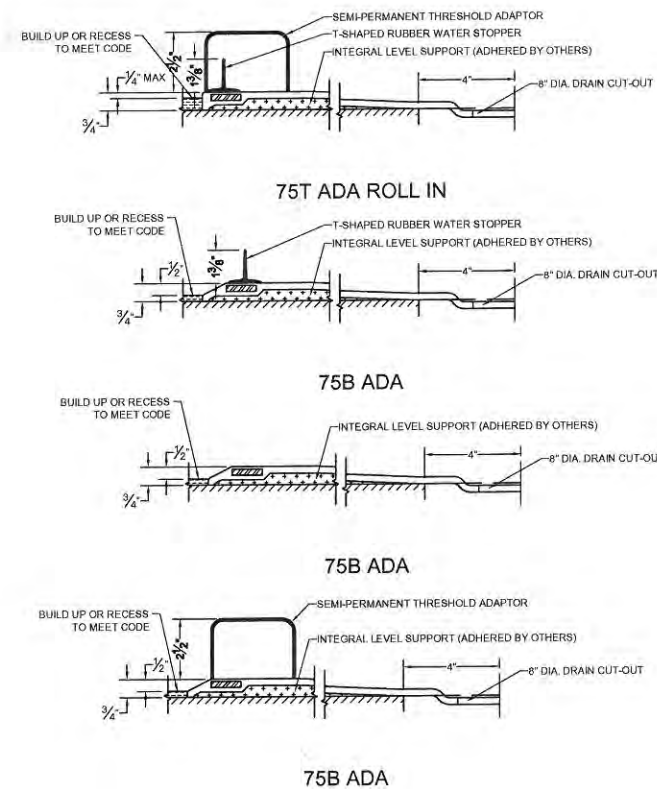
SECOND FLOOR PLAN



ELEVATION VIEW
N.T.S.

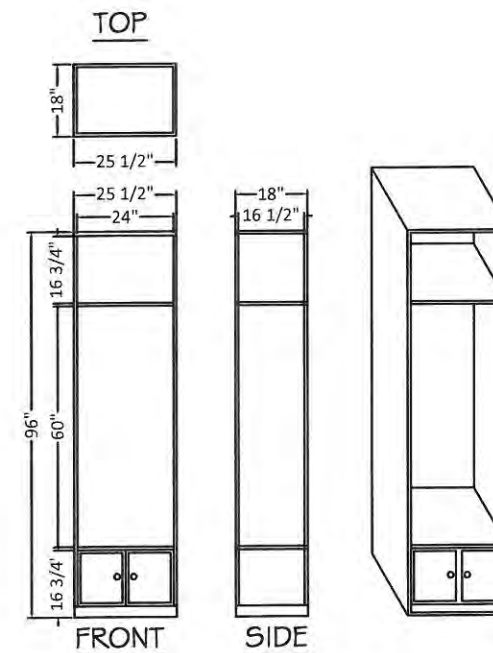


SHOWER DETAILS
N.T.S.



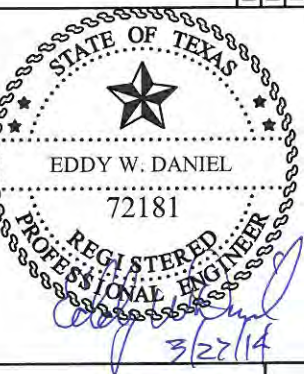
EYE WASH / DRENCH SHOWER DETAILS
N.T.S.

- DELUGE SHOWER - SPEAKMAN SE-227-SCV-XPR LIFESAVER
- EYE WASH STATION - SPEAKMAN SE-1000, WALL MOUNTED

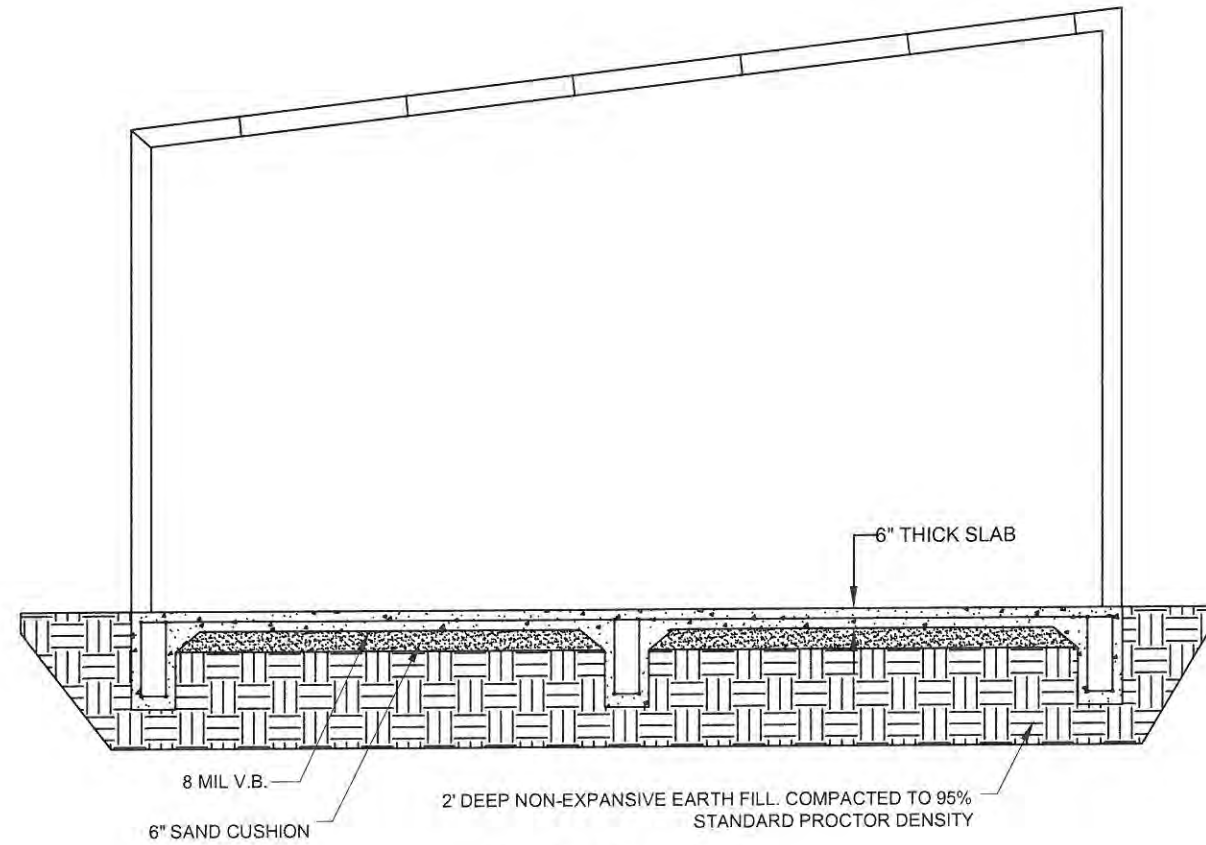


LOCKER DETAILS
N.T.S.

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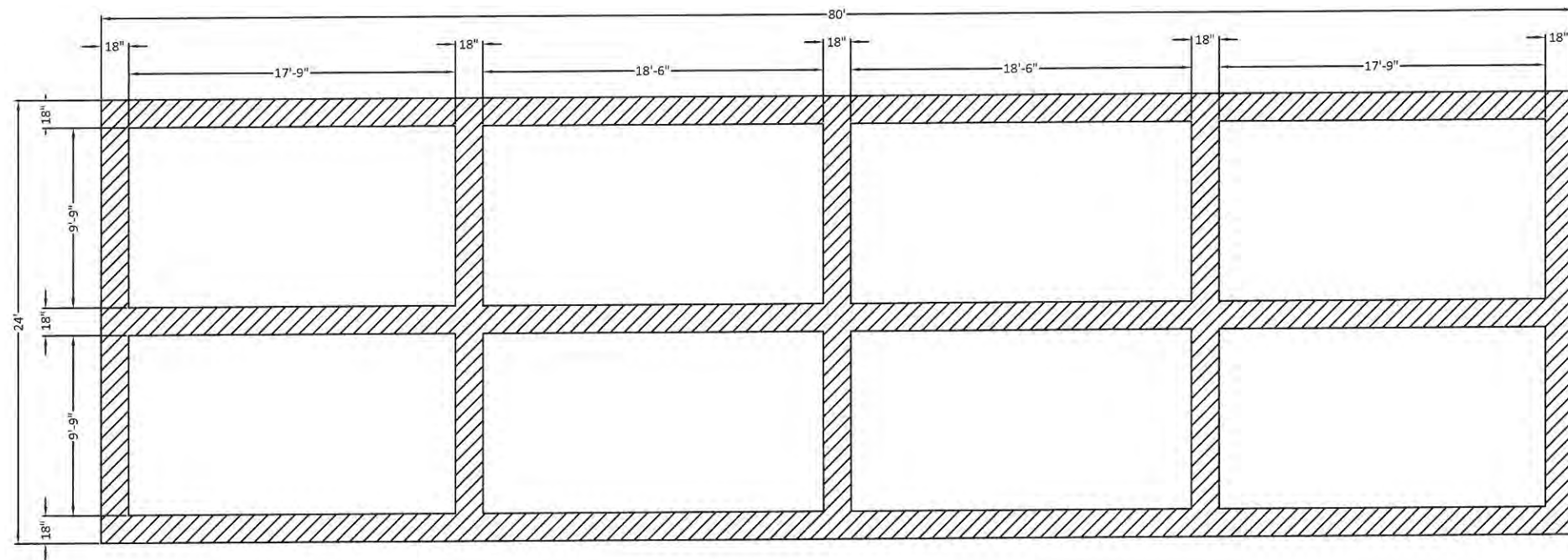
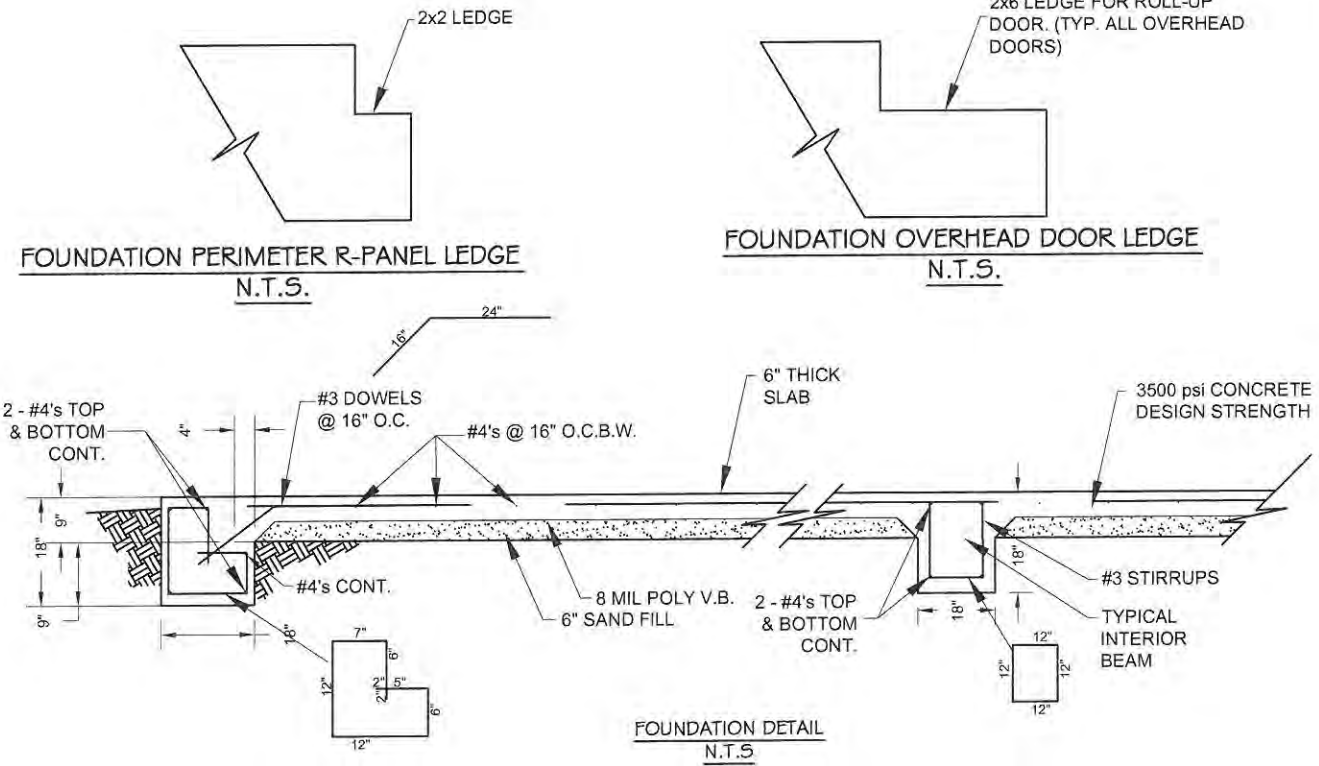


