CITY OF SAPULPA

NOTICE TO BIDDERS

The City of Sapulpa will be the General Contractor for this project. Sealed proposals will be accepted from Sub-Contractors in the Office of the City Clerk, City of Sapulpa, 425 East Dewey, Sapulpa, Oklahoma, 74066, until 2:00 p.m., **Wednesday, January 14th, 2025,** for the following item(s):

BID NO. COS-10118

Sapulpa Fire Training Center

Proposals will be opened at 2:00pm on **Wednesday, January 14th, 2025,** and will be considered for award at the next regular City Council meeting, at 7:00pm. in the City Council Chambers, Second Floor, 425 East Dewey, Sapulpa, Oklahoma. Notwithstanding any provision or language to the contrary, the City of Sapulpa reserves the right to reject any, and all bids for any reason whatsoever in the sole discretion of the City.

A Pre-Bid Meeting will be held at City Hall on **Wednesday, December 17th, 2025** in the City Council Chambers at 10:00am to answer any questions or comments.

Specifications may be obtained on the City of Sapulpa website in the Quicklinks tab in the upper right corner, then select Bid Opportunities.

Please address any questions concerning specifications and/or to schedule an onsite visit too: Michael Russell, mrussell@sapulpaok.gov

Bids will only be accepted in hard copy at the City Clerk's office. Faxed or e-mail bids will not be considered. Write the bid number, opening date/time and title on the lower left corner of your bid envelope.

Michael Russell
Project Manager
City of Sapulpa
(918) 224-3040
mrussell@sapulpaok.gov

Sapulpa Fire Training Center

CONSTRUCTION CONTRACT DOCUMENTS

TABLE OF CONTENTS

I. BID/PROPOSAL AND CONSTRUCTION DOCUMENTS

II. SURETY BONDS
Statutory Bond
Performance Bond
Maintenance Bond

III. STANDARD CONTRACT TERMS AND CONDITIONS FOR PUBLIC CONSTRUCTION CONTRACTS

1.0 Definitions
2.0 Scope
3.0 Contract Administrator's Power and Duties
4.0 Time for Completion
5.0 Liquidated Damages
6.0 Contractor's Duties and Responsibilities Regarding the Work
7.0 Contractor's Obligation and Risk
8.0 Contractor to Check Drawings and Schedules
9.0 Drawings Furnished by Contractor
10.0 Patent Rights
11.0 Modification and Alterations
12.0 Suspension of Work on Notice
13.0 City's Right to Terminate Contract
14.0 Contractors' Right of Protest
15.0 Extra Work
16.0 Supervision and Inspection
17.0 Control of Materials
18.0 Legal Duties and Responsibilities to the Public
19.0 Contractor Is Independent Contractor
20.0 Contractor and His Employees
21.0 Assignment and Subletting of Contract
22.0 Indemnification and Defense of Suits
23.0 Worker's Compensation, Employer's Liability Insurance, Owner's Risk and Liability Insurance and Property Insurance Requirements
24.0 Minimum Insurance Amounts
25.0 Method and Basis of Payment for Items of Work
26.0 Administrative Costs and Fees
27.0 Payments
28.0 Release of Liability and Acceptance
29.0 Payment or Acceptance Not a Waiver by City

IV. GENERAL SPECIFICATIONS

Division I Control of Equipment
Division II Construction Specifications
Division III Material Specifications

V. CHANGE ORDER

VI. NOTICE TO PROCEED

VII. PUBLIC IMPROVEMENT CONTRACT AGREEMENT

SECTION I.
BID/PROPOSAL AND CONSTRUCTION DOCUMENTS

BID NOTES:

1. Bidders are to exclude any work in the plans for the Equipment/Exercise Building

2. Bidders are to sign the following documents in the Project Manual and submit with their sealed bids:

   A. Non-Collusion Affidavit
   B. Business Relationship Affidavit
   C. Non-Discrimination Affidavit
   D. No Kick-Back Statement

ALTERNATES:

Alternate #1: Black PVC Coated Perimeter Fencing, Posts & Gates
Provide cost to furnish and construct PVC Coated Chain Link Fencing and Gates in lieu of galvanized, where shown on Sheet G1.2 and as specified in Section 323113 - Chain Link Fences and Gates.

Alternate #2: Ornamental Fencing
Provide cost to furnish and construct Ornamental Fencing and Gates in lieu of PVC Coated Chain Link Fencing and Gates, where shown on Sheet G1.2 and as specified in Section 323100 - Ornamental Fences and Gates.

BID FORM

Sapulpa Fire Training Center

I, _____ (Bidder), having read all the specifications and requirements in the bid documents, do hereby propose the following prices for the specified projects, which includes all materials and labor:

Division 3: Concrete	$ _____
Division 4: Masonry	$ _____
Division 5: Metals	$ _____
Division 6: Woods & Plastics	$ _____
Division 7: Thermal & Mositure	$ _____
Division 8: Openings	$ _____
Division 9: Finishes	$ _____
Division 10: Specialties	$ _____
Division 11: Equipment	$ _____
Division 12: Furnishings	$ _____
Division 13: Special Construction	$ _____
Division 21: Fire Suppression	$ _____
Division 22: Plumbing	$ _____
Division 23: Mechanical	$ _____
Division 26: Electrical	$ _____
Division 31: Earthwork	$ _____
Division 32: Exterior Improvements	$ _____
Division 33: Utilities	$ _____
ALTERNATE 1: Black PVE Coated Perimeter Fencing, Posts & Gates	$ _____
ALTERNATE 2: Ornamental Fencing	$ _____

Company: _____

Name: _____

Title: _____

Signature: _____ Date: _____

I attest that the above signature is true and valid.

_____

Notary:

(SEAL)

_____

My Commission Expires:

(This form must be notarized, or bid will be rejected)

BIDDER INFORMATION SHEET

To be completed by all Bidders
For Contracts/BID PROPOSALS with
the City of Sapulpa
(Please print in ink or type)

Project/Bid No. or Description _____

_____

Full Name of Bidder _____

Legal Identity
(Corporation, Partnership,
Individual, etc.) _____

Address _____

Telephone No. _____

Fax No. _____

Taxpayer Identification No. _____

Contact Person _____

E-mail address (Optional) _____

Contractor's Qualification Statement

The Undersigned certifies under oath that the information provided herein is true and sufficiently complete so as not to be misleading.

SUBMITTED TO: City of Sapulpa

ADDRESS: 425 East Dewey Avenue, Sapulpa, OK 74066

SUBMITTED BY: _____ Corporation ☐

NAME: _____ Partnership ☐

ADDRESS: _____ Individual ☐

_____ Joint Venture ☐

PRINCIPAL OFFICE: _____ Other ☐

_____

NAME OF PROJECT (if applicable: _____

TYPE OF WORK (file separate from for each Classification of Work):

_____ General Construction _____ HVAC

_____ Plumbing _____ Electrical

_____ Other: _____

1. ORGANIZATION

1.1 How many years has your organization been in business as a Contractor?

1.2 How many years has your organization been in business under its present business name?

1.2.1 Under what other or former names has your organization operated?

1.3 If your organization is a corporation, answer the following:

1.3.1 Date of incorporation:
1.3.2 State of incorporation:
1.3.3 Presidents name:
1.3.4 Vice-president's name(s):
1.3.5 Secretary's name:
1.3.6 Treasurer's name:

1.4 If your organization is a partnership, answer the following:

1.4.1 Date of organization:
1.4.2 Type of partnership (if applicable):
1.4.3 Name(s) of general partner(s):

1.5 If your organization is individually owned, answer the following:

1.5.1 Date of organization:
1.5.2 Name of owner:

1.6 If the form your organization is other than those listed above, describe it and name the principals:

2. LICENSING

2.1 List jurisdiction and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable.

2.2 List jurisdiction in which your organization's partnership or trade name is filed.

3. EXPERIENCE

3.1 List the categories of work that your organization normally performs with its own forces.

a)
b)
c)
d)
e)

3.2 Claims and Suits. (If the answer to any of the questions below is yes, please attach details.)

3.2.1 Has your organization ever failed to complete any work awarded to it?

3.2.2 Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against your organization or its officers?

3.2.3 Has your organization filed any lawsuits or requested arbitration with regard to construction contracts within the last five years?

3.3 Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract? (If the answer is yes, pleases attach details.)

3.4 On a separate sheet, list major construction projects your organization has in progress, giving the name of project, owner, architect, contract amount, percent complete and scheduled completion date.
SEE APPENDIX A

3.4.1 State total worth of work in progress and under contract:

3.5 On a separate sheet, list the major projects your organization has completed in the past five years, giving the name of project, owner, architect, contract amount, date of completion and percentage of the cost of the work performed with your own forces.
SEE APPENDIX B

3.5.1 State average annual amount of construction work performed during the past five years:

3.6 On a separate sheet, list the construction experience and present commitments of the key individuals of your organization.
SEE ATTACHED KEY PERSONNEL

4. REFERENCES

4.1 Trade References:
SEE APPENDIX C

4.2 Bank References:
SEE APPENDIX C

4.3 Surety:

4.3.1 Name of bonding company:

4.3.2 Name and address of agent:

5. FINANCING

5.1.1 Attach a financial statement, preferably audited, including your organization's latest balance sheet and income statement showing the following:

Current Assets (e.g., cash, joint venture accounts, accounts receivable, notes receivable, accrued income, deposits, materials inventory and prepaid expenses);

Net Fixed Assets;

Other Assets;

Current Liabilities (e.g., accounts payable, notes payable, accrued expenses, provision for income taxes, advances, accrued salaries and accrued payroll taxes);

Other liabilities (e.g., capital, capital stock, authorized and outstanding shares par values, earned surplus and retained earnings).

5.1.2 Name and address of firm preparing attached financial statement, and date thereof:

5.1.3 Is the attached financial statement for the identical organization named on page one?

5.1.4 If not, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsidiary).

5.2 Will the organization whose financial statement is attached act as guarantor of the contract for construction?

6. SIGNATURE

6.1 Dated at this _____ day of _____, 2025

Name of organization:_____

By: _____

Title: _____

6.2 _____being duly sworn deposes and says that the information provided herein is true and sufficiently complete so as not to be misleading.

Subscribed and sworn before me this _____ day of _____, 2025.

Notary Public_____

My Commission Expires:_____
My Commission No.:_____

APPENDIX A
CURRENT AND RECENT PROJECTS

JOB: **CITY/STATE**

APPENDIX B
MAJOR PROJECTS LAST 5 YEARS

PROJECT	CITY/STATE

KEY PERSONNEL

NAME/TITLE	YEARS/EXPERIENCE

APPENDIX C
REFERENCES

TRADE REFERENCES:

BANK REFERENCES:

CITY OF SAPULPA
AFFIDAVITS

STATE OF_____}
} SS
COUNTY OF_____}

1. _____, of lawful age, being first duly sworn, on oath, says that (s) he is the agent authorized by the bidder to submit the attached bid. Affiant further states that the nature of any partnership, joint venture, or other business relationship presently in effect or which existed within one (1) year prior to the date of this statement with the architect, engineer, or other party to the project is as follows:

_____

Affiant further states that the names of all persons having any such business relationships and positions they hold with their respective companies or firms are as follows:

_____

(If none of the business relationships herein above mentioned exist, affiant should so state.)

2. Affiant states that no officer or employee of the City of Sapulpa either directly or indirectly, owns any interest in the bidder's business.

Affiant further states that the following officer's and/or employee of the City of Sapulpa have some direct or indirect interest in the bidder's business.

3. Affiant further states that the bidder has not been a part to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding; or with any State, County, or City official or employee as to quantity, quality, or price in the prospective Contract, or in any other terms of said prospective Contract; or in any discussions between bidder and any State, County, or City official concerning exchange of money or other thing of value for special consideration in the letting of a Contract.

Further Affiant Sayeth Not.

_____ _____
Signature Title

Subscribed and sworn to before me this _____ day of _____, 20___.

_____
Notary Public

My Commission Expires: _____

CITY OF SAPULPA
General Information

INTENT:

The intent of these specifications is to set minimum requirements, not to otherwise limit bidding for the supply of above stated product/equipment/service.

Bidders shall quote on new, latest production model equipment which shall include all standard advertised equipment, accessories and safety items which are included as standard in the advertised and published literature for the equipment. No such item of equipment or accessories shall be removed or omitted for the reason that it was not specified in the bid. Standard production items may be removed only where it is necessary to install other items in lieu thereof to comply with these specifications, which are to be considered minimum requirements.

WARRANTY:

All bids for equipment shall require a standard manufacturer's warranty to testify to the integrity of the products to be furnished and the manufacturer's responsibility for the repair and/or replacement of parts found to be defective.

The City of Sapulpa shall expect the manufacturer/distributor to have an adequate stock of replacement parts available to service the equipment and to make delivery within a reasonable time of all normal replacement parts to their dealers in the Sapulpa and/or Tulsa Metropolitan area who service the equipment. The City further expects that warranty service and repairs as well as non-warranty service and repairs will be handled in an expeditious manner when required.

ERRORS OR OMISSIONS:

Bidders are cautioned to examine all terms, conditions, specifications, drawings, exhibits, addenda, delivery instructions and special conditions pertaining to the Bid. Failure of the Bidder to examine all pertinent documents shall not entitle him to any relief from the conditions imposed in the contract.

PRICES QUOTED:

Deduct trade discounts and quote firm net prices. Give both unit price and extended total, if requested. In the case of a discrepancy in computing the amount of the bid, the unit price quoted will govern.

The City of Sapulpa is exempt from Federal Excise Tax and Oklahoma State Taxes on direct purchases of tangible property.

APPROVED EQUAL:

When the technical specifications call for a brand name, manufacturer, make, model, or vendor catalog number with acceptance of APPROVED EQUAL, it shall be for the purpose of establishing a level of quality and features desired and acceptable to the City. In such cases, the City will be receptive to any unit that would be considered by qualified City personnel as an approved equal. In that the specified make and model represent a level of quality and features desired by the City, the Bidder must state clearly in his bid any variance from those specifications. It is he Bidder's responsibility to provide adequate information, in his bid, to enable the City to ensure that the bid meets the required criteria. If adequate information is not submitted with the bid, it may be rejected. The City will be the sole judge in determining if the item bid qualifies as an approved equal.

SAMPLES AND DEMONSTRATIONS:

Samples or inspection of product/equipment may be requested to determine suitability. Samples or inspection will be made either before or after the opening of the bid, but before award of the bid is made. When requested, samples must be furnished free of expense to the City and if not used in testing or destroyed, will upon request of the Bidder, be returned within thirty (30) days of bid award at Bidder's expense. When required, the City may request full demonstrations of units prior to award. When such demonstrations are requested, the Bidder shall respond promptly and arrange a demonstration at a location chosen by the City and convenient to both parties, barring any special conditions. Failure to provide samples or demonstrations, if requested by the City, may result in rejection of a bid.

USE OF OTHER GOVERNMENTAL CONTRACTS:

The City reserves the right to reject any part or all of any bids received and utilize other available governmental contracts, if such action is in its best interest.

COMPLIANCE TO SPECIFICATIONS, LATE DELIVERIES:

Items offered may be tested for compliance to bid specifications. Items delivered which do not conform to bid specifications may be rejected and returned at Contractor's expense. Any violation resulting in contract termination for cause or delivery of items not conforming to specifications, or late delivery may also result in:

- Bidder's name being removed from the City's bidder mailing list for a specified time and Bidder will not be recommended for any award during that period.
- All City Departments being advised to refrain from doing business with the Bidder.
- All other remedies in law or equity

ACCEPTANCE:

The product delivered in response to ITB award shall remain the property of the Seller until accepted to the satisfaction of the City. The product must comply fully with the terms of the ITB, be of the required quality, new, and the latest model. All containers shall be suitable for storage

and shipment by common carrier, and all prices shall include standard commercial packaging. The City will not accept substitutes of any kind. Any substitutes or material not meeting specifications will be returned at the Bidder's expense. Payment will be made only after City receipt and acceptance of products or services.

HOLD HARMLESS:

The Contractor/Vendor agrees to protect, defend, indemnify, and hold harmless the City of Sapulpa and its officers, employees and agents from and against any and all losses, penalties, damages, settlements, claims, costs, charges for other expenses, or liabilities of every and any kind including attorney fees, in connection with or arising directly or indirectly out of the work agreed to or performed by Contractor under the terms of any agreement that may arise due to the bidding process. Without limiting the foregoing, any and all such claims, suits, or other actions relating to personal injury, death, damage to property, defects in materials or workmanship, actual or alleged violations of any applicable Statute, ordinance, administrative order, rule or regulation, or decree of any court shall be included in the indemnity hereunder.

TERMINATION FOR CAUSE/CONVENIENCE:

If, through any cause, the Contractor shall fail to fulfill in a timely and proper manner its obligations under this Agreement, or if the Contractor shall violate any of the provisions of this Agreement, the City may upon written notice to the Contractor terminate the right of the Contractor to proceed under this agreement, or with such part or parts of the agreement as to which there has been default, and may hold the Contractor liable for any damages caused to the City by reason of such default and termination. In the event of such termination, any completed services performed by the Contractor under this Agreement shall, at the option of the City, become the City's property and the Contractor shall be entitled to receive equitable compensation for any work completed to the satisfaction of the City. The Contractor, however, shall not be relieved of liability to the City for damages sustained by the City by reason of any breach of the Agreement by the Contractor, and the City may withhold any payments to the Contractor for the purpose of setoff until such time as the amount of damages due to the City from the Contractor can be determined.

The City also reserves the right, in its best interest as determined by the City, to cancel contract by giving written notice to the Contractor thirty (30) days prior to the effective date of such cancellation.

NON-APPROPRIATION OF FUNDS:

The obligation of the City for payment to a contractor is limited to the availability of funds appropriated in a current fiscal period, and continuation of the contract into a subsequent fiscal period is subject to appropriation of funds, unless otherwise authorized by law.

PERMITS, TAXES, LICENSES:

The successful Contractor shall, at his own expense, obtain all necessary permits, pay all licenses, fees and taxes, required to comply with all local ordinances, state and federal laws, rules and regulations applicable to business to be carried on under this contract.

UNUSUAL CIRCUMSTANCES:

If during a contract term where costs to the City are to remain firm or adjustments are restricted by a percentage or CPI cap, unusual circumstances that could not have been foreseen by either party to the contract occur, and those circumstances significantly affect the Contractor's cost in providing the required items or services, then the Contractor may request adjustments to the costs to the City to reflect the changed circumstances. The circumstances must be beyond the control of the Contractor, and the requested adjustment must be fully documented. The City may, after examination, refuse to accept the adjusted costs if they are not properly documented, increases are considered to be excessive, or decreases are considered to be insufficient. In the event the City does not wish to accept the adjusted costs and the matter cannot be resolved to the satisfaction of the City, the City will reserve the following options:

- The contract can be canceled by the City upon giving thirty (30) days written notice to the Contractor with no penalty to the City or Contractor. The Contractor shall fill all City requirements submitted to the Contractor until the termination date contained in the notice.
- The City requires the Contractor to continue to provide the items and services at the firm fixed (non-adjusted) cost until the termination of the contract term then in effect.
- If the City, in its interest and in its sole opinion, determines that the Contractor in a capricious manner attempted to use this section of the contract to relieve themselves of a legitimate obligation under the contract, and no unusual circumstances had occurred, the City reserves the right to take any and all action under law or equity. Such action shall include, but not be limited to, declaring the Contractor in default and disqualifying him for receiving any business from the City for a stated period of time.

ASSIGNMENT:

Contractor shall not transfer or assign the performance required by this ITB without the prior 'written consent of the City. Any award issued pursuant to this ITB, and the monies, which may become due hereunder, are not assignable except with the prior written approval of the City Manager or selected designee.

BIDDER'S LIABILITY AND INSURANCE REQUIREMENTS:

General Liability — The City shall not be held liable or responsible for any accident, loss, assault, battery, defamations, false arrest, false imprisonment, invasion of privacy, intentional or negligent infliction of emotional distress, injury (including death), or damages happening or occurring during the term of the performance of the work, to persons and/or property, and the Contractor shall fully indemnify and protect the City from and against the same. In addition to the liability imposed by law on the Contractor for damage or injury (including death) to persons or property

by reason of negligence of the Contractor or his agents, such liability is not impaired or otherwise affected hereby and the Contractor hereby assumed liability for and agrees to save the City harmless and indemnify him for every expense, liability or payment by reasons or any damage or injury (including death) to persons or property suffered or any of his subcontractors or anyone directly or indirectly employed by either of them or arising in any way from the work called for in the contract.

Liens — Contractor shall agree to indemnify and hold the City harmless from all claims, demands, causes or actions or suits of whatever nature arising out the services, labor and materials furnished by the Contractor or his subcontractors under the scope of this contract and from all laborers', materials men's and mechanics' liens upon the real property upon which the work is located or any property of the City of Sapulpa.

Insurance Requirements - The Contractor, and any sub-contractors, shall carry and keep in force during the term of the contract policies of public liability and insurance including any contractual liability assumed under the contract in the minimum amounts set forth below and worker's compensation and employer's liability insurance in the amount required by law. The Contractor shall also furnish an owner's protective policy in the same amounts with the City of Sapulpa as the named assured by the same insurance company as the insurer of Contractor's liability coverage.

Personal Injury, each person	$ 100,000
Personal Injury, each occurrence	$1,000,000
Property Damage, each person	$ 25,000
Property Damage, each occurrence	$ 100,000

The policy shall provide a clause stating that it cannot be cancelled by the insurer without the insurer first giving the City ten (10) days written notice of cancellation. The Contractor shall furnish the City a certificate of insurance showing such coverage within ten (10) days following the award of the contract by the City prior to starting work. The City of Sapulpa shall be listed as an additional insured on all certificates of insurance.

EMPLOYMENT DISCRIMINATION BY CONTRACTOR PROHIBITED:

During the performance of this contract, the contractor agrees he will not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin, except where religion, sex, or national origin is a bona fide occupational qualification reasonably necessary to the normal operation of the contractor.

ADDENDA AND INTERPRETATIONS:

If it becomes necessary to revise any part of this bid, a written addendum will be provided to all the bidders. The City of Sapulpa is not bound by any oral representation, clarifications or changes made in the written specifications by the City of Sapulpa employees unless such clarification or change is provided to bidders in written addendum form from the Purchasing Director.

AWARD OF BID:

The bid shall be awarded to the firm whose proposal is responsive to the bid and is most advantageous to the City, considering the factors in the bid and set forth below.

1. Authority of the City Council: The City Council shall have the authority to award contracts within the parameters of ordinances and City Charter of the City of Sapulpa.

2. Lowest qualified bidder: Contracts shall be awarded to the lowest qualified bidder meeting specifications. In determining "lowest qualified bidder", in addition to price, the following factors shall be considered:

   A. The ability, capacity, and skill of the bidder to perform the contract or provide the equipment required.

   B. Whether the bidder can perform the contract or provide the equipment promptly or within the time specified, without delay or interference.

   C. The character, integrity, reputation, judgment, experience, and efficiency of the bidder.

   D. The quality of performance of previous contracts or services.

   E. The previous and existing compliance by the bidder with laws and ordinances relating to the contract or service.

   F. The sufficiency of the financial resources and ability of the bidder to perform the contract or provide the service and/or equipment.

   G. The quality, availability, and adaptability of the equipment to the particular use required.

   H. The ability of the bidder to provide future maintenance and service for the use of the subject of the contract.

   I. Where an earlier delivery date would be of great benefit to the requisitioning agency, the date and terms of delivery may be considered in the bid award.

   J. The number and scope of conditions (if any) attached to the bid.

IRREGULAR PROPOSALS:

Proposals will be considered irregular and may be rejected as non-responsive if:

1. The Proposal is on a form other than that approved by the City of Sapulpa, or if the form is altered or incomplete.

2. There are unauthorized additions, conditional or alternate bids, or irregularities of any kind that may tend to make the Proposal incomplete, indefinite, or ambiguous.

3. The bidder adds provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award. This does not exclude a proposal limiting the maximum gross amount of awards acceptable to any one bidder bid letting, provided that selection of awards in make by the City.

4. The Proposal does not contain a unit price for each pay item listed except in the case of authorized alternate pay items.

5. Any of the unit bid prices are significantly unbalanced to the potential detriment of the City.

6. The Proposal is not properly signed.

7. The Proposal is not typed or completed in ink.

8. The bidder fails to sign the non-collusive bidding certification.

9. The Proposal fails to comply with any other material requirement of the invitation for bids.

REJECTION OF BIDS:

Any of the following reasons may be considered just cause for the rejection of a bid or bids.

1. More than one Proposal for the same work from an individual, firm partnership, joint venture, or corporation whether under the same or different name.

2. The prospective bidder is debarred or ruled unacceptable by the City, a Federal Agency or other Governmental Agency.

3. Submission of irregular Proposal as set forth in previous section.

4. Unsatisfactory performance on previous work.

5. Uncompleted work which, in the judgment of the City, might hinder or prevent the prompt completion of additional work if awarded.

6. Default under previous Contract(s).

7. Errors in preparation of the Proposal.

8. Failure to settle bills for labor or materials on past or current contracts.

SAPULPA FIRE DEPARTMENT TRAINING FACILITY

15 SAHOMA LAKE ROAD, SAPULPA, OK 74066

LEGAL DESCRIPTION:

TRACKAGE LOT 'C', WESTPORT, AN ADDITION TO THE CITY OF SAPULPA, CREEK COUNTY, STATE OF OKLAHOMA, ACCORDING TO THE RECORDED PLAT THEREOF,

LESS AND EXCEPT:

A TRACT OF LAND BEGINNING AT THE NORTHWEST CORNER OF SAID TRACKAGE LOT 'C, THENCE EAST ALONG THE NORTHERLY LINE OF SAID LOT FOR 125 FEET, THENCE SOUTH PARALLEL WITH THE WESTERLY LINE OF SAID LOT FOR 150 FEET, THENCE WEST PARALLEL WITH THE NORTHERLY LINE OF SAID LOT FOR 125 FEET TO A POINT ON SAID WESTERLY LINE, THENCE NORTH ALONG SAID WESTERLY LINE FOR 150 FEET TO THE POINT OF BEGINNING OF SAID TRACT OF LAND

BIDDERS NOTE:

ALL DRAWINGS SHALL BE REVIEWED BY ALL BIDDERS, INCLUDING ALL SUB-CONTRACT BIDDERS. REQUIREMENTS FOR CHASES, ELECTRICAL DEVICES, STRUCTURAL FRAMING, PLUMBING ROUTING, PAVING, ETC. MAY NOT NECESSARILY BE SHOWN ONLY ON A PARTICULAR DISCIPLINE'S DRAWINGS.

DRAWING LIST:

GENERAL

COVERSHEET

G1.1 SYMBOLS LEGEND, ABBREVIATIONS & GENERAL NOTES

G1.2 CODE REVIEW & ALTERNATES PLANS

CIVIL

C1.0 GENERAL NOTES

C2.0 SURVEY

C3.0 OVERALL DEMOLITION & EROSION CONTROL PLAN

C3.1 DEMOLITION & EROSION CONTROL PLAN

C3.2 DEMOLITION & EROSION CONTROL PLAN

C4.0 OVERALL SITE PLAN

C4.1 SITE PLAN

C4.2 SITE PLAN

C5.0 GRADING PLAN

C5.1 GRADING PLAN

C5.2 GRADING PLAN

C5.3 EXISTING DRAINAGE PLAN

C5.4 PROPOSED DRAINAGE PLAN

C6.0 UTILITY PLAN

C6.1 UTILITY PLAN

C6.2 UTILITY PLAN

C7.0 UTILITY PROFILES

C7.1 UTILITY PROFILES

C8.0 DETAILS

C8.1 DETAILS

C8.2 DETAILS

C8.3 DETAILS

STRUCTURAL

S001 GENERAL STRUCTURAL NOTES

S010 FOUNDATION DETAILS

S011 FOUNDATION DETAILS

S012 STANDARD STRUCTURAL DETAILS

S100 EQUIPMENT BUILDING FOUNDATION PLAN

S200 ROOF FRAMING PLANS

ARCHITECTURAL

D1.1 DEMOLITION FLOOR PLAN

A0.1 ARCHITECTURAL SITE DEMOLITION PLAN
ARCHITECTURAL SITE & LANDSCAPE PLAN

A0.2 ENLARGED PARTIAL SITE PLAN & MOTORIZED VEHICLE ENTRY GATE PLANS, ELEVATIONS & DETAILS

A0.3 SITE DETAILS & PRE-ENGINEERED CANOPY SECTIONS

A1.1 OFFICE RENOVATION & EQUIPMENT BUILDING - OVERALL FLOOR PLANS

A1.2 OFFICE RENOVATION
FLOOR PLAN & WALL TYPES

A1.3 EQUIPMENT BUILDING FLOOR PLAN

A1.4 OFFICE RENOVATION
REFLECTED CEILING PLAN

A1.5 EQUIPMENT BUILDING
REFLECTED CEILING PLAN

A1.6 ROOM SIGNS, SPECIALTIES, FLOOR & WALL FINISHES PLANS

A1.7 OFFICE RENOVATION FURNITURE PLAN
FOR INFORMATION ONLY

A1.8 OFFICE RENOVATION - ROOF PLAN

A1.9 EQUIPMENT BUILDING - ROOF PLAN

A1.10 OFFICE RENOVATION & EQUIPMENT BUILDING SPECIAL SYSTEMS FLOOR PLANS

A2.1 ENLARGED FLOOR PLANS & DETAILS

A3.1 OVERALL EXTERIOR ELEVATIONS &
EXTERIOR FINISH SCHEDULE

A3.2 OFFICE RENOVATION BUILDING
EXTERIOR ELEVATIONS

A3.3 EQUIPMENT BUILDING
EXTERIOR ELEVATIONS

A4.1 BUILDING SECTIONS BETWEEN GRIDS A& B -
OFFICE RENOVATION

A4.2 BUILDING SECTIONS BETWEEN GRIDS B THRU E
OFFICE RENOVATION

A4.3 BUILDING SECTION - EQUIPMENT BUILDING

A4.4 N-S BUILDING SECTIONS

A5.1 EXTERIOR WALL SECTIONS
OFFICE RENOVATION

A5.2 EXTERIOR WALL SECTIONS
OFFICE RENOVATION

A5.3 EXTERIOR WALL SECTIONS
EQUIPMENT BUILDING

A5.4 EXTERIOR DETAILS

A7.1 DOOR & FRAME TYPES
DOOR SCHEDULE & NOTES

A7.2 EXTERIOR DOOR & WINDOW DETAILS

A7.3 DOOR & WINDOW DETAILS

A9.1 SPECIALTIES SCHEDULE, ROOM FINISH COLOR SELECTIONS
LEGEND, STANDARD PLUMBING, & ACC. MOUNTING STD

A9.2 ROOM SIGNAGE TYPES & CERAMIC DETAILS

A9.3 INTERIOR ELEVATIONS

A9.4 INTERIOR ELEVATIONS

A9.5 CABINET SECTIONS & DETAILS

PLUMBING, FIRE PROTECTION, MECHANICAL, ELECTRICAL

P0.0 PLUMBING SYMBOLS & GENERAL
NOTES

P0.1 PLUMBING SPECIFICATIONS

P1.0 DOMESTIC WASTE AND VENT FLOOR PLAN -
OFFICE BUILDING

P1.1 DOMESTIC WASTE AND VENT FLOOR PLAN -
EQUIPMENT BUILDING

P2.0 PLUMBING SUPPLY FLOOR PLAN -
OFFICE BUILDING

P2.1 PLUMBING SUPPLY FLOOR PLAN -
EQUIPMENT BUILDING

P3.0 GAS AND CONDENSATE FLOOR PLAN -
OFFICE BUILDNG

P3.1 GAS AND CONDENSATE FLOOR PLAN
EQUIPMENT BUILDING

P4.0 PLUMBING RISER DIAGRAMS

P5.0 PLUMBING SCHEDULES

P6.0 PLUMBING DETAILS

FP1.0 FIRE PROTECTION PLAN - OFFICE BUILDING

FP1.1 FIRE PROTECTION DETAILS

M0.0 MECHANICAL SYMBOLS & GENERAL NOTES

M0.1 MECHANICAL SPECIFICATIONS

M0.2 MECHANICAL SPECIFICATIONS

M0.3 MECHANICAL SPECIFICATIONS

M1.0 HVAC PLAN - OFFICE BUILDING

M1.1 HVAC PLAN - EQUIPMENT BUILDING

M2.0 MECHANICAL SCHEDULES

M3.0 MECHANICAL DETAILS

E0.1 ELECTRICAL GENERAL NOTES
& SYMBOLS LEGEND

E0.2 ELECTRICAL SPECIFICATIONS

E0.3 ELECTRICAL SPECIFICATIONS

ED1.0 ELECTRICAL DEMOLITION PLAN

E1.0 ELECTRICAL SITE PLAN

E2.0 OVERALL LIGHTING PLAN

E2.1 OFFICE RENOVATION LIGHTING PLAN

E2.2 EQUIPMENT BUILDING LIGHTING PLAN

E3.0 OVERALL POWER PLAN

E3.1 OFFICE RENOVATION POWER PLAN

E3.2 EQUIPMENT BUILDING POWER PLAN

E3.3 HVAC POWER PLAN

E4.1 ELECTRICAL ONE-LINE DIAGRAM & DETAILS

E5.1 ELECTRICAL PANEL SCHEDULES

OWNER:

SAPULPA FIRE DEPARTMENT
CITY OF SAPULPA, OKLAHOMA
425 E. DEWEY AVE.
SAPULPA, OK 74066

ARCHITECT:

GS HELMS + ASSOCIATES

ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

CIVIL ENGINEERING CONSULTANT:

WALLACE ENGINEERING
STRUCTURAL AND CIVIL CONSULTANTS
123 N. MARTIN LUTHER KING JR. BLVD.
TULSA, OKLAHOMA 74103
PH 918.584.5858 FAX 918.584.8689
OKLAHOMA CERTIFICATE OF AUTHORIZATION: #1460
EXPIRATION DATE: 06.30.27

STRUCTURAL ENGINEERING CONSULTANT:

RICHARDS & ASSOCIATES, INC.
424 EAST MAIN STREET JENKS, OK
405.627.9584 FAX 918.355.9309
C.A. #4458 EXP. DATE 06.30.27

M.E.P. ENGINEERING CONSULTANT:

Precision Engineering Group, LLC
MECHANICAL ELECTRICAL DESIGN CONSULTANTS
5809 EAST SKELLY DRIVE
SUITE 1100
TULSA, OKLAHOMA 74135
PH 918.749.3000 FAX 918.749.3003
OKLA. CERT. OF AUTHORIZATION: #4724
EXPIRATION DATE: 06.30.27

PROJECT:

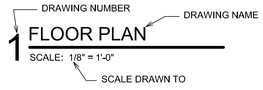
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE RD., SAPULPA, OK 74066

ISSUE:

CONSTRUCTION DOCUMENTS

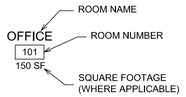
PROJECT NO.:	ISSUE DATE:	SET NUMBER:
17-00901	AUGUST 1, 2025	
REVISION NO.:	REVISION DATE:	
0	AUGUST 1, 2025	

SYMBOLS LEGEND



DRAWING TITLE

NORTH ARROW



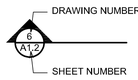
ROOM NAME & NUMBER

DOOR NUMBER

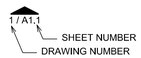
WINDOW TYPE

WALL TYPE

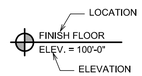
DETAIL MARKER



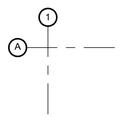
SECTION MARKER



ELEVATION MARKER



ELEVATION DATUM



FRAMING GRID

ABBREVIATIONS

A	
ACS	ACOUSTICAL CEILING SYSTEM
ACP	ACCENT CARPET
A/C	AIR CONDITIONER
ADJ.	ADJUSTABLE OR ADJACENT
AFF	ABOVE FINISHED FLOOR
ALUM.	ALUMINUM
ANOD.	ANODIZED
APPROX.	APPROXIMATE
@	AT
ATTEN.	ATTENUATION
B	
BD	BOARD
BFF	BELOW FINISHED FLOOR
BLDG	BUILDING
BTM	BOTTOM
C	
C.J.	CONTROL JOINT
CG	CORNER GUARD
℄	CENTER LINE
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CLNG	CEILING
CLR.	CLEAR
CMU	CONCRETE MASONRY UNIT
COLM.	COLUMN
CON.	CONCRETE
CONT.	CONTINUOUS
COOR.	COORDINATE
CPT	CARPET
CT	CERAMIC TILE
D	
DF	DRINKING FOUNTAIN
DIAM.	DIAMETER
DN	DOWN
DR	DOOR
DRWG	DRAWING
E	
EA.	EACH
EIFS	EXTERIOR INSULATION & FINISH SYSTEM
E.J.	EXPANSION JOINT
ELEC.	ELECTRICAL
ELEV.	ELEVATION
EPF	EPOXY WALL FLOORING
EPW	EPOXY WALL PAINT
EQ.	EQUAL
EQUIV.	EQUIVALENT
ETC.	ET CETERA
E.W.	EACH WAY
EX.	EXISTING
EXP	EXPOSED STRUCTURE
F	
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FACTORY FINISH
FLR	FLOOR
FP	FLAGPOLE
FRP	FIBERGLASS REINFORCED PANEL
FT.	FEET
FV	FIELD VERIFY
G	
GA.	GAUGE
GAL.	GALLON
GALV.	GALVANIZED
GB	GYPSUM WALL BOARD
GR	GROUT
GWB	GYPSUM WALL BOARD
GYP.	GYPSUM
H	
H/C	HANDICAP
HM	HOLLOW METAL
HORIZ.	HORIZONTAL
HR	HOUR
I	
I.D.	INSIDE DIAMETER
IN.	INCH
INSUL.	INSULATION
INTER.	INTERIOR
J	
JCT.	JUNCTION
JNT.	JOINT
K	
K.D.	KNOCK DOWN
L	
LAM.	LAMINATE
LAV	LAVATORY
LF	LINEAL FEET
M	
MASON.	MASONRY
MAT'L	MATERIAL
MAX	MAXIMUM
MDF	MEDIUM DENSITY FIBERBOARD
ME	MATCH EXISTING
MECH.	MECHANICAL
MFR	MANUFACTURER
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MTL	METAL
N	
NIC	NOT IN CONTRACT
NMBR.	NUMBER
NO.	NUMBER
NOM.	NOMINAL
NTS	NOT TO SCALE
O	
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OPP.	OPPOSITE
P	
PLAST.	PLASTIC
PWD.	PLYWOOD
PR	PAIR
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PAINT
Q	
NOT USED	
R	
R	RISERS
RAD.	RADIUS
RB	RESILIENT BASE
RD	ROOF DRAIN
RE:	REFERENCE
REF	REFRIGERATOR
REQ'D	REQUIRED
REV.	REVISION
RTU	ROOF TOP UNIT
S	
SC	SEALED CONCRETE
SECT.	SECTION
SF	SQUARE FEET
SIM.	SIMILAR
SPEC.	SPECIFICATION
SQ.	SQUARE
SQ. FT.	SQUARE FEET
SQ. IN.	SQUARE INCH
SS	SANITARY SEWER / SERVICE SINK / SOLID SURFACE
T	
T	TREADS
TELE.	TELEPHONE
THK	THICK
THRU	THROUGH
TOM	TOP OF MASONRY
TOS	TOP OF STEEL
TS	TRANSITION STRIP
TV	TELEVISION
TYP.	TYPICAL
U	
UNO	UNLESS NOTED OTHERWISE
URNL	URINAL
V	
VCT	VINYL COMPOSITION TILE
VERT.	VERTICAL
VET	VINYL ENHANCED TILE
VWC	VINYL WALL COVERING
W	
W/	WITH
WCP	WALK-OFF CARPET
WD	WOOD
WGB	WATER-RESISITANT GYPSUM WALLBOARD
W/O	WITHOUT
WPP	WALL PROTECTION PANEL
X	
NOT USED	
Y	
YD	YARD
Z	
NOT USED	

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES.
2. CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR NECESSARY TO PERFORM WORK IDENTIFIED ON PLANS, UNLESS SPECIFICALLY NOTED OTHERWISE.
3. CONTRACTOR SHALL PROVIDE AND INSTALL ALL REQUIRED BLOCKING FOR SECURE INSTALLATION OF SURFACE MOUNTED EQUIPMENT, FIXTURES, CASEWORK, ETC. ALL BLOCKING SHALL BE FIRE RETARDENT.
4. EMERGENCY MEANS OF EGRESS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
5. ALL DIMENSIONS ARE TO THE FACE OF FINISHED WALLS OR TO THE CENTER-LINE OF WALLS, UNLESS SPECIFICALLY NOTED OTHERWISE. IF ADDITIONAL DIMENSIONS ARE REQUIRED, COORDINATE WITH ARCHITECT. DIMENSIONS SHALL NOT BE DETERMINED BY SCALING DRAWINGS.
6. CONTRACTOR SHALL PROPERLY DISPOSE OF ALL CONSTRUCTION DEBRIS.
7. CONTRACTOR SHALL PROVIDE NECESSARY TEMPORARY BRACING OF OPENINGS AND FRAMING
8. DURING WELDING OR ANY OTHER CONSTRUCTION ACTIVITY THAT GENERATES SPARKS OR INTENSE HEAT, THE CONTRACTOR SHALL PROVIDE ADEQUATE FIRE PROTECTION TO THE EXISTING STRUCTURE AND CONTENTS.
   AS A MINIMUM:
   - -REMOVE COMBUSTIBLE MATERIALS FROM AREAS OF WELDING AND SPARKS.
   - -PROVIDE FIREPROOF BLANKETS AND SHIELDS TO CONTAIN SPARKS WHERE COMBUSTIBLE MATERIAL CAN NOT BE REMOVED.
   - -PROVIDE A FIRE SAFETY OBSERVER WITH A FIRE EXTINGUISHER DURING WELDING OPERATIONS.
9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE SLAB BLOCK-OUT DIMENSIONS WITH STRUCTURAL STEEL / PRE-ENGINEERED METAL BUILDING SHOP DRAWINGS. SIZES OF BLOCK-OUTS SHOWN ON PLANS SHALL NOT BE SCALED FOR SIZE
10. CONTRACTOR SHALL NOT USE ELECTRONIC FILES (.DWG, .DXF, .PDF, ETC.) OF DRAWINGS FOR LOCATING UTILITIES. ANY ELECTRONIC DRAWING FILE PROVIDED TO CONTRACTOR FOR THEIR USE IS FOR GENERAL LOCATIONS ONLY, UNLESS SPECIFIC DIMENSIONS OR COORDINATES ARE PROVIDED. CONTRACTOR SHALL COORDINATE LOCATIONS OF UTILITY LINES WITH OTHER UTILITIES, FOUNDATIONS, WALLS, ETC.
11. CONTRACTOR IS REQUIRED TO PROVIDE ALL UTILITY SERVICES TO PROJECT FOR COMPLETE WORKING SYSTEMS, UNLESS NOTED OTHERWISE.
12. ALL TESTING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

BIDDERS NOTE:

ALL DRAWINGS SHALL BE REVIEWED BY ALL BIDDERS, INCLUDING ALL SUB-CONTRACT BIDDERS, REQUIREMENTS FOR CHASES, ELECTRICAL DEVICES, STRUCTURAL FRAMING, PLUMBING ROUTING, PAVING, ETC. MAY NOT NECESSARILY BE SHOWN ONLY ON A PARTICULAR DISCIPLINE'S DRAWINGS.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

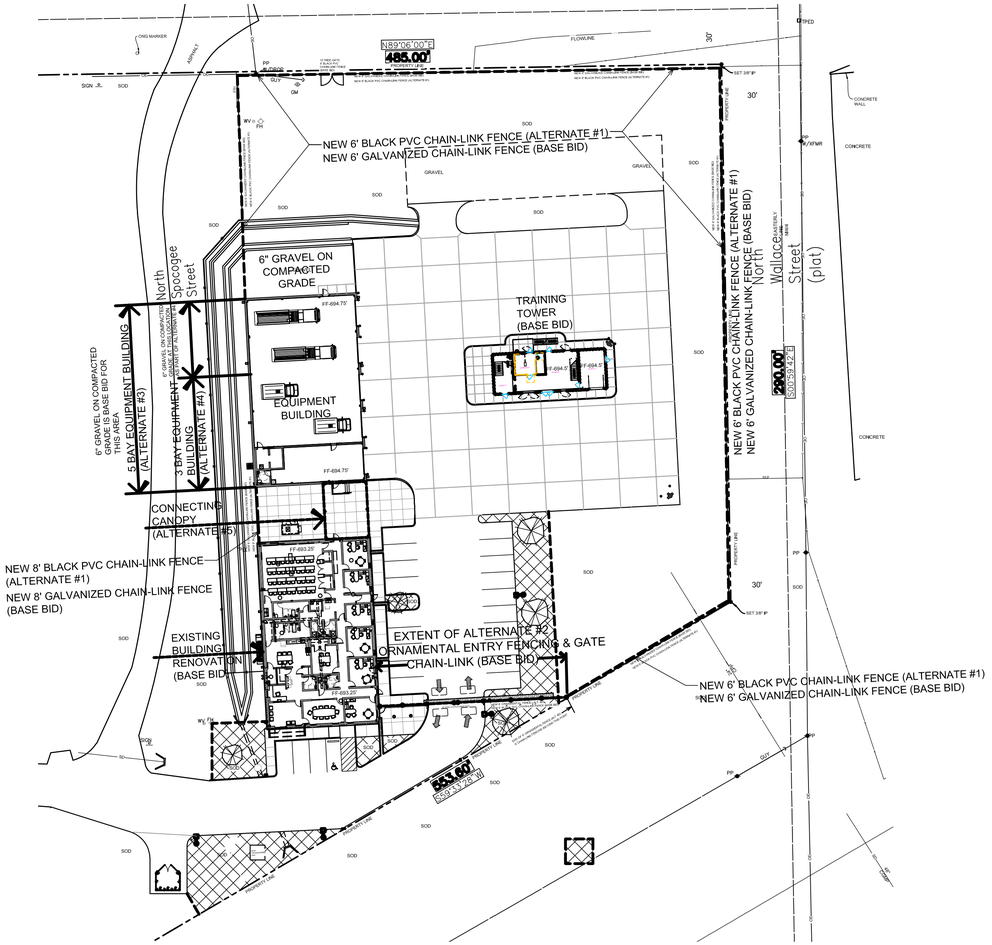
PROJECT NO.:	17-00901
FILE:	17-00900 G1-1
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
SYMBOLS LEGEND, ABBREVIATIONS & GENERAL NOTES

SHEET NUMBER:
G1.1



1 ALTERNATES PLAN
SCALE: 1" = 40'-0"

PROJECT NORTH

REFER TO SPECIFICATION SECTION 012300 FOR FULL DESCRIPTIONS OF ALTERNATES:

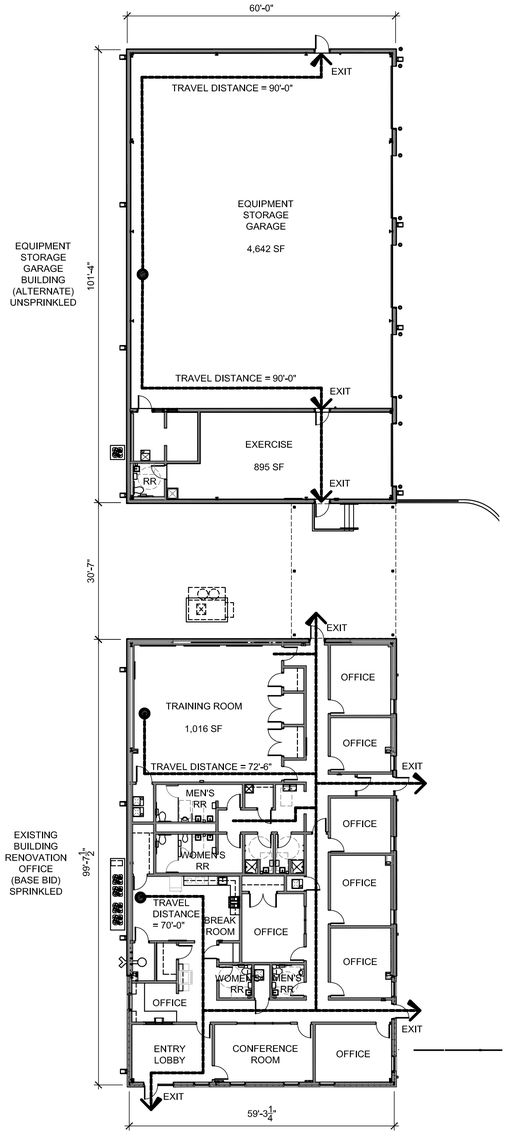
ALTERNATE #1 - BLACK PVC SITE PERIMETER FENCING, POSTS & GATES
GALVANIZED CHAIN-LINK SITE PERIMETER FENCING, POSTS & GATES IS THE BASE BID

ALTERNATE #2 - ORNAMENTAL ENTRY FENCING, POSTS & GATES
BLACK PVC CHAIN-LINK ENTRY FENCING, POSTS & GATES IS THE BASE BID

ALTERNATE #3 - 5 BAY EQUIPMENT BUILDING
BASE BID SHALL INCLUDE BUILDING PAD ENGINEERED FILL WITH 6" OF GRAVEL ON TOP FOR THE 5 BAY EQUIP. BUILDING FOOT PRINT
BASE BID SHALL INCLUDE GALVANIZED CHAIN-LINK FENCING ON THE WEST SIDE OF THE EQUIP. BLDG.

ALTERNATE #4 - 3 BAY EQUIPMENT BUILDING
BASE BID SHALL INCLUDE BUILDING PAD ENGINEERED FILL WITH 6" OF GRAVEL ON TOP FOR THE 5 BAY EQUIP. BUILDING FOOT PRINT
BASE BID SHALL INCLUDE GALVANIZED CHAIN-LINK FENCING ON THE WEST SIDE OF THE EQUIP. BLDG.

ALTERNATE #5 - CONNECTING CANOPY
ALTERNATE INCLUDES FOOTINGS & ROOF FLASHING TO BOTH ADJACENT BUILDINGS
DEDUCT THE BASE BID SMALL CANOPY OVER DOOR #139 ON THE EXISTING BUILDING RENOVATION
DEDUCT THE SMALL CANOPY OVER DOOR #134A ON THE EQUIPMENT BUILDING



2 CODE REVIEW PLAN
SCALE: 1/16" = 1'-0"

PROJECT NORTH

PROJECT DATA & CODE REVIEW:

PRIMARY CODES:
INTERNATIONAL BUILDING CODE, 2018 EDITION
INTERNATIONAL EXISTING BUILDING CODE, 2018 EDITION
INTERNATIONAL PLUMBING CODE, 2018 EDITION
INTERNATIONAL MECHANICAL CODE, 2018 EDITION
INTERNATIONAL FIRE CODE, 2018 EDITION
NATIONAL ELECTRIC CODE, 2020 EDITION
INTERNATIONAL FUEL GAS CODE, 2018 EDITION
2010 ADA STANDARDS FOR ACCESSIBLE DESIGN
ICC/ANSI A117.1-2009

OKLAHOMA UNIFORM BUILDING CODE COMMISSION (OUBCC):
IBC 2018 AMENDMENTS PER OAC 748:20:

PROPERTY INFORMATION:
PRESENT USE: VACANT OFFICE BUILDING
NO CHANGE OF USE

USE GROUP (SECTION 304):
BUSINESS (B)

ALLOWABLE BUILDING HEIGHT (TABLE 504.3)
(B), S, V-B = 60'
ACTUAL HEIGHT = 21'

ALLOWABLE NUMBER OF STORIES ABOVE GRADE (TABLE 504.4)
(B), S, V-B = 3
ACTUAL NUMBER OF STORIES = 1

ALLOWABLE AREA FACTOR (TABLE 506.2)
(B), S1, V-B = 36,000 SF
ACTUAL FIRE AREA = 15,000 SF (UNDER ROOF)

CONSTRUCTION TYPES (SECTION 602.2):
TYPE V-B

FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (TABLE 601):
STRUCTURAL FRAME INCLUDING COLUMNS, GIRDERS & TRUSSES = 0 HOUR
BEARING WALLS (EXTERIOR & INTERIOR) = 0 HOUR
NON-BEARING WALLS AND PARTITIONS (EXTERIOR & INTERIOR) = 0 HOUR
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS & JOISTS = 0 HOUR
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS & JOISTS = 0 HOUR

FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS (TABLE 602):
FIRE SEPARATION DISTANCE IS GREATER THAN 30' = 0 HOUR

AUTOMATIC SPRINKLER SYSTEMS (SECTION 903):
BUILDING SHALL BE FULLY SPRINKLED (NFPA 13) - OFFICE BUILDING ONLY

FIRE ALARM & DETECTION SYSTEMS (SECTION 907.2.2)
EXCEPTION: A MANUAL FIRE ALARM SYSTEM IS NOT REQ'D

OCCUPANT LOAD (TABLE 1004.1.2)
EQUIPMENT BUILDING:
WAREHOUSE = 1 / 500 SF = 4,642 SF / 500 SF = 9.3
EXERCISE = 1 / 50 SF = 895 SF / 50 SF = 17.9
EQUIPMENT BUILDING OCCUPANT LOAD = 28
OFFICE BUILDING:
TRAINING = 1 / 15 SF = 1,016 SF / 15 SF = 67.7
BUSINESS = 1 / 100 = 2,562 / 100 = 25.6
OFFICE BUILDING OCCUPANT LOAD = 94
TOTAL OCCUPANT LOAD = 122 (61 WOMEN & 61 MEN)

EGRESS WIDTH PER OCCUPANT SERVED (SECTION 1005.1):
OTHER COMPONENTS (SPRINKLED) = 0.2 INCHES PER OCCUPANT
CORRIDOR DOORS = 0.2" x 94 / 2 = 9.4 INCHES

SPACES WITH ONE EXIT (TABLE 1006.2.1):
(B) = 49 OCCUPANTS AND 100' TRAVEL DISTANCE

MIN. NUMBER OF EXITS PER STORY (TABLE 1006.3.1):
OCCUPANT LOAD 1- 500 = 2 EXITS

STAIRWAY HEADROOM (SECTION 1011.3):
MIN. CLEARANCE = 80 INCHES

RISER HEIGHT & TREAD DEPTH (SECTION 1011.5.2):
MAX. RISER HEIGHT = 7 INCHES
MAX. TREAD DEPTH = 11 INCHES

STAIRWAY LANDING (SECTION 1011.6):
STAIRWAY LANDING DEPTH SHALL NOT BE LESS THAN STAIR WIDTH

STAIRWAY VERTICAL RISE (SECTION 1011.8):
12 FEET MAX. RISE WITHOUT LANDING

EXIT SIGNS (SECTION 1013.1):
EXITS SHALL BE MARKED BY AN APPROVED EXIT SIGN READILY VISIBLE FROM ANY DIRECTION OF EGRESS TRAVEL
EXCEPTION: NOT REQ'D IN AREAS WITH ONLY ONE REQ'D EXIT

HANDRAIL HEIGHT (SECTION 1014.2):
NOT LESS THAN 34 INCHES NOR MORE THAN 38 INCHES

HANDRAIL EXTENSIONS (SECTION 104.6):
SHALL EXTEND NOT LESS THAN 12 INCHES BEYOND THE TOP RISER AND CONTINUE TO SLOPE THE DEPTH OF ONE TREAD BEYOND THE BOTTOM REISER

GUARDS (SECTION 1015.2):
REQ'D ALONG WALKING SURFACES MORE THAN 30 INCHES ABOVE FLOOR OR GRADE

GUARD HEIGHT (SECTION 1015.3):
NOT LESS THAN 42 INCHES FROM WALKING SURFACE

EXIT ACCESS TRAVEL DISTANCE (TABLE 1017.2):
(B) SPRINKLED = 300'

CORRIDOR FIRE-RESISTANCE RATING (TABLE 1018.1):
(B) SPRINKLED = 0 HOUR

CORRIDOR MINIMUM WIDTH (TABLE 1020.2):
(B) = 44"

CORRIDOR DEAD ENDS (SECTION 1020.4):
(B) SPRINKLED = UNDER 50 FEET IN LENGTH

MINIMUM NUMBER OF REQ'D PLUMBING FIXTURES (TABLE 2902.1):

(W) WC = 1 / 25 FOR FIRST 50 THEN 1 / 50 = 61 / 25 = 3 REQ'D	3 PROVIDED
(M) WC = 1 / 25 FOR FIRST 50 THEN 1 / 50 = 61 / 25 = 3 REQ'D	3 PROVIDED
(W) LAV = 1 / 40 FOR FIRST 80 = 61 / 40 = 2 REQ'D	3 PROVIDED
(M) LAV = 1 / 40 FOR FIRST 80 = 61 / 40 = 2 REQ'D	3 PROVIDED
DF = 1 / 100 = 122 / 100 = 2 REQ'D	2 PROVIDED
SERVICE SINK = 1 REQ'D	2 PROVIDED

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 G1-2
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
CODE REVIEW & ALTERNATES PLANS

SHEET NUMBER:
G1.2

GENERAL NOTES:

1. CONDUCT SITE CLEARING OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM AUTHORITIES HAVING JURISDICTION. STREETS AND ROADWAYS SHALL BE THOROUGHLY CLEANED AND/OR SWEPT ON A DAILY BASIS OR MORE FREQUENTLY AS REQUIRED BY THE GOVERNING AUTHORITY. RESTORE DAMAGED IMPROVEMENTS TO ORIGINAL CONDITION AS ACCEPTABLE TO PARTIES HAVING JURISDICTION.
2. THE CONTRACTOR SHALL PROVIDE DUST CONTROL MEASURES IN ACCORDANCE WITH LOCAL AUTHORITIES.
3. ALL STREET SURFACES, DRIVEWAYS, CULVERTS, ROADSIDE DRAINAGE DITCHES, AND OTHER STRUCTURES THAT ARE DISTURBED OR DAMAGED IN ANY MANNER AS A RESULT OF CONSTRUCTION SHALL BE REPLACED IN ACCORDANCE WITH THE SPECIFICATIONS.
4. UNLESS SPECIFIED OTHERWISE, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE STANDARDS, SPECIFICATIONS, AND REGULATIONS OF THE CITY OF SAPULPA, OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY, AND STATE DEPARTMENT OF TRANSPORTATION, AND/OR THE APPROPRIATE LOCAL AUTHORITIES.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, PERMIT FEES, LICENSES, LICENSE FEES, TAP FEES, ETC.
6. ALL ELEVATIONS IN PAVED AREAS ARE TOP OF FINISHED PAVEMENT UNLESS OTHERWISE NOTED.
7. RELOCATION OF ANY UTILITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF THE APPROPRIATE UTILITY COMPANY AND/OR REGULATORY AGENCY. CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM ENGINEER BEFORE ANY UTILITY RELOCATION.
8. NO DIMENSION MAY BE SCALED. REFER UNCLEAR ITEMS TO THE ENGINEER FOR INTERPRETATION.

EXCAVATION NOTIFICATION

1. ALL CONTRACTORS SHALL NOTIFY UTILITY COMPANIES AND GOVERNMENT AGENCIES IN WRITING OF THE INTENT TO EXCAVATE NO LESS THAN 72 HOURS PRIOR TO SUCH EXCAVATION (EXCLUSIVE OF SATURDAYS, SUNDAYS, AND HOLIDAYS).
2. CONTRACTORS TO CALL 811 (OR VISIT CALL811.COM) TO REQUEST UTILITY LOCATES. ONCE COMPLETION OF MARKINGS HAS BEEN CONFIRMED BY THE CONTRACTOR, NO AUTOMATED OR MECHANICAL EQUIPMENT SHOULD BE USED WITHIN TWO FEET ON EITHER SIDE OF THE MARKINGS (OR ANOTHER MORE STRINGENT TOLERANCE AS DIRECTED), AND EXISTING FACILITIES MUST BE EXPOSED BY HAND.
3. EXISTING UTILITY LOCATIONS SHOWN SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION. LOCATIONS OF UNDERGROUND UTILITIES ON THESE DRAWINGS ARE APPROXIMATE ONLY AND BASED ON ACTUAL FIELD LOCATIONS OF VISIBLE STRUCTURES AND PLAN COMPUTATIONS.

UNANTICIPATED SOIL CONDITIONS

1. IF UNSUITABLE BEARING MATERIALS ARE ENCOUNTERED AT THE SPECIFIED SUBGRADE DEPTHS, THE CONTRACTOR SHALL NOTIFY THE OWNER. SOIL SUBGRADES WHICH ARE UNSTABLE DUE TO INADEQUATE CONSTRUCTION DEWATERING OR EXCESSIVE SUBGRADE DISTURBANCE ARE NOT DEEMED UNSUITABLE SOILS.
2. FILL SOIL THAT IS NOT WITHIN +/- 2% OPTIMUM MOISTURE FOR COMPACTION OF THE PARTICULAR MATERIAL IN PLACE AS DETERMINED BY THE OWNER'S REPRESENTATIVE AND IS DISTURBED BY THE CONTRACTOR DURING CONSTRUCTION OPERATIONS SO THAT PROPER COMPACTION CANNOT BE REACHED SHALL NOT BE CONSTRUED AS UNSUITABLE BEARING MATERIAL.
3. THE CONTRACTOR SHALL FOLLOW A CONSTRUCTION PROCEDURE WHICH PERMITS VISUAL IDENTIFICATION OF FIRM NATURAL GROUND.
4. SURFACE RUNOFF: SURFACE WATER ON AND AROUND THE SITE SHALL BE COLLECTED INTO LOCAL SUMPS BY MEANS OF TRENCHES, PIPES, ETC., AND PUMPED INTO THE STORM WATER SYSTEM. USE APPROPRIATE FILTRATION OR SEDIMENTATION TO PREVENT PUMPING OF SUSPENDED SOLIDS INTO THE STORM SEWER. A PERMIT MUST BE OBTAINED FOR SUCH PUMPING.
5. DEWATERING OF TRENCHES AND EXCAVATIONS: TRENCHES AND EXCAVATIONS SHALL BE KEPT FREE OF STANDING WATER AT ALL TIMES. PUMPING IS TO BEGIN AS SOON AS WATER BEGINS TO ACCUMULATE AND IS TO CONTINUE UNTIL WATER IS REMOVED.

SITE ACCESSIBILITY

1. ALL FEATURES OF THIS PROJECT INCLUDING, BUT NOT LIMITED TO, SIDEWALKS, CURB RAMPS, ACCESSIBLE PARKING, AND ACCESSIBLE ROUTES SHALL COMPLY WITH THE APPLICABLE ACCESSIBILITY CODES [AMERICANS WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES; THE PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG) PUBLISHED IN THE FEDERAL REGISTER AUGUST 2023; INTERNATIONAL BUILDING CODE (IBC); ICC A117.1; ETC.]
2. WHERE SPATIAL LIMITATIONS OR EXISTING FEATURES WITHIN THE LIMITS OF THE PROJECT PREVENT FULL COMPLIANCE WITH THESE GUIDELINES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER UPON DISCOVERY OF SUCH FEATURES. THE CONTRACTOR SHALL NOT PROCEED WITH ANY ASPECT OF THE WORK WHICH IS NOT IN FULL COMPLIANCE WITH THESE GUIDELINES WITHOUT PRIOR, WRITTEN PERMISSION FROM THE ENGINEER. ANY WORK WHICH IS NOT PERFORMED WITHIN THESE GUIDELINES, FOR WHICH THE CONTRACTOR DOES NOT HAVE WRITTEN APPROVAL, SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
3. GENERAL SLOPE GUIDANCE:
   - 3.1. CROSS SLOPES SHALL NOT EXCEED 1:50 (2.0%). PREFERRED SLOPE IS 1.5%.
   - 3.2. RUNNING SLOPES SHALL NOT EXCEED 5% EXCEPT AT RAMPS. PREFERRED MAXIMUM SLOPE IS 4.5%.
   - 3.3. RAMP RUNNING SLOPES SHALL NOT EXCEED 1:12 (8.3%). PREFERRED MAXIMUM SLOPE IS 7.8%.
   - 3.4. SLOPES AT LANDINGS, ACCESSIBLE PARKING STALLS, AND ACCESSIBLE AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION. PREFERRED MAXIMUM SLOPE IS 1.5%.
   - 3.5. EXCEPTIONS WITHIN THE PUBLIC RIGHT-OF-WAY: WHERE THE ESTABLISHED ADJACENT STREET GRADE EXCEEDS 5%, RUNNING SLOPES PARALLEL TO THE STREET SLOPES SHALL NOT EXCEED THE GENERAL GRADE ESTABLISHED FOR THE ADJACENT STREET. CURB RAMP RUNNING SLOPE CAN EXCEED 8.3% TO LIMIT THE RESULTING THE RAMP LENGTH TO 15 FEET.

GEOTECHNICAL

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED BY BELONGIA CONSULTANTS INC. DATED JULY 14, 2020, REPORT #1205035 AND ADDENDUM LETTER #1205035A

SURVEY

1. EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION ARE SHOWN PER THE FIELD SURVEY PERFORMED BY SHAWN A. COLLINS DATED JUNE 5, 2025.

BENCHMARKS:

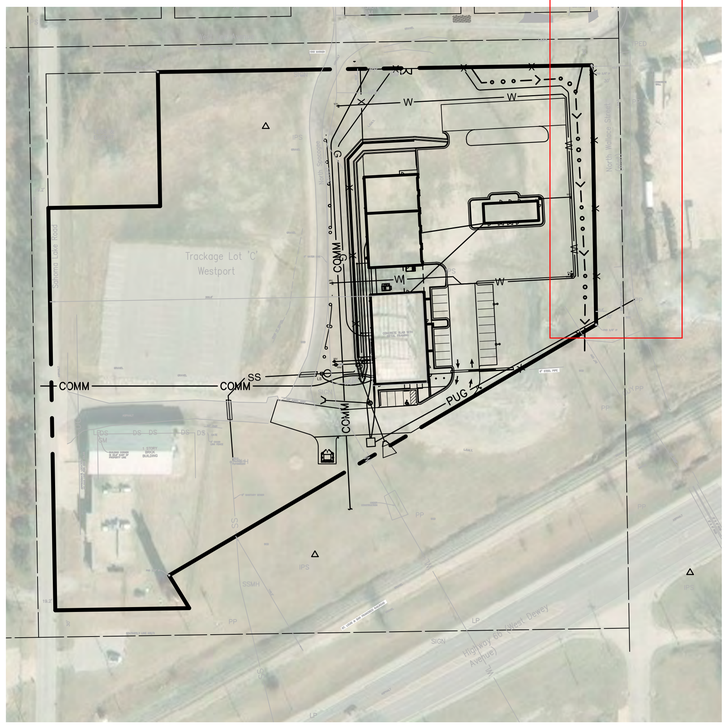
BENCHMARKS PER TOPOGRAPHIC SURVEY COMPLETED BY SHAWN A. COLLINS DATED JUNE 5, 2025

CONTROL POINT #2	CONTROL POINT #3	CONTROL POINT #4
SET 3/8" IRON PIN	SET 3/8" IRON PIN	SET 3/8" IRON PIN
ELEV: 710.84	ELEV:689.72	ELEV:683.76
N:368,336.50	N:367,855.89	N:367,833.10
E:2,521,894.47	E:2,522,332.05	E:2,522,332.05

CONSTRUCTION PLANS FOR

SAPULPA FIRE DEPARTMENT TRAINING FACILITY

15 SAHOMA LAKE ROAD, SAPULPA, OK 74066



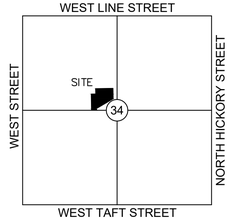
N

80 0 40 80

1" = 80'

CREEK COUNTY
OKLAHOMA

R 11 E



LOCATION MAP
SCALE: 1"=2000'

TOTAL DISTURBED AREA	2.66 ACRES
EXISTING IMPERVIOUS AREA	90,704.40 SF
PROPOSED IMPERVIOUS AREA	55,063.01 SF
DECREASE IN IMPERVIOUS AREA	35,641.39 SF

Sheet List Table

SHEET NUMBER	SHEET TITLE
C1.0	GENERAL NOTES
C2.0	SURVEY
C3.0	OVERALL DEMOLITION & EROSION CONTROL PLAN
C3.1	DEMOLITION & EROSION CONTROL PLAN
C3.2	DEMOLITION & EROSION CONTROL PLAN
C4.0	OVERALL SITE PLAN
C4.1	SITE PLAN
C4.2	SITE PLAN
C5.0	GRADING PLAN
C5.1	GRADING PLAN
C5.2	GRADING PLAN
C5.3	EXISTING DRAINAGE PLAN
C5.4	PROPOSED DRAINAGE PLAN
C6.0	UTILITY PLAN
C6.1	UTILITY PLAN
C6.2	UTILITY PLAN
C7.0	UTILITY PROFILES
C7.1	UTILITY PROFILES
C8.0	DETAILS
C8.1	DETAILS
C8.2	DETAILS
C8.3	DETAILS

LEGEND

ABBREVIATIONS

BC	BACK OF CURB
BL	BUILDING LINE
CL	CENTERLINE
EG	EXISTING GRADE
FF	FINISHED FLOOR
FG	FINISHED GRADE
FL	FLOWLINE
GL	GUTTER LINE
HP	HIGH POINT
INV	INVERT
LF	LINEAR FEET
LP	LOW POINT
RW	RIGHT-OF-WAY
SF	SQUARE FEET
SY	SQUARE YARDS
TBK	TOP OF BANK
TC	TOP OF CURB
TG	TOP OF GRATE
TOE	TOE OF BANK
TP	TOP OF PAVEMENT
TR	TOP OF RIM
TS	TOP OF SIDEWALK
TW	TOP OF WALL

LINETYPES

CENTERLINE
SILT FENCE
LIMITS OF CONSTRUCTION
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
EASEMENT
FENCE
PROPERTY LINE
LOT LINE
BUILDING SETBACK
FIBER OPTIC
OVERHEAD COMMUNICATION
UNDERGROUND COMMUNICATION
OVERHEAD ELECTRIC
UNDERGROUND ELECTRIC
NATURAL GAS
SEWER FORCE MAIN
SANITARY SEWER MAIN
SANITARY SEWER SERVICE
DRAINAGE AREA, MAJOR
DRAINAGE AREA, MINOR
DRAINAGE FLOW PATH
STORM DRAINAGE PIPE
FIRE LINE
WATER LINE
WATER SERVICE LINE
IRRIGATION LINE

SYMBOLS

UTILITY POLE
LIGHT POLE
GUY ANCHOR
ELECTRIC BOX
ELECTRIC METER
ELECTRIC TRANSFORMER
A/C UNIT
ELECTRIC MANHOLE
GAS METER
GAS VALVE
OIL/GAS WELLHEAD
VENT PIPE
PIPELINE MARKER
COMMUNICATION PEDESTAL
COMMUNICATION MANHOLE
SEWER CLEAN-OUT
SANITARY SEWER MANHOLE
DOWNSPOUT
ROOF DRAIN
STORM DRAIN MANHOLE
FIRE DEPARTMENT CONNECTION
FIRE HYDRANT
IRRIGATION CONTROL VALVE
SHUT-OFF VALVE
SPRINKLER HEAD
WATER METER
WATER VALVE
YARD HYDRANT
PIPE BOLLARD
BENCHMARK
ACCESSIBLE PARKING
MAILBOX
MONITORING WELL
POTHOLE
SIGN

UTILITIES:

DEPARTMENT OF PUBLIC WORKS
CITY OF SAPULPA
DAVID NORRIS
425 E. DEWEY AVE.
SAPULPA, OK 74066
918.248.5928

CITY ENGINEERING:

DEPARTMENT OF PUBLIC WORKS
CITY OF SAPULPA
STEVE HARDT
425 E. DEWEY AVE.
SAPULPA, OK 74066
918.216.4352

FIRE:

CITY OF SAPULPA FIRE DEPARTMENT
FIRE CHIEF, JAMES VICKREY
800 E DEWEY AVE.
SAPULPA, OK 74066
918.224.3359

ELECTRIC:

OG&E, OKLAHOMA GAS & ELECTRIC
ATTN: STEVE WHITEHOUSE
18511 WEST HIGHWAY 33
EMAIL: WHITEHSD@OGE.COM

GAS:

OKLAHOMA NATURAL GAS COMPANY
ATTN: DONALD KAFER
5848 EAST 15TH STREET
TULSA, OKLAHOMA 74112
918.527.1089

TELEPHONE:

AT&T COMMUNICATION INC.
ATTN: ROGER HURST
509 S DETROIT AVE, FLOOR 9
918.859.9453

CABLE:

COX COMMUNICATIONS
ATTN: LUCAS MARES
11811 E 51ST STREET S
TULSA, OK 74146
918.286.4587

OWNER:

SAPULPA FIRE DEPARTMENT
800 E DEWEY AVE.
SAPULPA, OK 74066
918.224.3359

ENGINEER:

WALLACE DESIGN COLLECTIVE
JORDAN RODICH, P.E.
123 N MARTIN LUTHER KING JR. BLVD.
TULSA, OKLAHOMA 74103
918.584.5858
JORDAN.RODICH@WALLACE.DESIGN

AS-BUILTS:

THE CONTRACTOR SHALL KEEP ON SITE A CURRENT SET OF THE APPROVED CONSTRUCTION WORKING DRAWINGS AT ALL TIMES. THE CONTRACTOR SHALL MARK (IN RED INK) ALL CHANGES MADE TO THE APPROVED PLANS. THESE CHANGES MAY BE INITIATED FROM FIELD CONDITIONS, CHANGES MADE BY THE ENGINEER OF RECORD, OR CHANGES REQUESTED BY REPRESENTATIVES OF THE JURISDICTIONS HAVING AUTHORITY. ALL CHANGES SHALL BE REVIEWED AND AGREED TO BY THE ENGINEER OF RECORD PER AN RFI SUBMITTAL PROCESS. THE CONTRACTOR SHALL SUBMIT THE WORKING DRAWINGS TO THE ENGINEER OF RECORD AFTER FINAL INSPECTION OF THE PROJECT TO SERVE AS A BASIS FOR DEVELOPMENT OF FINAL AS-BUILT RECORD DOCUMENTS.

