LAFOURCHE PARISH FIRE DISTRICT NO. 3

FIRE CENTRAL TRAINING TOWER

CUT OFF, LAFOURCHE PARISH, LOUISIANA

****

ADDENDUM NO. 1

Date Issued: February 13, 2025

****

This Addendum No. 1 shall be part of the above referenced project.

Acknowledge receipt of this Addendum No. 1 by inserting its number in the space provided in the Louisiana Uniform Public Work Bid Form of the Request for Proposals. Failure to do so may subject the bidder to disqualification.

Brenton M. Hebert, P.E.
GIS Engineering, LLC.

LAFOURCHE PARISH FIRE DISTRICT NO. 3

FIRE CENTRAL TRAINING TOWER
CUT OFF, LAFOURCHE PARISH, LOUISIANA

This Addendum is issued for the purpose of modifying, clarifying, or revising, as applicable, the specified items of the original Contract Documents. It is also issued for the purpose of adding, as applicable, the attached specified items to the original Contract Documents, or deleting, as applicable, the attached specified items from the original Contract Documents. The Addendum and attachments shall be construed as much a part of the original Contract Documents as contained therein. Changes made by Addenda shall take precedence over original Contract Documents.

GENERAL ANNOUNCEMENTS

Please note that Sealed Bids will be received before **3:00 PM, Thursday, February 27, 2025, at GIS Engineering, LLC, 197 Elysian Drive, Houma, LA 70363.** The bid opening will be held at this date, time, and location.

PART I – WRITTEN CONTRACTOR'S QUESTIONS

Contractors Written Questions and Engineer's Responses

PART II – MODIFICATIONS TO CONTRACT DOCUMENTS TECHNICAL SPECIFICATIONS, PLANS, AND OTHER DOCUMENTS

Modifications to Contract Documents and Specifications.

PART III – APPROVED EQUAL REQUEST

PART IV – ATTACHMENTS

1. Pre-Bid Conference Attendee List
2. Pre-Bid Conference Meeting Minutes
3. Section D – Louisiana Uniform Public Work Bid Form (Revised as Per Addendum No. 1)
4. Technical Specification No. 03 30 00 – Cast-In-Place Concrete (Revised as Per Addendum No. 1)
5. Technical Specification No. 13 00 00 – Special Construction (Revised as Per Addendum No. 1)
6. Technical Specification No. 33 05 05.31 – Hydrostatic Testing (Revised as Per Addendum No. 1)
7. Technical Specification No. 33 11 00 – Water Distribution Piping (Revised as Per Addendum No. 1)

8. Drawing 11 – Concrete and Embankment Typical Sections (Revised as per Addendum No. 1)
9. Drawing 11A – Concrete Foundation (Added as per Addendum No. 1)
10. Drawing 19 – Water Line Plan (Overall) (Revised as per Addendum No. 1)
11. Drawing 20 – Water Line Plan (Revised as per Addendum No. 1)
12. Drawing 21 – Water Line Plan (Revised as per Addendum No. 1)

PART I – Written Contractor's Questions

NOTE – The responses presented in PART I may differ from those presented in the Pre-Bid Conference. The responses in PART I are current as of the date of this Addendum and if different supersede those provided at the Pre-Bid Conference or any previous addenda.

Contractor's General Questions Received

1. What is the budget for this project?

   Response: The budget for the Base Bid of the project is $400K. The budget for the Base Bid, Alternate No. 1 and Alternate No. 2 is $630K.

2. Sheet 1 of 2 of the plumbing drawings (LPWD#1 drawings) states that all costs associated with the installation of sand, limestone, and asphalt shall be included in bid price for asphalt paving bid item, however that bid item is a part of the base bid and the plumbing is a part of Alternate 2. Please advise.

   Response: Alternate No. 2 includes the installation of the 8" Water Line, all trenching, all backfilling material, and all bedding material required to install the water line. The typical waterline section that will be used for the majority of the water line installation is on the second page of the Lafourche Parish Water District Typical Details. There are some small section(s) of the water line that is to be installed beneath an asphalt road or shoulder, a limestone road or shoulder or the limestone parking lot. These sections shall be backfilled using the same material(s) and layer thickness(es) as was excavated from the area. This cost for the backfilling materials for these small sections shall be included in the item for the 8" Water Line.

3. The fire line piping calls for 8" Schedule 40 PVC however, this is very nonstandard considering that PVC is a glued pipe, and this line will be under high pressure. Please advise.

   Response: The water line piping has been revised to 8" C-900 Pipe. Please see the revised specifications and drawings regarding this water line included in this addendum.

4. Will you consider extending the contract time from 150 calendar days to 210 calendar days due to the extended lead time of some items, namely the building?

   Response: The Contract Time will not be extended. However, for items that incur extended lead times.

5. Is this project tax exempt?

   Response: Yes. Please refer to Section P of the Contract Documents and Specifications for the Sales Tax-Exempt Form.

6. As far as testing is concerned, what testing is required from the contractor?

   Response: **Concrete Testing will require casting concrete cylinders for compression testing. Compressive Strength test shall occur at 3, 7, and 28 (2 cylinders) days. Test results shall be submitted to the Engineer. Refer to Section 03 30 00 of the Technical Specifications for more details.**

   Embankment Testing will require compression testing to 95%. Refer to Section 31 24 00 of the Technical Specifications and Page 09 and 11 of the Drawings for more details.

7. Has a FEMA EHP (Environmental & Historic Preservation) review and assessment been conducted?

   Response: **Yes. Both the review and the assessment have been conducted and approved.**

8. Are drive logs required?

   Response: **No.**

9. Will the brush be cleared off the fence prior to beginning of the project?

   Response: **Yes.**

PART II – Modifications to Contract Documents, Technical Specifications, Plans, and Other Documents

Contract Documents:

1. Section D – Louisiana Uniform Public Work Bid Form
   a. Please replace with the revised Section D provided in this addendum. Please note the following change to the Louisiana Uniform Public Work Bid Form:
      i. Bid Quantity of Item No. TTF-03 (Aggregate Base Course) and Item No. TTF-04 (4,000 PSI Portland Cement Concrete Pavement) has been revised.
      ii. Bid Item Description of Item No. WLH-01 has been revised.

Technical Specifications:

1. Technical Specification No. 03 30 00 – Cast-In-Place Concrete
   a. Please replace with revised Technical Specification No. 03 30 00 provided in this Addendum. Revision includes, but are not limited to:
      i. Revised Paragraph 3.8 “Concrete Testing”

2. Technical Specification No. 13 00 00 – Special Construction
   a. Please replace with revised Technical Specification No. 13 00 00 provided in this Addendum. Revision include, but are not limited to:
      i. Added Paragraph 2.5B “Materials”

3. Technical Specification No. 33 05 05.31 – Hydrostatic Testing
   a. Please replace with revised Technical Specification No. 33 05 05.31 provided in this Addendum. Revision includes, but are not limited to:
      i. Revised Paragraph 2.1A “Hydrostatic Testing”
      ii. Revised Paragraph 3.2 “Field Quality Control”

4. Technical Specification No. 33 11 00 – Water Distribution Piping
   a. Please replace with revised Technical Specification No. 33 11 00 provided in this Addendum. Revision includes, but are not limited to:
      i. Added Paragraph 2.1 “C-900 (PVC) Pipe”
      ii. Added Paragraph 3.2B “Installation”

Plans:

1. Drawing 11 – Concrete and Embankment Typical Sections
   a. Please remove and replace with the revised plan sheet provided in this addendum.

2. Drawing 11A – Concrete Foundation
   a. Please add this new plan sheet provided in this addendum.

3. Drawing 19 – Water Line Plan (Overall)
   a. Please remove and replace with the revised plan sheet provided in this addendum.

4. Drawing 20 – Water Line Plan
    a. Please remove and replace with the revised plan sheet provided in this addendum.

5. Drawing 21 – Water Line Plan
    a. Please remove and replace with the revised plan sheet provided in this addendum.

PART III – Approved Equal Request

1. WHP Training Towers, Training Tower Model First Alarm – Three Story

   Engineer's Response: NOT APPROVED.

PART IV - ATTACHMENTS

Pre-Bid Conference Attendee List

ENGINEERING LLC

Lafourche Parish Fire District No. 3
Fire Central Training Tower
GIS Project No. 39130-1360

Pre-Bid Conference
Monday, February 10, 2025
3:00 PM

FIRE DISTRICT 3 LAFOURCHE PARISH

ATTENDANCE REGISTER

	NAME	COMPANY NAME	PHYSICAL ADDRESS	TELEPHONE NUMBER	EMAIL ADDRESS
1	Devin Dedon ✓	LPFD3	17462 West Main Street Cut Off, LA 70345	985-632-8068	devind@lpfd3.com
2	Ryan Pitre ✓	LPFD3	17462 West Main Street Cut Off, LA 70345	985-632-8068	ryanp@lpfd3.com
3	Myles Rousse ✓	LPFD3	17462 West Main Street Cut Off, LA 70345	985-632-8068	mylesr@lpfd3.com
4	Kevan Keiser	GIS	197 Elysian Drive Houma, LA 70363	985-219-1000	kkeiser@gisy.com
5	Brenton Hebert ✓	GIS	197 Elysian Drive Houma, LA 70363	985-219-1000	bhebert@gisy.com
6	Joseph Chauvin	GIS	197 Elysian Drive Houma, LA 70363	985-219-1000	jchauvin@gisy.com
7	Benjamin Rath ✓	CSRS	8555 United Plaza Baton Rouge, LA 70809	318-560-7672	benjamin.rath@csrsinc.com
8	MATT BERGERON	DEL-CON	MORGAN CITY, LA.	985-991-6174	matth@del-con.com
9	JAKE VERDIN	PICCIOLA CONSTRUCTION	16141 Hwy. 3235 Cutoff, LA 70345	985-632-5959	John@picciolaconstruction.com

	NAME	COMPANY NAME	PHYSICAL ADDRESS	TELEPHONE NUMBER	EMAIL ADDRESS
10	Kenneth Tindell	HighSteele Fencing	444 Magnolia St Houma LA	985-612-7870	Kenneth@HighSteele.com
11	BENTON FORET	FORET CONTRACTING GROUP, L.L.C. 44882	354 WEST MAIN ST THIBODAUX, LA 70301	985-492-3315	bids@foretgroup.com
12	Reed Lureau	J. Read Constructors, Inc	9882 S Perdue Ave Baton Rouge, LA 70814	225 933-8565	reed@jreadconstructors.net
13	Carson Guidry	TBT Contracting	104 St Petter Street Thiboudeaux LA	985-400-1221	office@tbtcontracting.com
14					
15					
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PART IV - ATTACHMENTS

Pre-Bid Conference Meeting Minutes

ENGINEERING LLC

Coastal Design & Infrastructure
197 Elysian Dr.
Houma, LA 70363
P: (985) 219-1000 | F: (985) 475-7014
www.gisyeng.com

Date: **Monday, February 10, 2025, 3:00 P.M.**

Project: **Lafourche Parish Fire District No. 3**
Fire Central Training Tower
GIS Project No. 39130-1360

Location: **LPFD3 Fire Central Training Building**
17462 West Main St., Cut Off, LA, 70345

PRE-BID CONFERENCE MINUTES

Meeting Led By: Brenton Hebert
Minutes Prepared By: Brenton Hebert

SAFETY TOPIC – Hydration: The Importance of Water

1. **Roster Signatures and Introductions**

    a. Owner – Lafourche Parish Fire District No. 3 (LPFD3)
    b. Engineer – GIS Engineering, LLC (GIS)
    c. Coordinator - CSRS Disaster Recovery Management Services, Inc. (CSRS)

2. **Scope of Work**

    This project consists of providing all equipment, materials, and labor for the construction of the Fire Central Training Tower. The work consists primarily of the construction of a pile supported foundation with installation of a Fire Training Tower. This project also includes the installation of electrical lighting around the training tower. If accepted, Alternate No. 1 includes the repair and/or replacement of damaged sections of the security fencing surrounding the entire training field property. If accepted, Alternate No. 2 includes the installation of a water line running from the main water line along LA Highway 1 to a proposed fire hydrant near the training tower.

3. **Advertisement for Bids** (Section A)

    Sealed bids will be received on **Thursday, February 27, 2025**, by GIS Engineering, LLC, located at 197 Elysian Drive, Houma, Louisiana, 70363 until **3:00 P.M.**, and then at said place publicly opened and read aloud. No bids will be received after 3:00 P.M.

    Bidders will have the option to submit their Bids electronically or by paper copy. Electronic Bids are accepted at Central Auction House. Central Auction House can be accessed at www.centralbidding.com. For questions related to the electronic bidding process or obtaining the Bidding / Contract Documents & Specifications electronically, please call Central Auction House at 225-810-4814.

    Bids received prior to the time of the scheduled bid opening will be securely kept unopened. No Bid received after the scheduled time for opening will be considered. Failure of the U.S. Mail or of any express carrier or

delivery service to deliver the Bid prior to the date and time of the above stated Bid Opening shall not be considered due cause for the scheduled time of the Bid Opening to be extended.

4. **Proper Preparation and Submission of Bids** (*Article 4 of Section B – Instruction to Bidders)*

   a. Bids shall be submitted by the time and at the place indicated in the Advertisement for Bids and, unless submitted electronically, shall be enclosed in an opaque sealed envelope.
   b. Envelope shall be marked with the Project title and name, address and state license number of the Bidder as set forth in the Advertisement for Bids.
   c. Each Bid Proposal packet shall include:
      i. Completed Uniform Public Work Bid Form, including Unit Price Form
      ii. Signature Authorization with written evidence of authority (LA R.S. 38:2212(B)(5))
      iii. Bid Bond with Power of Attorney, or Certified Check or Cashier's Check, all in the amount of 5% of the total amount of the bid.

5. **Bid Completeness Requirements** – *including, but not limited to, the following:*

   a. Acknowledgement of Addenda on Bid Proposal.
   b. Properly fill in unit price and extension price of each item included in the Bid Form.
   c. Complete bidder information as requested.
   d. Sign and Attest the bid.