CITY OF FARMERSVILLE SERVICE CENTER
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FOUNDATION DETAILS
N.T.S.

NOTES:
1. CONCRETE STRENGTH SHALL BE 3500 psi DESIGN.



SLAB / BEAM DETAILS
N.T.S.

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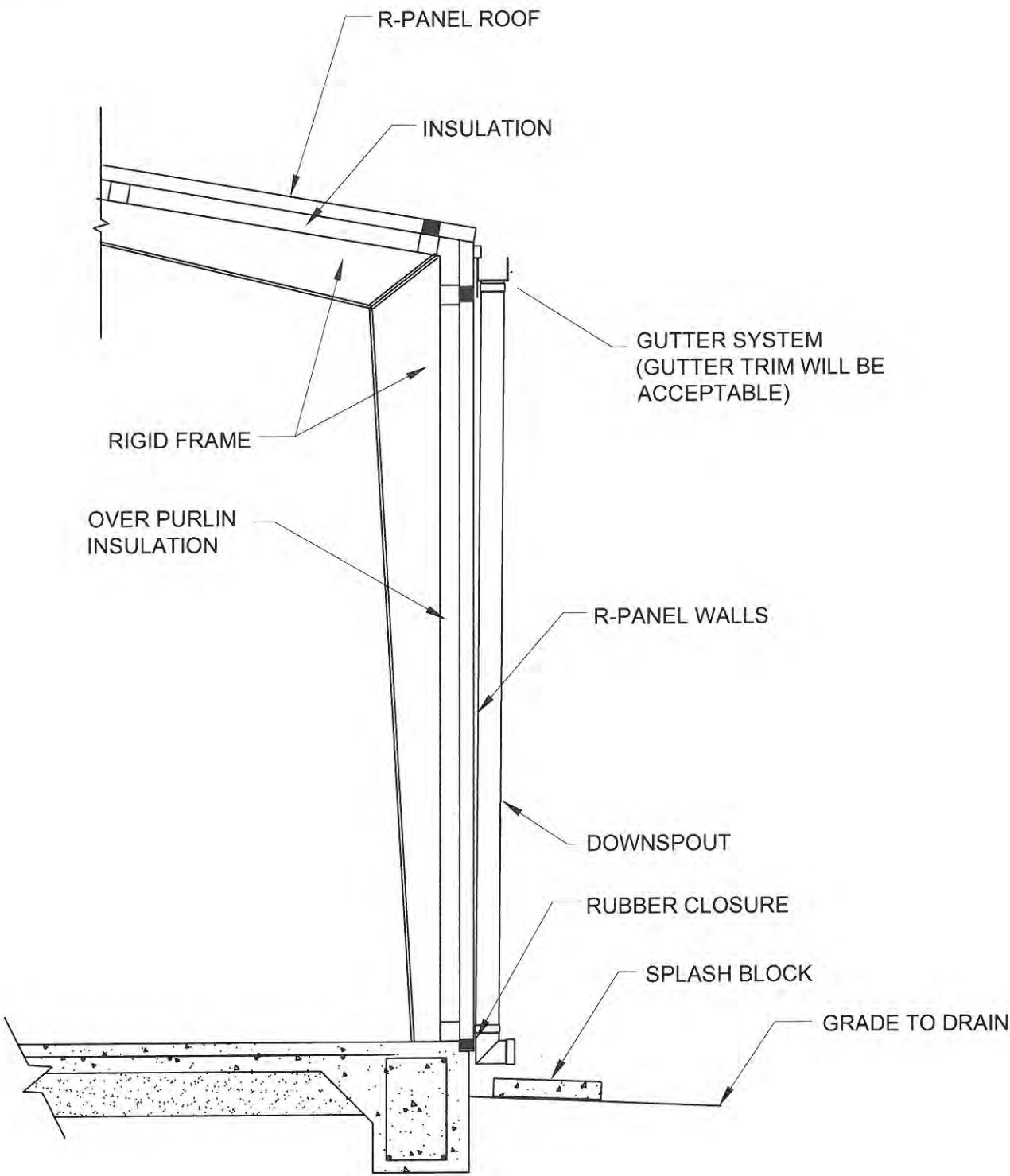
FOUNDATION DETAILS

SHEET AS04

DESIGNED: E.W.D.
DRAWN: K.S.G.
DATE: 03/24/2014
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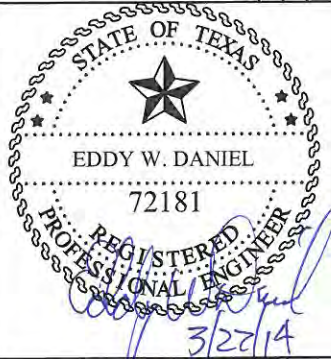
NOTES:

1. OWNER WILL APPROVE FINAL COLOR SELECTION.
2. METAL BUILDING SHALL BE PRE-ENGINEERED FOR LOCAL CODES AND LOADS.
3. MIN. 2" WHITE VINYL BACKED INSULATION WITH RETAINING WIRE SHALL BE REQUIRED.
4. GUTTER TRIM SHALL BE PROVIDED ON NORTH AND SOUTH SIDES WITH DOWNSPOUTS AND SPLASH PADS ON THE BUILDING CORNERS AND OTHER LOCATIONS AS MAY BE REQUIRED.
5. EXTERIOR METAL SHALL BE 26-GAUGE INDUSTRIAL R-PANEL, STANDARD FACTORY COATED.
6. STRUCTURAL STEEL SHALL BE FACTORY PRIMED AND SHALL NOT BE REQUIRED TO BE PAINTED.



TYPICAL EXTERIOR WALL SECTION DETAIL
N.T.S.

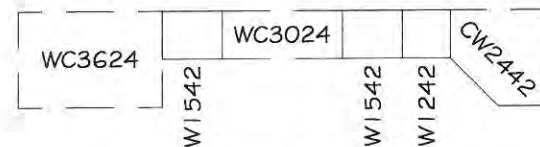
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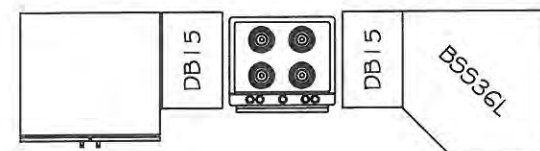
CITY OF FARMERSVILLE SERVICE CENTER
PROJECT
FOR
CITY OF FARMERSVILLE
COLLIN COUNTY, TEXAS

WALL SECTION DETAIL

UPPER CABINET LAY-OUT
NOT TO SCALE

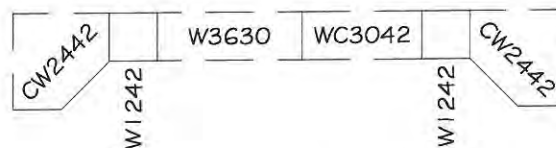


LOWER CABINET LAY-OUT
NOT TO SCALE

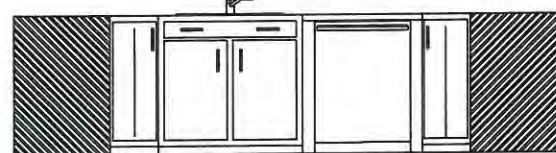
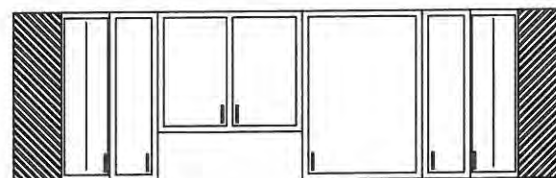
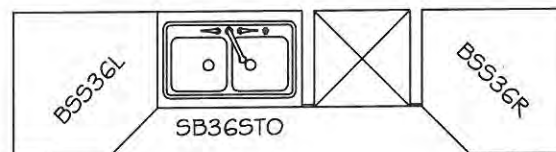


CABINET ELEVATIONS
NOT TO SCALE

UPPER CABINET LAY-OUT
NOT TO SCALE



LOWER CABINET LAY-OUT
NOT TO SCALE

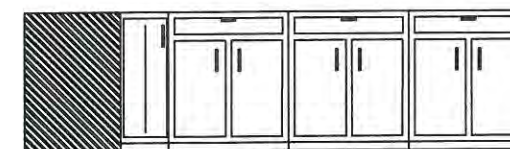
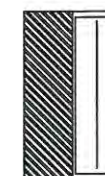
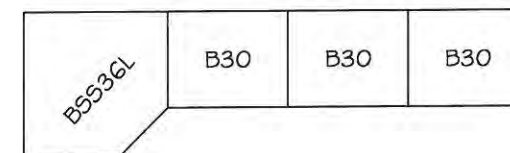


CABINET ELEVATIONS
NOT TO SCALE

UPPER CABINET LAY-OUT
NOT TO SCALE

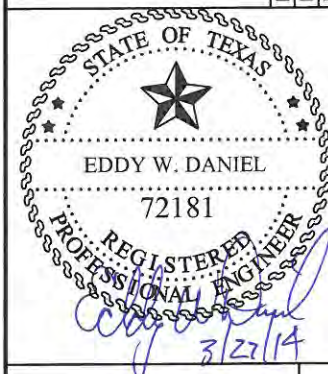


LOWER CABINET LAY-OUT
NOT TO SCALE



CABINET ELEVATIONS
NOT TO SCALE

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COLLIN COUNTY, TEXAS

CABINET ELEVATIONS

DESIGNED: E.W.D. DATE: 03/24/2014
DRAWN: K.S.G. REVISION: N/C
FIRM REGISTRATION NO.: F-002225
FILE: N:\Farmersville City of Maintenance Building\03-28-2014