811 Know what's below. Call before you dig.

CAUTION

NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

ARCHITECT:

GS HELMS + ASSOCIATES

ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

wallace design collective

wallace design collective, pc
structural· civil· landscape· survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:

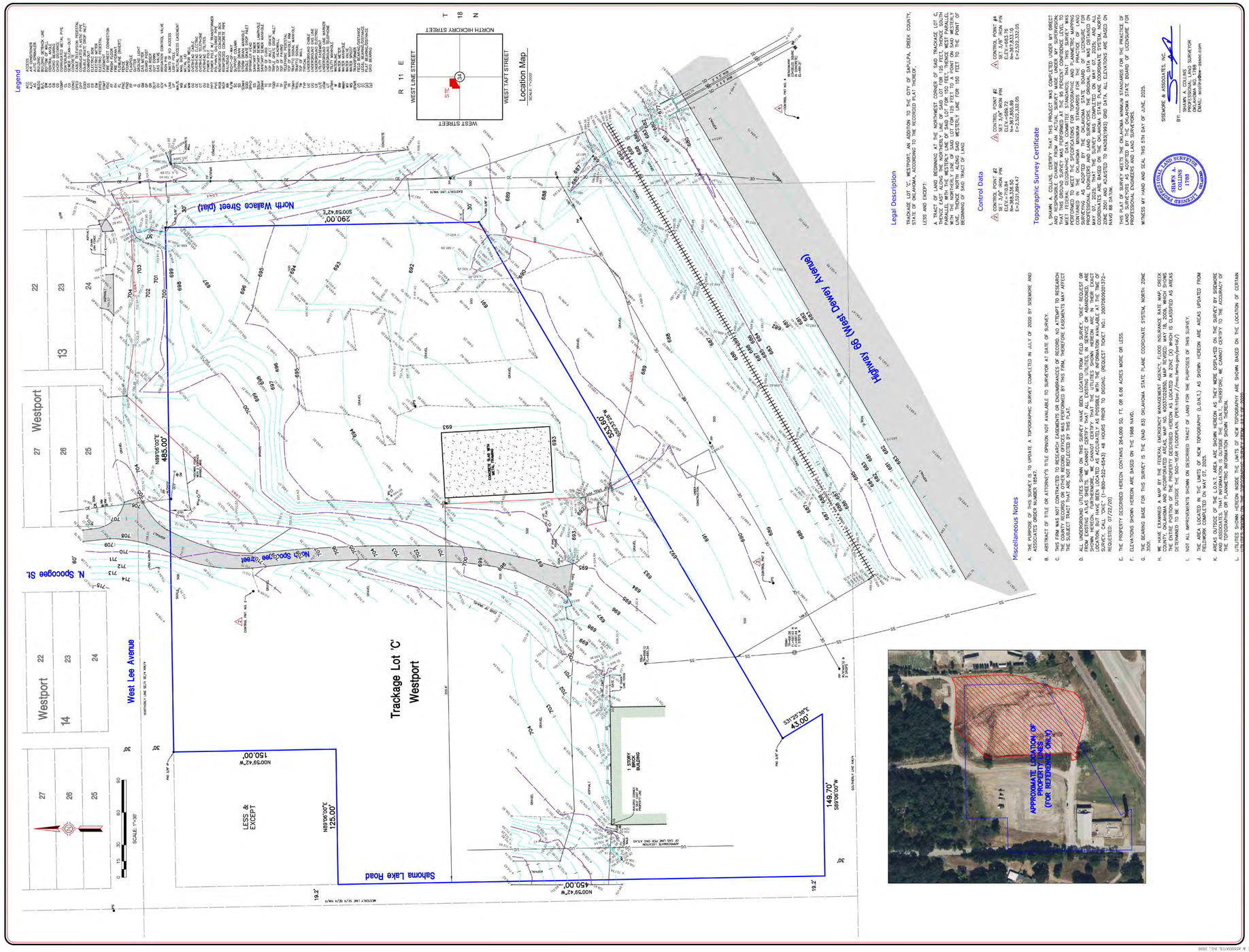
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

GENERAL NOTES

SHEET NUMBER:

C1.0



Topographic Survey
of
Part of Trackage Lot 'C'
Westport Addition
City of Sapulpa, Creek County, Oklahoma

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

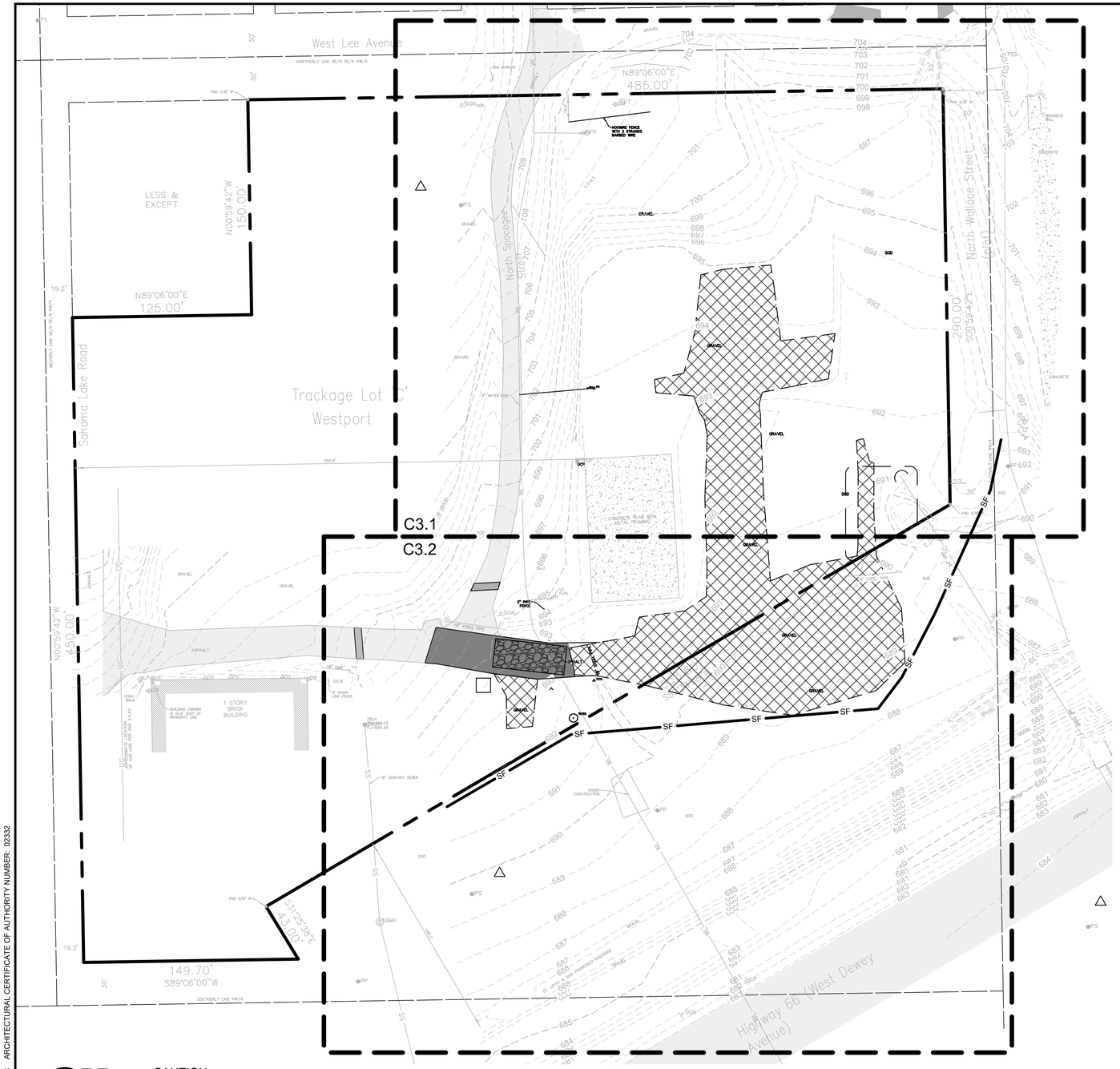
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

wallace design collective
wallace design collective, pc
structural-civil-landscape-survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
SURVEY

SHEET NUMBER:
C2.0



GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

811 Know what's below. Call before you dig.

CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

GENERAL EROSION CONTROL NOTES:

1. ALL GRADING AND EROSION CONTROL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN, THE CITY OF SAPULPA STANDARDS AND SPECIFICATIONS, AND STATE PERMITTING REQUIREMENTS, RE: ODEQ PERMIT OKR10.

2. THE PERMITTEE SHALL BE RESPONSIBLE FOR NOTIFYING THE LAND OWNER AND EACH CONTRACTOR OR ENTITY (INCLUDING UTILITY CREWS AND CITY EMPLOYEES OR THEIR AGENTS) WHO WILL PERFORM WORK AT THE SITE OF THE EXISTENCE OF THE SWPPP AND WHAT ACTIONS OR PRECAUTIONS SHALL BE TAKEN WHILE ON-SITE TO MINIMIZE THE POTENTIAL FOR EROSION AND THE POTENTIAL FOR DAMAGING ANY BMP. THE PERMITTEE IS RESPONSIBLE FOR ANY DAMAGE A SUBCONTRACTOR MAY DO TO ESTABLISHED BMPS AND ANY SUBSEQUENT WATER QUALITY VIOLATION RESULTING FROM THE DAMAGE.

3. ENSURE THE DESIGN, INSTALLATION, AND MAINTENANCE OF EFFECTIVE EROSION AND SEDIMENT CONTROLS TO MINIMIZE THE DISCHARGE OF POLLUTANTS. AT A MINIMUM, SUCH CONTROLS MUST BE DESIGNED, INSTALLED, AND MAINTAINED TO:
   - 3.1. CONTROL STORMWATER VOLUME, VELOCITY, AND PEAK FLOW RATES WITHIN THE SITE TO MINIMIZE SOIL EROSION;
   - 3.2. CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOW RATES AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS AND TO MINIMIZE DOWNSTREAM CHANNEL AND STREAM BANK EROSION AND SCOUR;
   - 3.3. MINIMIZE THE AMOUNT OF EXPOSED SOIL DURING CONSTRUCTION ACTIVITY;
   - 3.4. MINIMIZE THE DISTURBANCE OF STEEP SLOPES;
   - 3.5. MINIMIZE SEDIMENT DISCHARGES FROM THE SITE. DESIGN, INSTALL AND MAINTAIN EROSION AND SEDIMENT CONTROLS THAT ADDRESS FACTORS SUCH AS THE AMOUNT, FREQUENCY, INTENSITY AND DURATION OF PRECIPITATION, THE NATURE OF RESULTING STORMWATER RUNOFF, AND SOIL CHARACTERISTICS, INCLUDING THE RANGE OF SOIL PARTICLE SIZE EXPECTED TO BE PRESENT ON THE SITE.
   - 3.6. PROVIDE AND MAINTAIN NATURAL BUFFERS AROUND SURFACE WATERS
   - 3.7. DIRECT STORMWATER TO VEGETATED AREAS TO INCREASE SEDIMENT REMOVAL AND MAXIMIZE STORMWATER INFILTRATION AND FILTERING, UNLESS INFEASIBLE; AND
   - 3.8. MINIMIZE SOIL COMPACTION AND PRESERVE TOPSOIL WHERE PRACTICABLE

4. INSTALLATION OF BMPS NECESSARY TO PREVENT SOIL EROSION AND SEDIMENTATION AT THE DOWNGRADIENT PROJECT BOUNDARY (E.G. BUFFERS, PERIMETER CONTROLS, EXIT POINT CONTROLS, STORM DRAIN INLET PROTECTION) MUST BE COMPLETE PRIOR TO THE START OF ALL PHASES OF CONSTRUCTION. BY THE TIME CONSTRUCTION ACTIVITY IN ANY GIVEN PORTION OF THE SITE BEGINS, DOWNGRADIENT BMPS MUST BE INSTALLED AND OPERATIONAL TO CONTROL DISCHARGES FROM THE INITIAL SITE CLEARING, GRADING, EXCAVATING, AND OTHER EARTH-DISTURBING ACTIVITIES. ADDITIONAL BMPS SHALL BE INSTALLED AS NECESSARY THROUGHOUT THE LIFE OF THE PROJECT. FOLLOWING THE INSTALLATION OF THESE INITIAL BMPS, ALL BMPS NEEDED TO CONTROL DISCHARGES SHALL BE INSTALLED AND MADE OPERATIONAL PRIOR TO SUBSEQUENT EARTH DISTURBING ACTIVITIES.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A STABILIZED CONSTRUCTION ENTRANCE AND FOR CLEANING OF VEHICLE WHEELS IN ACCORDANCE WITH THE CITY OF SAPULPA STANDARDS AND SPECIFICATIONS.

6. SILT FENCES: PLACEMENT OF SILT FENCES SHALL BE AS SHOWN ON THESE PLANS. FENCING WHICH BECOMES DAMAGED SHALL BE REPLACED PROMPTLY. DEPOSITS OF SILT WHICH BUILD UP BEHIND DIKES MAY BE DISKED ONTO THE SITE BEFORE PLACEMENT OF TEMPORARY COVER. AFTER TEMPORARY COVER IS PLACED OR AFTER LANDSCAPING COMMENCES, SILT SHALL BE REMOVED AND DISPOSED OF IN A MANNER APPROVED BY THE ENGINEER.

7. UNLESS LOCAL OR STATE REQUIREMENTS NECESSITATE MORE FREQUENT MONITORING, CONTRACTOR SHALL INSPECT EROSION CONTROL DEVICES EVERY 7 DAYS OR WITHIN 24 HOURS OF A STORM OF 0.5 INCHES OR MORE IN DEPTH (EXCLUSIVE OF HOLIDAYS). THE CONTRACTOR SHALL REPAIR DAMAGE, CLEAN OUT SEDIMENT, AND ADD ADDITIONAL CONTROL DEVICES AS NEEDED AS SOON AS POSSIBLE AFTER INSPECTION. DEFICIENCIES MUST BE CORRECTED WITHIN 7 DAYS.

8. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY AND ALL FINES ASSOCIATED WITH EROSION CONTROL VIOLATIONS.

TEMPORARY STABILIZATION:

1. INITIATE THE INSTALLATION OF STABILIZATION MEASURES IMMEDIATELY IN ANY DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE OR WILL BE TEMPORARILY INACTIVE FOR 14 OR MORE CALENDAR DAYS ON ANY PORTION OF THE SITE.

2. TEMPORARY STABILIZATION SHALL INCLUDE TEMPORARY SEEDING, GEOTEXTILES, MULCHES, AND/OR OTHER TECHNIQUES TO REDUCE OR ELIMINATE EROSION UNTIL EITHER FINAL STABILIZATION CAN BE ACHIEVED OR UNTIL FURTHER CONSTRUCTION ACTIVITIES TAKE PLACE TO RE-DISTURB THIS AREA.

3. TEMPORARY STABILIZATION SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL AND STATE REQUIREMENTS.

FINAL STABILIZATION:

1. FINAL STABILIZATION SHALL BE INSTALLED IN ACCORDANCE WITH THE LANDSCAPE PLANS AND LOCAL AND STATE REQUIREMENTS.

2. UNLESS OTHERWISE INDICATED, ALL DISTURBED SOIL AREAS SHALL RECEIVE FOUR (4) INCHES OF TOPSOIL AND SHALL BE PERMANENTLY STABILIZED WITH SOD.

3. CONTRACTOR SHALL MAINTAIN PERENNIAL VEGETATION UNTIL UNIFORM COVER IS ESTABLISHED. UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS, THIS SHALL INCLUDE A MINIMUM OF 70% COVERAGE AND NO BARE AREAS OF 10 SQUARE FEET OR MORE.

N

40 0 20 40

1" = 40'

GENERAL DEMOLITION NOTES:

1. ALL CONCRETE AND ASPHALT NOTED FOR REMOVAL SHALL BE SAW CUT FULL DEPTH AND REMOVED OFF SITE.
2. CONTRACTOR SHALL PROTECT ALL SURVEY CONTROL POINTS.
3. CONTRACTOR SHALL REMOVE ALL WASTE MATERIALS OFF SITE.
4. ALL EXISTING STRUCTURES, UNLESS OTHERWISE NOTED TO REMAIN, FENCING, TREES, ETC., WITHIN CONSTRUCTION AREA SHALL BE REMOVED & DISPOSED OF OFF SITE. ALL COST SHALL BE INCLUDED IN BASE BID.
5. WITH PRIOR APPROVAL, CONTRACTOR MAY ESTABLISH AN ON-SITE STAGING AREA. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING STAGING AREA TO ITS ORIGINAL CONDITION. SECURITY OF STAGING AREA SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
6. ON-SITE VEGETATION SHALL BE PROTECTED AS NOTED. IN DESIGNATED PROTECTION AREAS WHERE THE CONTRACTOR DOES NOT PROTECT VEGETATION AS NOTED, CONTRACTOR SHALL RESTORE VEGETATION TO EXISTING CONDITION AT NO ADDITIONAL EXPENSE TO THE OWNER, TO THE SATISFACTION OF THE ARCHITECT.
7. CONTRACTOR SHALL PROTECT ALL ABOVE GROUND UTILITY FEATURES NOT BEING REMOVED INCLUDING, BUT NOT LIMITED TO, MANHOLES, VALVES, AND INLETS. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE THE EXISTING STRUCTURE AS NECESSARY.
8. TOPSOIL STOCKPILES AND DISTURBED PORTIONS OF THE SITE, WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR AT LEAST 14 DAYS SHALL BE STABILIZED IMMEDIATELY WITH TEMPORARY SEED AND MULCH PER THE AUTHORITY HAVING JURISDICTION.
9. CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROL DURING CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, LANE CLOSURES, DETOURS, ETC. BOTH VEHICULAR AND PEDESTRIAN.
10. CONTRACTOR SHALL PROVIDE TEMPORARY UTILITY SERVICE IF REQUIRED.
11. CONTRACTOR SHALL ENSURE CONSTRUCTION SITE HAS POSITIVE DRAINAGE THROUGHOUT THE DURATION OF CONSTRUCTION.
12. PRIOR TO UTILITY DEMOLITION COORDINATE WITH AUTHORITY HAVING JURISDICTION.
13. UTILITIES BEING REMOVED OR RELOCATED SHALL BE ISOLATED AND SERVICE DISCONNECTED PRIOR TO ANY DEMOLITION.
14. NO UTILITY INTERRUPTIONS WILL BE ALLOWED WITHOUT CONSENT OF THE OWNER. CONTRACTOR SHALL NOTIFY THE OWNER AND ARCHITECT A MINIMUM OF FOUR WORKING DAYS PRIOR TO THE REQUESTED SHUT DOWN.

LEGEND

- STABILIZED CONSTRUCTION ENTRANCE — RE: 5/C8.3
- SF — SILT FENCE — RE: 11/C8.0
- ASPHALT REMOVAL
- GRAVEL REMOVAL

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

LICENSED PROFESSIONAL ENGINEER — JORDAN RODICH — 26548 — OKLAHOMA — 8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

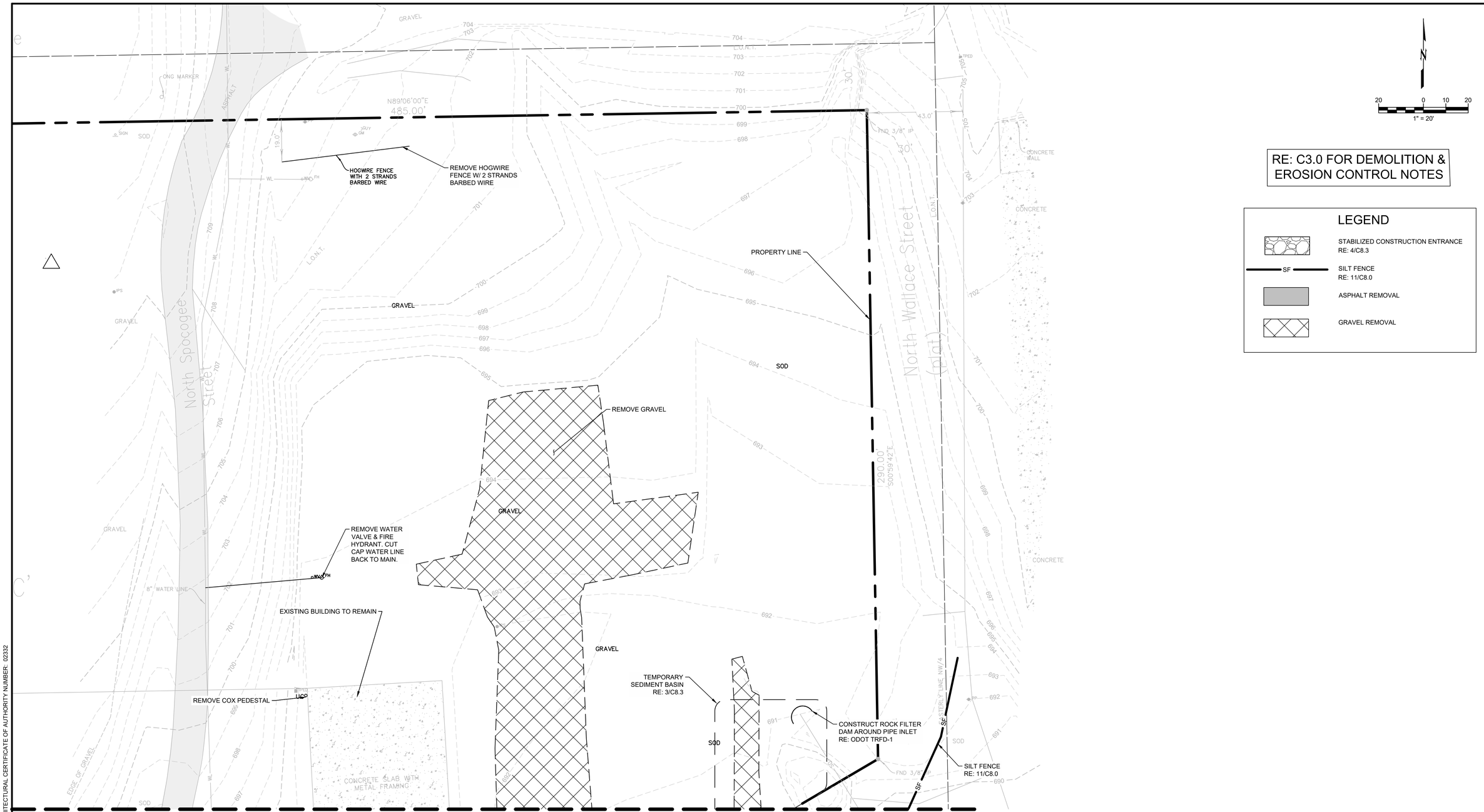
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 wb: gshelms.com
424 e. main st. jenks, ok 74037

wallace design collective
wallace design collective, pc
structural· civil· landscape· survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
OVERALL DEMOLITION & EROSION CONTROL PLAN

SHEET NUMBER:
C3.0



20 0 10 20

1" = 20'

RE: C3.0 FOR DEMOLITION & EROSION CONTROL NOTES

LEGEND

- STABILIZED CONSTRUCTION ENTRANCE RE: 4/C8.3
- SF — SILT FENCE RE: 11/C8.0
- ASPHALT REMOVAL
- GRAVEL REMOVAL

811 Know what's below. Call before you dig.

CAUTION

NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

LICENSED PROFESSIONAL ENGINEER — JORDAN RODICH — 26548 — OKLAHOMA — 8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

ARCHITECT:

GS HELMS + ASSOCIATES

ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

wallace design collective

wallace design collective, pc
structural·civil·landscape·survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:

CITY OF SAPULPA, OK

SAPULPA FIRE DEPARTMENT TRAINING FACILITY

15 SAHOMA LAKE ROAD SAPULPA, OK 74066

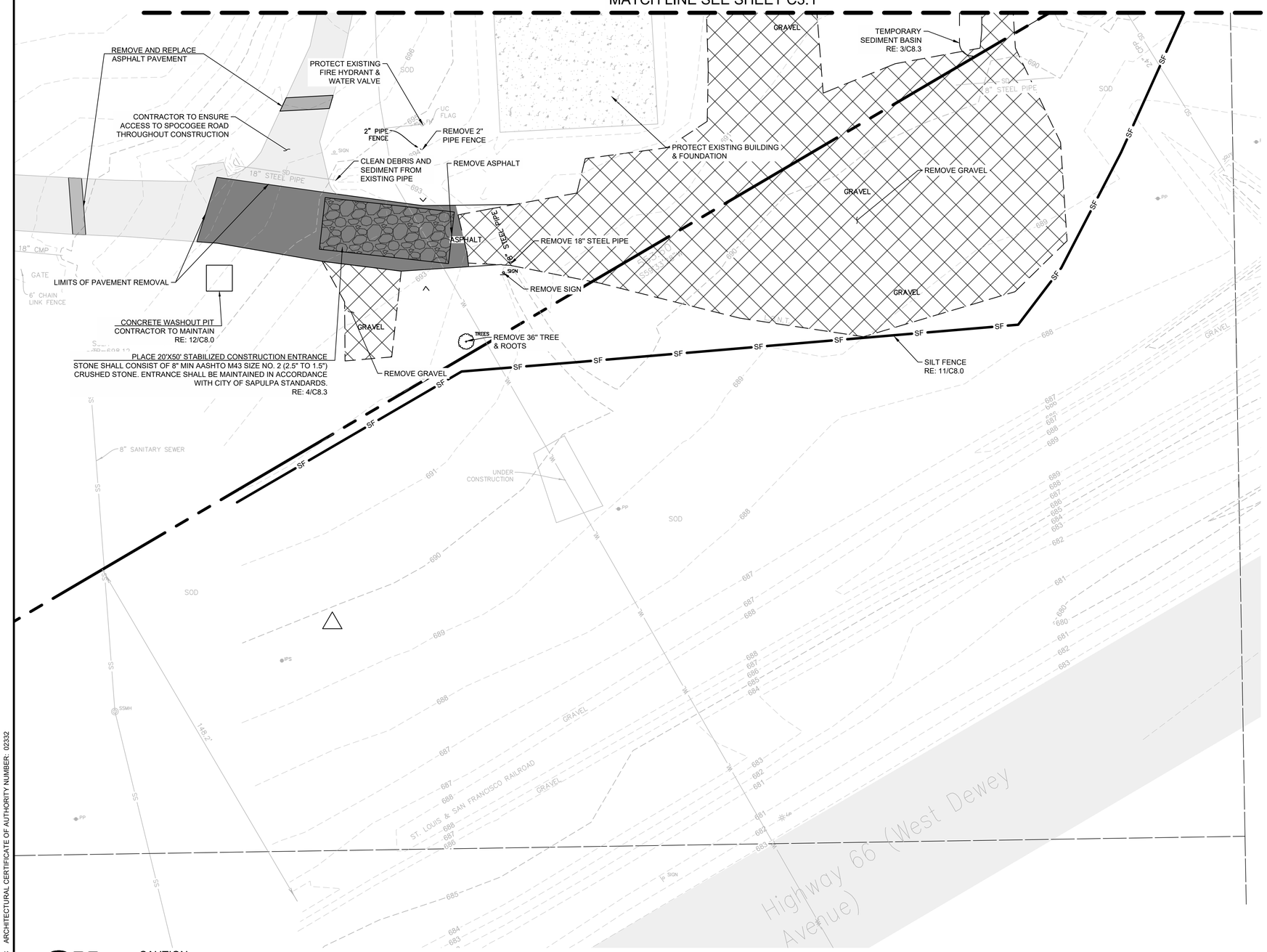
SHEET TITLE:

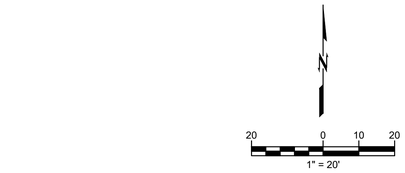
DEMOLITION & EROSION CONTROL PLAN

SHEET NUMBER:

C3.1

MATCH LINE SEE SHEET C3.1





RE: C3.0 FOR DEMOLITION & EROSION CONTROL NOTES

LEGEND

- STABILIZED CONSTRUCTION ENTRANCE RE: 4/C8.3
- SF — SILT FENCE RE: 11/C8.0
- ASPHALT REMOVAL
- GRAVEL REMOVAL

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

811 Know what's below. Call before you dig.

CAUTION

NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

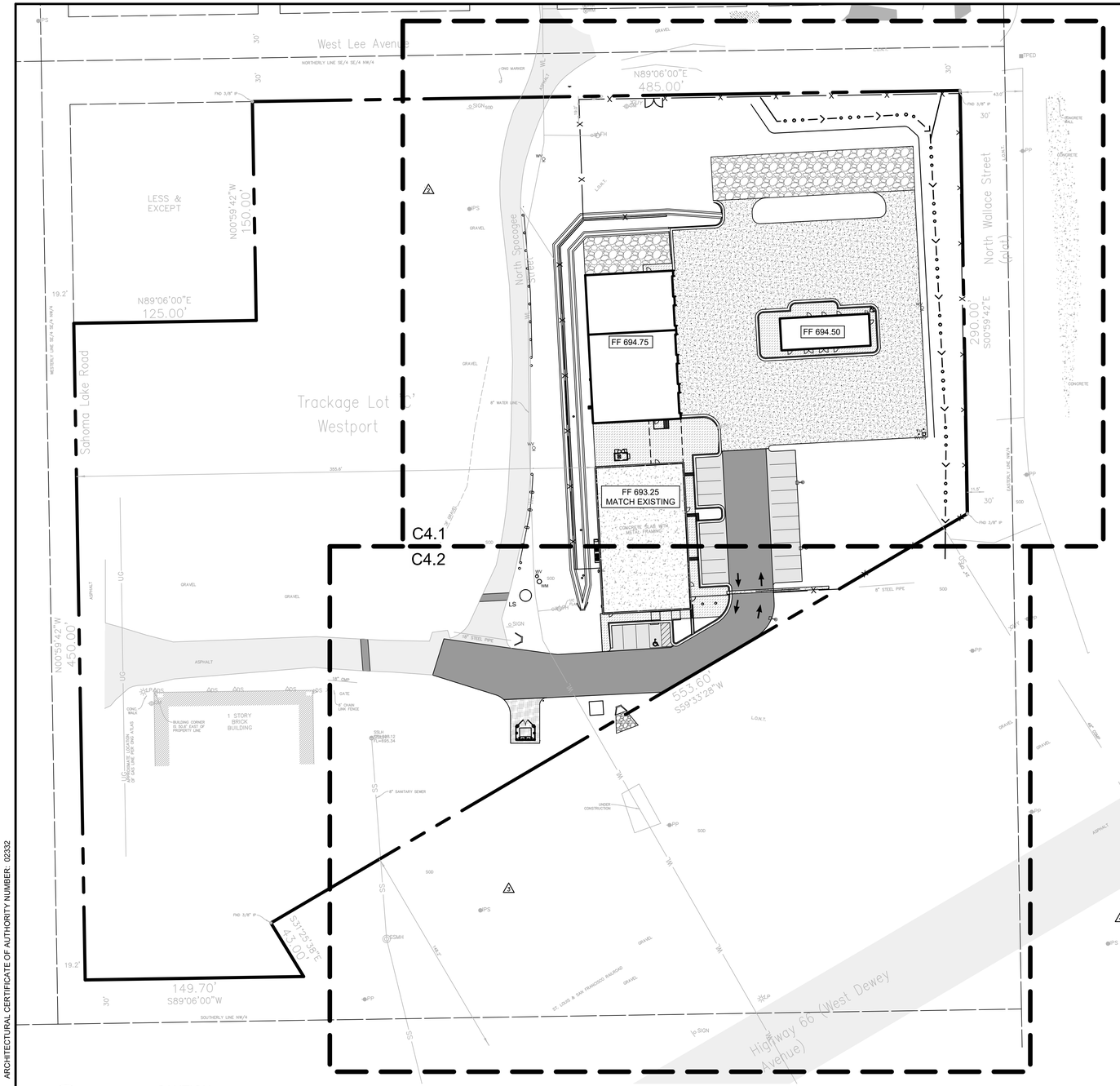
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

wallace design collective
wallace design collective, pc
structural · civil · landscape · survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
DEMOLITION & EROSION CONTROL PLAN

SHEET NUMBER:
C3.2



GENERAL PAVING NOTES:

1. ALL MATERIALS, EXECUTION, AND TESTING TO CONFORM TO AHJ REQUIREMENTS (I.E. LOCAL OR STATE DOT STANDARDS AND SPECIFICATIONS).
2. ALL PAVING AND EARTHWORK OPERATIONS SHALL CONFORM TO THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT.
3. CONTRACTOR TO PROVIDE PRODUCT DATA SUBMITTALS INCLUDING, BUT NOT LIMITED TO, DESIGN MIXES, MATERIAL CERTIFICATES, AND MATERIAL TEST REPORTS FOR MATERIALS AND PRODUCTS ASSOCIATED WITH PAVING AND PAVEMENT MARKING OPERATIONS.
4. CONTRACTOR SHALL DEVELOP AND IMPLEMENT PROPER TRAFFIC CONTROL IN CONFORMANCE WITH THE LATEST REVISION OF THE MUTCD. ACCESS FOR EMERGENCY VEHICLES AND LOCAL TRAFFIC SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
5. PAVEMENT SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT AND TO THE GRADES AND ELEVATIONS REQUIRED BY THE CONSTRUCTION DOCUMENTS.
6. PAVEMENT CONTRACTOR TO INSPECT PAVEMENT SUBGRADE AND CORRECT ANY DEFICIENCIES PRIOR TO PAVING OPERATIONS.
7. CONTRACTOR TO COORDINATE CONSTRUCTION TESTING UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS.
8. THE PAVEMENT SECTIONS SHOWN IN DETAIL 1/ C8.0 ARE SHOWN FOR REFERENCE AND WERE PROVIDED BY DAVID L. BELONGIA BASED ON SITE SPECIFIC CONDITIONS AS OUTLINED IN THEIR REPORT DATED 07.14.2020. ANY QUESTIONS REGARDING THE SUITABILITY OF THESE OR ALTERNATE PAVEMENTS SECTIONS, SPECIFIC PAVEMENT MAINTENANCE REQUIREMENTS, OR POTENTIAL PAVEMENT LIFE SHOULD BE DIRECTED TO DAVID L. BELONGIA. AS THIS IS BEYOND WALLACE'S SCOPE OF SERVICES FOR THIS PROJECT.

ASPHALT PAVEMENT:

9. CONSTRUCT JOINTS TO ENSURE A CONTINUOUS BOND BETWEEN ADJOINING PAVEMENT SECTIONS. OFFSET LONGITUDINAL JOINTS, IN SUCCESSIVE COURSES, A MINIMUM OF 6 INCHES AND TRANSVERSE JOINTS A MINIMUM OF 24 INCHES.
10. WHERE DIFFERENT THICKNESS PAVEMENTS ABUT, PROVIDE A THICKENED EDGE ON THE THINNER PAVEMENT SECTION, WHICH TRANSITIONS TO THE THICKER PAVEMENT DEPTH ACROSS FOUR FEET.
11. UNIFORM DENSITY REQUIREMENTS:
    - 11.1. AVERAGE DENSITY: 96 PERCENT OF REFERENCE LABORATORY DENSITY ACCORDING TO ASTM D 6927 BUT NOT LESS THAN 94 PERCENT OR GREATER THAN 100 PERCENT, OR
    - 11.2. AVERAGE DENSITY: 92 PERCENT OF REFERENCE MAXIMUM THEORETICAL DENSITY ACCORDING TO ASTM D 2041 BUT NOT LESS THAN 90 PERCENT OR GREATER THAN 96 PERCENT.
12. INSTALLATION TOLERANCES:
    - 12.1. PAVEMENT THICKNESS: BASE COURSE PLUS OR MINUS 1/2 INCH; SURFACE PLUS 1/4 INCH.
    - 12.2. PAVEMENT SMOOTHNESS: BASE COURSE 1/4 INCH IN 10 FEET; SURFACE COURSE 1/8 INCH IN 10 FEET.

LEGEND

- HEAVY DUTY ASPHALT PAVEMENT — RE: 1/C8.0
- STANDARD DUTY ASPHALT PAVEMENT — RE: 1/C8.0
- HEAVY DUTY CONCRETE PAVEMENT — RE: 1/C8.0
- REINFORCED CONCRETE PAVING — RE: 1/C8.0
- CONCRETE SIDEWALK — RE: 5/C8.0
- GRAVEL PAVEMENT — RE: 9/C8.0

BENCHMARKS:

BENCHMARKS PER TOPOGRAPHIC SURVEY COMPLETED BY SHAWN A. COLLINS DATED JUNE 5, 2025

CONTROL POINT #2	CONTROL POINT #3	CONTROL POINT #4
SET ⅝" IRON PIN	SET ⅝" IRON PIN	SET ⅝" IRON PIN
ELEV: 710.84	ELEV:689.72	ELEV:683.76
N:368,336.50	N:367,855.89	N:367,833.10
E:2,521,894.47	E:2,522,332.05	E:2,522,332.05

CONCRETE PAVEMENT:

13. CONCRETE PLACEMENT TO CONFORM TO ACI 301 / 306 / 330 REQUIREMENTS.
14. CONCRETE MATERIAL:
    - 14.1. 28 DAY COMPRESSIVE STRENGTH: 4000 PSI MINIMUM
    - 14.2. MAXIMUM W/C RATIO AT POINT OF PLACEMENT: 0.45
    - 14.3. SLUMP: 4 INCHES PLUS OR MINUS 1 INCH
    - 14.4. AIR CONTENT: 6 PERCENT PLUS OR MINUS 1-1/2 PERCENT
15. STEEL:
    - 15.1. GRADE 60
    - 15.2. COMPLY WITH CRSI'S "MANUAL OF STANDARD PRACTICE" FOR FABRICATION, PLACEMENT, AND SUPPORT.
16. JOINTS:
    - 16.1. FORM CONSTRUCTION, ISOLATION, AND CONTRACTION JOINTS WITH FACES PERPENDICULAR TO SURFACE PLANE OF CONCRETE. WHEN JOINING EXISTING PAVING, PLACE JOINTS TO ALIGN WITH PREVIOUSLY PLACED JOINTS UNLESS OTHERWISE INDICATED.
    - 16.2. FORM ISOLATION JOINTS OF PREFORMED JOINT-FILLER STRIPS ABUTTING LIGHT STANDARD FOUNDATIONS, MANHOLES, INLETS, STRUCTURES, OR OTHER FIXED OBJECTS. EXTEND JOINT FILLERS THE FULL WIDTH AND DEPTH OF PAVEMENT.
    - 16.3. CONTRACTION JOINT DEPTH TO BE 1/4 OF THE TOTAL CONCRETE THICKNESS.
    - 16.4. JOINTS SHOULD EXTEND THROUGH ADJACENT CURB AND GUTTER.
17. JOINT SPACING
    - 17.1. JOINT SPACING SHALL NOT EXCEED 24 TO 30 TIMES THE PAVEMENT THICKNESS (E.G. 0.5' THICK CONCRETE x 30 = 15' MAXIMUM JOINT SPACING) WITH A MAXIMUM SPACING OF 15 FEET.
    - 17.2. LAY OUT JOINTS TO FORM SQUARE PANELS. WHEN THIS IS NOT PRACTICAL, RECTANGULAR PANELS CAN BE USED, BUT THE LENGTH SHALL NOT BE MORE THAN 25% LONGER THAN THE WIDTH (E.G. A 15' LONG PANEL CANNOT BE WIDER THAN 12').
    - 17.3. CONTRACTOR TO SUBMIT A JOINT LAYOUT PLAN FOR REVIEW AND APPROVAL PRIOR TO COMMENCING PAVING OPERATIONS. CONTRACTOR TO TAKE INTO ACCOUNT REVIEW TIME AND CHANGES PER ANY COMMENTS WHEN SCHEDULING THE SUBMISSION OF THE JOINT LAYOUT PLAN.
18. REINFORCEMENT OF IRREGULARLY SHAPED PANELS OR MISMATCHED JOINTS
    - 18.1. ON PANELS WITH RADII, ON PANELS THAT TAPER TO A SHARP ANGLE, AND/OR WHEN THE LENGTH TO WIDTH RATIO EXCEEDS 1.25, PROVIDE A MINIMUM OF 0.05 PERCENT STEEL IN BOTH DIRECTIONS ACROSS THE ENTIRE PANEL.
    - 18.2. WHERE JOINT PATTERNS OF ABUTTING PAVEMENTS DO NOT MATCH AND ARE NOT SEPARATED BY AN EXPANSION JOINT, PROVIDE A MINIMUM OF 0.05 PERCENT STEEL IN THE PAVEMENT OPPOSITE OF THE MISMATCHED JOINT FOR A DISTANCE OF THREE FEET BACK FROM THE JOINT ALONG THE FULL WIDTH OF THE PANEL.
19. WHERE DIFFERENT THICKNESS PAVEMENTS ABUT, PROVIDE A THICKENED EDGE ON THE THINNER PAVEMENT SECTION WHICH TRANSITIONS TO THE THICKER PAVEMENT DEPTH ACROSS FOUR FEET.
20. PROVIDE MEDIUM TO FINE TEXTURED BROOM FINISH UNLESS OTHERWISE INDICATED ON THE PLANS.
21. INSTALLATION TOLERANCES
    - 21.1. ELEVATION: 1/4 INCH
    - 21.2. THICKNESS: PLUS 3/8 INCH, MINUS 1/4 INCH
    - 21.3. SURFACE: 1/4 INCH IN 10 FEET

PAVEMENT MARKINGS:

22. ALLOW PAVING TO AGE A MINIMUM OF 30 DAYS BEFORE STARTING PAVEMENT MARKING OPERATIONS.
23. PAVEMENT MARKING PAINT SHALL BE ACRYLIC, WATERBORNE EMULSION, LEAD AND CHROMATE FREE, READY MIXED, COMPLYING WITH FS TT-P-1952, TYPE II, WITH A DRYING TIME OF LESS THAN THREE MINUTES.
24. COLOR AS INDICATED.

GENERAL SITE NOTES:

1. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL MUNICIPAL REGULATIONS AND CODES, WHICHEVER IS MORE STRINGENT.
2. ALL WORK AND MATERIALS SHALL COMPLY WITH O.S.H.A. STANDARDS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES' SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COST SHALL BE INCLUDED IN BASE BID.
4. ALL DIMENSIONS AND COORDINATES ARE FROM FACE OF CURB UNLESS SHOWN OTHERWISE.
5. RADII = 2'-0" UNLESS OTHERWISE INDICATED.

N

40 0 20 40

1" = 40'

811 Know what's below. Call before you dig.

CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

LICENSED PROFESSIONAL ENGINEER — JORDAN RODICH — 26548 — OKLAHOMA
8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

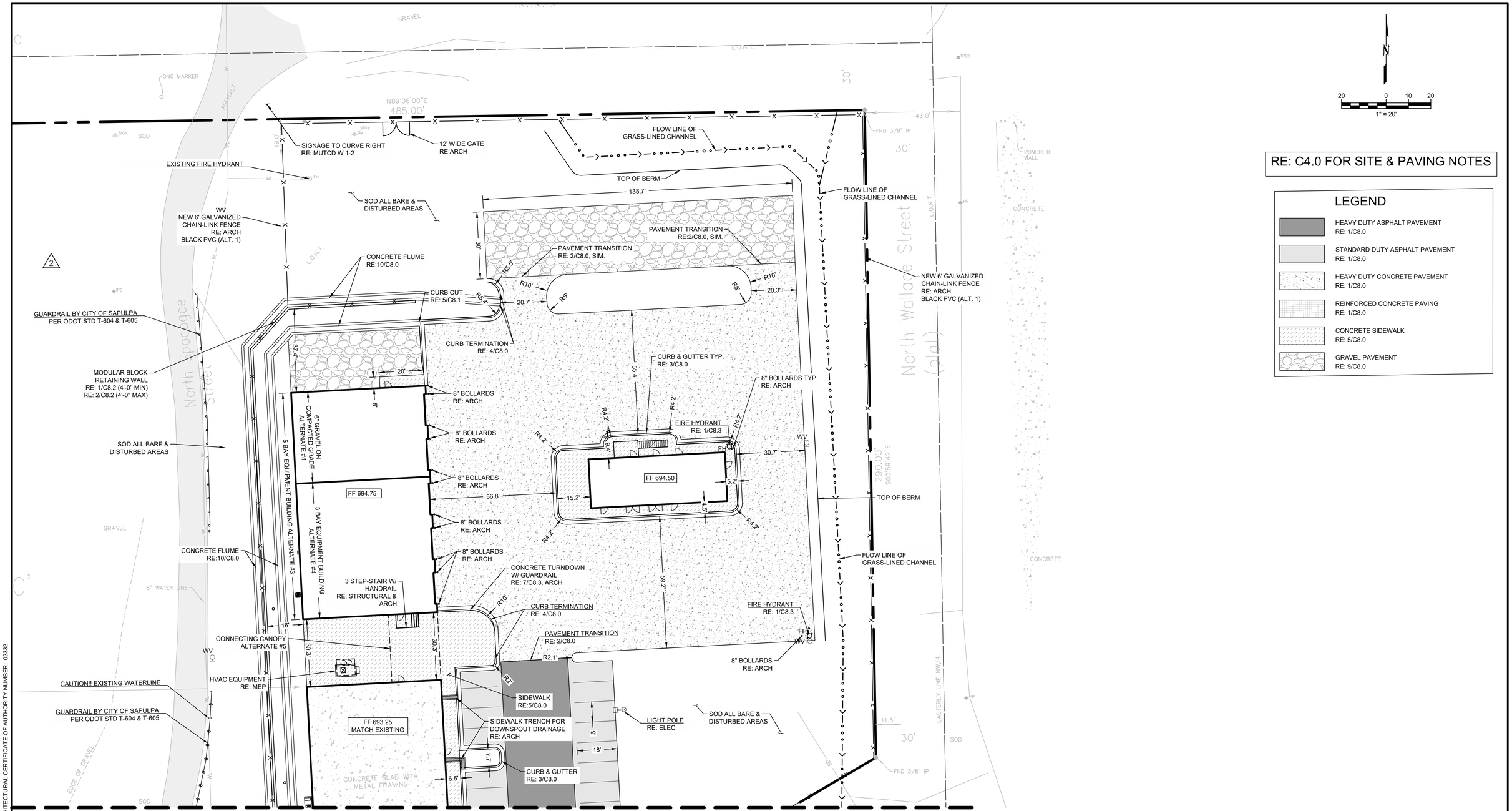
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

wallace design collective
wallace design collective, pc
structural · civil · landscape · survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
OVERALL SITE PLAN

SHEET NUMBER:
C4.0



RE: C4.0 FOR SITE & PAVING NOTES

LEGEND

- HEAVY DUTY ASPHALT PAVEMENT RE: 1/C8.0
- STANDARD DUTY ASPHALT PAVEMENT RE: 1/C8.0
- HEAVY DUTY CONCRETE PAVEMENT RE: 1/C8.0
- REINFORCED CONCRETE PAVING RE: 1/C8.0
- CONCRETE SIDEWALK RE: 5/C8.0
- GRAVEL PAVEMENT RE: 9/C8.0

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

811 Know what's below. Call before you dig.

CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

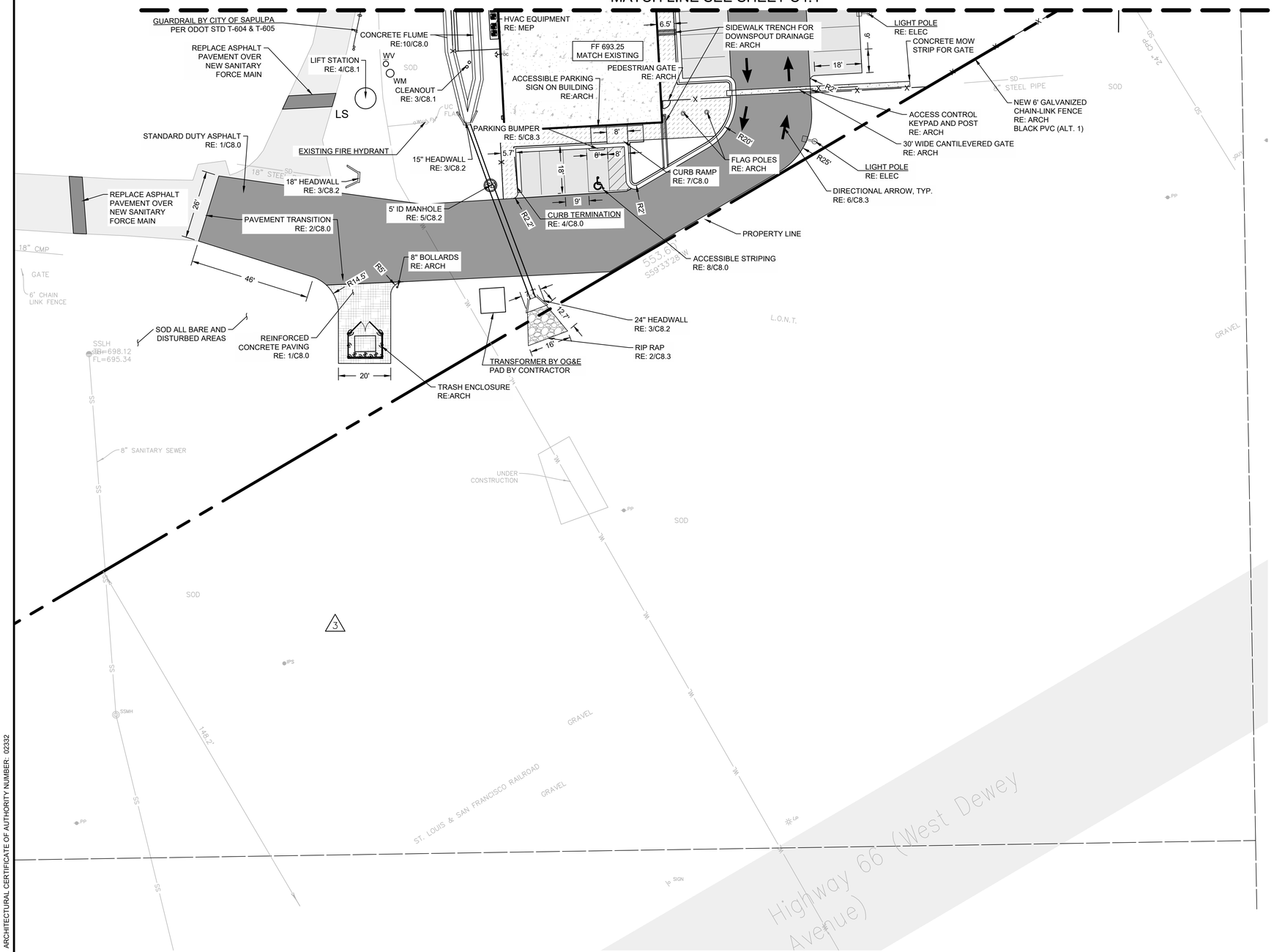
wallace design collective, pc
structural · civil · landscape · survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

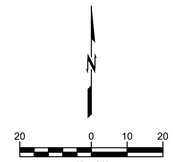
PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
SITE PLAN

SHEET NUMBER:
C4.1

MATCH LINE SEE SHEET C4.1





RE: C4.0 FOR SITE & PAVING NOTES

LEGEND

- HEAVY DUTY ASPHALT PAVEMENT RE: 1/C8.0
- STANDARD DUTY ASPHALT PAVEMENT RE: 1/C8.0
- HEAVY DUTY CONCRETE PAVEMENT RE: 1/C8.0
- REINFORCED CONCRETE PAVING RE: 1/C8.0
- CONCRETE SIDEWALK RE: 5/C8.0
- GRAVEL PAVEMENT RE: 9/C8.0

Know what's below. Call before you dig.

CAUTION

NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

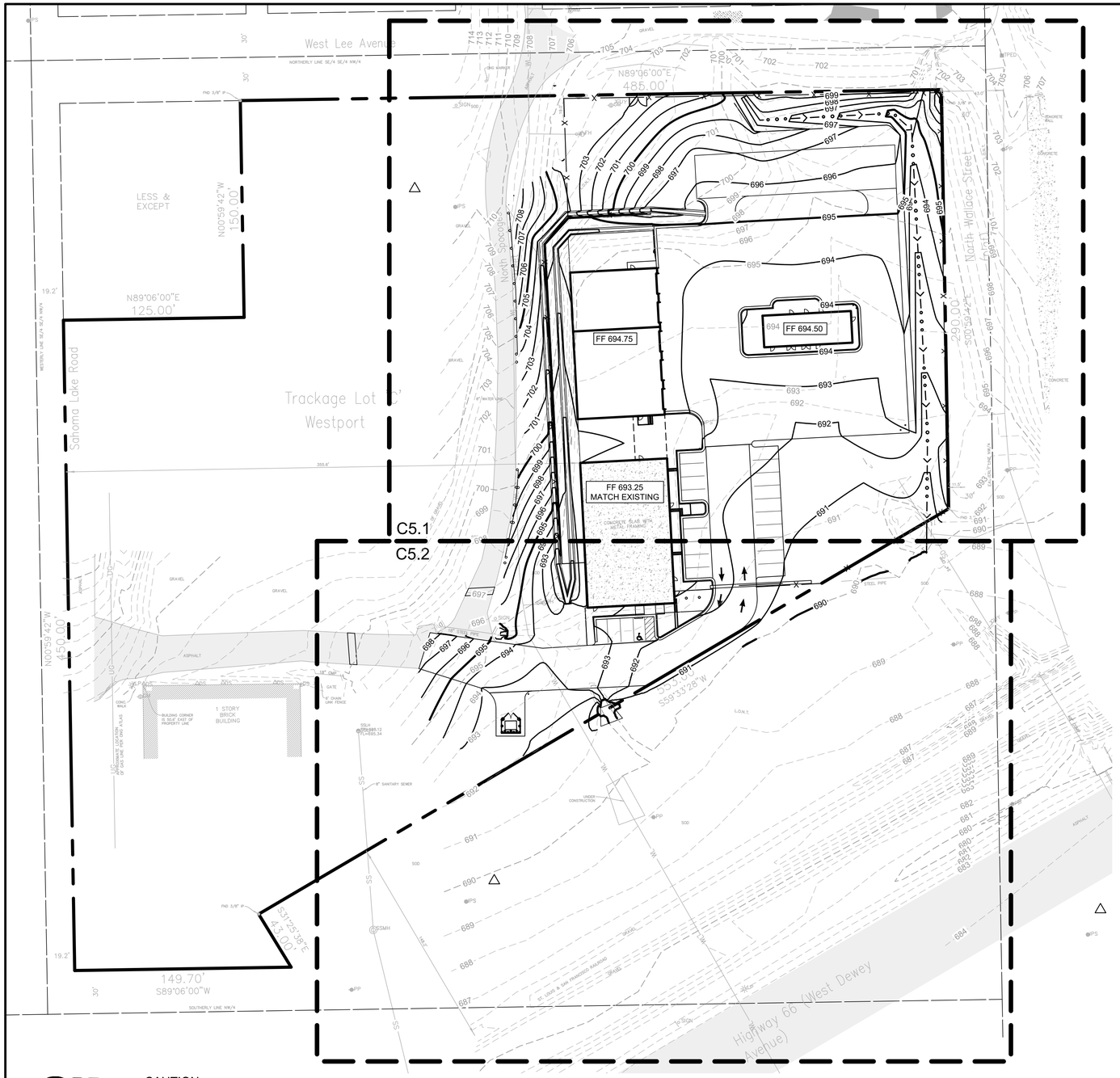
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

wallace design collective
wallace design collective, pc
structural· civil· landscape· survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
SITE PLAN

SHEET NUMBER:
C4.2



GENERAL GRADING NOTES:

1. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED, INSPECTED, AND APPROVED BY LOCAL AUTHORITIES.
2. ALL BENCHMARKS, CONTROL POINTS, PROPERTY MARKERS, AND RIGHT-OF-WAY MONUMENTS DISTURBED OR DESTROYED SHALL BE RESET UNDER THE SUPERVISION OF A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF OKLAHOMA. ALL SURVEYING COSTS SHALL BE THE CONTRACTOR'S.
3. THE CONTRACTOR SHALL VERIFY UTILITY LOCATIONS BEFORE EXCAVATING.
4. TOPSOIL SHALL BE STRIPPED TO A DEPTH WHERE SOIL IS FREE OF ROOTS AND VEGETATION.
5. REFERENCE GEOTECHNICAL ENGINEERING REPORT BY DAVID L. BELONGIA DATED 07.14.2020 FOR COMPLETE PAVING AND SUBGRADE RECOMMENDATIONS. CIVIL ENGINEER WILL NOT INTERPRET SOILS REPORTS OR ACCEPT RESPONSIBILITY FOR ALTERNATIVE METHODS PROPOSED BY THE CONTRACTOR.
6. UNDERCUTTING OF SOFT SPOTS AND PLACEMENT OF EARTHWORK IS GOVERNED FIRST BY THE GEOTECHNICAL REPORT. OBSERVATION AND TESTING SHALL BE PERFORMED BY A QUALIFIED GEOTECHNICAL ENGINEER TO VERIFY THAT THE SOFT SPOTS ARE PROPERLY OVEREXCAVATED AND REPLACED OR STABILIZED.
7. IF EXCAVATED MATERIAL IS UNSUITABLE FOR COMPACTION, AS DETERMINED BY THE GEOTECHNICAL ENGINEER, THE CONTRACTOR SHALL FURNISH SUITABLE BORROW.
8. STRIPPING, PROOFROLLING, SUBGRADE SCARIFICATION, COMPACTION, AND FILL CONSTRUCTION IN THE BUILDING AND PAVING AREAS SHALL BE PERFORMED ACCORDING TO THE GEOTECHNICAL REPORT. EMBANKMENT BENEATH BUILDING PADS OR FOR PAVING SUBGRADE SHALL BE PLACED IN LIFTS NOT EXCEEDING EIGHT (8) INCHES AND COMPACTED TO A MINIMUM OF 98% AND 95% STANDARD PROCTOR DENSITY, RESPECTIVELY, AT OPTIMUM MOISTURE CONTENT UNLESS OTHERWISE SPECIFIED THEREIN. CONTRACTOR SHALL PROVIDE WATER AS REQUIRED TO OBTAIN SPECIFIED COMPACTION.
9. EXCAVATE TO INDICATED ELEVATIONS AND DIMENSIONS WITHIN A TOLERANCE OF PLUS OR MINUS 1 INCH. IF APPLICABLE, EXTEND EXCAVATIONS A SUFFICIENT DISTANCE FROM STRUCTURES FOR PLACING AND REMOVING CONCRETE FORMWORK, FOR INSTALLING SERVICES AND OTHER CONSTRUCTION, AND FOR INSPECTIONS.
10. PAVING CONTRACTOR IS RESPONSIBLE TO REVIEW ALL FIELD ESTABLISHED GRADES PRIOR TO PLACEMENT OF MATERIALS SO AS TO PROVIDE POSITIVE DRAINAGE IN ALL CASES.
11. CONTRACTOR SHALL COORDINATE AND PROVIDE ALL STAKING NECESSARY TO INSTALL CONDUITS SUFFICIENT FOR UTILITY AND IRRIGATION SERVICES WHETHER OR NOT SHOWN ON THE CIVIL ENGINEER'S PLANS.
12. GRADES NOT OTHERWISE INDICATED ON THE PLANS SHALL BE UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE ELEVATIONS ARE GIVEN, ABRUPT CHANGES IN SLOPES SHALL BE WELL ROUNDED. THE CONTRACTOR IS RESPONSIBLE FOR POSITIVE SITE DRAINAGE.
13. CONTRACTOR IS RESPONSIBLE TO MEET AND MATCH NEW PAVEMENT WITH EXISTING ADJACENT PAVEMENT AREAS. THE TRANSITION BETWEEN THIS SITE AND ADJACENT SITES MUST BE SMOOTH AND MONOLITHIC. ALL GRADING MUST MEET AND MATCH GRADES ON ALL SIDES.
14. ACCESSIBLE ROUTES AND SIDEWALKS ARE NOT TO EXCEED 5% RUNNING SLOPE (EXCEPT AT RAMPS) AND 2% CROSS. ACCESSIBLE PARKING AND ACCESS AISLES NOT TO EXCEED 2% SLOPE IN ANY DIRECTION. ALL RAMPS SHALL COMPLY WITH THE APPLICABLE ACCESSIBLE DESIGN GUIDELINES.
15. ALL CUT OR FILL SLOPES SHALL BE 3H:1V OR FLATTER UNLESS OTHERWISE NOTED.
16. LANDSCAPE ISLANDS TO BE FILLED WITH SOIL SUITABLE FOR VEGETATION. THE CONTRACTOR WILL ENSURE THAT NO PONDING WILL OCCUR AT LANDSCAPE ISLANDS. ALL SURFACE WATER MUST DRAIN AROUND THE ISLAND WITH POSITIVE SLOPE. NO WATER SHALL BE TRAPPED.
17. CONTRACTOR SHALL MEET AND MATCH TOP OF JUNCTION BOXES/MANHOLES OR CLEANOUTS WITH FINISHED PAVING GRADES. FINAL GRADES OF ABOVE SURFACE UTILITIES NOT IN PAVED AREAS, INCLUDING BUT NOT LIMITED TO JUNCTION BOX/MANHOLE LIDS, WATER METER LIDS, AND SEWER CLEANOUTS, ARE TO BE ADJUSTED BY THE UTILITY CONTRACTOR TO CONFORM TO LANDSCAPING SOD INSTALLATIONS.
18. CONTRACTOR SHALL REFER TO ARCHITECTURAL AND MEP PLANS FOR THE EXACT LOCATIONS AND DIMENSIONS OF ENTRY, EXIT PORCHES, PRECISE BUILDING DIMENSIONS, EXACT BUILDING UTILITY ENTRANCE LOCATIONS, AND DOWNSPOUTS.
19. EXISTING DRAINAGE STRUCTURES TO BE INSPECTED AND REPAIRED AS NEEDED. EXISTING PIPES ARE TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS AT THE COMPLETION OF THE PROJECT.
20. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE THE EXISTING STRUCTURE AS NECESSARY.
21. ALL STORM PIPE ENTERING CONCRETE STRUCTURES SHALL BE GROUTED TO ENSURE CONNECTION AT STRUCTURE IS WATER TIGHT.
22. CONTRACTOR IS RESPONSIBLE FOR TEMPORARY ACCESS ROADS AND SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM BUILDING AND STRUCTURES FOR ALL GRASSED AND PAVED AREAS OF ENTIRE SITE THROUGHOUT CONSTRUCTION AND AVOID PONDING OR RUTTING. TEMPORARY DEWATERING, INCLUDING PUMPING, MAY BE REQUIRED AND SHALL BE INCLUDED IN THE SCOPE OF WORK.
23. UNLESS OTHERWISE INDICATED, ALL DISTURBED SOIL AREAS SHALL RECEIVE FOUR (4) INCHES OF TOPSOIL AND SHALL BE PERMANENTLY STABILIZED WITH SOD.
24. REMOVE ALL TREES (INCLUDING ROOTBALLS), GRASS, WEEDS, ROOTS, AND OTHER DEBRIS FROM THE AREA TO BE EXCAVATED, FILLED, OR GRADED.
25. EXISTING TREES WHERE INDICATED SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES. ALL TREE PROTECTION MEASURES SHALL BE INSTALLED PRIOR TO GRADING. ALL TREE PROTECTION FENCING TO BE INSPECTED DAILY AND ALL GRADING ACTIVITIES TO REMAIN OUTSIDE THE DRIP LINES.

N

40 0 20 40

1" = 40'

UNANTICIPATED SOIL CONDITIONS

1. IF UNSUITABLE BEARING MATERIALS ARE ENCOUNTERED AT THE SPECIFIED SUBGRADE DEPTHS, THE CONTRACTOR SHALL NOTIFY THE OWNER. SOIL SUBGRADES WHICH ARE UNSTABLE DUE TO INADEQUATE CONSTRUCTION DEWATERING OR EXCESSIVE SUBGRADE DISTURBANCE ARE NOT DEEMED UNSUITABLE SOILS.
2. FILL SOIL THAT IS NOT WITHIN +/- 2% OPTIMUM MOISTURE FOR COMPACTION OF THE PARTICULAR MATERIAL IN PLACE AS DETERMINED BY THE OWNER'S REPRESENTATIVE AND IS DISTURBED BY THE CONTRACTOR DURING CONSTRUCTION OPERATIONS SO THAT PROPER COMPACTION CANNOT BE REACHED SHALL NOT BE CONSTRUED AS UNSUITABLE BEARING MATERIAL.
3. THE CONTRACTOR SHALL FOLLOW A CONSTRUCTION PROCEDURE WHICH PERMITS VISUAL IDENTIFICATION OF FIRM NATURAL GROUND.
4. SURFACE RUNOFF: SURFACE WATER ON AND AROUND THE SITE SHALL BE COLLECTED INTO LOCAL SUMPS BY MEANS OF TRENCHES, PIPES, ETC., AND PUMPED INTO THE STORM WATER SYSTEM. USE APPROPRIATE FILTRATION OR SEDIMENTATION TO PREVENT PUMPING OF SUSPENDED SOLIDS INTO THE STORM SEWER. A PERMIT MUST BE OBTAINED FOR SUCH PUMPING.
5. DEWATERING OF TRENCHES AND EXCAVATIONS: TRENCHES AND EXCAVATIONS SHALL BE KEPT FREE OF STANDING WATER AT ALL TIMES. PUMPING IS TO BEGIN AS SOON AS WATER BEGINS TO ACCUMULATE AND IS TO CONTINUE UNTIL WATER IS REMOVED.