6. Project Addenda:

   a. Clarifications in response to questions concerning Contract Documents will be issued in an Addendum.
   b. Send all questions to bidquestions@gisv.com. Any questions submitted outside of this provided email address will not be considered.
   c. The last day to submit written questions will be **Tuesday, February 18, 2025, until 3:00 P.M.**
   d. Addenda will be issued as soon as possible, but no later than **Friday, February 21, 2025 before 3:00 P.M.** Addenda will be available at www.centralbidding.com by clicking on the Project Link, and will also be sent via email provided on the sign-in sheet for this meeting.
      - Brenton Hebert, GIS, mentioned Addenda No. 1 will be issued by the end of the week and will include the answers to some questions and the minutes and sign-in sheet from this meeting.

7. General Project Information:

   a. Contract Time – 150 Calendar Days from Notice to Proceed.
   b. Estimated Project Budget – $400,000.00 (Base Bid)
   c. Estimated Project Budget – $630,000.00 (Base Bid, Alternate No. 1 & No. 2)
   d. Required Contractor's License – Building Construction
   e. Liquidated Damages - $500.00 per day. Refer to Article 9 of Section B - Standard Form of Agreement Between Owner and Contractor of the Contract Documents for specifics.
   f. Contractor's Liability Insurance – Please refer to Paragraph 11.1 of Section N – General Conditions of the Contract for Construction for requirements.

8. Contract Documents and Requirements:

   a. Contract Documents include complete Plan, Specifications, Addenda and Reference Documents.

   b. Special Provisions
      i. 1.05 Intent
      ii. 1.11 Time Constraints
      iii. 1.15 Maintenance of Drainage
      iv. 1.18 Tax Exemption

v. 1.22 Red Line As-Builts
vi. 1.26 Waste Materials
vii. 1.30 Construction Schedule
viii. 1.31 Hurricane Preparedness Plan

9. Construction Sequence and Means & Methods

a. Responsibility of the Contractor.

10. Site Familiarity

a. Before submitting a Bid it is recommended that each Bidder visit the site to become familiar with local conditions that may in any manner affect cost, progress, performance or furnishing of the Work.

- Questions from Contractors during meeting:
  a. Will you consider extending the contract time from 150 calendar days to 210 calendar days due to the extended lead time of some items, namely the building?
  b. Is this project tax exempt?
  c. As far as testing is concerned, what testing is required from the contractor?
  d. Has a FEMA EHP (Environmental & Historic Preservation) review and assessment been conducted?
  e. Are drive logs required?
  f. Will the brush be cleared off the fence prior to beginning of the project?
- All questions (and any additional questions sent via email) will be answered in the addendum.

11. Review of Plans

12. Agency/Owner Comments

- Benjamin Rath, CSRS, mentioned that this project is a FEMA funded project and LPFD3 will be seeking reimbursement from FEMA. All construction documents need to be in order for reimbursement.
- Benjamin Rath, CSRS, mentioned the Pre-Construction submittals that are listed in the General Conditions of the Contract for Construction that have to be submitted prior to the Contractor's initial request for payment. They are listed below and in Article 7, Paragraph 7.1.4 of the above stated document.
  a. Fixed Job Site Overhead Cost Itemized with Documentation to Support Daily Rates
  b. Bond Premium Rate with Supporting Information from the General Contractor's Carrier
  c. Labor Burden by trade for both Subcontractors and General Contractor. The Labor Burden shall be supported by the Worker's Compensation and Employer's Liability Insurance Policy Information Page. Provide for all trades.
  d. Internal Rate Charges for all significant company owned equipment.
  If the General Contractor fails to submit the aforementioned documentation as part of the pre-construction submittals, then pay applications shall not be processed until such time as the Owner receives this information.

13. Adjourn

Project Contact Information

GIS Engineering, LLC	**985-219-1000**
Kevan Keiser, P.E.	Project Manager
Brenton Hebert, P.E.	Project Engineer
Joseph Chauvin	Construction Manager
Ann Schouest	Project Associate

PART IV - ATTACHMENTS

Section D – Louisiana Uniform Public Work Bid Form

LOUISIANA UNIFORM PUBLIC WORK BID FORM

TO: **Lafourche Parish Fire District 3**
17462 W. Main St., Cut Off, LA 70345

BID FOR: Hurricane Ida Recovery Project:
Fire Central Training Tower
HIR No. HIR-FC-TT
17462 West Main Street, Cut Off, LA 70345

The undersigned bidder hereby declares and represents that she/he: a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: GIS Engineering, LLC, 197 Elysian Drive, Houma, LA 70363 and dated: January 2025

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA:** (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) _____ .

TOTAL BASE BID: For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" * but not alternates) the sum of:

_____ Dollars ($ _____)

ALTERNATES: For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

Alternate No. 1 *(Security Fencing Repairs)* for the lump sum of:

_____ Dollars ($ _____)

Alternate No. 2 *(Water Line Installation)* for the lump sum of:

_____ Dollars ($ _____)

Alternate No. 3 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

N/A Dollars ($ N/A)

NAME OF BIDDER: _____

ADDRESS OF BIDDER: _____

_____

LOUISIANA CONTRACTOR'S LICENSE NUMBER: _____

NAME OF AUTHORIZED SIGNATORY OF BIDDER: _____

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: _____

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER **: _____

DATE: _____

THE FOLLOWING ITEMS ARE TO BE INCLUDED WITH THE SUBMISSION OF THIS LOUISIANA UNIFORM PUBLIC WORK BID FORM:

* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

**** A CORPORATE RESOLUTION OR WRITTEN EVIDENCE** of the authority of the person signing the bid for the public work as prescribed by LA R.S. 38:2212(B)(5).

BID SECURITY in the form of a bid bond, certified check or cashier's check as prescribed by LA R.S. 38:2218(A) attached to and made a part of this bid.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM

TO: **Lafourche Parish Fire District 3**
17462 W. Main St., Cut Off, LA 70345

BID FOR: Hurricane Ida Recovery Project:
Fire Central Training Tower
HIR No. HIR-FC-TT
17462 West Main Street, Cut Off, LA 70345

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION:	☒ Base Bid or ❑ Alt.# ___ Mobilization and Demobilization			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
G-01	1	LS		

DESCRIPTION:	☒ Base Bid or ❑ Alt.# ___ Embankment Survey			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
G-02	1	LS		

DESCRIPTION:	☒ Base Bid or ❑ Alt.# ___ Traffic Maintenance Aggregate			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
G-03	100	CY		

DESCRIPTION:	☒ Base Bid or ❑ Alt.# ___ Timber Piles (7" Tip, 12" Butt, 40' Length, Owner Supplied)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
TTF-01	1,040	LF		

DESCRIPTION:	☒ Base Bid or ❑ Alt.# ___ Embankment Material (Owner Supplied; Must Be Placed, Compacted, and Tested; Includes all Labor, Equipment and Materials Needed)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
TTF-02	240	CY		

DESCRIPTION:	☒ Base Bid or ❑ Alt.# ___ Aggregate Base Coarse (Limestone; 4" Thick)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
TTF-03	35	SY		

DESCRIPTION:	☒ Base Bid or ❑ Alt.# ___ 4,000 PSI Portland Cement Concrete Pavement (Building Slab; Includes Reinforcement Bars)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
TTF-04	30	CY		

DESCRIPTION:	☒ Base Bid or ❑ Alt.# ___ 6" Thick 4,000 PSI Portland Cement Concrete Pavement (Slab Surrounding Building; Includes Wire Mesh)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
TTF-05	192	SY		

DESCRIPTION:	☒ Base Bid or ❑ Alt.# ___ Training Tower (Includes all Labor, Equipment, and Materials Required for Erection)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
TTB-01	1	EA		

DESCRIPTION:	☒ Base Bid or ❑ Alt.# ___ Exterior LED Wall Pack with Photocell Terrain Lighting (Connected to Light Switch)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
E-01	6	EA		

DESCRIPTION:	☒ Base Bid or ❑ Alt.# ___ One-Way Light Switches (Including Cover and Wall Box, For Exterior Lights)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
E-02	6	EA		

DESCRIPTION:	☒ Base Bid or ❑ Alt.# ___ Install All Required Underground Conduit (Stub Outs at Power Pole to Meter Box)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
E-03	1	EA		

DESCRIPTION:	☒ Base Bid or ❑ Alt.# ___ Install All Required Wiring for Lighting (Wire Required from Meter Box to Lights and Meter Box to Light Switches)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
E-04	1	EA		

DESCRIPTION:	☒ Base Bid or ❑ Alt.# ___ Meter Pan			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
E-05	1	EA		

DESCRIPTION:	☒ Base Bid or ❑ Alt.# ___ Single Phase 120/208V Distribution Panel			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
E-06	1	EA		

SECURITY FENCING (ALTERNATE NO. 1)				
DESCRIPTION:	❑ Base Bid or ☒Alt.# _1_ Repair/Stand Up North Security Fence (6' High)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
SF-01	1,750	LF		

DESCRIPTION:	❑ Base Bid or ☒Alt.# _1_ Repair/Replace Southwest Security Fence (6' High)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
SF-02	250	LF		

DESCRIPTION:	❑ Base Bid or ☒Alt.# _1_ Repair/Stand Up Southeast Security Fence (6' High)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
SF-03	350	LF		

DESCRIPTION:	❑ Base Bid or ☒Alt.# _1_ 10' Double Swing Gate (Includes all Labor and Materials Required)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
SF-04	1	EA		

WATER LINE (ALTERNATE NO. 2)				
DESCRIPTION:	❑ Base Bid or ☒Alt.# _2_ 8" Water Line Installation for Hydrant (C-900 Pipe) (Includes all Fittings, Excavation, Bedding Material, Tracer Wire, and Backfill)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
WLH-01	1,440	LF		

DESCRIPTION:	❑ Base Bid or ☒Alt.# _2_ Fire Hydrant (Includes all Materials Needed for Proper Installation)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
WLH-02	1	EA		

DESCRIPTION:	❑ Base Bid or ☒Alt.# _2_ 8" Water Shutoff Valve & Including Valve Box (Includes Labor, Materials, and Installation)			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION *(Quantity times Unit Price)*
WLH-03	2	EA		

Wording for "DESCRIPTION" is to be provided by the Owner.
All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

PART IV - ATTACHMENTS

Section 03 30 00 – Cast-In-Place Concrete

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. This information is intended to supplement Louisiana Department of Transportation and Development (DOTD) Standard Specifications for Roads and Bridges Section 805, most recent edition, which is incorporated by reference. In the event that a conflict between any provision of these specifications and any reference specification should arise, the most stringent provision shall apply.

1.2 DESCRIPTION OF WORK

A. This item consists of furnishing all labor, equipment and materials necessary to construct the reinforced concrete slab foundation for the support of the fire training tower.

1.3 SUBMITTALS

A. The following submittals shall be submitted by CONTRACTOR for the ENGINEER's review and approval:

B. Shop Drawings:

1. Fabrication and Placement: The CONTRACTOR shall prepare and submit complete shop drawings to the ENGINEER for approval in accordance with specified requirements. Shop drawings shall include the details of bar supports including types, sizes, spacing and sequence.
2. Joint arrangement and treatment where applicable.
3. Location, size, and details of all concrete items.

C. Product Data:

1. Submit data sheets for following products where applicable:
   a. Anchorage Devices
   b. Grouts
   c. Coatings
   d. Portland Cement
   e. Chemical Admixtures
   f. Other products included in the finished project.

D. Concrete Mix Design

1. Submit a mix design for strength and type of concrete. Include history showing compression test results.
2. Include a complete amount of cement, admixtures list of materials including type, fly ash, pozzolans, silica fume, brand, source and ground slag, special admixtures/coatings, and
3. Clearly indicate where each mix design will be used when more than one mix design is submitted.

E. Test Reports & Testing Laboratory

1. Submit Concrete Compression Test Reports for each batch of concrete.

2. Submit certified test reports of reinforcement steel showing the steel showing the steel which complies with the applicable specifications shall be furnished for each steel shipment and identified with specific lots prior to placement.
3. Testing Laboratory Certifications (Refer to Section 3.8 of these specifications).

1.4 QUALITY ASSURANCE

A. Perform work in accordance with ACI 304 and LADOTD standards. Concrete shall be sampled on accordance with ASTM C172. Perform one slump test (ASTM C143) for each concrete load at point of discharge, and prepare one set of four standard compressive strength cylinders (ASTM C31) for each 50 cubic yards or fraction thereof of concrete placed in any one day. Transport the cylinders to a testing firm acceptable to the Engineer. Employ at Contractor's expense a testing laboratory and/or properly trained and equipped technician, acceptable to the Engineer, to perform testing during construction.

B. Obtain cement material from same source throughout.

C. Contractor shall provide adequate notice, cooperate with, provide access to work, obtain samples and assist testing firm and their representatives in execution of their function.

1.5 PRODUCT HANDLING

A. Use all means necessary to protect the materials of this section before, during and after installation and to protect the materials and work of all other trades.

B. In the event of damage, immediately repair or replace damaged work as directed by the Engineer at no additional cost.

1.6 JOB CONDITIONS

A. Weather protection, runoff and erosion controls, etc. shall be the Contractor’s responsibility.

B. The Contractor shall coordinate with the Engineer when weather conditions or temperatures approach conditions for shut down of any portion of the work in accordance with the requirements of these specifications.

PART 2 PRODUCTS

2.1 FORM MATERIALS

A. Wood or metal form material, profiled to suit conditions, smooth faced and undamaged.

B. Size shall be as large as practical to minimize joints.

C. Bowed, unstable or leaky formwork will not be tolerated.

D. Forms shall be mortar tight and sufficiently rigid to prevent distortion due to the pressure of the concrete and other loads incidental to the concrete operations, including vibration.

E. Forms for structures shall conform to LADOTD Section 805 “Structural Concrete”.

2.2 FORM COATING

A. Form coating shall be commercial formulation that will not bond with, stain, cause deterioration or any other damage to concrete surfaces.