KITCHEN CABINET SCHEDULE			
Fixture Desig.	Description	Mfgr. # Model Numbers	Remarks
W3624	REFRIGERATOR WALL, 24" HIGH x24" DEEP, 1 ADJUSTABLE HALF-DEEP SHELF	SHENANDOAH CABINETRY	SHENANDOAH CABINETRY OR EQ.
W1542	WALL CABINET, 42" HIGH x 12" DEEP x 15" WIDE, 3 ADJUSTABLE SHELVES	SHENANDOAH CABINETRY	SHENANDOAH CABINETRY OR EQ.
W3042	WALL CABINET, 42" HIGH, 12" DEEP, 30" WIDE, 1 ADJUSTABLE SHELF	SHENANDOAH CABINETRY	SHENANDOAH CABINETRY OR EQ.
W1242	WALL CABINET, 42" HIGH x 12" DEEP x 12" WIDE, 3 ADJUSTABLE SHELVES	SHENANDOAH CABINETRY	SHENANDOAH CABINETRY OR EQ.
CW2442	CORNER WALL CABINET, DOOR OPENING IS 11.75" WIDE, 3 ADJUSTABLE SHELVES	SHENANDOAH CABINETRY	SHENANDOAH CABINETRY OR EQ.
W3024	WALL CABINET, 24" HIGH x 12" DEEP x 30" WIDE, 2 DOORS, 1 ADJUSTABLE SHELF (POSSIBLE USE FOR WET CHEMICAL EXTINGUISHER UNIT INSTALLATION)	SHENANDOAH CABINETRY	SHENANDOAH CABINETRY OR EQ.
W3630	WALL CABINET, 30" HIGH x 12" DEEP X 36" WIDE, 2 ADJUSTABLE SHELVES	SHENANDOAH CABINETRY	SHENANDOAH CABINETRY OR EQ.
DB15	DRAWER BASE CABINET, 34" HIGH x 24" DEEP x 15" WIDE, 1 STANDARD AND 2 LARGE DRAWERS	SHENANDOAH CABINETRY	SHENANDOAH CABINETRY OR EQ.
B5536L & B5536R	BASE SUPER SUSAN W/ PLASTIC SPIN UNITS, ALL DOORS MUST BE ORDERED HINGED LEFT OR RIGHT	SHENANDOAH CABINETRY	SHENANDOAH CABINETRY OR EQ.
SB365TO	SINK BASE, 2 DOORS, 1 PANEL W/FACTORY INSTALLED TILT-OUT TRAYS, 34.5" HIGH X 24" DEEP X 36" WIDE	SHENANDOAH CABINETRY	SHENANDOAH CABINETRY OR EQ.
B30	BASE CABINET, 2 DOORS, 1 ADJUSTABLE SHELF, 34.5" HIGH X 24" DEEP X 30" WIDE	SHENANDOAH CABINETRY	SHENANDOAH CABINETRY OR EQ.

DBI

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ENGINEERS/CONSULTANTS/PLANNERS

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CITY OF FARMERSVILLE SERVICE CENTER

PROJECT

FOR

CITY OF FARMERSVILLE

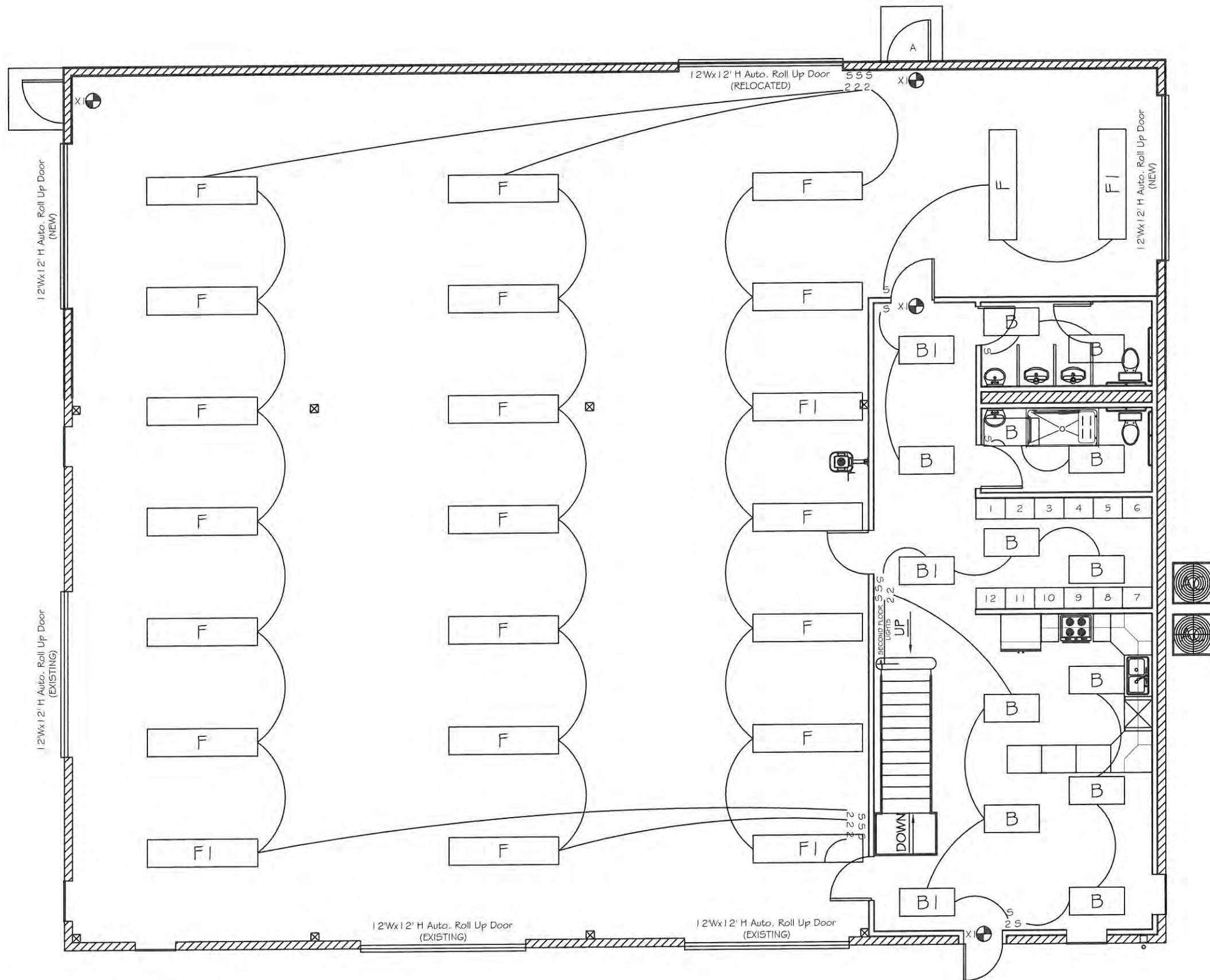
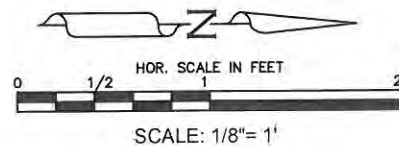
COLLIN COUNTY, TEXAS

CABINET SCHEDULE

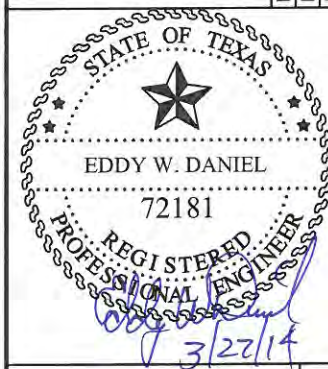
DESIGNED: E.W.D.
DRAWN: K.S.G.
FILE: N:\Farmersville City of Maintenance Building

DATE: 03/24/2014
REVISION: N/C

FIRM REGISTRATION NO.: F-002225
FIRM REGISTRATION NO.: F-002225



FIRST FLOOR



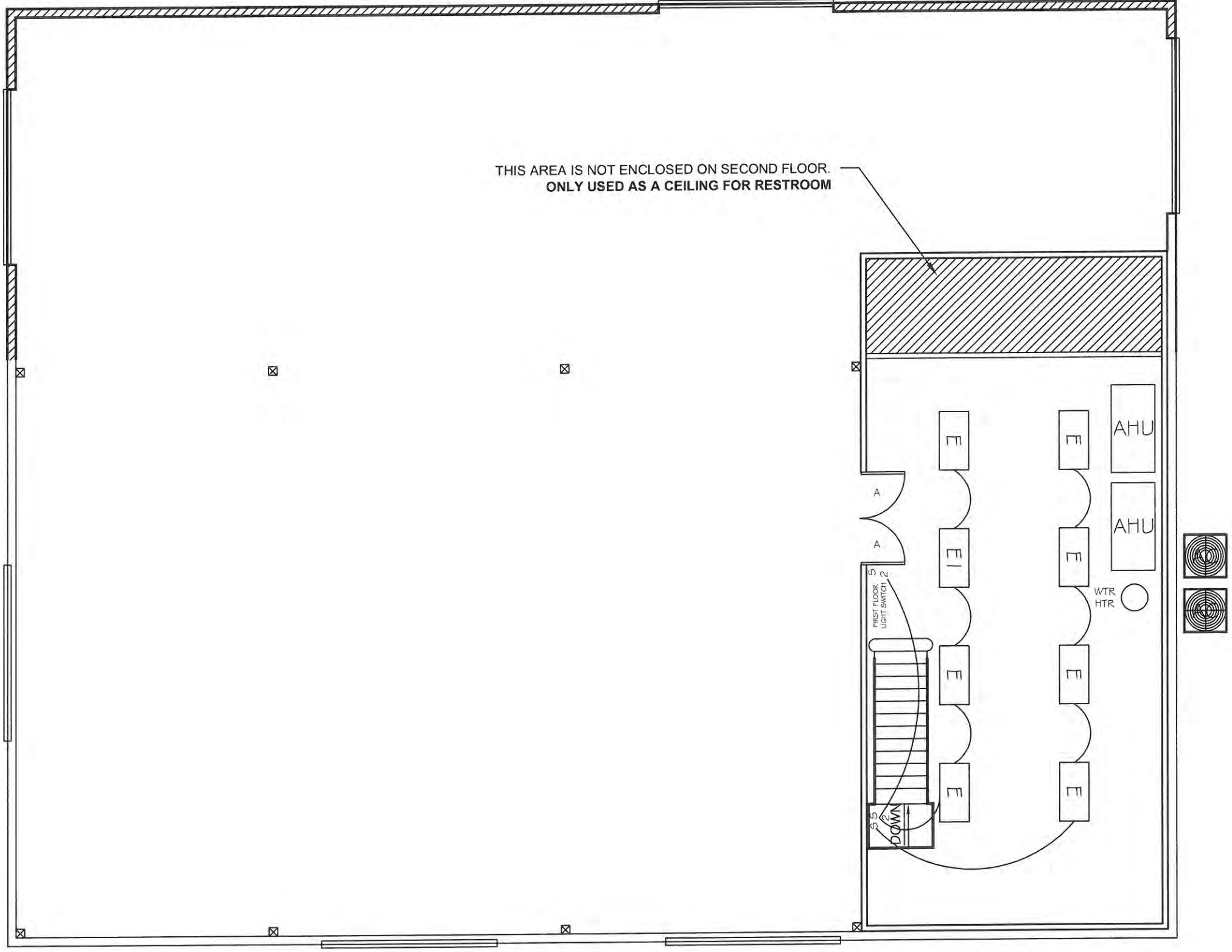
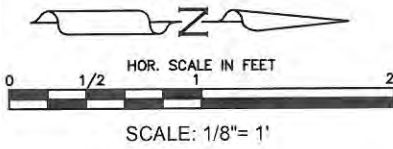
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LIGHTING PLAN 1ST FLOOR