BENCHMARKS:

BENCHMARKS PER TOPOGRAPHIC SURVEY COMPLETED BY SHAWN A. COLLINS DATED JUNE 5, 2025

CONTROL POINT #2	CONTROL POINT #3	CONTROL POINT #4
SET ⅝" IRON PIN	SET ⅝" IRON PIN	SET ⅝" IRON PIN
ELEV: 710.84	ELEV:689.72	ELEV:683.76
N:368,336.50	N:367,855.89	N:367,833.10
E:2,521,894.47	E:2,522,332.05	E:2,522,332.05

811 Know what's below. Call before you dig.

CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

wallace design collective
wallace design collective, pc
structural· civil ·landscape ·survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
GRADING PLAN

SHEET NUMBER:
C5.0

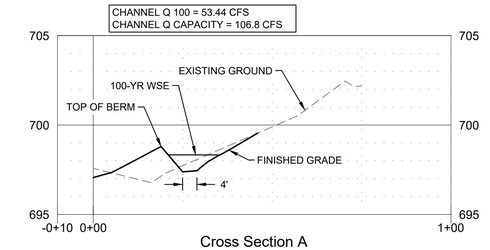
RE: C5.0 FOR GRADING NOTES

(M)	MEASURED DATA
(R)	RECORD DATA
BC	BACK OF CURB
BL	BUILDING LINE
CL	CENTERLINE
EG	EXISTING GRADE
FF	FINISHED FLOOR
FG	FINISHED GRADE
FL	FLOWLINE
GL	GUTTER LINE
HP	HIGH POINT
INV	INVERT
LF	LINEAR FEET
LP	LOW POINT
ME	MATCH EXISTING
RW	RIGHT-OF-WAY
SF	SQUARE FEET
SY	SQUARE YARDS
TBK	TOP OF BANK
TC	TOP OF CURB
TG	TOP OF GRATE
TOE	TOE OF BANK
TP	TOP OF PAVEMENT
TR	TOP OF RIM
TS	TOP OF SIDEWALK
TW	TOP OF WALL

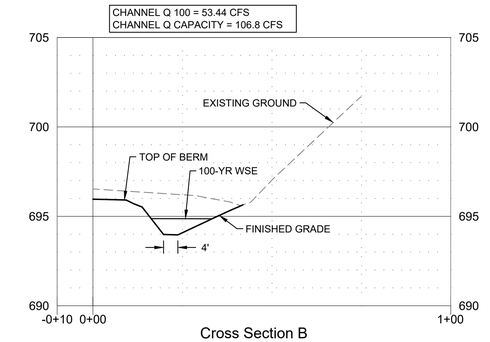
N

20 0 10 20

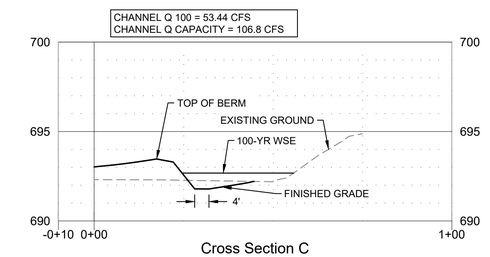
1" = 20'



Cross Section A



Cross Section B



Cross Section C

MATCH LINE SEE SHEET C5.2

CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

811 Know what's below. Call before you dig.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

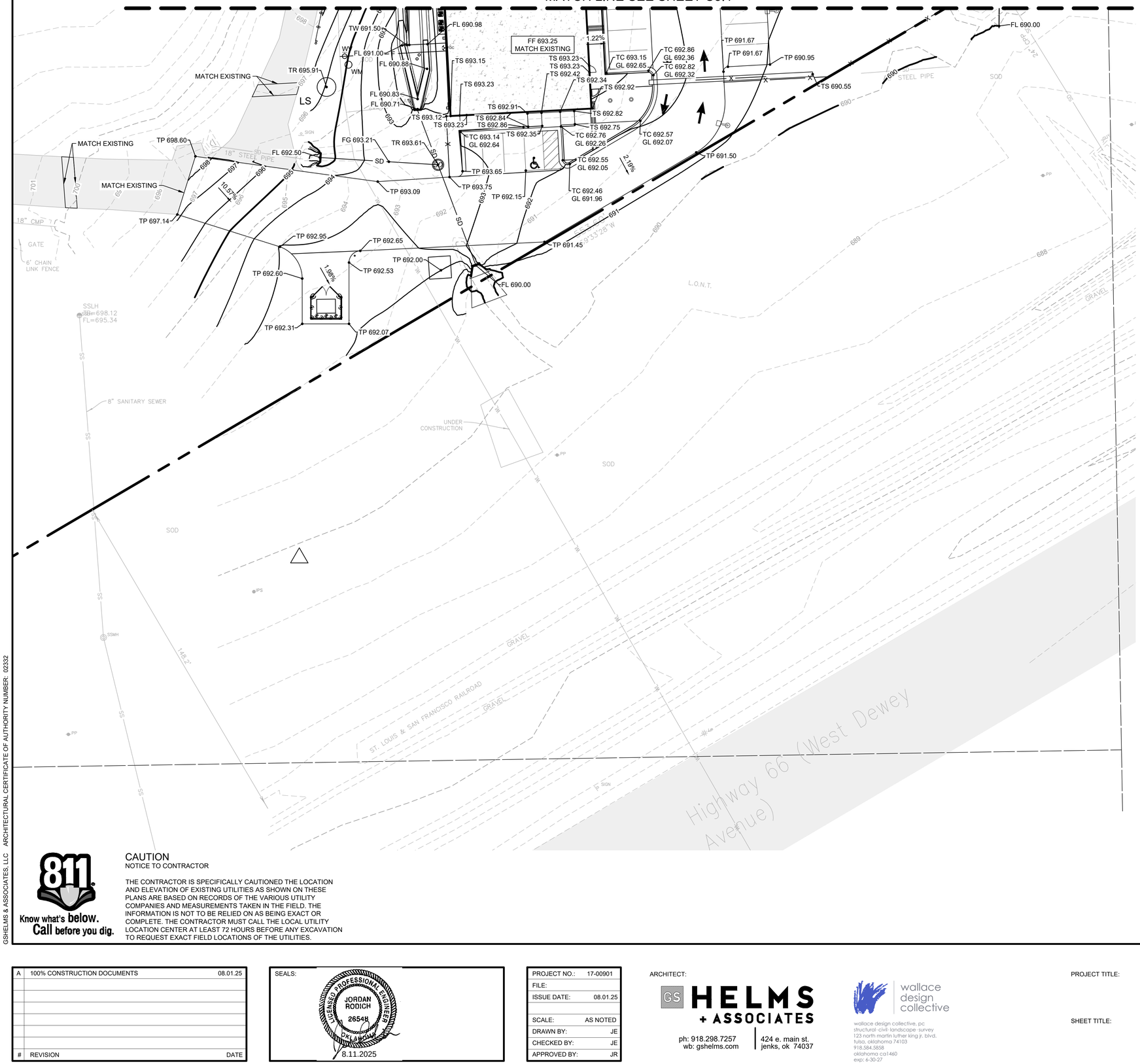
wallace design collective
wallace design collective, pc
structural · civil · landscape · survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

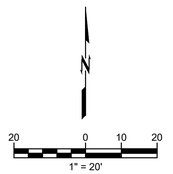
PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
GRADING PLAN

SHEET NUMBER:
C5.1

MATCH LINE SEE SHEET C5.1





RE: C5.0 FOR GRADING NOTES

(M)	MEASURED DATA
(R)	RECORD DATA
BC	BACK OF CURB
BL	BUILDING LINE
CL	CENTERLINE
EG	EXISTING GRADE
FF	FINISHED FLOOR
FG	FINISHED GRADE
FL	FLOWLINE
GL	GUTTER LINE
HP	HIGH POINT
INV	INVERT
LF	LINEAR FEET
LP	LOW POINT
ME	MATCH EXISTING
RW	RIGHT-OF-WAY
SF	SQUARE FEET
SY	SQUARE YARDS
TBK	TOP OF BANK
TC	TOP OF CURB
TG	TOP OF GRATE
TOE	TOE OF BANK
TP	TOP OF PAVEMENT
TR	TOP OF RIM
TS	TOP OF SIDEWALK
TW	TOP OF WALL

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

811 Know what's below. Call before you dig.

CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

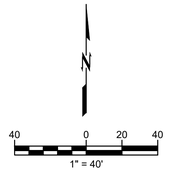
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

wallace design collective
wallace design collective, pc
structural · civil · landscape · survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
GRADING PLAN

SHEET NUMBER:
C5.2

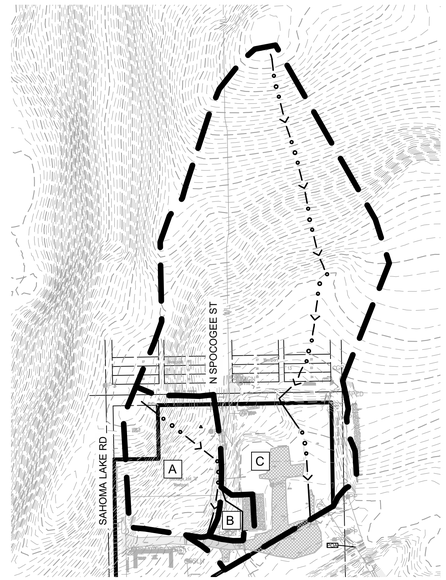


LEGEND

- DRAINAGE FLOW PATH
- DRAINAGE AREA BOUNDARY
- B — DRAINAGE AREA LABEL
- POA — POINT OF ANALYSIS

EXISTING RUNOFF (RATIONAL)

DRAINAGE AREA BASIN	DRAINAGE AREA (SF)	DRAINAGE AREA (ACRES)	PAVED AREA (SF)	GRAVEL AREA (SF)	GRASS AREA (SF)	"C" FACTOR	REACH GRASS (FEET)	SLOPE GRASS (%)	VELOCITY GRASS (FPS)	REACH PAVING (FEET)	SLOPE PAVING (%)	VELOCITY PAVING (FPS)	REACH GRAVEL (FEET)	SLOPE GRAVEL (%)	VELOCITY GRAVEL (FPS)	TOTAL Tc (MIN)	I 100 (IN/HR)	Q 100 (CFS)
A	99,374	2.28	24421	21485	53,468	0.62	120	15.0%	2.70	0	0.00%	0.00	360	5.0%	2.23	3.4	11.7	16.53
B	12,599	0.29	5311	0	7,288	0.63	140	6.0%	1.71	25	5.00%	4.55	0	0.0%	0.00	1.5	12.8	2.33
C	586,397	13.46	35276	107334	443,787	0.51	1020	8.0%	1.97	0	0.00%	0.00	360	3.0%	1.73	12.1	8.6	58.37



811 Know what's below. Call before you dig.

CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

LICENSED PROFESSIONAL ENGINEER — JORDAN RODICH — 26545 — OKLAHOMA — 8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

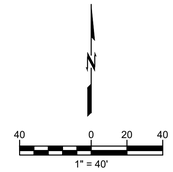
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

wallace design collective
wallace design collective, pc
structural·civil·landscape·survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
EXISTING DRAINAGE PLAN

SHEET NUMBER:
C5.3



LEGEND

- DRAINAGE FLOW PATH
- DRAINAGE AREA BOUNDARY
- B — DRAINAGE AREA LABEL
- POA — POINT OF ANALYSIS

PROPOSED RUNOFF (RATIONAL)

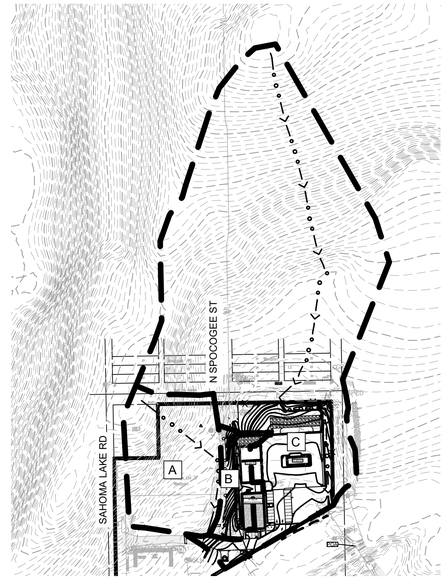
DRAINAGE AREA BASIN	DRAINAGE AREA (SF)	DRAINAGE AREA (ACRES)	PAVED AREA (SF)	GRAVEL AREA (SF)	GRASS AREA (SF)	"C" FACTOR	REACH GRASS (FEET)	SLOPE GRASS (%)	VELOCITY GRASS (FPS)	REACH PAVING (FEET)	SLOPE PAVING (%)	VELOCITY PAVING (FPS)	REACH GRAVEL (FEET)	SLOPE GRAVEL (%)	VELOCITY GRAVEL (FPS)	REACH GRASSED WATERWAY (FT)	SLOPE GRASSED WATERWAY (%)	VELOCITY GRASSED WATERWAY (FPS)	TOTAL Tc (MIN)	I 100 (IN/HR)	Q 100 (CFS)
A	99,374	2.28	24421	21485	53,468	0.62	120	15.0%	2.70	0	0.00%	0.00	360	5.0%	2.23	0	0.00%	0.00	3.4	11.7	16.53
B	29,630	0.68	15405	1433	12,792	0.71	0	0.0%	0.00	345	1.20%	2.23	0	0.0%	0.00	0	0.00%	0.00	2.6	12.1	5.81
C	569,366	13.07	77460	4155	487,751	0.48	1020	8.0%	1.97	0	0.00%	0.00	0	0.0%	0.00	415	1.50%	1.98	12.1	8.6	53.44

PIPE DESIGN TABLE (RATIONAL)

Label	Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (ft)	Slope (Calculated) (%)	Section Type	Material	Manning's n	Diameter (in)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Energy Grade Line (In) (ft)	Energy Grade Line (Out) (ft)	Velocity (ft/s)
A1-A2	A2	690.46	A1	690.00	46.0	1.0	Circle	HP	0.013	24	22.34	22.62	692.15	691.62	693.12	692.66	8.21
A2-A3	A3	690.70	A2	690.46	25.0	1.0	Circle	HP	0.013	15	5.81	6.33	692.35	692.15	692.70	692.49	4.73
A2-B1	B1	692.50	A2	690.46	51.0	4.0	Circle	HP	0.013	18	16.53	21.01	693.93	692.15	695.34	693.51	13.17

RUNOFF SUMMARY (RATIONAL)

POINT OF ANALYSIS	EXISTING RUNOFF (CFS)	PROPOSED RUNOFF (CFS)	DIFFERENCE (CFS)
POA	77.24	75.79	-1.45



CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

811 Know what's below. Call before you dig.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

LICENSED PROFESSIONAL ENGINEER — JORDAN RODICH — 26548 — OKLAHOMA — 8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

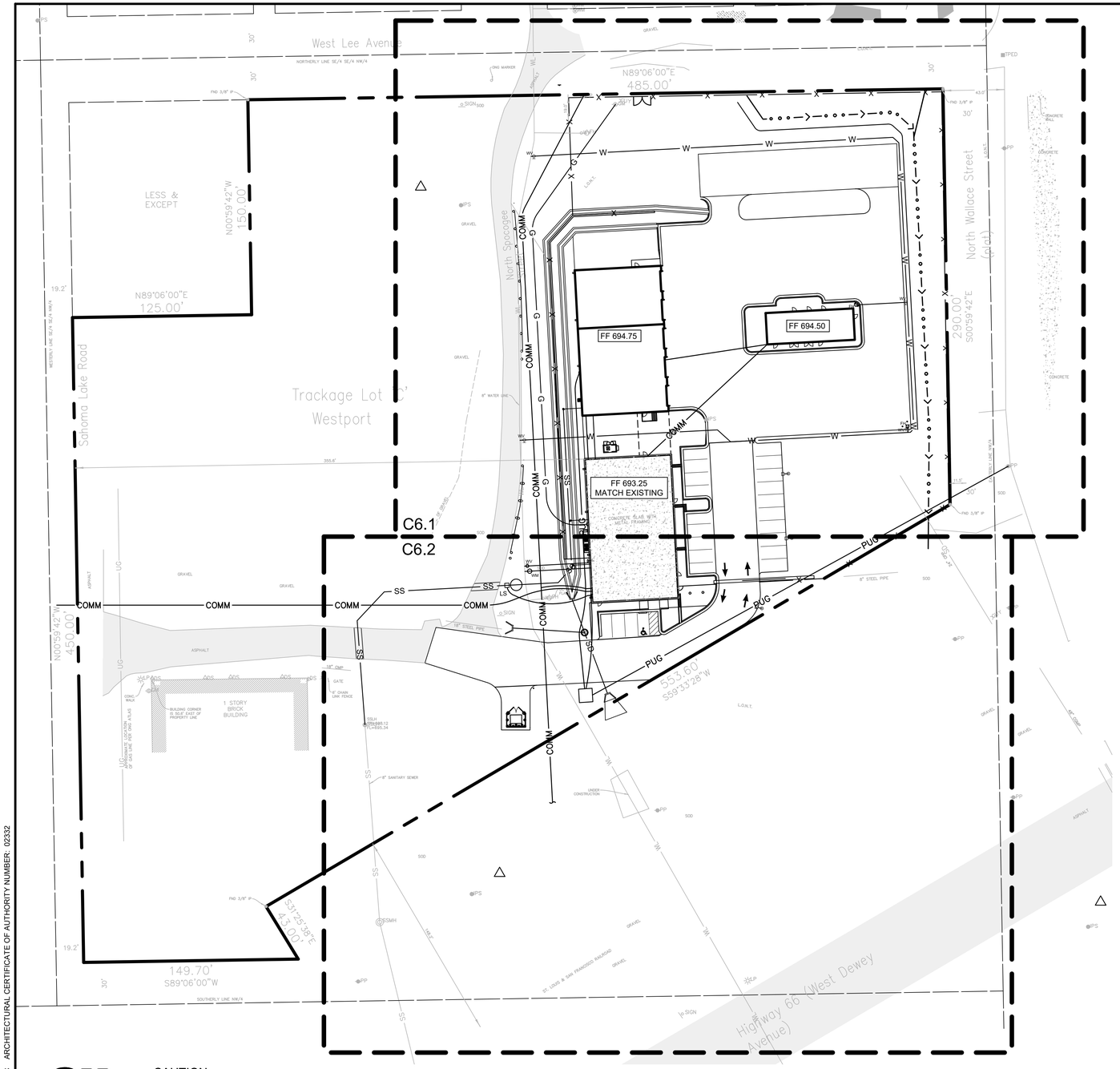
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

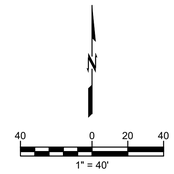
wallace design collective
wallace design collective, pc
structural·civil·landscape·survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
PROPOSED DRAINAGE PLAN

SHEET NUMBER:
C5.4





GENERAL UTILITY NOTES:

1. PRIOR TO CONSTRUCTION, LOCATION OF SITE UTILITIES SHALL BE VERIFIED BY CONTRACTOR WITH THE PROPER UTILITY COMPANY PROVIDING SERVICE. SERVICE LINES SHOWN FOR COORDINATION AND REFERENCE ONLY. CONTRACTOR SHALL COORDINATE WITH ALL SERVICE PROVIDERS (TELECOMMUNICATIONS, ELECTRIC, GAS, ETC.) PRIOR TO INSTALLING SERVICE LINES OR APPURTENANCES. CONTRACTOR IS TO COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS.
2. THIS PLAN DEPICTS THE INTENT OF PRIVATE AND FRANCHISE UTILITY ROUTINGS AS UNDERSTOOD DURING DESIGN PHASES OF THE PROJECT. IT IS THE OWNER/DEVELOPER'S RESPONSIBILITY TO NEGOTIATE ALL CONTRACTS FOR SERVICE WITH EACH INDIVIDUAL UTILITY COMPANY AND TO PROVIDE THE ENGINEER WITH ANY DOCUMENTS THAT MAY AFFECT THE LAYOUT.
3. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITIES' INSPECTORS BEFORE CONNECTING TO ANY EXISTING LINE IN ACCORDANCE WITH LOCAL REQUIREMENTS.
4. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE SPECIFICATIONS OF THE LOCAL AUTHORITIES REGARDING TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES.
5. NOT ALL EXISTING UNDERGROUND UTILITIES MAY BE SHOWN ON THIS PLAN. THE EXACT LOCATIONS AND NOTIFICATIONS OF THE PROPER AGENCY ARE THE RESPONSIBILITY OF THE CONTRACTOR PRIOR TO CONSTRUCTION.
6. RESTRAINED JOINTS SHALL BE PROVIDED ON 4" AND LARGER WATER LINES AT ALL BENDS TEES AND FIRE HYDRANTS FOR A MINIMUM 2 JOINTS BOTH SIDES OF FITTING PER AWWA MINIMUM STANDARDS.
7. CONTRACTOR SHALL REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING PLANS FOR PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS. TERMINATE SERVICE PIPING 5' FROM BUILDING WALL UNTIL BUILDING PIPING SYSTEMS ARE INSTALLED. TERMINATE PIPING WITH VALVE AND CAP PLUG OR FLANGE AS REQUIRED FOR PIPING MATERIAL. MAKE CONNECTIONS TO BUILDING PIPING SYSTEMS WHEN THOSE SYSTEMS ARE INSTALLED.
8. REFER TO PLUMBING AND/OR FIRE PROTECTION SHEETS FOR FIRE LINE LEAD-IN LOCATION AND DETAIL. CONTRACTOR SHALL UTILIZE AWWA AND FACTORY MUTUAL TEST AND CERTIFICATIONS FOR ALL UNDERGROUND FIRE PROTECTION LINES AS A MINIMUM. LOCAL OR STATE AUTHORITIES MAY REQUIRE MORE STRINGENT TESTING WHICH SHALL BE PROVIDED BY THE GC IF REQUIRED.
9. FIRE LINE BACKFLOW PREVENTER (DOUBLE CHECK ASSEMBLY) SHALL BE LOCATED INSIDE THE BUILDING.
10. ALL PIPING SHALL BE INSTALLED WITH A MINIMUM OF 30" OF COVER, UNLESS NOTED OTHERWISE. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS. UTILITY TRENCH DETAIL RE: 1/C8.1. STORM TRENCH DETAIL RE: 2/C8.1.
11. REFER TO MECHANICAL, ELECTRICAL, AND PLUMBING FOR CONTINUATION OF UTILITIES AT BUILDING.
12. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF ALL CONDUITS (INCLUDING IRRIGATION SLEEVES) PRIOR TO PAVING WHETHER OR NOT SHOWN ON CIVIL PLANS. THE CONTRACTOR SHALL INSTALL ALL CONDUITS WITH A PULL STRING. ALL CONDUIT SHALL BE SCH. 40 PVC, UNLESS NOTED OTHERWISE.
13. CONSTRUCT CLAY TRENCH PLUG THAT EXTENDS AT LEAST 5 FEET OUT FROM THE FACE OF THE BUILDING EXTERIOR. THE PLUG MATERIAL SHALL CONSIST OF CLAY COMPACTED AT A WATER CONTENT AT OR ABOVE THE SOIL'S OPTIMUM WATER CONTENT. THE CLAY FILL SHALL BE PLACED TO COMPLETELY SURROUND THE UTILITY LINE AND BE COMPACTED TO AT LEAST 95% STANDARD PROCTOR DENSITY.
14. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE THE EXISTING STRUCTURE AS NECESSARY.
15. ALL STORM PIPE ENTERING CONCRETE STRUCTURES SHALL BE GROUTED WITH NON SHRINK GROUT TO ASSURE CONNECTION AT STRUCTURE IS WATER TIGHT.
16. PROVIDE SLEEVE WITH LINK-SEAL (OR APPROVED EQUAL) AT GRADE BEAM PENETRATION LOCATIONS (RE: STRUCTURAL FOR DETAIL).
17. CONTRACTOR SHALL REFER TO ELECTRICAL SITE PLAN OR PHOTOMETRIC PLAN (BY OTHERS) FOR ALL SITE LIGHTING CONSTRUCTION DETAILS, REQUIREMENTS, AND FINAL POLE LOCATIONS. POLE LOCATIONS ARE SHOWN ON THIS SHEET FOR REFERENCE ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE ALL NECESSARY ADJUSTMENTS TO POLE LOCATIONS AS NECESSARY TO AVOID OBSTRUCTIONS (I.E., UNDERGROUND UTILITIES, SIDEWALKS, ETC…). CONTRACTOR SHALL POT HOLE EACH LOCATION WHERE A NEW LIGHT POLE IS TO BE PLACED PRIOR TO CONSTRUCTION TO VERIFY THERE ARE NO CONFLICTS WITH EXISTING UTILITIES. IF DAMAGES OCCUR TO EXISTING UTILITIES THEY WILL REPLACE OR REPAIR AT THEIR OWN EXPENSE. POLE LOCATIONS MAY NOT BE ADJUSTED WITHOUT PRIOR APPROVAL FROM THE ENGINEERS SINCE A CHANGE IN LOCATION CAN IMPACT THE INTENDED PHOTOMETRIC DESIGN.
18. CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF ANY PROPOSED SIGN(S) AND INSTALLATION OF ANY SECURITY CAMERAS WITH OWNER'S CONSTRUCTION MANAGER. COORDINATE WITH ELECTRICAL SITE PLAN TO PROVIDE ALL CONDUIT NEEDED FOR DATA AND/OR POWER TO SITE SIGN(S), SECURITY CAMERAS, AND LIGHT POLES.

811 Know what's below. Call before you dig.

CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:
LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

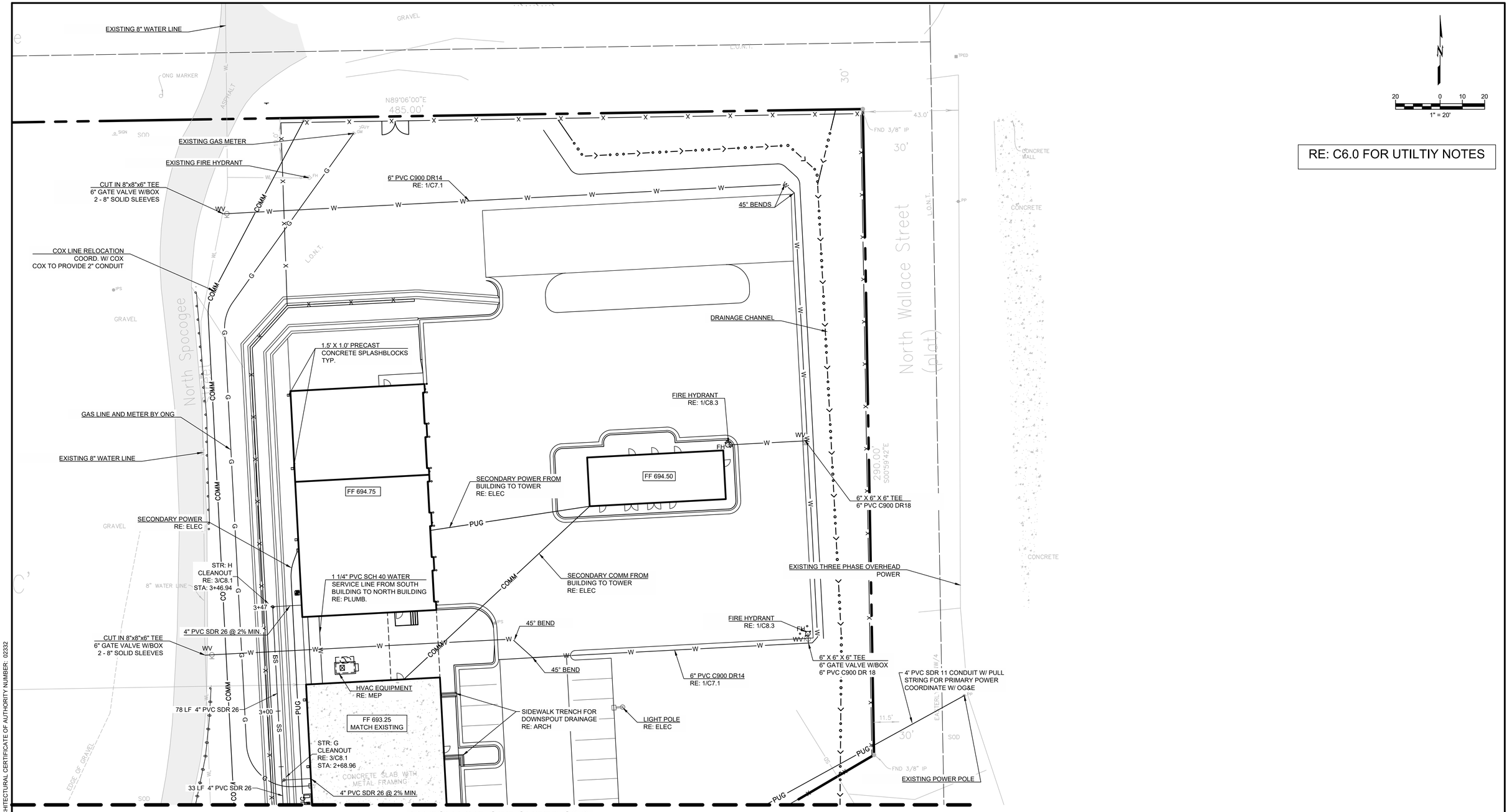
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

wallace design collective
wallace design collective, pc
structural· civil· landscape· survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
UTILITY PLAN

SHEET NUMBER:
C6.0



RE: C6.0 FOR UTILTIY NOTES

MATCH LINE SEE SHEET C6.2

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

811 Know what's below. Call before you dig.

CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

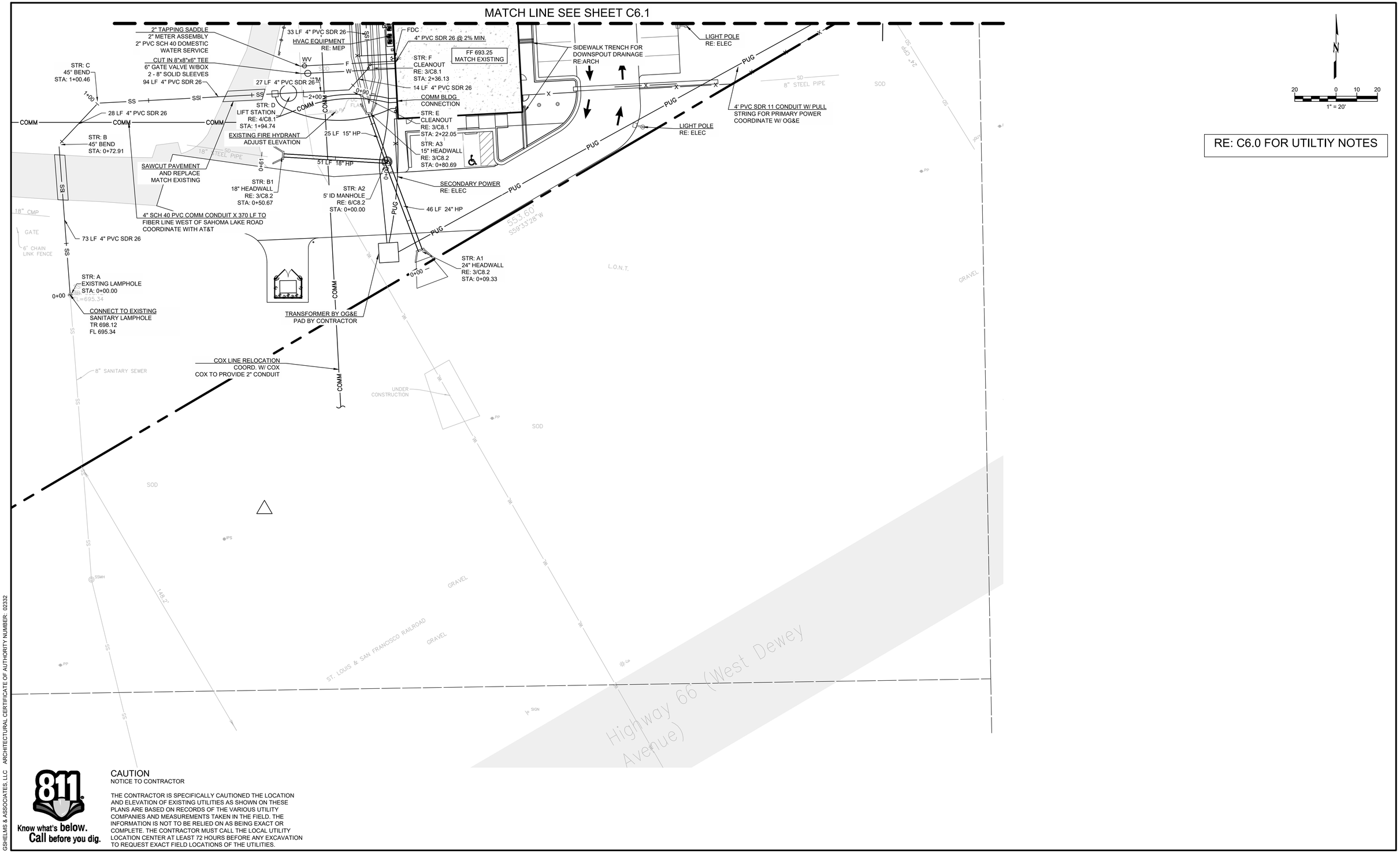
wallace design collective
wallace design collective, pc
structural · civil · landscape · survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
UTILITY PLAN

SHEET NUMBER:
C6.1

MATCH LINE SEE SHEET C6.1



RE: C6.0 FOR UTILTIY NOTES

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

811 Know what's below. Call before you dig.

CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

JORDAN RODICH 26548 LICENSED PROFESSIONAL ENGINEER OKLAHOMA
8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

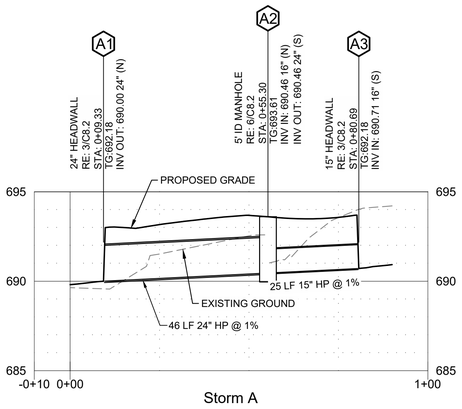
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

wallace design collective
wallace design collective, pc
structural· civil· landscape· survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

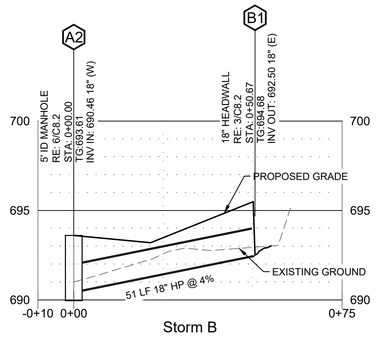
PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
UTILITY PLAN

SHEET NUMBER:
C6.2



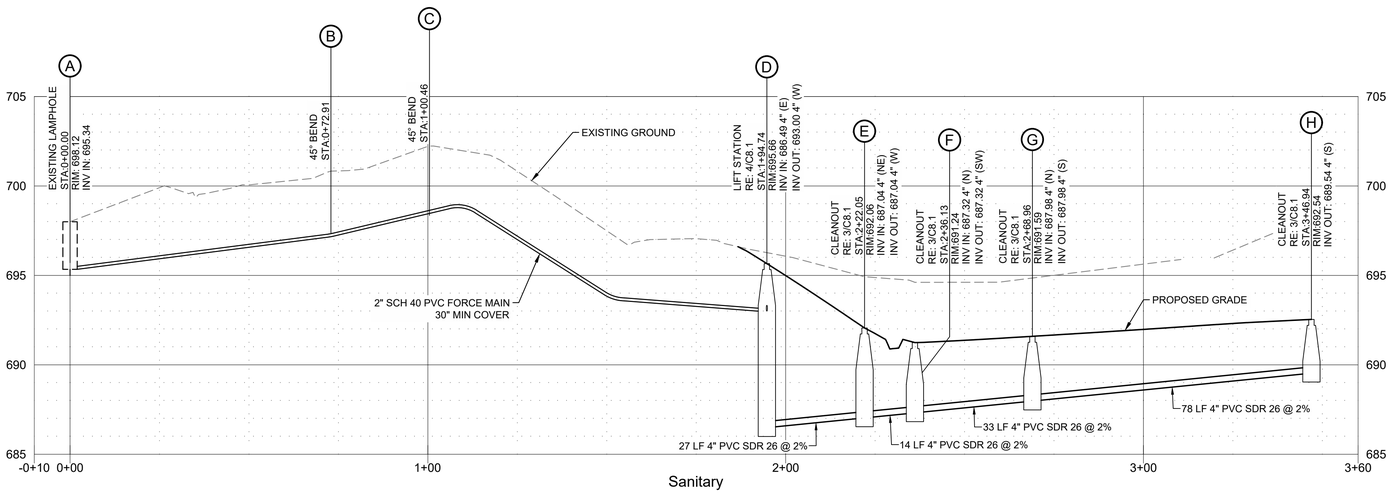
1 STORM A
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=4'



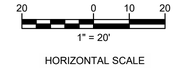
2 STORM B
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=4'

PIPE DESIGN TABLE (RATIONAL)

Label	Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (ft)	Slope (Calculated) (%)	Section Type	Material	Manning's n	Diameter (in)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Energy Grade Line (In) (ft)	Energy Grade Line (Out) (ft)	Velocity (ft/s)
A1-A2	A2	690.46	A1	690.00	46.0	1.0	Circle	HP	0.013	24	22.34	22.62	692.15	691.62	693.12	692.66	8.21
A2-A3	A3	690.70	A2	690.46	25.0	1.0	Circle	HP	0.013	15	5.81	6.33	692.35	692.15	692.70	692.49	4.73
A2-B1	B1	692.50	A2	690.46	51.0	4.0	Circle	HP	0.013	18	16.53	21.01	693.93	692.15	695.34	693.51	13.17



3 SANITARY
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=4'



GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

Know what's below. Call before you dig.

CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:
LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

wallace design collective
wallace design collective, pc
structural · civil · landscape · survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

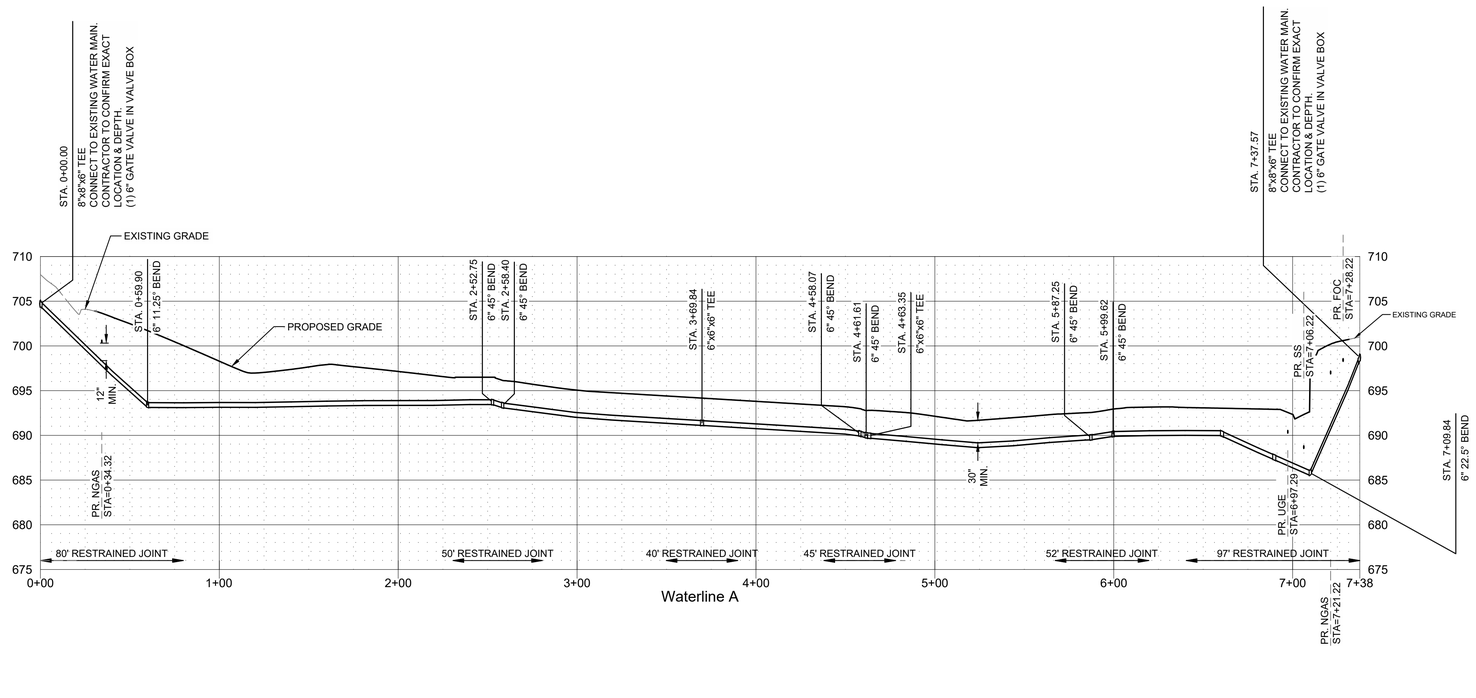
PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
UTILITY PROFILES

SHEET NUMBER:
C7.0

40 0 20 40
1" = 40'
HORIZONTAL SCALE

8 0 4 8
1" = 8'
VERTICAL SCALE



1 WATERLINE A

HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=8'

811 Know what's below. Call before you dig.

CAUTION
NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:
LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

wallace design collective
wallace design collective, pc
structural · civil · landscape · survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

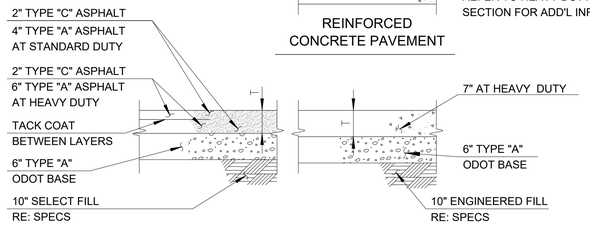
SHEET TITLE:
UTILITY PROFILES

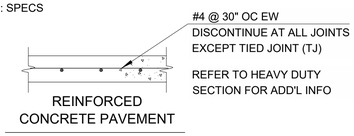
SHEET NUMBER:
C7.1

ALL PAVEMENT IS STANDARD DUTY
UNLESS NOTED ON PLANS

IF EXIST PAVING THICKNESS
IS GREATER THAN SHOWN
MATCH EXISTING

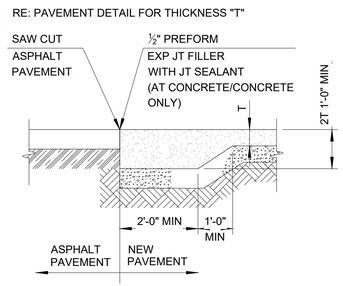
NOTE: FOR REINFORCED CONCRETE PAVEMENT
USE EVAPORATION REDUCER (MONOMOLECULAR FILM)
RE: SPECS





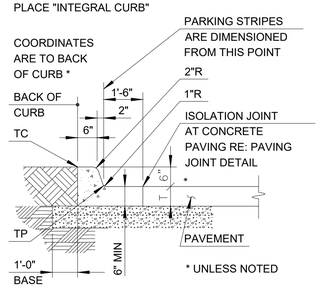
1 PAVEMENT DETAIL
SCALE: NTS

RE: PAVEMENT DETAIL FOR THICKNESS "T"



2 PAVEMENT TRANSITION
SCALE: NTS

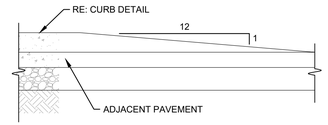
NOTE: IF ADJACENT PAVING
IS CONCRETE CONTRACTOR MAY
PLACE "INTEGRAL CURB"



PLACE JOINTS IN CURB TO
MATCH PAVING - 15 FEET MAX

RE: PAVEMENT DETAIL FOR THICKNESS "T"
6" MIN

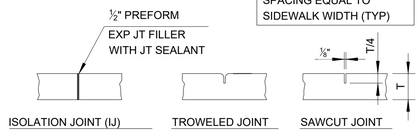
3 CURB AND GUTTER (BARRIER)
SCALE: NTS



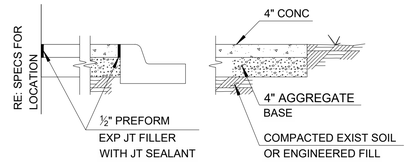
4 CURB TERMINATION
SCALE: NTS

6' TERMINATION

SIDEWALK JOINT
SPACING EQUAL TO
SIDEWALK WIDTH (TYP)

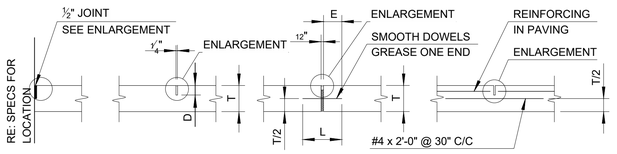


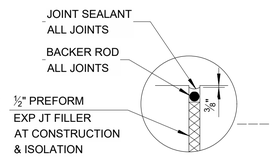
SIDEWALK JOINT



SIDEWALK TO HAVE 2%
CROSS SLOPE MAX

5 SIDEWALK
SCALE: NTS





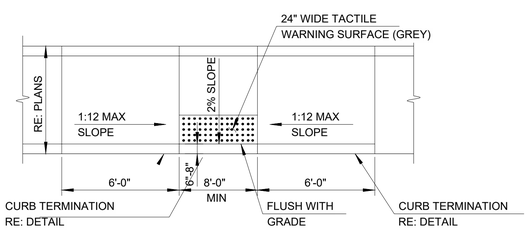
JOINTS NOT SHOWN OTHERWISE SHALL BE SAW JOINTS. SAW JOINTS SHALL BE MADE WITHIN 10 HOURS AFTER CONCRETE POUR.

CONCRETE PAVING JOINT SPACING SEE SCHEDULE

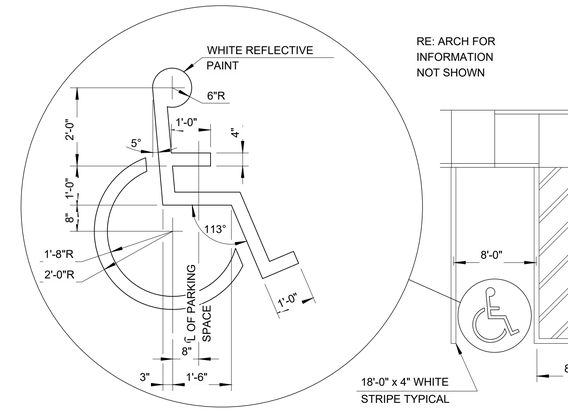
ALL DOWELS & BARS TO BE EPOXY COATED

"T" PAVEMENT THICKNESS	DOWEL DIAMETER @12" C/C	"L" LENGTH	"E" EMBEDMENT	"D" SAWCUT DEPTH	MAX JOINT SPACING
5"	---	---	---	1 ¼"	12.5'
6"	¾"	14"	6"	1 ½"	15'
7"	⅞"	14"	6"	1 ¾"	15'
8"	1"	14"	6"	2"	15'

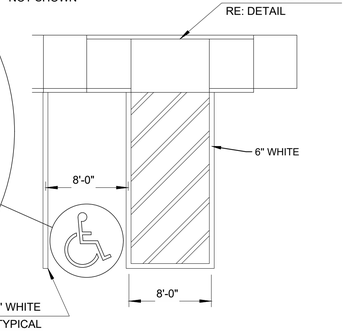
6 PAVING JOINT DETAIL
SCALE: NTS



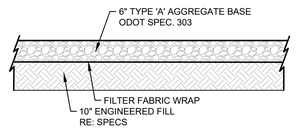
7 CURB RAMP
SCALE: NTS



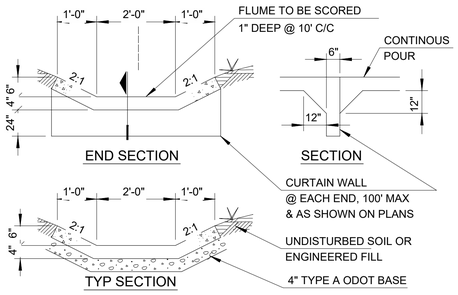
RE: ARCH FOR
INFORMATION
NOT SHOWN



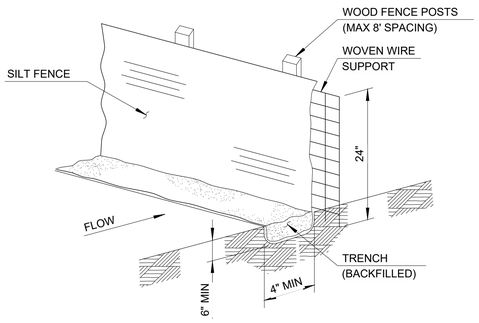
8 ACCESSIBLE STRIPING
SCALE: NTS



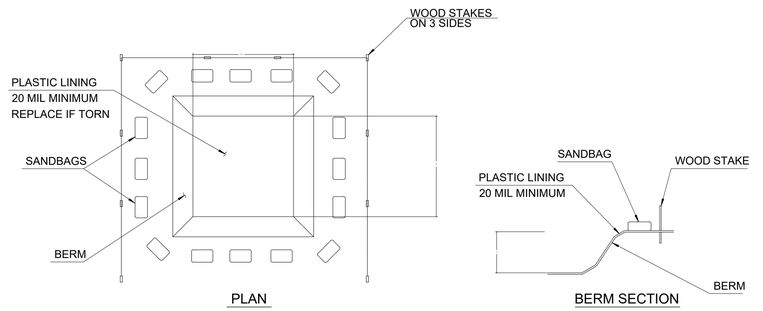
9 GRAVEL PAVEMENT
SCALE: NTS



10 CONCRETE FLUME
SCALE: NTS



11 SILT FENCE
SCALE: NTS



12 CONCRETE WASHOUT PIT
SCALE: NTS

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

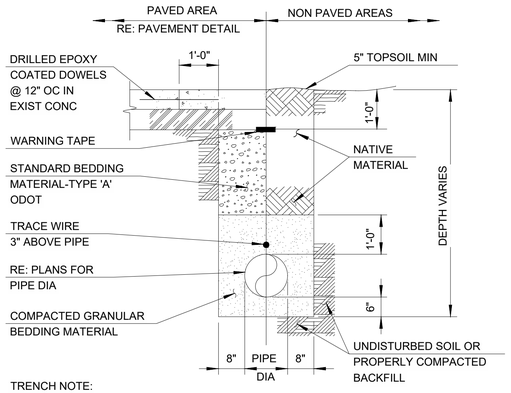
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

wallace design collective
wallace design collective, pc
structural · civil · landscape · survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
DETAILS

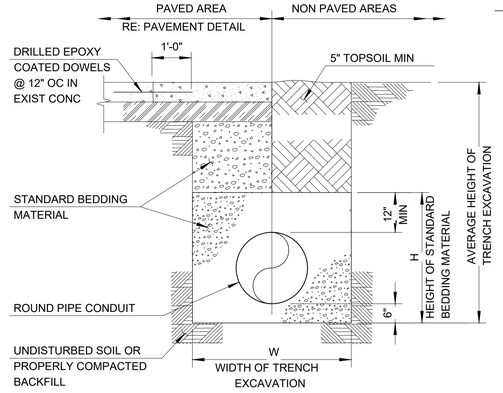
SHEET NUMBER:
C8.0



TRENCH NOTE:
BRACING AND SHEATHING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND OSHA SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE RESPONSIBILITY OF THE CONTRACTOR.

BEDDING NOTE:
UNDER PAVING ODOT TYPE "A" AGGREGATE BASE MUST BE TO THE TOP OF THE TRENCH. ODOT TYPE "A" AGGREGATE BASE TO BE COMPACTED TO 95% STANDARD PROCTOR.

1 PIPE TRENCH-ALL PIPES EXCEPT STORM SEWER
SCALE: NTS



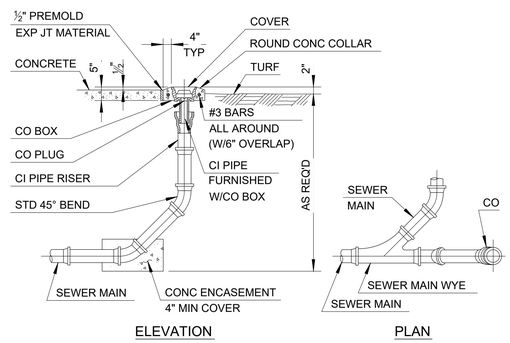
LIMITS OF STANDARD BEDDING MATERIAL QUANTITIES FOR BEDDING MATERIAL DO NOT INCLUDE THE SPACE WITHIN AND BOUNDED BY THE OUTER SURFACE OF THE PIPE CONDUIT.

TRENCH NOTE:
BRACING AND SHEATHING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND OSHA SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE RESPONSIBILITY OF THE CONTRACTOR.

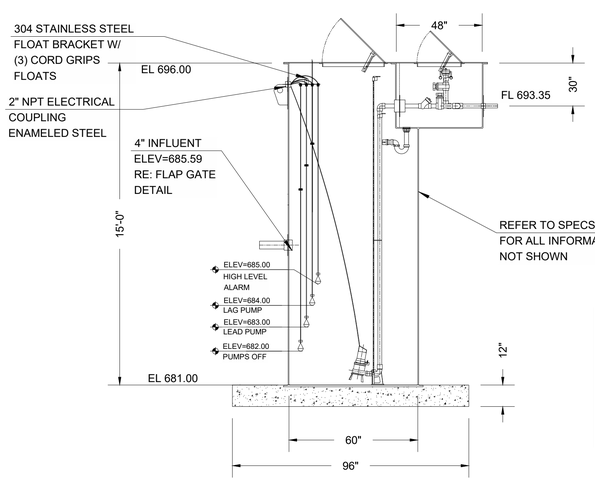
BEDDING NOTE:
STANDARD BEDDING MATERIAL MUST BE ODOT TYPE "A" AGGREGATE BASE. UNDER PAVING ODOT TYPE "A" AGGREGATE BASE MUST BE TO THE TOP OF THE TRENCH. ODOT TYPE "A" AGGREGATE BASE TO BE COMPACTED TO 95% STANDARD PROCTOR.

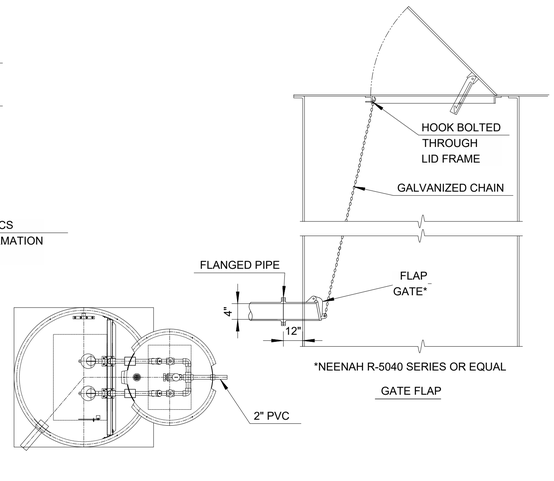
PIPE SIZE, IN.	TRENCH WIDTH, FT.
ID < 24"	OD + 2'
24" > ID < 36"	OD + 2.5'
36" > ID < 60"	OD + 3.5'
ID > 60"	OD + 4'

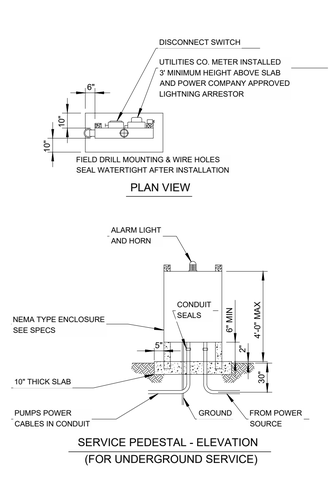
2 STANDARD PIPE BEDDING DETAIL FOR STORM SEWER
SCALE: NTS



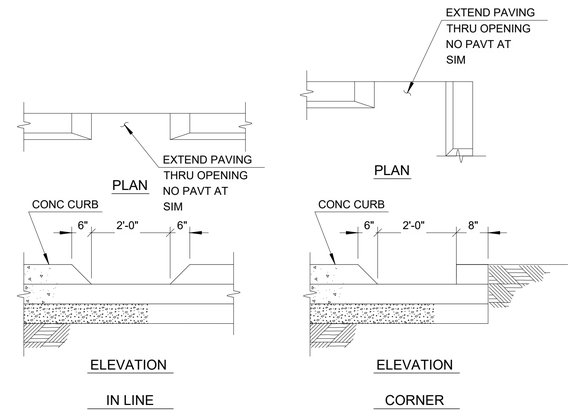
3 CLEANOUT
SCALE: NTS







4 SANITARY LIFT STATION
SCALE: NTS



5 CURB CUT DRAIN
SCALE: NTS

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

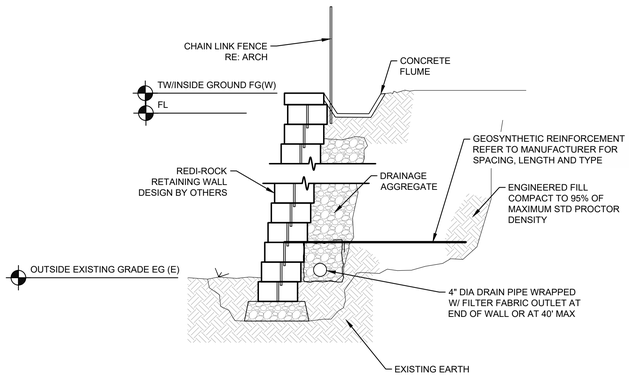
wallace design collective
wallace design collective, pc
structural· civil· landscape· survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
DETAILS

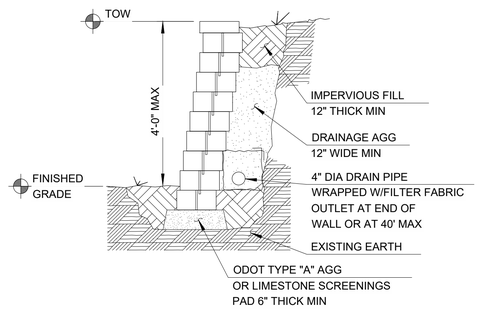
SHEET NUMBER:
C8.1

NOTE: MODULAR BLOCK RETAINING WALL SHALL BE DESIGNED BY MANUFACTURER OR APPROVED EQUAL.
(DETAIL SHOWN FOR INFORMATION ONLY)
RETAINING WALL SHALL BE DESIGNED, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF OKLAHOMA

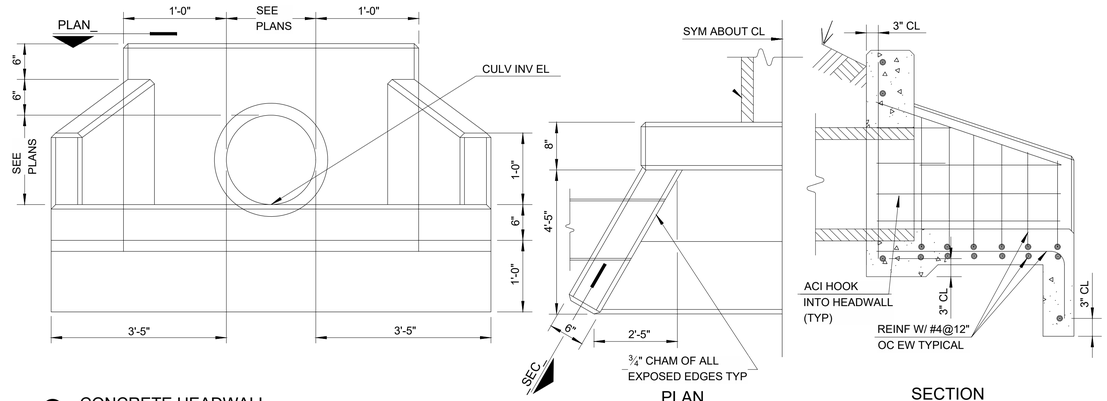


1 REINFORCED MODULAR BLOCK RETAINING WALL W/ FLUME
SCALE: NTS

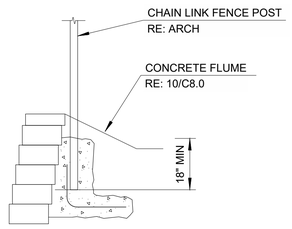
NOTE: MODULAR BLOCK RETAINING WALL SHALL BE DESIGNED BY MANUFACTURER VERSALOK OR APPROVED EQUAL.
(DETAIL SHOWN FOR INFORMATION ONLY)
RETAINING WALL SHALL BE DESIGNED, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF OKLAHOMA



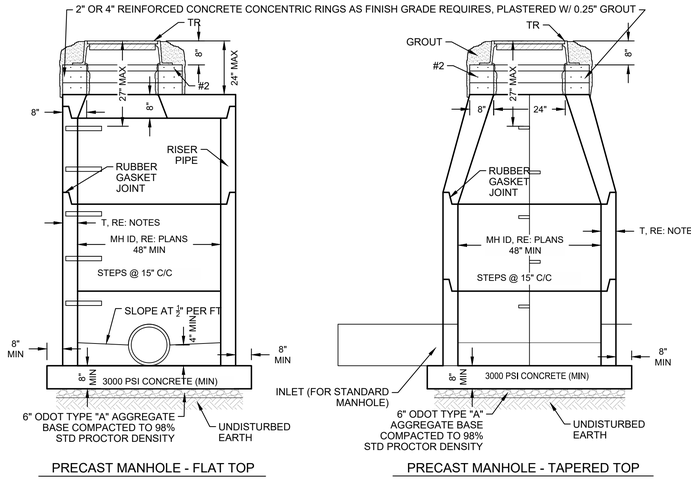
2 UNREINFORCED MODULAR BLOCK RETAINING WALL
SCALE: NTS



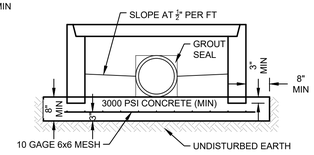
3 CONCRETE HEADWALL
SCALE: NTS



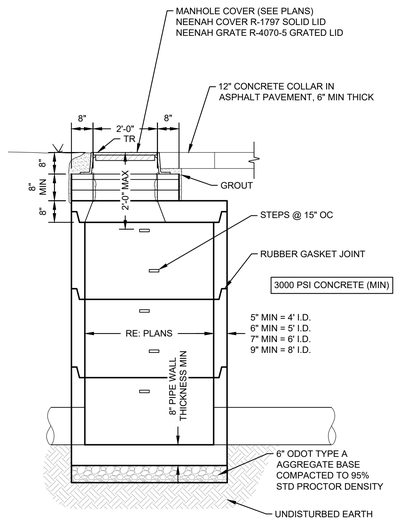
4 FLUSH POST DETAIL
SCALE: NTS



WHEN LOCATED IN ASPHALT, INCLUDE A 12" WIDE CONCRETE COLLAR, MIN 6" THICK
WHERE INLET PIPE IS 24" OR MORE ABOVE MANHOLE FLOWLINE, DROP INLET REQUIRED
100% OF THE INTERIOR (TOP, BOTTOM, AND SIDES) OF ALL MANHOLES SHALL BE THOROUGHLY COATED WITH KOP-COAT BITUMASTIC 300-M OR APPROVED EQUAL. FINAL DRY MILS THICKNESS SHALL BE A MINIMUM OF 12 MILS.
CONFORM TO CURRENT ASTM C478
WHEN CAST-IN-PLACE BASE IS USED, THE PRECAST BOTTOM SECTION SHALL BE EMBEDDED A MINIMUM IF 3" INTO THE BASE
WRAP RISER AND JOINTS WITH POLYWRAP PRIOR TO PLACING FILL
WALL THICKNESS, T, MIN 5". 4' ID = 5" T 5' ID = 6" T 8' ID = 6" T



5 SANITARY SEWER MANHOLE
SCALE: NTS



6 STORM MANHOLE
SCALE: NTS

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

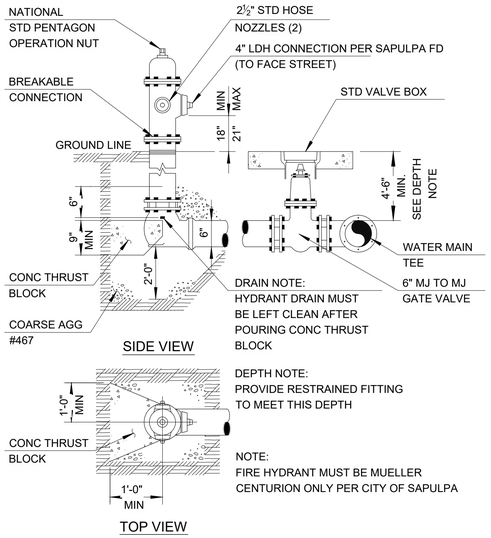
wallace design collective
wallace design collective, pc
structural· civil· landscape· survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

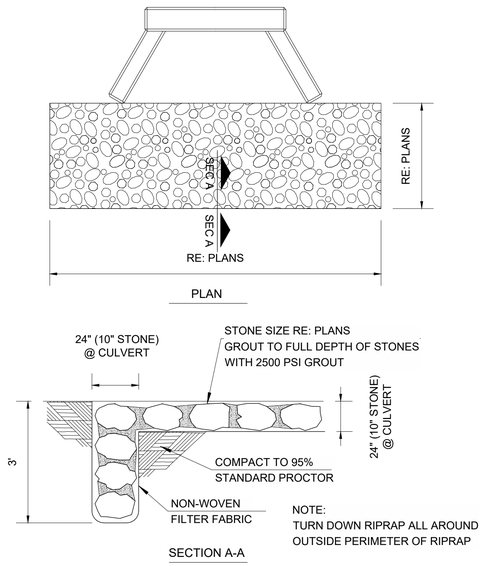
SHEET TITLE:
DETAILS

SHEET NUMBER:
C8.2

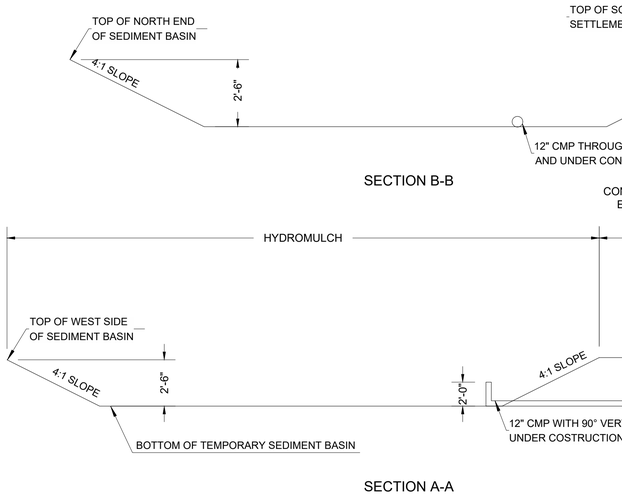
GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332



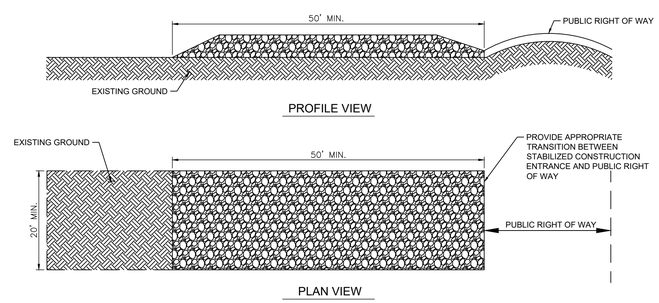
1 FIRE HYDRANT DETAIL
SCALE: NTS



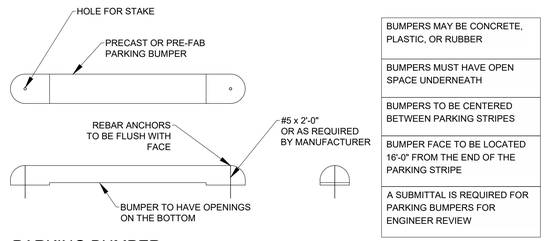
2 RIP RAP
SCALE: NTS



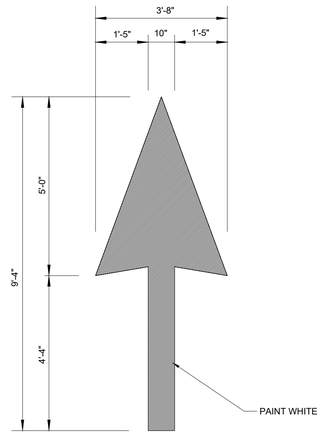
3 TEMPORARY SEDIMENT BASIN
SCALE: NTS



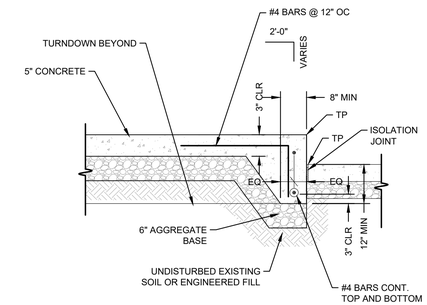
4 STABILIZED CONSTRUCTION ENTRANCE
SCALE: NTS



5 PARKING BUMPER
SCALE: NTS



6 DIRECTIONAL ARROWS
SCALE: NTS



7 CONCRETE TURNDOWN
SCALE: NTS

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
A	100% CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
8.11.2025

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JE
APPROVED BY:	JR

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

wallace design collective
wallace design collective, pc
structural· civil· landscape· survey
123 north martin luther king jr. blvd.
tulsa, oklahoma 74103
918.584.5858
oklahoma ca1460
exp: 6-30-27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
DETAILS

SHEET NUMBER:
C8.3

GENERAL STRUCTURAL NOTES

A. DESIGN CRITERIA

1. BUILDING CODE - 2018 IBC BUILDING CODE, INCLUDING LOCAL SUPPLEMENTS.

2. GRAVITY LOADS -

LOCATION	UNIFORM LIVE LOAD	CONCENTRATED LIVE LOAD**	UNIFORM DEAD LOAD*
SLAB-ON-GRADE	100 PSF	2000 LB.	-------
ROOF (MINIMUM)	20 PSF	-------	-------

ROOF LIVE LOAD IS NOT REDUCED. FLOOR LIVE LOADS ARE REDUCED IN ACCORDANCE WITH THE BUILDING CODE.

SNOW LOAD IN ACCORDANCE WITH THE 2018 IBC BUILDING CODE -

GROUND SNOW LOAD . . . . Pg = 10 PSF (SAPULPA, OK.)
FLAT ROOF SNOW LOAD . . Pf = 6.9 PSF (Pf = CeIPg)
ROOF SLOPE FACTOR . . . . Cs = 1.0 (Cs=1-((a-30)/40))
SNOW EXPOSURE FACTOR . . . Ce = 0.9 (ALL OTHER STRUCTURES)
SNOW IMPORTANCE FACTOR . I = 1.1 (ALL BLDGS. U.O.N.)
RAIN LOAD (10.2 IN/HR) . . . . . .42 PSF

3. LATERAL LOADS -

A. WIND LOAD IN ACCORDANCE WITH THE 2018 IBC BUILDING CODE -

ULTIMATE WIND SPEED . . . . . V = 108 MPH
WIND EXPOSURE C
INTERNAL PRESSURE COEFF . . . . GCpi = +/-0.18
* PRESSURE INDICATES COMBINED WINDWARD AND LEEWARD PRESSURE.

B. SEISMIC LOAD IN ACCORDANCE WITH THE 2018 IBC BUILDING CODE -

SITE CLASS C
SPECTRAL RESPONSE COEFF . . . . .Ss=0.137, S1=0.072
ANALYSIS PROCEDURE . . . . . .EQUIVALENT LATERAL FORCE
IMPORTANCE FACTOR 1.15

B. SOIL PREPARATION AND FOUNDATIONS

1. FOUNDATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED FOR THIS PROJECT BY BELONGIA CONSULTANTS INC. DATED 23, 2020. REPORT #1205035 AND ADDENDUM LETTER #1205035A.

2. ALL EXCAVATION, FILL, COMPACTION AND GRADING OF THE SITE SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND THE RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT.

3. SOIL SUPPORTED FOUNDATIONS -

A. DESIGN ALLOWABLE BEARING PRESSURE (NET) IS 2,500 PSF FOR FOUNDATIONS BEARING ON A 12" THICKNESS (MINIMUM) APPROVED STRUCTURAL FILL MATERIAL. BEARING MATERIALS SHALL BE VERIFIED BY A LICENSED GEOTECHNICAL ENGINEER.

B. MOISTURE CONTENT IN FOOTING EXCAVATIONS SHALL BE MAINTAINED UNTIL FOOTING IS PLACED. FOOTINGS SHALL BE POURED AS SOON AS PRACTICAL AFTER EXCAVATIONS ARE COMPLETED.

C. CAST-IN-PLACE CONCRETE -

1. ALL STRUCTURAL CONCRETE HAS BEEN DESIGNED IN ACCORDANCE WITH ACI 318-11 AND THE BUILDING CODE.

2. THE CONCRETE REQUIREMENTS ARE -

A. 28 DAY CONCRETE COMPRESSIVE STRENGTHS -

LOCATION	MINIMUM F'c (PSI)	UNIT WEIGHT (PCF)	MAX. AGGREGATE SIZE (IN)
PIERS	3000	150	1"
GRADE BEAMS	3000	150	1"
INT. SLAB-ON-GRADE	3500*	150	3/4"
ELEVATED SLAB	4000	150	3/4"

B. CONCRETE CLEAR COVER OVER REINFORCING SHALL BE IN ACCORDANCE WITH ACI 318-11, LISTED BELOW, UNLESS OTHERWISE NOTED -

LOCATION	CLEAR COVER (INCHES)
CAST AGAINST EARTH	3
EXPOSED TO EARTH OR WEATHER #6 AND LARGER	2
EXPOSED TO EARTH OR WEATHER #5 AND SMALLER	1 1/2
SLABS NOT EXPOSED TO WEATHER	1
SLABS ON GRADE (COVER FROM TOP OF SLAB)	1 1/2

3. CONCRETE REINFORCING SHALL MEET THE FOLLOWING -

A. REINFORCING BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615 GRADE 60. REINFORCING BARS REQUIRED TO BE WELDED SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GRADE 60. WELDING OF REINFORCING OTHER THAN SPECIFIED IS PROHIBITED.

B. ALL REINFORCING SHALL BE CONTINUOUS. CONTINUOUS BARS SHALL LAP IN ACCORDANCE WITH GRADEBEAM DETAIL, UNLESS OTHERWISE NOTED.

C. PROVIDE CORNER BARS IN OUTSIDE FACE OF ALL GRADE BEAMS AND WALLS EQUAL IN SIZE AND SPACING TO MAIN HORIZONTAL REINFORCING. EXTEND INSIDE FACE REINFORCING OF ALL GRADE BEAMS AND WALLS TO OUTSIDE FACE AND BEND TO A STANDARD 90 DEGREE HOOK.