B. Form release agent shall be an approved product listed in LADOTD QPL 29.

2.3 PORTLAND CEMENT CONCRETE

A. Design mixes for a specified strength of 4,000 psi at 28 days using a minimum of 5 1/2 bags of cement (94 pounds), and a maximum of 6 gallons of water per bag of cement, unless otherwise indicated.

B. Aggregates shall be stockpiled in a manner that protects them from contamination.

C. Portland cement concrete mixture shall be LADOTD Class M for incidental paving, concrete walks and drives. Cast-in-place structures shall be Class A1.

D. Use ready-mixed concrete from an approved plant. Batch, mix and transport concrete in accordance with the requirements of ASTM C 94.

2.4 CURING MATERIALS

A. Curing materials shall conform to LADOTD 1011.01.

2.5 JOINT FILLER

A. Joint Filler material shall conform to LADOTD 1005.01.

B. Preformed expansion joint filler material shall comply with AASHTO M 213 and shall be punched to admit the dowels where called for on the plans.

C. Filler for each joint shall be furnished in a single piece for the full depth and thickness required.

2.6 AGGREGATE BASE

A. Aggregate base course shall conform to LADOTD 1003.06.3 and Section 32 15 00 of these Specifcations.

2.7 VAPOR BARRIER

A. Vapor barrier shall be installed in accordance with the Drawings.

2.8 WELDED WIRE REINFORCEMENT

A. Welded wire reinforcement must conform to ASTM A1064/A1064M, with welded intersection spaced no greater that 6 inches apart.

B. Concrete Cover: Concrete formed against earth and/or exposed to earth shall have 3” (plus 1/8”) cover. Concrete shall have cover as indicated in the plans or in approved shop drawings for cast-in-place structures.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify subgrade or base conditions. Verify that locations, gradients and elevations of base are correct. Match adjacent surfaces where applicable.

B. Contractor will be responsible for all required surveying and material testing, including scheduling the work.

3.2 PREPARATION

A. Subgrade or base course, as indicated on the detail drawings, shall be moistened to minimize absorption of water from fresh concrete immediately before concrete is placed.

B. Coat surfaces of manholes, catch basins, and other structures with an approved bond breaker to prevent bond with adjacent concrete.

C. Engineer shall be notified a minimum of 24 hours prior to commencement of concrete operations.

D. Ensure that equipment and power supply are adequate at all times. If, in the opinion of the Engineer, the equipment is not adequate to provide proper consolidation, the Engineer may delay or stop further placement until such time as adequate consolidation equipment is available on-site.

E. Vapor barrier shall be installed before the placing of concrete in accordance with the manufacturer's instructions in locations as stated or shown on the drawings to provide a continuous weather barrier.

3.3 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient. Contractor shall check forms with an appropriate leveling device prior to concrete placement to ensure that the requirement for positive drainage will be met. Errors in staking or calculation of cuts by the Engineer or Surveyor shall not relieve the Contractor of this requirement. If such errors are discovered, the Contractor shall immediately notify the Engineer so he may remedy the problem. Concrete shall not be placed until such errors and associated drainage problems are resolved.

B. Form depth shall equal the full depth of concrete to be placed.

C. Forms shall be smooth and true on the side placed next to the concrete and the upper edge.

D. Forms shall be rigid enough to withstand the pressure of fresh concrete without distortion.

E. Assemble forms to permit easy stripping and dismantling without damaging concrete.

F. Forms shall be held rigidly in place by stakes. Clamps, spreaders and braces shall be used where required to ensure rigidity in the forms.

G. Placement of stakes, clamps, spreaders and braces shall not interfere with the operation of the float.

H. Benders or thin plank forms shall be used on curves, grade changes and curb returns. Back forms for curb returns may be made of ½" thick benders cleated together for the full depth of the curb.

I. Place joint filler vertical in position, in straight lines. Secure to form work during concrete placement.

J. Forms shall be thoroughly cleaned and coated with form oil or other approved bond breaker before concrete is placed.

K. In no case shall forms be removed while concrete is sufficiently plastic to slump.

3.4 EXPANSION JOINTS

A. Expansion joints shall be provided in accordance with LADOTD 706.03.

3.5 PLACING CONCRETE

A. Place concrete in accordance with LADOTD 706.03, LADOTD 805.03, and as specified herein.

B. Ensure reinforcement, inserts, embedded parts, and formed joints are not disturbed during concrete placement.

C. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

D. Compact with immersion-type vibrators.

E. Remove forms and other surface projections where exposed to view.

F. Screed and float exposed slabs to uniform texture and color.

G. Broom finish exposed slabs and walks.

H. Protect from loss of moisture for seven days or more with membrane curing compound.

3.6 FIELD QUALITY CONTROL

A. The top of finished walks and slabs shall be true and straight, of uniform width, and free from humps, sags or other irregularities. A straight edge ten feet long laid on the top, edge or face shall not vary more than 0.01 foot from the straight edge except at grade breaks or curves.

B. Four concrete test cylinders will be taken for every 50 cubic yards or fraction thereof (at least one test each day).

C. One slump and air content test will be taken for each set of test cylinders.

D. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

E. Contractor shall clean all discolored concrete at his expense. The Engineer may approve abrasive blast cleaning or other method, as appropriate. Concrete that cannot be satisfactorily cleaned shall be removed and replaced as required by the Engineer at the Contractor's expense.

F. If the Engineer finds the materials furnished, work performed, or the finished product does not conform with the Contract but that reasonably acceptable work has been produced, the Engineer will determine the extent the work will be accepted and remain in place. If accepted the Engineer will (1) document the basis the basis for acceptance by the Contract Modification Order which will provide for an appropriate reduction in the Contract price for such work or materials not otherwise provided for in Louisiana Department of Transportation Standard Specifications for Roads and Bridges latest Edition, or (2) notify the Contractor in writing that the Contract unit price will be reduced in accordance with Louisiana Department of Transportation Standard Specifications for Roads and Bridges, latest Edition, or (3) in lieu of price reduction, permit correction or replacement of the finished product provided the correction or replacement does not adversely affect the work.

3.7 CURING AND PROTECTION

A. Protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury at all times.

B. Curing shall begin as soon as the concrete has hardened sufficiently to prevent damage to the surface or finish.

C. Do not permit pedestrian traffic for 3 days minimum and vehicular traffic for 7 days or until 75 percent design strength of concrete has been achieved after finishing. Contractor shall adequately barricade and otherwise protect the site as necessary to prevent such traffic.

D. Fresh concrete shall be monitored continuously until hardened sufficiently to prevent graffiti, tracks, etc. Damaged sections shall be replaced at the Contractor's expense.

E. Curing of structural units shall be in accordance with LADOTD 805.10.

3.8 CONCRETE TESTING

A. All concrete shall be subjected to concrete testing by a certified laboratory by the American Concrete Institute (ACI). The CONTRACTOR shall be responsible for scheduling and carrying out all testing as indicated in these specifications. Concrete testing shall be done at no direct pay.

B. The testing laboratory shall perform all tests listed below for every 50 cubic yards within one same batch of concrete using the same mixture and poured the same day. If the CONTRACTOR is using two different mixtures within the same day, the testing laboratory shall perform all tests listed below on each mixture. If the same mixture is used on different days, the testing laboratory shall perform a new set of tests as listed below for every day that the mixture is used.

C. Cast specimens, test, and report hardened concrete property tests of each trial batch as follows:

1. Compressive strength at 3, 7, and 28 (2 cylinders) days in accordance with ASTM C39/C39M. Use of unbonded caps in accordance with ASTM C1231/C1231M is permitted.

2. Submit Concrete Compression Test Reports for each batch of concrete.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Structural Concrete will be measured for payment based on the basis of cubic yard installed and adjustments thereto. There will be no adjustments in plan quantities unless the engineer makes changes to adjust to field conditions, plan errors, or if design changes are necessary.

B. Aggregate Base Coarse (River Sand) will be measured for payment based on the basis of square yard installed and adjustments thereto. There will be no adjustments in plan quantities unless the engineer makes changes to adjust to field conditions, plan errors, or if design changes are necessary.

4.2 PAYMENT

A. Payment for Structural Concrete will be made at the applicable contract unit price under the Item for Structural Concrete, per cubic yard. Payment per unit price shall include all furnishing and placing of all materials including, but not limited to, tie bars, dowel bars, and joint material.

B. Payment for Aggregate Base Coarse (Limestone) will be made at the applicable contract unit price under the Item for Aggregate Base Coarse (Limestone), per square yard. Payment per unit price shall include all furnishing and placing of all materials.

Item No.	**Pay Items**	**Pay Units**
TTF-03	Aggregate Base Coarse (Limestone, 4” Thick)	Square Yard
TTF-04	4,000 PSI Portland Cement Concrete Pavement (Building Slab; Includes Reinforcement Bars)	Cubic Yard
TTF-05	6" Thick, 4,000 PSI Portland Cement Concrete Pavement (Slab Surrounding Building; Includes Wire Mesh)	Cubic Yard

END OF SECTION 03 30 00

PART IV - ATTACHMENTS

Section 13 00 00 – Special Construction

SECTION 13 00 00
SPECIAL CONSTRUCTION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This This Section includes the following:
   1. Fire Training Structure/Tower.
   2. Design Requirements.

1.3 RELATED SECTIONS

A. The following Sections contain requirements that relate to this section:

1.4 REFERENCES

1.4.1 American Iron and Steel Institute (AISI):
"Specification for the Design of Cold-Formed Steel Structural Members."
1.4.2 American Institute of Steel Construction (AISC):
"Steel Construction Manual", Allowable Stress or Load and Resistance Factor Design.
1.4.3 American Society of Civil Engineers (ASCE):
ASCE 7-16 "Minimum Design Loads"
1.4.4 American Society for Testing and Materials (ASTM) Publications:
ASTM A36 "Standard Specification for Carbon Structural Steel"
ASTM A123 "Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products"
ASTM A653 "Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process"
ASTM A924 "Standard Specification for General Requirements for Steel Sheet, Metallic- Coated by the Hot-Dip Process"
ASTM A992 "Standard Specification for Structural Steel Shapes"
1.4.5 National Fire Protection Association (NFPA):
NFPA 1402 – "Standard On Facilities For Fire Training And Associated Props"
NFPA 1403 – "Standard On Live Fire Training Evolutions"
1.4.6 International Code Council (ICC):
International Building Code
1.4.67 Occupational Safety and Health Standards (OSHA) for Structures and/or Fire Escapes that Do Not Require Public Occupancy and are Private Use Only**:**
29 CFR 1910.25 – "Stairways"
29 CFR 1910.29 – "Fall Protection Systems and Falling Object Protection"

PART 2 DESCRIPTION

FIRE TRAINING SIMULATOR

2.1 PURPOSE

A. This structure will be used to provide training for fire fighters and leaders in controlled environments, which replicate actual conditions.

2.2 GENERAL

A. The fire training structure/tower shall utilize a structural steel frame system and curtain wall design. Structural framing systems are considered the norm for high-rise and commercial structures. The curtain wall/exterior wall panel design produces an ideal buffer or protection between the main structural frame of our building and any exterior elements, so that if an exterior wall panel is damaged (i.e., fire truck hits the side of the tower) no structural damage is likely to occur. This wall panel system also creates a flat surface ideal for ladder or rappelling anywhere on the tower to simulate actual street conditions.

2.3 STRUCTURAL INTEGRITY

A. The wind loads, deck and the roof loads stated herein represent the standard criteria. Increased loadings, as may be dictated by local jurisdictions, will be accommodated. The primary structural system shall utilize hot-rolled structural steel column and beam frames sized to meet and exceed the loads as indicated. This training simulator shall be considered a nonbuilding structure for both code compliance and load interpretation. The primary and secondary structural system shall also meet and exceed the loads as indicated while maintaining a maximum deflection of L/240.

2.4 CODE COMPLIANCE

A. The fire training structure/tower's primary structural and seismic design shall be in accordance with the building code having jurisdiction in the area of the project. Due to the unique nature of the intended use of these fire training structures/towers; the structure and fire escape stair design (rise/run), handrail extensions, guard openings, riser openings, means of egress, fire wall requirements as well as other construction issues, are not expected to satisfy the criteria of buildings intended to accommodate public occupancy. This may require a building code variance in some locations; however, this simulator shall meet applicable building codes and NFPA 1402 standards. It is the responsibility of the owner to obtain such variance if required. The pre-engineered metal building shall be rated for 143 MPH winds (Risk Category I) as per ASCE 7-16.

2.5 MATERIALS

A. All materials shall be new and shall conform to applicable ASTM specifications. All structural or non-structural materials used, 10 gauge or less in thickness, whether exposed or not to the elements shall be **hot-dipped galvanized**. **When any mention of galvanized is noted within these specifications, it shall be implied to mean hot-dipped galvanized.** Any exposed material which is not galvanized, shall be given one coat of shop paint.

B. Materials shall meet the Build America, Buy America, and American Iron and Steel (AIS) requirements as applicable.

2.6 FASTENERS

A. All fasteners utilized with galvanized steel panels not exposed to the elements shall be electro-galvanized. All exterior fasteners shall be furnished with a contained EPDM washer under the head for sealing. Structural columns and beams shall be field bolted with (A325) 5/8" diameter electro-galvanized bolts or larger. Anchor bolts shall by furnished by the concrete contractor, unpainted and of the size specified on the anchor bolt plan.

2.7 WEATHER SEALING

A. All joints in weather tight areas are to be sealed with tape caulk or foam closures as specified on the building plan. Because of the intended use water tightness of simulators is not required or assured.

2.8 ROOF SYSTEMS

A. Roofs shall be decked with 30" or 36" wide, 18 ga. unpainted galvanized 18 gage steel deck per **ASTM A-653, class G60** with recessed fasteners and shall meet the stated design load. Panels must have 6" on center cell spacing with an actual 4 ¼" flats with an actual 1 ¾" wide recesses and a maximum of 1 ½" deep recesses. Panels must be roll formed.