- **LIGHTING NOTES**
CONTRACTOR SHALL



SECOND FLOOR



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PROJECT
FOR
CITY OF FARMERSVILLE
COLLIN COUNTY, TEXAS**

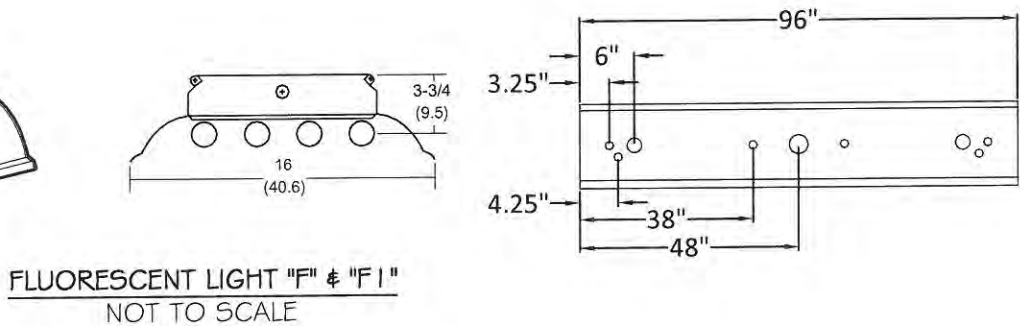
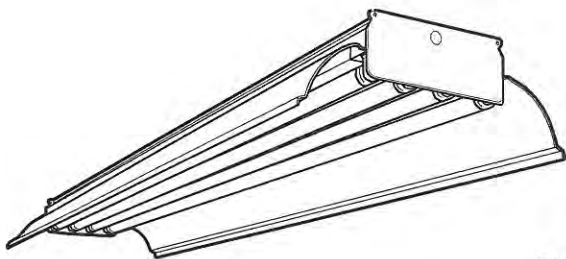
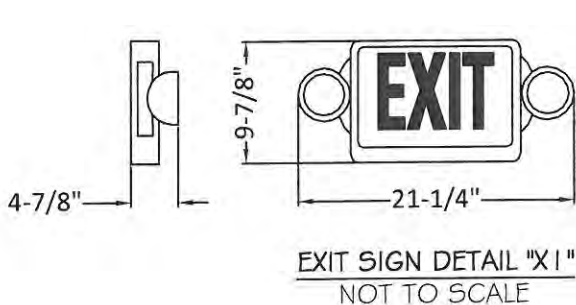
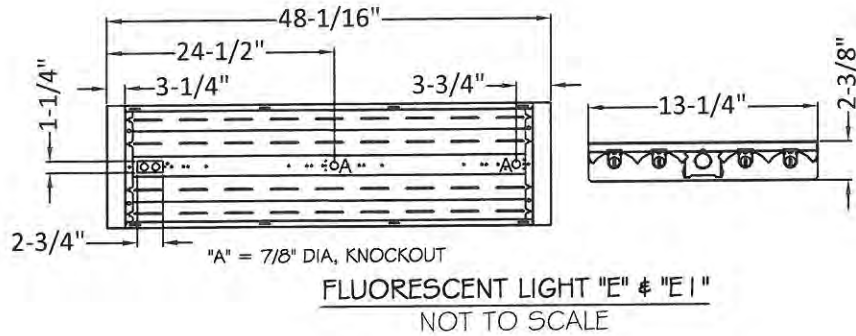
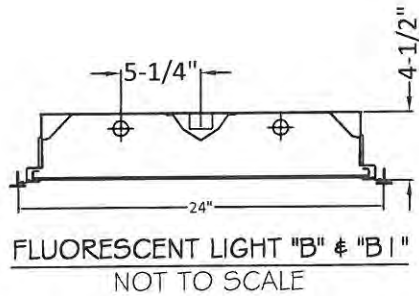
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FILE: N:\Farmersville City of Maintenance Building\Maintenance Building 03-28-2014		

LIGHTING PLAN 2ND FLOOR

LIGHTING FIXTURE SCHEDULE

Fixture Desig.	Description	Mfgr. # Model Numbers	Remarks
B	FLUORESCENT, PREMIUM SPEC. GRADE, 2x4', STATIC TROFFER, GRID LAY-IN MOUNTING W/ FUSE WHITE ALUMINUM DOOR, (2) 32watt T8 LAMPS, 120v # ELEC. INSTANT START BALLAST	LITHONIA LIGHTING CATALOG: #25P-G-2-32-FW-A12-120-GEB1015	H.E. WILLIAMS OR HUBBELL EQ.
BI	FLUORESCENT, PREMIUM SPEC. GRADE, 2x4', STATIC TROFFER, GRID LAY-IN MOUNTING W/ FUSE WHITE ALUMINUM DOOR, (2) 32watt T8 LAMPS, 120v # ELEC. INST. START BALLAST # EMER. BATTERY PACK	LITHONIA LIGHTING CATALOG: #25P-G-2-32-FW-A12-120-GEB1015-EL	H.E. WILLIAMS OR HUBBELL EQ.
E	FLUORESCENT, HIGH BAY, ENCLOSED W/ PATTERN 12 ACRYLIC LENS, WITH (6) 32watt T8 LAMPS, 120v, # ELECTRIC INSTANT START BALLAST	LITHONIA LIGHTING CATALOG: #IBZ-G32-A21215-WD-GEB1015	H.E. WILLIAMS OR HUBBELL EQ.
EI	FLUORESCENT, HIGH BAY, ENCLOSED W/ PATTERN 12 ACRYLIC LENS, WITH (4) 32watt T8 LAMPS, 120v, # ELEC. INSTANT START BALLAST # EMER. BATTERY PACK	LITHONIA LIGHTING CATALOG: #IBZ-432-A21215-WD-GEB1015-EL14	H.E. WILLIAMS OR HUBBELL EQ.
F	FLUORESCENT, HIGH BAY, HEAVY DUTY, WITH (4) 54 - 54T5HO (96") LAMPS, 120v, # ELEC. INSTANT START BALLAST	LITHONIA LIGHTING CATALOG: #EJ-4-54-120-GEB1015	H.E. WILLIAMS OR HUBBELL EQ.
FI	FLUORESCENT, HIGH BAY, HEAVY DUTY, WITH (4) 54 - 54T5HO (96") LAMPS, 120v, # ELEC. INSTANT START BALLAST # EMER. BATTERY PACK	LITHONIA LIGHTING CATALOG: #EJ-4-54-120-EL	H.E. WILLIAMS OR HUBBELL EQ.
XI	LIGHTED EXIT SIGN W/ EMERGENCY LIGHTS, LED, 120v, SINGLE FACE, RED LETTERS ON WHITE BACKGROUND, WITH UNIV. ARROWS AND 90 MIN. CAPACITY, TWO INTEGRAL SIDE MOUNT LAMP HEADS AND SEALED NICKEL-CADMIUM BATTERY BACKUP.	LITHONIA LIGHTING CATALOG: #LHQM-P-W-3-R	H.E. WILLIAMS OR HUBBELL EQ.

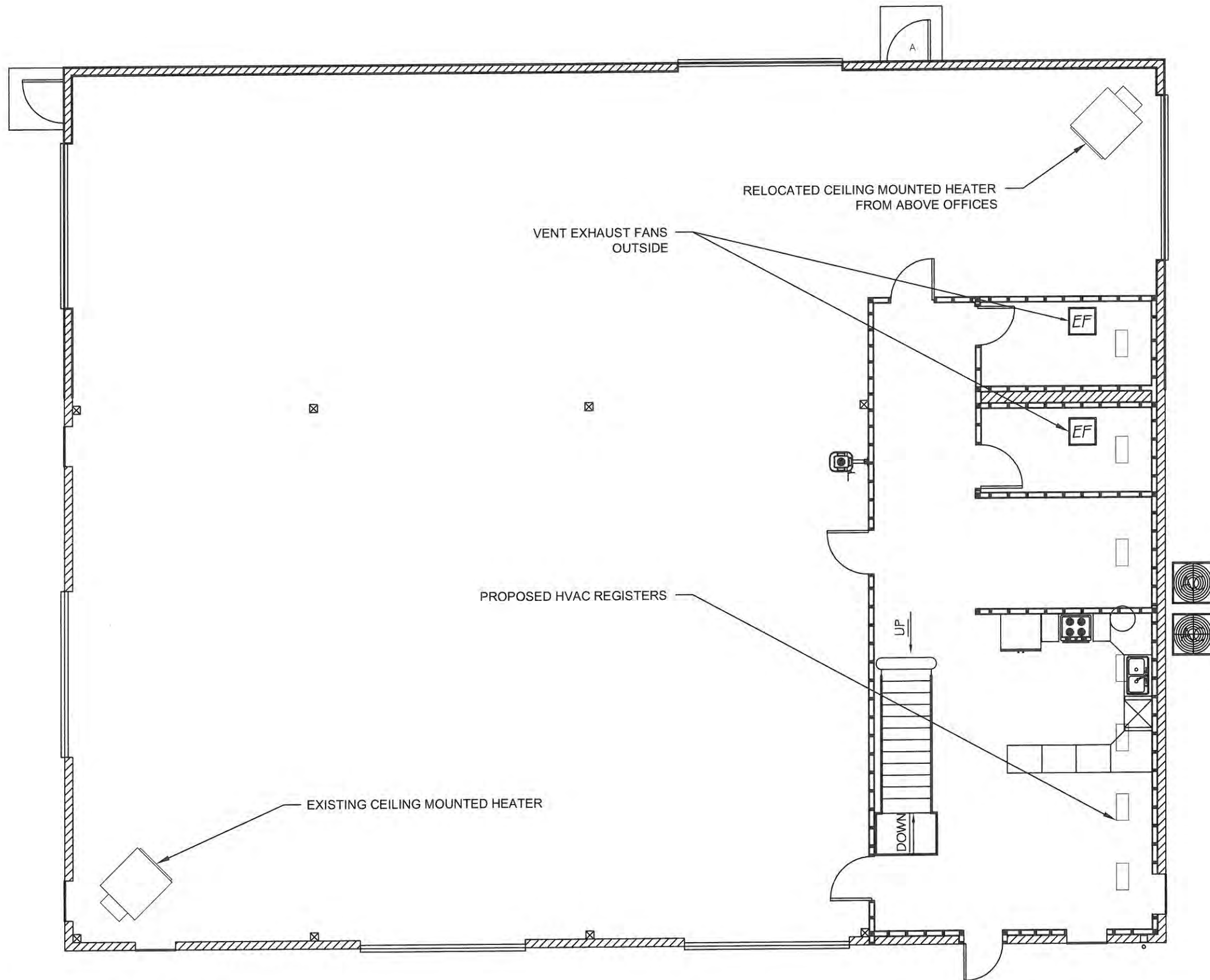
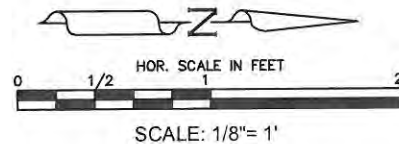