D. SHOP DRAWINGS SHALL BE SUBMITTED WITH REINFORCING STEEL DETAILED IN ACCORDANCE WITH ACI 315-94.

4. FORMING AND EMBEDMENTS SHALL MEET THE FOLLOWING -

A. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" INSIDE FORMS OR TOOLED TO 3/4" RADIUS ON SLABS UNLESS OTHERWISE NOTED.

B. SLABS ON GRADE SHALL HAVE CONSTRUCTION JOINTS AND CONTROL JOINTS (SAWED JOINTS) LOCATED AS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL LOCATE SLAB JOINTS ON SHOP DRAWINGS.

C. WHERE NECESSARY, VERTICAL CONSTRUCTION JOINTS SHALL BE LOCATED WITHIN THE CENTER ONE-THIRD OF THE SPAN. ALL JOINTS SHALL BE THOROUGHLY CLEANED AND PURPOSELY ROUGHENED TO 1/4" PRIOR TO PLACING ADJACENT CONCRETE. JOINTS IN EXPOSED CONCRETE SHALL BE USED WITH A MAXIMUM SPACING OF 50 FEET.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL FORMING, TEMPORARY BRACING, AND SHORING.

E. NO ALUMINUM SHALL BE EMBEDDED IN CONCRETE. CONDUITS AND PIPING EMBEDDED IN CONCRETE SHALL BE SPACED A MINIMUM OF FOUR DIAMETERS AND THE OUTSIDE DIAMETER SHALL BE LESS THAN 30 PERCENT OF THE MEMBER THICKNESS PLACED BETWEEN LAYERS OF REINFORCING.

5. CURING FOR CONCRETE SURFACES NOT IN CONTACT WITH FORMS, ONE OF THE FOLLOWING PROCEDURES SHALL BE APPLIED IMMEDIATELY AFTER COMPLETION OF PLACEMENT AND FINISHING -

A. PONDING OR CONTINUOUS SPRINKLING.

B. APPLICATION OF ABSORPTIVE MATS OR FABRIC KEPT CONTINUOUSLY WET. CLEAN

C. APPLICATION OF WATERPROOF SHEET MATERIALS, CONFORMING TO "SPECIFICATIONS FOR WATERPROOF SHEET MATERIALS FOR CURING CONCRETE" (ASTM C 171).

D. APPLICATION OF A CURING COMPOUND CONFORMING TO "SPECIFICATIONS FOR LIQUID MEMBRANE-FORMING COMPOUNDS FOR CURING CONCRETE" (ASTM C 309). THE COMPOUND SHALL BE APPLIED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER IMMEDIATELY AFTER ANY WATER SHEEN WHICH MAY DEVELOP AFTER FINISHING HAS DISAPPEARED FROM THE CONCRETE SURFACE. IT SHALL NOT BE USED ON ANY SURFACE AGAINST WHICH ADDITIONAL CONCRETE IS TO BE BONDED UNLESS IT IS PROVEN THAT THE CURING COMPOUND WILL NOT PREVENT BOND, OR UNLESS POSITIVE MEASURES ARE TAKEN TO REMOVE IT COMPLETELY FROM AREAS TO RECEIVE BONDED APPLICATIONS. CURING SHALL BE CONTINUED AT LEAST 7 DAYS.

D. PREFABRICATED METAL BUILDING -

1. REFER TO PROJECT SPECIFICATIONS - METAL BUILDING SYSTEMS, FOR ADDITIONAL REQUIREMENTS.

2. THE BUILDING SHALL BE A PREFABRICATED METAL STRUCTURE OF THE SIZE AND CONFIGURATION SHOWN. THE BUILDING SHALL BE FABRICATED ACCORDING TO AISC, MBMA AND AISI LATEST SPECIFICATIONS. WHEN CONFLICTS OCCUR BETWEEN AISC, MBMA AND AISI, THE MOST STRINGENT SHALL CONTROL. THE DIMENSIONAL TOLERANCES OUTLINED IN THE AWS CODE UNDER WORKMANSHIP AND THE TOLERANCES APPLICABLE TO ROLL FORMED STEEL UNDER THE AISC "STANDARD MILL PRACTICE" SECTION SHALL BE REQUIRED IN THE FABRICATION OF THE STEEL BUILDING FRAMES.

3. THE BUILDING SHALL BE DESIGNED ACCORDING TO THE BUILDING CODE, AISC, MBMA AND AISI, LATEST SPECIFICATIONS. WHEN CONFLICTS OCCUR, THE MOST STRINGENT SHALL GOVERN. THE FOLLOWING ARE ADDITIONAL DESIGN GUIDELINES -

A. A COMPLETE DESIGN ANALYSIS SHOWING ALL CALCULATIONS FOR THE RIGID FRAMES, GIRTS, PURLINS AND BRACING FOR WIND AND SEISMIC LOADS AND A LAYOUT OF ANCHOR BOLTS AND OTHER EMBEDDED ITEMS SHALL BE SUBMITTED FOR APPROVAL WITH THE SHOP DRAWINGS. SHOP DRAWINGS SHALL INCLUDE DETAILS OF ALL MAIN MEMBERS, TYPICAL CONNECTIONS (SHOWING BOLT HOLES AND WELDS), AND ERECTION DRAWINGS. SHOP DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED BEARING THE SEAL OF AN ENGINEER REGISTERED IN THE STATE OF OKLAHOMA.

B. THE BUILDING SHALL BE DESIGNED TO SUPPORT ALL MECHANICAL AND KITCHEN EQUIPMENT INCLUDING HEATERS, SPRINKLERS, EXHAUST SYSTEMS AND ALL OTHER SUCH DEVICES. ADDITIONAL BEAMS, GIRTS OR PURLINS SHALL BE PLACED IN CONVENIENT LOCATIONS FOR ATTACHMENT OF ALL EQUIPMENT.

C. THE BUILDING FRAME SHALL BE DESIGNED TO LIMIT THE LATERAL DEFLECTION TO H / 200 (H BEING THE EAVE HEIGHT) AT THE BUILDING EAVE FOR THE BASIC WIND SPEED IDENTIFIED IN THE *"GENERAL STRUCTURAL NOTES - SECTION "DESIGN CRITERIA"*.

E. MISCELLANEOUS -

1. SHOP DRAWINGS SHALL BE ORIGINAL DRAWINGS, PREPARED BY CONTRACTOR, SUBCONTRACTOR, SUPPLIER OR DISTRIBUTOR. REPRODUCTION OF STRUCTURAL CONTRACT DOCUMENTS AS ERECTION PLANS OR DETAILS WILL NOT BE PERMITTED AND WILL BE REJECTED WITHOUT CHECKING.

2. CONTRACTOR SHALL SUPPLY ALL ITEMS FOR ATTACHING MECHANICAL AND ELECTRICAL EQUIPMENT TO THE BUILDING STRUCTURE TO RESIST ALL LOADS INCLUDING SEISMIC FORCES. ATTACHMENT SHALL BE MADE SO AS NOT TO OVERSTRESS STRUCTURAL MEMBERS. COORDINATE THE ATTACHMENTS AND LOCATIONS OF THE EQUIPMENT WITH THE STRUCTURAL SHOP DRAWINGS. REFER TO THE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

3. SUBSTITUTION OF EXPANSION ANCHORS FOR EMBEDDED ANCHORS SHOWN ON THE DRAWINGS WILL NOT BE PERMITTED UNLESS APPROVED BY THE ENGINEER IN ADVANCE.

4. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING ADDITIONAL SERVICES-

A. VERIFICATION OF ALL DIMENSIONS, ELEVATIONS, OPENING SIZES, AND MECHANICAL EQUIPMENT WEIGHTS PRIOR TO STARTING WORK.

B. VERIFICATION OF ALL DIMENSIONS AND MEMBER SIZES RELATING TO EXISTING BUILDING.

C. VERIFICATION OF ALL FLOOR DEPRESSIONS AND OFFSETS WITH ARCHITECTURAL DRAWINGS.

D. REMOVE ALL ABANDONED FOUNDATIONS, UTILITIES, PIPELINES, ETC. THAT INTERFERE WITH NEW CONSTRUCTION.

E. REVIEW AND APPROVE ALL SHOP DRAWINGS PRIOR TO SUBMITTAL NOTING CHANGES MADE WHICH DO NOT COMPLY WITH DESIGN DRAWINGS.

F. PROVIDE TEMPORARY BRACING AND SHORING AS REQUIRED FOR STABILITY DURING CONSTRUCTION.

SPECIAL INSPECTIONS

PER IBC SECTION 1704, SPECIAL INSPECTION IS REQUIRED FOR THE FOLLOWING ITEMS:

1. CONCRETE CONSTRUCTION IN ACCORDANCE WITH 2018 IBC TABLE 1705.3
   - A.) DURING THE TAKING OF TEST SPECIMENS.
   - B.) DURING THE PLACEMENT OF CONCRETE AROUND BOLTS.
   - C.) DURING THE PLACING OF REINFORCING STEEL.
   - D.) DURING THE PLACEMENT OF ALL REINFORCED CONCRETE, UNLESS NOTED OTHERWISE.
   - E.) EXCEPTION: NO INSPECTION IS REQUIRED FOR CONVENTIONAL SLABS- ON- GRADE.
2. STEEL CONSTRUCTION IN ACCORDANCE WITH 2018 IBC SECTION 1705
3. WELDING
   - A.) VISUAL INSPECTION OF ALL WELDS.
4. ADHESIVE,EXPANSION AND EPOXY BOLTS
   - A.) DURING PLACEMENT OF ALL ADHESIVE, EXPANSION AND EPOXY BOLTS FOR VISUAL VERIFICATION OF HOLE DIAMETER AND DEPTH AND PLACEMENT OF BOLT AND/ OR ADHESIVE OR EPOXY.
5. SOILS IN ACCORDANCE WITH 2018 IBC TABLE 1705.6 AND 1705.8
6. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:
   - A.) THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED TO VERIFY THAT IT IS IN ACCORDANCE WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS.
   - B.) THE AGENCY IN CHARGE OF SPECIAL INSPECTION SHALL PROVIDE INSPECTION REPORTS TO THE BUILDING OFFICIAL AND TO THE ENGINEER OR ARCHITECT OF RECORD. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF UNCORRECTED, SUCH DISCREPANCIES SHALL BE SUBMITTED TO THE DESIGN AUTHORITY AND THE BUILDING OFFICIAL.
   - C.) UPON COMPLETION OF THE ASSIGNED WORK THE ENGINEER OR ARCHITECT SHALL COMPLETE AND SIGN THE APPROPRIATE FORMS CERTIFYING THAT TO THE BEST OF HIS KNOWLEDGE THE WORK IS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE.

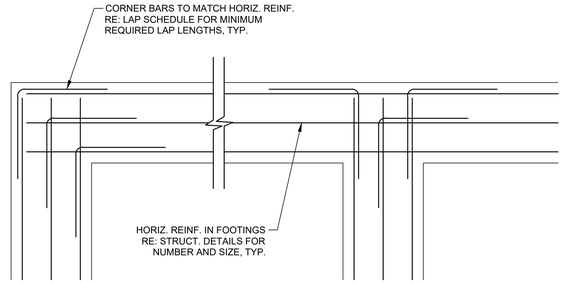
SPECIAL INSPECTION IS TO BE PROVIDED IN ADDITION TO THE INSPECTIONS CONDUCTED BY THE CITY AND SHALL NOT BE CONSTRUED TO RELIEVE THE CONTRACTOR FROM REQUESTING THE PERIODIC AND CALLED INSPECTIONS REQUIRED BY SEC. 106 OF THE INTERNATIONAL BUILDING CODE. SPECIAL INSPECTION IS REQUIRED FOR THE ABOVE.

MATERIALS TESTING

ANY MATERIALS TESTING REQUIRED IN THESE DOCUMENTS SHALL BE PROVIDED BY AN INDEPENDENT TESTING AGENCY LICENSED AND EXPERIENCED IN TESTING ACCORDING TO ASTM OR OTHER APPROVED AND RECOGNIZED STANDARDS. THE TESTING AGENCY SHALL PROVIDE WRITTEN REPORTS TO THE CONTRACTOR, ENGINEER OF RECORD, ARCHITECT AND OWNER WITHIN ONE WEEK OF COMPLETION OF ANY TEST. ANY FAILURE OR DEFICIENCIES DISCOVERED DURING TESTING SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR AND SHALL BE CLEARLY NOTED ON THE TESTING REPORT. ALL TESTING EXPENSES SHALL BE PAID BY THE CONTRACTOR.

ABBREVIATION SCHEDULE

A.B.	ANCHOR BOLT	MAX.	MAXIMUM
ALT.	ALTERNATE	M.B.	MACHINE BOLT
APPROX.	APPROXIMATE	M.B.M.	METAL BUILDING MANUFACTURER
ARCH.	ARCHITECTURAL	MECH.	MECHANICAL
(B), BOTT.	BOTTOM	MIN.	MINIMUM
BLDG.	BUILDING	MISC.	MISCELLANEOUS
BM	BEAM	(N)	NEW
BTWN	BETWEEN	N.I.C.	NOT IN CONTRACT
C.I.P.	CAST-IN-PLACE	N.T.S.	NOT TO SCALE
C.J.	CONSTRUCTION JOINT	O.C., OR oc	ON CENTER
C , CL	CENTERLINE	O.D.	OUTSIDE DIAMETER
CLR.	CLEARANCE	O.F.	OUTSIDE FACE
C.M.U.	CONCRETE MASONRY UNIT	O.H., OPP. HD.	OPPOSITE HAND
COL.	COLUMN	OPP.	OPPOSITE
CONC.	CONCRETE	OPG., OPNG.	OPENING
CONN.	CONNECTION	PART.	PARTIAL, PARTITION
CONST.	CONSTRUCTION	PERP.	PERPENDICULAR
C.P.	COMPLETE PENETRATION	P , PL	PLATE
CONT.	CONTINUOUS	P.P.	PARTIAL PENTRATION
CTSK.	COUNTERSUNK	PT.	POINT
D.A.S.	DEFORMED ANCHOR STUD	R.O.	ROUGH OPENING
DBL	DOUBLE	REINF.	REINFORCEMENT
DET.	DETAIL	REINF'D.	REINFORCED
DIA., Ø	DIAMETER	REQ'D.	REQUIRED
DIM.	DIMENSION	SCHED.	SCHEDULE
DIR.	DIRECTION	SECT.	SECTION
DWG	DRAWING	SHT.	SHEET
(E), EXIST.	EXISTING	SIM.	SIMILAR
EA.	EACH	STD.	STANDARD
FLG.	FLANGE	TOC	TOP OF CONCRETE
LLH	LONG LEG HORIZONTAL	TOS	TOP OF STEEL
LLV	LONG LEG VERTICAL	T/SLAB	TOP OF SLAB
LONG.	LONGITUDINAL	TYP.	TYPICAL
		U.N.O.	UNLESS NOTED OTHERWISE



1 CORNER BARS DETAILS
NO SCALE

BAR SIZE	LAP	
	TOP	OTHER
#3	28"	22"
#4	37"	29"
#5	47"	36"
#6	56"	43"
#7	81"	63"
#8	93"	72"

CONCRETE REINFORCING LAP SCHEDULE

2 REINFORCING LAP SCHEDULE
NO SCALE

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER
ERON DEWAYNE RICHARDS
21556
OKLAHOMA
12.08.25

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	PNC
CHECKED BY:	EDR
APPROVED BY:	EDR

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

STRUCTURAL ENGINEERING CONSULTANT:
RICHARDS & ASSOCIATES, INC.
424 EAST MAIN STREET JENKS, OK
405.627.9584 FAX 918.355.9309
C.A. #4458 EXP. DATE 06.30.27

PROJECT TITLE:

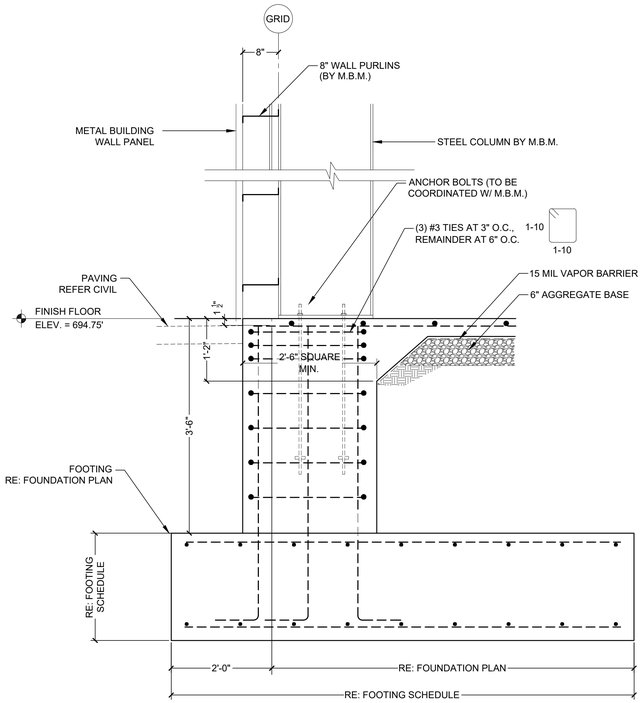
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

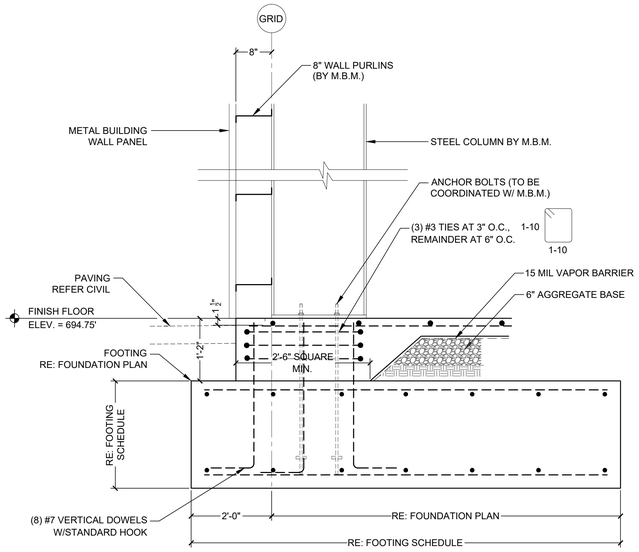
GENERAL STRUCTURAL NOTES

SHEET NUMBER:

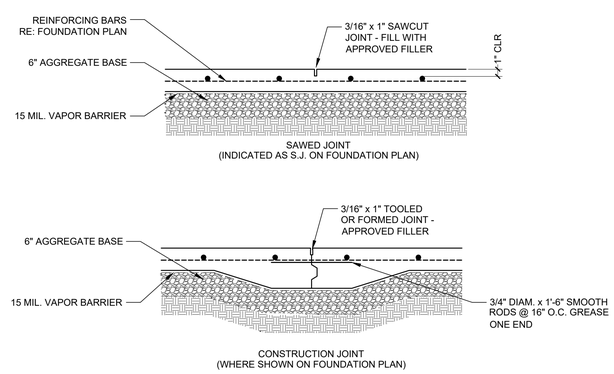
S001



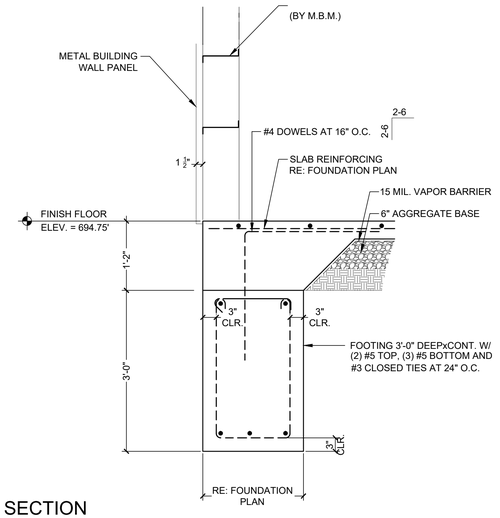
1 SECTION
SCALE: 3/4" = 1'-0"



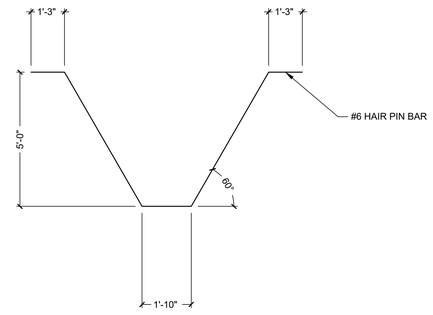
2 SECTION
SCALE: 3/4" = 1'-0"



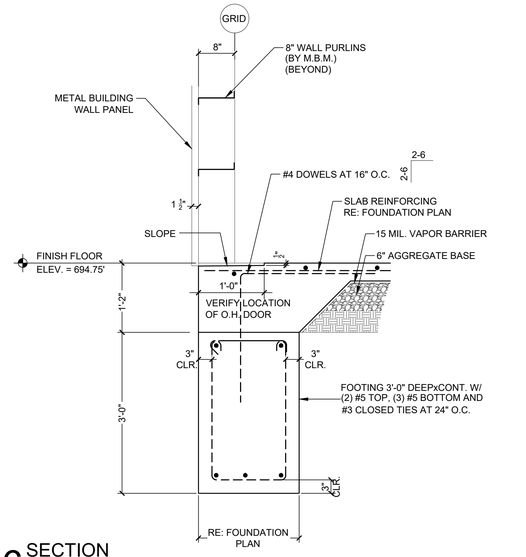
3 SECTION
SCALE: 3/4" = 1'-0"



4 SECTION
SCALE: 3/4" = 1'-0"



5 SECTION
SCALE: 3/4" = 1'-0"



6 SECTION
SCALE: 3/4" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	PNC
CHECKED BY:	EDR
APPROVED BY:	EDR

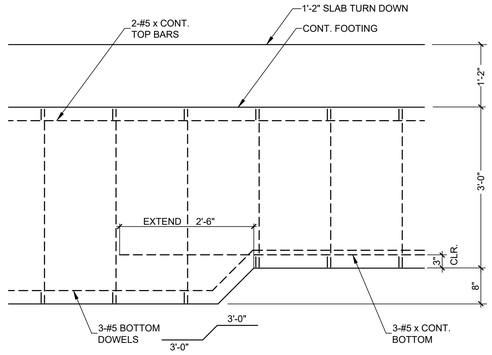
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

STRUCTURAL ENGINEERING CONSULTANT:
RICHARDS & ASSOCIATES, INC.
424 EAST MAIN STREET JENKS, OK
405.627.9584 FAX 918.355.9309
C.A. #4458 EXP. DATE 06.30.27

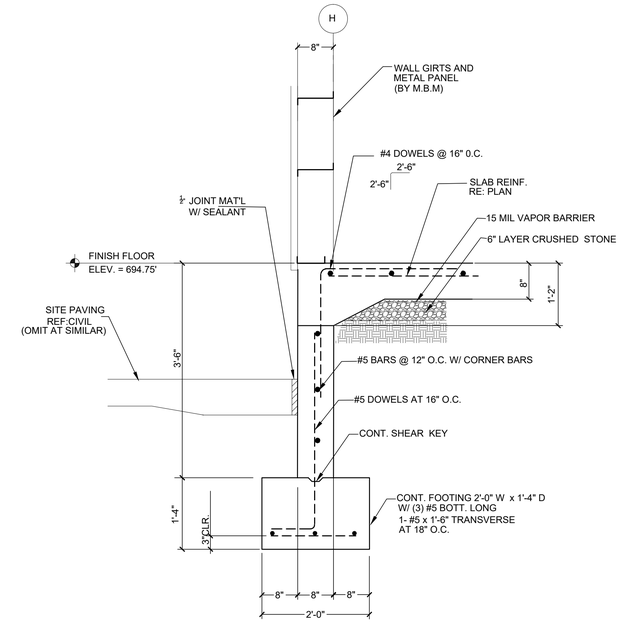
PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
FOUNDATION DETAILS

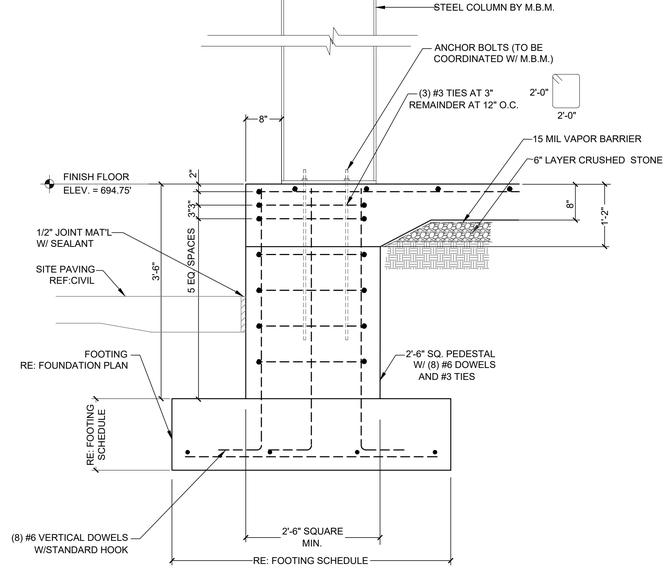
SHEET NUMBER:
S010



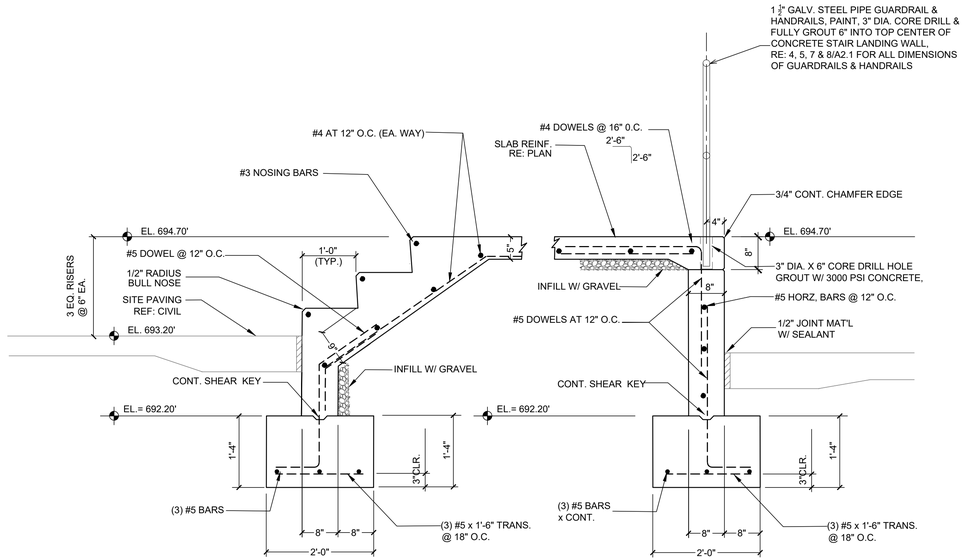
4 FOOTING STEP DETAIL
SCALE: 3/4" = 1'-0"



1 SECTION
SCALE: 3/4" = 1'-0"



2 SECTION
SCALE: 3/4" = 1'-0"



3 SECTION
SCALE: 3/4" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	PNC
CHECKED BY:	EDR
APPROVED BY:	EDR

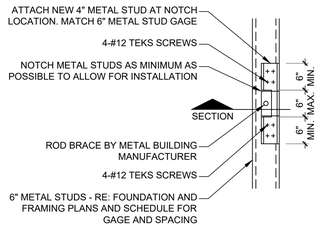
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

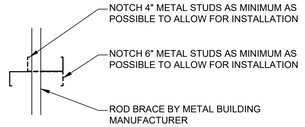
STRUCTURAL ENGINEERING CONSULTANT:
RICHARDS & ASSOCIATES, INC.
424 EAST MAIN STREET JENKS, OK
405.627.9584 FAX 918.355.9309
C.A. #4458 EXP. DATE 06.30.27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
FOUNDATION DETAILS

SHEET NUMBER:
S011





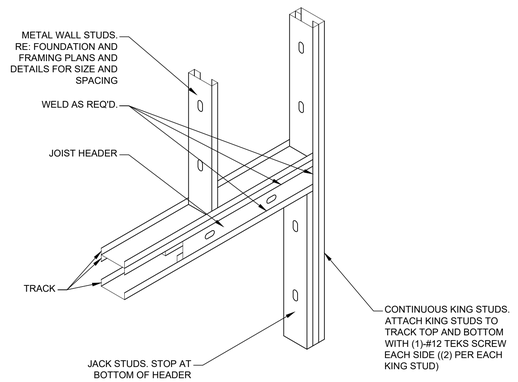
SECTION

1 STEEL STUD NOTCH REPAIR DETAIL

NOT TO SCALE

HEADER SCHEDULE - EXTERIOR WALLS				
WIDTH	CLEAR SPAN	HEADER	JACK STUDS	KING STUDS
6"	UP TO 4'-4"	(3)-6"x18 GAGE	(1)-6"x18 GAGE	(1)-6"x18 GAGE
6"	4'-5" TO 6'-4"	(3)-6"x16 GAGE	(1)-6"x16 GAGE	(1)-6"x16 GAGE
6"	6'-4" TO 8'-4"	(3)-8"x16 GAGE	(2)-6"x16 GAGE	(2)-6"x16 GAGE
6"	8'-4" TO 10'-4"	(3)-12"x16 GAGE	(2)-6"x16 GAGE	(2)-6"x16 GAGE

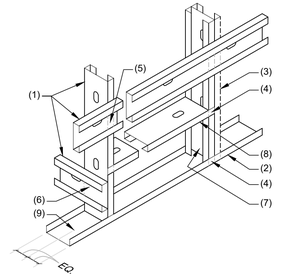
NOTES:
1. USE HEADER SCHEDULE ABOVE, UNLESS NOTED OTHERWISE ON FRAMING PLANS OR DETAILS.
2. EACH HEADER SHALL INCLUDE (3)-6"x16 GAGE TRACK SECTIONS AS SHOWN.



HEADER DIAGRAM

2 HEADER SCHEDULE

NOT TO SCALE



NOTES:
1. STEEL STUD.
2. CONT. 16 GA. UNPUNCHED STEEL TRACK. - REQUIRED ATTACHMENT: HILTI X-DNI (1½" MIN. EMBED., .145 SHANK DIAMETER) POWDER DRIVEN PINS (I.C.B.O. NO. 2388) AT 12" O.C.
3. DOUBLE STUD WHERE SHOWN ON PLAN AND DETAILS.
4. #10-16 TEKS 3 SCREWS EACH SIDE.
5. (3) #10-16 x ¾" LONG TEKS 3 SCREWS.
6. (4) #10-16 TEKS 3 SCREWS.
7. #10-16 TEKS 3 SCREWS AT 12" O.C. AT DOUBLE STUDS.
8. INTERMEDIATE STEEL STUD BLOCKING.
9. POWDER ACTUATED FASTENERS (SEE NOTE 2).

3 TYPICAL STEEL STUD WALL - SCREW CONNECTION

NOT TO SCALE

TYPICAL LIGHT GAUGE FRAMING DETAILS

LINTEL SCHEDULE	
MAXIMUM CLEAR SPAN	ANGLE SIZE (LLV)
4'-0"	L3 1/2 x 3 1/2 x 5/16
6'-0"	L4 1/2 x 3 1/2 x 5/16
8'-0"	L5 1/2 x 3 1/2 x 5/16
10'-0"	L6 x 4 x 3/8

BRICK LINTEL ANGLES SHALL BE PAINTED WITH 6" MINIMUM BEARING AT EACH END.

4 TYPICAL LINTEL SCHEDULE

SCALE: 3/4" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER ERON DEWAYNE CRAWFORD 24388 OKLAHOMA 12/16/25

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	PNC
CHECKED BY:	EDR
APPROVED BY:	EDR

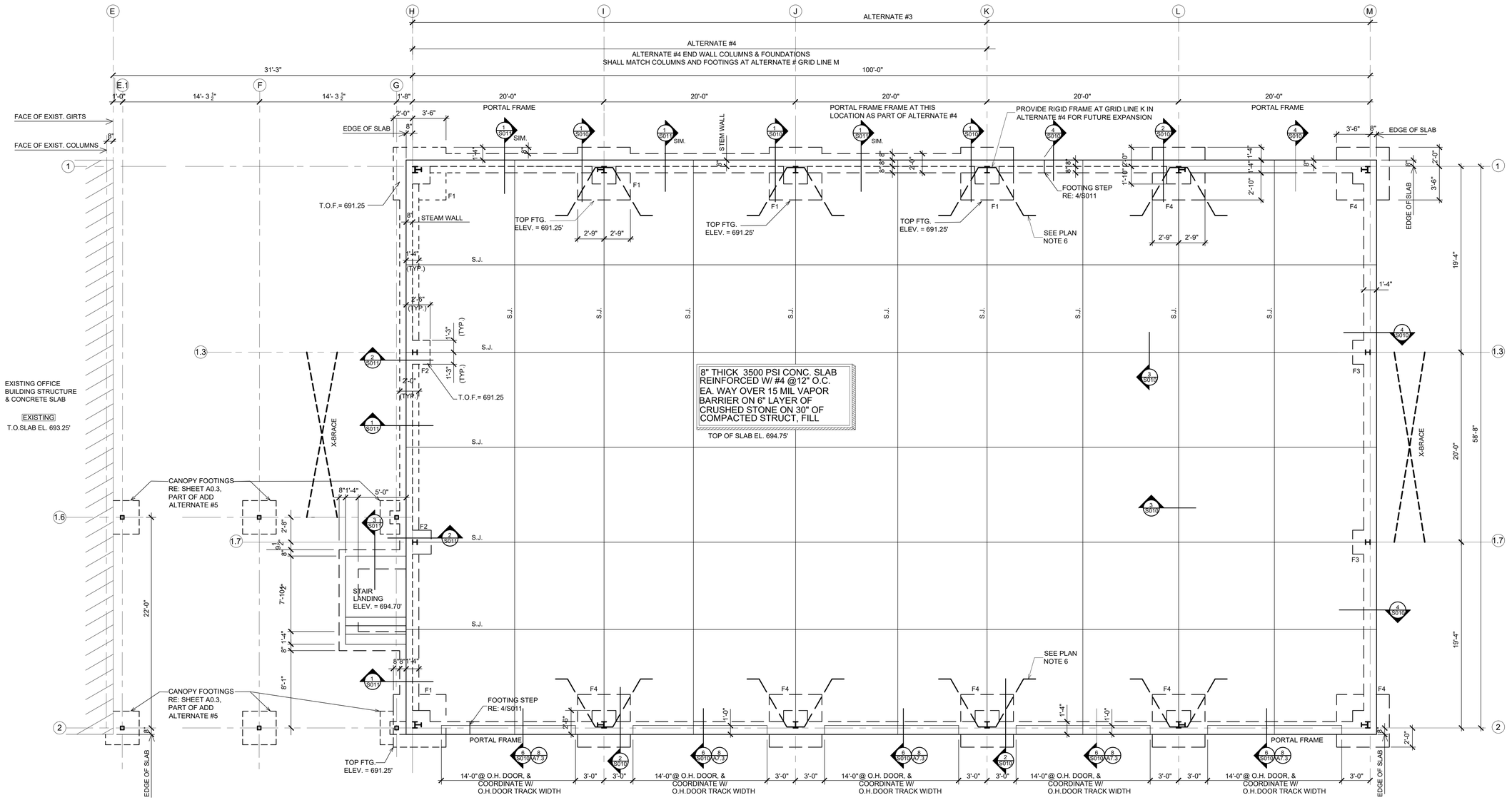
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

STRUCTURAL ENGINEERING CONSULTANT:
RICHARDS & ASSOCIATES, INC.
424 EAST MAIN STREET JENKS, OK
405.627.9584 FAX 918.355.9309
C.A. #4458 EXP. DATE 06.30.27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
STANDARD STRUCTURAL DETAILS

SHEET NUMBER:
S012



1 EQUIPMENT BUILDING FOUNDATION PLAN

SCALE: 3/16" = 1'-0"

PROJECT NORTH

FOUNDATION DESIGNS AND LOCATIONS SHOWN SHALL NOT BE CONSTRUCTED UNTIL RICHARDS AND ASSOCIATES HAS COMPLETED REVIEW AND APPROVED FINAL SHOP DRAWINGS FOR METAL BUILDING FRAMING

FOUNDATION & SLAB NOTES

1. S.J. INDICATES LOCATIONS OF SAWED JOINTS IN SLAB. C.J. INDICATES LOCATION OF CONSTRUCTION JOINT IN SLAB.
2. M.B.M. IS ABBREVIATION FOR METAL BUILDING MANUFACTURER.
3. COORDINATE SLAB EDGE BLOCK-OUTS WITH DOOR LOCATIONS.
4. SAW CUTTING OF SLAB SHALL OCCUR WITHIN 6 HOURS AFTER SLAB PLACEMENT.
5. TOP OF EXTERIOR FOOTING ELEVATION IS -1'-2" OR -3'-6" BELOW TOP OF SLAB ELEVATION OF 694.75' UNLESS NOTED OTHERWISE. (RE: PLAN & DETAILS)
6. INDICATES #6 HAIR PIN BAR. RE: 5/S010.
7. LOW VOLUME CHANGE MATERIAL (LVC) IS TO HAVE PLASTICITY INDEX (PI) OF 18 OR LESS AND CONTAIN AT LEAST 15% FINES COMPACTED IN 9" MAXIMUM LIFTS. COMPACT TO 95% OF MATERIAL MAXIMUM STANDARD PROCTOR DRY DENSITY AND AT LEAST -1 TO +3 PERCENT OF MATERIAL OPTIMUM MOISTURE CONTENT PER GEOTECH REPORT.
8. CONTRACTOR SHALL RECESS SLAB AT OVERHEAD DOOR NO EXCEPTIONS.

FOOTING SCHEDULE		
MARK	SIZE LxWxD	REINFORCEMENT
F1	5'-6"x5'-6"x1'-6"	(6) #5 x 5'-0" EA. WAY TOP AND BOTTOM
F2	2'-6"x2'-6"x1'-6"	(3) #5 x 2'-0" EA. WAY TOP AND BOTTOM
F3	2'-6"x2'-6"x3'-0"	(3) #5 x 2'-0" EA. WAY TOP AND BOTTOM
F4	5'-6"x5'-6"x3'-0"	(6) #5 x 5'-0" EA. WAY TOP AND BOTTOM

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER — ERON WAYNE CLARK — 24169 — OKLAHOMA — 12AUG25

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	PNC
CHECKED BY:	EDR
APPROVED BY:	EDR

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

STRUCTURAL ENGINEERING CONSULTANT:
RICHARDS & ASSOCIATES, INC.
424 EAST MAIN STREET JENKS, OK
405.627.9584 FAX 918.355.9309
C.A. #4458 EXP. DATE 06.30.27

PROJECT TITLE:

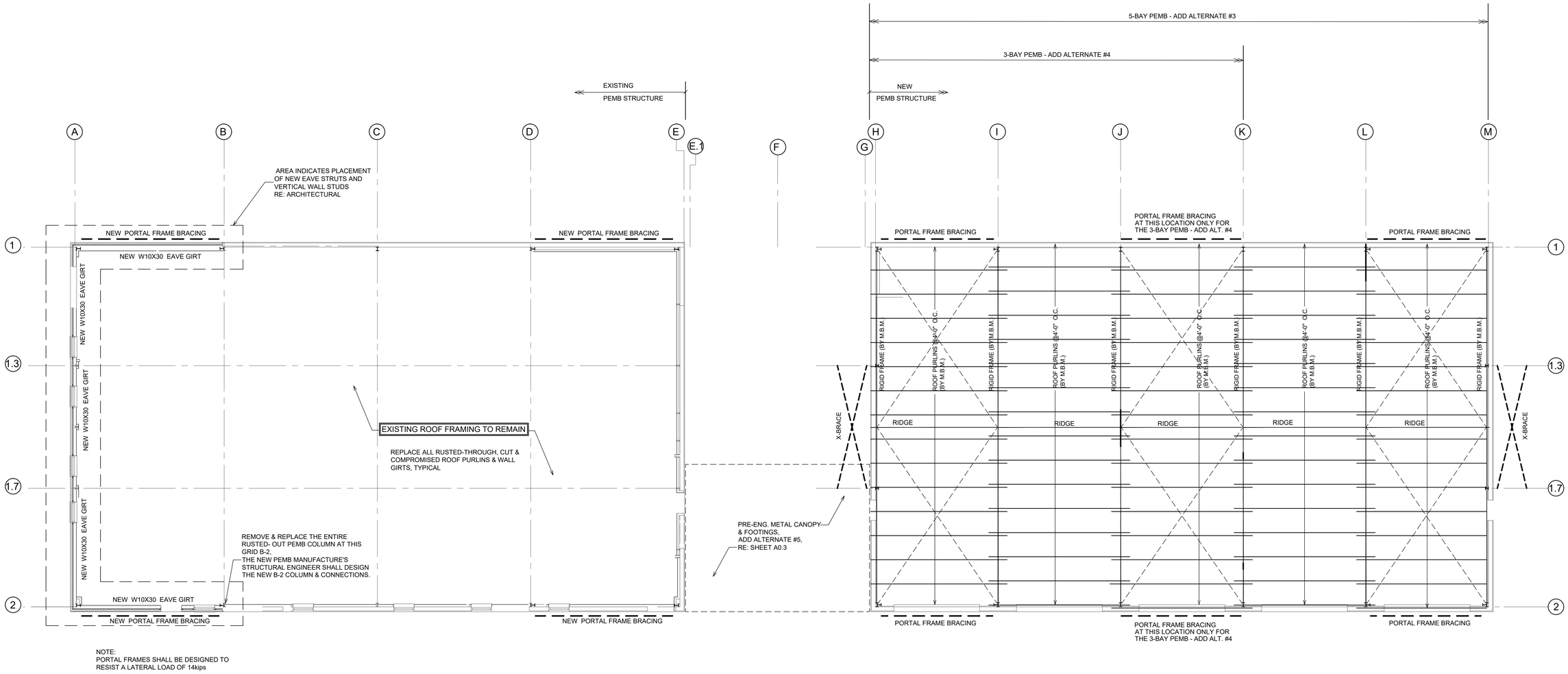
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

EQUIPMENT BUILDING FOUNDATION PLAN

SHEET NUMBER:

S100



1 OFFICE RENOVATION - EXISTING PEMB STRUCTURE - FRAMING REQUIREMENTS

SCALE: 1/8" = 1'-0"

2 NEW PEMB EQUIPMENT BUILDING - PROPOSED ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER
ERON DEWAYNE HARRIS
14698
OKLAHOMA
12.08.25

PROJECT NO.:	17-00901
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	PNC
CHECKED BY:	EDR
APPROVED BY:	EDR

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

STRUCTURAL ENGINEERING CONSULTANT:
RICHARDS & ASSOCIATES, INC.
424 EAST MAIN STREET JENKS, OK
405.627.9584 FAX 918.355.9309
C.A. #4458 EXP. DATE 06.30.27

PROJECT TITLE:

CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

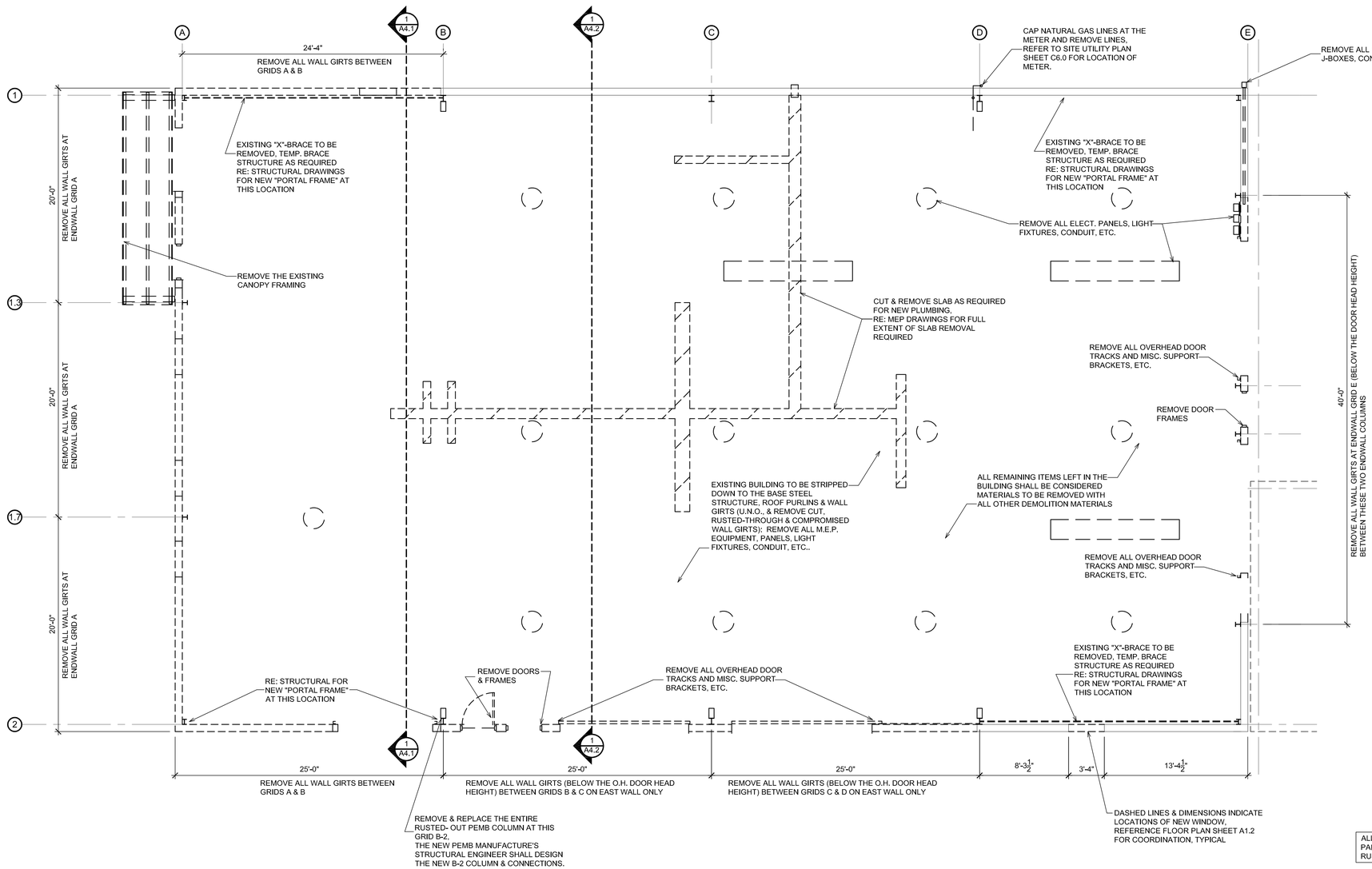
ROOF FRAMING PLANS

SHEET NUMBER:

S200

SLAB SAW-CUTTING NOTE

1. ALL SAW-CUTTING OF EXISTING SLAB SHALL BE PERFORMED IN AREAS THAT WILL RECEIVE NEW FLOOR COVERINGS. NO SAW-CUTTING SHALL EXTEND INTO AREAS SCHEDULED TO HAVE EXPOSED CONCRETE SLAB.



1 DEMOLITION FLOOR PLAN

SCALE: 3/16" = 1'-0"

NOTE: THE EXISTING ROOF & WALL PANELS AND INSULATION HAVE ALREADY BEEN REMOVED BY OWNER.

PROJECT NORTH

ALL EXPOSED STEEL SHALL BE CLEANED OF ALL LOOSE PAINT AND SCALE AND SHALL BE COATED WITH RUST-PROHIBITIVE PRIMER.

DEMOLITION GENERAL NOTES

1. DASHED LINES INDICATE EXTENT OF REMOVAL AND DEMOLITION OF WALLS, DOORS, FIXTURES AND OTHER ITEMS AS MARKED & NOTED.
2. CONTRACTOR SHALL VISIT THE SITE BEFORE BIDDING TO VERIFY EXISTING CONDITIONS. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES BETWEEN DRAWINGS AND EXISTING CONDITIONS.
3. CONTRACTOR SHALL PROTECT ADJACENT ASSEMBLIES AND SYSTEMS THROUGHOUT CONSTRUCTION. ANY DAMAGE TO SURROUNDING AREAS SHALL BE BROUGHT BACK TO THE ORIGINAL CONDITION OR TO MATCH THE ADJACENT AREA AT NO ADDITIONAL COST TO THE OWNER.
4. REFERENCE ALL DRAWINGS FOR NEW CONSTRUCTION. CONTRACTOR SHALL PROVIDE ANY ADDITIONAL DEMOLITION REQUIRED TO COMPLETE THE INTENT OF THE NEW DESIGN.
5. THE CONTRACTOR SHALL REVIEW ALL DETAILS AND SCHEDULES AND SHALL PROVIDE DEMOLITION OF OTHER ITEMS REQUIRED TO COMPLETE THE PROJECT.
6. ALL FIXTURES, EQUIPMENT, CASEWORK, WIRING DEVICES, ETC. ON ITEMS THAT ARE IDENTIFIED TO BE REMOVED SHALL BE REMOVED WITH THAT ITEM, UNLESS SPECIFICALLY NOTED OTHERWISE.
7. CONTRACTOR SHALL PROPERLY DISPOSE OF ALL ITEMS REMOVED AS PART OF THE PROJECT AND THAT ARE NOT NOTED TO BE RELOCATED OR RETURNED TO OWNER.
8. CONTRACTOR SHALL SWEEP / RAKE SITE AT THE END OF EACH DAY TO LIMIT THE AMOUNT OF DEBRIS LITTERING THE SITE.
9. CONTRACTOR SHALL MAINTAIN THE STRUCTURAL PROPERTIES OF BUILDING DURING THE DEMOLITION & CONSTRUCTION PHASES OF WORK.
10. SHORING NOTE: CONTRACTOR SHALL PROVIDE ALL NECESSARY SHORING TO MAINTAIN STRUCTURAL INTEGRITY OF EXISTING BUILDING. SHORING SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER. SHORING DRAWINGS SHALL BE SUBMITTED FOR REVIEW PRIOR TO REMOVING ANY STRUCTURAL MEMBERS.
11. COORDINATE REQUIRED SAW CUTTING OF SLAB WITH UTILITIES.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 D1-1
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

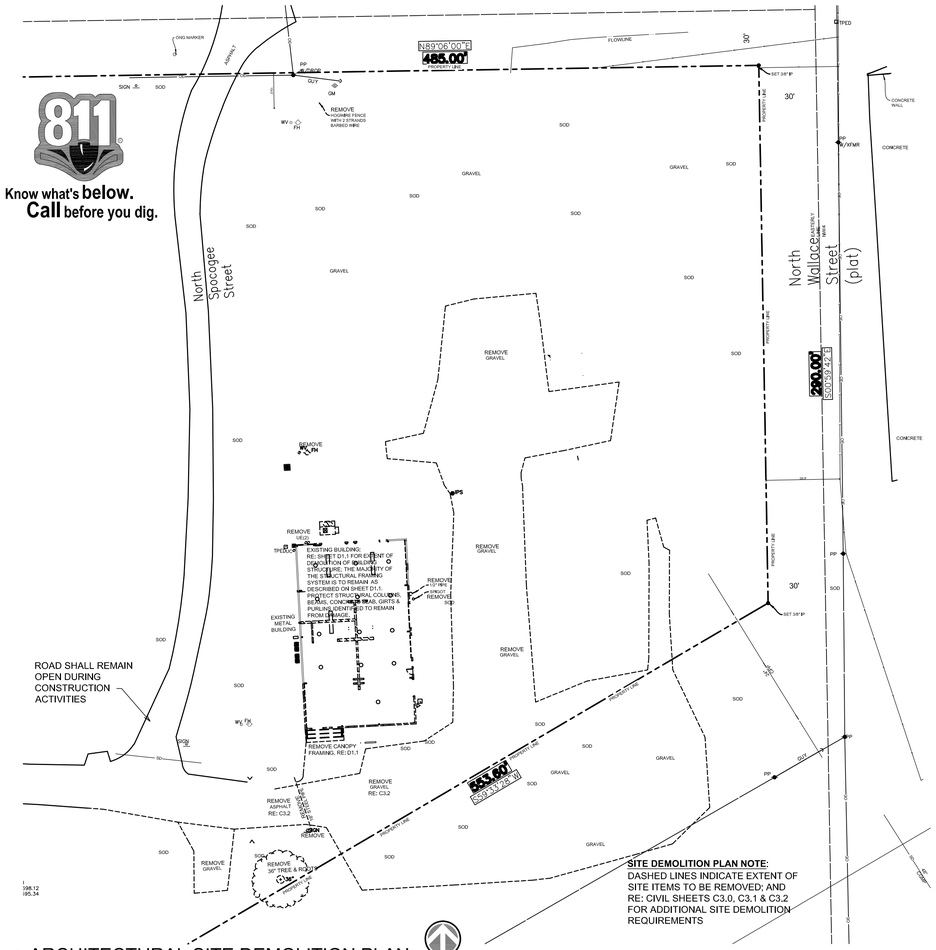
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

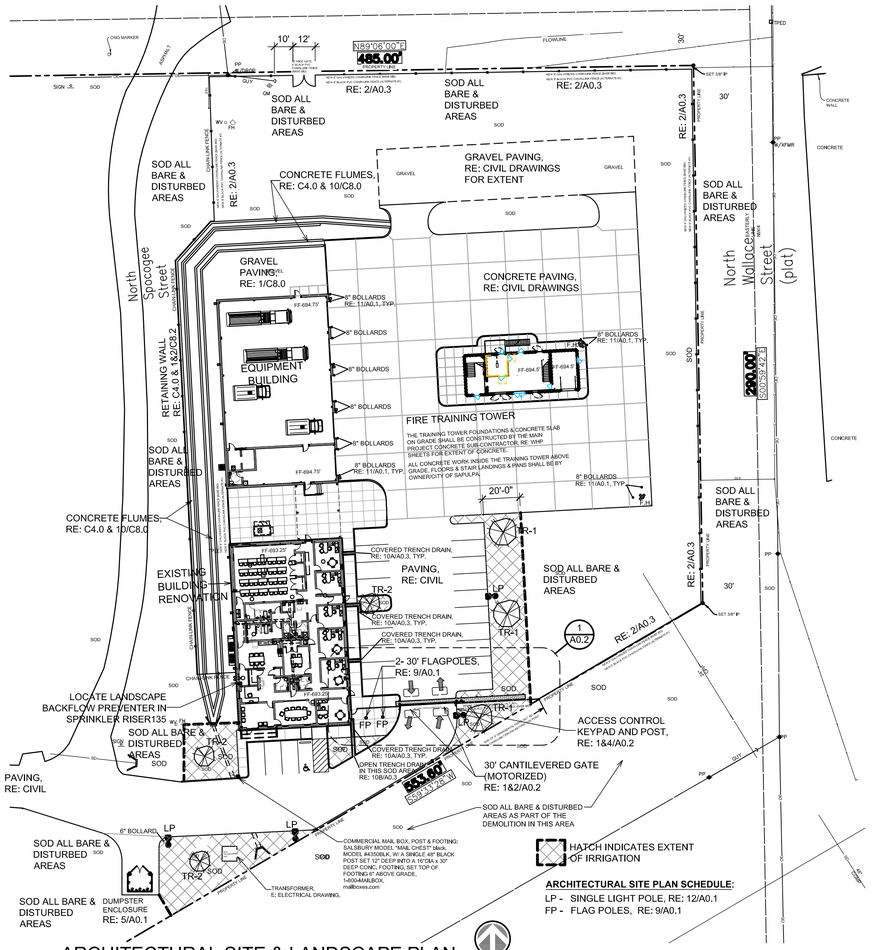
DEMOLITION FLOOR PLAN

SHEET NUMBER:

D1.1



1 ARCHITECTURAL SITE DEMOLITION PLAN
SCALE: 1" = 40'-0"



ARCHITECTURAL SITE PLAN SCHEDULE:
LP - SINGLE LIGHT POLE, RE: 12/A0.1
FP - FLAG POLES, RE: 9/A0.1

2 ARCHITECTURAL SITE & LANDSCAPE PLAN
SCALE: 1" = 40'-0"

PROJECT NORTH

LANDSCAPE & IRRIGATION NOTES

ALL PLANTING SHALL BE TO THE STANDARDS OF HORTICULTURE PRACTICE.

ALL PLANT MATERIAL SHALL BE SOUND HEALTHY, VIGOROUS AND WELL BRANCHED. PLANTS SHALL BE FREE FROM INSECTS, PEST EGGS AND LARVAE AND SHALL HAVE HEALTHY ROOT SYSTEMS.

PLANT MATERIAL SHALL BE WATERED UNTIL PLANTED. ROOT BALL SHALL NOT BECOME DRY.

TR-1 TREES SHALL BE TAXODIUM DISTICHUM (BALD CYPRESS) WITH A MINIMUM CALIPER SIZE OF 1 1/2" AND MINIMUM HEIGHT OF 8'.

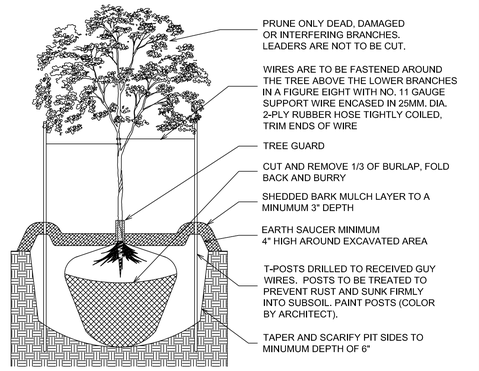
TR-2 TREES SHALL BE CERCIS CANADENSIS (TEXAS WHITEBUD) WITH A MINIMUM CALIPER SIZE OF 1 1/2" AND A MINIMUM HEIGHT OF 6'.

AN AUTOMATIC SPRINKLER SYSTEM SHALL BE PROVIDED IN NOTED LANDSCAPED AREAS.

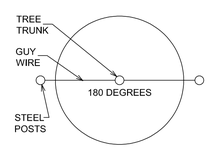
ELECTRIC SOLENOID CONTROLLED UNDERGROUND SPRINKLER SYSTEM OF PVC PLASTIC PIPING AND FITTINGS WITH FIXED POP-UP HEADS IN A MULTI -STATION SYSTEM. PROGRAMING SHALL BE AS APPROVED BY OWNER AND ARCHITECT.

FINISH GRADE FOR LAWN AREAS SHALL BE HELD 1" BELOW THE TOP OF ADJACENT PAVEMENT AND CURBS.

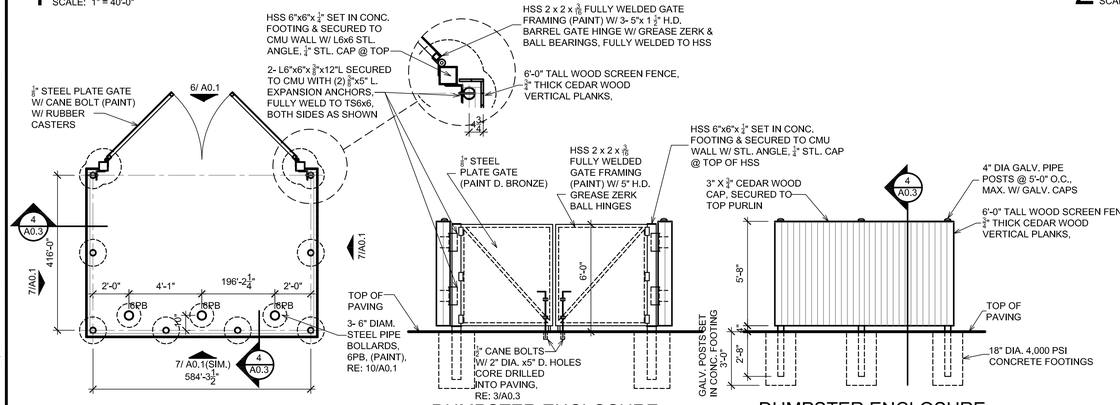
AREAS DENOTED AS SOD SHALL BE PLANTED WITH SOLID SOD BERMUDA GRASS.



3 TREE PLANTING DETAIL
SCALE: 1" = 1'-0"



4 TREE GUYING PLAN
NOT TO SCALE

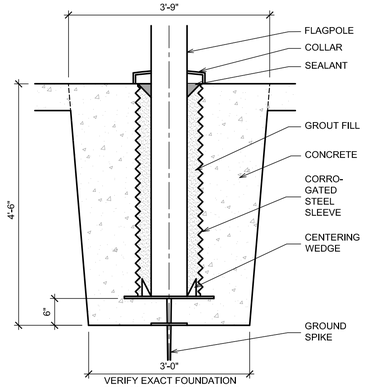


5 DUMPSTER ENCLOSURE PLAN
SCALE: 1/4" = 1'-0"

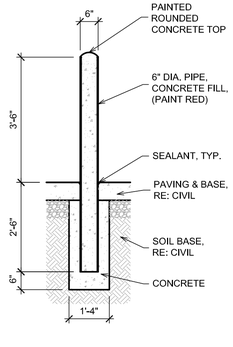
6 DUMPSTER ENCLOSURE - NORTH ELEVATION
SCALE: 1/4" = 1'-0"

7 DUMPSTER ENCLOSURE - EAST, WEST ELEVATIONS
SCALE: 1/4" = 1'-0"

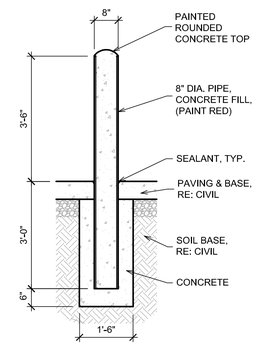
8 NOT USED



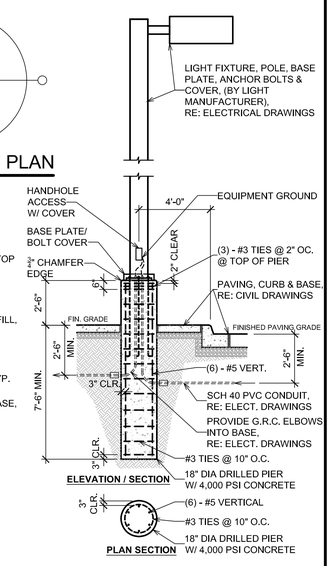
9 FLAGPOLE FOUNDATION DETAIL
SCALE: 3/4" = 1'-0"



10 6PB - 6" BOLLARD DETAIL
SCALE: 1/2" = 1'-0"



11 8PB - 8" BOLLARD DETAIL
SCALE: 1/2" = 1'-0"



12 LP - LIGHT POLE FOUNDATION DETAILS
SCALE: 1/4" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

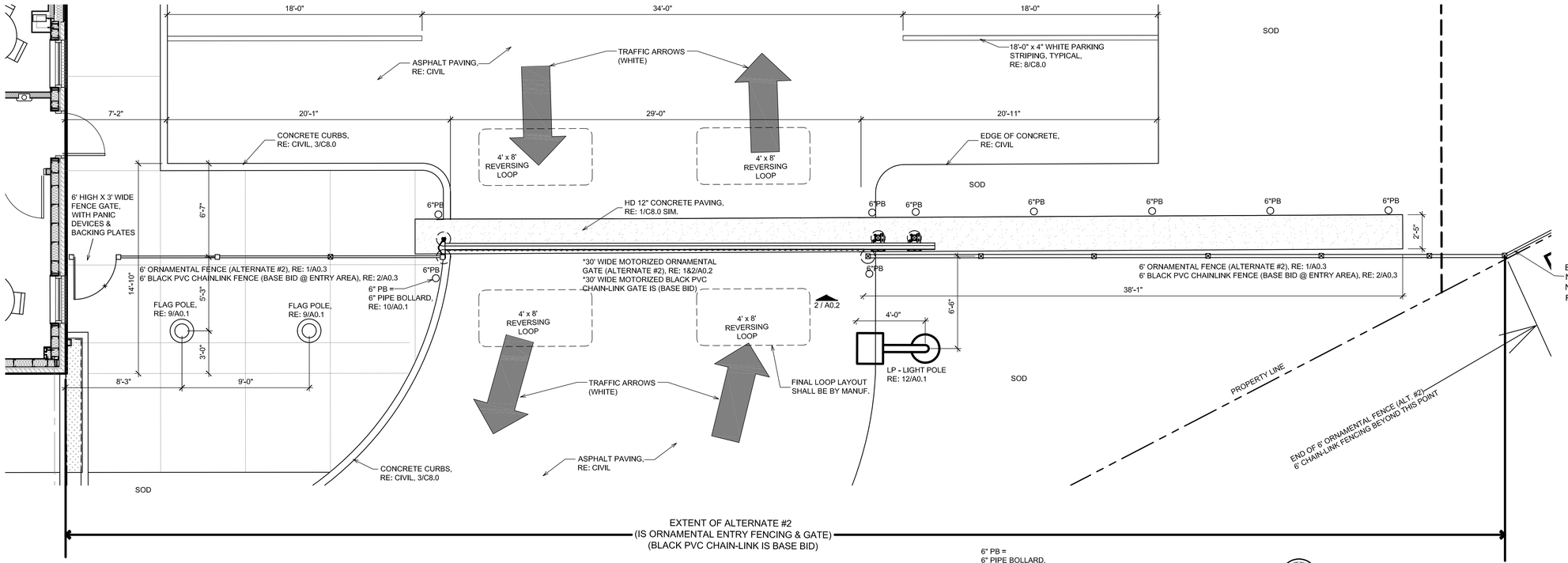
PROJECT NO.:	17-00901
FILE:	17-00900 A0-1
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
ARCHITECTURAL SITE DEMOLITION PLAN
ARCHITECTURAL SITE & LANDSCAPE PLAN

SHEET NUMBER:
A0.1



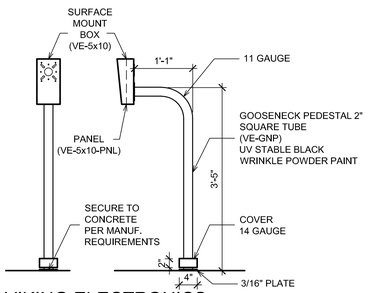
1 ENLARGED PARTIAL SITE PLAN - WITH MOTORIZED & CANTILEVERED VEHICLE ENTRY GATE

SCALE: 1/4" = 1'-0"

811 Know what's **below.** **Call** before you dig.

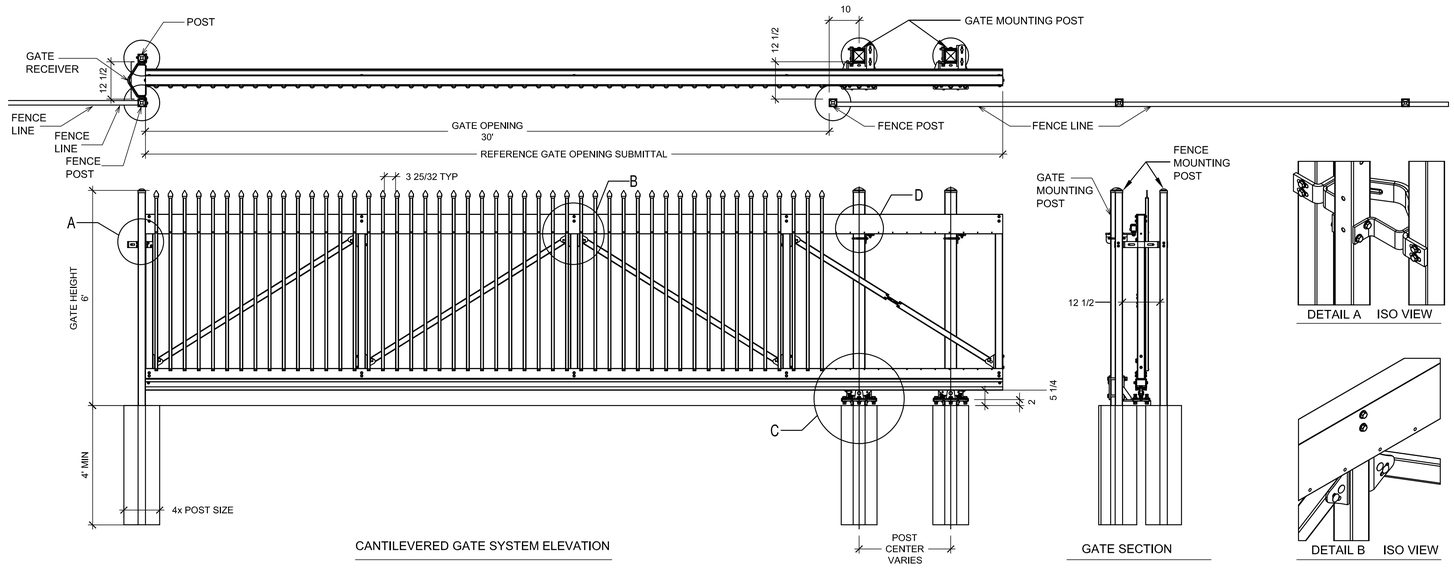
GATE ACCESS CONTROL NOTES

1. GATE ACCESS CONTROL SYSTEM SHALL BE EQUAL TO DOORKING ACCESS CONTROL DEVICES: 1524 SERIES CARD READER, 1500 SERIES KEYPAD (SURFACE MOUNT), LONG RANGE AUTOMATED VEHICLE UHF RFID READER, 26-BIT WEIGAND CONTROLLER, POWER BOX AND 100 UHF RFID WINDSHIELD TAGS COMPATIBLE WITH VEHICLE RFID READER. CONTROL PANEL SHALL HAVE A PUSH TO TALK BUTTON.
2. INSTALL CONTROL BOX IN BREAK ROOM. PROVIDE ALL NECESSARY POWER AND LOW VOLTAGE WIRING, TRANSFORMERS, SWITCHES, ETC. FOR A COMPLETE WORKING SYSTEM.