2.9 EXTERIOR WALL SYSTEM

A. Wall panel/curtain wall system shall provide for a concentrated rappelling/ladder load of 890 pounds while the primary structural framing supporting this wall system shall provide for a concentrated point load of 2300 pounds. **Rake trims, parapet rake trims, and window opening sill trim corners shall be beveled to prevent rope chafing, personal injury, or equipment damage.**

2.10 WALL PANELS

A. The exterior wall panels shall be essentially flat to allow for safe laddering and rappelling anywhere on the simulator without the requirement of additional exterior surface plates to form a flat surface. The exterior wall panels shall be of 18 ga. hot-dipped galvanized steel per ASTM A-924, class G-90**.** Panels shall have nominal 4 ¾" flats with a maximum 1 1/8" wide recesses and shall be set in the horizontal plane. Since panels are set in the horizontal plane, sealants are not required to make this structure weather tight (sealants in extreme temperature environments will breakdown prematurely). Panels must be brake formed to provide a maximum 1/8" inside radius. All end joints of all panels must be backed by a splice panel, which extends a minimum of 12" either side of the joint (24" total). Exterior walls panels shall be painted from the customer's choice of the manufacturer's available colors.

B. The interior wall panels shall be corrugated for added strength and durability. The interior wall panels consist of hot-dipped galvanized steel per ASTM A-924. The interior wall panels shall have a ¾" deep maximum corrugation at 3 ½" on center and shall be set in the vertical plane. Interior wall panels shall be painted white.

C. Painted wall panels (interior and exterior) shall be manufactured from coil coated steel meeting ASTM A-924**,** hot-dipped galvanized, and painted with a **paint system on both sides** of the panel. The base coat shall be a 0.2 to 0.25 mil coat of a polyurethane primer. The topcoat shall be a 0.7 to 0.8 mil coat of silicon protected polyester on the face side. The paint, on both sides of the panel, is to be baked on. The finished surfaces are to have a light wax coating applied after painting.

2.11 SECONDARY WALL FRAMING

A. Wall framing shall be of conventional steel stud construction. Studs are to run vertically to represent common stud construction and be spaced at no more than 24 inches on center. Stud size and gage shall be determined by the design engineer, and shall accommodate all design criteria stated in other sections of this specification. All rough openings shall be framed in the conventional manner and provide fastening surfaces for all interior and exterior finishes and trims as provided with the building system.

2.12 SECONDARY ROOF FRAMING

A. Roof framing shall be of conventional steel joist construction. Joists are to be spaced at no more than 24 inches on center and shall have a maximum span length of 14 ft. All rough openings shall be

framed in the conventional manner and provide fastening surfaces for all floor and roof decks as provided with the building system.

2.13 WINDOW AND DOOR LOCATIONS

A. Window and door locations indicated on the drawings are suggested only. All such openings are to be field cut and with the exception of the stair wall, may be located according to preference.

2.14 WINDOW SHUTTERS

A. All window openings shall be provided with a swinging shutter of the proper size for the opening. Framed opening studs/jambs shall be 16 ga. galvanized steel. Shutters for all areas shall be made with double skins of 18 ga. galvanized steel per ASTM A-924. Shutters will be provided as a 1-3/8" thick factory welded hollow metal assembly with a minimum of 3 vertical interior hat channel stiffeners and a 14 ga. hinge reinforcement. The hinges shall be ball-bearing swaged mortise mount, 4" x 4" x 5/32" thick stainless steel, commercial grade, and provided with the appropriate quantities per shutter (see paragraph below). A hollow metal welded assembly shall be used to prevent premature temperature warping that occurs on single panel/sheet shutters. Galvanized shutters are required to prevent premature rusting. All shutters shall be provided with a galvanized hold open and an operating lever latch with handles on both the inside and outside of the shutter. This latch shall have a padlocking handle and its case shall be 1/8" thick zinc plated steel with a black powder coated finish.

B. Shutters for all areas except the burn room shall have two heavy-duty hinges. Shutters for the burn room areas shall have three heavy-duty hinges**.** In addition, burn room shutters shall be protected with a 1" thick Westemp insulation panel mounted on the inside of the burn room.

2.15 DOORS

A. Doors for all areas except for burn areas shall be double skins of 18 ga. galvanized steel (total thickness), per ASTM A-924, and shall be an insulated hollow metal swing doors with 3 stainless steel ball-bearing hinges and full weather stripping. Framed opening studs/jambs shall be 16 ga. galvanized steel. This 1 ¾" thick door shall have a baked-on enamel finish and will include a lockset. Locksets shall meet ANSI A156.2 Series 4000 Grade 2 certifications and shall be keyed alike. Doors on 1st floor mounted at top of curb shall include a door sweep to allow for hose advancement even when door is closed to exterior of tower.

B. Doors for the burn areas shall be made with double skins of 18 ga. galvanized steel per ASTM A-924 with four heavy-duty hinges. The hinges shall be ball-bearing swaged mortise mount, 4" x 4" x 5/32" thick stainless steel, commercial grade. Doors will be provided as a 1-3/8" thick factory welded hollow metal assembly with a minimum of 3 vertical interior hat channel stiffeners and a 14 ga. hinge reinforcement. A hollow metal welded assembly shall be used to prevent premature temperature warping that occurs on single sheet doors. Galvanized doors are required to prevent premature rusting. Framed opening studs/jambs shall be 16 ga. galvanized steel. Doors shall be provided with a galvanized hold open, a 6 ½" door pull, an adjustable spring closure, and an operating lever latch. This operating lever latch shall have handles on both the inside and outside of the door, a padlocking handle, and its case shall be 1/8" thick zinc plated steel with a black powder coated finish. A door sweep is to be provided to allow hose advancement even when door is closed to exterior of burn room. In addition, burn room doors shall be protected with 1" thick Westemp insulation panels mounted on the inside of the burn room.

2.16 PARAPET WALLS

A. Parapet walls, if utilized, shall be designed to resist a load of 50 lb/ft and a concentrated point load of 200 lbs in any direction at the top. This wall shall incorporate a minimum of 12 ga. galvanized studs at one foot on center with 18 gage wall panels installed on both sides. The parapet shall incorporate an integral draining system that provides for uniform drainage without the need for a concrete roof covering.

2.17 SECONDARY FLOOR SYSTEM

A. Interior decks shall be of six inch wide, unpainted 18 ga. **slip resistant galvannealed** steel per **ASTM A-924, A-60** with recessed fasteners and shall meet the stated design load. Panels must have nominal 5" flats with a maximum 1" wide by 1" deep recesses (maximum 1" recess is required to prevent potential injuries). Panels must be brake formed at 90 degrees and provide inside radiuses no greater than 1/8". All floor and roof decks shall be framed with light gage steel "C" joists spaced at no more than 24 inches on center and shall have a maximum span length of 14 ft. Joists size and gage shall be determined by the design engineer, and shall accommodate all design criteria stated in other sections of this specification. Concrete floor covering is not required in non-burn room areas due to the safe (no large recesses to twist ankles or injure knees) and user-friendly floor panels specified. Toe kicks shall be installed around the entire perimeter of each floor to prevent potential injuries due to exposed openings to floor below. Concrete floor covering can be specified for the entire floor system while still maintaining stated design live loads. All burn room areas shall have concrete floor covering as specified below. Concrete floor covering is by others.

B. If concrete floor covering is specified, the concrete shall be a minimum of 1 1/2" thick and shall be fiber reinforced. The concrete shall be pitched toward exterior walls and doors. Even with concrete covering, the steel floor panels, located below, shall alone be designed to carry all of the required loads and shall still be a minimum of 18 ga. thick galv. steel. Concrete is prone to damage in high temperature burn areas and in unheated structures due to freeze/thaw conditions, therefore concrete cannot be used to increase the design strength of the steel floor panels/decks in fire training structures.

2.18 STAIRS AND ACCESSORIES

A. Stair widths shall be a minimum of 3'-8" wide. Stair rails shall include 36" high handrails and 42" high guardrails on both sides of the stairs. Handrail extensions are not to be utilized to prevent unnecessary hazards when training. Stringers shall be plate, treads and platforms are bar grate, and risers to be open. Bar grate treads (19W4 x 1" deep) are to be factory attached to the stringers and shall include a diamond plate nosing. Stairs shall be designed to resist a loading of 100 psf and a minimum concentrated tread load of 1000 lbs.

B. Handrails and guardrails shall consist of schedule 40 - 1 1/4" i.d. (1.66" o.d.) round pipe and the openings between guardrails shall not exceed 12" (minimum of three horizontal rails required). Handrails and guardrails shall be designed to resist a linear load of 30 plf and a concentrated point load of 200 lbs. Guardrails on stairs shall be an all factory welded assembly. Guardrails at openings shall have a factory welded post assembly to allow for the attachment of horizontal rails and shall be a minimum of 42" high.

C. Stairs, stringers, handrails, guardrails, bar grating, ladders, and platform frames shall be hot-dipped galvanized per ASTM A-123. All welds, holes, cutting, and bending must be made prior to hot-dip galvanizing.

2.19 WH-3S/LIEUTENANT FEATURES

A. Tower Section
   1. 18’-0” x 16’-0” x 27’-0”
   2. Flat roof
   3. Wind Load 143 MPH, Exposure C, Risk Category I
   4. Roof live load 100 PSF
   5. Floor live load 100 PSF
   6. Interior stairs to the 3rd floor level
   7. Interior fixed ladder, 3rd floor to roof
   8. 3’ x 4’ window openings w/ steel shutters (see drawings for Qty.)
   9. 3’ x 7’ exterior steel door (see drawings for Qty.)
   10. 4’ x 4’ roof chop-out curb, 12 ga. galvanized (see drawings for Qty.)
   11. 2’-6” x 3’ Bilco roof hatch (see drawings for Qty.)
   12. Parapet roof guard with exclusive roof drainage to the exterior of the building with a chain opening

B. Burn Room (Annex)
   1. 14’-0” x 16’-0” x 9’-10” High
   2. ½” in 12” single pitch roof
   3. Wind Load 143 MPH, Exposure C, Risk Category I
   4. Roof live load 100 PSF
   5. 3’ x 4’ window openings with steel shutters (see drawings for Qty.)
   6. 3’ x 7’ exterior metal door (see drawings for Qty.)
   7. 3’ x 7’ interior metal doors (see drawings for Qty.)
   8. Westec insulation system & temperature monitoring system.

2.20 ADDITIONAL FEATURES TO BE INCLUDED

A. Ships Ladder
   1. Provide a ship ladder that extends from the third floor to the roof deck. The ships ladder shall be constructed from heavy gage steel stringers and welded steel bar grate treads and open risers. The ladder shall have hand rails on both sides and shall be provided hot-dipped galvanized.

B. Roof Hatch 2’-6” x 4’-6”
   1. Provide (1) Bilco 2'-6" x 4'-6" roof hatch in the tower roof. The hatch shall be equipped with compression spring operators, positive latching mechanism, automatic hold open arm, and shall be galvanized steel with prime paint covering.

2.21 STAINLESS STEEL BURN ROOM INSULATING SYSTEM

A. Two-inch thick insulating blankets with a protective skin of stainless steel face panels are to be provided for the interior walls and ceiling for the burn areas (precut to length - field cut at door and window openings). The doors and window shutters shall be protected with a minimum of one-inch thick burn room insulating panels (precut to fit).

B. The insulating blankets shall be rated for 2300 degrees F. and shall be unaffected by the application of water. The insulation blankets shall not crack or break, shall be free from asbestos, and shall not produce toxic byproducts in the course of the intended use. The two-inch thick insulation blankets shall have a maximum K value of 0.74 at 1200 degrees F and 0.48 at 800 degrees F (please note – smaller K values denote better insulating values of the system).

C. The face panels shall have a ¾” maximum corrugation at 3 ½” on center to allow for lateral expansion when exposed to high temperatures. The base material, of the face panels, shall consist of type 304

stainless steel for corrosion protection and thermal performance at high temperatures. These panels shall attach to thermally protected channels with stainless steel screws. Stainless steel trims (type 304) shall protect all wall and door/shutter opening corners. All face screws exposed to fire shall be stainless steel and these screws shall not protrude through the backside of the insulating blanket (through screws are not permitted for maximum thermal protection).

D. The stainless steel face panels shall not be restrained from expanding at high temperatures, but rather the integral system shall be designed to accommodate the panel movements without creating any buckling or warping of the panels. All panels and trims shall be screw attached to allow for easy maintenance or inspection without disrupting the systems ability to move; welded panels are not allowed. Trims are to be designed to accommodate thermal expansion either through the use of slip connections or planned deformations.

E. Doors and window shutter insulation panels shall be pretreated water resistant, free from asbestos and shall not produce toxic byproducts in the course of the intended use. Insulation panels shall withstand a constant temperature of 1200 degrees F. and shall be unaffected by the application of water.

F. Temporary Summary
   1. Maximum safe training temperature for life safety is 1200 degrees F (continuous)
   2. Maximum service temperature for the insulation panels (doors and window shutters) is 1200 degrees F (continuous)
   3. Maximum service temperature of the wall and ceiling insulating system is 1850 degrees F (continuous)
   4. Maximum insulating blanket service temperature is 2300 degrees F (continuous)

2.22 INTEGRATED TEMPERATURE MONITORING SYSTEM

A. Three temperature sensing devices/thermocouples are to be provided for the interior of each burn room. The thermocouples shall be isolated and consist of fiberglass insulated wiring with sealed stainless steel probes. The fiberglass insulated wires shall be further protected by a stainless steel overbraid for increased durability and protection. Ceiling thermocouples shall protrude into the area perpendicular to the ceiling while all stainless steel encased wall thermocouples shall only run parallel to the walls for safety concerns.

B. Temperature monitoring shall be sustained with a multiple input, LCD display pyrometer. The pyrometer shall be connected to thermocouples, which are located within the burn areas for temperature reading, and mounted in a lockable NEMA 3R weatherproof box. This pyrometer shall display all attached thermocouple temperatures simultaneously, continually display the maximum peak temperature, have touch sensitive buttons, include a backlight, and have an onscreen programming menu. The pyrometer shall have an internal audio alarm and the ability to connect external devices (i.e., external audio/ visual alarms or texting alarms). Temperature limits shall be user programmable to enable alarms. The pyrometer shall also be capable of data logging which shall include: 90 hour training memory with time and date stamp, onscreen viewing of data, download capabilities of data via infrared interfacing to handheld module. This handheld data acquisition module's data can then be brought to an offsite Windows based computer for download via the SD/SDHC data storage card provided. A visual basic program shall be provided that allows for the user's custom input and also automatically converts the temperature data to both an electronic datasheet and a graph via the user's own Microsoft Excel software.