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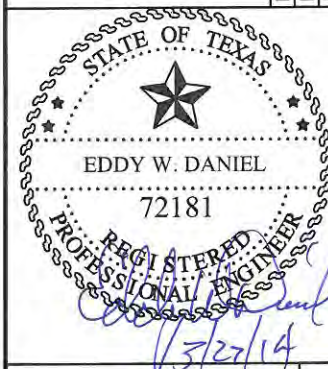


CITY OF FARMERSVILLE SERVICE CENTER
PROJECT
FOR
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COLLIN COUNTY, TEXAS

LIGHTING SCHEDULE



FIRST FLOOR

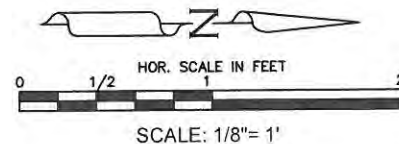


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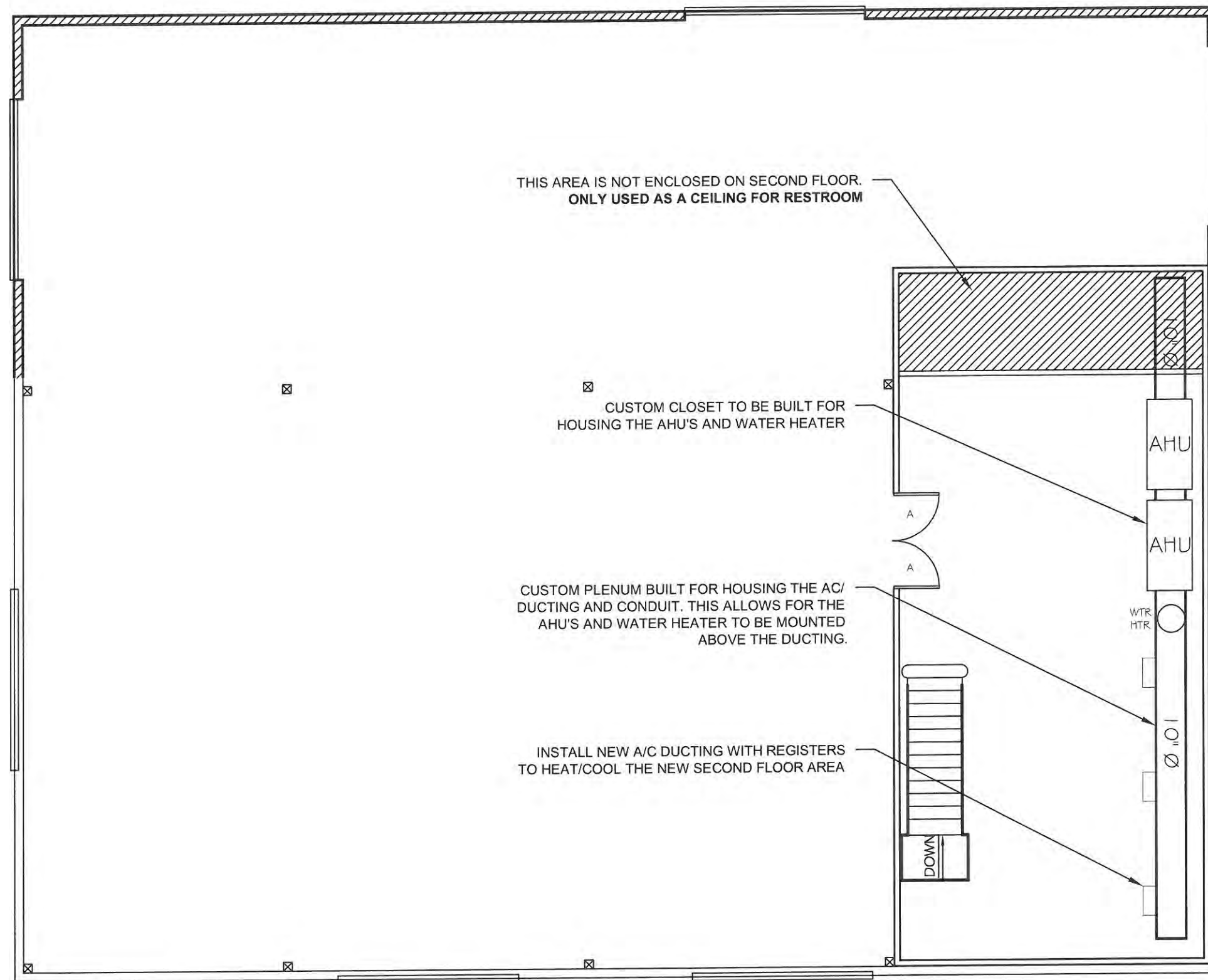
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DRAWN: K.S.G.	REVISION: N/C	
FILE: N:\Farmersville City of Maintenance Building\Maintenance Building 03-28-2014		

HVAC 1ST FLOOR



SECOND FLOOR



THIS AREA IS NOT ENCLOSED ON SECOND FLOOR.
ONLY USED AS A CEILING FOR RESTROOM

CUSTOM CLOSET TO BE BUILT FOR
HOUSING THE AHU'S AND WATER HEATER

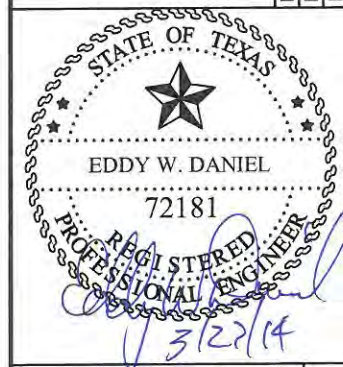
CUSTOM PLENUM BUILT FOR HOUSING THE AC/
DUCTING AND CONDUIT. THIS ALLOWS FOR THE
AHU'S AND WATER HEATER TO BE MOUNTED
ABOVE THE DUCTING.

INSTALL NEW A/C DUCTING WITH REGISTERS
TO HEAT/COOL THE NEW SECOND FLOOR AREA

CITY OF FARMERSVILLE SERVICE CENTER
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HVAC 2ND FLOOR

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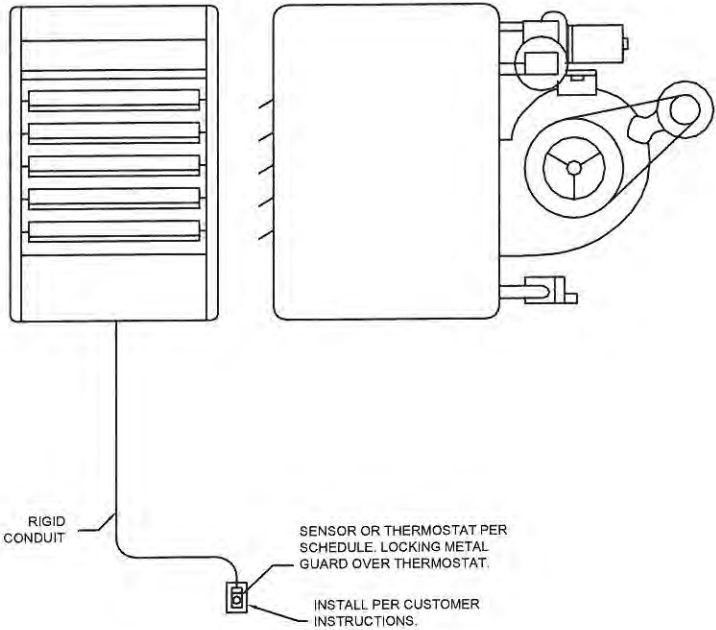


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MECHANICAL SYMBOLS

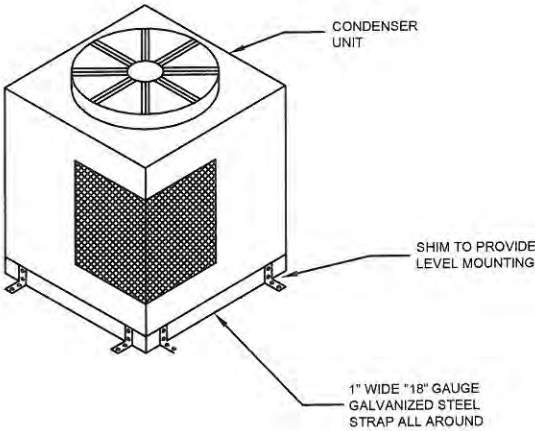
ALL SYMBOLS SHOWN MAY NOT APPEAR IN ALL DRAWINGS. SYMBOLS ARE SHOWN SCHEMATICALLY AND MAY NOT BE TO SCALE.

SYMBOL	DESCRIPTION
10" Ø	DUCT
	SUPPLY GRILL
	RETURN OR EXHAUST GRILL
EF	EXHAUST FAN
	DUCT WORK
Ⓣ	THERMOSTAT



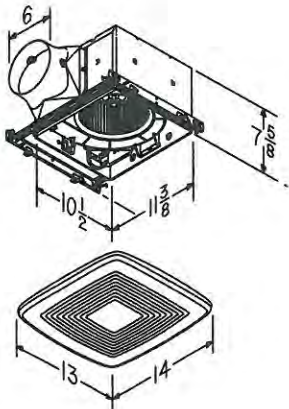
- NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 2. RECEIVING - INSTALL AS HIGH AS POSSIBLE
 3. HANG HEATERS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
 4. ROOF PENETRATIONS SHALL BE CUT, FLASHED, SEALED AND CAPPED.

CEILING MOUNTED HEATER UNIT DETAIL
NOT TO SCALE



NOTE:
IT IS THE INTENT OF THIS DETAIL THAT THE CONDENSER BE PROPERLY INSTALLED TO COMPLY WITH LOCAL BUILDING AND MECHANICAL CODES.

A/C COMPRESSOR DETAIL "AC"
NOT TO SCALE



EXHAUST FAN DETAIL "EF"
NOT TO SCALE

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CITY OF FARMERSVILLE SERVICE CENTER
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FOR
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COLLIN COUNTY, TEXAS

HVAC SCHEDULE

CONNECT PROPOSED POLY
TO EXISTING COPPER UNDER SLAB

EXISTING FILLER PIPE

REMOVE EXISTING
HOSE BIB

INSTALL PEX WATERLINE
FOR RESTROOM AND
KITCHEN AREAS

INSTALL POLY
WATERLINE

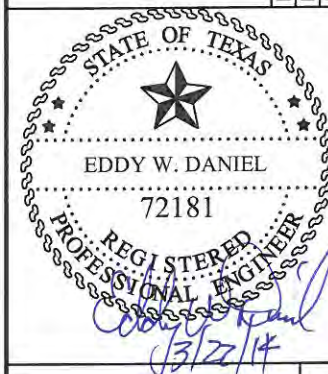
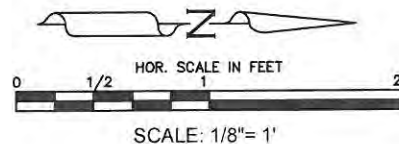
INSTALL PEX WATERLINE
TO EYE WASH STATION

EXISTING COPPER WATERLINE
UNDER SLAB

EXISTING HOSE BIB
EXISTING VALVE

EXISTING WATER METER

FIRST FLOOR



CITY OF FARMERSVILLE SERVICE CENTER
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FOR
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COLLIN COUNTY, TEXAS

WATER PLUMBING PLAN 1ST FLOOR

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DESIGNED: E.W.D.

DATE: 03/24/2014

DRAWN: K.S.G.