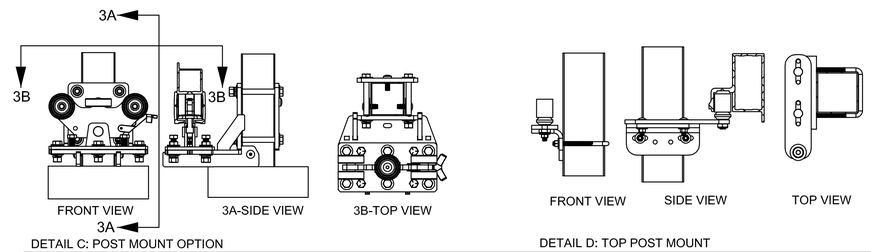
4 VIKING ELECTRONICS ACCESS CONTROL POST DETAIL

NO SCALE



2 ENLARGED MOTORIZED & CANTILEVERED GATE PLAN, ELEVATION, SECTION & MANUF. DETAILS

SCALE: 1/4" = 1'-0"



3 ENLARGED MOTORIZED VEHICLE ENTRY GATE - MANUFACTURERS MOUNTING DETAILS

NO SCALE

NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

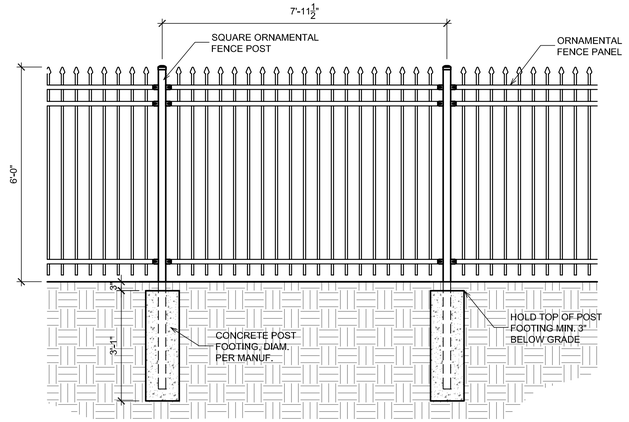
PROJECT NO.:	17-00901
FILE:	17-00900 A0-2
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

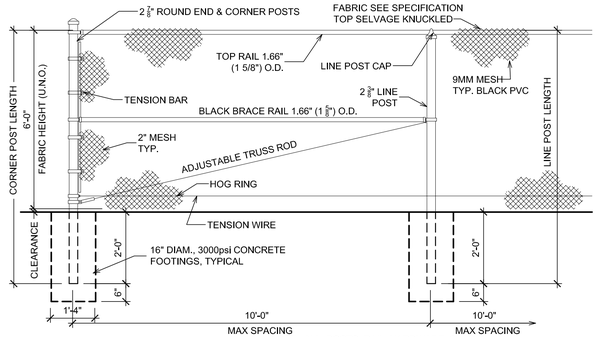
SHEET TITLE:
ENLARGED PARTIAL SITE PLAN & MOTORIZED VEHICLE ENTRY GATE PLANS, ELEVATIONS & DETAILS

SHEET NUMBER:
A0.2



1 ALTERNATE #2 ORNAMENTAL FENCE PANEL ELEVATION @ ENTRY AREA - WHERE SHOWN IN ARCHITECTURAL SITE PLAN 2/A0.1 & G1.2 (BLACK PVC CHAIN-LINK FENCE IS BASE BID AT THE ENTRY GATE AREA)

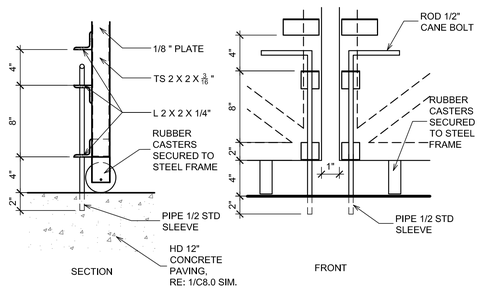
SCALE: 1/2" = 1'-0"



2 BLACK PVC CHAIN-LINK FENCE (ALT. #1) PANEL ELEVATION

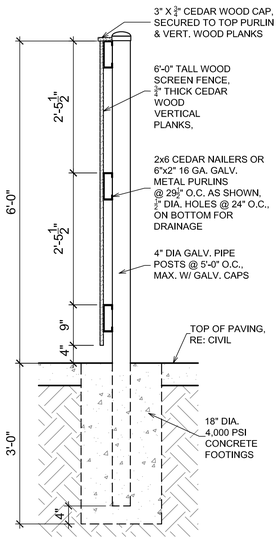
SCALE: 1/2" = 1'-0"

(GALVANIZED CHAIN-LINK FENCE IS TYPICAL BASE BID EXCEPT AT ENTRY GATE AREA)



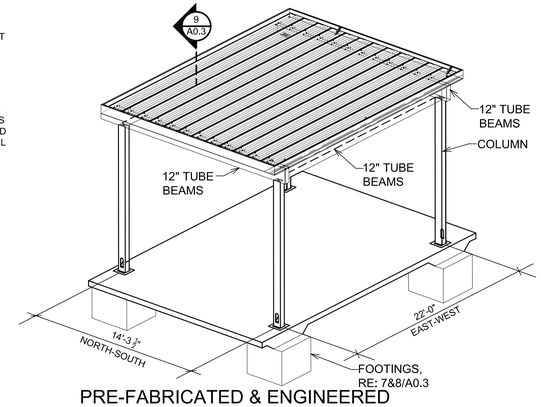
3 ENLARGED DUMPSTER ENCLOSURE DOOR CANE BOLT DETAILS

SCALE: 1 1/2" = 1'-0"



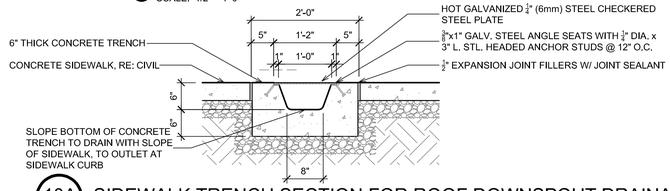
4 6' HIGH DUMPSTER ENCLOSURE WALL SECTION

SCALE: 3/4" = 1'-0"

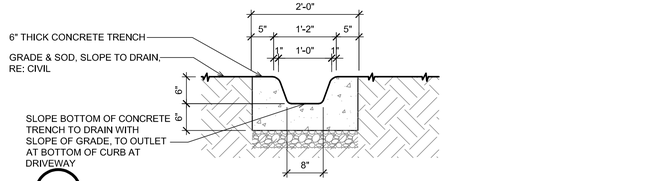


5 PRE-FABRICATED & ENGINEERED METAL CANOPY ISOMETRIC SECTION

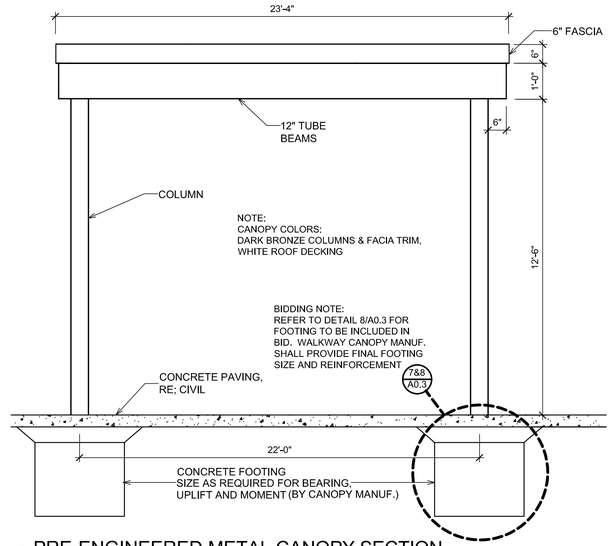
SCALE: 1/2" = 1'-0"



10A SIDEWALK TRENCH SECTION FOR ROOF DOWNSPOUT DRAINAGE - TRENCH WITH HOT GALVANIZED STEEL COVER PLATE

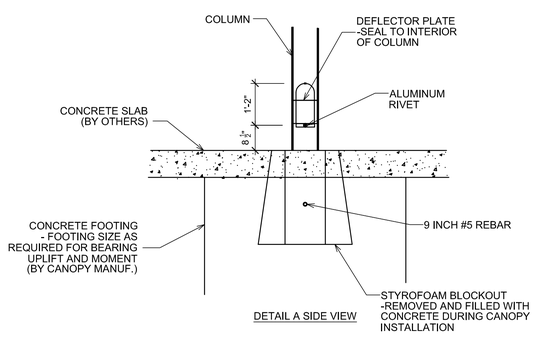


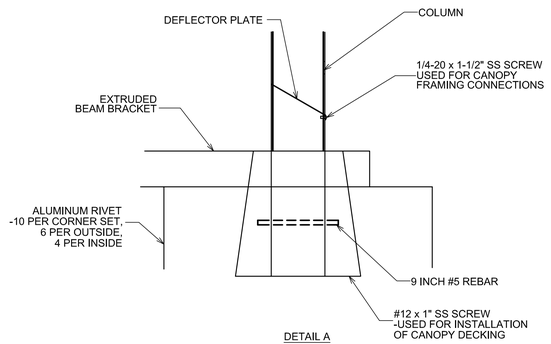
10B TRENCH SECTION FOR ROOF DOWNSPOUT DRAINAGE - IN SOD WITHOUT COVER PLATE



6 PRE-ENGINEERED METAL CANOPY SECTION

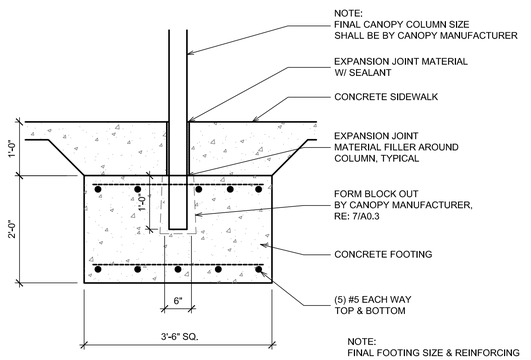
SCALE: 1/2" = 1'-0"





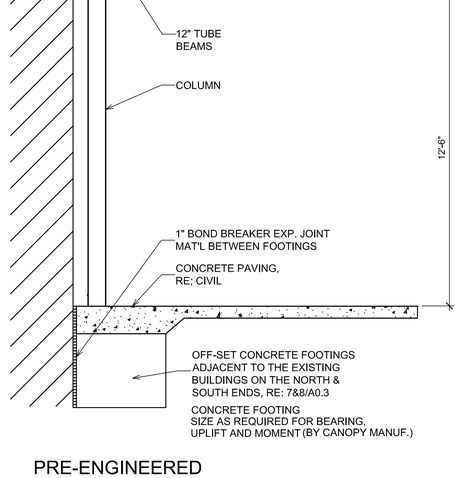
7 PRE-FABRICATED & ENGINEERED METAL CANOPY COLUMN BASE DETAILS

NOT TO SCALE



8 PRE-FABRICATED & ENGINEERED CANOPY FOOTING SECTION

SCALE: 1" = 1'-0"



9 PRE-ENGINEERED METAL CANOPY SECTION ABUTTING THE ADJACENT BUILDINGS AT THE SIDES

SCALE: 1/2" = 1'-0"

10 SIDEWALK TRENCH DETAILS FOR ROOF DOWNSPOUT DRAINAGE - EAST SIDE OF THE ADMINISTRATION BUILDING

SCALE: 1" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A0-3
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

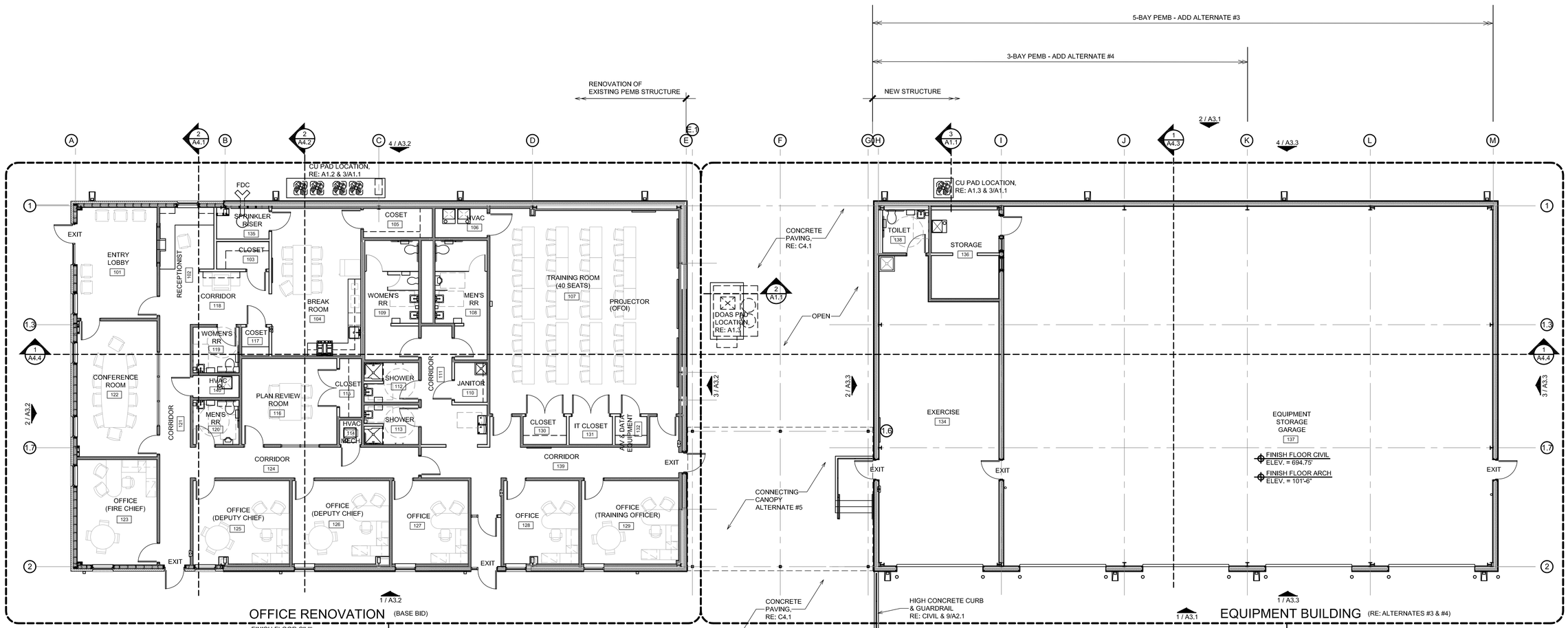
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

SITE DETAILS & PRE-ENGINEERED CANOPY SECTIONS

SHEET NUMBER:

A0.3



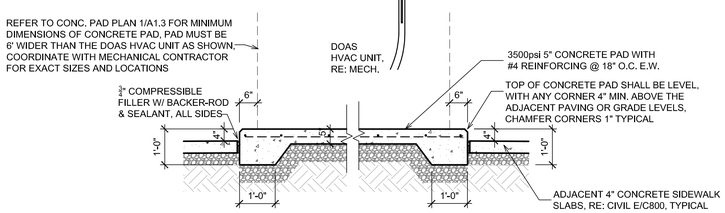
NOTES

1. EXISTING STRUCTURE SHALL BE POWER WASHED UPON COMPLETION OF DEMOLITION ACTIVITIES. ALL STEEL STRUCTURAL COMPONENTS SHALL BE COATED WITH RUST-PROHIBITIVE PRIMER.
2. EXISTING SLAB SHALL BE POWER WASHED AND MECHANICALLY SCRUBBED WITH A DEGREASING AGENT.

1 OFFICE RENOVATION & EQUIPMENT BUILDING - OVERALL FLOOR PLANS

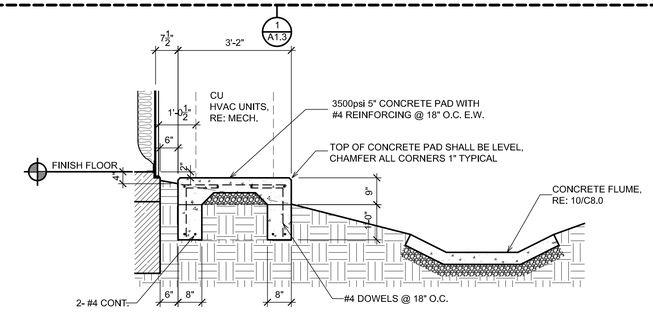
SCALE: 1/8" = 1'-0"

PROJECT NORTH



2 CONCRETE PAD FOR GROUND MOUNTED DOAS UNIT

SCALE: 1/2" = 1'-0"



3 CONCRETE PAD FOR GROUND MOUNTED CU

SCALE: 1/2" = 1'-0"

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A1-1
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

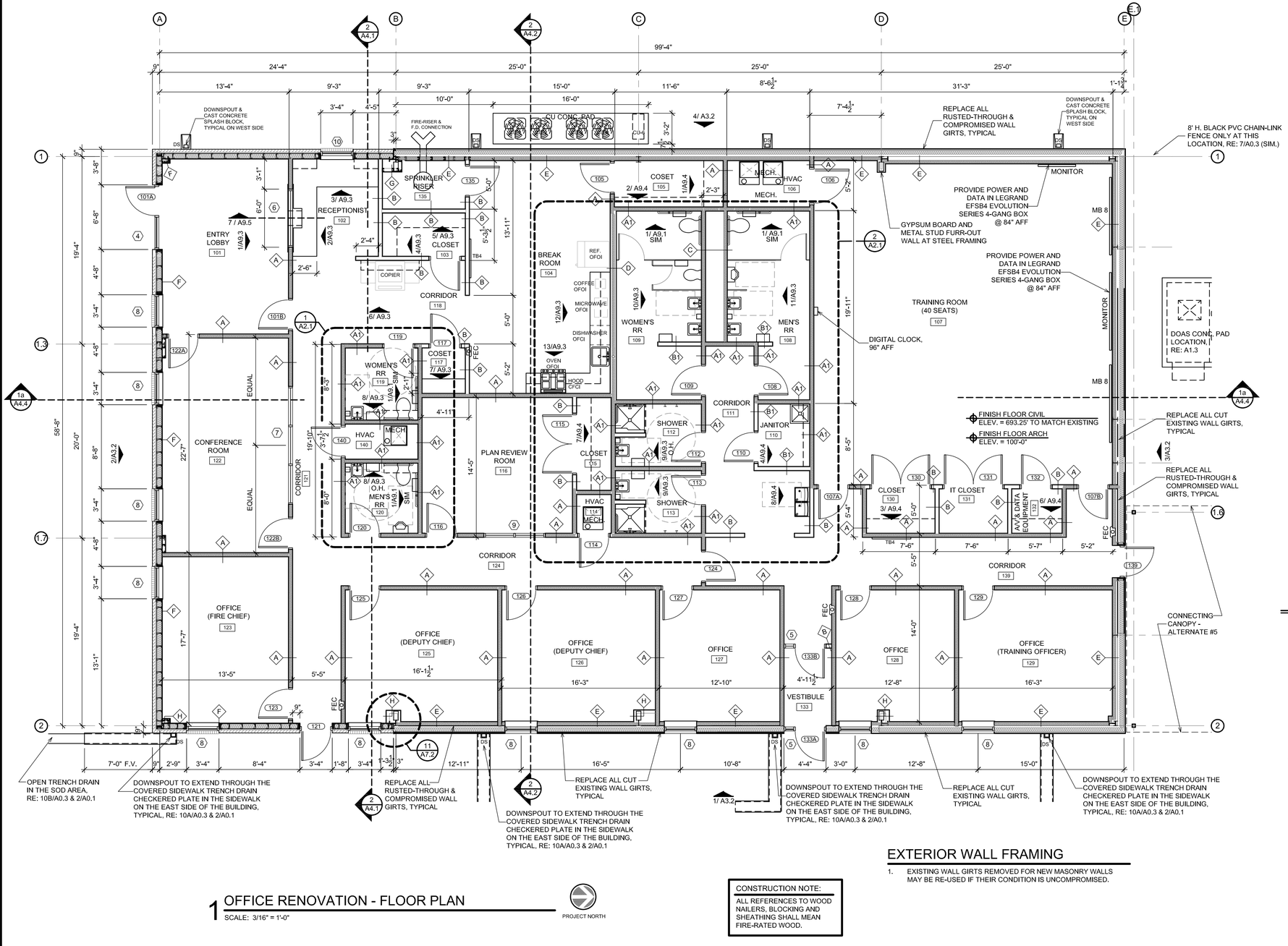
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
OFFICE RENOVATION & EQUIPMENT BUILDING - OVERALL FLOOR PLANS

SHEET NUMBER:
A1.1

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332



1 OFFICE RENOVATION - FLOOR PLAN

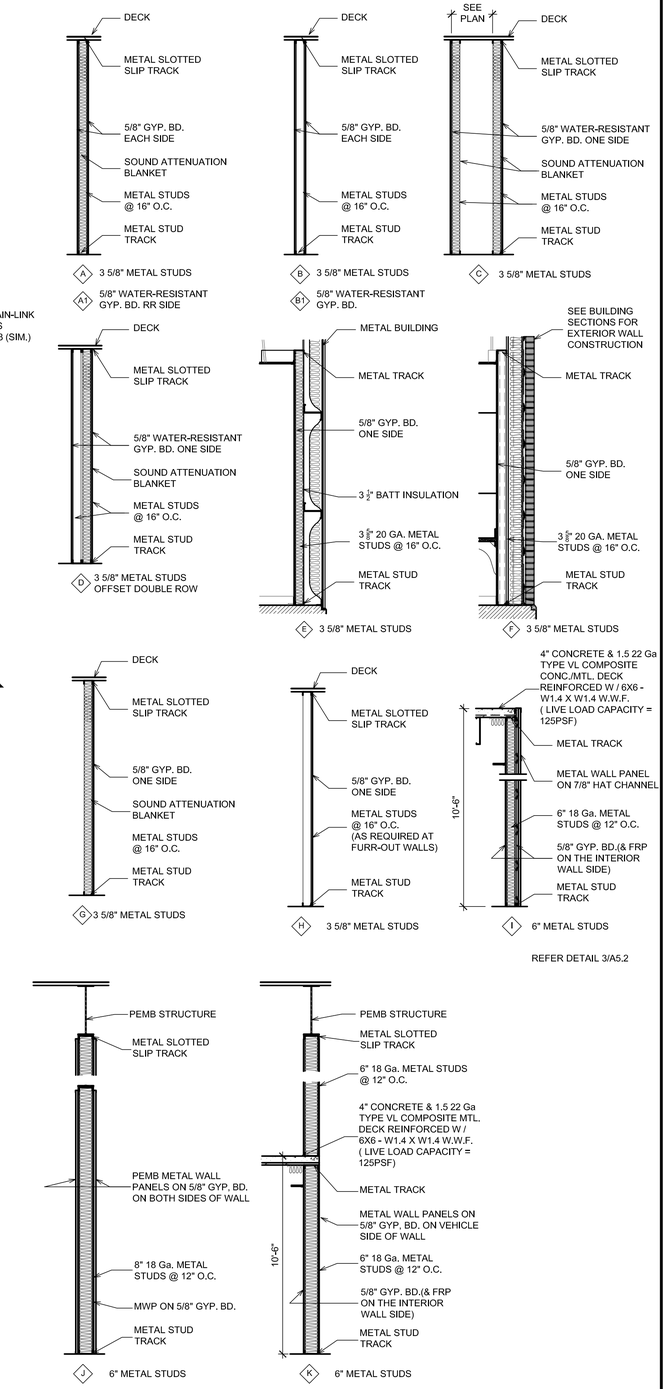
SCALE: 3/16" = 1'-0"

PROJECT NORTH

CONSTRUCTION NOTE:
ALL REFERENCES TO WOOD NAILERS, BLOCKING AND SHEATHING SHALL MEAN FIRE-RATED WOOD.

EXTERIOR WALL FRAMING

1. EXISTING WALL GIRTS REMOVED FOR NEW MASONRY WALLS MAY BE RE-USED IF THEIR CONDITION IS UNCOMPROMISED.



2 WALL TYPES

SCALE: NO SCALE

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A1-2
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

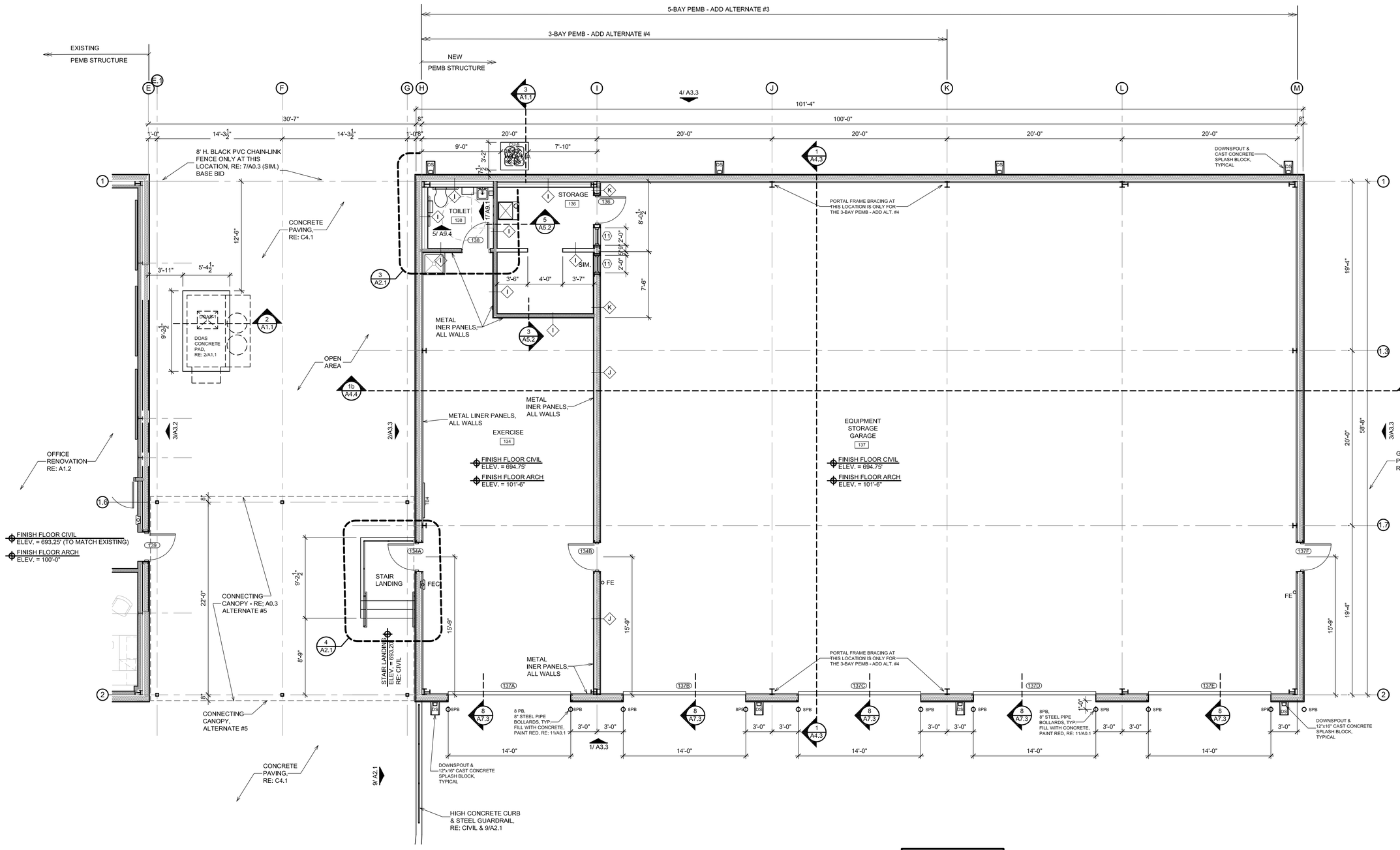
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

OFFICE RENOVATION
FLOOR PLAN & WALL TYPES

SHEET NUMBER:

A1.2



1 EQUIPMENT BUILDING - FLOOR PLAN

SCALE: 3/16" = 1'-0"

PROJECT NORTH

CONSTRUCTION NOTE:

ALL REFERENCES TO WOOD NAILERS, BLOCKING AND SHEATHING SHALL MEAN FIRE-RATED WOOD.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A1-3
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:

GS HELMS + ASSOCIATES

ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

CITY OF SAPULPA, OK

SAPULPA FIRE DEPARTMENT TRAINING FACILITY

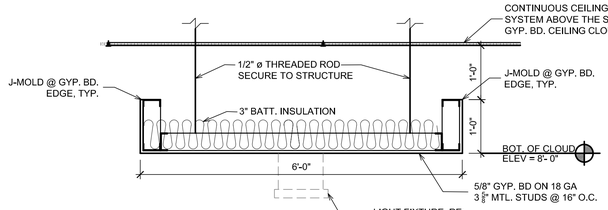
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

EQUIPMENT BUILDING FLOOR PLAN

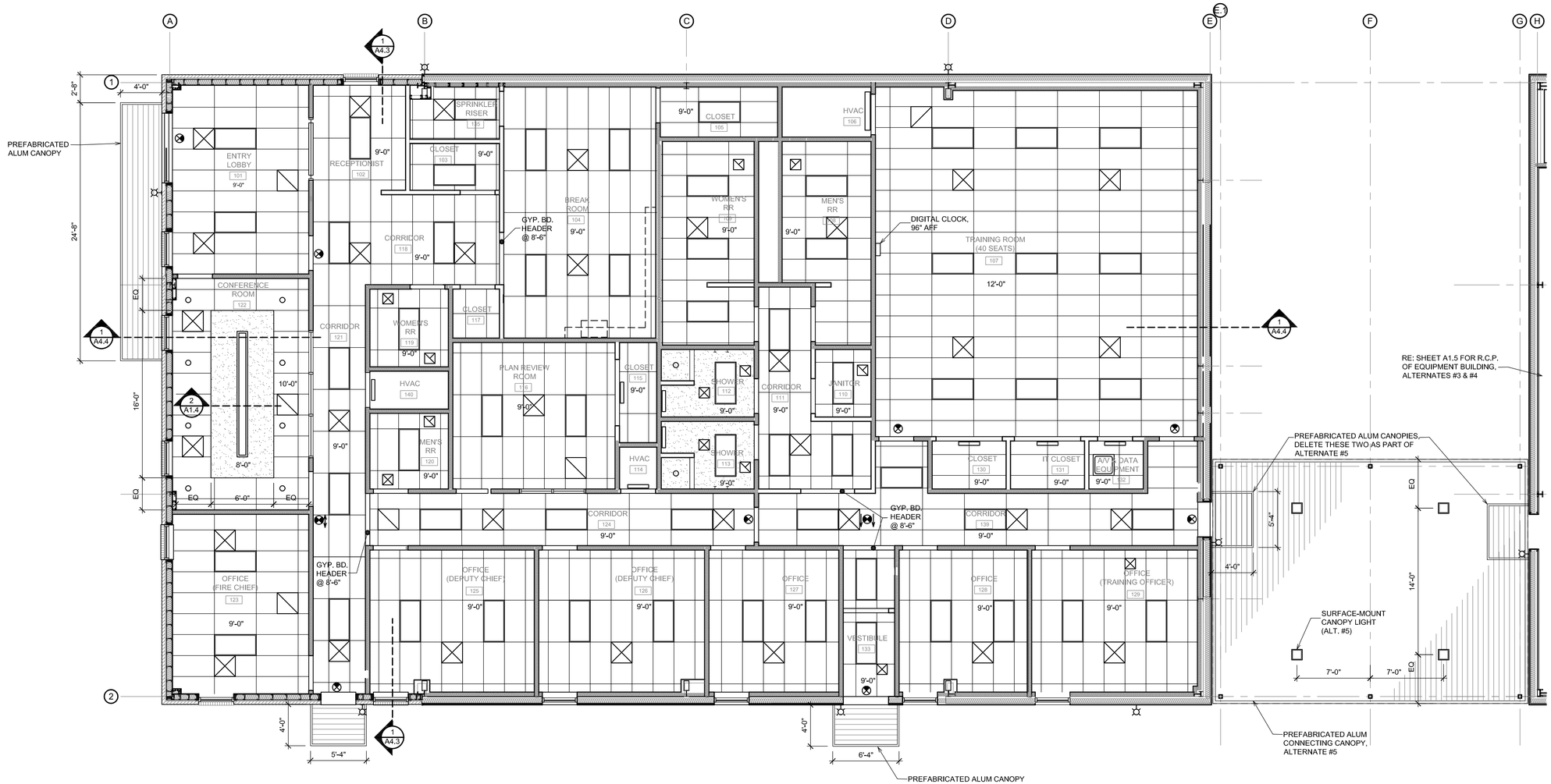
SHEET NUMBER:

A1.3



2 CONFERENCE ROOM CEILING SECTION DETAIL

SCALE: 3/4" = 1'-0"



1 OFFICE RENOVATION - REFLECTED CEILING PLAN

SCALE: 3/16" = 1'-0"

PROJECT NORTH

RCP LEGEND

- 2X4 LIGHT FIXTURE
- 2X4 LIGHT W/ EMERGENCY BALLAST
- 1X8 LIGHT FIXTURE
- 1X8 LIGHT FIXTURE W/ EMERGENCY BALLAST
- 1X12 PENDANT LIGHT FIXTURE
- CAN LIGHT
- CAN LIGHT W/ EMERGENCY BALLAST
- PENDANT LIGHT
- EXIT LIGHT
- SUPPLY DIFFUSER RE: MECH. FOR SIZES
- RETURN DIFFUSER RE: MECH. FOR SIZES
- EXHAUST DIFFUSER RE: MECH. FOR SIZES
- EXHAUST FAN, RE: MECHANICAL DWGS
- GYP. BD. CEILING, PAINTED
- CEILING GRID & ACS SYSTEM
- SUPPLY AIR EMERGENCY RE: MECHANICAL DWGS
- RETURN AIR EMERGENCY RE: MECHANICAL DWGS
- FANCOIL UNIT RE: MECHANICAL DWGS

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A1-4
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

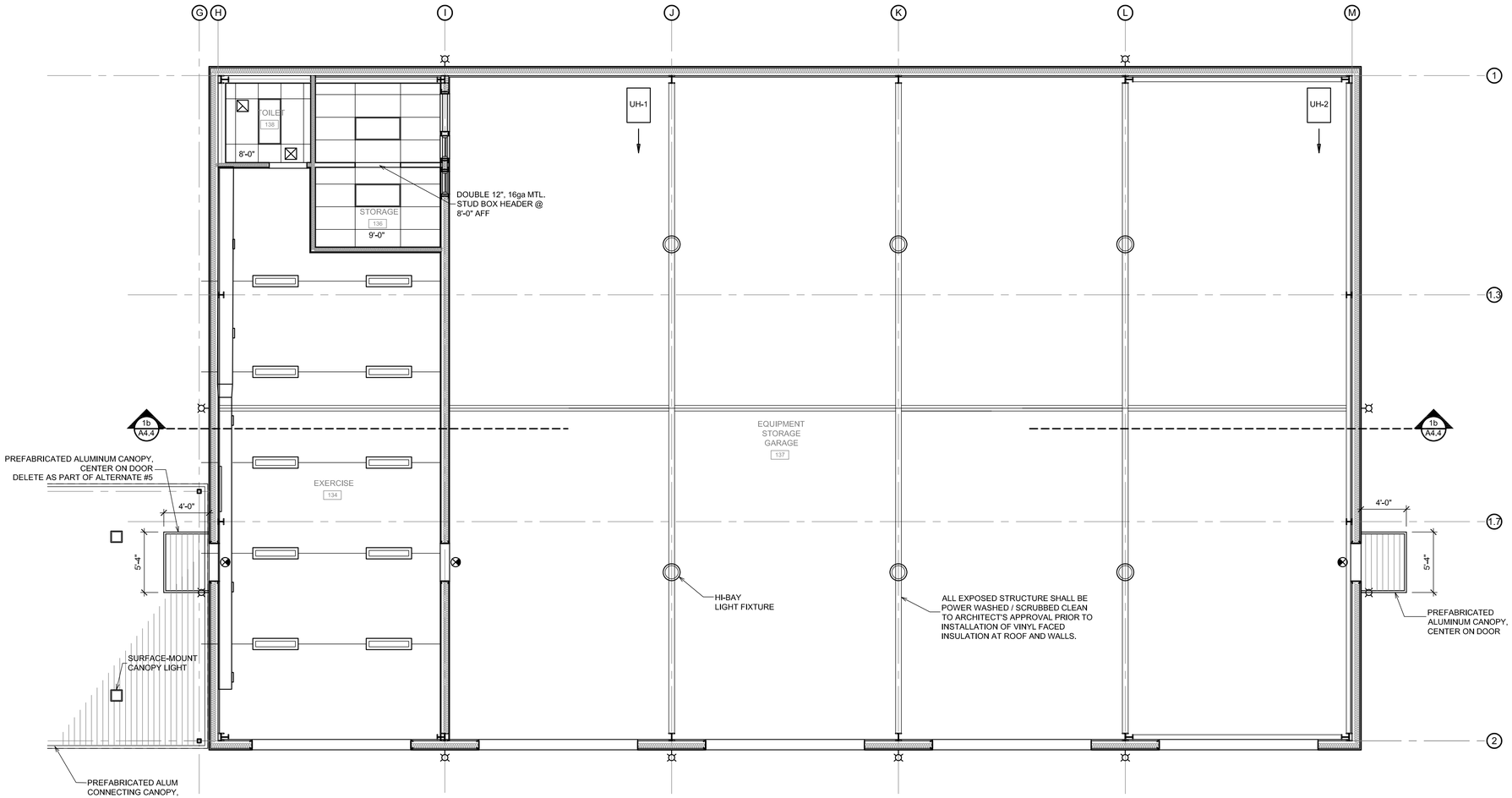
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

OFFICE RENOVATION
REFLECTED CEILING PLAN

SHEET NUMBER:

A1.4



1 EQUIPMENT BUILDING - REFLECTED CEILING PLAN (PART OF ALT. #3 & #4)

SCALE: 3/16" = 1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A1-5
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

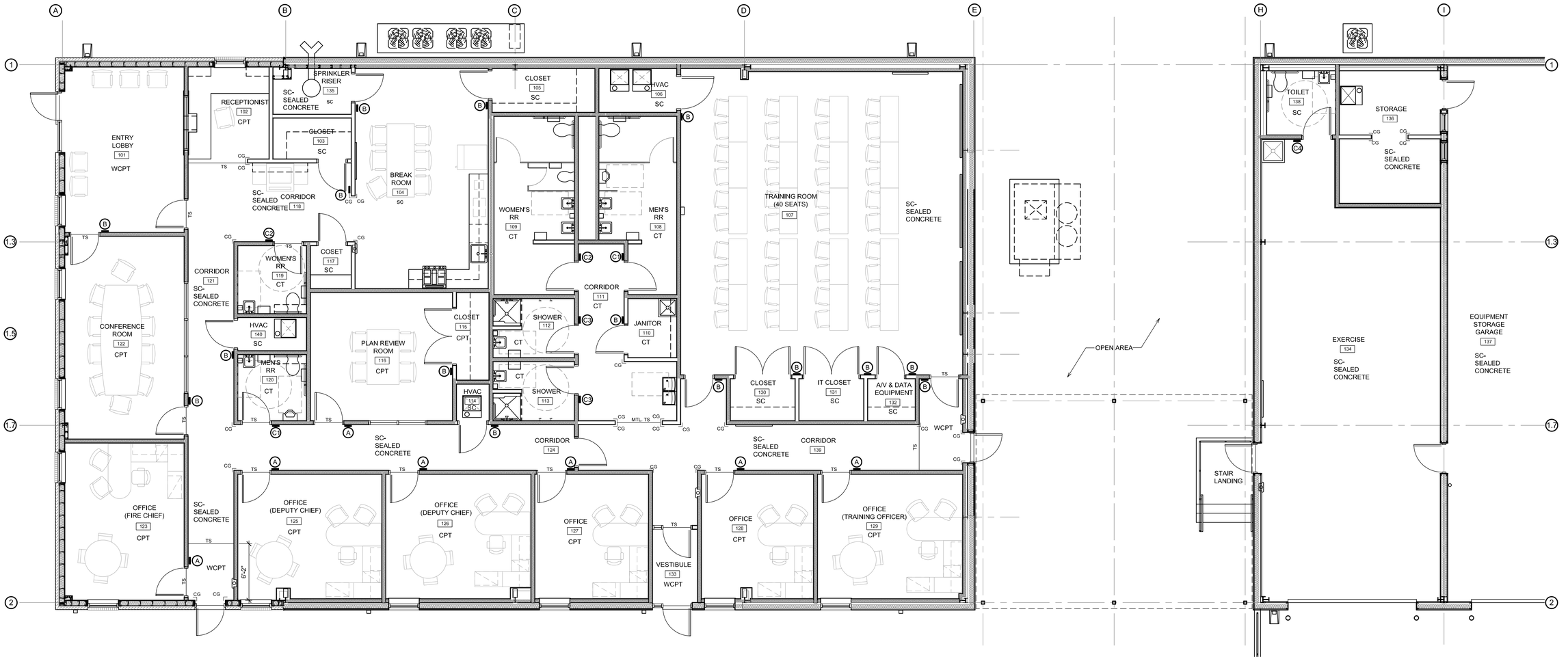
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

EQUIPMENT BUILDING REFLECTED CEILING PLAN

SHEET NUMBER:

A1.5



GENERAL INFORMATION:

1. REFER TO SHEET A9.1 & A9.2 FOR INTERIOR SIGN TYPE ELEVATIONS, NOTES AND DETAILS.
2. REFER TO EXTERIOR ELEVATIONS SHEET A3.2 FOR EXTERIOR BUILDING SIGNAGE.
3. TS = METAL TRANSITION STRIP, RE: 4/A9.2
4. ALL EXISTING SLAB AREAS NOTED TO RECEIVE WCPT, CPT OR CT SHALL BE PROPERLY PREPARED, INCLUDING BUT NOT LIMITED TO, ABRASIVE BLASTING AND INSTALLATION OF MOISTURE VAPOR BARRIER AS IDENTIFIED IN PROJECT MANUAL.

1 ROOM SIGNS,SPECIALTIES, FLOOR & WALL FINISHES PLANS

SCALE: 3/16" = 1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

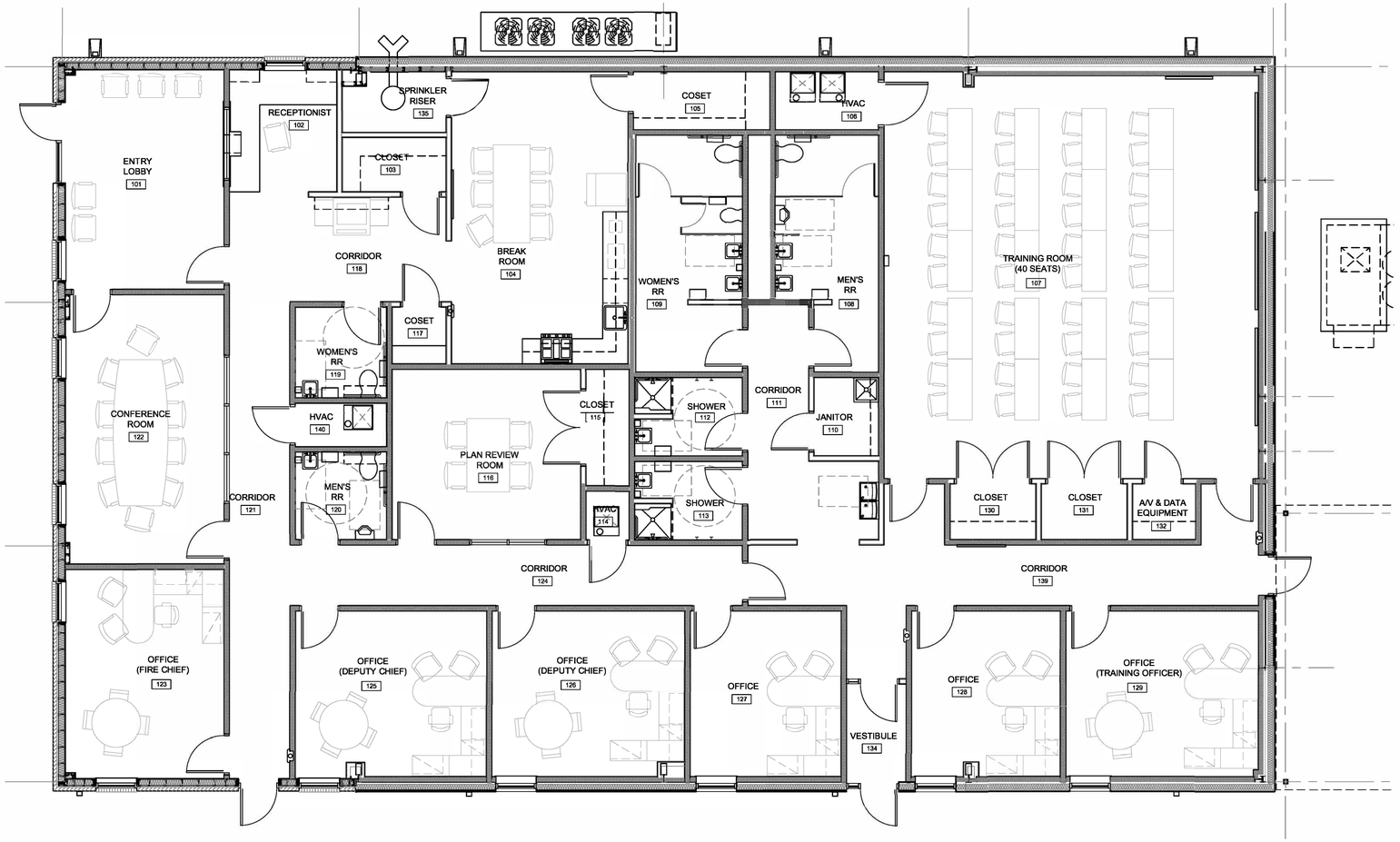
PROJECT NO.:	17-00901
FILE:	17-00900 A1-6
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
ROOM SIGNS, SPECIALTIES, FLOOR & WALL FINISHES PLANS

SHEET NUMBER:
A1.6



1 OFFICE RENOVATION - FURNITURE PLAN (INFORMATION ONLY)
SCALE: 3/16" = 1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

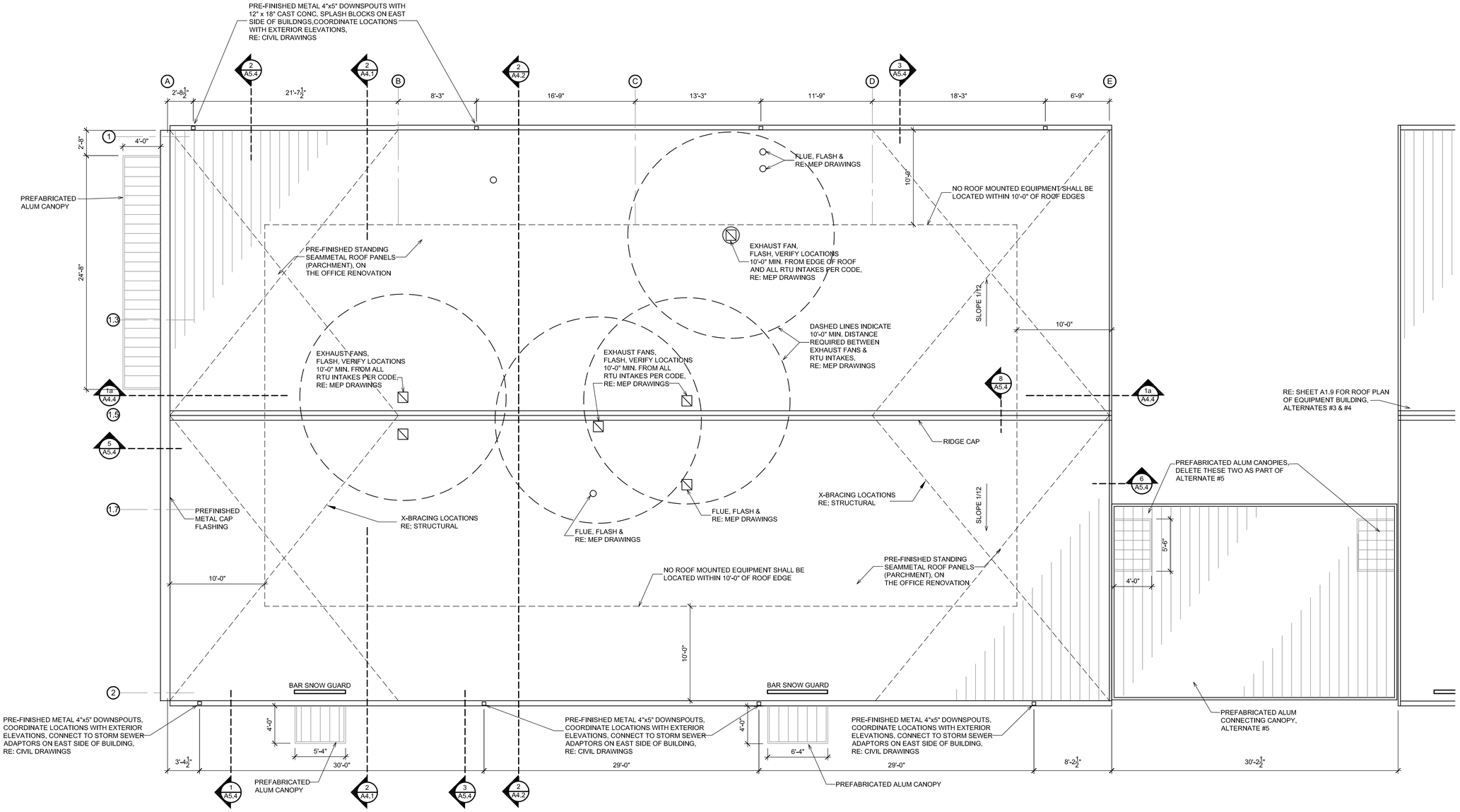
PROJECT NO.:	17-00901
FILE:	17-00900 A1-7
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
OFFICE RENOVATION
FURNITURE PLAN - FOR INFORMATION ONLY

SHEET NUMBER:
A1.7



1 OFFICE RENOVATION ROOF PLAN

SCALE: 3/16" = 1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A1-8
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:

GS HELMS + ASSOCIATES

ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

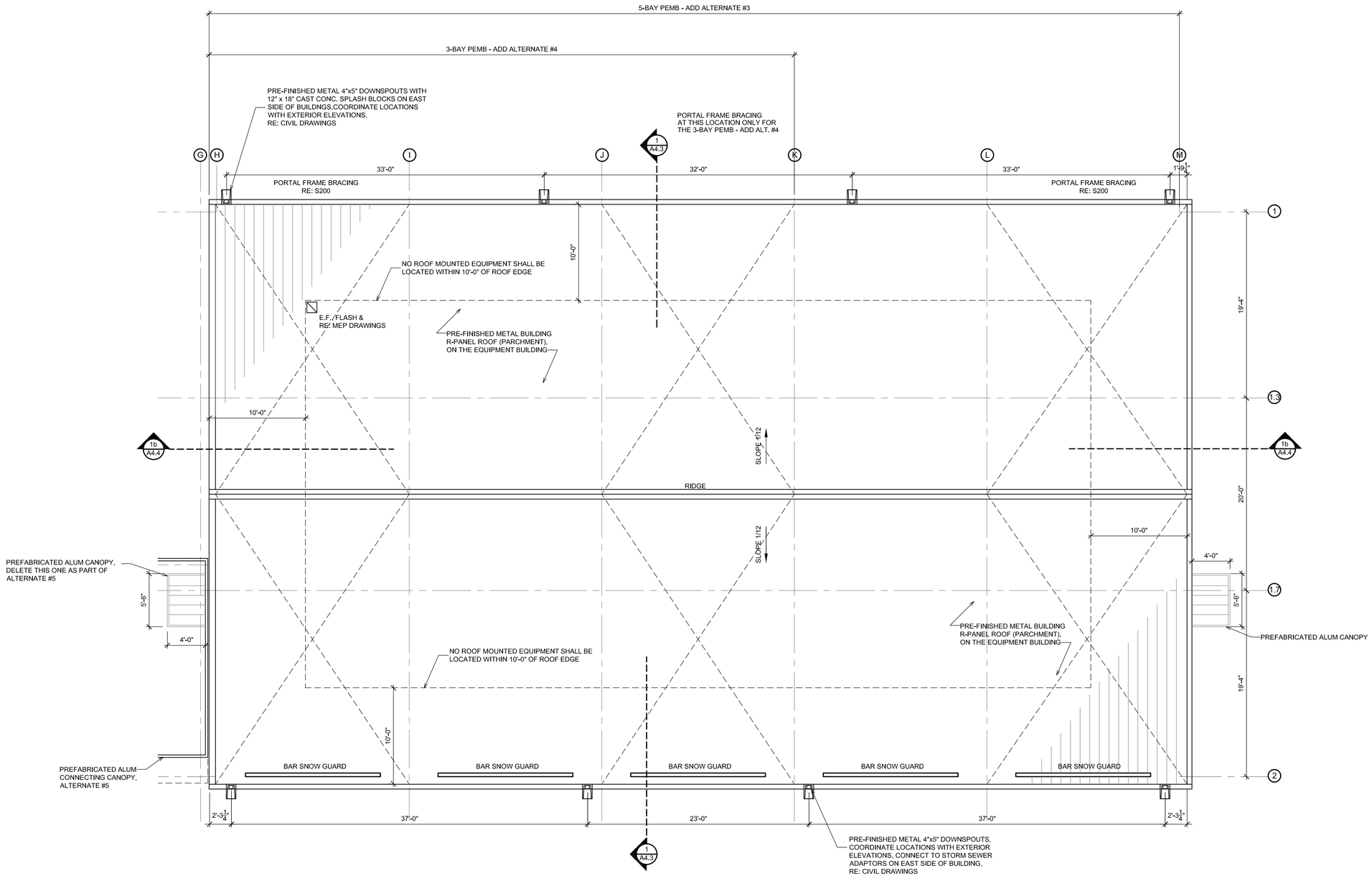
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

OFFICE RENOVATION ROOF PLAN

SHEET NUMBER:

A1.8



1 EQUIPMENT BUILDING - ROOF PLAN

SCALE: 3/16" = 1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A1-9
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

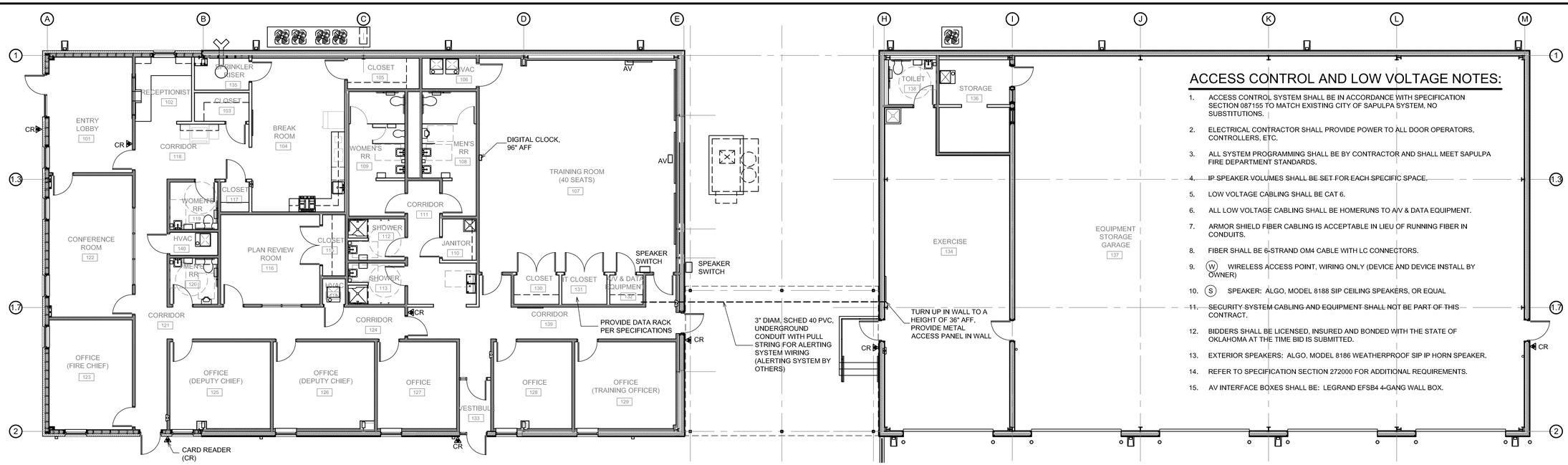
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

EQUIPMENT BUILDING - ROOF PLAN

SHEET NUMBER:

A1.9



OFFICE RENOVATION

EQUIPMENT BUILDING

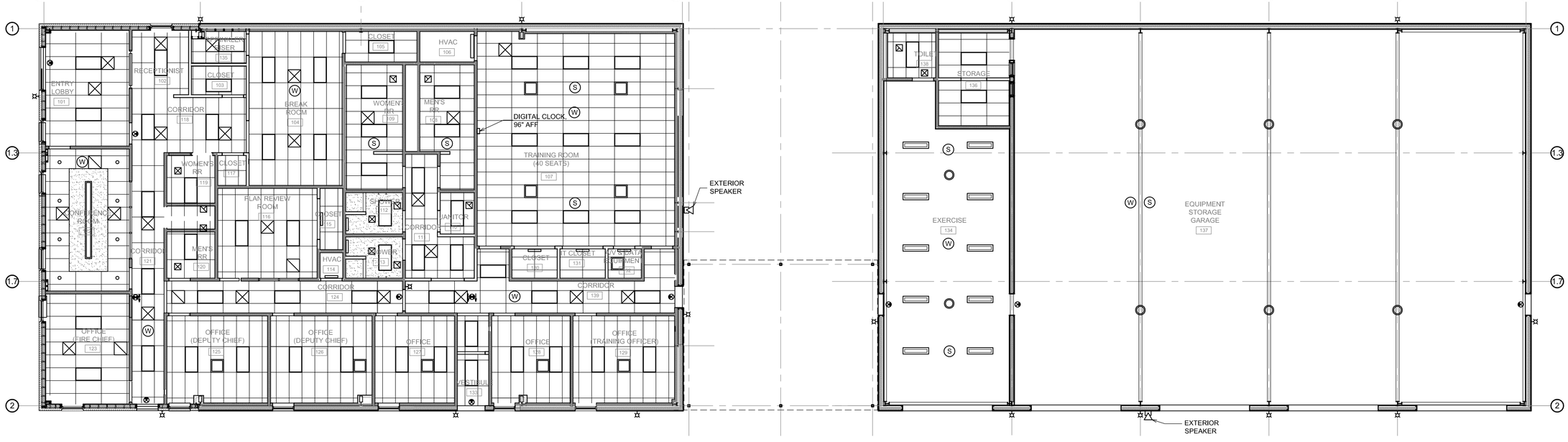
1 OFFICE RENOVATION & EQUIPMENT BUILDING - SPECIAL SYSTEMS FLOOR PLAN

SCALE: 1/8" = 1'-0"

PROJECT NORTH

ACCESS CONTROL AND LOW VOLTAGE NOTES:

1. ACCESS CONTROL SYSTEM SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 087155 TO MATCH EXISTING CITY OF SAPULPA SYSTEM, NO SUBSTITUTIONS.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE POWER TO ALL DOOR OPERATORS, CONTROLLERS, ETC.
3. ALL SYSTEM PROGRAMMING SHALL BE BY CONTRACTOR AND SHALL MEET SAPULPA FIRE DEPARTMENT STANDARDS.
4. IP SPEAKER VOLUMES SHALL BE SET FOR EACH SPECIFIC SPACE.
5. LOW VOLTAGE CABLING SHALL BE CAT 6.
6. ALL LOW VOLTAGE CABLING SHALL BE HOMERUNS TO A/V & DATA EQUIPMENT.
7. ARMOR SHIELD FIBER CABLING IS ACCEPTABLE IN LIEU OF RUNNING FIBER IN CONDUITS.
8. FIBER SHALL BE 6-STRAND OM4 CABLE WITH LC CONNECTORS.
9. (W) WIRELESS ACCESS POINT, WIRING ONLY (DEVICE AND DEVICE INSTALL BY OWNER)
10. (S) SPEAKER: ALGO, MODEL 8188 SIP CEILING SPEAKERS, OR EQUAL
11. SECURITY SYSTEM CABLING AND EQUIPMENT SHALL NOT BE PART OF THIS CONTRACT.
12. BIDDERS SHALL BE LICENSED, INSURED AND BONDED WITH THE STATE OF OKLAHOMA AT THE TIME BID IS SUBMITTED.
13. EXTERIOR SPEAKERS: ALGO, MODEL 8186 WEATHERPROOF SIP IP HORN SPEAKER.
14. REFER TO SPECIFICATION SECTION 272000 FOR ADDITIONAL REQUIREMENTS.
15. AV INTERFACE BOXES SHALL BE: LEGRAND EFSB4 4-GANG WALL BOX.



OFFICE RENOVATION

EQUIPMENT BUILDING

2 OFFICE RENOVATION & EQUIPMENT BUILDING - SPECIAL SYSTEMS CEILING PLAN

SCALE: 1/8" = 1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A1-10
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

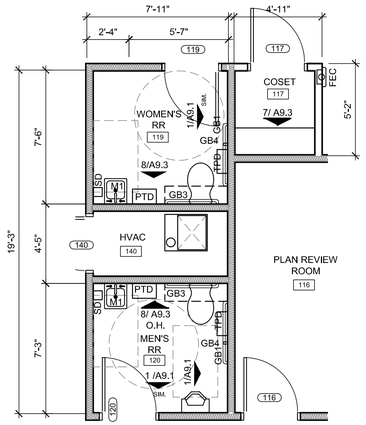
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

OFFICE RENOVATION & EQUIPMENT BUILDING - SPECIAL SYSTEMS FLOOR PLANS

SHEET NUMBER:

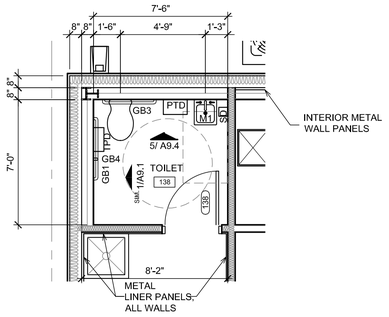
A1.10



1 OFFICE RENOVATION - ENLARGED TOILETS FLOOR PLAN

SCALE: 1/4" = 1'-0"

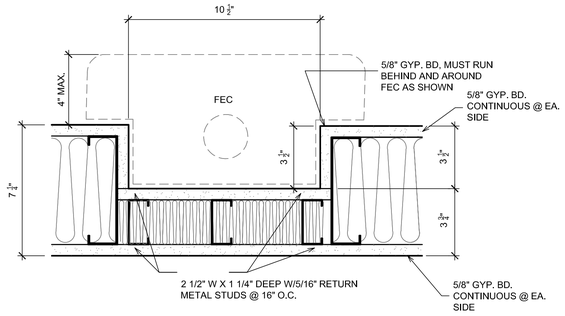
PROJECT NORTH



3 EQUIPMENT BUILDING - ENLARGED TOILET FLOOR PLAN

SCALE: 1/4" = 1'-0"

PROJECT NORTH

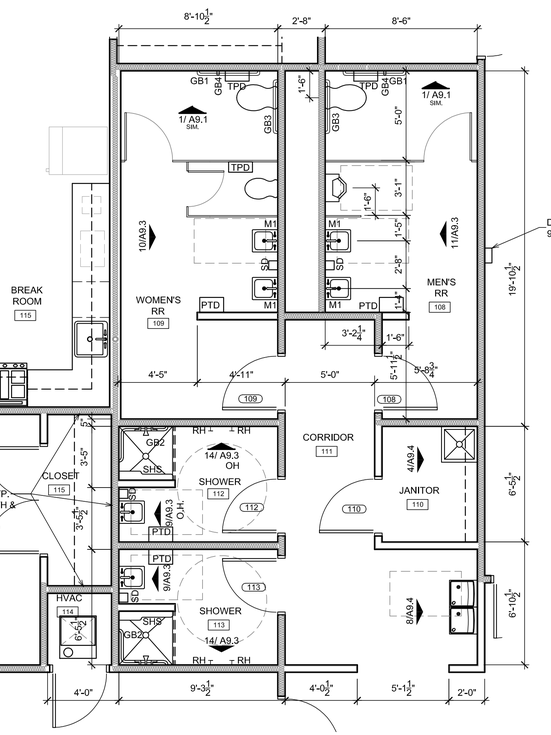


6 FEC INSTALLATION @ CORRIDOR WALL

SCALE: 3" = 1'-0"

CONSTRUCTION NOTE:

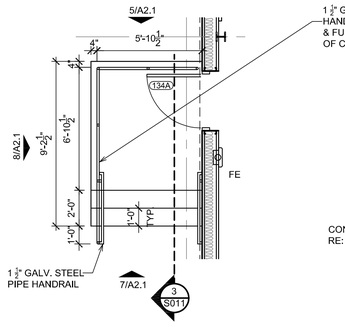
ALL REFERENCES TO WOOD NAILERS, BLOCKING AND SHEATHING SHALL MEAN FIRE-RATED WOOD.



2 OFFICE RENOVATION - ENLARGED PARTIAL FLOOR PLAN

SCALE: 1/4" = 1'-0"

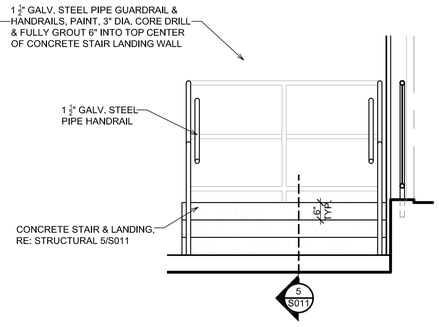
PROJECT NORTH



4 EQUIPMENT BUILDING - ENLARGED EXTERIOR STAIR PLAN

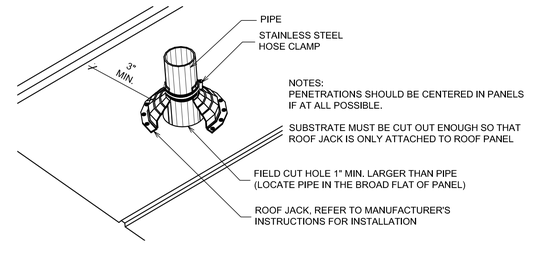
SCALE: 1/4" = 1'-0"

PROJECT NORTH



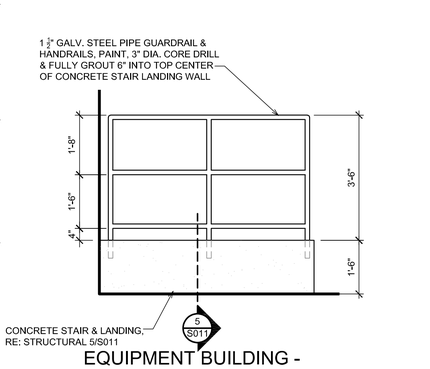
7 EQUIPMENT BUILDING - EXTERIOR STAIR EAST ELEVATION

SCALE: 1/2" = 1'-0"



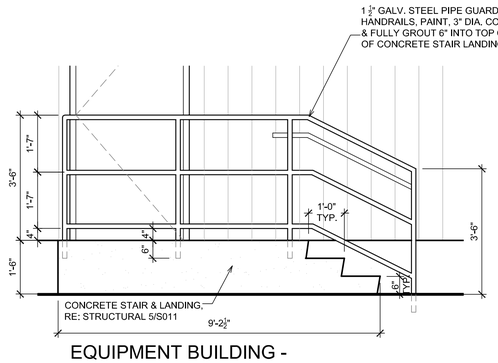
10 DETAIL OF ROOF JACK @ PIPE PENETRATION IN ROOF, TYP.