C. The pyrometer shall also include Bluetooth connectivity direct to a customer provided Android phone or iPhone device (Bluetooth range is approximately 270 feet without obstructions). Via a supplied app, the device shall display the pyrometer's real time temperatures for up to 9 thermocouples, maximum temperature reached, battery life, current time, if logging is enabled, visual and audio alarms, and if the memory is full. The display will also notify the user, if you are disconnected from the pyrometer. This unique application allows the training and safety officers to be away from the area where the pyrometer

is installed, while still being able to monitor the temperatures within the burn rooms, and ensure that the operation of the burn room is conducted within a safe and controlled environment.

2.23 PAINT COLORS

A. Exterior Wall Paint Color shall be shop-coated and colored "Slate Gray" unless otherwise noted. Exterior Trim Paint Color shall be shop-coated and colored "Cedar Red" unless otherwise noted. Payment for metal shop coats shall be included in the bid item for the Train Tower Building.

2.24 DESIGN, DRAWINGS & DATA

A. The supplier shall be responsible for providing the design exclusive of the foundation. Shall submit, as requested, structural calculations for review. Will, within 15 working days after the receipt of order, submit 2 sets of drawings detailing anchor bolt loadings and locations as well as general plans and elevations. Will submit 2 sets of assembly (steel erection) drawings and 2 sets of assembly manuals concurrent with the shipment of materials. Building parts shall each be identified by individual part numbers clearly written on or attached to the part. Part numbers shall coincide with the drawings.

2.25 DELIVERY, INSPECTION & STORAGE

A. All components and accessories shall arrive via flatbed trailer. Materials for the burn room may arrive separately via common carrier. Inventory of delivered materials must be taken during delivery or shortly thereafter. Damage to, or shortages noted during delivery must be noted on the freight bill and reported at once to the manufacturer. All claims for damages or shortages must be reported within 48 hours of delivery Security and materials protection in storage is the responsibility of the receiving party. Materials packaged in small cartons must be stored in a secured area to prevent theft and/or damage by the elements. Materials stored outside must be stacked on pallets and covered with suitable waterproof coverings (not plastic).

2.26 WARRANTY

A. General Warranty
   1. The tower supplier shall certify that the training tower and its components have been designed to meet the contract specifications. The tower supplier shall warrant the materials and components to be free of fabricating defects for a period of **one year** from the date of shipment. This warranty is limited to the replacement of defective parts, or at the tower supplier's option, authorization may be given to the PURCHASER to charge back to the supplier an agreed upon amount for extra fieldwork. The supplier will not ship replacement parts nor authorize extra work to any party other than the ORIGINAL PURCHASER. Any pre-engineered structure will require the erector to furnish a certain amount of field fabrication and / or modifications as stated in the manufacturer's handbook. Sections of work requiring field cutting or drilling are indicated on the drawings or in the assembly manual. Other field modifications may be necessitated by site conditions beyond the manufacturer's control. The foregoing are not subject to warranty.

B. Burn Room Insulation Warranty
   1. The burn room wall and ceiling insulation system shall be covered by a **15 year** limited warranty that provides coverage against a break in the thermal barrier caused by cracking, breaking, and spalling. This warranty is to apply to products under normal use and recommended service temperatures - but shall also include damage that has been caused by thermal expansion, thermal contraction, impact load, and thermal shock. This warranty is to be limited to component replacement or repair of defective components at the manufacturer's option. The replacement cost of the materials shall not be prorated over the warranty period itself (i.e., the supplier shall bear 100% of the material replacement cost for the duration of the warranty).

C. Paint Warranty
   1. The paint system shall provide a 30/25 year limited warranty on paint finish, which includes chalking and breakdown of film integrity.

D. Structure Warranty
   1. A 5-year limited warranty shall be provided on the structure itself.

2.27 SUBMITTALS

A. GENERAL: Submit the following in accordance with the Conditions of the Contract and Division 1 Specification Sections:
   1. PRODUCT DATA, floor plans, elevations, catalog, general specifications, locations of similar projects completed.
   2. SAMPLES of the manufacturer's standard color charts covering both the siding colors and the door and window trim colors shall be furnished to the owner.

B. Quality Assurance
   1. MANUFACTURER QUALIFICATIONS: The manufacturer shall have a minimum of 10 years successful experience in designing and manufacturing Fire Training Towers of similar size and scope as project requires.
   2. ENGINEERING PROFESSIONAL QUALIFICATIONS: The engineering professional who designs the structure for the project must be registered in the State of the fire training tower's location and have successfully designed a minimum of 10 fire training towers. Upon request, the engineering professional shall submit an Engineering Qualifications Form stating his licensing number in the state of licensure, as well as listing a minimum of 10 fire training towers that he has designed and stamped.
   3. ERECTOR QUALIFICATIONS: The erector shall provide evidence of successfully completing two Fire/Tactical Training Towers of similar size and scope or shall provide evidence of a fire/tactical tower erection consultation provided with Fire Facilities Inc., as project requires.

2.28 SUPPLIERS/SYSTEMS

A. Acceptable Suppliers/Systems: Fire Facilities, Inc.® , 314 Wilburn Road, Sun Prairie, WI, 53590, Phone: 800/929-3726 or 608/327-4100, Fax: 866/639-7012 or 608/834-1843, E-mail: info@firefacilities.com, Website: www.firefacilities.com

B. Alternate Suppliers/Systems: Any systems/materials not explicitly meeting the specifications stated herein, shall be pre-approved in advanced by Addendum. For all systems/materials in question, the supplier/contractor shall provide samples, written specifications, burn room insulation thermal performance values, warranties, full set of drawings, and MSDS. An itemized list must be provided that specifically references each item that deviates from this specification. In any case, all performance and warranty criteria stated herein must be met without exception.

PART 3 EXECUTION

3.1 GENERAL

A. Comply with the manufacturers recommendations for preparation and storage of the tower components.

3.2 EXAMINATION

A. Verify that concrete work has cured a minimum of 14 days. Verify that anchor bolts are at the proper spacing and protrude the proper amount above the concrete. Report any variances to the owner's representative prior to proceeding with erection.

3.3 ERECTION

A. Follow the details supplied by the manufacturer. Report any discrepancies to the manufacturer prior to proceeding.

3.4 FIELD QUALITY CONTROL

A. Defective work
   1. Materials, components and assemblies not complying with the manufacturer's installation recommendations shall be repaired or replaced, at the option of the manufacturer.

B. Inspection
   1. Verify that all bolted connections are tight, self-drilling screws with integral washers are seated snugly without washer distortion and rivets have not pulled through the attached materials. Replace improperly set or damaged fasteners.
   2. Inspect all panels, trims and accessories for proper installation and fit. Replace any item which is damaged, warped or distorted. Insure that all field mitered corners fit tightly and smoothly.

C. Adjusting
   1. Adjust all shutters, swing doors and hatches so that they swing smoothly without binding and so that the appropriate hardware latches without forcing or slamming. Insure that all closures are adjusted so that they close smoothly.
   2. Check all electrical and mechanical devices to make sure that they are working properly. Temperature monitoring systems must be checked to see that each thermal-couple works accurately. Fans must be tested and demonstrated as working at all speeds.

D. Clean-up
   1. At the end of each day check the site and pick all debris and garbage. Insure that all materials are secured in a neat and orderly fashion.
   2. Thoroughly clean the tower inside and out at the completion of the erection process to remove all debris, garbage, packing materials, metal shavings and dirt.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. The contract unit price for all Electrical System and Lighting shall include furnishing all labor, material, tools, equipment and any incidental items required to complete the work required by the plans and as specified.

4.2 PAYMENT

A. Payment for the items listed below shall include all material, equipment, labor, and incidentals necessary to complete the work as shown on the drawings, and shall be paid under:

Item No.	Pay Items	Pay Units
TTB-01	Training Tower (Includes all Labor, Equipment, and Materials Required for Erection)	Each

END OF SECTION 13 00 00

PART IV - ATTACHMENTS

Section 33 05 05.31 Hydrostatic Testing

SECTION 33 05 05.31
HYDROSTATIC TESTING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 DESCRIPTION OF WORK

A. This work consists of the hydrostatic and pressure testing of the required piping.

1.3 SUBMITTALS

A. Submit the certification of test gauge calibration prior to testing.

PART 2 PRODUCTS

2.1 HYDROSTATIC TESTING

A. Equipment:

1. Pressure pump.
2. Pressure hose.
3. Water meter.
4. Test connections.
5. Pressure relief valve.
6. Pressure Gage: Calibrated to 0.1 psi.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that piping is ready for testing.

B. Verify that trenches are backfilled.

C. Verify that pressure piping thrust restraints have been installed.

3.2 FIELD QUALITY CONTROL

A. Testing of Pressure Piping:

1. Do not pressure test more than 1-mile length of pipe at one time.
2. Test system according to AWWA C600 and following:
    a. Hydrostatically test each portion of pressure piping, including valved section, at 200 psi, based on elevation of lowest point in piping corrected to elevation of test gage.
    b. Conduct hydrostatic testing for at least two hours.
    c. Slowly fill with water portion of piping to be tested, expelling air from piping at high points.
    d. Install corporation cocks at high points.
    e. Close air vents and corporation cocks after air is expelled.
    f. Raise pressure to specified test pressure.
    g. Observe joints, fittings, and valves undergoing testing.
    h. Remove and renew cracked pipes, joints, fittings, and valves that show visible leakage.

i. Retest.
j. Correct visible deficiencies and continue testing at same test pressure for additional two hours to determine leakage rate.
k. Maintain pressure within plus or minus 5.0 psi of test pressure.
l. Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of testing.
m. Compute maximum allowable leakage using following formula for **Ductile Iron and PVC Pipe:**

1) L = [SD x sqrt(P)]/C.
2) L = testing allowance, gph.
3) S = length of pipe tested, feet.
4) D = nominal diameter of pipe, inches.
5) P = average test pressure during hydrostatic testing, psig.
6) C = 148,000.
7) If pipe undergoing testing contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each pipe size.

3. If testing of piping indicates leakage greater than that allowed, locate source of leakage, make corrections, and retest until leakage is within acceptable limits.
4. Correct visible leaks regardless of quantity of leakage.
5. Test data shall be submitted to Engineer.

PART 4 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for the material and work covered under this section, and all costs in connection therewith shall be included in the applicable contract price for the items to which the work pertains.

END OF SECTION 33 05 05.31

PART IV - ATTACHMENTS

Section 33 11 00 – Water Distribution Piping

SECTION 33 11 00
WATER UTILITY DISTRIBUTION PIPING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 QUALITY ASSURANCE

A. Valves: Mark valve body with manufacturer's name and pressure rating.

B. Materials in Contact with Potable Water: Certified according to NSF 61 and NSF 372.

C. Manufacturer: Company specializing in manufacturing products specified in this Section with two years' experience.

D. Installer: All work specified in this section is to be performed by a contractor with a valid Contractor's license issued by the State of Louisiana. Water service line installation may be performed by either a contractor with a valid Contractor's license issued by the State of Louisiana or by an individual having a valid Master plumber's license issued by the State of Louisiana.

E. Imperfections: Regardless of tolerances permitted by industry standards specified herein, the Engineer may reject pipe or appurtenances at the manufacturing plant or project site, which have cracks, chips, blisters, lack of smooth interior or exterior surface, evidence of structural weakness, porosity, joint defect, significant variation from theoretical shape, or other imperfection which might, in the opinion of the Engineer, contribute to a reduced functional capability, accelerated deterioration, or reduced structural strength.

F. Repairs: Do not use patched or repaired pipe or appurtenances unless each individual length or element has been approved and marked for repair by the Engineer at the manufacturing plant. Repairs, other than at the manufacturing plant, are not permitted.

1.3 SUBMITTALS

A. Product Data: Manufacturer information regarding pipe materials, pipe fittings, pipe joints, tapping sleeves, valves, hydrants, service accessories, anchorage systems, and granular material for pipe bedding.

B. Project Record Documents: Record actual locations of piping mains, valves, connections, and thrust restraints with X and Y coordinates. This shall be performed by a Louisiana Licensed Professional Land Surveyor in accordance with Section 01 71 23.16, Construction Surveying.

1.4 DELIVERLY, STORAGE, AND HANDLING

A. Storage:
   1. Store materials according to manufacturer instructions.
   2. Block individual and stockpiled pipe lengths to prevent moving.
   3. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.
   4. Store HDPE and PVC materials out of sunlight.

B. Protection:
   1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
   2. Provide additional protection according to manufacturer instructions.

1.5 EXISTING CONDITIONS

A. Field Measurements:
   1. Verify field measurements prior to fabrication.
   2. Connections to existing utility water mains indicated on drawings (if any) are shown only for the purpose of illustrating the general type of connection desired, and no assurance exists that such illustration can be followed precisely.

PART 2 PRODUCTS

2.1 C-900 (PVC) PIPE

A. Non-toxic, polyvinyl compound meeting ASTM D1784.

B. Comply with AWWA C900 and C905, with ductile iron outside diameter.

C. Pressure Class: Class 235, DR 18.

D. Fittings:

   1. Material: Ductile or Gray iron; comply with ANSI/AWWA C110/A21.10 OR ANSI/AWWA C153/A21.53 and ANSI/AWWA C111/A21.11for minimum 250 psi working pressure rating.

E. Compact Fittings:

   1. At Contractor's option, ductile iron compact fittings complying with ANSI A21.53 for not less than 350 PSI pressure rating may be used.