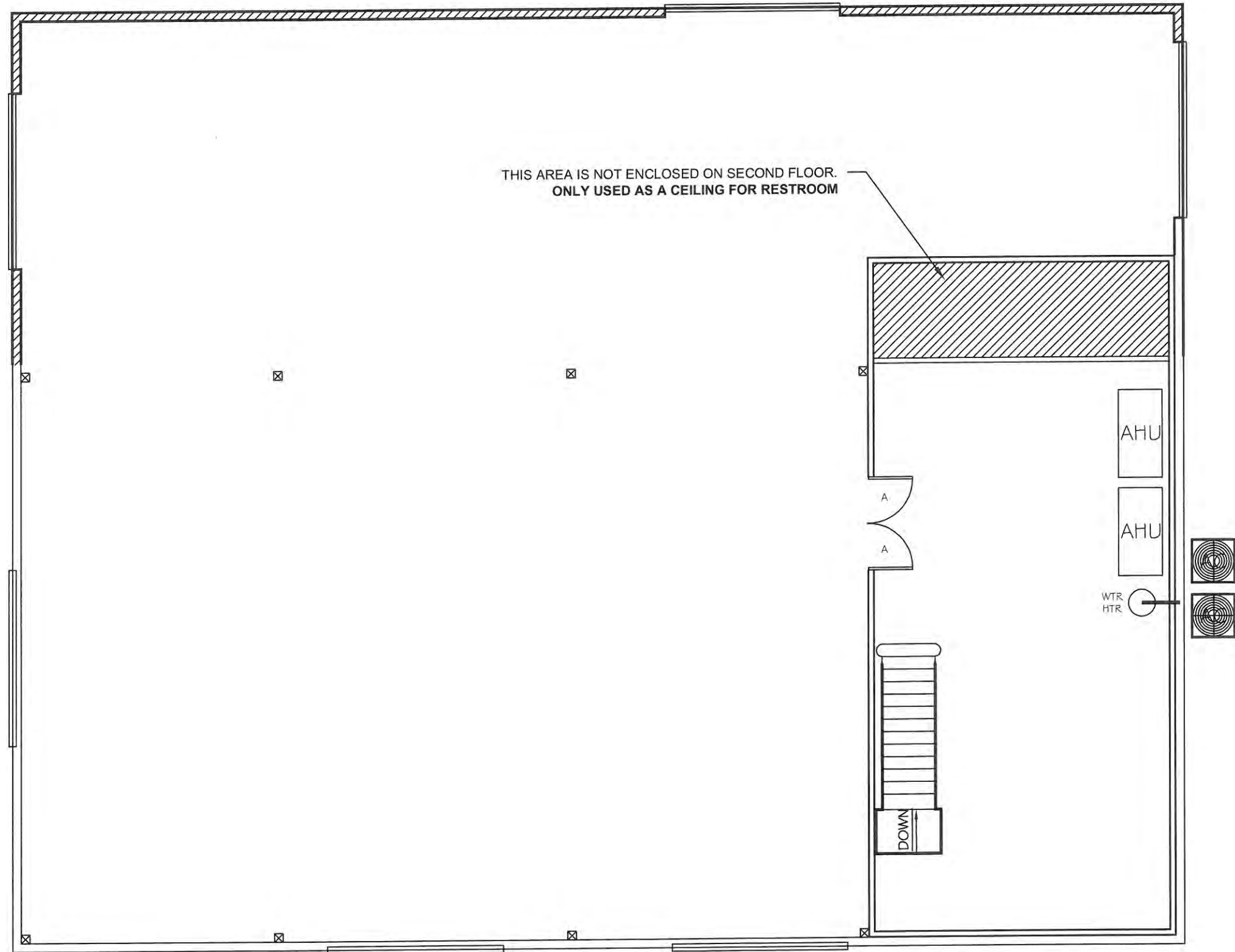
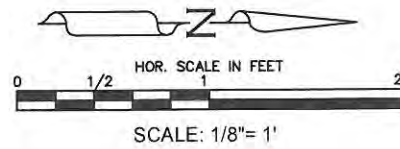
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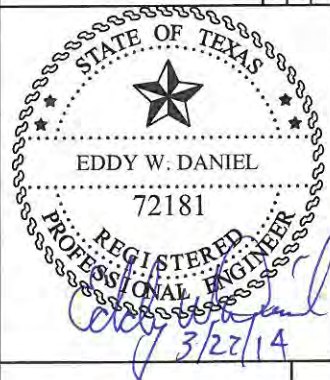
F-002225

FILE: N:\Farmersville City of Maintenance Building\Maintenance Building 03-28-2014

SHEET MEP07



SECOND FLOOR



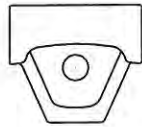
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PROJECT
FOR
CITY OF FARMERSVILLE
COLLIN COUNTY, TEXAS

WATER PLUMBING PLAN 2ND FLOOR

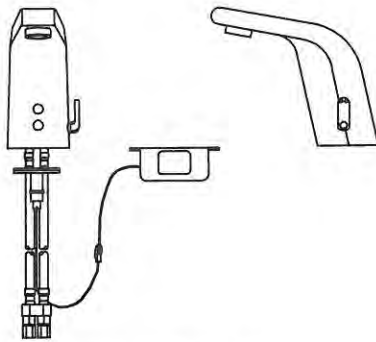
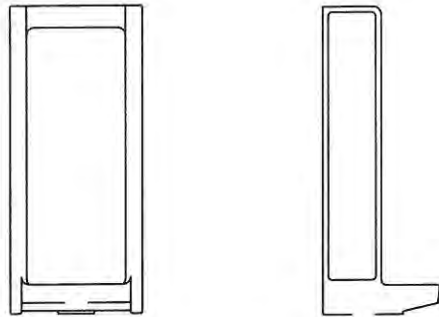
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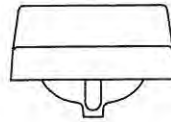
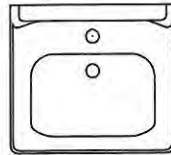
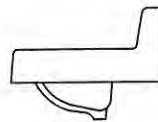
RESTROOM WATER SCHEDULE			
FIXTURE DESIG.	DESCRIPTION	MFGR. & MODEL NUMBERS	REMARKS
	1.6gpf WASHOUT FLOOR MOUNT URINAL W/ TOP SPUD, TOUCHLESS FLUSHOMETER	KOHLER CATALOG: BRANHAM #K-4920-T	
	COMMERCIAL TOUCHLESS SINK FAUCET, TEMPERATURE MIXER, SINGLE HOLE	KOHLER CATALOG: #K-7515-CP	KOHLER OR EQ.
	20"x18" WALL MOUNT/CONCEALED ARM CARRIER SINK, SINGLE HOLE, ADA COMPLIANT	KOHLER CATALOG: HUDSON #K-2812-0	KOHLER OR EQ.
	1.6gpf TOILET, ADA COMPLIANT	KOHLER CATALOG: KELSTON #K-3754-0	KOHLER OR EQ.



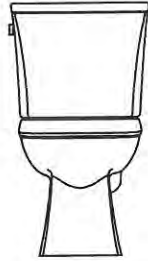
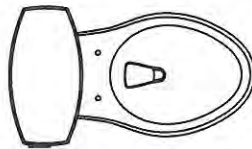
RESTROOM URINAL DETAIL
NOT TO SCALE



RESTROOM FAUCET DETAIL
NOT TO SCALE

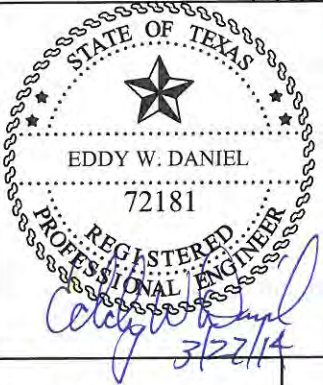


RESTROOM SINK DETAIL
NOT TO SCALE



TOILET DETAIL
NOT TO SCALE

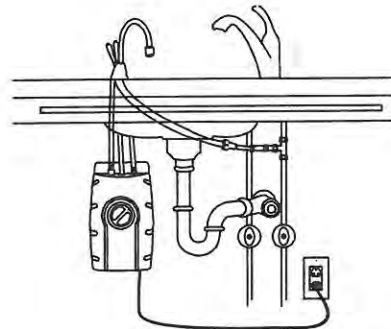
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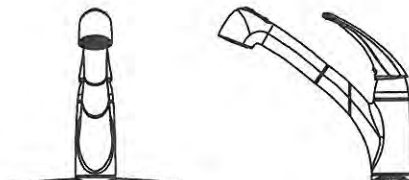
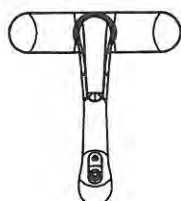
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COLLIN COUNTY, TEXAS

RESTROOM SCHEDULE

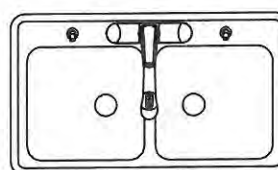
KITCHEN WATER SCHEDULE			
FIXTURE DESIG.	DESCRIPTION	MFGR. # MODEL NUMBERS	REMARKS
	INSINKERATOR, CHROME, HOT/COLD,	INSINKERATOR CATALOG: #HC-WAVEC-55	INSINKERATOR OR EQ.
	SINK FAUCET, BRIGHT CHROME	MOEN CATALOG: EXTENSA #7560	MOEN OR EQ.
	STAINLESS STEEL, FOUR HOLE	KOHLER CATALOG: TACCATA #K-3847-4	KOHLER OR EQ.
	BUILT-IN DISHWASHER W/ STAINLESS STEEL TUB	KITCHENAID CATALOG: #KDFE304D55	KITCHENAID OR EQ.
	UNDER SINK WATER PURIFIER	WHIRLPOOL CATALOG: #WHEMB40	WHIRLPOOL OR EQ.
	VENT HOOD	FRIGIDAIRE CATALOG: #FHW3640M5	FRIGIDAIRE OR EQ.