NOT TO SCALE



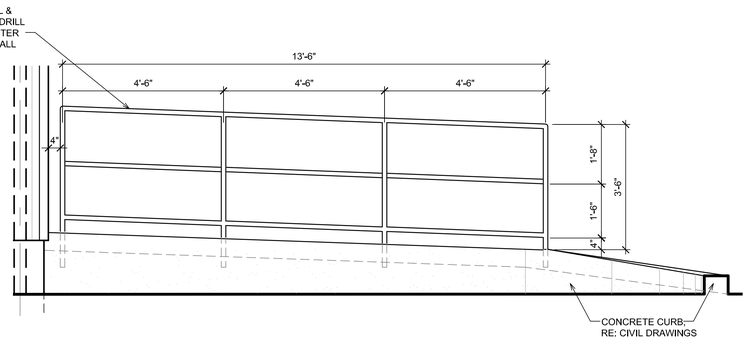
5 EQUIPMENT BUILDING - EXTERIOR STAIR WEST ELEVATION

SCALE: 1/2" = 1'-0"



8 EQUIPMENT BUILDING - EXTERIOR STAIR SOUTH ELEVATION

SCALE: 1/2" = 1'-0"



9 FEC INSTALLATION @ CORRIDOR WALL

SCALE: 3" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A2-1
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

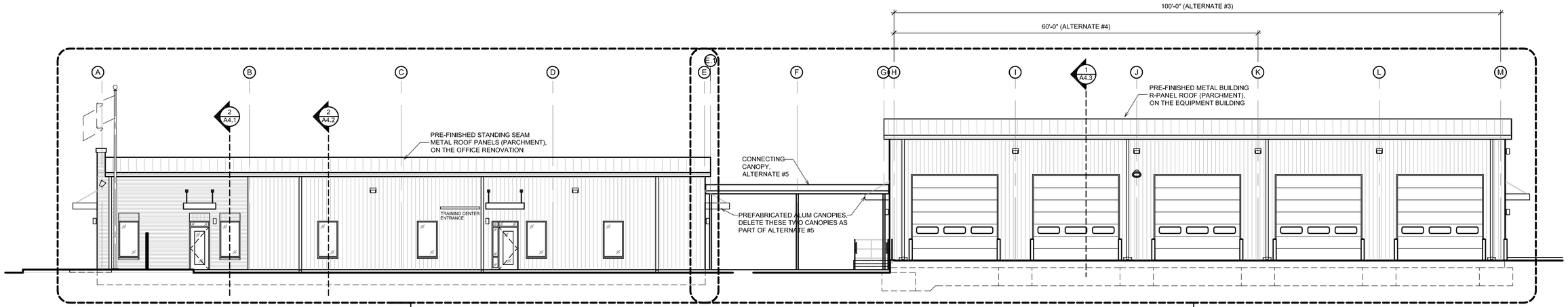
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

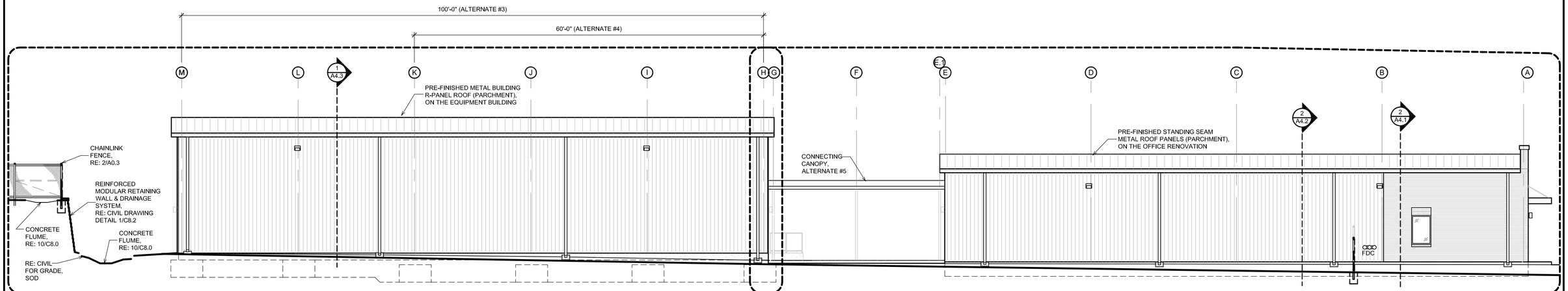
ENLARGED FLOOR PLANS & DETAILS

SHEET NUMBER:

A2.1



1 SCALE: 1/8" = 1'-0"



2 SCALE: 1/8" = 1'-0"

EXTERIOR FINISH SCHEDULE

DESCRIPTION	COLOR	FINISH
PREFINISHED PARAPET CAPS & FLASHING, BERRIDGE	DARK BRONZE	FACTORY FINISH
GUTTER & DOWNSPOUT	DARK BRONZE	FACTORY FINISH
PRE-FINISHED METAL CANOPY SYSTEM	DARK BRONZE	FACTORY FINISH
EXTERIOR SIGNAGE	ANOD. DARK BRONZE, RE: ELEVS.	FACTORY FINISH
BOLLARDS	RED TANGER SW 6601	PRIME & PAINT
FLAG POLES	SILVER ANODIZED	FACTORY FINISH
GUARDRAILS & HANDRAILS	DARK BRONZE	PRIME & PAINT
GARAGE DOORS	DARK BRONZE	FACTORY FINISH
CHAIN LINK (BASE BID, EXCEPT AT ENTRY)	GALVANIZED	FACTORY FINISH
CHAIN LINK (RE: ALTERNATE #1 & #2, SHEET G1.2)	BLACK POWDERCOAT / BLACK PVC COATING	FACTORY FINISH
ORNAMENTAL FENCING & GATES	BLACK POWDERCOAT	FACTORY FINISH
METAL BUILDING ROOF PANEL	PARCHMENT	FACTORY FINISH
METAL BUILDING WALL PANELS	PARCHMENT	FACTORY FINISH
ROOFING PARAPET BACK MTL PANELS	DARK BRONZE	FACTORY FINISH
ALUMINUM DOOR & WINDOW FRAMING	DARK BRONZE ANODIZED	FACTORY FINISH
GLAZING	DARK BRONZE TINT	FACTORY FINISH
MASONRY GROUT	STANDARD GRAY	FACTORY FINISH
BRICK MASONRY VENEER - FIELD	ACME, TULSA PLANT, CRIMSON, VELOUR	FACTORY FINISH
BRICK MASONRY VENEER - ACCENT (SOLDIER COURSE - WINDOW SILL)	ACME, TULSA PLANT, ALLENTOWN, VELOUR	FACTORY FINISH
BRICK LINTELS	GRAY TO MATCH SOLDIER COURSE BRICK	PRIME & PAINT

* ALL COLORS & FINISHES SHALL BE VERIFIED DURING SUBMITTALS

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A3-1
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

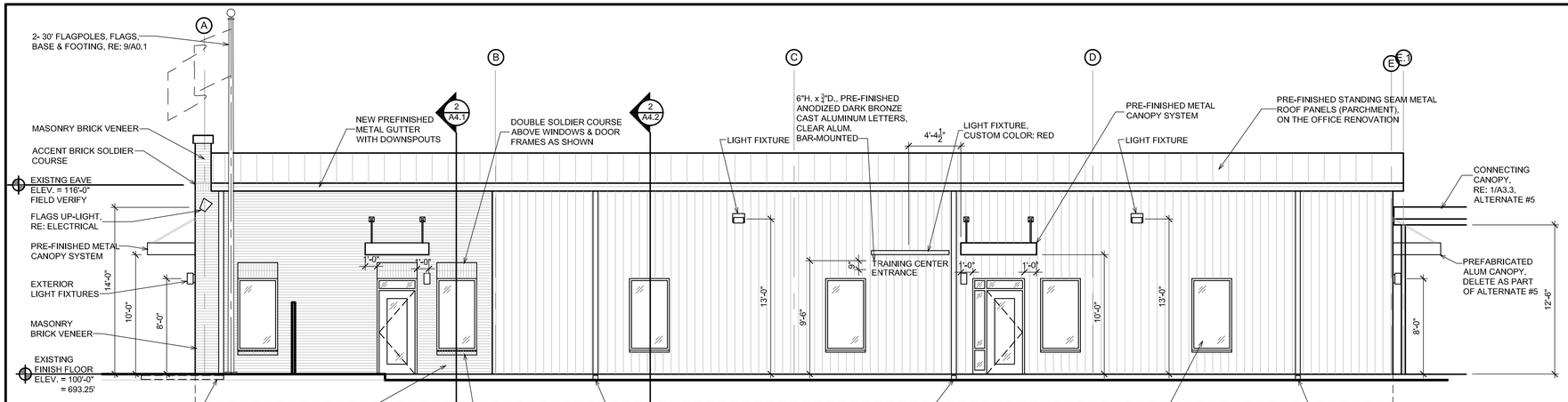
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
OVERALL EXTERIOR ELEVATIONS & EXTERIOR FINISH SCHEDULE

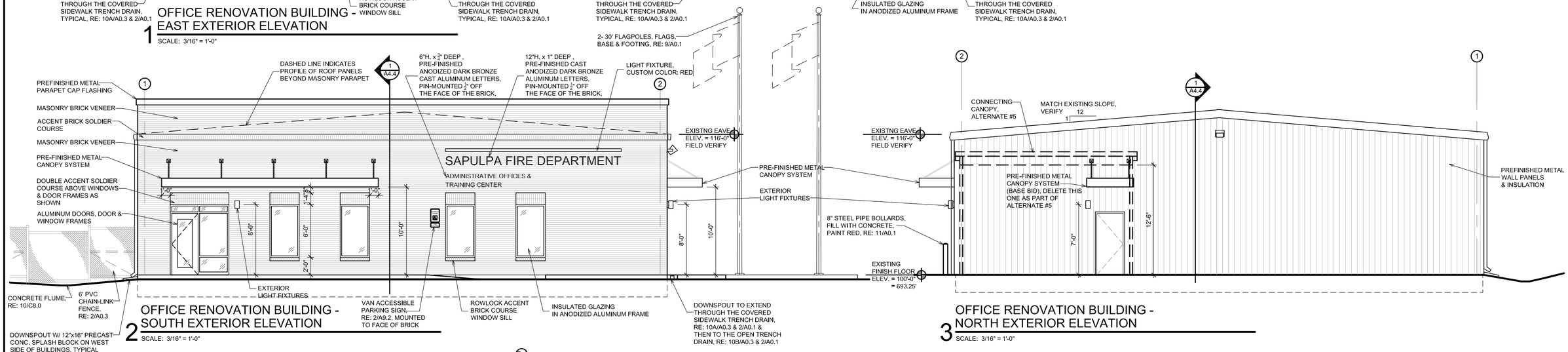
SHEET NUMBER:
A3.1

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332



1 OFFICE RENOVATION BUILDING - EAST EXTERIOR ELEVATION

SCALE: 3/16" = 1'-0"

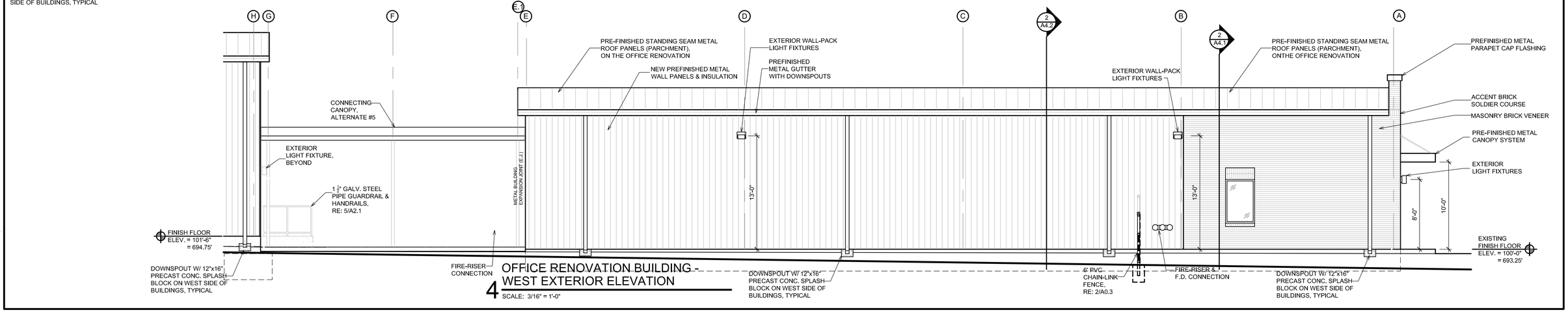


2 OFFICE RENOVATION BUILDING - SOUTH EXTERIOR ELEVATION

SCALE: 3/16" = 1'-0"

3 OFFICE RENOVATION BUILDING - NORTH EXTERIOR ELEVATION

SCALE: 3/16" = 1'-0"



4 OFFICE RENOVATION BUILDING - WEST EXTERIOR ELEVATION

SCALE: 3/16" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A3-2
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:

GS HELMS + ASSOCIATES

ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

CITY OF SAPULPA, OK

SAPULPA FIRE DEPARTMENT TRAINING FACILITY

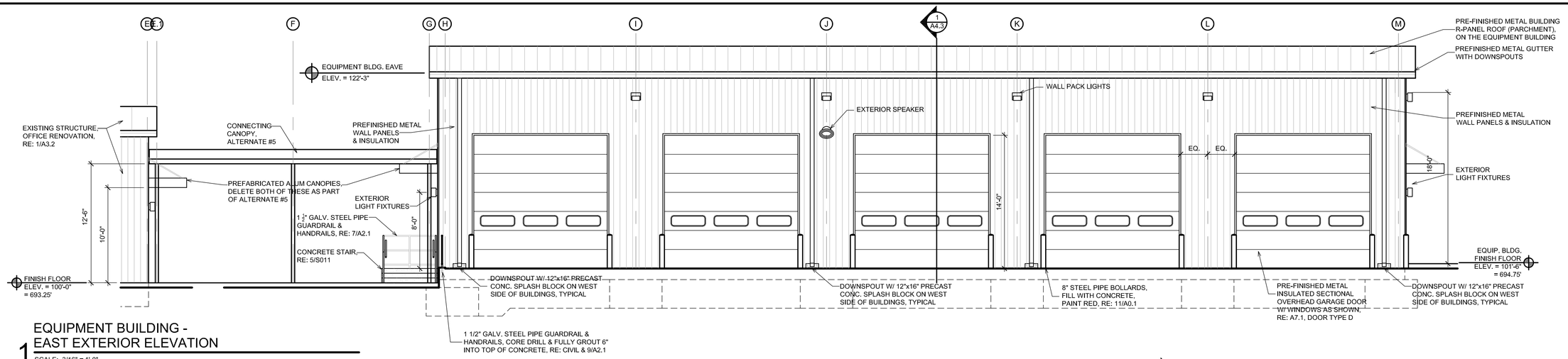
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

OFFICE RENOVATION BUILDING EXTERIOR ELEVATIONS

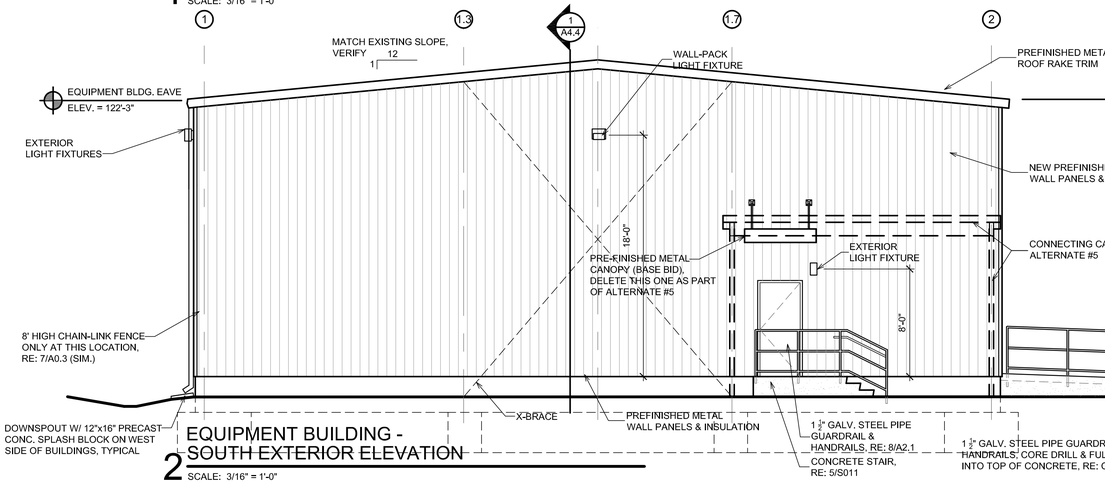
SHEET NUMBER:

A3.2



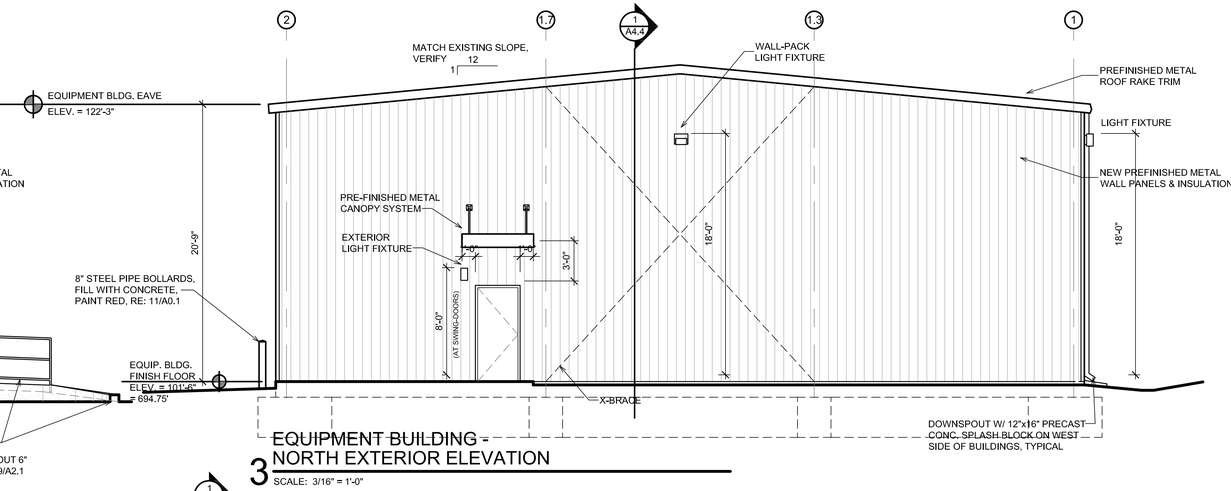
1 EQUIPMENT BUILDING - EAST EXTERIOR ELEVATION

SCALE: 3/16" = 1'-0"



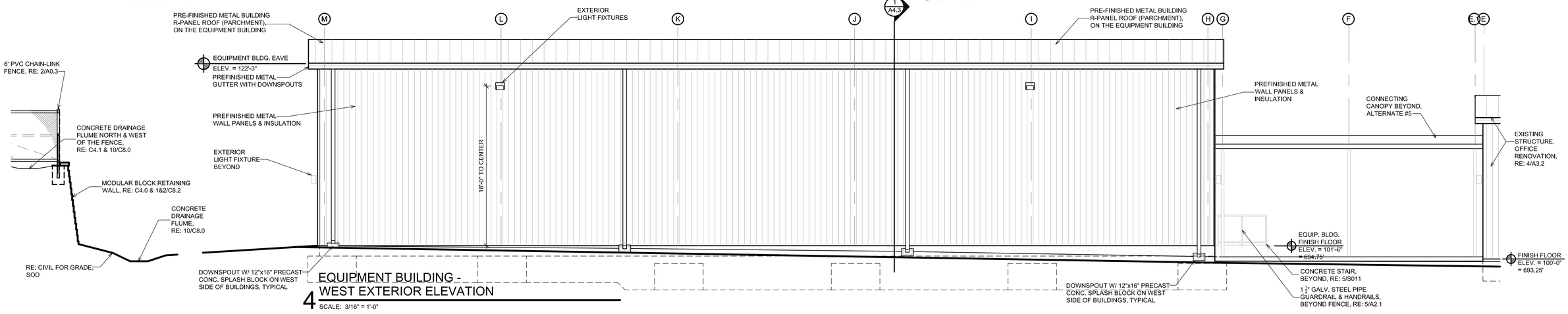
2 EQUIPMENT BUILDING - SOUTH EXTERIOR ELEVATION

SCALE: 3/16" = 1'-0"



3 EQUIPMENT BUILDING - NORTH EXTERIOR ELEVATION

SCALE: 3/16" = 1'-0"



4 EQUIPMENT BUILDING - WEST EXTERIOR ELEVATION

SCALE: 3/16" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

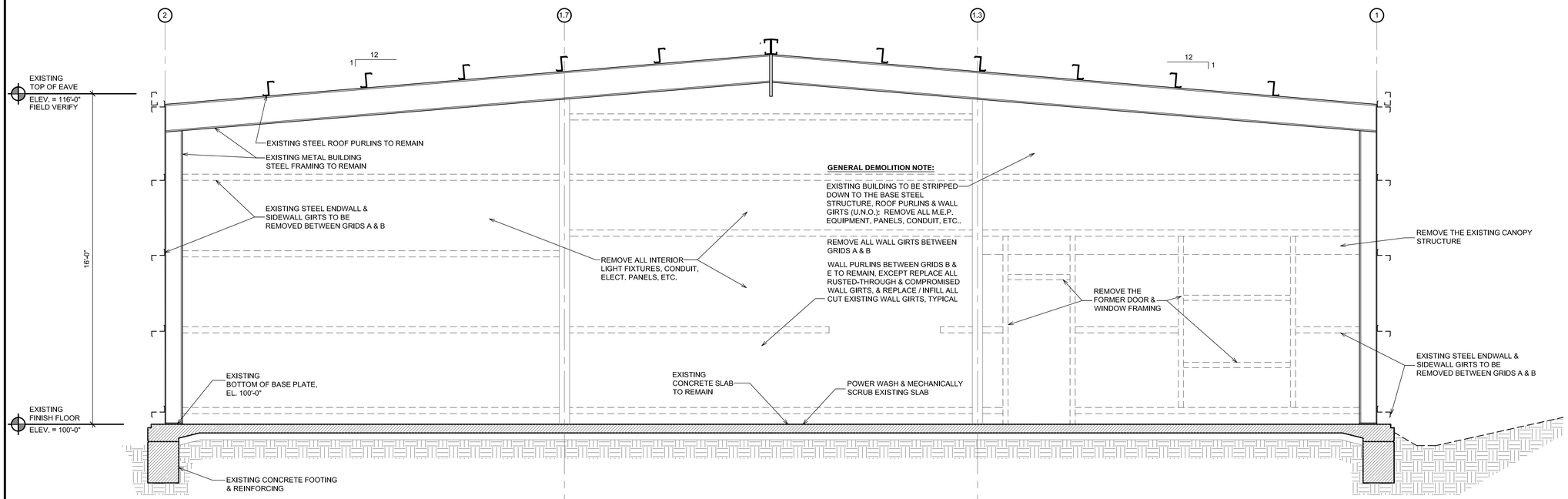
PROJECT NO.:	17-00901
FILE:	17-00900 A3-3
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

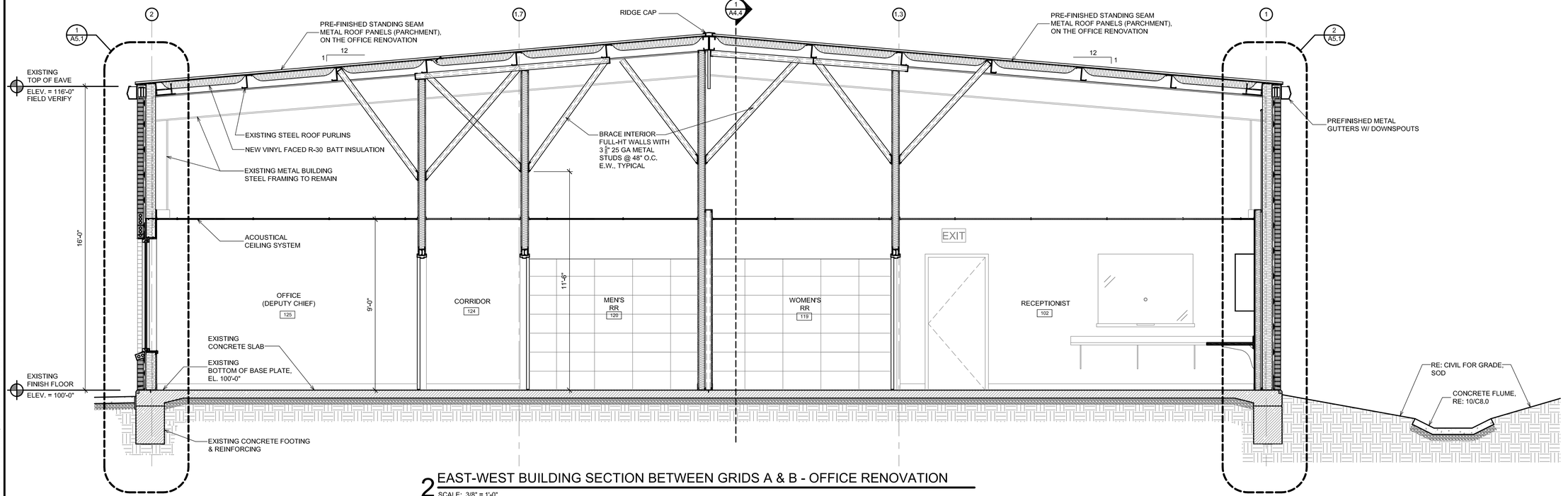
SHEET TITLE:
EQUIPMENT BUILDING EXTERIOR ELEVATIONS

SHEET NUMBER:
A3.3



1 EAST-WEST DEMOLITION BUILDING SECTION BETWEEN GRIDS A & B - OFFICE RENOVATION

SCALE: 3/8" = 1'-0"



2 EAST-WEST BUILDING SECTION BETWEEN GRIDS A & B - OFFICE RENOVATION

SCALE: 3/8" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A4-1
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

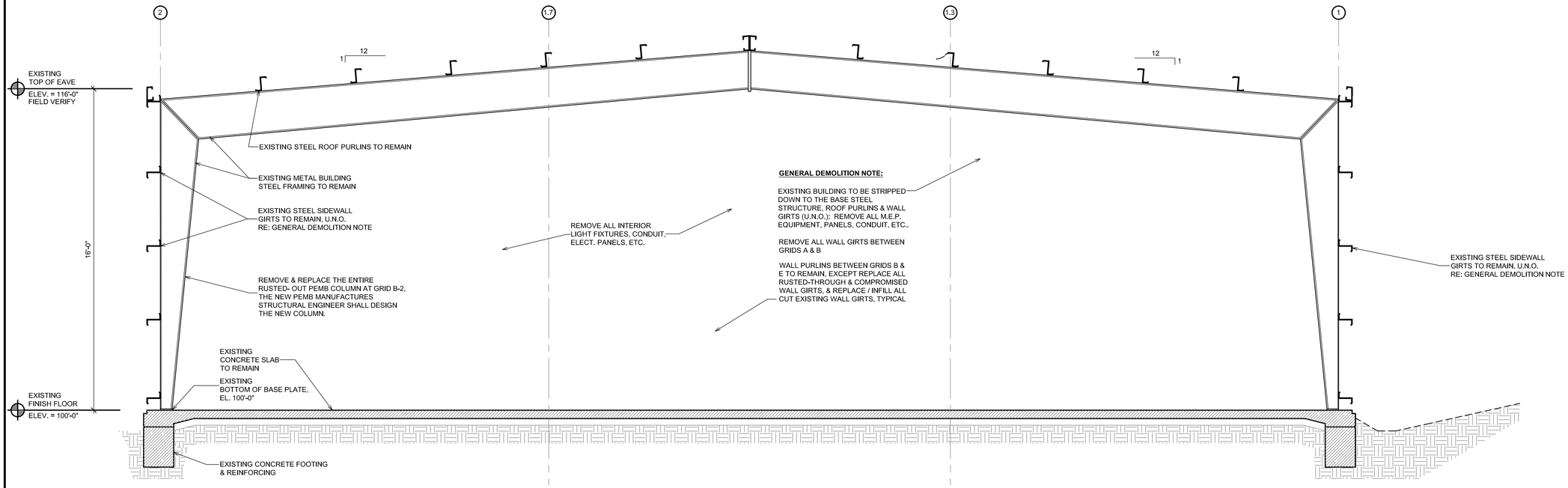
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

BUILDING SECTIONS BETWEEN GRIDS A & B -
OFFICE RENOVATION

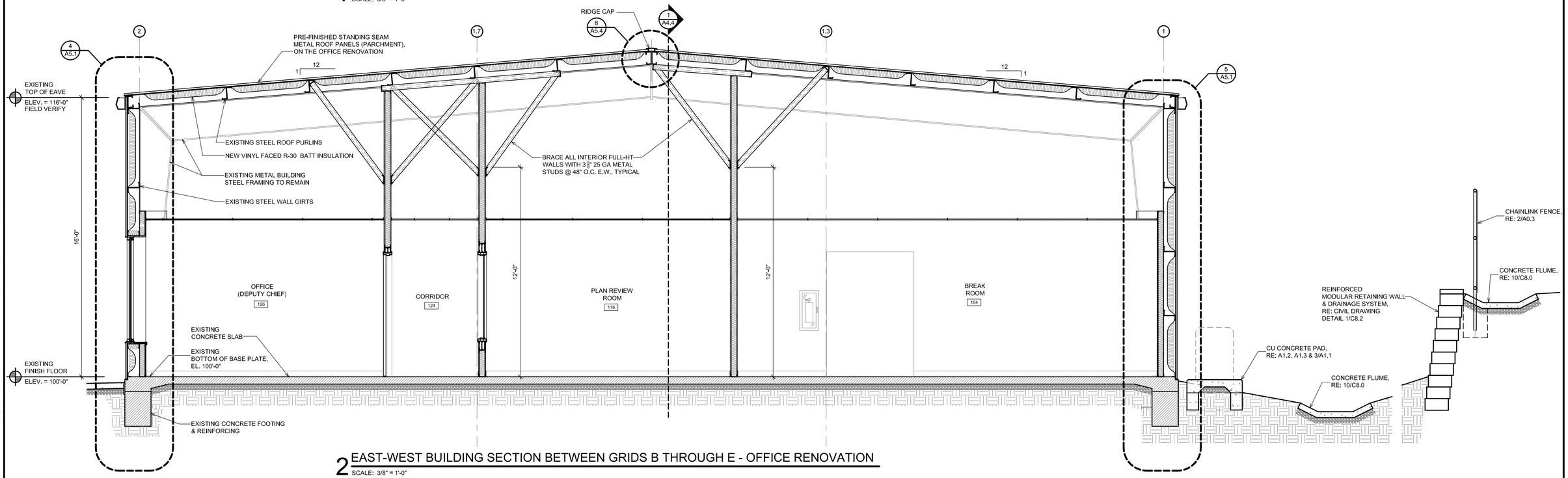
SHEET NUMBER:

A4.1



1 EAST-WEST DEMOLITION BUILDING SECTION BETWEEN GRIDS B THROUGH E - OFFICE RENOVATION

SCALE: 3/8" = 1'-0"



2 EAST-WEST BUILDING SECTION BETWEEN GRIDS B THROUGH E - OFFICE RENOVATION

SCALE: 3/8" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A4-2
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

CITY OF SAPULPA, OK

SAPULPA FIRE DEPARTMENT
TRAINING FACILITY

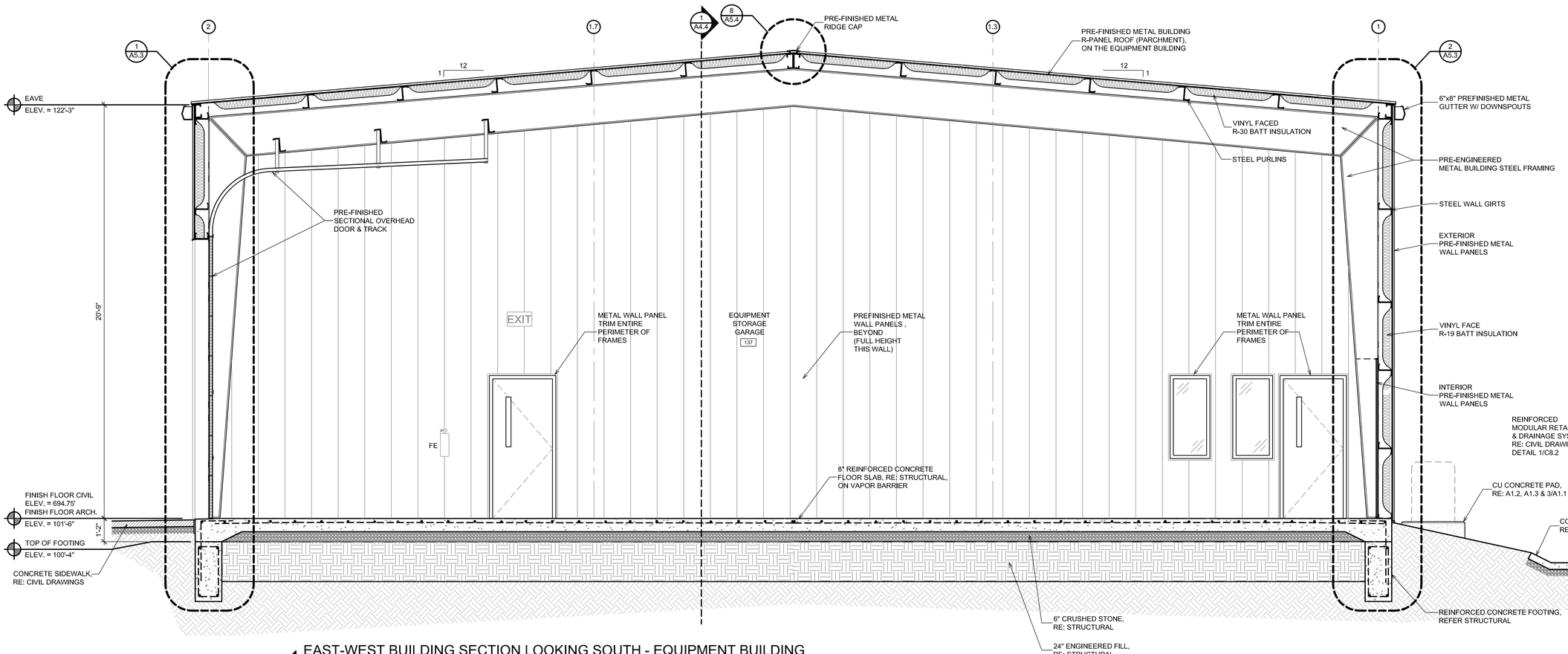
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

BUILDING SECTIONS BETWEEN GRIDS B THRU E -
OFFICE RENOVATION

SHEET NUMBER:

A4.2



1 EAST-WEST BUILDING SECTION LOOKING SOUTH - EQUIPMENT BUILDING

SCALE: 3/8" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A4-3
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

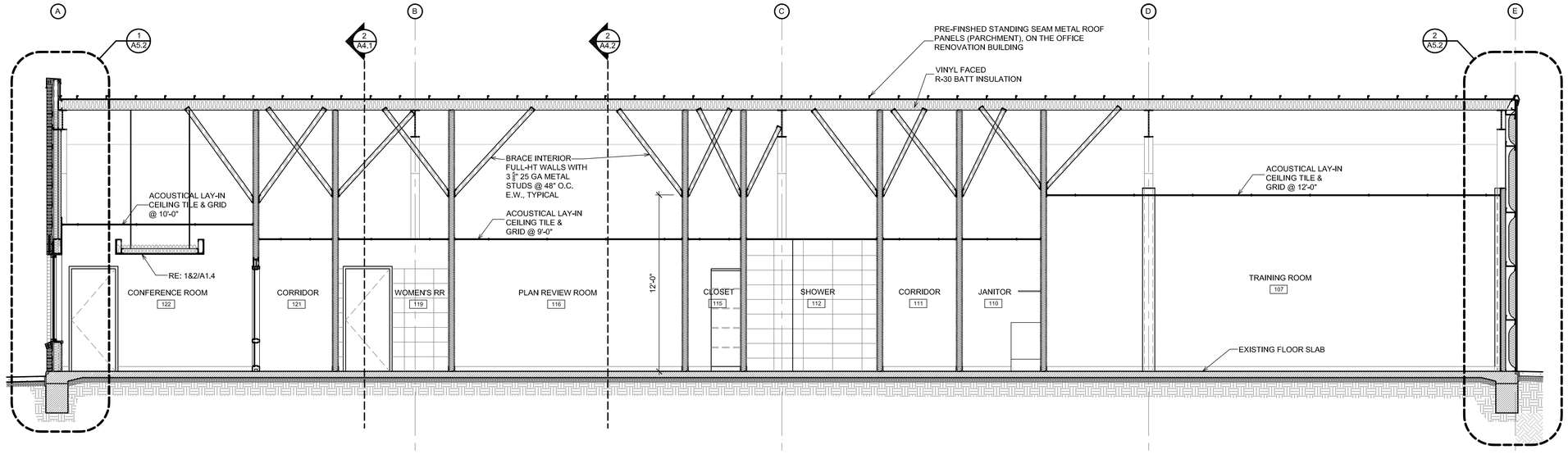
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

BUILDING SECTION - EQUIPMENT BUILDING

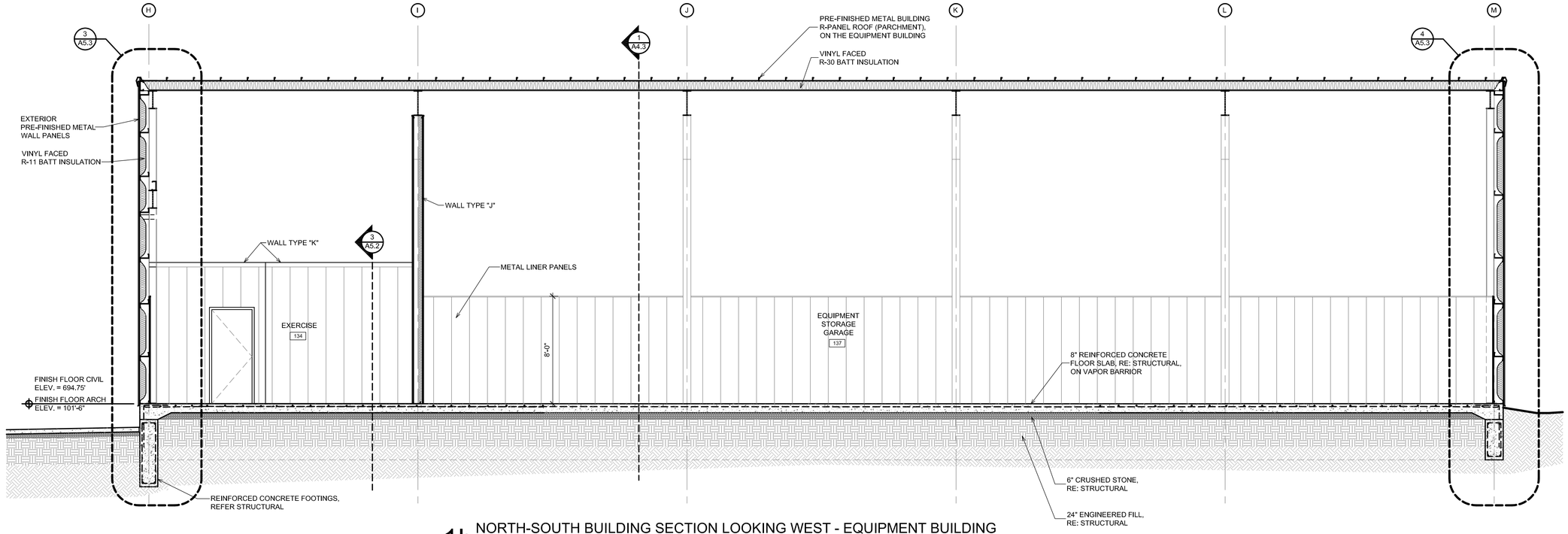
SHEET NUMBER:

A4.3



1a NORTH-SOUTH BUILDING SECTION LOOKING WEST - OFFICE RENOVATION BUILDING

SCALE: 1/4" = 1'-0"



1b NORTH-SOUTH BUILDING SECTION LOOKING WEST - EQUIPMENT BUILDING

SCALE: 1/4" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A4-4
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

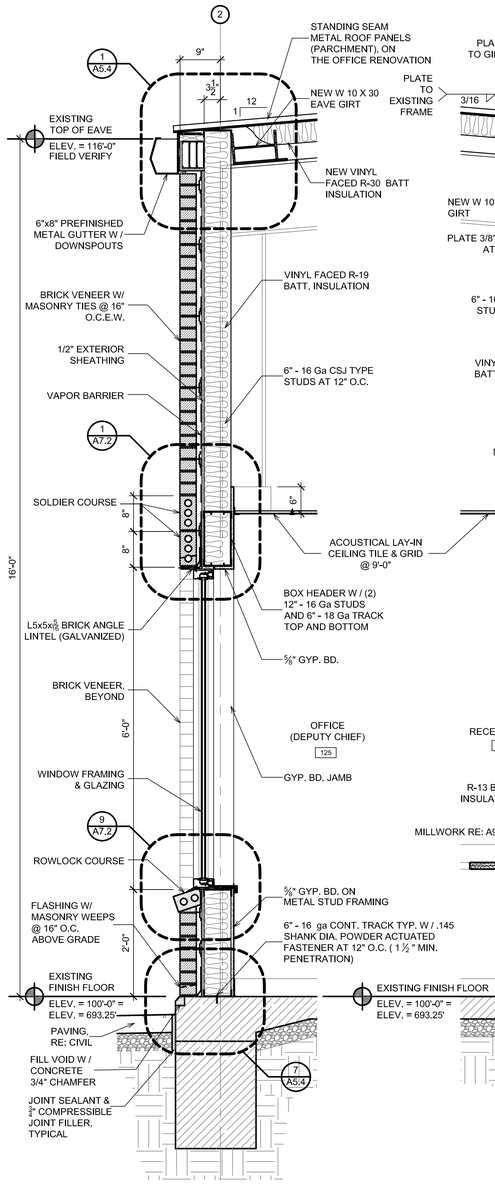
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

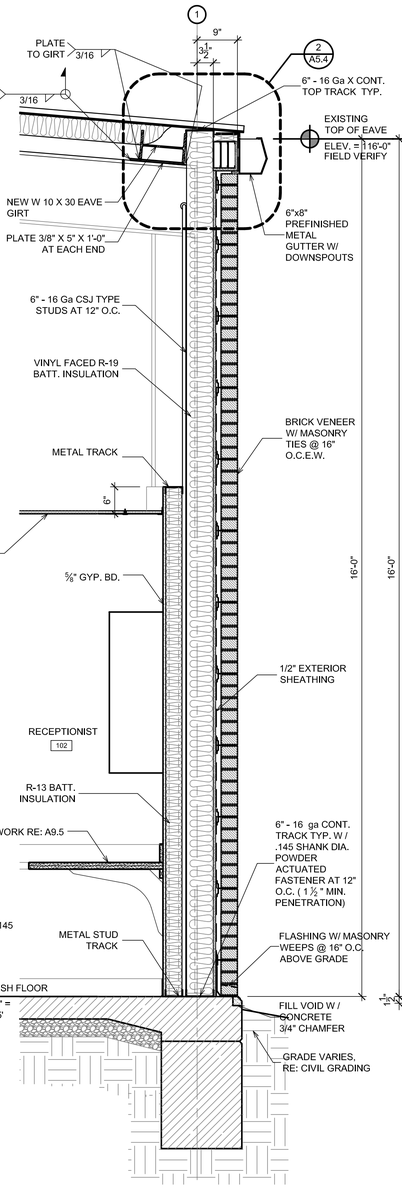
N-S BUILDING SECTIONS

SHEET NUMBER:

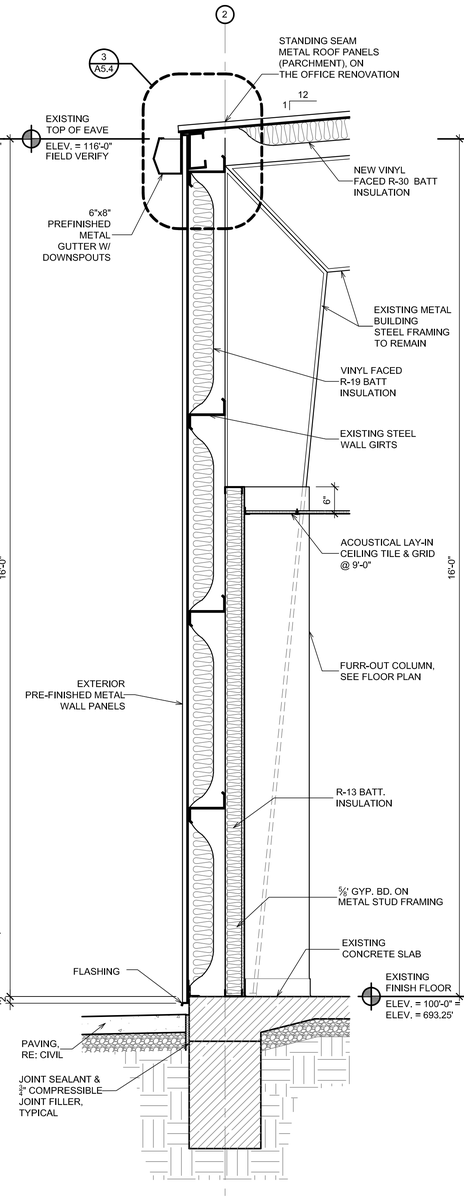
A4.4



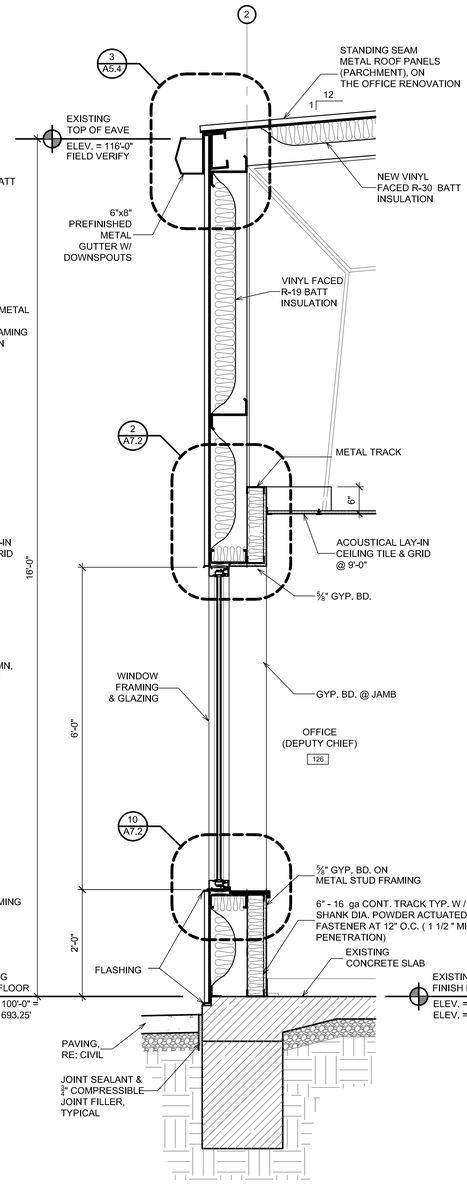
1 EAST EXTERIOR WALL SECTION BETWEEN GRIDS A & B - OFFICE RENOVATION (@ WINDOW)
SCALE: 3/4" = 1'-0"



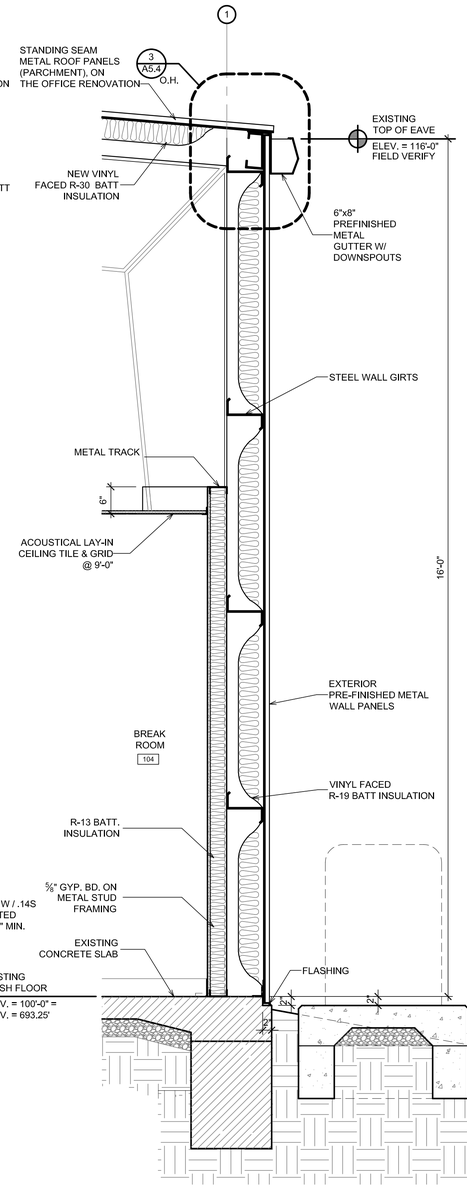
2 WEST EXTERIOR WALL SECTION BETWEEN GRIDS A & B - OFFICE RENOVATION
SCALE: 3/4" = 1'-0"



3 EAST EXTERIOR WALL SECTION BETWEEN GRIDS B THRU E - OFFICE RENOVATION
SCALE: 3/4" = 1'-0"



4 EAST EXTERIOR WALL SECTION BETWEEN GRIDS B THRU E - OFFICE RENOVATION (@ WINDOW)
SCALE: 3/4" = 1'-0"



5 WEST EXTERIOR WALL SECTION BETWEEN GRIDS B THRU E - OFFICE RENOVATION
SCALE: 3/4" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A5-1
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

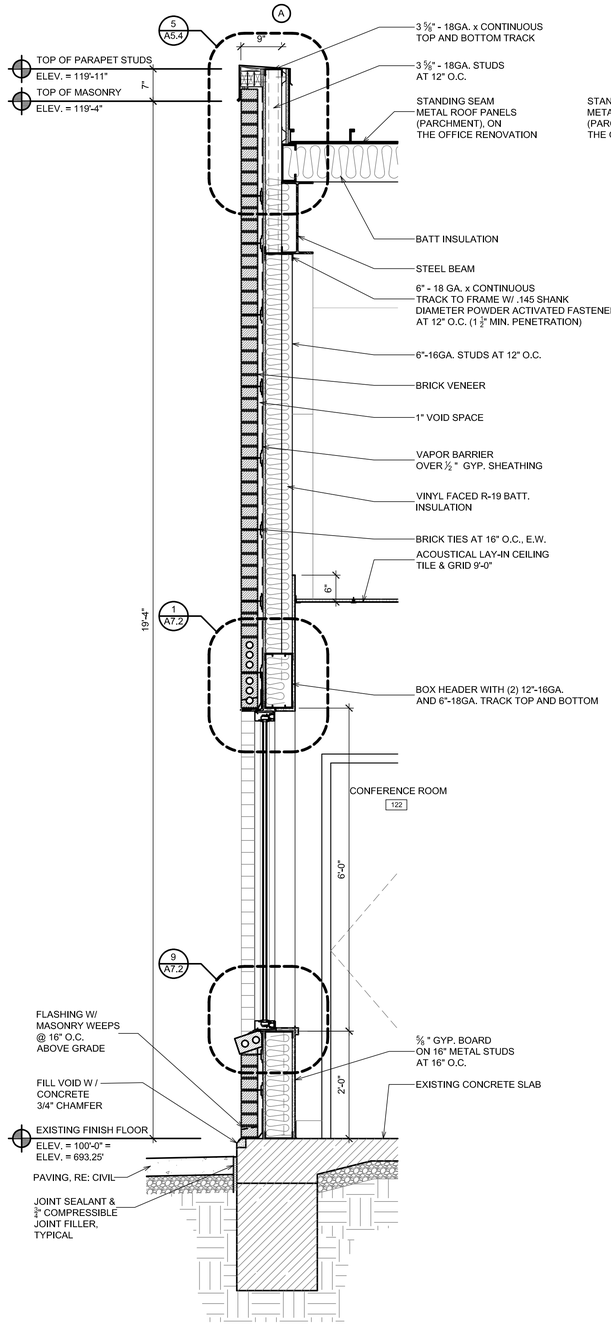
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

STRUCTURAL ENGINEERING CONSULTANT:
RICHARDS & ASSOCIATES, INC.
424 EAST MAIN STREET JENKS, OK
405.627.9584 FAX 918.355.9309
C.A. #4458 EXP. DATE 06.30.27

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

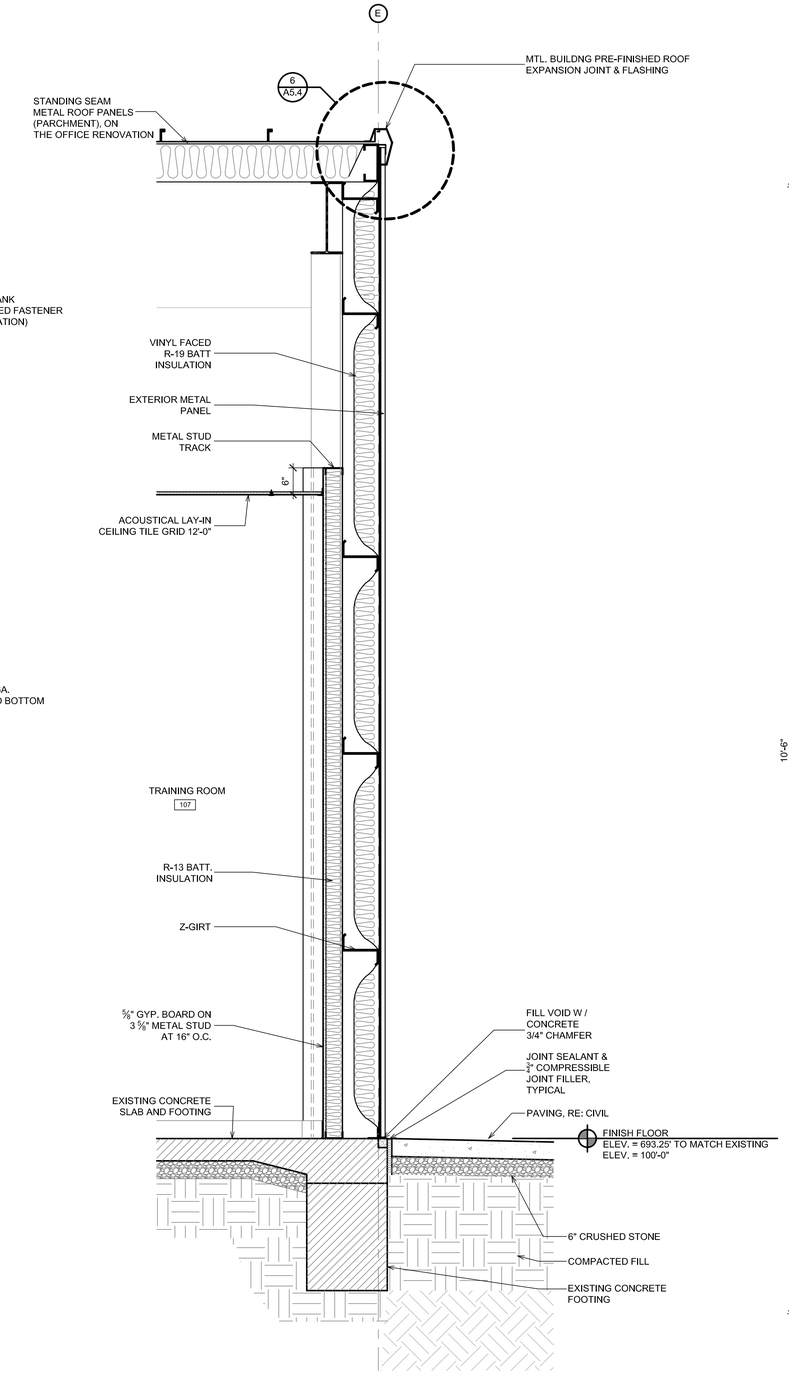
SHEET TITLE:
EXTERIOR WALL SECTIONS - OFFICE RENOVATION

SHEET NUMBER:
A5.1



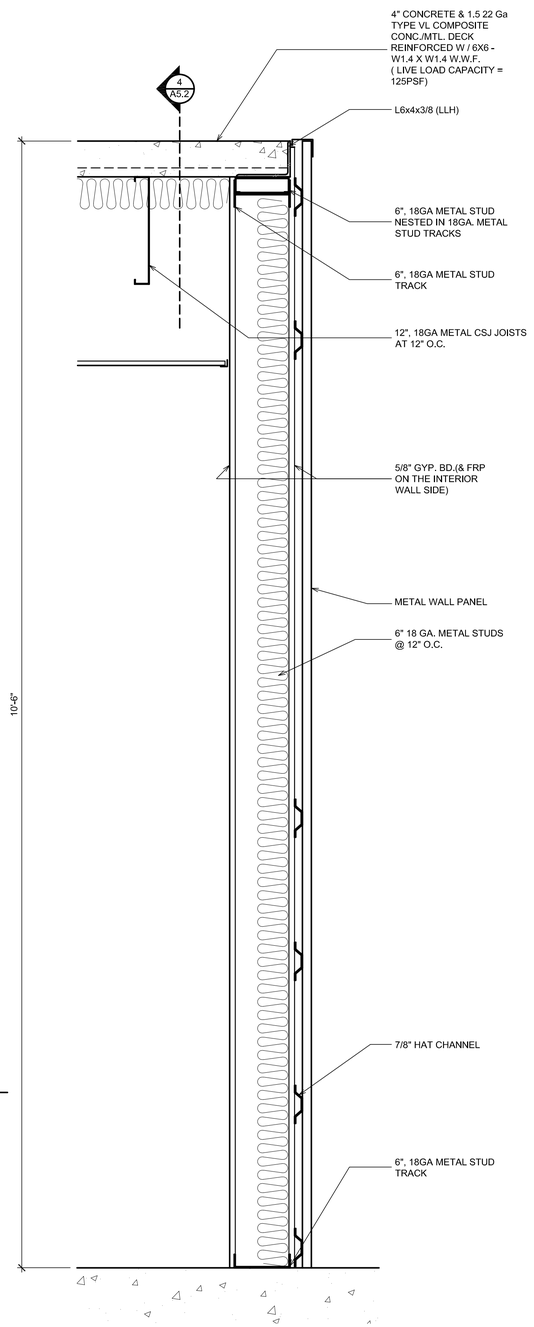
1 SOUTH EXTERIOR WALL SECTION - OFFICE RENOVATION (@ WINDOW)

SCALE: 3/4" = 1'-0"



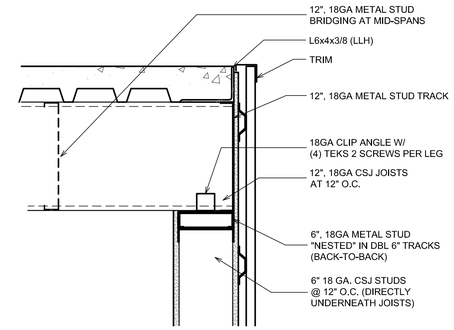
2 NORTH WALL SECTION - OFFICE RENOVATION

SCALE: 3/4" = 1'-0"



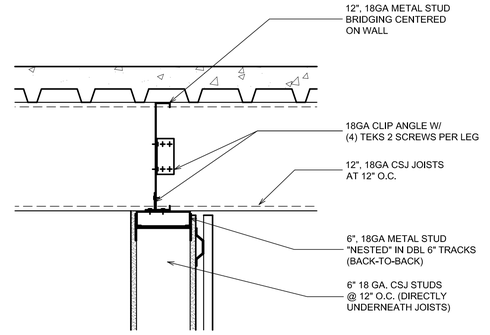
3 STORAGE MEZZANINE WALL SECTION

SCALE: 1 1/2" = 1'-0"



4 STORAGE MEZZANINE DETAIL

SCALE: 1 1/2" = 1'-0"



5 STORAGE MEZZANINE DETAIL

SCALE: 1 1/2" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

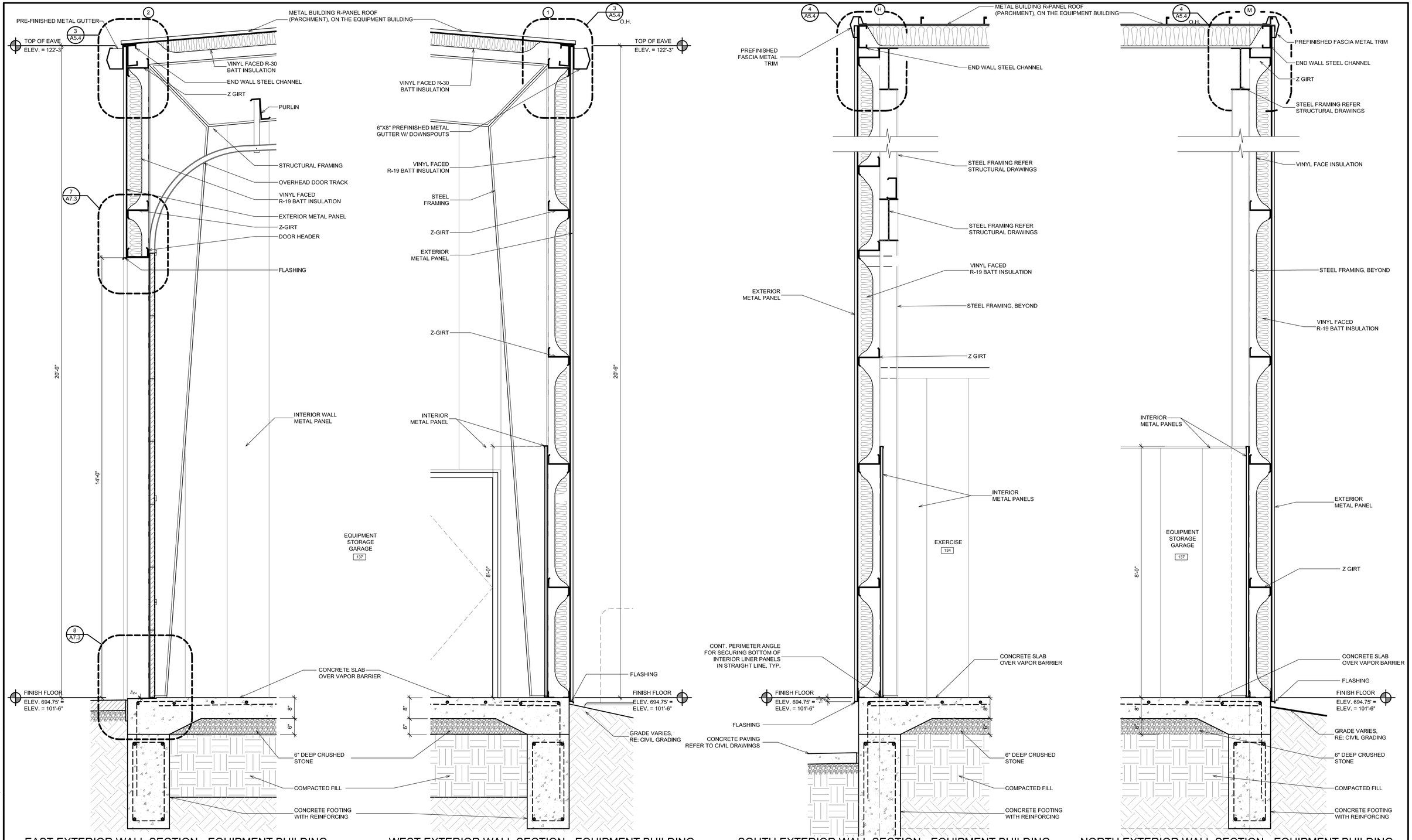
PROJECT NO.:	17-00901
FILE:	17-00900 A5-2
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
EXTERIOR WALL SECTIONS - OFFICE RENOVATION

SHEET NUMBER:
A5.2



GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

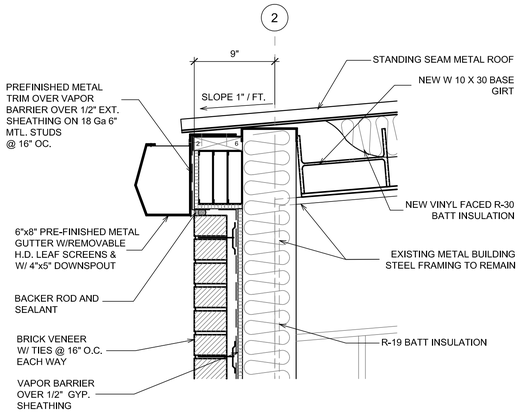
PROJECT NO.:	17-00901
FILE:	17-00900 A5-3
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

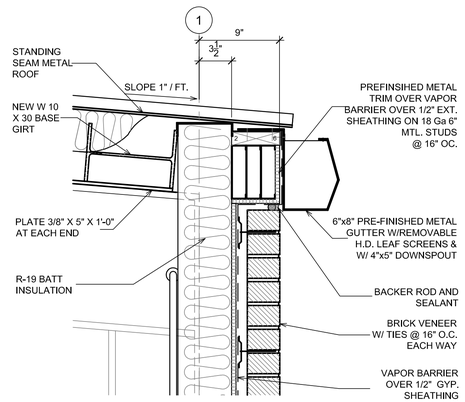
SHEET TITLE:
EXTERIOR WALL SECTIONS -
EQUIPMENT BUILDING

SHEET NUMBER:
A5.3



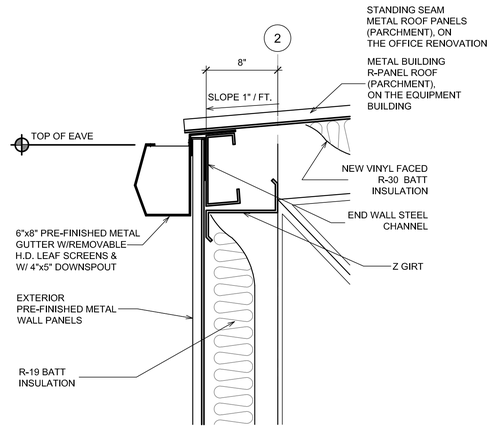
1 EAST ROOF GUTTER DETAIL BETWEEN GRIDS A & B - OFFICE RENOVATION

SCALE: 1 - 1/2" = 1'-0"



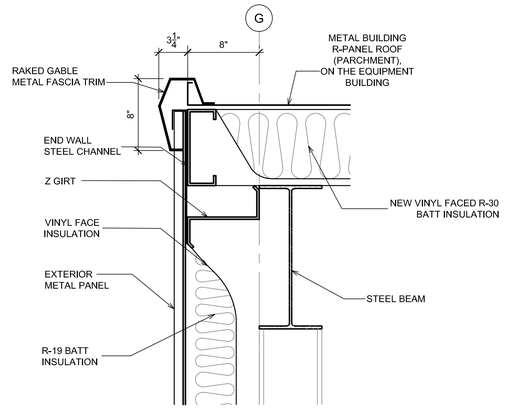
2 WEST ROOF GUTTER DETAIL BETWEEN GRIDS A & B - OFFICE RENOVATION

SCALE: 1 - 1/2" = 1'-0"



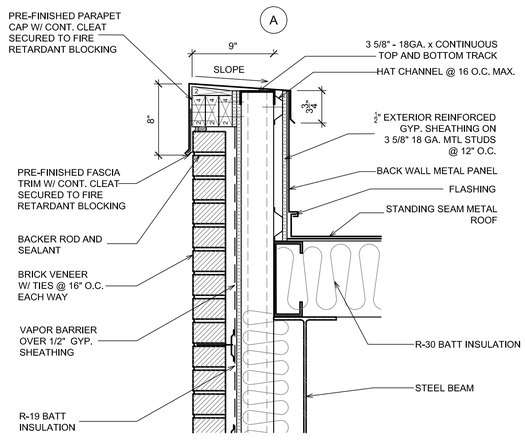
3 WEST & EAST GUTTER DETAIL BETWEEN GRIDS B THRU E - OFFICE RENOVATION

SCALE: 1 - 1/2" = 1'-0"



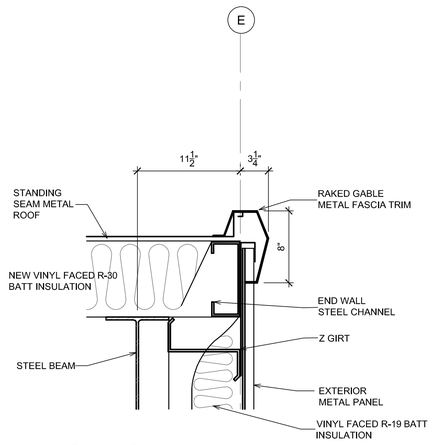
4 NORTH & SOUTH EXTERIOR ROOF DETAIL - EQUIPMENT BUILDING

SCALE: 1 - 1/2" = 1'-0"



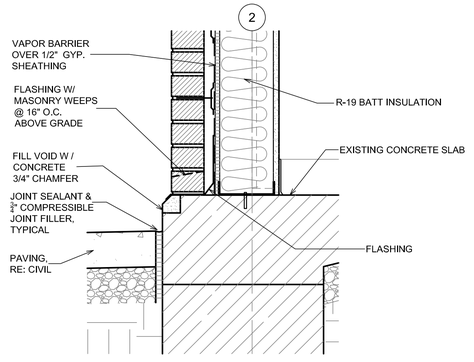
5 SOUTH EXTERIOR PARAPET DETAIL - OFFICE RENOVATION (@ WINDOW)

SCALE: 1 - 1/2" = 1'-0"



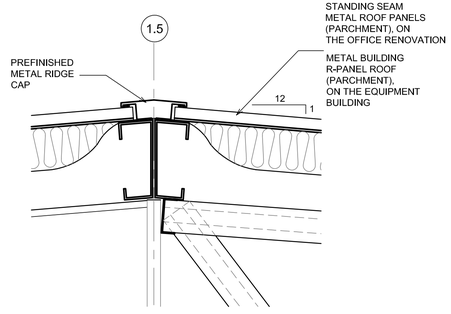
6 NORTH GABLE DETAIL - OFFICE RENOVATION

SCALE: 1 - 1/2" = 1'-0"



7 ENLARGED EAST EXTERIOR WALL SECTION BETWEEN GRIDS A & B

SCALE: 1 - 1/2" = 1'-0"



8 DETAIL @ RIDGE

SCALE: 1 - 1/2" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A5-4
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

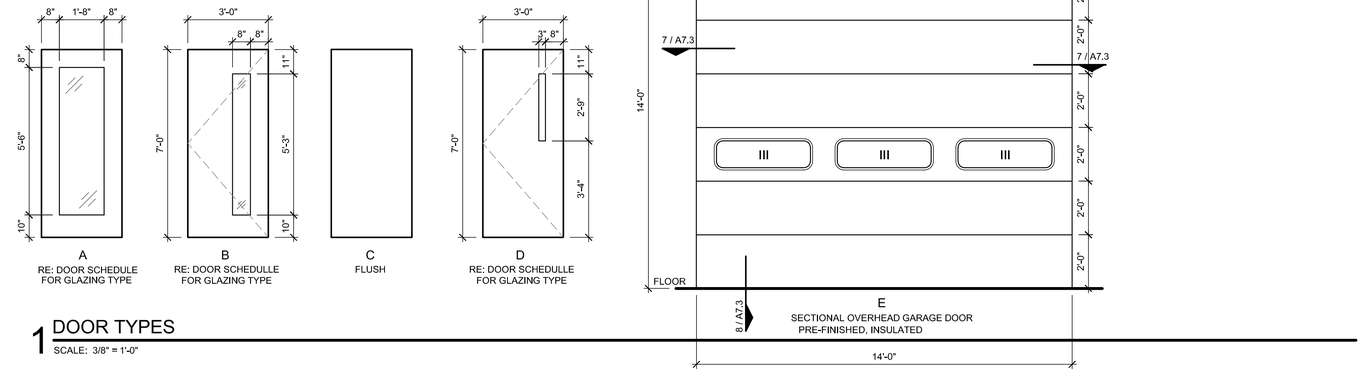
EXTERIOR DETAILS

SHEET NUMBER:

A5.4

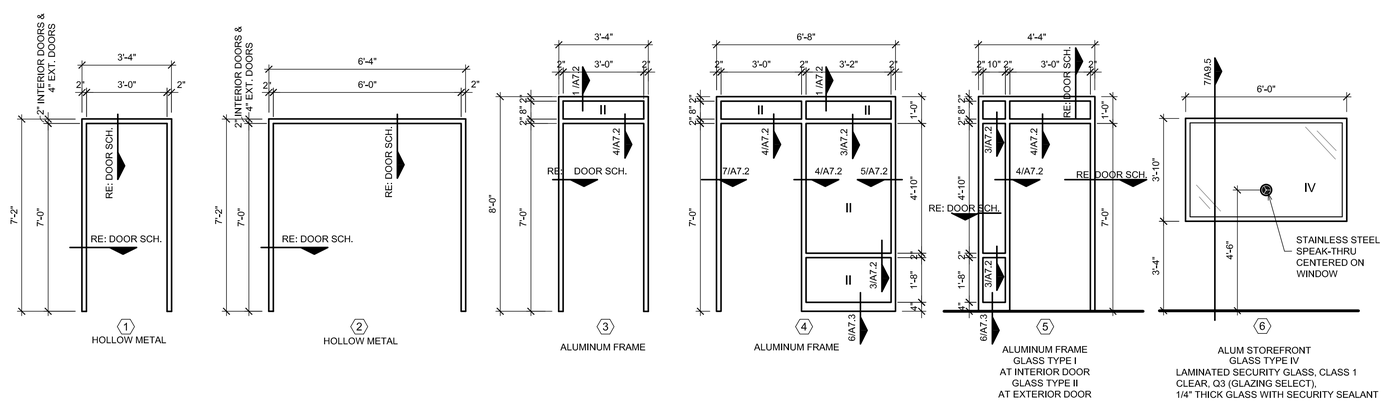
DOOR SCHEDULE

MARK (XXX)	DOOR TYPE	DOOR WOOD	DOOR HOLLOW METAL	DOOR ALUMINUM	DOOR SECTIONAL	DOOR GLASS TYPE	DOOR WIDTH	DOOR HEIGHT	DOOR THICKNESS	FRAME TYPE	FRAME HOLLOW METAL	FRAME ALUMINUM	FRAME OTHER	FRAME GLASS TYPE	JAMB DETAIL	JAMB DETAIL	HEAD DETAIL	MULLION DETAIL	SILL DETAIL	FIRE RATING (IN MINUTES)	HARDWARE SET	NOTES
101A	A			●		II	3'-0"	7'-0"	1 3/4"	4		●		II	5 / A7.2	7 /A7.2	1,4 /A7.2	3 /A7.2	12 /A7.2	--	1	EXIT DEVICE / ACCESS CONTROL
101B	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	2	EXIT DEVICE / ACCESS CONTROL
103	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	5	
105	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	5	
106	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	5	
107A	B	●				I	3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	9	EXIT DEVICE
107B	B	●				I	3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	9	EXIT DEVICE
108	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	4	
109	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	4	
110	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	5	
112	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	3	
113	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	3	
114	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	5	
115	C	●					PR 3'-0"	7'-0"	1 3/4"	2	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	6	
116	B	●				I	3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	8	
117	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	5	
119	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	3	
120	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	3	
121	A			●		II	3'-0"	7'-0"	1 3/4"	3		●		II	7 / A7.2	7 /A7.2	1,4 /A7.2	–	12 /A7.2	--	1	EXIT DEVICE / ACCESS CONTROL
122A	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	8	
122B	B	●				I	3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	5	
123	B	●				I	3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	8	
124	A	●				I	3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	9	EXIT DEVICE / ACCESS CONTROL
125	B	●				I	3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	8	
126	B	●				I	3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	8	
127	B	●				I	3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	8	
128	B	●				I	3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	8	
129	B	●				I	3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	8	
130	C	●					PR 3'-0"	7'-0"	1 3/4"	2	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	7	
131	C	●					PR 3'-0"	7'-0"	1 3/4"	2	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	6	
132	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	--	8	
133A	A			●		II	3'-0"	7'-0"	1 3/4"	5		●		II	8 / A7.2	6 /A7.2	2,4 /A7.2	3 /A7.2	12 /A7.2	–	1	EXIT DEVICE / ACCESS CONTROL
133B	A			●		I	3'-0"	7'-0"	1 3/4"	5		●		I	12 /A7.3	11 /A7.3	11,12 /A7.3	3 /A7.2	–	–	9	EXIT DEVICE
134A	D		●			I	3'-0"	7'-0"	1 3/4"	1	●				10 / A7.3	10 / A7.3	9 / A7.3	–	–	–	1	EXIT DEVICE / ACCESS CONTROL
134B	D		●			I	3'-0"	7'-0"	1 3/4"	1	●				10 / A7.3	10 / A7.3	9 / A7.3	–	–	–	9	EXIT DEVICE
135	C		●				3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	–	5	UNDER CUT DOOR 1"
136	C		●				3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	–	8	
137A	E				●	III	14'-0"	14'-0"	–						7 /A7.3	7 /A7.3	7 /A7.3	–	8 /A7.3	–	10	
137B	E				●	III	14'-0"	14'-0"	–						7 /A7.3	7 /A7.3	7 /A7.3	–	8 /A7.3	–	10	
137C	E				●	III	14'-0"	14'-0"	–						7 /A7.3	7 /A7.3	7 /A7.3	–	8 /A7.3	–	10	
137D	E				●	III	14'-0"	14'-0"	–						7 /A7.3	7 /A7.3	7 /A7.3	–	8 /A7.3	–	10	
137E	E				●	III	14'-0"	14'-0"	–						7 /A7.3	7 /A7.3	7 /A7.3	–	8 /A7.3	–	10	
137F	D		●			I	3'-0"	7'-0"	1 3/4"	1	●				10 / A7.3	10 / A7.3	9 / A7.3	–	–	–	1	EXIT DEVICE / ACCESS CONTROL
138	C		●				3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	–	3	
139	D		●			I	3'-0"	7'-0"	1 3/4"	1	●				10 / A7.3	10 / A7.3	9 / A7.3	–	–	–	1	EXIT DEVICE / ACCESS CONTROL
140	C	●					3'-0"	7'-0"	1 3/4"	1	●				1 / A7.3	1 / A7.3	1 / A7.3	–	–	–	5	



1 DOOR TYPES

SCALE: 3/8" = 1'-0"



DOOR OPERATION NOTES:

NOTE: ALL EGRESS DOORS SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT

NOTE: THE UNLATCHING OF ANY DOOR OR LEAF SHALL NOT REQUIRE MORE THAN ONE OPERATION. DEADBOLTS SHALL NOT BE SEPARATE LOCKS AND A BUTTON SHALL NOT BE REQUIRED TO UNLOCK ANY DOOR.