F. Coating and Lining:

   1. Provide cement mortar interior lining complying with ANSI A21.4, and manufacturer's standard bituminous coating over lining. Provide double bituminous coating on fitting exterior. Do not use any lining or coating which imparts taste or odor to potable water, or which is toxic to humans, or which is not NSF-61 approved.

G. Joints:

   1. Gray or ductile iron fittings: Comply with ANSI A21.11, and unless otherwise shown or required, use mechanical joint utilizing Teflon coated bolts or approved equal. Wrap direct burial mechanical joints with approved 8 mil polyethylene film.
   2. PVC Pipe: Integral bell gasketed joint complying with ASTM D3139.
   3. PVC Pipe Restrained Joint: Comply with restrained joint gasket per ASTM F477, which conforms to the requirements of ASTM D3139.
   4. Seals: PVC flexible elastomeric.
   5. Solvent-cement couplings are not permitted.

H. PVC with Internal Restrained Joints:

   1. Furnish one of the following:
      a. Diamond Lok-21
      b. Certa-Lok C900 RJIB
      c. Eagle Loc 900

2.2 FIRE HYDRANTS

A. See Section 21 11 16, Facility Fire Hydrants.

2.3 BEDDING AND BACKFILL MATERIAL

A. Bedding and Backfill:

1. Bedding: When required, bedding material shall consist of stone or recycled Portland cement concrete 6" thick. All materials shall comply with Section 1003.03 of LADOTD's Standard Specifications for Roads and Bridges, 2016 Edition.
2. Soil Backfill: In-situ soil with no rocks greater than 2 inches in diameter, frozen earth, or foreign matter.

2.4 PIPE TRACER WIRE

A. For all but directional drilling installation, use No. 12 AWG solid soft drawn copper having not less than 98 percent conductivity with NEC type THHN, THWN, or XHHW insulation jacket. For directional drilling installation, use No. 6 AWG stranded copper having not less than 98 percent conductivity with NEC type THHN, THWN, or XHHW insulation jacket. For splices, use direct bury kit DBY/DBR as manufactured by 3M, or approved equal.

2.5 WATER SHUTOFF VALVES

A. Description:

1. Comply with AWWA C509.
2. Body: Ductile iron.
3. Seats: Resilient.
4. Disc and O-rings: EPDM
5. Stem:
    a. Type: Non-rising.
    b. Material: Bronze.
6. Operation:
    a. Opening Direction: Counterclockwise.
    b. Direct Burial Locations:
        i. 2" square operating nut.
        ii. Were depth of valve is too great for operation by standard wrench, provide suitable, permanently installed valve stem extension and guide.
    c. All except direct burial locations: Operating handwheel
7. Pressure Rating: 350 psig maximum working pressure
8. Coatings:
    a. Comply with AWWA C550 NSF 61 fusion-bonded epoxy.
    b. Application: Interior and exterior.
9. End Connections:
    a. Direct burial locations: Mechanical joint.
    b. All except direct burial locations: Flanged.
10. Bolts and Nuts:
    a. Direct burial locations: Utilize "Corten" bolts or approved equal.
    b. All except direct burial locations: All exposed nuts and bolts on the valve exterior must be 18-8 stainless steel.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that existing utility water main size, location, and invert are as indicated.

B. Verify that elevations of existing facilities prior to excavation and installation of valves and hydrants are as indicated.

3.2 PREPARATION

A. Locate, identify, and protect from damage utilities to remain.

B. Do not interrupt existing utilities without permission and without making arrangements to provide temporary utility services.
   1. Notify Engineer and property owners not less than 2 days in advance of proposed utility interruption.

C. Remove scale and dirt on inside and outside before assembly.

3.2 INSTALLATION

A. Bedding:
   1. Excavation:
      a. As specified in Section 31 23 16 - Trenching.
      b. Hand trim for accurate placement of pipe to elevations as indicated.
   2. Dewater excavations to maintain dry conditions and to preserve final grades at bottom of excavation.
   3. Place bedding material at trench bottom, level fill materials in one continuous layer not exceeding 12 inches of compacted depth and compact to 95 percent of maximum density.

B. Piping:

   1. Comply with AWWA C600 for installation of ductile iron piping and fittings.
   2. Comply with AWWA C605 for installation of PVC piping and fittings.
   3. Comply with AWWA M55 for installation of PE piping and fittings.
   4. Handle and assemble pipe according to manufacturer instructions and as indicated.
   5. Avoid damage or shock in handling pipe and accessories. Inspect each length of pipe and reject any defective piece. Carefully protect pipe in place from damage or displacement until backfilling operations are complete.
   6. Maintain 6 feet of horizontal separation and 18 inches of vertical separation between water main and sewer piping.
   7. Flanged Joints: Do not use in underground installations except within structures.
   8. Route pipe in straight line, and re-lay pipe that is out of alignment or grade.
   9. High Points:
      a. Install pipe with no high points.
      b. If unforeseen field conditions arise that necessitate high points, install air-release valves as directed by Engineer.
   10. Bearing:
      a. Maintain bearing along entire length of pipe.
      b. Excavate bell holes to permit proper joint installation.
      c. Do not lay pipe in wet or frozen trench.
   11. Prevent foreign material from entering pipe during placement.
   12. Allow for expansion and contraction without stressing pipe or joints.
   13. Close pipe openings with watertight plugs during Work stoppages.
   14. Install access fittings to permit disinfection of water system performed under Section 33 01 10 - Disinfection and Sampling of Water Utility Piping Systems.
   15. Adjust pipe depth or alignment to accommodate valve, hydrant or fitting setting, and as necessary to meet tie in requirements or to avoid obstructions.
   16. Cover:
      a. Establish elevations of buried piping with not less than 48 inches of cover.
      b. Measure depth of cover from final surface grade to top of pipe barrel.

C. Fusion and Joining:
   1. All HDPE pipe shall be joined to itself by the heat fusion process which produces homogeneous, seal, leak tight joints. Tie-ins between sections of HDPE pipe shall be made by butt fusion whenever possible.
   2. Butt Fusion
      a. The pipe shall be joined by the butt fusion procedure outlined in ASTM F2620 or PPI TR-33. A record or certificate of training for the fusion operator must be provided that documents training to the fundamentals of ASTM F2620. Considerations should be given to and provisions made for adverse weather conditions, such as temperatures below freezing, precipitation, or wind, which is accepted by the Engineer.
   3. Fusion Operators
      a. The employer of the fusion machine operator is responsible for the fusion joint quality of the fusion weld made by that individual. The employer is responsible for documenting all training and qualification records for that individual, including compliance to any code requirements for fusion/bonder operators.
      b. All HDPE fusion equipment operators shall be qualified to the procedure used to perform pipe joining. Fusion equipment operators shall have current, formal training on all fusion equipment employed on the project.
   4. Butt Fusion Equipment
      a. For 6” and larger pipe sizes, the pipe butt fusion machine shall be a hydraulic fusion machine capable of butt fusing HDPE pipe. The carriage must be removable from the chassis for in-ditch use. The machine must be compatible with an electronic data recording device. Accessories will include all butt fusion inserts for the specified range of pipe sizes, a pyrometer kit for checking the surface temperature of the heater, extension cord of appropriate gauge (25' minimum), and hydraulic extension hoses (minimum of four).

D. Pipe Tracer Wire:
   1. Install pipe tracer wire on all non-metallic pipe systems. Tape tracer wire to the top center of the pipe at intervals which prevent wire displacement during installation or backfilling operations. Stub tracer wire up 6 inches above finished grade at all valves and fire hydrants. Completed tracer wire is to be electrically continuous between stub-ups. For splices, use direct bury kits. After backfilling is complete, test electrical continuity of each tracer wire segment and provide test results to Owner and Engineer.

E. Anchorage:
   1. General: Anchorage detailed on Drawings, if any, represents minimum anchorage to be installed. Field conditions may require additional anchorage, and it is the Contractor's responsibility to recognize such additional requirements and to provide appropriate additional anchorage.
   2. Direct Burial Locations: Anchor all bends, valves, tees, fire hydrants, reducers and other points of unbalanced pressure as necessary to resist thrust at test and working pressures, with suitable allowance for water-hammer. Also anchor piping system installed on steep slopes where gravitational force might otherwise cause piping displacement. Accomplish anchorage by use of concrete or treated timber reaction bracing, metal tie rods and bands, and/or restrained joint systems. When using concrete reaction bracing, pour concrete against firm earth and allow it to cure for at least five days before placing main under pressure. Position concrete blocks or treated timbers of sufficient size to counteract the magnitude and direction of the resultant thrust force. Keep joints and hydrant drain openings clear and accessible. Provide special support blocks at plastic pipes according to manufacturer's recommendation. When using bands and tie rods in conjunction with reaction bracing, provide a separate band for each tie rod. Use corrosion resistant materials throughout. When using restrained joint systems, utilize methods and place these special joints at appropriate fittings and pipe joints in accordance with manufacturer's recommendations.

F. Fire Hydrants:
   1. Perform trench excavation, backfilling, and compaction as specified in Section 31 23 16 - Trenching.
   2. Install fire hydrants in conjunction with pipe laying.

3. Orientation:
    a. Set fire hydrants plumb.
    b. Set fire hydrants with pumper nozzle facing roadway.
    c. Set fire hydrants with centerline of pumper nozzle 18-20 inches above finished grade and with safety flange not more than 6 inches nor less than 3 inches above grade.
4. After main-line pressure testing, flush fire hydrants and check for proper drainage.

G. Pipe Connections: Make all pipe connections with standard factory fabricated fittings except where special connection details (if any) are shown on Drawings.

H. Thrust Restraints: Install according to manufacturer's instructions.

I. Backfilling:

1. Backfill around sides and to top of pipe as specified in Section 31 23 16 - Trenching.

3.3 TOLERANCES

A. Install pipe to indicated elevation within tolerance of 3 inches.

3.4 FIELD QUALITY CONTROL

A. Line Cleaning
1. Avoid permitting dirt, rubbish, construction materials, etc. to enter lines and appurtenances during construction. Use whatever means are necessary to obtain a clean and internally smooth system.
2. Pass hard cover poly-pig along entire length of new waterline before testing at no direct cost.

B. Testing:
1. Pressure test piping system as specified in Section 33 05 05.31 – Hydrostatic Testing.
2. Compaction Testing of bedding material, if required, as specified in Section 31 23 16 – Trenching.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. The contract unit price for all Water Utility Distribution Piping shall include furnishing all labor, material, tools, equipment and any incidental items required to complete the work required by the plans and as specified.

4.2 PAYMENT

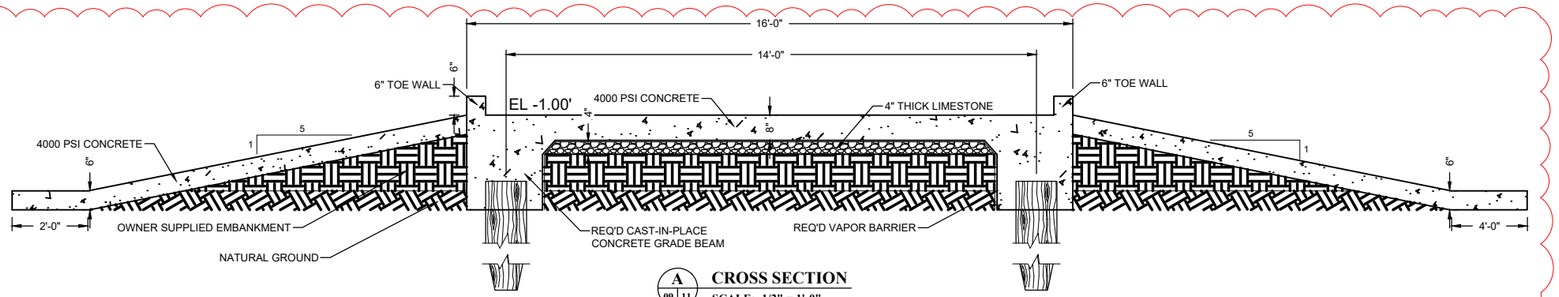
A. Payment for the items listed below shall include all material, equipment, labor, and incidentals necessary to complete the work as shown on the drawings, and shall be paid under:

Item No.	Pay Items	Pay Units
WLH-01	8" Water Line Installation for Hydrant (C-900 Pipe) (Includes all Fittings, Excavation, Bedding Material, Tracer Wire, and Backfill)	Linear Foot
WLH-02	Fire Hydrant (Includes all Materials Needed for Proper Installation)	Each
WLH-03	8" Water Shutoff Valve & Valve Box Includes Labor, Materials, and Installation)	Each

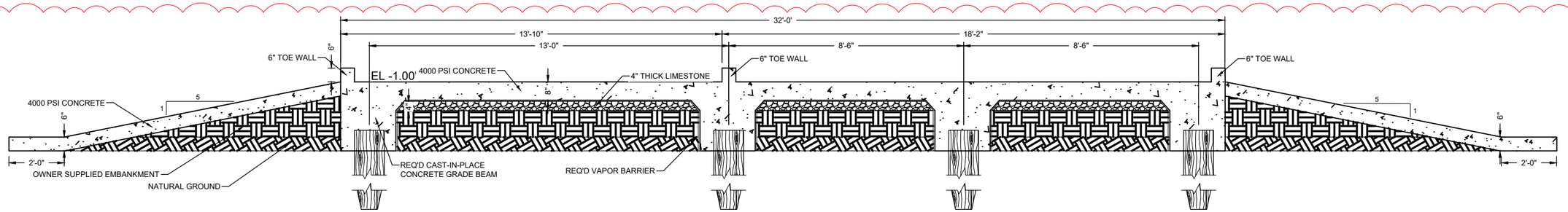
END OF SECTION 33 13 00

PART IV - ATTACHMENTS

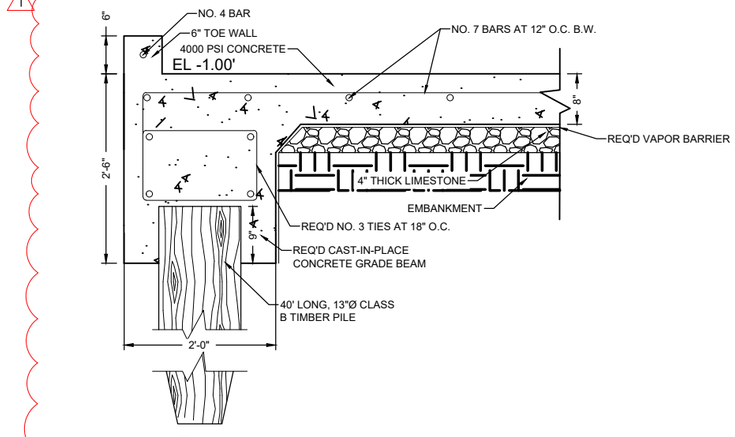
Drawing 11 – Concrete and Embankment Typical Sections