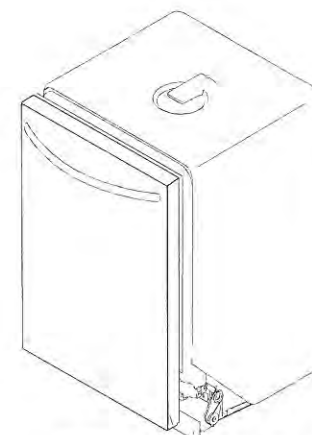
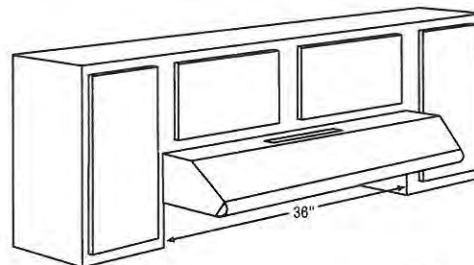
MINI INSTANT HOT WATER DETAIL
NOT TO SCALE



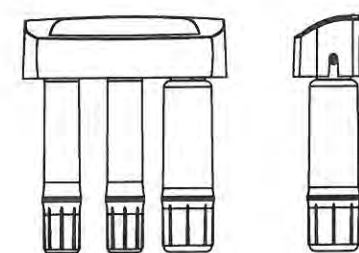
KITCHEN FAUCET DETAIL
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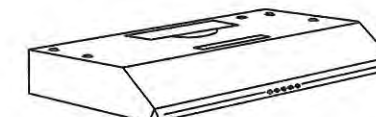
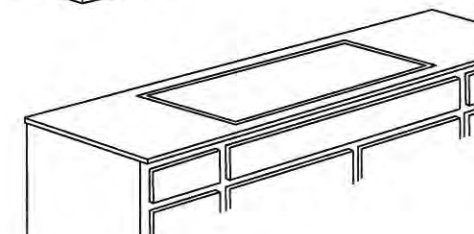
KITCHEN SINK DETAIL
NOT TO SCALE



DISHWASHER DETAIL
NOT TO SCALE



WATER FILTRATION DETAIL
NOT TO SCALE

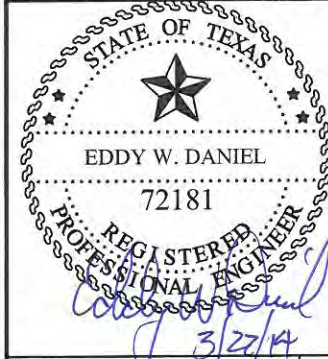


VENT HOOD DETAIL
NOT TO SCALE

NOTE:
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CONDENSER BE PROPERLY INSTALLED TO
COMPLY WITH LOCAL BUILDING AND
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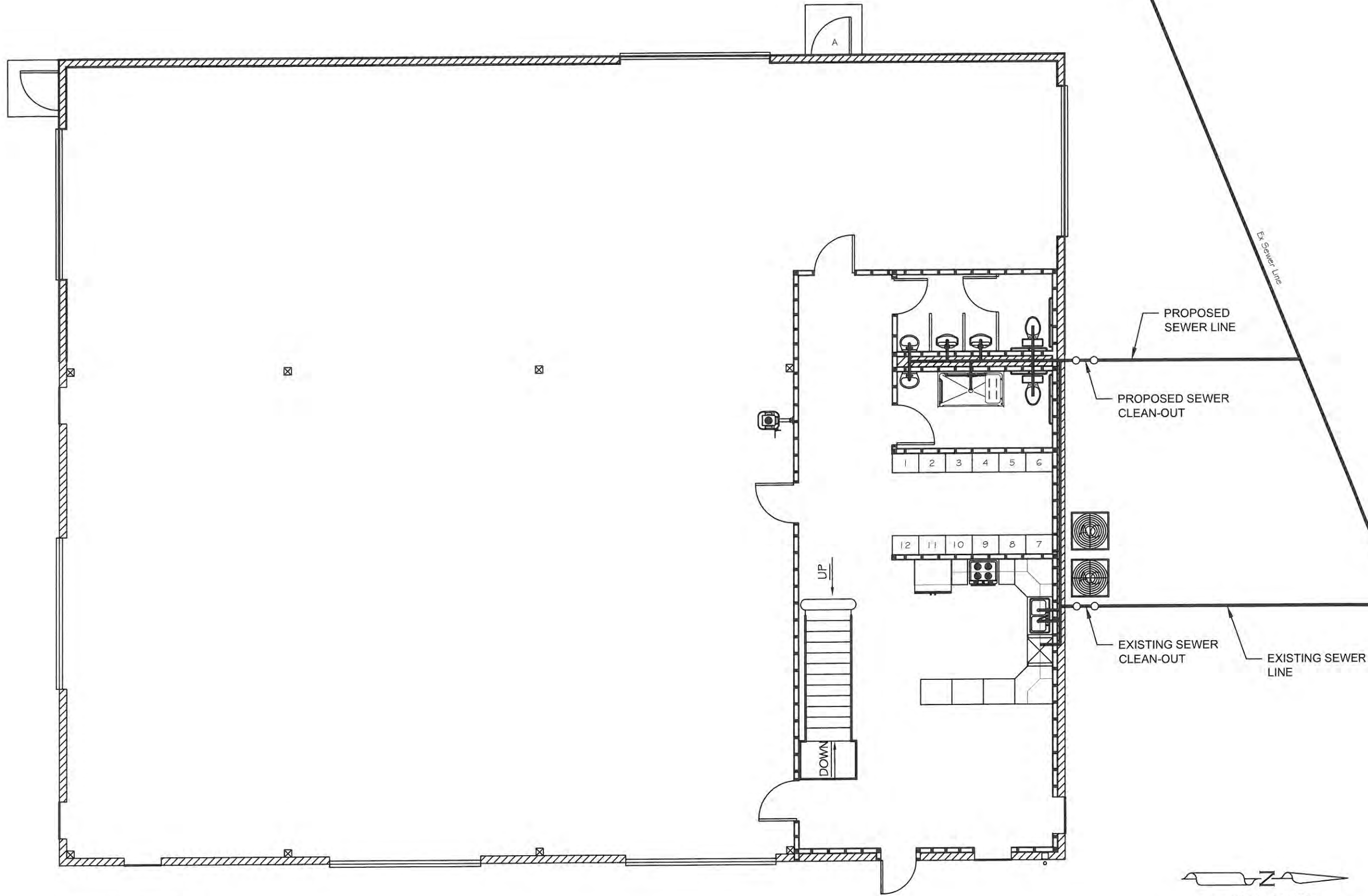
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Phone 972-784-7777
Fax 972-782-7721
www.DBIconultants.com

DESIGNED: E.W.D.
DRAWN: K.S.G.
DATE: 03/24/2014
REVISION: N/C
FIRM REGISTRATION NO.: F-002225
FILE: N:\Farmersville City of Maintenance Building\03-28-2014

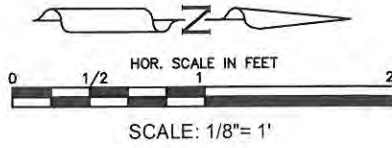


CITY OF FARMERSVILLE SERVICE CENTER
PROJECT
FOR
CITY OF FARMERSVILLE
COLLIN COUNTY, TEXAS

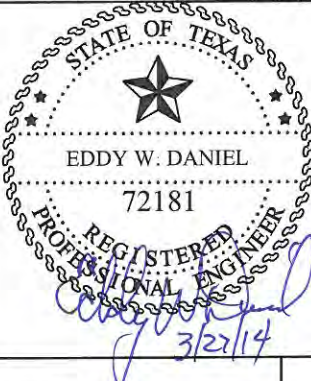
KITCHEN SCHEDULE



FIRST FLOOR



DBI DANIEL & BROWN INC.
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 118 McKinney St.
 P.O. Box 606
 Farmersville, Texas 75442
 Phone 972-784-7777
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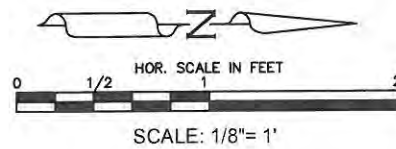


**CITY OF FARMERSVILLE SERVICE CENTER
 PROJECT
 FOR
 CITY OF FARMERSVILLE
 COLLIN COUNTY, TEXAS**

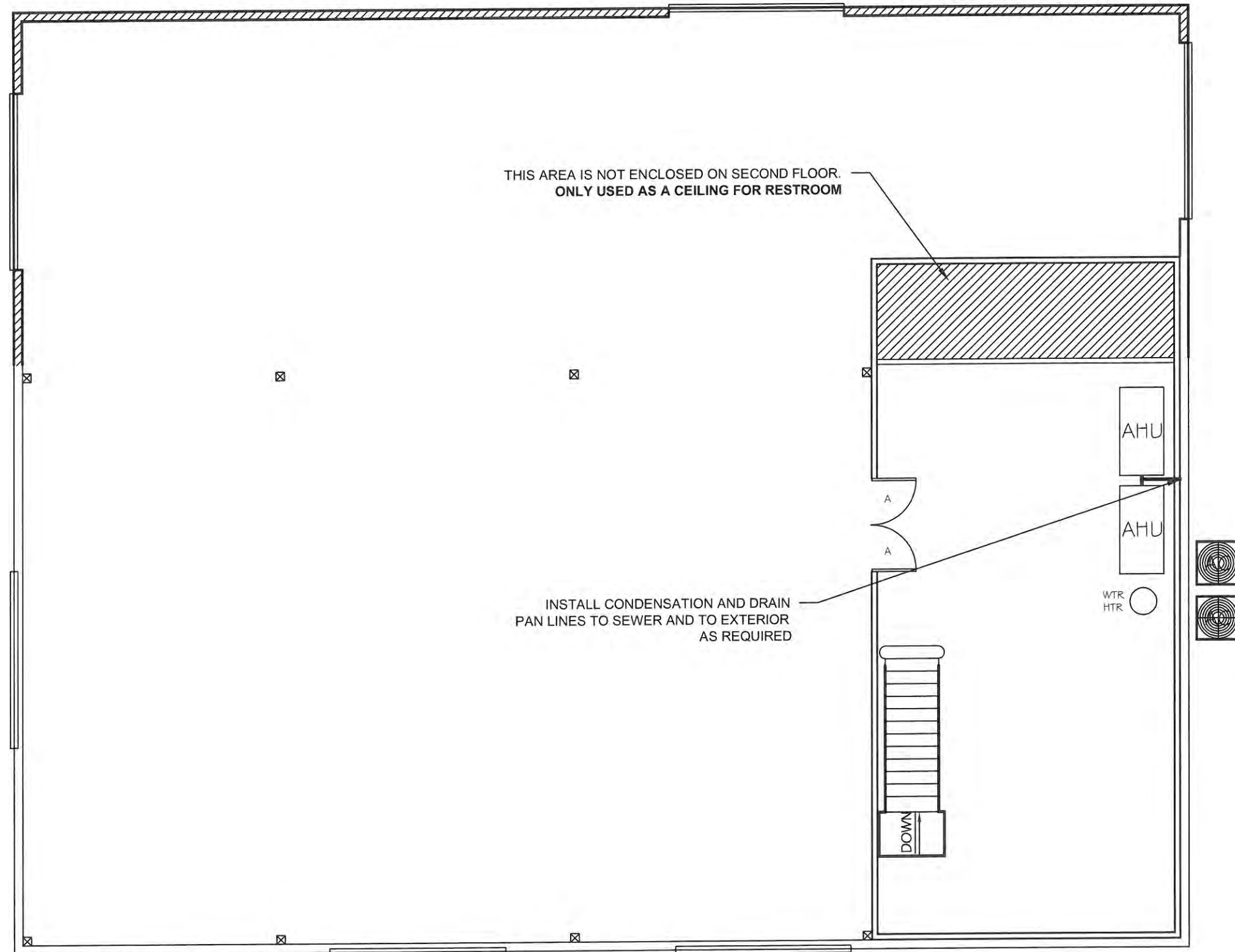
SEWER PLUMBING PLAN 1ST FLOOR

SHEET MEP11

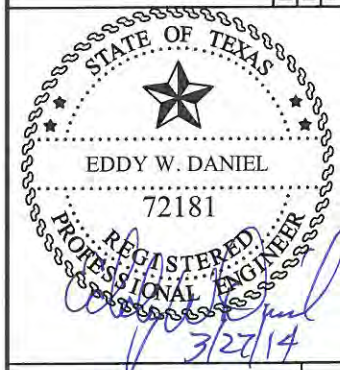
DESIGNED: E.W.D. DATE: 03/24/2014 FIRM REGISTRATION NO.: F-002225
 DRAWN: K.S.G. REVISION: N/C
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SECOND FLOOR