GLAZING & FRAMING NOTES:

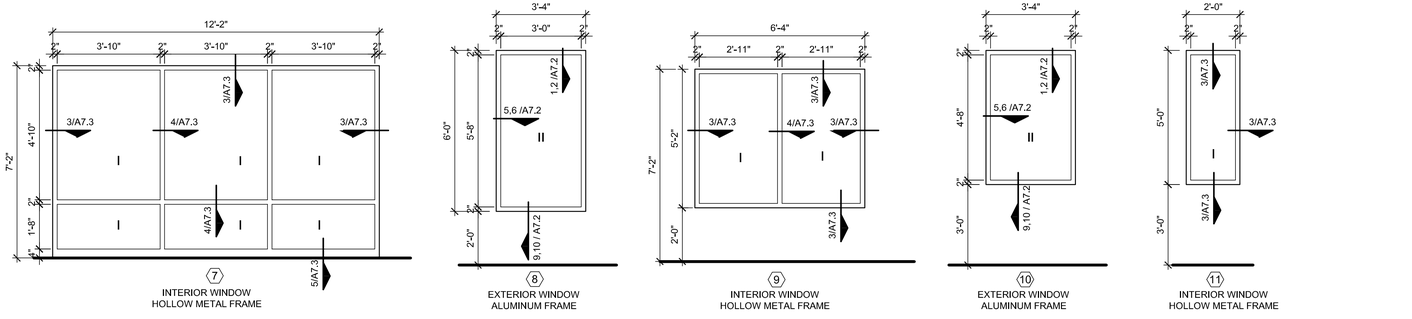
TYPE I TEMPERED GLASS, CLASS 1 CLEAR, Q3 (GLAZING SELECT), 1/4" THICK

TYPE II 1" INSULATED GLASS UNIT, DOUBLE PANE, INNER PANE OF CLEAR, TEMPERED GLASS, OUTER PANE TINTED BRONZE, TEMPERED GLASS, INNER PANE SPACE PURGED WITH DRY HERMETIC AIR.

TYPE III OVERHEAD DOOR SUPPLIERS DOUBLE STRENGTH GLAZING, BRONZE TINT

TYPE IV LAMINATED SECURITY GLASS, CLASS 1 CLEAR, Q3 (GLAZING SELECT), 1/4" THICK GLASS WITH SECURITY SEALANT

HOLLOW METAL & ALUMINUM FRAME DEPTHS ARE APPROXIMATE AND MAY VARY FROM MANUFACTURER TO MANUFACTURER. CONTRACTOR SHALL VERIFY EXACT REQUIRED DEPTH OF EACH FRAME PRIOR TO FABRICATION.



2 DOOR & WINDOW FRAME TYPES

SCALE: 3/8" = 1'-0"

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 a7-1
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

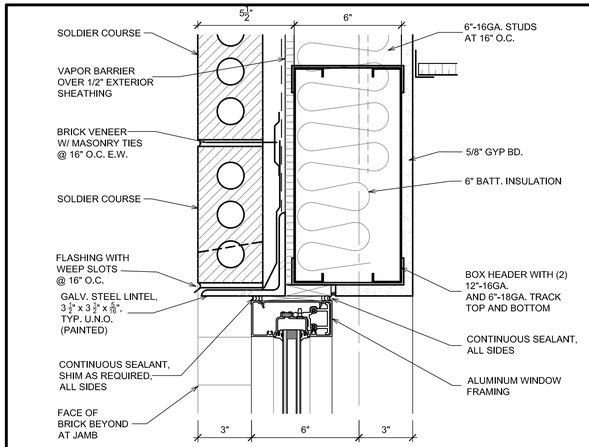
SHEET TITLE:

DOOR & FRAME TYPES
DOOR SCHEDULE & NOTES

SHEET NUMBER:

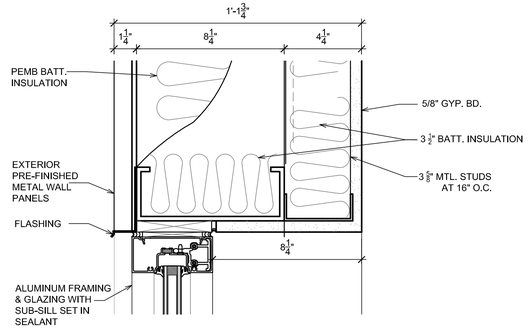
A7.1

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332



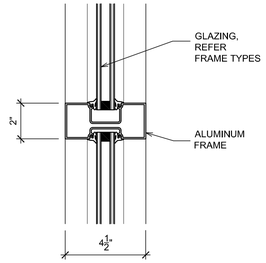
1 EXTERIOR WINDOW HEAD @ BRICK

SCALE: 3" = 1'-0"



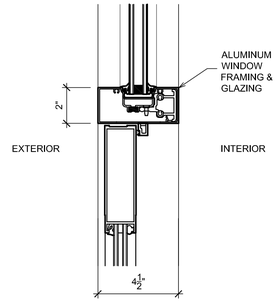
2 EXTERIOR WINDOW HEAD @ MTL. WALL PANELS

SCALE: 3" = 1'-0"



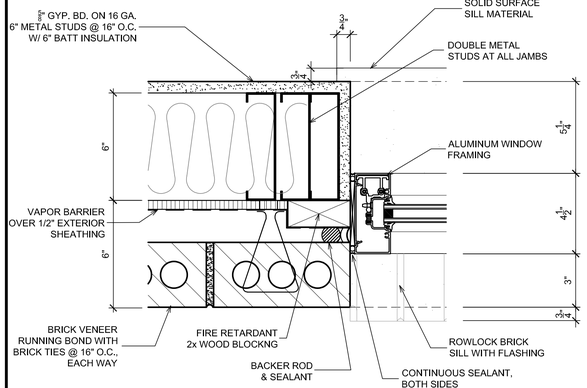
3 EXTERIOR INTERMEDIATE ALUMINUM MULLION

SCALE: 3" = 1'-0"



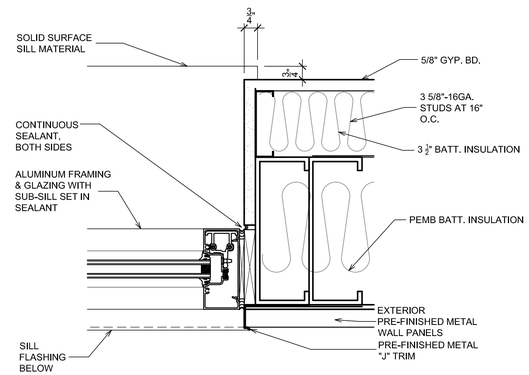
4 EXTERIOR ALUMINUM FRAMED DOOR HEAD

SCALE: 3" = 1'-0" JAMB SIMILAR



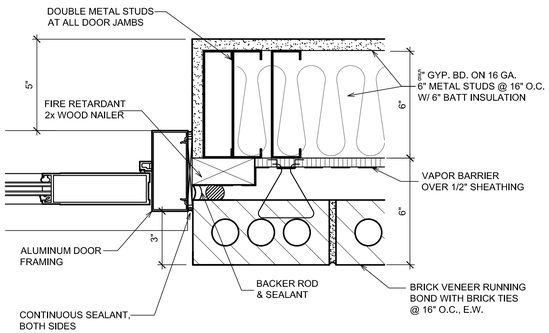
5 EXTERIOR WINDOW JAMB @ BRICK

SCALE: 3" = 1'-0"



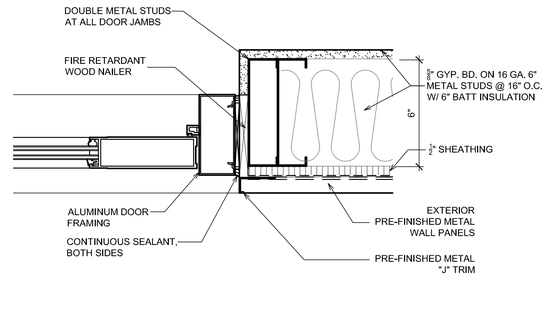
6 EXTERIOR WINDOW JAMB @ MTL. WALL PANELS

SCALE: 3" = 1'-0"



7 EXTERIOR DOOR FRAME JAMB @ BRICK

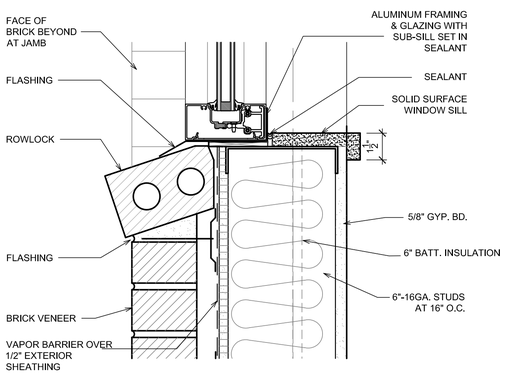
SCALE: 3" = 1'-0"



8 EXTERIOR ALUMINUM DOOR FRAME JAMB @ MTL. WALL PANELS

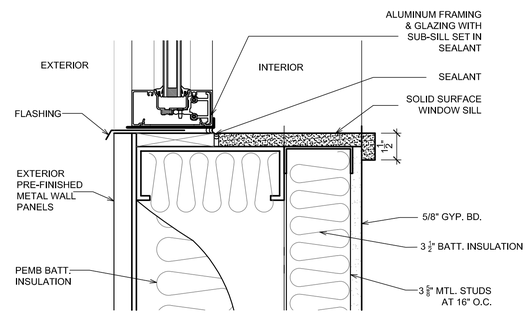
SCALE: 3" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332



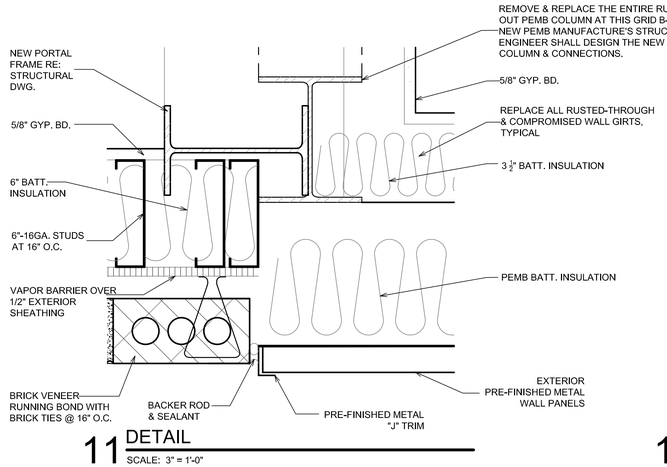
9 EXTERIOR WINDOW SILL @ BRICK

SCALE: 3" = 1'-0"



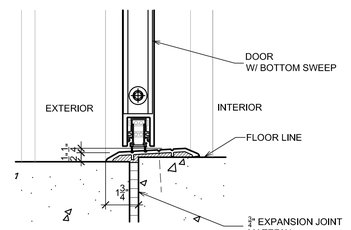
10 EXTERIOR WINDOW SILL @ MTL. WALL PANELS

SCALE: 3" = 1'-0"



11 DETAIL

SCALE: 3" = 1'-0"



12 ALUMINUM EXTERIOR DOOR SILL

SCALE: 3" = 1'-0"

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A7-2
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

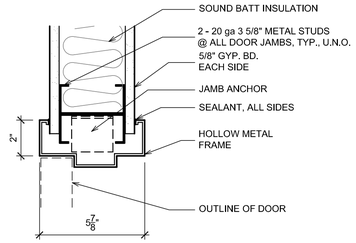
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

EXTERIOR DOOR & WINDOW DETAILS

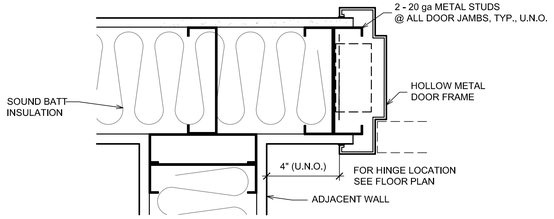
SHEET NUMBER:

A7.2



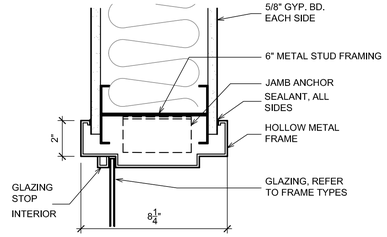
1 INTERIOR H.M. DOOR JAMB @ 3 5/8" METAL STUDS

SCALE: 3" = 1'-0" HEAD SIMILAR



2 TYPICAL DOOR FRAME LOCATION @ SIDEWALL

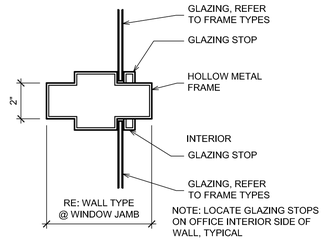
SCALE: 3" = 1'-0"



NOTE: LOCATE GLAZING STOPS ON CLASSROOM INTERIOR SIDE OF WALL, TYPICAL

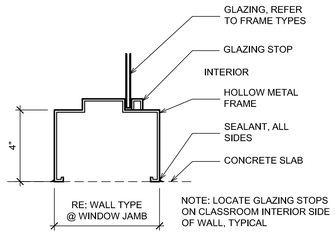
3 HOLLOW METAL JAMB

SCALE: 3" = 1'-0" HEAD SIMILAR



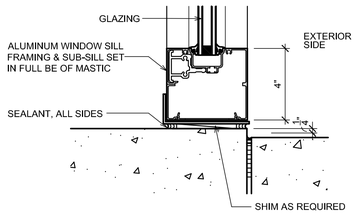
4 HOLLOW METAL MULLION

SCALE: 3" = 1'-0"



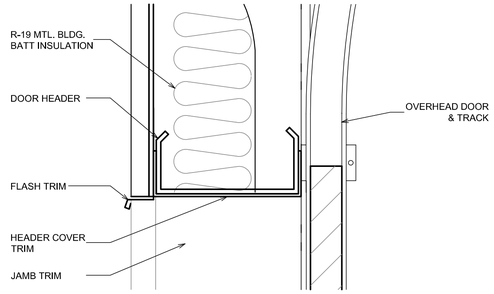
5 HOLLOW METAL SILL

SCALE: 3" = 1'-0" HEAD SIMILAR



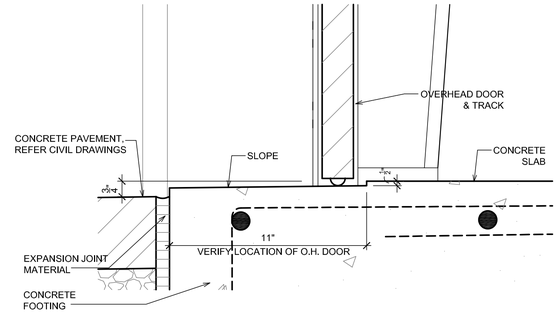
6 ALUMINUM FRAMED EXTERIOR WINDOW SILL @ FLOOR LEVEL

SCALE: 3" = 1'-0"



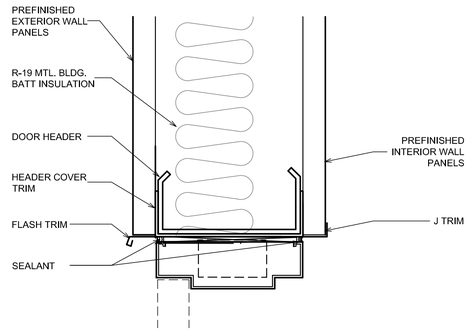
7 OVERHEAD DOOR HEADER

SCALE: 3" = 1'-0" JAMB SIMILAR



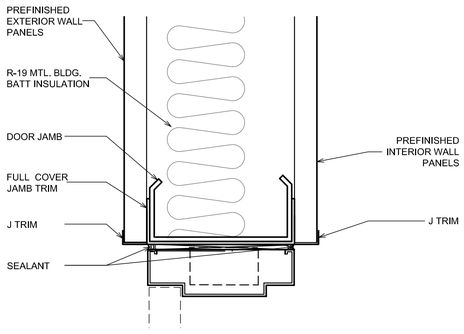
8 OVERHEAD DOOR SILL

SCALE: 3" = 1'-0"



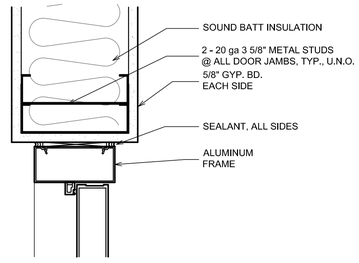
9 EXTERIOR H.M. DOOR HEADER

SCALE: 3" = 1'-0"



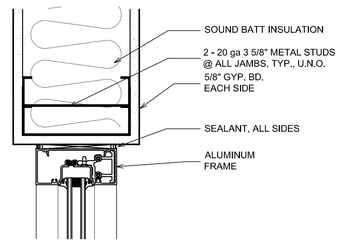
10 EXTERIOR H.M. DOOR JAMB

SCALE: 3" = 1'-0"



11 INTERIOR ALUMINUM DOOR JAMB @ 3 5/8" METAL STUDS

SCALE: 3" = 1'-0" HEAD SIMILAR



12 INTERIOR ALUMINUM WINDOW JAMB @ 3 5/8" METAL STUDS

SCALE: 3" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A7-3
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

DOOR & WINDOW DETAILS

SHEET NUMBER:

A7.3

ROOM FINISH SCHEDULE

MARK XXX	ROOM NAME	FLOOR	BASE	NORTH WALL		SOUTH WALL		EAST WALL		WEST WALL		CEILING			NOTES
				MAT'L	FINISH	MAT'L	FINISH	MAT'L	FINISH	MAT'L	FINISH	MAT'L	FINISH	HGHT COORD. A1.3	
101	ENTRY LOBBY	WCPT	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-2	ACS-1	FF	9'-0"	ROLLER SHADES
102	RECEPTIONIST	CPT-1	RB-1	GB	PT-2	GB	PT-1	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	ROLLER SHADE
103	CLOSET	SC	RB-1	GB	PT-1	GB	PT-2	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	
104	BREAK ROOM	SC	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	BACKSPLASH CT-2
105	CLOSET	SC	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	
106	HVAC - MECHANICAL	SC	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ES	--	--	
107	TRAINING ROOM	SC	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-2	ACS-1	FF	12'-0"	
108	MEN'S	CT-1	CT-1	WGB	EP-1 CT-1	WGB	EP-1 CT-1	WGB	EP-1 CT-1	WGB	EP-1 CT-1	ACS-2	FF	9'-0"	RE: A9.2
109	WOMEN'S	CT-1	CT-1	WGB	EP-1 CT-1	WGB	EP-1 CT-1	WGB	EP-1 CT-1	WGB	EP-1 CT-1	ACS-2	FF	9'-0"	RE: A9.2
110	JANITOR	CT-1	RB-1	GB	FRP	GB	FRP	GB	FRP	GB	FRP	ACS-2	FF	9'-0"	
111	CORRIDOR	CT-1	RB-1	GB CT-1	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	RE: 4/A9.2 FOR FLOOR MTL. TS, CT-1 @ E.W.C., RE: 8/A9.4
112	SHOWER	CT-1	CT-1	WGB	EP-1 CT-2	WGB	EP-1 CT-2	WGB	EP-1 CT-2	WGB	EP-1 CT-2	WGB	PT-1	9'-0"	RE: A9.2
113	SHOWER	CT-1	CT-1	WGB	EP-1 CT-2	WGB	EP-1 CT-2	WGB	EP-1 CT-2	WGB	EP-1 CT-2	WGB	PT-1	9'-0"	RE: A9.2
114	HVAC - MECHANICAL	SC	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ES	--	--	
115	CLOSET	SC	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	
116	PLAN REVIEW ROOM	CPT-1	RB-1	GB	PT-1	GB	PT-2	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	ROLLER SHADES (INTERIOR)
117	CLOSET	SC	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	
118	CORRIDOR	SC	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	
119	WOMEN'S RESTROOM	CT-1	CT-1	WGB	EP-1 CT-1	WGB	EP-1 CT-1	WGB	EP-1 CT-1	WGB	EP-1 CT-1	ACS-2	FF	9'-0"	RE: A9.2
120	MEN'S RESTROOM	CT-1	CT-1	WGB	EP-1 CT-1	WGB	EP-1 CT-1	WGB	EP-1 CT-1	WGB	EP-1 CT-1	ACS-2	FF	9'-0"	RE: A9.2
121	CORRIDOR	SC WCPT	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	
122	CONFERENCE ROOM	CPT-1	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ACS-1	FF	10'-0"/8'-0"	ROLLER SHADES (INTERIOR & EXTERIOR), CLOUD PT-4
123	OFFICE (FIRE CHIEF)	CPT-1	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-2	ACS-1	FF	9'-0"	ROLLER SHADES
124	CORRIDOR	SC	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	
125	OFFICE (DEPUTY CHIEF)	CPT-1	RB-1	GB	PT-1	GB	PT-2	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	ROLLER SHADES
126	OFFICE (DEPUTY CHIEF)	CPT-1	RB-1	GB	PT-1	GB	PT-2	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	ROLLER SHADES
127	OFFICE	CPT-1	RB-1	GB	PT-1	GB	PT-2	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	ROLLER SHADES
128	OFFICE	CPT-1	RB-1	GB	PT-1	GB	PT-2	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	ROLLER SHADES
129	OFFICE (TRAINING)	CPT-1	RB-1	GB	PT-1	GB	PT-2	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	ROLLER SHADES
130	CLOSET	SC	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	
131	IT CLOSET	SC	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	
132	A/V & DATA EQUIPMENT	SC	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	
133	VESTIBULE	WCPT	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	
134	EXERCISE	SC	RB-1	MWP	FF	MWP	FF	MWP	FF	MWP	FF	ES	--	--	
135	SPRINKLER RISER	SC	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ES	--	--	
136	STORAGE	SC	RB-1	GB	FRP	GB	FRP	GB	FRP	GB	FRP	ES	--	--	POWER WASH CLEAN STRUCTURE
137	EQUIPMENT GARAGE	SC	RB-1	MWP	FF	MWP	FF	MWP	FF	MWP	FF	ES	--	--	POWER WASH CLEAN STRUCTURE
138	TOILET	SC	RB-1	GB	FRP	GB	FRP	GB	FRP	GB	FRP	ACS-2	FF	9'-0"	
139	CORRIDOR	SC WCPT	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ACS-1	FF	9'-0"	
140	HVAC - MECHANICAL	SC	RB-1	GB	PT-1	GB	PT-1	GB	PT-1	GB	PT-1	ES	--	--	

FINISH NOTES

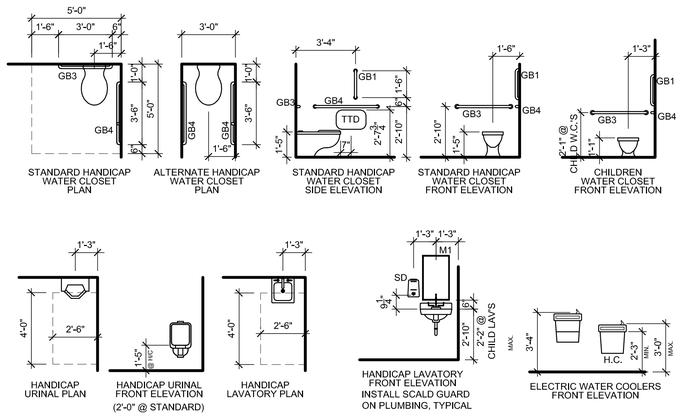
1. ALL HOLLOW METAL FRAMES SHALL BE PAINTED PT-3, SEMI-GLOSS
2. WALL PAINT SHEEN SHALL BE SATIN.
3. CEILING CLOUDS SHALL BE EGGSHELL.
4. ALL PLAM COUNTERTOPS SHALL BE PL-1.
5. ALL EXPOSED CABINET FACES SHALL BE PL-2.
6. ALL INTERIOR CABINET SURFACES SHALL BE MELLAMINE, WHITE.
7. PREFINISHED WOOD DOOR COLOR SHALL BE MARSHFIELD, WHITE MAPLE, SAFFRON 60-02
8. TILE GROUT COLORS SHALL MATCH TILE COLORS.

FINISH SELECTIONS

CPT-1	SHAW CONTRACT GROUP, HAND DRAWN, FINE POINT TILE #5T113 - CHARCOAL, 18"x36"
WCPT	SHAW CONTRACT GROUP, DIVVY TILE 5T411, TRAVERSE #12557, 24"x24"
CT-1	CROSSVILLE STUDIOS, GOTHAM, CLOCK TOWER AV323, 12"x24"
CT-2	CROSSVILLE STUDIOS, COLOR BY NUMBERS, SIXTH SENSE WT06, 4"x8"
SHOWER PAN	SILESTONE, KADOR SUITE, CHARCOAL-SOAPSTONE
SHOWER WALL	SILESTONE, MYTHOLOGY, MIAMI WHITE17, 2CM, SUEDE FINISH
RESILIENT BASE	JOHNSONITE, BLACK
PT-1	SHERWIN WILLIAMS, MINDFUL GRAY, SW7106
PT-2	SHERWIN WILLIAMS, DOVETAIL, SW7018
PT-3	SHERWIN WILLIAMS, IRON ORE, SW7069
PT-4	BENJAMIN MOORE, CLOUD NINE, OC-119
PL-1	WILSONART, GRAPHITE NEBULA, 4623-60, MATTE
PL-2	WILSONART, WILD CHERRY, 7054-60, MATTE
SOLID SURFACE	WILSONART, HOT STONE, 9201GS
CG	SLATE #0237
FRP	WHITE FROM MANUFACTURER'S STANDARD COLORS

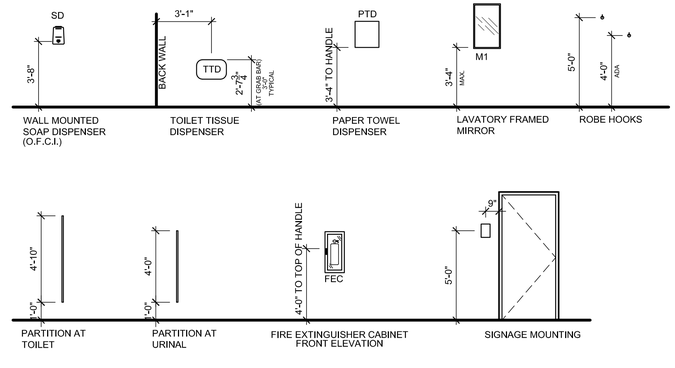
FINISH SCHEDULE LEGEND

ACS	ACOUSTICAL CEILING SYSTEM
CPT	CARPET TILE
EP	EPOXY WALL PAINT
EX	EXISTING
ES	EXPOSED STRUCTURE
FF	FACTORY FINISH
GB	GYPSUM WALLBOARD
LAM	PLASTIC LAMINATE
HM	HOLLOW METAL
PT	PAINT
PWD	PLYWOOD
SC	SEALED CONCRETE
WGB	WATER-RESISTANT GYPSUM WALLBOARD
FRP	FIBERGLASS REINFORCED PANEL
WCP	WALK-OFF CARPET
RB	RESILIENT BASE
CT	CERAMIC TILE
TS	TRANSITION STRIP
CG	CORNER GUARD
MWP	METAL WALL PANEL
RH	ROBE HOOK



1 STANDARD PLUMBING FIXTURE MOUNTING HEIGHTS & LOCATIONS

SCALE: 1/4" = 1'-0"



2 ACCESSORIES INSTALLATION HEIGHT STANDARDS

SCALE: 1/2" = 1'-0" (C.F.C.I.; CONTRACTOR FURNISH, CONTRACTOR INSTALL, UNLESS NOTED OTHERWISE)

SPECIALTIES SCHEDULE

MARK	DESCRIPTION	MFGR.	MODEL NO.	(W X H X D) DIMENSIONS	MOUNTING	FINISH	(CFCI, U.N.O.) REMARKS
GB1	GRAB BAR 1 1/2" DIA.	BRADLEY	8120-001-18	18" VERTICAL	1 & 2/A9.1	S.S. W/ SATIN FINISH	
GB3	GRAB BAR 1 1/2" DIA.	BRADLEY	8120-001-36	36" HORIZONTAL	1 & 2/A9.1	S.S. W/ SATIN FINISH	
GB4	GRAB BAR 1 1/2" DIA.	BRADLEY	8120-001-42	42" HORIZONTAL	1 & 2/A9.1	S.S. W/ SATIN FINISH	
M1	MIRROR W/ ANGLE FRAME	BRADLEY	780-1830-2	18" x 30"	1 & 2/A9.1	S.S. W/ SATIN FINISH	
SD	SOAP DISPENSER	BRADLEY	6563	5"W x 8.5"H x3.75"D	1 & 2/A9.1	S.S. W/ SATIN FINISH	
PTD	PAPER TOWEL DISPENSER	BRADLEY	2497	10.5"W x16"H x8.5"D	1 & 2/A9.1	ABS PLASTIC	
TTD	TOILET TISSUE DISPENSER	BRADLEY	5263	16"W x 6"D	1 & 2/A9.1	S.S. W/ SATIN FINISH	
FEC	FIRE EXTINGUISHER & CABINET	REFER TO SPECIFICATIONS				S.S. W/ SATIN FINISH	
MB8	MARKER BOARD 8' LONG	CLARIDGE		96"W X 48"H		WHITE W/ALUM. TRIM	
TB4	TACKBOARD 4' LONG	CLARIDGE		48"W X 48"H		ALUM. TRIM	
SHS	SHOWER SEAT	BRADLEY	9562	48"W X 48"H		ALUM. TRIM	
CG	48" CORNER GUARD	INPRO	160 HHMPACT	2"W X 48"H	SURFACE	SLATE #0237	
RB	ROBE HOOK	BRADLEY	9114	2"	1 & 2/A9.1	S.S. W/ SATIN FINISH	

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 A9-1
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

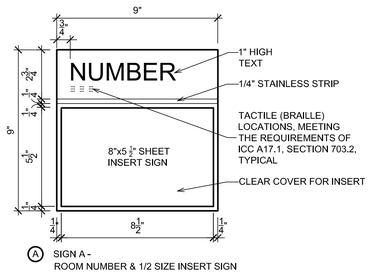
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

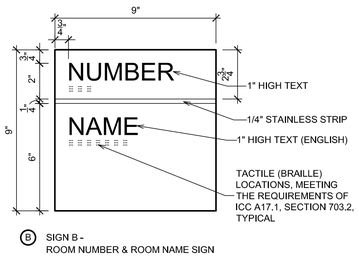
SHEET TITLE:
SPECIALTIES SCHEDULE, ROOM FINISH COLOR SELECTIONS LEGEND, STANDARD PLUMBING, & ACC. MOUNTING STANDARDS

SHEET NUMBER:
A9.1

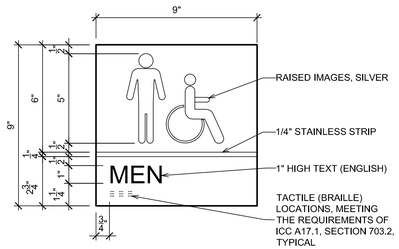
GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332



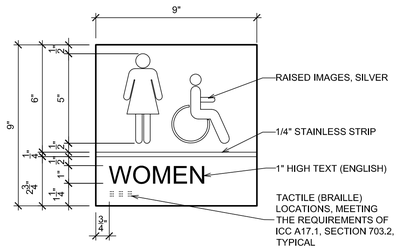
(A) SIGN A -
ROOM NUMBER & 1/2 SIZE INSERT SIGN



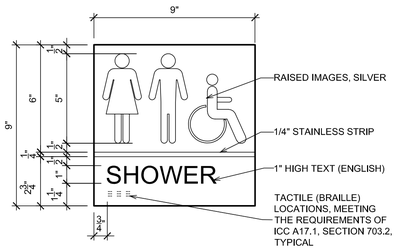
(B) SIGN B -
ROOM NUMBER & ROOM NAME SIGN



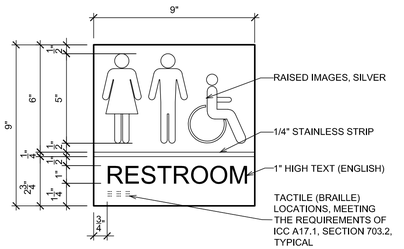
(C1) SIGN C1 -
ADA COMPLIANT 9"x11"
ACCESSIBLE
RESTROOM SIGN



(C2) SIGN C2 -
ADA COMPLIANT 9"x11"
ACCESSIBLE
RESTROOM SIGN



(C3) SIGN C3 -
ADA COMPLIANT 9"x11"
ACCESSIBLE
RESTROOM SIGN



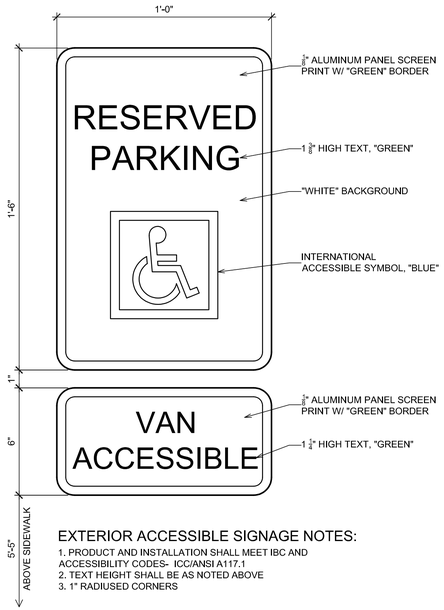
(C4) SIGN C4 -
ADA COMPLIANT 9"x11"
ACCESSIBLE
RESTROOM SIGN

INTERIOR SIGNAGE GENERAL NOTES:

1. PRODUCT AND INSTALLATION SHALL MEET IBC AND ACCESSIBILITY CODES- ICC/ANSI A117.1
2. TEXT HEIGHT SHALL BE 1" HIGH UNLESS NOTED OTHERWISE
3. FINISHES: GRAPHITE (WILSONART D91-60 SLATE GREY) WITH SILVER ACCENTS AND LETTERING, UNLESS NOTED OTHERWISE
4. SQUARED EDGE
5. NO END CAPS CLOSING ACCESS TO CHANGEABLE INFORMATION ON SIGN A

1 ROOM SIGNAGE TYPES & DETAILS

SCALE: 3"=1'-0"

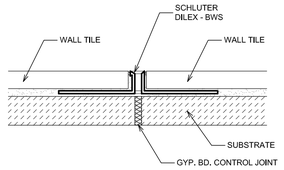


EXTERIOR ACCESSIBLE SIGNAGE NOTES:

1. PRODUCT AND INSTALLATION SHALL MEET IBC AND ACCESSIBILITY CODES- ICC/ANSI A117.1
2. TEXT HEIGHT SHALL BE AS NOTED ABOVE
3. 1" RADIUSED CORNERS

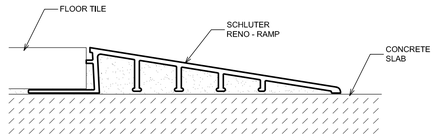
2 ACCESSIBLE PARKING SIGN ELEVATION

SCALE: 3"=1'-0"



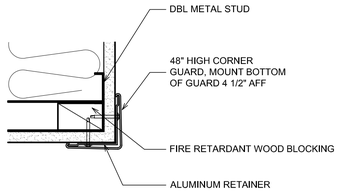
3 TILE CONTROL JOINT

NOT TO SCALE



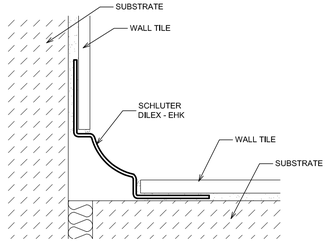
4 TILE FLOORING TRANSITION

NOT TO SCALE



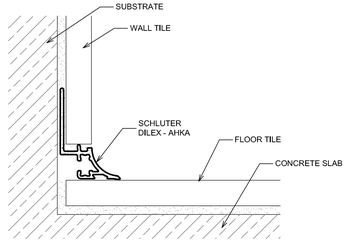
9 CORNER GUARD DETAIL

SCALE: 3" = 1'-0"



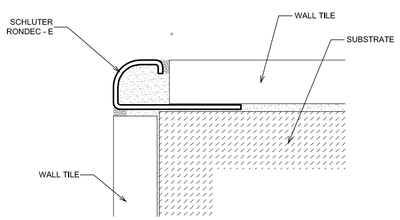
5 TILE INSIDE CORNER TRIM

NOT TO SCALE



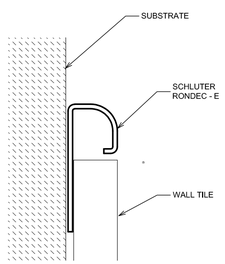
6 TILE COVE BASE TRIM

NOT TO SCALE



7 TILE OUTSIDE CORNER

NOT TO SCALE



8 TILE TOP CAP & END OF RUN

NOT TO SCALE

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

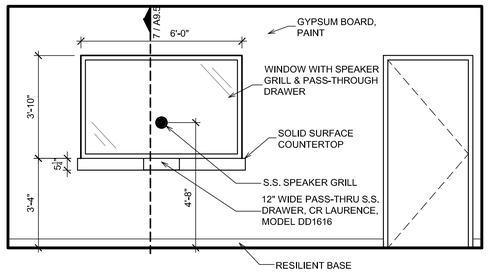
PROJECT NO.:	17-00901
FILE:	17-00900 A9-2
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

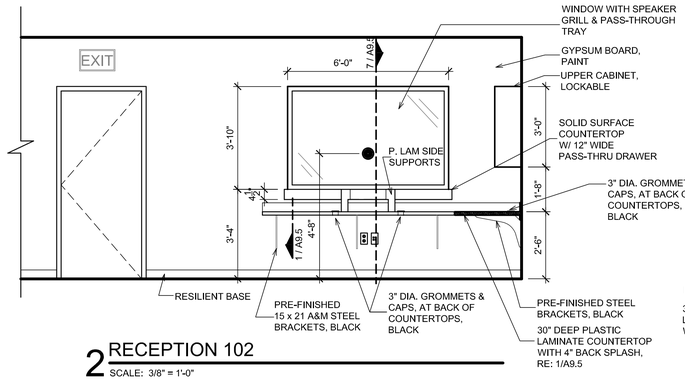
PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
ROOM SIGNAGE TYPES & CERAMIC TILE DETAILS

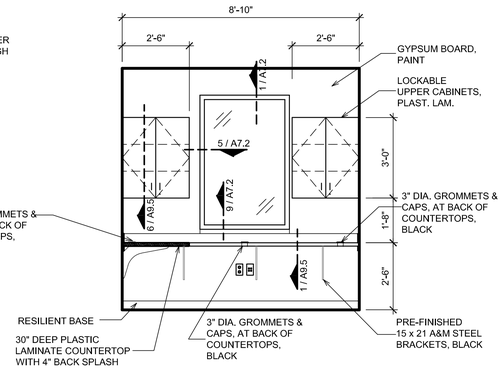
SHEET NUMBER:
A9.2



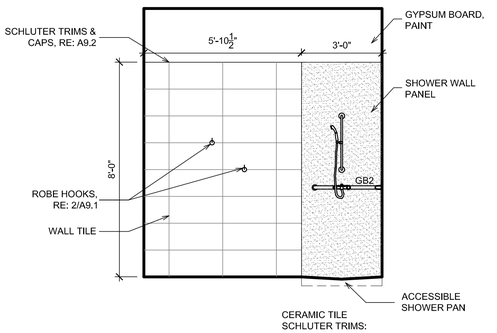
1 ENTRY LOBBY 101
SCALE: 3/8" = 1'-0"



2 RECEPTION 102
SCALE: 3/8" = 1'-0"

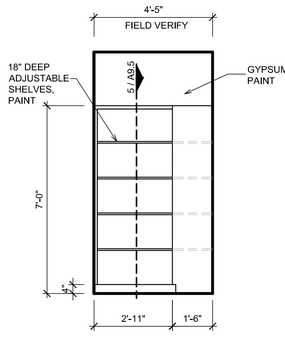


3 RECEPTION 102
SCALE: 3/8" = 1'-0"

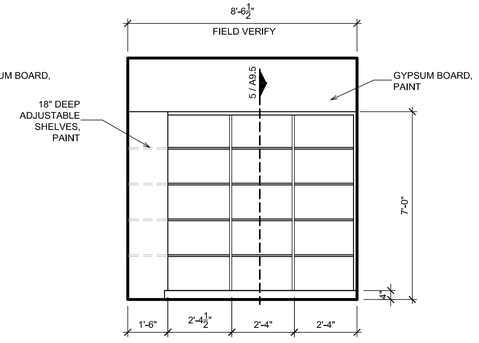


14 SHOWER 113
SCALE: 3/8" = 1'-0"

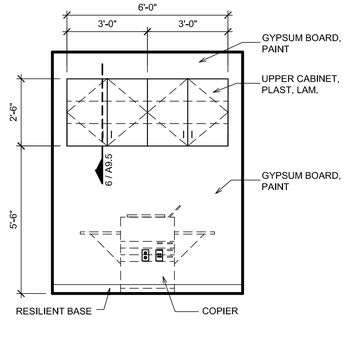
SHOWER 112 O.H.



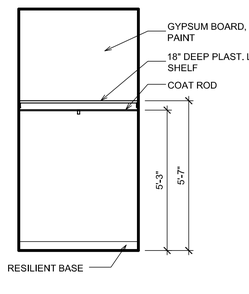
4 CLOSET 103
SCALE: 3/8" = 1'-0"



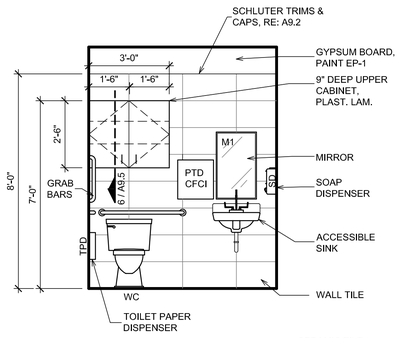
5 CLOSET 103
SCALE: 3/8" = 1'-0"



6 CORRIDOR 118
SCALE: 3/8" = 1'-0"



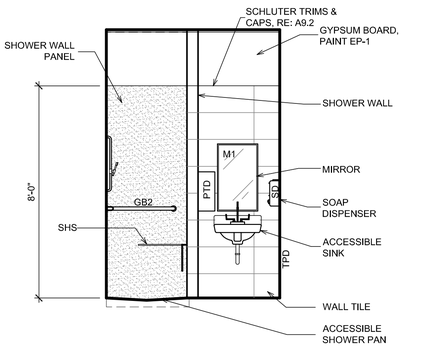
7 CLOSET 117
SCALE: 3/8" = 1'-0"



8 WOMEN'S 119
SCALE: 3/8" = 1'-0"

CERAMIC TILE SCHLUTER TRIMS: RE: A9.2 FOR ALL CONDITIONS

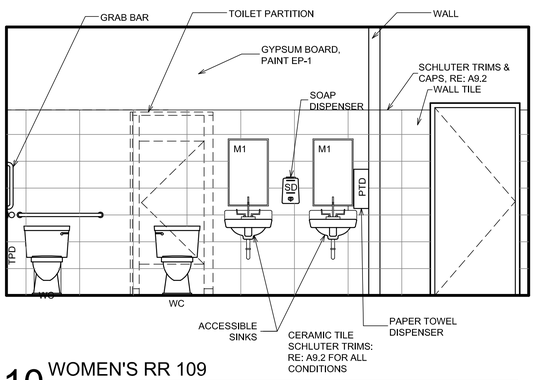
MEN'S 120 O.H.



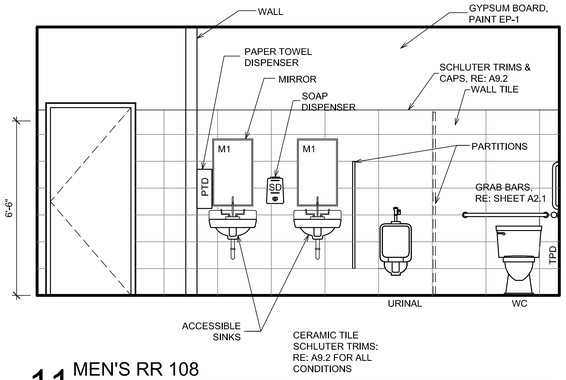
9 SHOWER 113
SCALE: 3/8" = 1'-0"

CERAMIC TILE SCHLUTER TRIMS: RE: A9.2 FOR ALL CONDITIONS

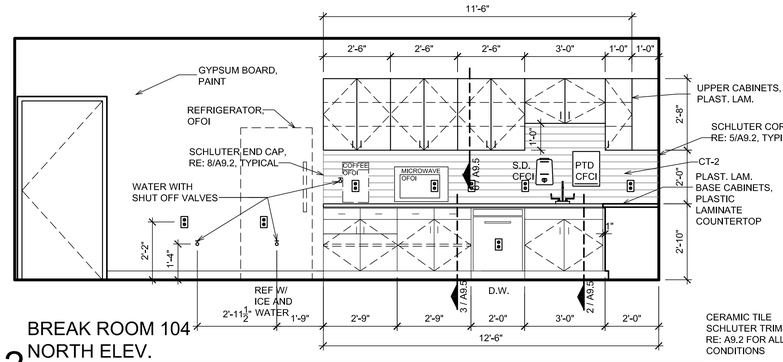
SHOWER 112 O.H.



10 WOMEN'S RR 109
SCALE: 3/8" = 1'-0"

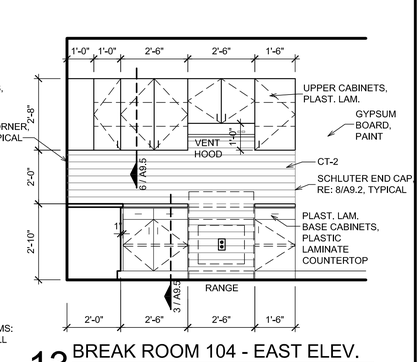


11 MEN'S RR 108
SCALE: 3/8" = 1'-0"



12 BREAK ROOM 104 NORTH ELEV.
SCALE: 3/8" = 1'-0"

CERAMIC TILE SCHLUTER TRIMS: RE: A9.2 FOR ALL CONDITIONS



13 BREAK ROOM 104 - EAST ELEV.
SCALE: 3/8" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

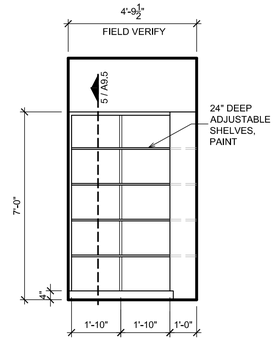
PROJECT NO.:	17-00901
FILE:	17-00900 a9-3
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

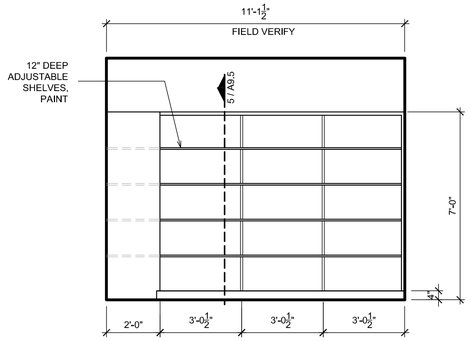
PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
INTERIOR ELEVATIONS

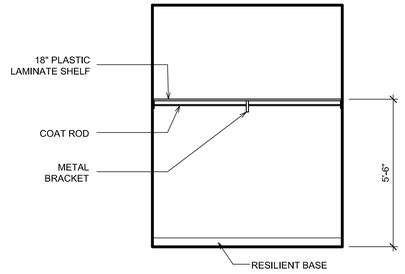
SHEET NUMBER:
A9.3



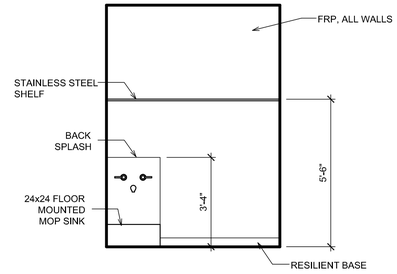
1 CLOSET 105
SCALE: 3/8" = 1'-0"



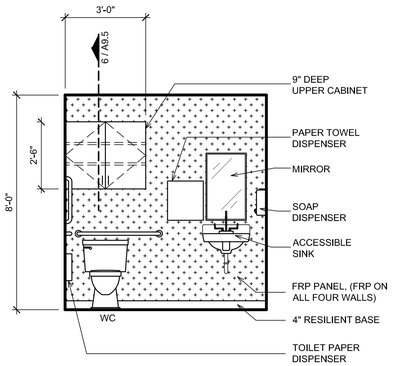
2 CLOSET 105
SCALE: 3/8" = 1'-0"



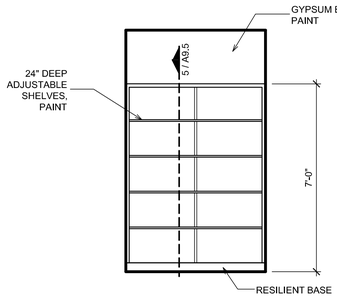
3 CLOSET 130
SCALE: 3/8" = 1'-0"



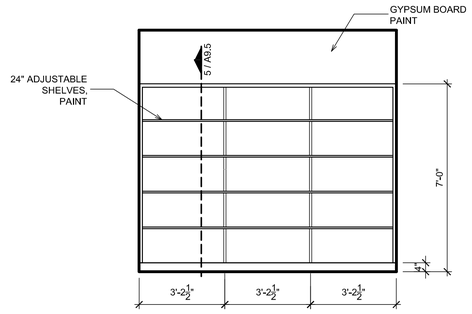
4 JANITOR 110
SCALE: 3/8" = 1'-0"



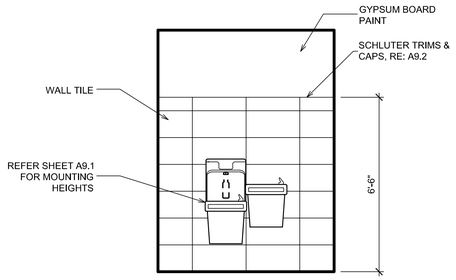
5 TOILET 138
SCALE: 3/8" = 1'-0"



6 A/V DATA 132
SCALE: 3/8" = 1'-0"



7 CLOSET 115
SCALE: 3/8" = 1'-0"



8 DRINKING FOUNTAINS
SCALE: 3/8" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

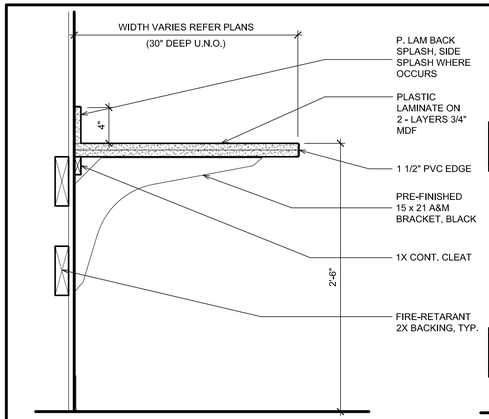
PROJECT NO.:	17-00901
FILE:	17-00900 a9-4
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

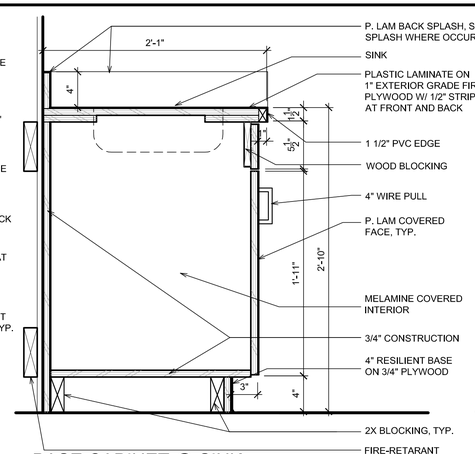
SHEET TITLE:
INTERIOR ELEVATIONS

SHEET NUMBER:
A9.4



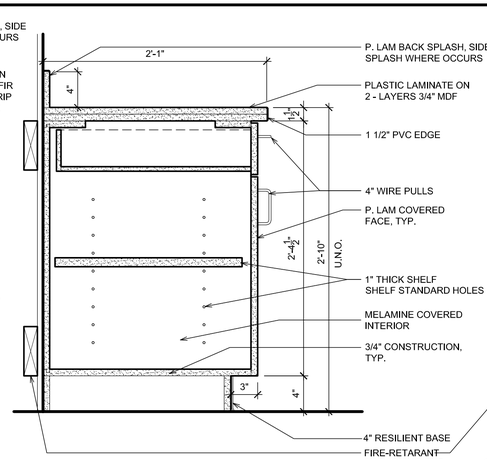
1 WORK COUNTER SECTION

SCALE: 1 1/2" = 1'-0"



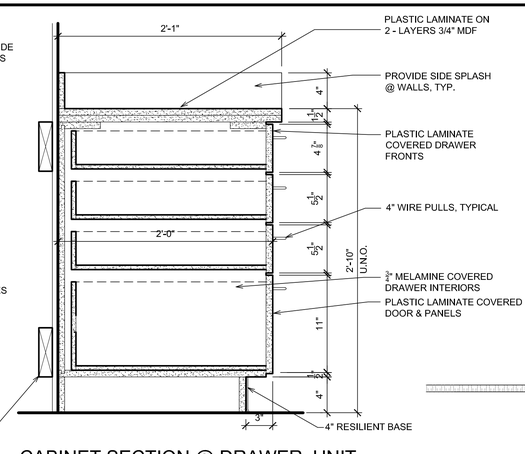
2 BASE CABINET @ SINK

SCALE: 1 1/2" = 1'-0"



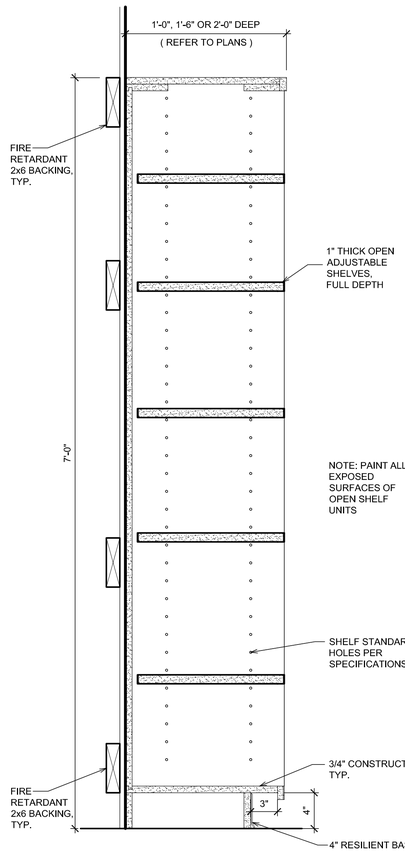
3 BASE CABINET

SCALE: 1 1/2" = 1'-0"



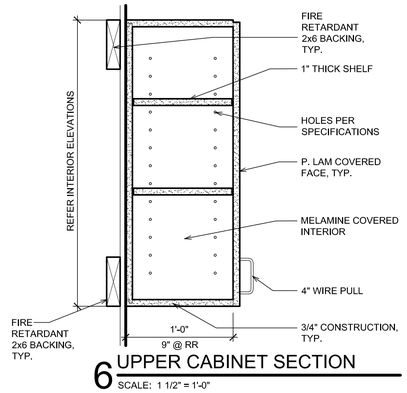
4 CABINET SECTION @ DRAWER UNIT

SCALE: 1 1/2" = 1'-0"



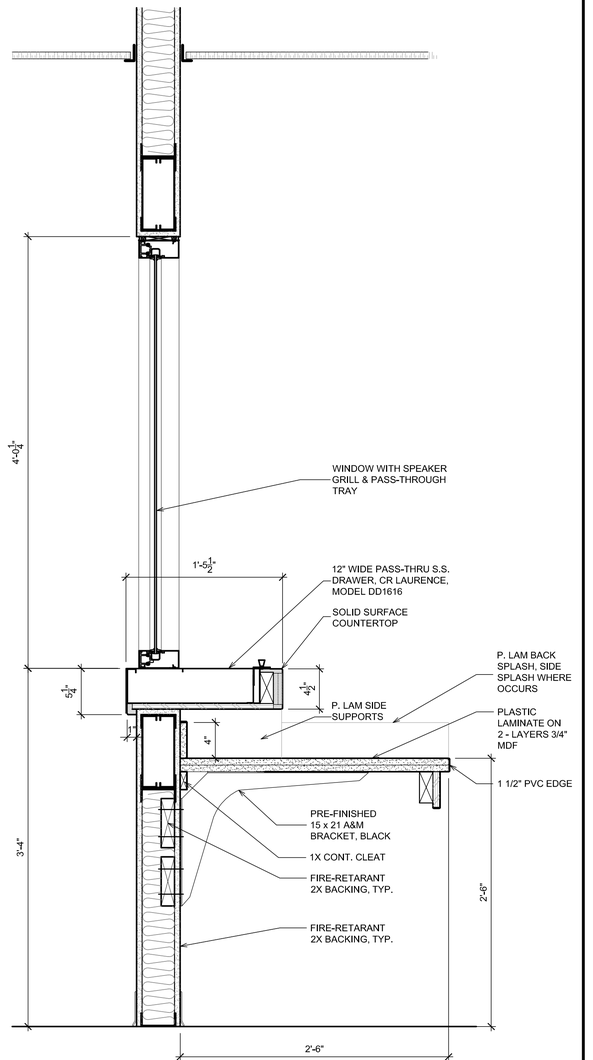
5 CLOSET OPEN SHELF UNIT

SCALE: 1 1/2" = 1'-0"



6 UPPER CABINET SECTION

SCALE: 1 1/2" = 1'-0"



7 WINDOW / WALL SECTION BETWEEN ENTRY LOBBY 101 & RECEPTION 102

SCALE: 1 1/2" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00901
FILE:	17-00900 a9-5
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:

GS HELMS + ASSOCIATES

ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

PROJECT TITLE:

CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

CABINET SECTIONS & DETAILS

SHEET NUMBER:

A9.5

PLUMBING SYMBOLS

DN	DOWN
N.I.C.	NOT IN CONTRACT
VTR	VENT THRU ROOF
	ELBOW – TURNED DOWN
	ELBOW – TURNED UP
	TEE – TURNED DOWN
	TEE – TURNED UP
	SHUT–OFF VALVE
	THERMOSTATIC MIXING VALVE
	WATER HAMMER ARRESTOR
	PRV – PRESS. REDUCING VALVE
X	EQUIPMENT NO. KEYED NOTE X
	CONNECT TO EXISTING
CD	CONDENSATE PIPING
SS	SANITARY SEWER PIPING
ST	STORM WATER PIPING
V	SANITARY VENT PIPING
– –	DOMESTIC COLD WATER PIPING
– – –	DOMESTIC HOT WATER PIPING
– – – –	DOMESTIC HOT WATER RETURN
F	FIRE PROTECTION PIPING
G	LOW PRESSURE GAS PIPING
MPG	MEDIUM PRESSURE GAS PIPING
RTU–XX	EQUIPMENT TAG

ABBREVIATIONS

AFF	ABOVE FINISH FLOOR
BFF	BELOW FINISH FLOOR
CD	CONDENSATE
CLG	CEILING
CO	CLEAN OUT
CW	COLD WATER
CWS	CONDENSOR WATER SUPPLY
CWR	CONDENSOR WATER RETURN
DEG	DEGREES
DIA	DIAMETER
DIM	DIMENSION
DWG	DRAWING
ELEV	ELEVATION
ENGR	ENGINEERING
EXH	EXHAUST
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN
FPWH	FREEZE PROOF WALL HYDRANT
G	GAS
HORIZ	HORIZONTAL
HP	HORSEPOWER
HB	HOSE BIB
HW	HOT WATER
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
LAV	LAVATORY
MFGR	MANUFACTURER
MAX	MAXIMUM
MECH	MECHANICAL
MTL	METAL
MISC	MISCELLANEOUS
NTS	NOT TO SCALE
LB	POUND
RE:	REFER
REQD	REQUIRED
SCHED	SCHEDULE
SECT	SECTION
SIM	SIMILAR
SPEC	SPECIFICATION
STD	STANDARD
TEMP	TEMPERATURE
THRU	THROUGH
TYP	TYPICAL
UR	URINAL
WC	WATER CLOSET
WH	WATER HEATER

GAS PIPING GENERAL NOTES

1. WORK SHOWN ON THE DRAWINGS IS TO BE COORDINATED WITH WORK OF ALL OTHER TRADES AND ACTUAL CONDITIONS OF CONSTRUCTION.
2. FURNISH AND INSTALL INDIVIDUAL GAS SHUT–OFF VALVE AND UNION AT EACH GAS FIRED APPLIANCE AND BUILDING PENETRATION THRU ROOF OR EXTERIOR WALLS.
3. GAS SHUT OFF VALVE SHALL BE FULL SIZE OF REQUIRED EQUIPMENT BRANCH RUNOUT PIPE SIZE BASED ON GAS PRESSURE AND FURTHERMOST PIPE DISTANCE FROM GAS METER OR POINT OF PRESSURE REDUCTION. RUNOUT PIPE SHALL NOT BE REDUCED TO EQUIPMENT CONNECTION PIPE SIZE UNTIL IMMEDIATELY AHEAD OF CONNECTION TO EQUIPMENT. VALVES SHALL NOT BE LOCATED ABOVE CEILINGS.
4. BRANCH GAS PIPING SHALL BE CONNECTED TO THE TOP OR SIDE OF HORIZONTAL PIPING.
5. GAS PIPING SHALL NOT BE INSTALLED IN CONCEALED LOCATIONS. WHERE VERTICAL CHASES ENCLOSE PIPE RISERS, CHASES SHALL BE FIRE RATED AND VENTILATED AT THE TOP WITH FREE AREA VENTS EQUAL TO OR GREATER THAN ONE–HALF THE SERVICE PRESSURE IN INCHES WATER COLUMN TIMES THE NOMINAL DIAMETER OF THE PIPE. GAS PIPING JOINTS WITHIN CONCEALED SPACES SHALL BE WELDED.
6. GAS PIPING SHALL NOT BE INSTALLED BELOW BUILDING SLAB.
7. USE ECCENTRIC REDUCERS TO MAKE REDUCTIONS IN PIPE SIZES IN HORIZONTAL PIPING. INSTALL FITTINGS WITH LEVEL SIDE ON BOTTOM OF PIPING.
8. INSTALL PIPING SO AS TO ALLOW FOR SERVICE AND MAINTENANCE OF EQUIPMENT AND APPLIANCES.
9. OPEN ENDS OF GAS PIPING SHALL BE CAPPED DURING CONSTRUCTION TO PREVENT INTRODUCTION OF FOREIGN MATERIALS. VALVE AND PIPING OUTLETS SHALL BE CAPPED OR PLUGGED IMMEDIATELY AFTER INSTALLATION AND LEFT CLOSED UNTIL FINAL CONNECTION TO EQUIPMENT OR APPLIANCES.
10. ANCHOR PIPING TO CONTROL PIPE MOVEMENT. LOCATION OF ANCHOR POINTS SHALL BE APPROVED BY THE ARCHITECT AND STRUCTURAL ENGINEER.
11. PROVIDE EXPANSION LOOP IN GAS PIPING WHERE BUILDING EXPANSION JOINTS ARE CROSSED.
12. DIVISION 22 CONTRACTOR SHALL WIRE BRUSH AND PAINT ALL GAS PIPE AND ACCESSORIES EXPOSED TO WEATHER. PAINT COLOR TO BE PER ARCHITECT'S DIRECTION, UNLESS SPECIFICALLY DICTATED BY LOCAL CODE.
13. GAS PIPING SHALL ENTER THE BUILDING A MINIMUM OF 12 INCHES ABOVE FINISHED GRADE.
14. LOCATE PIPING SUPPORTS AWAY FROM PIPE JOINTS TO ALLOW FREE MOVEMENT OF PIPING WITHOUT INTERFERENCE OF PIPE SUPPORTS.
15. THE CONTRACTOR IS TO VERIFY THE FINAL APPROVED LOCATION OF THE GAS SERVICE METER AND/OR PRESSURE REDUCING STATION AND ADJUST THE GAS PIPE SIZES INDICATED FOR THE TOTAL SYSTEM LENGTH IF DIFFERENT FROM THE DISTANCE LISTED OR SHOWN ON THE DRAWINGS. DRAWINGS INDICATING THE SYSTEM REVISIONS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.
16. PLASTIC GAS SERVICE PIPE SHALL BE INSTALLED WITH AN INSULATED COPPER TRACE WIRE NO LESS THAN 18 GAUGE LOCATED ADJACENT TO THE TOP OF THE PIPING. THE COPPER TRACE WIRE SHALL EXTEND TO GRADE AND TERMINATE AT EACH END OF THE PLASTIC SERVICE PIPING. A CONTINUOUS PLASTIC BANNER LABELED "CAUTION – GAS PIPING" SHALL BE INSTALLED 12 INCHES ABOVE ALL BURIED GAS PIPING.
17. TRANSITION RISER FROM PLASTIC SERVICE PIPING TO BLACK STEEL BUILDING PIPING IS TO BE MADE BELOW GRADE. BLACK STEEL PIPING EXTENDING BELOW GRADE SHALL BE FURNISHED WITH FACTORY APPLIED CORROSION RESISTANT POLYETHYLENE COATING. PROVIDE ANODE FOR CATHODIC PROTECTION.
18. WHERE GAS SERVICE UNDERGROUND PIPING RISES THROUGH PAVING OR CONCRETE SURFACES, PROVIDE PIPE SLEEVE TWO PIPE SIZES LARGER THAN INSTALLED PIPING. EXTEND SLEEVE A MINIMUM OF 1 INCH ABOVE FINISHED SURFACE AND DEEPER THAN DEPTH OF PAVING OR CONCRETE. FILL SLEEVE VOID WITH SMALL, ROUNDED, WASHED GRAVEL.
19. EACH ABOVE GROUND PORTION OF METAL PIPING GAS SYSTEM UPSTREAM OF EQUIPMENT SHUT–OFF VALVES SHALL BE ELECTRICALLY CONTINUOUS AND BONDED TO GROUNDING ELECTRODE PER NFPA 70 AND NFPA 54.

HANGER SPACING

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (FEET)	MAXIMUM VERTICAL SPACING (FEET)
CAST–IRON PIPE	5 (a)	15
COPPER OR COPPER–ALLOW TUBING, 1 1/4–INCH DIAMETER AND SMALLER	6	10
COPPER OR COPPER–ALLOW TUBING, 1 1/2–INCH DIAMETER AND LARGER	10	10
CROSS–LINKED POLYETHYLENE (PEX) PIPE	2.67 (32 INCHED)	10 (b)
CROSS–LINKED POLYETHYLENE/ALUMINUM/ CROSS–LINKED POLYETHYLENE (PEX–AL–PEX)PIPE	2.67 (32 INCHED)	4 (b)
CPVC PIPE OR TUBING, 1 INCH DIAMETER AND SMALLER	3	10 (b)
CPVC PIPE OR TUBING TUBING, 1 1/4–INCH DIAMETER AND LARGER	4	10 (b)
PVC PIPE	4	10 (b)

(a) THE MAXIMUM HORIZONTAL SPACING OF CAST–IRON PIPE HANGERS SHALL BE INCREASED TO 10 FEET WHERE 10 FOOT LENGTHS OD PIPE ARE INSTALLED.
(b) MIDSTORY GUIDE OF SIZES 2 INCH AND SMALLER.