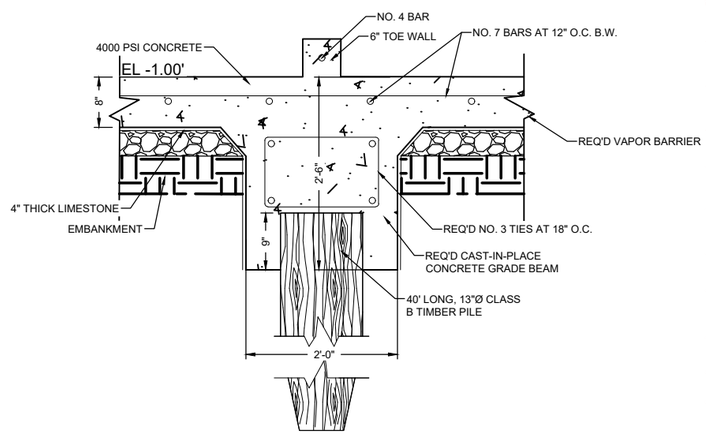
A 09 11 **CROSS SECTION**
SCALE: 1/2" = 1'-0"



B 09 11 **LONGITUDINAL SECTION**
SCALE: 1/2" = 1'-0"



C 10 11 **BUILDING FOUNDATION SECTION**
SCALE: 1" = 1'-0"



D 10 11 **BUILDING FOUNDATION SECTION**
SCALE: 1" = 1'-0"

NOTES:

1. CONTRACTOR SHALL POUR A 2" THICK HOUSEKEEPING PAD TO MATCH THE OUTER DIMENSIONS OF EACH ELECTRICAL COMPONENT.
2. GRADE BEAMS AND SLAB SHALL BE CAST-IN-PLACE AND POURED MONOLITHICALLY.
3. OPENINGS ON SLAB FOR ELECTRICAL CONDUITS NOT SHOWN. CONTRACTOR SHALL FOLLOW ELECTRICAL PLANS FOR WIRING LOCATIONS.
4. ALL CONCRETE (WITH THE EXCEPTION OF THE TOW WALL) SHALL HAVE A FINISHED FLOOR ELEVATION OF -1.00'. TOE WALL SHALL HAVE AN ELEVATION OF -0.50'.
5. WIRE MESH SHALL BE INCLUDED IN THE 6" SLAB SURROUNDING THE TRAINING TOWER.
6. VAPOR BARRIER SHALL BE INSTALLED UNDER ALL BUILDING SLAB CONCRETE.
7. TRAINING TOWER BUILDING SHALL BE ANCHORED DOWN TO CONCRETE. ONCE BUILDING ORDER IS PLACED, MANUFACTURER WILL PROVIDE AN ANCHOR BOLT PLAN.
8. ALL EMBANKMENT MATERIAL IS OWNER SUPPLIED AND IS ALREADY ON SITE. EXISTING GROUND SHALL BE GRADED BEFORE EMBANKMENT IS PLACED. EMBANKMENT SHALL BE COMPACTED TO 95% COMPACTION. CONTRACTOR IS RESPONSIBLE FOR COMPACTION TESTING ON THE EMBANKMENT. ANY LEFTOVER EMBANKMENT SHALL BE USED TO GRADE THE AREA AROUND THE TRAINING TOWER.
9. ALL TIMBER PILING MATERIAL IS OWNER SUPPLIED AND IS ALREADY ON SITE.
10. ANCHOR BOLT PLAN WILL BE PROVIDED FROM BUILDING MANUFACTURER UPON THE EXECUTION OF A SIGNED CONTRACT.

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No.	Description	Date
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1	ADDENDUM NO. 1	02/2025

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02/12/25

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LAFOURCHE PARISH FIRE DISTRICT NO. 3

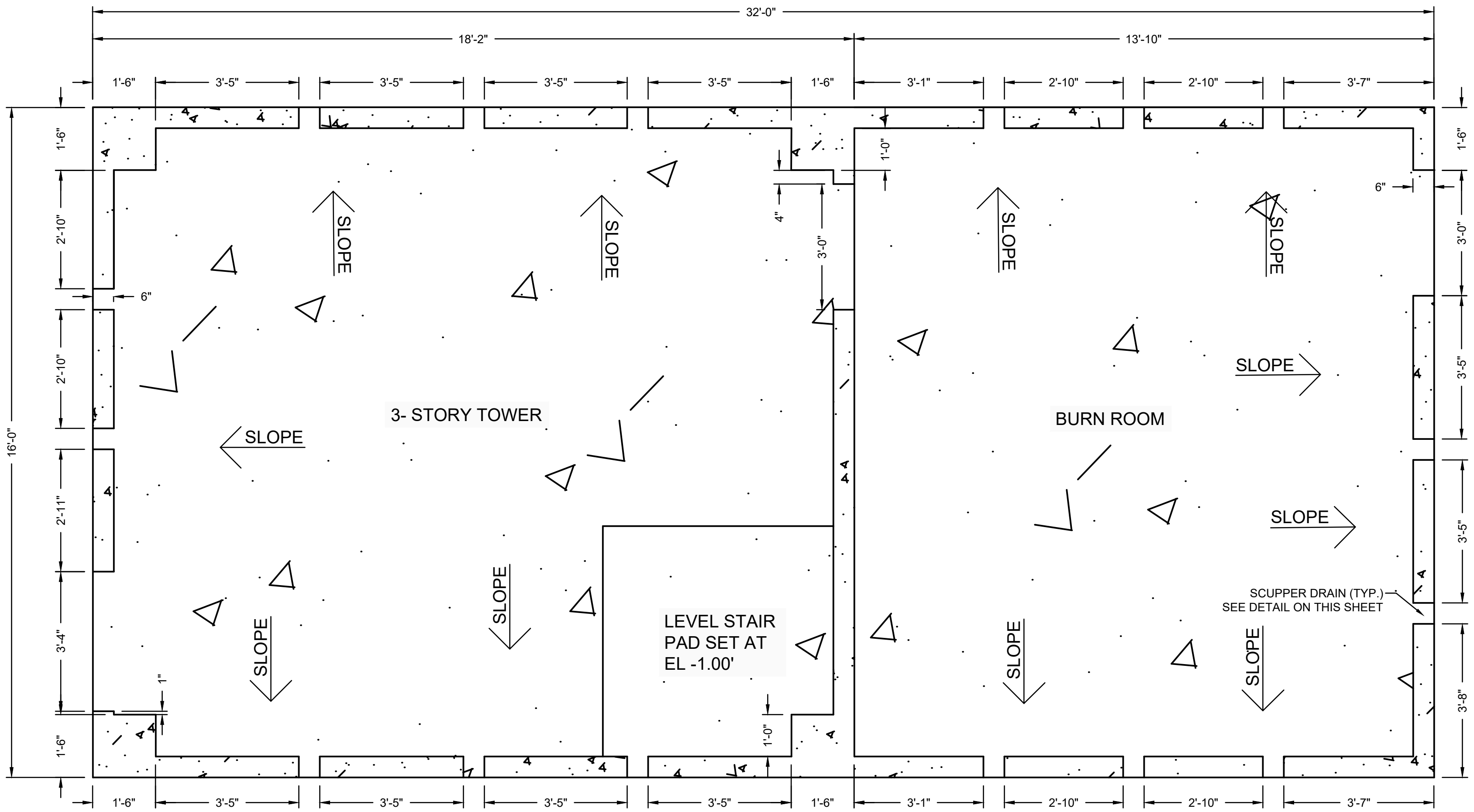
FIRE CENTRAL TRAINING TOWER

CONCRETE AND EMBANKMENT TYPICAL SECTIONS

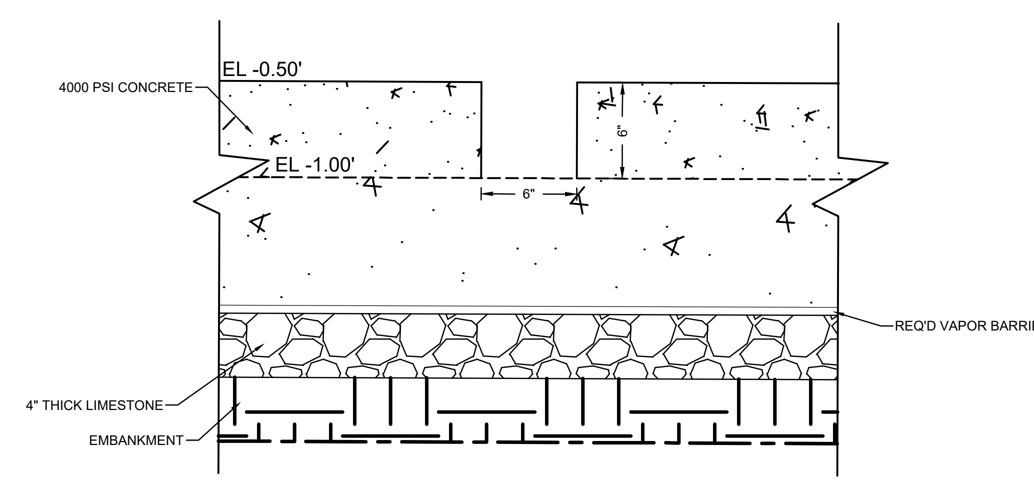
Project number	39130-1360
Date	JANUARY 2025
Designed by	BMH
Drawn by	BMH
Checked by	KDK
Checked by	JJP
Plot Date	February 10, 2025

PART IV - ATTACHMENTS

Drawing 11A – Concrete Foundation



1 **FOUNDATION PLAN**
SCALE: 1/2" = 1'-0"



2 **SCUPPER DRAIN DETAIL**
SCALE: 2" = 1'-0"

NOTES:

1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.
2. ALL CONCRETE (WITH THE EXCEPTION OF THE TOE WALL) SHALL HAVE A FINISHED FLOOR ELEVATION OF -1.00'. TOE WALL SHALL HAVE AN ELEVATION OF -0.50'.
3. WIRE MESH SHALL BE INCLUDED IN THE 6" SLAB SURROUNDING THE TRAINING TOWER.
4. VAPOR BARRIER SHALL BE INSTALLED UNDER ALL BUILDING SLAB CONCRETE.
5. TRAINING TOWER BUILDING SHALL BE ANCHORED DOWN TO CONCRETE. ONCE BUILDING ORDER IS PLACED, MANUFACTURER WILL PROVIDE AN ANCHOR BOLT PLAN.
6. ANCHOR BOLT PLAN WILL BE PROVIDED FROM BUILDING MANUFACTURER UPON THE EXECUTION OF A SIGNED CONTRACT.

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LAFOURCHE PARISH FIRE DISTRICT NO. 3

FIRE CENTRAL TRAINING TOWER

CONCRETE FOUNDATION

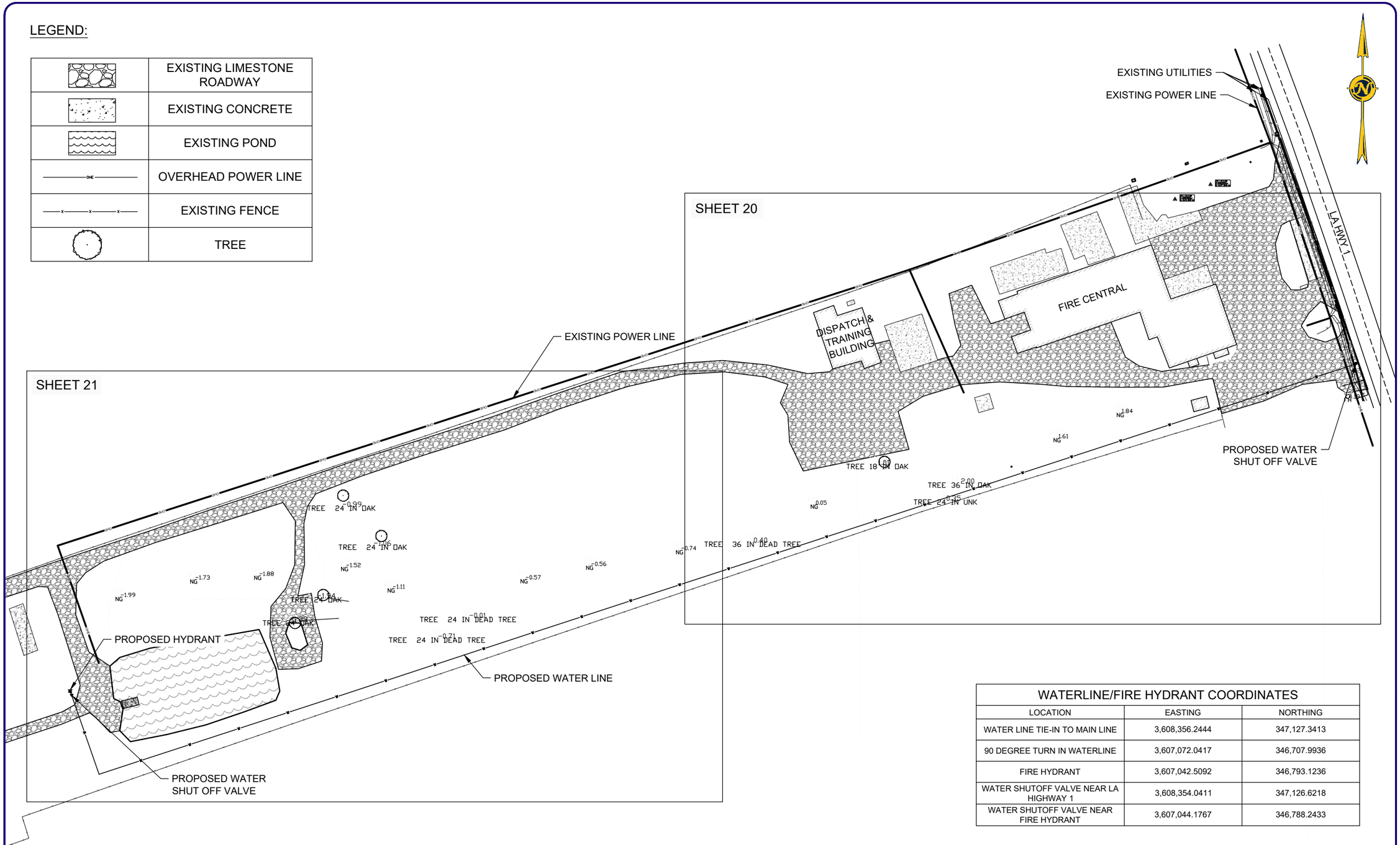
Project number	39130-1360
Date	JANUARY 2025
Designed by	BMH
Drawn by	BMH
Checked by	KDK
Checked by	JJP
Plot Date	February 12, 2025