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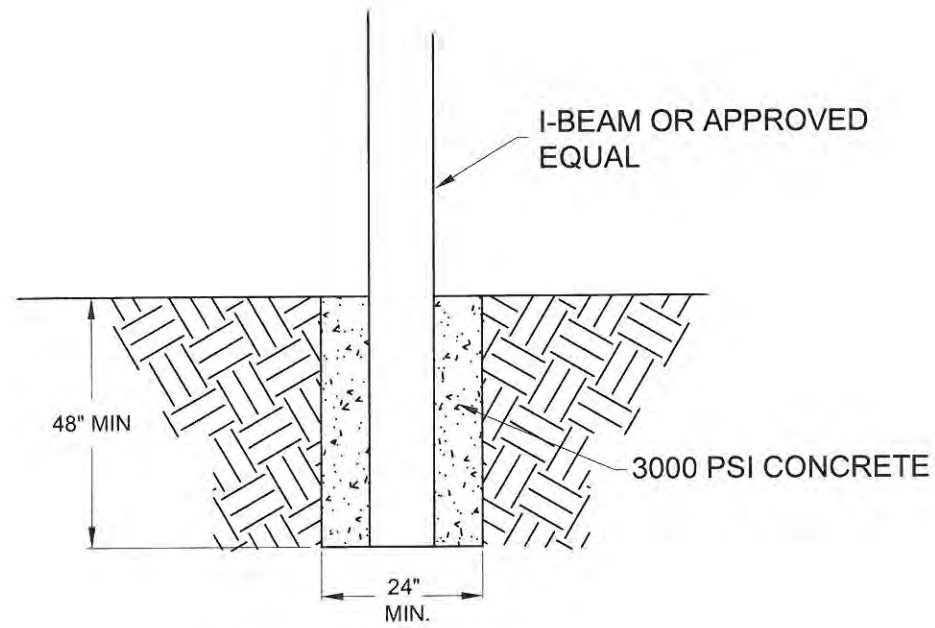


**CITY OF FARMERSVILLE SERVICE CENTER
PROJECT
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CITY OF FARMERSVILLE
COLLIN COUNTY, TEXAS**

SEWER PLUMBING PLAN 2ND FLOOR

SHEET MEP12

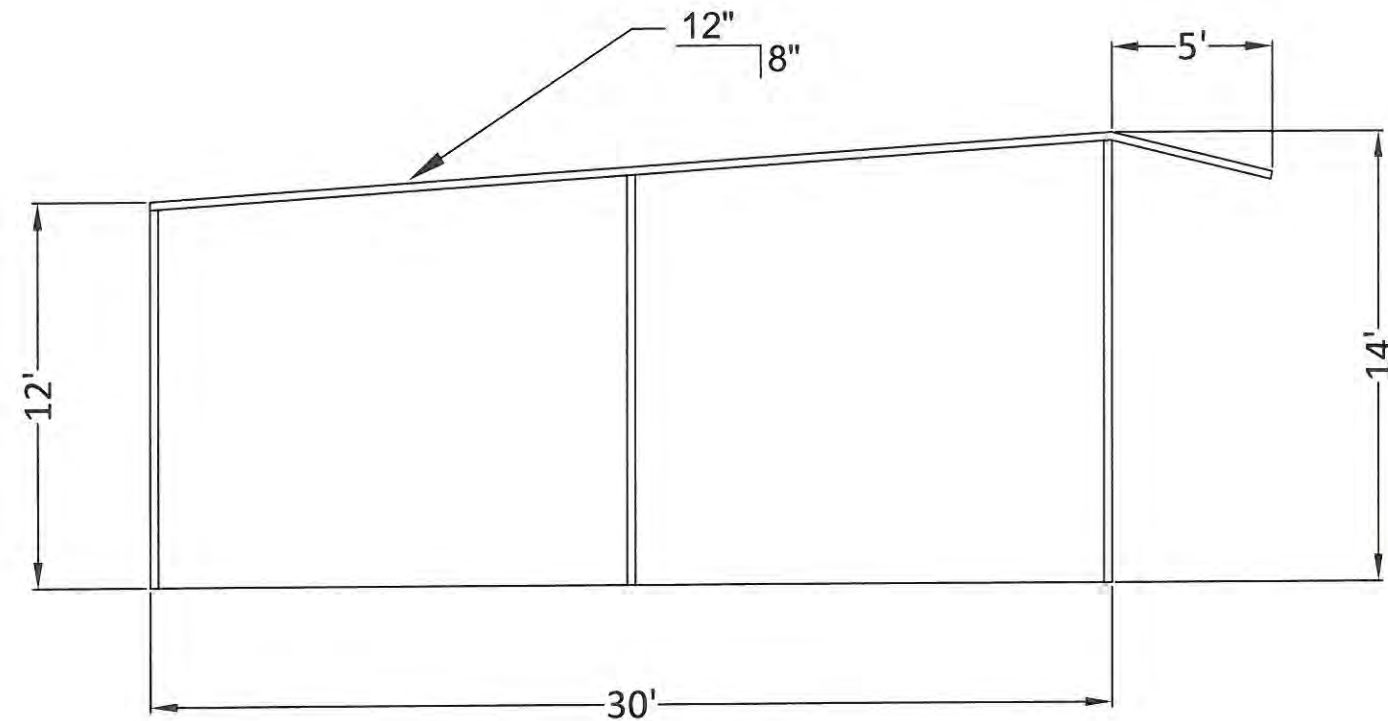
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FOOTING DETAIL
OR APPROVED EQUAL
NOT TO SCALE

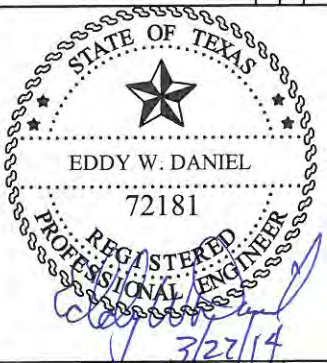
NOTES:

1. OWNER WILL APPROVE FINAL COLOR SELECTION.
2. METAL BUILDING SHALL BE PRE-ENGINEERED FOR LOCAL CODES AND LOADS.
3. EXTERIOR METAL SHALL BE 26-GAUGE INDUSTRIAL R-PANEL, STANDARD FACTORY COATED.
4. STRUCTURAL STEEL MAY BE FACTORY PRIMED AND SHALL NOT BE REQUIRED TO BE PAINTED.
5. UNPRIMED STRUCTURAL STEEL SHALL BE PAINTED IN THE FIELD.



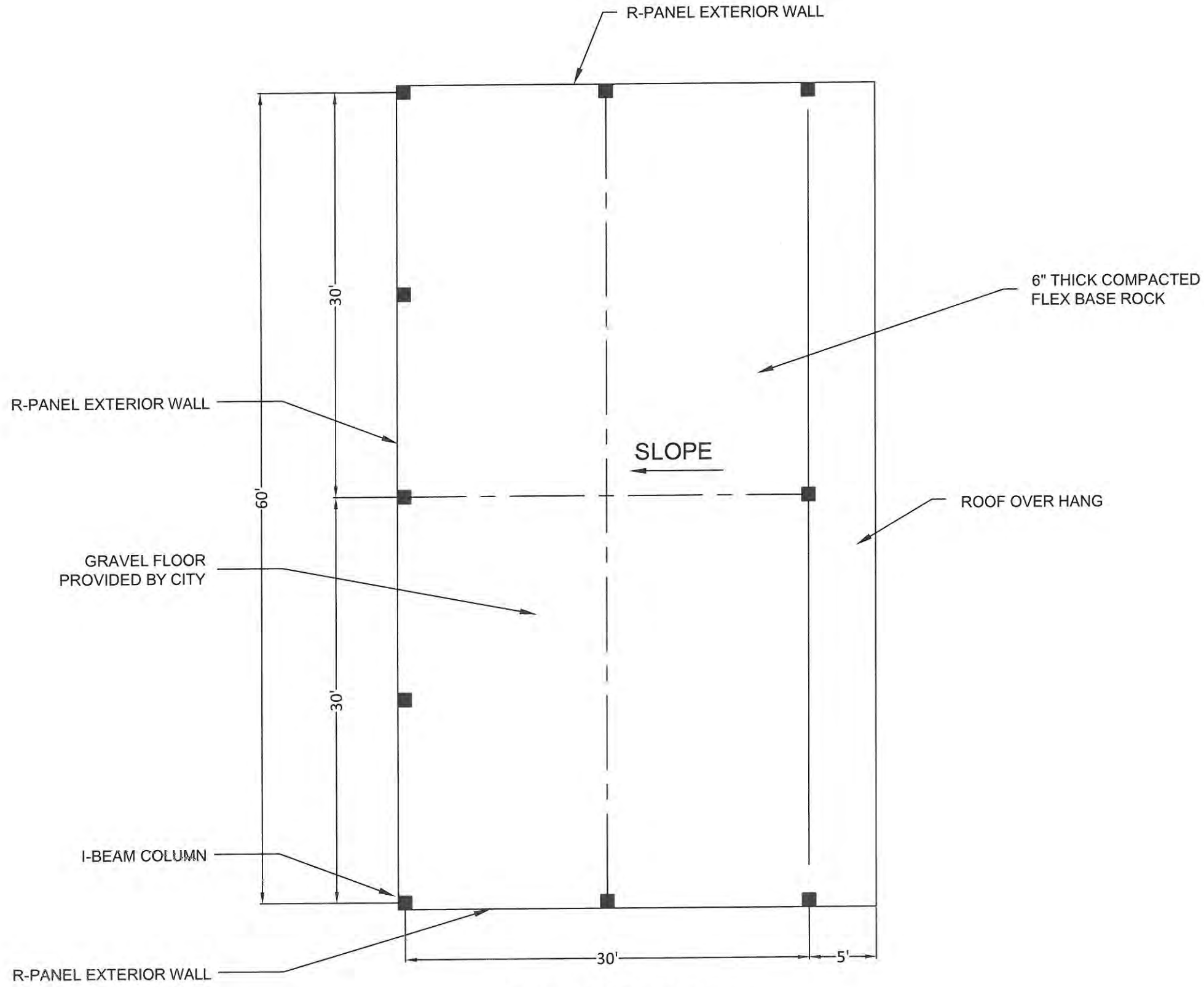
EQUIPMENT SHED
NOT TO SCALE

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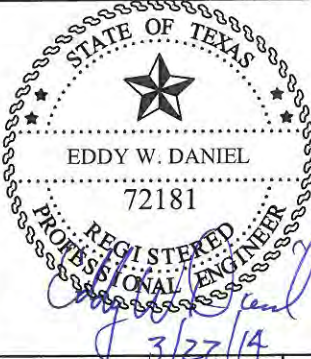
CITY OF FARMERSVILLE SERVICE CENTER
PROJECT
FOR
CITY OF FARMERSVILLE
COLLIN COUNTY, TEXAS

ALTERNATE BID ITEM - EQUIPMENT SHED



EQUIPMENT SHED LAYOUT
NOT TO SCALE

Daniel & Brown Inc.
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CITY OF FARMERSVILLE SERVICE CENTER
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FOR
CITY OF FARMERSVILLE
COLLIN COUNTY, TEXAS

ALTERNATE BID ITEM - EQ. SHED LAY-OUT



REINFORCED CONCRETE SIDEWALK



ALTERNATE BID ITEM - SIDEWALK

SHEET ALT 3

DBI DANIEL & BROWN INC.
ENGINEERS/CONSULTANTS/PLANNERS

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Farmersville, Texas 75442 www.DBIConsultants.com

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