PART IV - ATTACHMENTS

Drawing 19 – Water Line Plan (Overall)

LEGEND:

	EXISTING LIMESTONE ROADWAY
	EXISTING CONCRETE
	EXISTING POND
OHE	OVERHEAD POWER LINE
	EXISTING FENCE
	TREE



WATERLINE/FIRE HYDRANT COORDINATES		
LOCATION	EASTING	NORTHING
WATER LINE TIE-IN TO MAIN LINE	3,608,356.2444	347,127.3413
90 DEGREE TURN IN WATERLINE	3,607,072.0417	346,707.9936
FIRE HYDRANT	3,607,042.5092	346,793.1236
WATER SHUTOFF VALVE NEAR LA HIGHWAY 1	3,608,354.0411	347,126.6218
WATER SHUTOFF VALVE NEAR FIRE HYDRANT	3,607,044.1767	346,788.2433

NOTE: THE IMAGE ABOVE IS A GENERAL REPRESENTATION OF THE WORK AREA. ACTUAL FIELD CONDITIONS MAY DIFFER.

NOTES:

1. ALL WATER LINE PIPING SHALL BE 8" C-900 PIPE.
2. THE WATER LINE THAT PARALLELS LA HIGHWAY 1 IS BELIEVED TO BE BETWEEN 3.5' AND 4' BELOW THE NATURAL GROUND.
3. TYPICAL WATERLINE TRENCH SECTION CAN BE FOUND ON THE LAFOURCHE PARISH WATER DISTRICT #1 STANDARD PLANS (SHEET 2 OF 2).
4. ALL WATER LINE COMPONENTS, INCLUDING TRENCHING, BACKFILLING, AND BEDDING MATERIAL SHALL BE PAID UNDER ALTERNATE NO. 2.

1

WATER LINE PLAN
SCALE: 1/4" = 1'-0"

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LAFOURCHE PARISH FIRE DISTRICT NO. 3

FIRE CENTRAL TRAINING TOWER

WATER LINE PLAN (OVERALL)

Project number	39130-1360
Date	JANUARY 2025
Designed by	BMH
Drawn by	BMH
Checked by	KDK
Checked by	JJP
Plot Date	February 12, 2025

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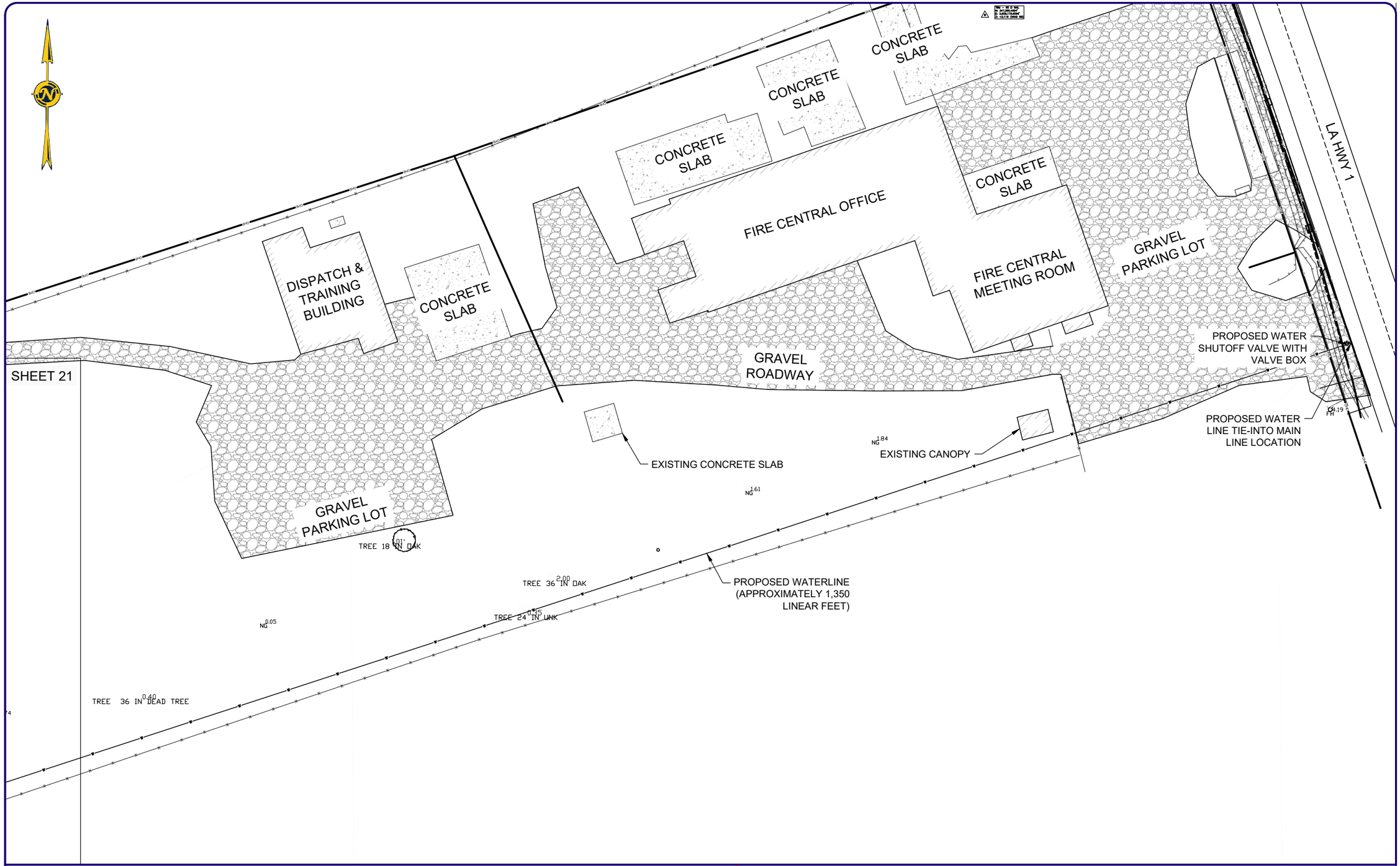
PART IV - ATTACHMENTS

Drawing 20 – Water Line Plan



NOTE: THE IMAGE ABOVE IS A GENERAL REPRESENTATION OF THE WORK AREA. ACTUAL FIELD CONDITIONS MAY DIFFER.

NOTES:

1. ALL WATER LINE PIPING SHALL BE 8" C-900 PIPE.
2. THE WATER LINE THAT PARALLELS LA HIGHWAY 1 IS BELIEVED TO BE BETWEEN 3.5' AND 4' BELOW THE NATURAL GROUND.
3. TYPICAL WATERLINE TRENCH SECTION CAN BE FOUND ON THE LAFOURCHE PARISH WATER DISTRICT #1 STANDARD PLANS (SHEET 2 OF 2).
4. ALL WATER LINE COMPONENTS, INCLUDING TRENCHING, BACKFILLING, AND BEDDING MATERIAL SHALL BE PAID UNDER ALTERNATE NO. 2.

WATER LINE PLAN
SCALE: 1/2" = 1'-0"

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LAFOURCHE PARISH FIRE DISTRICT NO. 3

FIRE CENTRAL TRAINING TOWER

WATER LINE PLAN

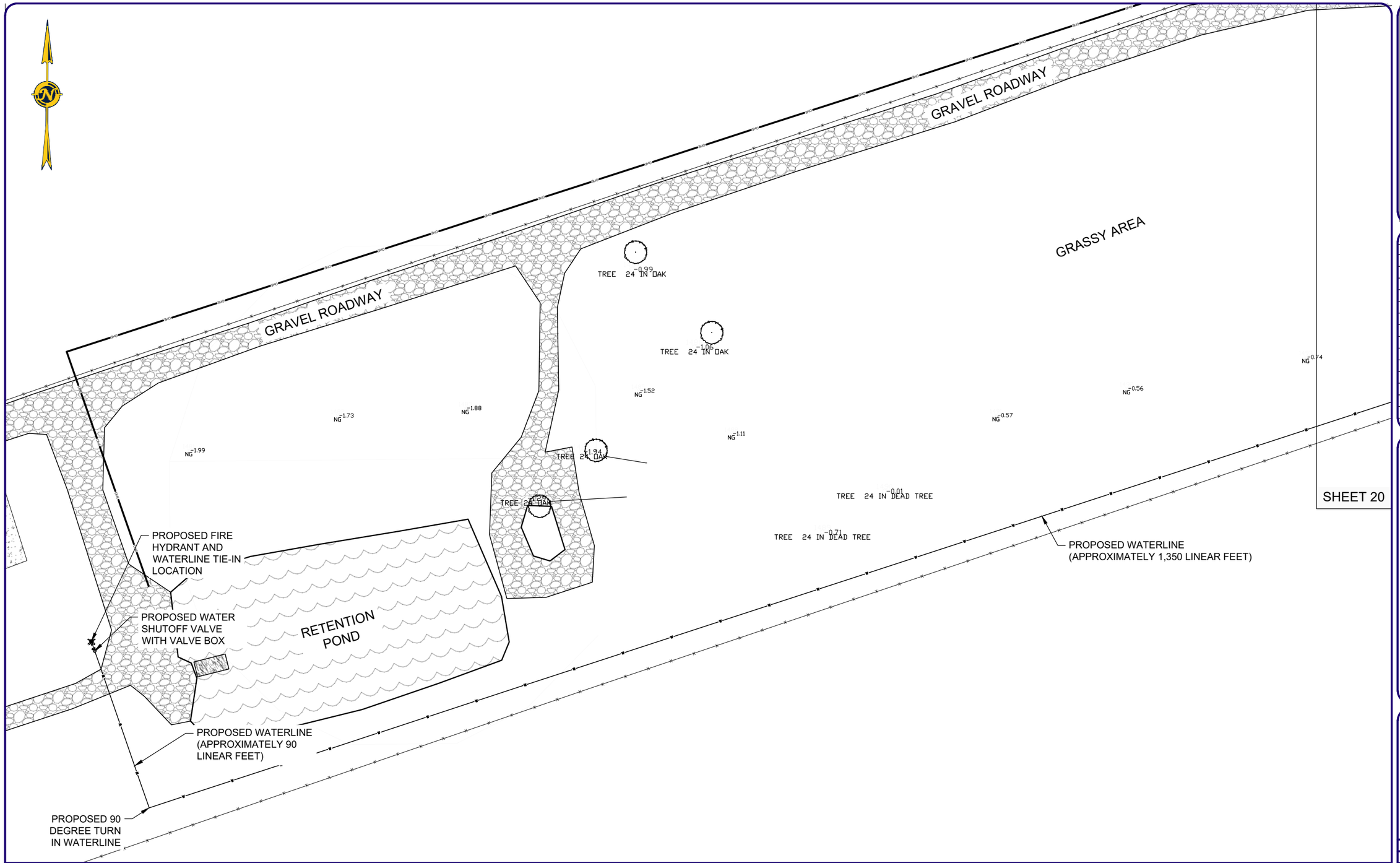
Project number	39130-1360
Date	JANUARY 2025
Designed by	BMH
Drawn by	BMH
Checked by	KDK
Checked by	JJP
Plot Date	February 12, 2025

20

M:\Department 39\Client\LAFD3 - Lafourche Parish Fire District No. 3\1360 Hurricane Ida Damages Restoration\400 Execution\460 Drawings\461 DWGs\FC-TT\Design Development\WATER LINE PLAN.dwg

PART IV - ATTACHMENTS

Drawing 21 – Water Line Plan



SHEET 20

NOTE: THE IMAGE ABOVE IS A GENERAL REPRESENTATION OF THE WORK AREA. ACTUAL FIELD CONDITIONS MAY DIFFER.

NOTES:

1. ALL WATER LINE PIPING SHALL BE 8" C-900 PIPE.
2. THE WATER LINE THAT PARALLELS LA HIGHWAY 1 IS BELIEVED TO BE BETWEEN 3.5' AND 4' BELOW THE NATURAL GROUND.
3. TYPICAL WATERLINE TRENCH SECTION CAN BE FOUND ON THE LAFOURCHE PARISH WATER DISTRICT #1 STANDARD PLANS (SHEET 2 OF 2).
4. ALL WATER LINE COMPONENTS, INCLUDING TRENCHING, BACKFILLING, AND BEDDING MATERIAL SHALL BE PAID UNDER ALTERNATE NO. 2.

1

WATER LINE PLAN
SCALE: 1/2" = 1'-0"

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LAFOURCHE PARISH FIRE DISTRICT NO. 3

FIRE CENTRAL TRAINING TOWER

WATER LINE PLAN

Project number	39130-1360
Date	JANUARY 2025
Designed by	BMH
Drawn by	BMH
Checked by	KDK
Checked by	JJP
Plot Date	February 12, 2025

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