PIPING GENERAL NOTES

1. INSTALL SHUTOFF–DUTY VALVES WHERE SHOWN ON THE DRAWINGS AND FOR SERVICE OF EQUIPMENT.
2. INSTALL BALL TYPE DRAIN VALVES WITH HOSE CONNECTIONS AT LOW POINTS FOR SYSTEM DRAINAGE.
3. REDUCE PIPE SIZES USING ECCENTRIC REDUCER FITTING INSTALLED WITH LEVEL SIDE UP.
4. ANCHOR PIPING TO ENSURE PROPER DIRECTION OF EXPANSION AND CONTRACTION.
5. INSTALL MANUAL AIR VENTS AT HIGH POINTS IN SYSTEM AIR VENTING.
6. INSTALL PIPING PARALLEL AND PERPENDICULAR TO BUILDING STRUCTURE. ROUTE PIPING AS DIRECTLY BETWEEN EQUIPMENT AS POSSIBLE, USING ONLY THE MINIMUM NUMBER OF BENDS REQUIRED.
7. WORK SHOWN ON THE DRAWINGS IS TO BE COORDINATED WITH WORK OF ALL OTHER TRADES AND ACTUAL CONDITIONS OF CONSTRUCTION.
8. LAY OUT THE PIPING SYSTEM IN CAREFUL COORDINATION WITH THE BUILDING CONDITIONS AND ALLOW FOR SERVICE OF ALL INSTALLED EQUIPMENT, ACCESS AND OPERATION OF VALVES, SERVICE OF ALL PIPING COMPONENTS, SERVICE OF HVAC EQUIPMENT. DETERMINE PROPER ELEVATION FOR ALL COMPONENTS OF THE SYSTEM. ESTABLISH STANDARD OF INSTALLATION AND REVIEW WITH OWNER'S REPRESENTATIVE FOR APPROVAL. DEMONSTRATE ACCESS OF ALL SYSTEM COMPONENTS. MAKE MODIFICATIONS REQUIRED BY THE OWNER AND INSTALL ALL OTHER SYSTEMS TO MEET INSTALLATION OF OWNER APPROVED UNIT PIPING.
9. KEEP ALL PIPE OPENINGS COVERED DURING CONSTRUCTION. VERIFY PIPING IS CLEAN AND CLEAR BEFORE EXTENDING PIPING SECTIONS.
10. LABEL PIPING TO IDENTIFY SYSTEM TYPE AND DUTY.
11. COORDINATE LOCATION AND METHOD OF ATTACHMENT OF HANGERS AND SUPPORTS FOR PIPING SYSTEM TO BUILDING STRUCTURE WITH THE STRUCTURAL ENGINEER. ESTABLISH PROPOSED LOCATIONS AND METHODS OF SYSTEM PIPE ANCHORS AND OBTAIN APPROVAL FROM THE ARCHITECT.
12. THOROUGHLY FLUSH BRANCH PIPING BEFORE CONNECTION TO THE UNIT. BYPASS UNIT AND CONTROL VALVE DURING FLUSHING OF PIPING. STRAINER SHALL BE INSTALLED AHEAD OF CONNECTION TO CONTROL VALVE. AFTER BRANCH PIPING IS PROVEN CLEAN, CLEAN STRAINER AND MAKE FINAL CONNECTIONS TO EQUIPMENT AND CONTROL VALVE.
13. REVIEW CONNECTION REQUIREMENTS OF ACTUAL EQUIPMENT FURNISHED PRIOR TO ROUGH–IN. (THIS INCLUDES EQUIPMENT FURNISHED BY DIVISION 22, ANY OTHER DIVISION WORK, OR THE OWNER.) ADJUST ROUGH–IN TO MEET EQUIPMENT INSTALLATIONS REQUIREMENTS.
14. INSTALL VALVES ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
15. INSTALL VALVES WITH UNIONS AT EACH PIECE OF EQUIPMENT ARRANGED TO ALLOW SERVICING, MAINTENANCE, AND EQUIPMENT REMOVAL.
16. LOCATE VALVES FOR EASY ACCESS AND PROVIDE SEPARATE SUPPORT WHERE NECESSARY.
17. INSTALL VALVES IN HORIZONTAL PIPING WITH STEM AT OR ABOVE THE CENTER OF THE PIPE.
18. INSTALL VALVES IN A POSITION TO ALLOW FULL STEM MOVEMENT.
19. INSTALLATION OF CHECK VALVES: INSTALL FOR PROPER DIRECTION OF FLOW.
20. INSTALL HANGERS, SUPPORTS, CLAMPS, AND ATTACHMENTS AS REQUIRED TO PROPERLY SUPPORT PIPING FROM STRUCTURE.
21. INSTALL HANGERS AND SUPPORTS COMPLETE WITH NECESSARY INSERTS, BOLTS, RODS, NUTS, WASHERS, AND OTHER ACCESSORIES.
22. INSTALL HANGERS AND SUPPORTS TO ALLOW CONTROLLED MOVEMENT OF PIPING SYSTEMS, PERMIT FREEDOM OF MOVEMENT BETWEEN PIPE ANCHORS, AND FACILITATE ACTION OF EXPANSION.
23. LOAD DISTRIBUTION: INSTALL HANGERS AND SUPPORTS SO THAT PIPING LIVE AND DEAD LOADING AND STRESSES FROM MOVEMENT WILL NOT BE TRANSMITTED TO CONNECTED EQUIPMENT.
24. DIVISION 22/23 CONTRACTOR SHALL PROVIDE TEST AND BALANCE OF PIPING SYSTEMS. TEST AND BALANCE SHALL BE PERFORMED AND REPORTED AS DESCRIBED BY NEBB OR AABC. PUMP STRAINERS SHALL BE CLEAN AND EQUIPMENT CONTROLS AND DEVICES FULLY FUNCTIONAL AT THE TIME OF PERFORMING BALANCE WORK. AFTER INSTALLATION OF NEW EQUIPMENT, THE CONTRACTOR SHALL BALANCE FLOW THROUGH HEATING AND COOLING COILS AND RECORD MEASUREMENTS. THE TEST FINDINGS SHALL BE REPORTED TO THE ARCHITECT FOR REVIEW AND COMMENT. IF THE SYSTEM IS FOUND TO BE OUTSIDE OF THE INSTALLED PUMPING EQUIPMENT ESTABLISHED PERFORMANCE CURVE, THE CONTRACTOR SHALL REBALANCE SYSTEM TO BRING IT TO THE PUMP MANUFACTURER'S PERFORMANCE PUMP CURVE.

PLUMBING GENERAL NOTES

1. ALL WORK AND INSTALLATIONS SHALL COMPLY WITH BUILDING SPECIFICATIONS, CURRENT CITY BUILDING CODE, AND OTHER GOVERNING CODES, STATE STATUTES, CITY ORDINANCES, AND REGULATIONS OF REGULATORY AGENCIES HAVING JURISDICTION AND SHALL ALSO CONFORM TO THE REQUIREMENTS OF THE OWNER'S INSURANCE CARRIER, THE STRUCTURAL ENGINEER, THE ARCHITECT, AND SHALL BE IN COMPLIANCE WITH ALL INDUSTRY STANDARDS. CODES AND ORDINANCES SHALL TAKE PRECEDENCE OVER SPECIFICATIONS AND DRAWINGS WHERE THERE IS A CONFLICT.
2. PAY ALL LAWFUL FEES FOR PERMITS OR LICENSES TO ACCOMPLISH THE WORK. OBTAIN AND PAY FOR ALL NECESSARY CERTIFICATES OF APPROVAL.
3. SLOPE STORM DRAINAGE PIPING AT 1/8" PER FOOT UNLESS NOTED OTHERWISE.
4. SLOPE SANITARY SEWER PIPING 2–1/2" AND SMALLER AT 1/4" PER FOOT. SLOPE SANITARY SEWER PIPING 3" AND LARGER AT 1/8" PER FOOT.
5. CLEANOUTS ARE TO BE PROVIDED AT THE END OF EACH RUN, AT ANY CHANGE OF DIRECTION GREATER THAN 45 DEGREES, AT A MAXIMUM OF 50' ON CENTER INSIDE THE BUILDING AND AT A MAXIMUM SPACING OF 100' ON CENTER OUTSIDE THE BUILDING, OR AS SHOWN ON DRAWINGS. LOCATE CLEANOUTS A MINIMUM OF 18 INCHES CLEAR FROM WALLS AND OBSTRUCTIONS TO ALLOW SERVICING.
6. FOR CONTINUATION OF UTILITIES 5'–0" BEYOND BUILDING REFER TO CIVIL DRAWINGS UNLESS NOTED OTHERWISE.
7. WORK SHOWN ON THE DRAWINGS IS TO BE COORDINATED WITH WORK OF ALL OTHER TRADES AND ACTUAL CONDITIONS OF CONSTRUCTION.
8. ALL UNDERGROUND PLUMBING PIPING SUBJECT TO FREEZE SHALL BE INSTALLED BELOW LOCAL AREA FROST LINE MINIMUM. VERIFY SITE FROST DEPTH.
9. ESTABLISH LOCATION AND SIZE OF UTILITY SERVICES PRIOR TO BUILDING ROUGH–IN. COORDINATE LOCATION OF BUILDING SERVICE ENTRANCES AND SYSTEM PIPE ROUTING WITH UTILITY SERVICE MAINS ON SITE AND SITE FEATURES AND CONDITIONS.
10. VERIFY FLOW LINE INVERTS OF BUILDING MAIN SEWER EXIT(S) REQUIRED FROM FURTHERMOST BRANCH LINE AND SITE SEWER TIE–IN LOCATION INVERT PRIOR TO BEGINNING BUILDING ROUGH–IN. NOTIFY ARCHITECT IF ADEQUATE FALL BETWEEN BUILDING AND SEWER CONNECTION CANNOT BE ACHIEVED.
11. LAY OUT PIPES TO FALL WITHIN PARTITIONS OR CHASES. DO NOT REQUIRE FURRING OTHER THAN THOSE SHOWN ON THE DRAWINGS.
12. INSTALL ALL PIPING PARALLEL AND PERPENDICULAR TO BUILDING WALLS AND PARTITIONS UNLESS DISTINCTLY SHOWN OR NOTED OTHERWISE. ROUTE PIPING LOCATED NEAR EACH OTHER PARALLEL IN ALL PLANES, WITH SUFFICIENT CLEARANCE.
13. PIPING ON EXTERIOR WALLS SHALL BE INSTALLED ON THE ROOM SIDE OF EXTERIOR WALL INSULATION.
14. MAKE CHANGES IN PIPE SIZE NOTED ON THE PLANS DOWNSTREAM OF FITTING OF THE LARGER PIPE. WHEN SUPPLY PIPES ARE LARGER THAN EQUIPMENT TAPINGS, REDUCE SIZE IMMEDIATELY PRIOR TO CONNECTION.
15. CAP ALL PIPE OPENINGS DURING CONSTRUCTION.
16. LABEL PIPING TO IDENTIFY SYSTEM TYPE AND DUTY. FOR EXISTING BUILDINGS, FOLLOW ESTABLISHED IDENTIFICATION NOMENCLATURE.
17. COORDINATE LOCATION AND METHOD OF ATTACHMENT OF HANGERS AND SUPPORTS FOR PIPING SYSTEM TO BUILDING STRUCTURE WITH THE ARCHITECT AND STRUCTURE ENGINEER. ESTABLISH LOCATIONS OF SYSTEM PIPE ANCHORS AND OBTAIN APPROVAL FROM THE ARCHITECT AND STRUCTURAL ENGINEER.
18. SLEEVE PIPING THROUGH EXTERIOR WALLS, FIRE AND SMOKE RATED WALLS AND ASSEMBLIES, ON GRADE SLAB FLOORS, MULTI–STORY FLOORS. ANNULAR SPACE BETWEEN PIPE AND SLEEVE SHALL BE CAULKED AND SEALED. FIRE RATED PENETRATIONS SHALL BE FIRE STOPPED TO MEET RATING OF CONSTRUCTION PENETRATED. EXTEND SLEEVE A MINIMUM OF 1 INCH ABOVE FLOOR PENETRATIONS IN POTENTIALLY WET AREAS SUCH MECHANICAL AND EQUIPMENT ROOMS.
19. DOMESTIC WATER PIPING SHALL BE INSTALLED TO SLOPE TO DRAIN POINTS. WHERE CONDITIONS DICTATE TRAPPED SECTION OF PIPING, A DRAIN VALVE OR CAPPED TEE SHALL BE INSTALLED TO FACILITATE DRAINING OF TRAPPED SECTION OF PIPING.
20. THOROUGHLY FLUSH DOMESTIC WATER PIPING. SCREENED OUTLETS SHALL BE REMOVED DURING FLUSHING PROCESS AND REINSTALLED AT COMPLETION.
21. INSULATE ALL DOMESTIC HOT AND COLD WATER PIPING.
22. COPPER AND PLASTIC PIPING INSTALLED IN STUD WALLS SHALL BE PROTECTED WITH MINIMUM 1/16 INCH SHIELD PLATES EXTENDING BEYOND THE PIPE IN ALL DIRECTIONS.
23. INSTALL SHUT–OFF VALVES IN HOT WATER AND COLD WATER LINES AHEAD OF CONNECTIONS TO ALL PLUMBING FIXTURES & EQUIPMENT.
24. REVIEW CONNECTION REQUIREMENTS OF ACTUAL EQUIPMENT FURNISHED PRIOR TO ROUGH–IN. THIS INCLUDES EQUIPMENT FURNISHED BY DIVISION 15, ANY OTHER DIVISION WORK, OR THE OWNER. ADJUST ROUGH–IN TO MEET EQUIPMENT INSTALLATION REQUIREMENTS.
25. REFER TO ARCHITECTURAL DRAWINGS FOR ELEVATIONS AND DIMENSIONED LOCATIONS OF PLUMBING FIXTURES. FIXTURES DESIGNATED FOR HANDICAP USE SHALL BE INSTALLED TO MEET MOST CURRENT APPLICABLE ADA AND/OR ANSI REQUIREMENTS FOR INSTALLATION CLEARANCE AND ACCESS.
26. FLOOR DRAINS AND CLEANOUTS SHALL BE FURNISHED WITH TOP AND TRIM COMPATIBLE WITH FLOOR COVERING MATERIAL. REFER TO ARCHITECTURAL DRAWINGS FOR FLOOR FINISH ALTERNATES AFFECTING FLOOR DRAIN AND CLEANOUT TRIM REQUIREMENTS.
27. ALL FLOOR DRAINS SHALL HAVE 3 INCHES MINIMUM WATER SEAL.
28. PROVIDE FUNNEL RECEPTOR FOR FLOOR DRAINS WHERE REQUIRED TO PREVENT SPILLAGE FROM INDIRECT WASTE LINES.
29. INSTALL A CLEANOUT AT THE FOOT OF EACH SINK WASTE STACK.
30. ALL FLOOR CLEANOUTS SHALL BE LOCATED A MINIMUM OF 18 INCHES CLEAR FROM WALLS AND OBSTRUCTIONS TO SERVICE.
31. PROVIDE ACCESS DOORS FOR ALL INACCESSIBLE VALVES AND CLEANOUTS.
32. COORDINATE LOCATION OF TERMINATION OF VENT PIPING WITH OTHER TRADES AND ARCHITECTURAL FEATURES AND CONDITIONS. MAINTAIN REQUIRED CLEARANCES TO OUTSIDE AIR INTAKES, WINDOW, ETC. AS REQUIRED BY LOCALLY ACCEPTED CODE.
33. RUN ALL DRAIN LINES FROM EQUIPMENT OVERFLOW RECEIVERS, ETC. TO FLOOR/HUB DRAINS. DRAIN LINES SHALL BE HARD DRAWN COPPER INSTALLED WITH MINIMUM 1/8 INCH PER FOOT SLOPE SECURED BY GUIDES AND SUPPORTS FOR PIPE SIZE SHOWN. NO DRAIN LINE TO BE SMALLER THAN 3/4 INCH. INSTALL TEE AT EACH ELBOW OF CONDENSATE DRAIN WITH CLEANOUT PLUG ON BLIND TEE.
34. PLUMBING CONTRACTOR SHALL VERIFY VOLTAGE, PHASE, AND WIRE SIZE OF PLUMBING EQUIPMENT REQUIRING ELECTRICAL CONNECTION WITH DIVISION 16 CONTRACTOR PRIOR TO PURCHASE OF EQUIPMENT.
35. PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS WHERE REQUIRED BY LOCAL AUTHORITY. PROVIDE PERMANENT ACCESS WITH SHUT–OFF VALVE UPSTREAM OF PRIMING DEVICE.
36. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FINAL CONNECTIONS TO PLUMBING FIXTURES. THIS INCLUDES, BUT IS NOT LIMITED, TO PROVIDING (FURNISHING AND INSTALLING) ALL TRAPS, DRAINS, AND SUPPLIES WITH STOPS.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

0	CONSTRUCTION DOCUMENTS	08.01.25
	REVISION	DATE

SEALS:

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
PLUMBING SYMBOLS & GENERAL NOTES

SHEET NUMBER:
P0.0

PLUMBING SPECIFICATIONS

GENERAL

THE GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS AND INSTRUCTIONS TO BIDDERS SHALL APPLY TO AND BE PART OF THIS SPECIFICATION.
CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, RULES AND REGULATIONS.
CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, CERTIFICATES OF INSPECTION AND APPROVALS REQUIRED.

SCOPE OF WORK

WATER PIPING SYSTEMS
SOIL, WASTE, AND VENT PIPING SYSTEMS
GAS PIPING
PLUMBING FIXTURES
PLUMBING EQUIPMENT
PAINTING AND ELECTRICAL WORK IS NOT PART OF THIS CONTRACT.

GENERAL STANDARDS

THE APPLICABLE PROVISIONS OF THE FOLLOWING STANDARDS SHALL GOVERN:

AMERICAN SOCIETY FOR TEST MATERIALS (ASTM);
AMERICAN STANDARDS ASSOCIATION (ASA);
UNDERWRITERS LABORATORIES (UL);
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA);
STATE BUILDING CODE.

THE INSTALLATION OF ALL PLUMBING WORK SHALL CONFORM TO THE APPLICABLE LOCAL PLUMBING CODES AND STATUES.

EXCAVATION AND BACKFILL

DO ALL EXCAVATION AND BACKFILLING. LAY SEWER AND UNDERGROUND PIPING LINES ON 6" COMPACTED SAND. BACKFILL UNDER BUILDING AND ALL DRIVES, ROADS AND WALKS WITH BANK-RUN GRAVEL.

WATER PIPING SYSTEMS

DOMESTIC COLD-WATER PIPING
DOMESTIC HOT-WATER PIPING
TRAP PRIMERS FOR FLOOR DRAINS

INTERIOR WATER PIPING:
TUBE SIZE 2" AND SMALLER: COPPER TUBE.
WALL THICKNESS: TYPE L, HARD-DRAWN TEMPER.
FITTINGS: WROUGHT-COPPER, SOLDER-JOINTS.
TUBE SIZE 2-1/2" AND LARGER: COPPER TUBE.
WALL THICKNESS: TYPE L, HARD-DRAWN TEMPER.
FITTINGS: WROUGHT-COPPER, SOLDER-JOINTS.

WHERE ALLOWED BY CODES AND OWNER:
PEX DISTRIBUTION SYSTEM: ASTM F877, ASTM F1960, SDR 9 TUBING.

PEX TUBING FITTING TUBE SHALL BE PER ASTM F1960 AND
ASTM 2080, WITH METAL-INSERT TYPE WITH COPPER OR
STAINLESS-STEEL CRIMP RINGS AND MATCHING PEX TUBE DIMENSIONS.

MANIFOLD: MULTIPLE-OUTLET, COOPER ASSEMBLY
COMPLYING WITH ASTM F877, WITH BRASS OR BRONZE FULL PORT BALL VALVE FOR EACH OUTLET.

PEX PIPING SHALL NOT BE INSTALLED WHERE IS EXPOSED TO DIRECT SUNLIGHT.
NO JOINTS OR UNIONS SHALL BE INSTALLED BELOW THE BUILDING SLAB.
PEX TUBING SHALL BE INSULATED TO MAINTAIN SMOKE AND FIRE SPREAD PER ASTM E 84 WHEN INSTALLED IN RETURN AIR PLENUM.
PROVIDE TUBING WITH NOMINAL INSIDE DIAMTER IN ACCORDANCE WITH ASTM F876.

THE DOMESTIC WATER PIPING SYSTEM SHALL BE FLUSHED WITH CLEAN POTABLE WATER UNTIL CONTAMINATED WATER DOES NOT APPEAR AT THE OUTLET AND SHALL BE FILLED WITH A SOLUTION CONTAINING FIFTY (50) PARTS PER MILLION OF CHLORINE AND ALLOWED TO STAND AS REQUIRED BY CODE BEFORE FLUSHING. THE SYSTEM SHALL BE FLUSHED COMPLETELY WITH CLEAR WATER UNTIL ALL RESIDUAL CHLORINE CONTENT IS REMOVED. CHLORINATION SHALL BE PERFORMED AFTER ALL PIPING AND FINAL CONNECTIONS AND PRESSURE TESTING HAS BEEN COMPLETED.

TESTING

DOMESTIC COLD WATER PIPING SYSTEMS SHALL BE TESTED AT A HYDROSTATIC PRESSURE OF NOT LESS THAN 100 POUNDS PER SQUARE INCH GAUGE (BEFORE INSULATION APPLIED), AND PROVED TIGHT AT THIS PRESSURE FOR NOT LESS THAN 30 MINUTES IN ORDER TO PERMIT INSPECTION OF ALL JOINTS. SOIL, WASTE AND VENT PIPING SHALL BE TESTED WITH WATER BEFORE INSTALLING PLUMBING FIXTURES.

SOIL, WASTE AND VENT/GAS PIPING SYSTEM

FURNISH AND INSTALL A COMPLETE SOIL, WASTE AND VENT SYSTEM IN THE BUILDING AND ON THE SITE AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN.

ABOVE GROUND SOIL, WASTE AND VENT PIPING WITHIN BUILDINGS INCLUDING SOIL STACKS, VENT STACKS, HORIZONTAL BRANCHES, TRAPS, AND CONNECTIONS TO FIXTURES AND DRAINS.

UNDERGROUND BUILDING DRAIN PIPING INCLUDING MAINS, BRANCHES, TRAPS, CONNECTIONS TO FIXTURES AND DRAINS, AND CONNECTIONS TO STACKS, TERMINATING AT CONNECTION TO EXISTING SANITARY SEWER.

INTERIOR PIPING:

PIPE AND FITTINGS:
PROVIDE SCH.40 PVC PLASTIC PIPING WITH DRAINAGE PATTERN FITTINGS AND SOLVENT-CEMENTED JOINTS PER ANSI/ASTM D1789 & D2729.

PIPING ALIGNMENT SHALL BE AS INDICATED ON THE DRAWINGS USING APPROVED Y BRANCHES OR EIGHT BANDS FOR DIRECTION CHANGES AND SHALL BE SURELY SUPPORTED OR SECURED TO MAINTAIN SUCH ALIGNMENT.

PITCH OF PIPING SHALL BE UNIFORM AT A MINIMUM OF 1/8" PER FOOT FOR BUILDING DRAINS AND AS INDICATED ON THE DRAWINGS FOR SEWERS.

PROTECTION SHALL BE GIVEN ALL FOOTINGS, OTHER STRUCTURAL ELEMENTS DURING UNDERGROUND WORK ADJACENT TO SUCH ITEMS. REFER TO STRUCTURAL DRAWINGS.

VENT ALL FIXTURES, CONNECT BRANCH VENTS TO MAIN VENT RISERS AT LEAST THREE FEET AND SIX INCHES ABOVE VENTED FIXTURES. PITCH VENT LINES BACK TO SOIL OR WASTE PIPE, FREE OF DROPS AND SAGS.

CLEANOUTS SHALL BE FULL SIZE OF PIPE UP TO 4", AND 4" FOR LARGER SIZES. FOR UNDERGROUND AND CONCEALED LINES, PROVIDE CLEANOUTS IN ACCESSIBLE POSITIONS AT EACH RIGHT ANGLE TURN AND AT INTERVALS NOT TO EXCEED ONE HUNDRED FEET. IN FLOORS, INSTALL FLUSH WITH FINISH FLOOR WITH EXTENSION PIPE FROM CLEANOUT "Y".

NATURAL GAS PIPING:

PIPING SHALL BE SCHEDULE 40 BLACK STEEL WITH X-HEAVY BLACK MALLEABLE IRON BANDED SCREWED OR WELDED FITTINGS. EACH PIECE OF EQUIPMENT SHALL BE PROVIDED WITH LUBRICATED BRONZE PLUG AND BODY VALVE WITH A HANDLE, UNION AND DRIP LEG AT THE UNIT CONNECTION. PROVIDE A PRESSURE REGULATOR FOR EACH PIECE OF GAS FIRED EQUIPMENT IF EXISTING GAS PRESSURE IS .25 PSI OR GREATER.

HANGERS AND SUPPORT:
FURNISH AND INSTALL HANGERS, CLAMPS, INSERTS, ETC. NECESSARY FOR THE INSTALLATION OF ALL PIPES AND EQUIPMENT. SOIL, WASTE AND VENT STACKS SHALL BE WELL SUPPORTED AT THE BASE OF THE RISER. SUPPORTS FOR COPPER PIPES SHALL BE PLACED ON 8 FOOT CENTERS. SUPPORT FOR VERTICAL PIPE SHALL BE PLACED AT TOP AND BOTTOM OF EACH FLOOR. INSULATION SHALL RUN CONTINUOUS THROUGH ALL HANGERS AND SUPPORTS.

FLOOR DRAINS

REFER TO SCHEDULE ON DRAWINGS.

(WHERE SHOWN ON PLAN) THE PLUMBING CONTRACTOR SHALL PROVIDE AND INSTALL TRAP PRIMERS FOR ALL FLOOR DRAINS. TRAP PRIMER SHALL BE EQUAL TO PPP INC. MODEL "OREGON #1" TRAP PRIMER VALVE. TRAP GUARDS ARE PERMISSIBLE WHERE ALLOWED BY CODE OR OWNER.

PLUMBING FIXTURES (REFER TO SCHEDULE)

WATER CLOSETS.
LAVATORIES.
SERVICE SINKS.
WATER COOLERS.

FIXTURE SCHEDULE

SEE PLUMBING DRAWINGS FOR FIXTURE SCHEDULE.

PLUMBING EQUIPMENT
WATER HEATERS

ACCEPTABLE MANUFACTURERES
A. FIXTURES: WATER CLOSET, URINALS, LAVATORIES, SEATS, FLUSH VALVES, SHOWERS, SERVICE SINKS, MOP BASINS.

MANUFACTURERS: KOHLER, AMERICAN STANDARD, ADVANCE TABCO, ZURN, CRANE & ELJER, OLSONITE, BENEKE, SLOAN, DELANEY, FIAT AND STERN-WILLIAMS.

B. ELECTRIC WATER COOLERS
MANUFACTURERS: ELKAY, HALSEY, OASIS AND HAWS.

C. STAINLESS STEEL SINKS (CONTRACTOR FURNISHED)
MANUFACTURERS: ELKAY, KROWNE AND JUST.

D. FIXTURES: CARRIERS
MANUFACTURERS: JAY R. SMITH, JOSAM, WADE, ZURN.

E. FIXTURES: HYDRANT & HOSE BIBS
MANUFACTURERS: JAY R. SMITH, CHICAGO, WOODFORD, ZURN, JOSAM.

CATHODIC PROTECTION

PROVIDE DIELECTRIC INSULATION AT POINTS WHERE COPPER OR BRASS PIPE COMES IN CONTACT WITH FERROUS PIPING, REINFORCING STEEL OR OTHER DISSIMILAR METAL IN STRUCTURE.

SHOCK ABSORBERS

REMOVE SHOCK CONDITIONS FROM ALL PIPING. PROVIDE AND INSTALL SHOCK ABSORBERS ON ALL PIPING SERVING FLUSH VALVE FIXTURES. AIR CHAMBERS ARE NOT ALLOWED.

VALVES

MAIN SHUT OFF VALVES SHALL BE INSTALLED AS SHOWN ON THE PLANS. SHUT OFF VALVES SHALL BE NIBCO S/T 580 BALL VALVES OR EQUAL. VALVES SHALL HAVE BLOWOUT PROOF STEM, TFE SEATS AND BRASS BALL. PRESSURE RATING OF ALL MAIN VALVES SHALL HAVE A RATING OF AT LEAST 400 PSI WORKING PRESSURE.

VALVES SHALL BE INSTALLED AS SHOWN ON THE PLANS. WHEN VALVES ARE NOT SHOWN IN DETAIL ON THE PLANS, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL VALVES NECESSARY FOR THE CONTROL OPERATION AND ISOLATION OF EQUIPMENT. PITCH ALL PIPE TO LOW POINTS AND INSTALL DRAIN VALVES.

GATE VALVES OR BALL VALVES SHALL BE USED IN SERVICES REQUIRING THE VALVES TO BE FULLY OPENED OR TIGHTLY CLOSED. GLOBE OR ANGLE VALVES SHALL BE USED WHERE THROTTLING OR FLOW CONTROL IS DESIRED, OR IN BY-PASS LINES. GLOBE AND ANGLE VALVES SHALL BE EQUIPPED WITH THE APPROPRIATE DISC MATERIAL FOR THE INTENDED SERVICE. COLD WATER GLOBE VALVES SHALL HAVE RUBBER DISC; HOT WATER SHALL HAVE COMPOSITION DISC.

THIS CONTRACTOR SHALL FURNISH AND INSTALL SHUT-OFF VALVES TO ISOLATE EACH FIXTURES, ITEM OR UNIT AT THE FIXTURE ITEMS OR UNIT WHETHER FURNISHED BY THIS CONTRACTOR OR BY OTHERS.

FIXTURES, ITEM OR UNITS FURNISHED BY THE MANUFACTURER WITH INTEGRAL STOPS OR STOPS SPECIFIED WITH THE FIXTURE ARE CONSIDERED TO BE PROPERLY VALVED OFF AT THE FIXTURES.

ACCESS SHALL BE PROVIDED TO ALL VALVES.

PIPE JOINTS AND CONNECTION

ALL CUTTING AND PATCHING OF FINISHED CONSTRUCTION OF BUILDING SHALL BE PERFORMED BY THIS CONTRACTOR UNDER THE SECTION OF SPECIFICATIONS COVERING THESE MATERIALS.

ANY MINOR ADJUSTMENT IN LOCATION OF ALIGNMENT OF NEW WORK OR TO CONNECT TO EXISTING UTILITIES SHALL BE PERFORMED AS DIRECTED BY THE ARCHITECT WITHOUT ADDITIONAL COST TO THE OWNER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES TO THE GROUNDS, WALKS, ROAD, BUILDING, PIPING SYSTEMS, ELECTRICAL SYSTEMS, AND THEIR EQUIPMENT AND CONTENTS, CAUSED BY LEAKS IN THE PIPING SYSTEMS BEING INSTALLED OR HAVING BEEN INSTALLED BY CONTRACTOR. CONTRACTOR SHALL REPAIR AT THEIR SOLE EXPENSE ALL DAMAGE SO CAUSED. ALL REPAIR WORK SHALL BE DONE AS DIRECTED BY AND IN SUCH MANNER AS SATISFACTORY TO THE ARCHITECT.

OWNER RESERVES THE RIGHT TO MAKE EMERGENCY REPAIRS AS REQUIRED TO KEEP EQUIPMENT IN OPERATION WITHOUT VOIDING THE CONTRACTOR'S GUARANTEE BOND NOR RELIEVING THE CONTRACTOR OF THEIR RESPONSIBILITIES DURING THE BONDING PERIOD.

PIPE INSULATION

FIBERGLASS PIPING INSULATION: ASTM C 547, CLASS 1

FLEXIBLE CLOSED CELL ELASTOMERIC PIPING INSULATION: ASTM C 534, TYPE I, (EQUAL TO ARMAFLEX).

ENCASE PIPE FITTINGS INSULATION WITH ONE-PIECE PRE-MOLDED PVC FITTING COVERS.

VAPOR BARRIER MATERIAL: PAPER-BACKED ALUMINUM FOIL, EXCEPT AS OTHERWISE INDICATED, STRENGTH AND PERMEABILITY RATING EQUIVALENT TO ADJOINING PIPE INSULATION JACKETING.

STAPLES, BANDS, WIRES, AND CEMENT: AS RECOMMENDED BY INSULATION MANUFACTURER FOR APPLICATIONS INDICATED.

ADHESIVES, SEALERS, AND PROTECTIVE FINISHES: AS RECOMMENDED BY INSULATION MANUFACTURER FOR APPLICATIONS INDICATED.

COVER ALL COLD WATER AND CONDENSATE (IF ROUTED INSIDE THE BUILDING) PIPING WITH 1/2" THICK FLEXIBLE CLOSED CELL ELASTOMERIC INSULATION, HAVING A "K" VALUE OF .25.

COVER ALL HOT WATER PIPING, WITH A MAXIMUM FLUID TEMPERATURE OF 140'F, WITH JACKETED GLASS FIBER PREFORMED INSULATION WITH JACKET SEALED AND TAPED, HAVING A "K" VALUE BETWEEN 0.21-0.28 WITH THICKNESS AS FOLLOWS:

PIPE SIZE:	INSULATION THICKNESS:
0"-1-1/2"	1"
> 1-1/2"	1.5"

COVER ALL HOT WATER PIPING, WITH A MAXIMUM FLUID TEMPERATURE OF 200'F, WITH JACKETED GLASS FIBER PREFORMED INSULATION WITH JACKET SEALED AND TAPED, HAVING A "K" VALUE BETWEEN 0.25-0.29 WITH THICKNESS AS FOLLOWS:

PIPE SIZE:	INSULATION THICKNESS:
0"-1-1/2"	1.5"
> 1-1/2"	2.0"

FLEXIBLE CLOSED CELL ELASTOMERIC INSTALLATION: SLIT TUBULAR SECTIONS ONTO PIPE. ON AREAS WHERE PIPE END IS OPEN, SLIDE FULL SECTIONS ONTO PIPE. ALL EDGES SHALL BE CLEAN CUT. INSULATION SHALL BE PUSHED ONTO PIPE, NEVER PULLED. ALL SEAMS AND BUTT JOINTS SHALL BE ADHERED AND SEALED USING ADHESIVE EQUAL TO ARMAFLEX 520 ADHESIVE.

INTERRUPTION OF SERVICES

WHEN IT IS REQUIRED TO INTERRUPT EXISTING SERVICES, THIS CONTRACTOR SHALL FIRST NOTIFY THE ARCHITECT THAT AN INTERRUPTION IS REQUIRED. IT SHOULD BE NOTED THAT FACILITIES MUST BY KEPT IN OPERATION AS MUCH AS POSSIBLE.

THIS CONTRACTOR SHALL ADVISE THE ARCHITECT OF THE LENGTH OF TIME THE SERVICE WILL BE INTERRUPTED AND SHALL GET PERMISSION FROM THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.

WARRANTY

THIS CONTRACTOR SHALL WARRANT THAT ALL WORK UNDER THIS SECTION SHALL BE FREE OF DEFECTIVE WORK, MATERIALS AND PARTS FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF THE WORK AND SHALL REPAIR, REVISE, AND REPLACE, AT NO COST TO THE OWNER, ANY SUCH DEFECTS OCCURRING WITHIN THE WARRANTY PERIOD.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 | 424 e. main st.
wb: gshelms.com | jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

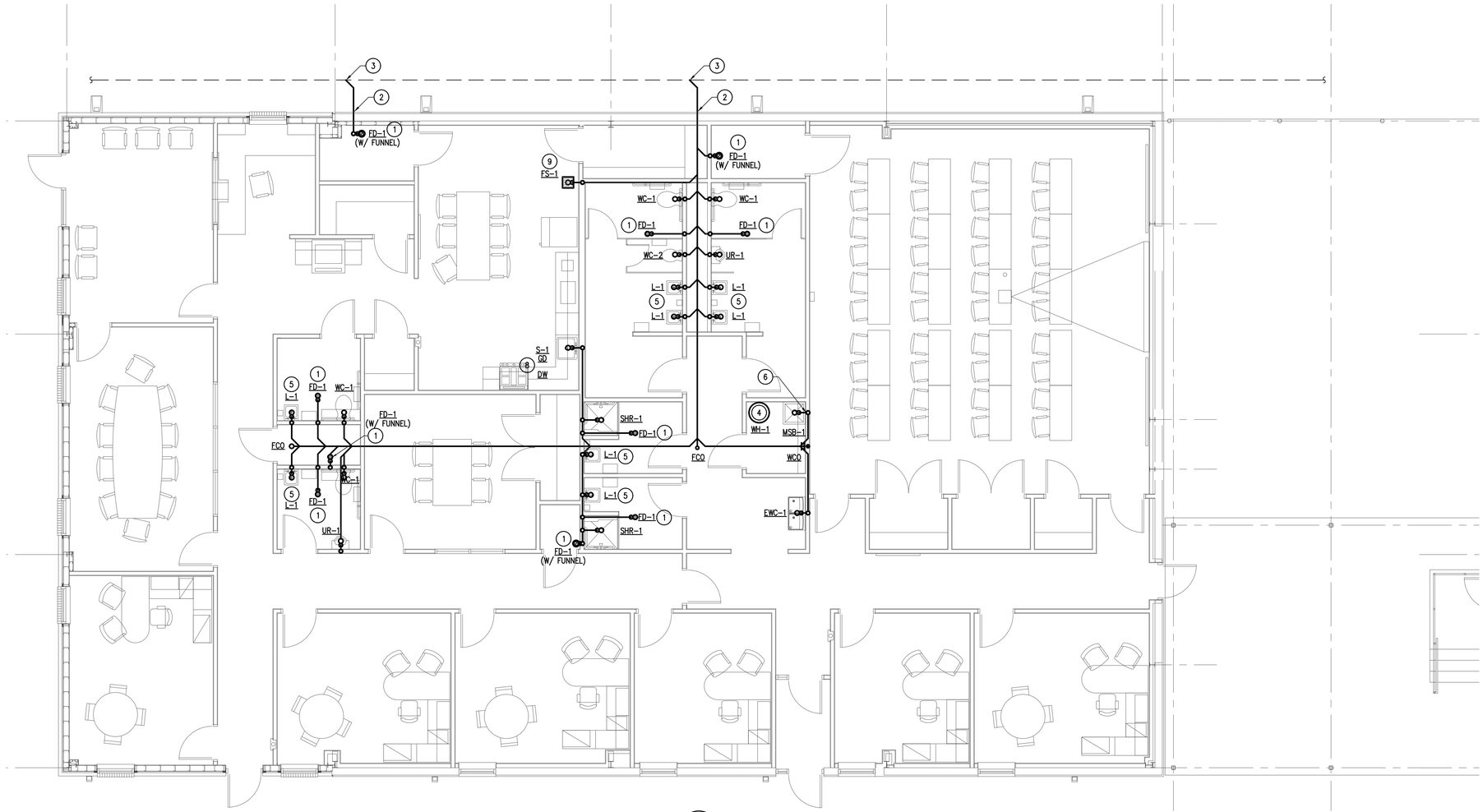
SHEET TITLE:
PLUMBING SPECIFICATIONS

SHEET NUMBER:
P0.1

REFER TO PLUMBING FIXTURE SCHEDULE FOR INDIVIDUAL WASTE, WATER, AND VENT RUNOUTS. REFER TO RISER DIAGRAMS FOR ALL PIPE SIZING.

KEY NOTES (#)

1. FLOOR DRAIN WITH PROVENT TRAPGUARD. FLOOR DRAIN TO BE FLUSH WITH FINISHED FLOOR.
2. COORDINATE SANITARY WITH STRUCTURAL FOOTING AT EXTERIOR WALL.
3. EXTEND NEW 4" SANITARY LINE TO EXISTING SANITARY SEWER. COORDINATE LOCATION WITH CIVIL DRAWINGS.
4. EXTEND FULL SIZE T & P RELIEF FROM WATER HEATER TO MOP SINK OR OTHER AHJ APPROVED RECEPTOR. TERMINATE WITH AN AIR GAP. INSTALLATION TO BE COMPLETED AND IN COMPLIANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS AND LOCAL CODE.
5. EXPOSED PIPES UNDER HANDICAPPED LAVATORIES SHALL HAVE AN "ADA" PROTECTIVE HEIGHT COVER "TRUEBRO" LAV SHIELD.
6. VENT THROUGH THE ROOF. VERIFY IN FIELD A MIN OF 10' FROM ANY OUTDOOR AIR INTAKE. SEE P4.0 FOR WASTE ISOMETRIC. WHEN TWO OR MORE VENT PIPES CONVERGE, EVERY DRY VENT SHALL RISE VERTICALLY TO A MINIMUM OF 6 INCHES ABOVE THE FLOOD LEVEL RIM OF THE HIGHEST TRAP OR TRAPPED FIXTURE BEING VENTED.
7. FLOOR DRAIN TO RECEIVE DRAIN PIPING FROM RPZ. TERMINATE WITH APPROVED AIR GAP.
8. CONTRACTOR TO CONNECT OWNER PROVIDED DISHWASHER (DW) DRAIN CONNECTION TO GARBAGE DISPOSAL DISHWASHER CONNECTION.
9. CONTRACTOR TO ROUTE CONDENSATE AND ICE BIN DRAINS FROM OWNER PROVIDED ICEMAKER TO FLOOR SINK AND TERMINATE WITH APPROVED AIR GAP.



1 DOMESTIC WASTE AND VENT PLAN – OFFICES
SCALE: 3/16"=1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER — ABDOU JAAFAR — 18906 — 8.15.25 — OKLAHOMA

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

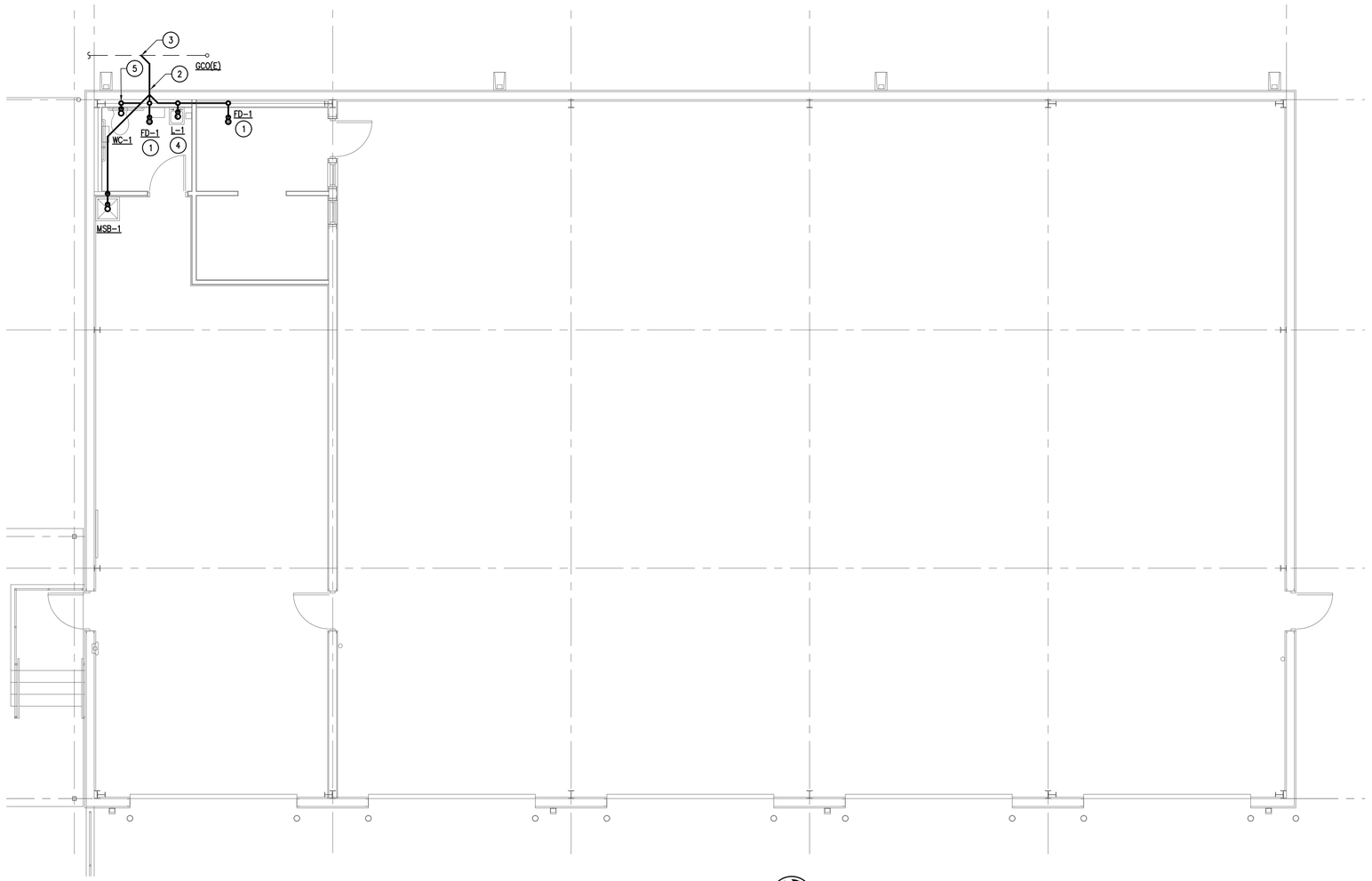
SHEET TITLE:
DOMESTIC WASTE AND VENT FLOOR PLAN
OFFICE BUILDING

SHEET NUMBER:
P1.0

REFER TO PLUMBING FIXTURE SCHEDULE FOR INDIVIDUAL WASTE, WATER, AND VENT RUNOUTS. REFER TO RISER DIAGRAMS FOR ALL PIPE SIZING.

KEY NOTES ⓝ

1. FLOOR DRAIN WITH PROVENT TRAPGUARD. FLOOR DRAIN TO BE FLUSH WITH FINISHED FLOOR.
2. COORDINATE SANITARY WITH STRUCTURAL FOOTING AT EXTERIOR WALL.
3. EXTEND NEW 4" SANITARY LINE TO EXISTING SANITARY SEWER. COORDINATE LOCATION WITH CIVIL DRAWINGS.
4. EXPOSED PIPES UNDER HANDICAPPED LAVATORIES SHALL HAVE AN "ADA" PROTECTIVE HEIGHT COVER "TRUEBRO" LAV SHIELD.
5. VENT THROUGH THE ROOF. VERIFY IN FIELD A MIN OF 10' FROM ANY OUTDOOR AIR INTAKE. SEE P4.0 FOR WASTE ISOMETRIC. WHEN TWO OR MORE VENT PIPES CONVERGE, EVERY DRY VENT SHALL RISE VERTICALLY TO A MINIMUM OF 6 INCHES ABOVE THE FLOOD LEVEL RIM OF THE HIGHEST TRAP OR TRAPPED FIXTURE BEING VENTED.



1 DOMESTIC WASTE AND VENT PLAN – EQUIPMENT
SCALE: 3/16"=1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER
ABDOU JAAFAR
18906
8.13.25
OKLAHOMA

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
DOMESTIC WASTE AND VENT FLOOR PLAN
EQUIPMENT BUILDING

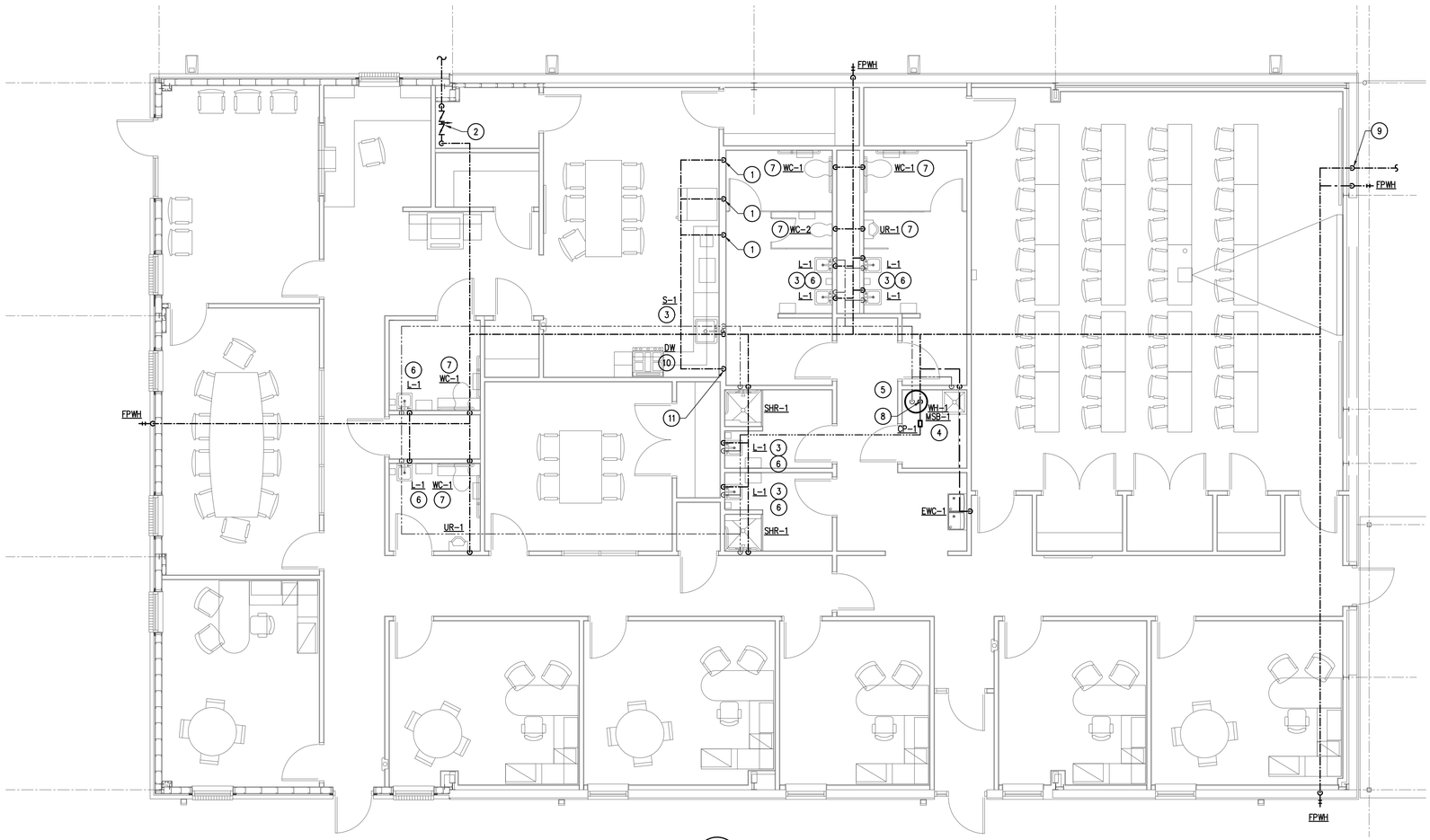
SHEET NUMBER:
P1.1

LOCATE VALVES IN ACCESSIBLE DISCRETE LOCATION AND PROVIDE ACCESS PANEL AT CEILING OR WALL. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE MEANS TO SHUT OFF WATER FOR EACH OR GROUP OF FIXTURES EVEN IF VALVES ARE NOT SHOWN ON PLANS.

REFER TO PLUMBING FIXTURE SCHEDULE FOR INDIVIDUAL WASTE, WATER, AND VENT RUNOUTS. REFER TO RISER DIAGRAMS FOR ALL PIPE SIZING.

KEY NOTES (#)

1. 1/2" CW WITH FEMALE COUPLING AT 72" A.F.F. FOR ICE MACHINE. PROVIDE AND INSTALL FILTER WITH SHUT-OFF VALVE. CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL HOOK-UP TO ICE. COORDINATE REQUIREMENT WITH OWNER FURNISHED APPLIANCE.
2. 2" DOMESTIC WATER SERVICE TO BUILDING. CONTRACTOR TO INSTALL MAIN SHUT-OFF VALVE, INSTALL 2" RPZ VALVE "WATTS LF909M1QT-S" ON WALL BETWEEN 24" MIN AND 60" MAX A.F.F. PROVIDE AND INSTALL FULL SIZE DRAIN PIPING FROM RPZ TO FUNNEL FLOOR DRAIN BELOW. DRAIN LINE TO HAVE CODE APPROVED AIR GAP. SEE CIVIL SITE UTILITY PLAN FOR CONTINUATION OF SERVICE LINE IN STREET.
3. 1/2" HOT AND 1/2" COLD WATER DOWN TO SERVE LAVATORY/HAND SINK. PROVIDE A LEONARD TA-F MIXING VALVE TO CONFORM TO ASSE 1070 SET AT 110°F.
4. ROUTE 3/4" CW AND 3/4" HW DOWN TO FAUCET FOR MOP SINK. PROVIDE VACUUM BREAKER AT MOP SINK FAUCET TO PREVENT BACK-SIPHONAGE INTO THE WATER SUPPLY SYSTEM.
5. ROUTE 1-1/4"CW TO WH1 & 1-1/4"HW FROM WH1,
6. EXPOSED PIPES UNDER HANDICAPPED LAVATORIES SHALL HAVE AN "ADA" PROTECTIVE HEIGHT COVER "TRUEBRO" LAV SHIELD.
7. PROVIDE WATER HAMMER ARRESTER ON ALL FLUSH VALVE PER PDI#WH-201, ASSE#1010 AND ANSI #A112.26.1M.
8. 3/4" HOT WATER RETURN ROUTED BACK THROUGH WATER HEATERS.
9. 1-1/2"CW ROUTED DOWN IN WALL AND UNDER SLAB TO EQUIPMENT BUILDING RESTROOM. SEE SHEET P2.1 FOR CONTINUATION
10. CONTRACTOR TO EXTEND 1/2"HW FROM KITCHEN SINK HW CONENCTION AND CONNECT TO OWNER PROVIDED DISHWASHER.
11. 1/2" COLD WATER TO SERVE OWNER PROVIDED COFFEE/WATER DISPENSER STATION. PROVIDE AND INSTALL WATTS #SD3-FN DUAL CHECK VALVE TO CONFORM TO ASSE 1022 BEFORE EQUIPMENT.



1 PLUMBING SUPPLY PLAN – OFFICES
SCALE: 3/16"=1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER
ABDOU JAAFAR
18906
8.15.25
OKLAHOMA

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
PLUMBING SUPPLY FLOOR PLAN
OFFICE BUILDING

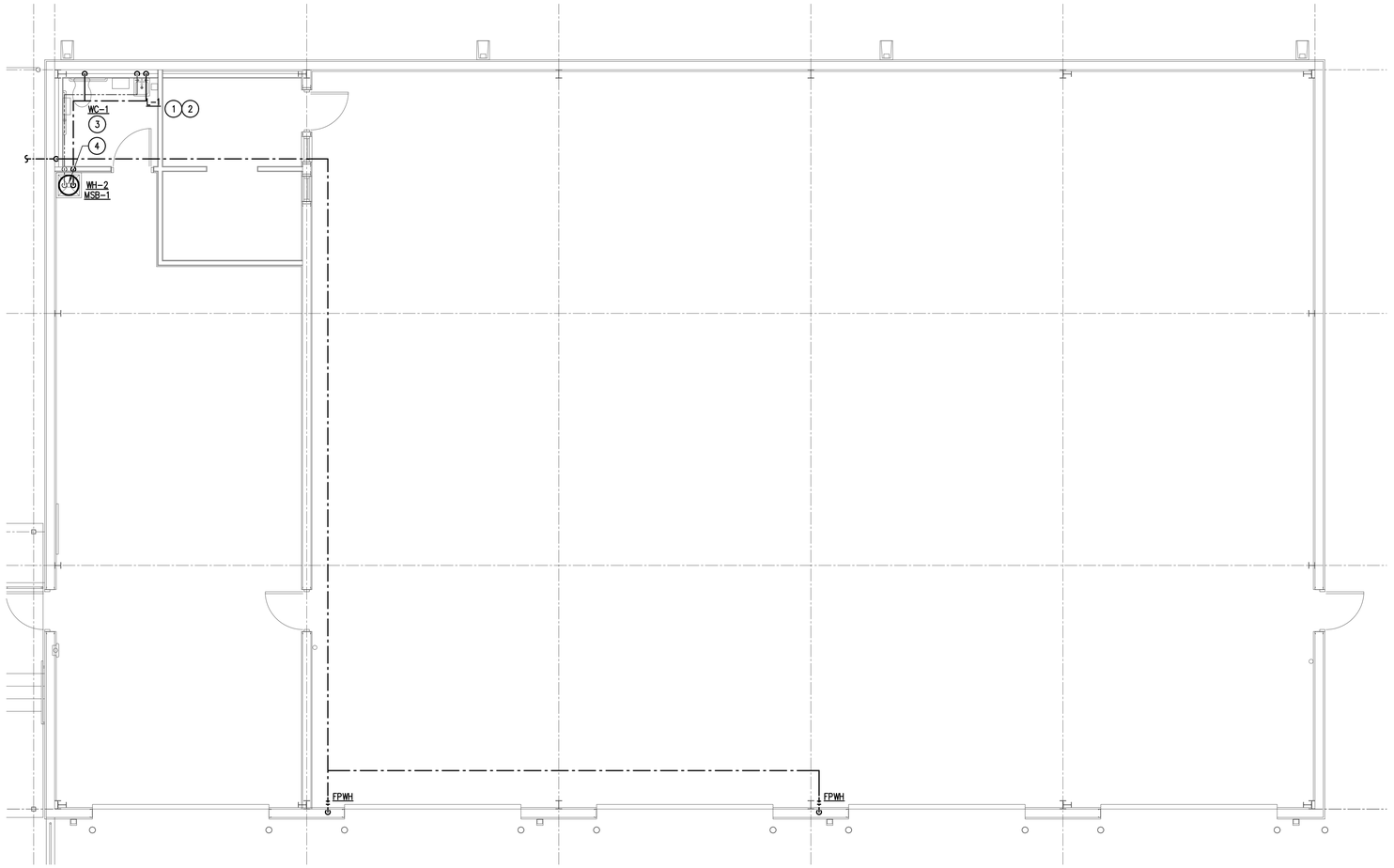
SHEET NUMBER:
P2.0

LOCATE VALVES IN ACCESSIBLE DISCRETE LOCATION AND PROVIDE ACCESS PANEL AT CEILING OR WALL. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE MEANS TO SHUT OFF WATER FOR EACH OR GROUP OF FIXTURES EVEN IF VALVES ARE NOT SHOWN ON PLANS.

REFER TO PLUMBING FIXTURE SCHEDULE FOR INDIVIDUAL WASTE, WATER, AND VENT RUNOUTS. REFER TO RISER DIAGRAMS FOR ALL PIPE SIZING.

KEY NOTES (#)

1. 1/2" HOT AND 1/2" COLD WATER DOWN TO SERVE LAVATORY/HAND SINK. PROVIDE A LEONARD TA-F MIXING VALVE TO CONFORM TO ASSE 1070 SET AT 110°F.
2. EXPOSED PIPES UNDER HANDICAPPED LAVATORIES SHALL HAVE AN "ADA" PROTECTIVE HEIGHT COVER "TRUEBRO" LAV SHIELD.
3. PROVIDE WATER HAMMER ARRESTER ON ALL FLUSH VALVE PER PDI#WH-201, ASSE#1010 AND ANSI #A112.26.1M.
4. 3/4" HW & CW DOWN TO WATER HEATER MOUNTED ON HOLDRITE SHELF.



1 PLUMBING SUPPLY PLAN – EQUIPMENT
SCALE: 3/16"=1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER
ABDOU JAAFAR
18906
OKLAHOMA

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
PLUMBING SUPPLY FLOOR PLAN
EQUIPMENT BUILDING

SHEET NUMBER:
P2.1

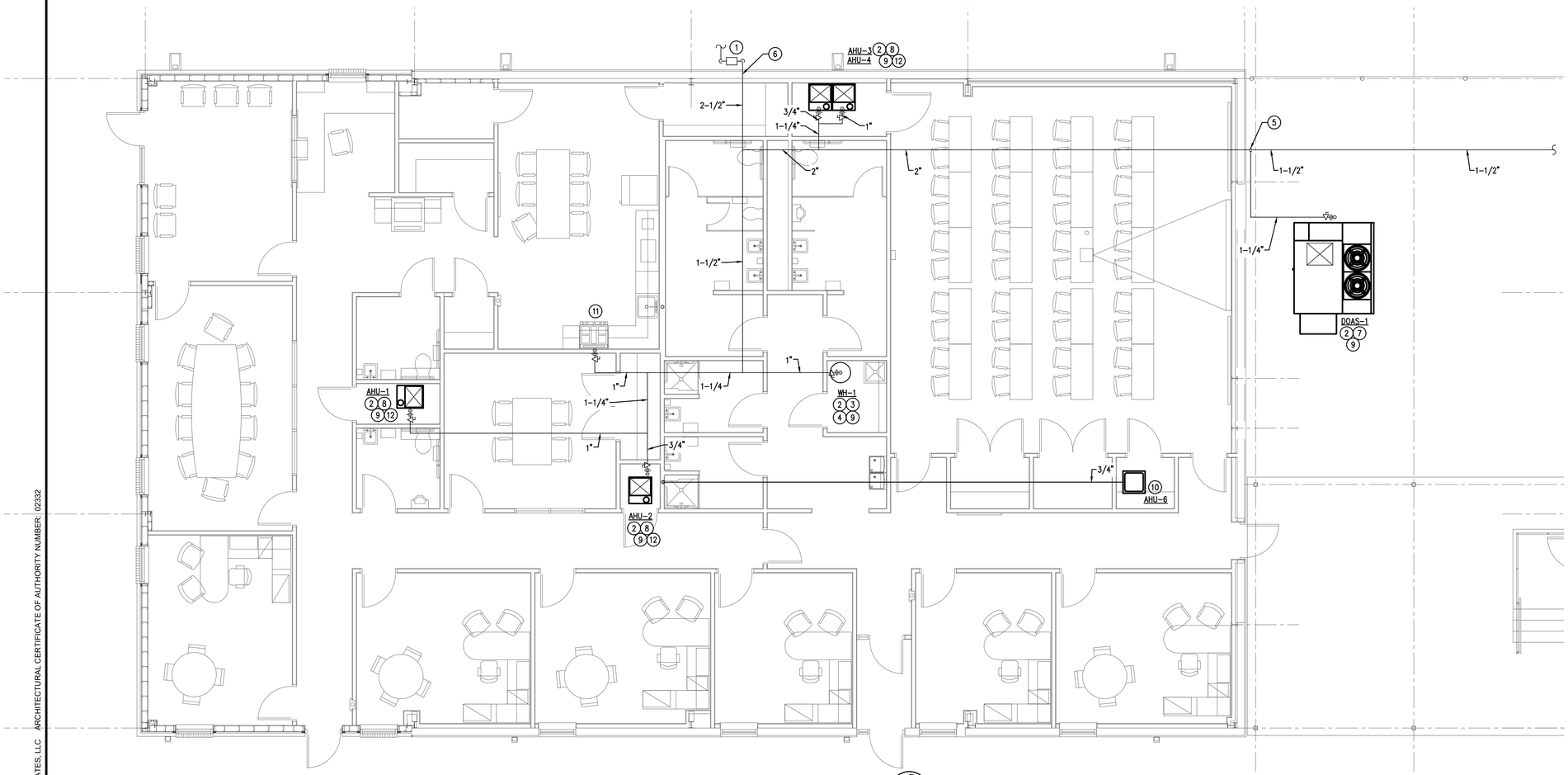
GAS LOAD SUMMARY

EQUIPMENT	QUANITY	EACH (MBH)	TOTAL MBH
AHU-1	1	80	80
AHU-2	1	60	60
AHU-3	1	80	80
AHU-4	1	60	60
AHU-5	1	80	80
DOAS-1	1	150	150
WATER HEATER	1	76	76
UH-1/2	2	125	250
OWNER PROVIDED KITCHEN RANGE	1	70	70
TOTAL			906

NOTES:
1. THE ACTUAL LENGTH TO THE MOST REMOTE APPLIANCE CONNECTION IS 195FT. THE SYSTEM IS SIZED FOR A TOTAL DEVELOPED LENGTH OF MAXIMUM 250FT.
2. THE SERVICE TO THE BUILDING SHALL BE INSTALLED AS A MEDIUM PRESSURE (INLET PRESSURE LESS THAN 2 PSI.) AND 0.5 PSI PRESSURE DROP.
3. PIPE SIZES SHOWN ON THE RISER DIAGRAM ARE BASED ON 2018 IFGC, TABLE 402.4(2) FOR NATURAL GAS. FIELD VERIFY CONDITIONS.

KEY NOTES#

1. CONTRACTOR TO COORDINATE GAS REQUIREMENTS WITH LOCAL GAS COMPANY TO PROVIDE NEW METER AND 2-1/2" GAS SERVICE. GAS LOAD IS 906,000 BTU/HR. GAS SERVICE SIZE IS BASED ON 2015 INTERNATIONAL FUEL GAS CODE, TABLE 402.4(2) LESS THAN 2 PSI INLET PRESSURE, 0.5" W.C. PRESSURE DROP, 250 FEET TOTAL DEVELOPED LENGTH. CONTRACTOR SHALL INCLUDE ALL FEES ASSOCIATED WITH NEW GAS PIPING.
2. PROVIDE GAS COCK, DIRT LEG ASSEMBLY, UNION AND GAS PRESSURE REGULATOR.
3. ROUTE WATER HEATER CONCENTRIC EXHAUST AND INTAKE UP THROUGH ROOF.VENTS SHALL BE 4" PVC PER MANUFACTURERS SPECIFICATIONS. IF TOTAL VENT LENGTH EXCEEDS 25'-0" INCREASE VENTS TO 5". INSTALL EXHAUST FLUE MINIMUM OF 10'-0" FROM OUTSIDE AIR SOURCES. ROUTE TO AVOID OVERHEAD DUCTWORK. COORDINATE WITH SHEET M1.0 AS NEEDED. COORDINATE WITH MECHANICAL CONTRACTOR.
4. ROUTE WATER HEATER CONDENSATE DRAIN AND T&P DOWN TO MOP SINK. TERMINATE WITH CODE APPROVED AIR GAP.
5. 1-1/4" GAS DOWN ON EXTERIOR OF BUILDING AND ROUTED ALONG GROUND TO PAD MOUNTED DEDICATED OUTSIDE AIR UNIT.
6. 2" GAS SLEEVED THROUGH WALL AND SEALED WATER TIGHT TO SERVE MECHANICAL EQUIPMENT.
7. GENERAL CONTRACTOR TO PROVIDE AND INSTALL CONDENSATE DRAIN W/ TRAP FROM NEW ROOFTOP MECHANICAL EQUIPMENT AND DISCHARGE TO SPLASH BLOCK ON ROOF.
8. CONTRACTOR TO ROUTE FURNACE CONDENSATE TO FUNNEL FLOOR DRAIN IN MECHANICAL CLOSET OR OTHER AHJ APPROVED RECEPTOR AND TERMINATE WITH CODE APPROVED AIR GAP.
9. CONTRACTOR TO EXTEND 3/4" LOW PRESSURE GAS TO AHU-2, AND AHU-4, AND 1" LOW PRESSURE GAS TO AHU-1, AHU-3, AHU-5 AND WH-1, 1-1/4" LOW PRESSURE GAS TO DOAS-1 AND CONNECT.
10. ROUTE CONDENSATE FROM AHU ABOVE CEILING TO MOP SINK OR AHJ APPROVED RECEPTOR AT MINIMUM 1/8" SLOPE. CONDENSATE PIPING SHALL BE INSULATED SIMILAR TO COLD WATER PIPING TO PREVENT CONDENSATION.
11. 3/4" GAS DOWN TO OWNER PROVIDED GAS KITCHEN RANGE.
12. ROUTE FURNACE CONCENTRIC EXHAUST AND INTAKE UP THROUGH ROOF PER MANUFACTURER RECOMMENDATION. INSTALL EXHAUST FLUE MINIMUM OF 10'-0" FROM OUTSIDE AIR SOURCES. ROUTE TO AVOID OVERHEAD DUCTWORK. COORDINATE WITH SHEET M1.0 AS NEEDED. COORDINATE WITH MECHANICAL CONTRACTOR.



1 PLUMBING GAS AND CONDENSATE PLAN – OFFICES
SCALE: 3/16"=1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER
ABDOU JAAFAR
18906
8.13.25
OKLAHOMA

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

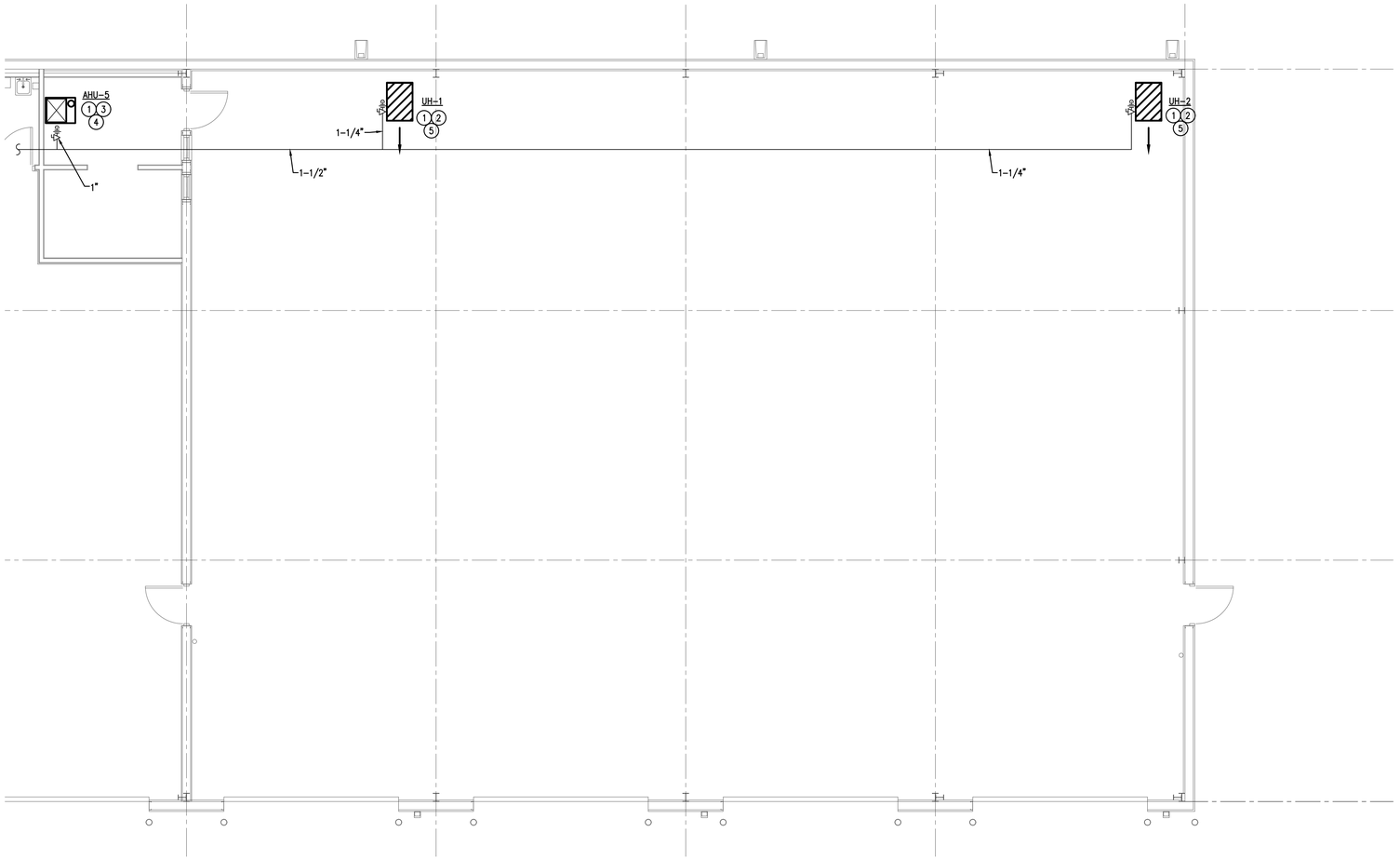
PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
GAS AND CONDENSATE FLOOR PLAN
OFFICE BUILDING

SHEET NUMBER:
P3.0

KEY NOTES (#)

1. PROVIDE GAS COCK, DIRT LEG ASSEMBLY, UNION AND GAS PRESSURE REGULATOR.
2. CONTRACTOR TO EXTEND 1-1/4" LOW PRESSURE GAS TO NEW UNIT HEATER AND CONNECT.
3. CONTRACTOR TO ROUTE FURNACE CONDENSATE TO FUNNEL FLOOR DRAIN IN MECHANICAL CLOSET OR OTHER AHJ APPROVED RECEPTOR AND TERMINATE WITH CODE APPROVED AIR GAP.
4. ROUTE FURNACE CONCENTRIC EXHAUST AND INTAKE UP THROUGH ROOF PER MANUFACTURER RECOMMENDATION. INSTALL EXHAUST FLUE MINIMUM OF 10'-0" FROM OUTSIDE AIR SOURCES. ROUTE TO AVOID OVERHEAD DUCTWORK. COORDINATE WITH SHEET M1.0 AS NEEDED. COORDINATE WITH MECHANICAL CONTRACTOR.
5. ROUTE UNIT HEATER CONCENTRIC EXHAUST AND INTAKE UP THROUGH ROOF PER MANUFACTURER RECOMMENDATION. INSTALL EXHAUST FLUE MINIMUM OF 10'-0" FROM OUTSIDE AIR SOURCES. ROUTE TO AVOID OVERHEAD DUCTWORK. COORDINATE WITH SHEET M1.0 AS NEEDED. COORDINATE WITH MECHANICAL CONTRACTOR.



1 PLUMBING GAS AND CONDENSATE PLAN – EQUIPMENT BUILDING
SCALE: 3/16"=1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

0	CONSTRUCTION DOCUMENTS	08.01.25
#	REVISION	DATE

SEALS:

REGISTERED PROFESSIONAL ENGINEER
ABDOU JAAFAR
18906
8.13.25
OKLAHOMA

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

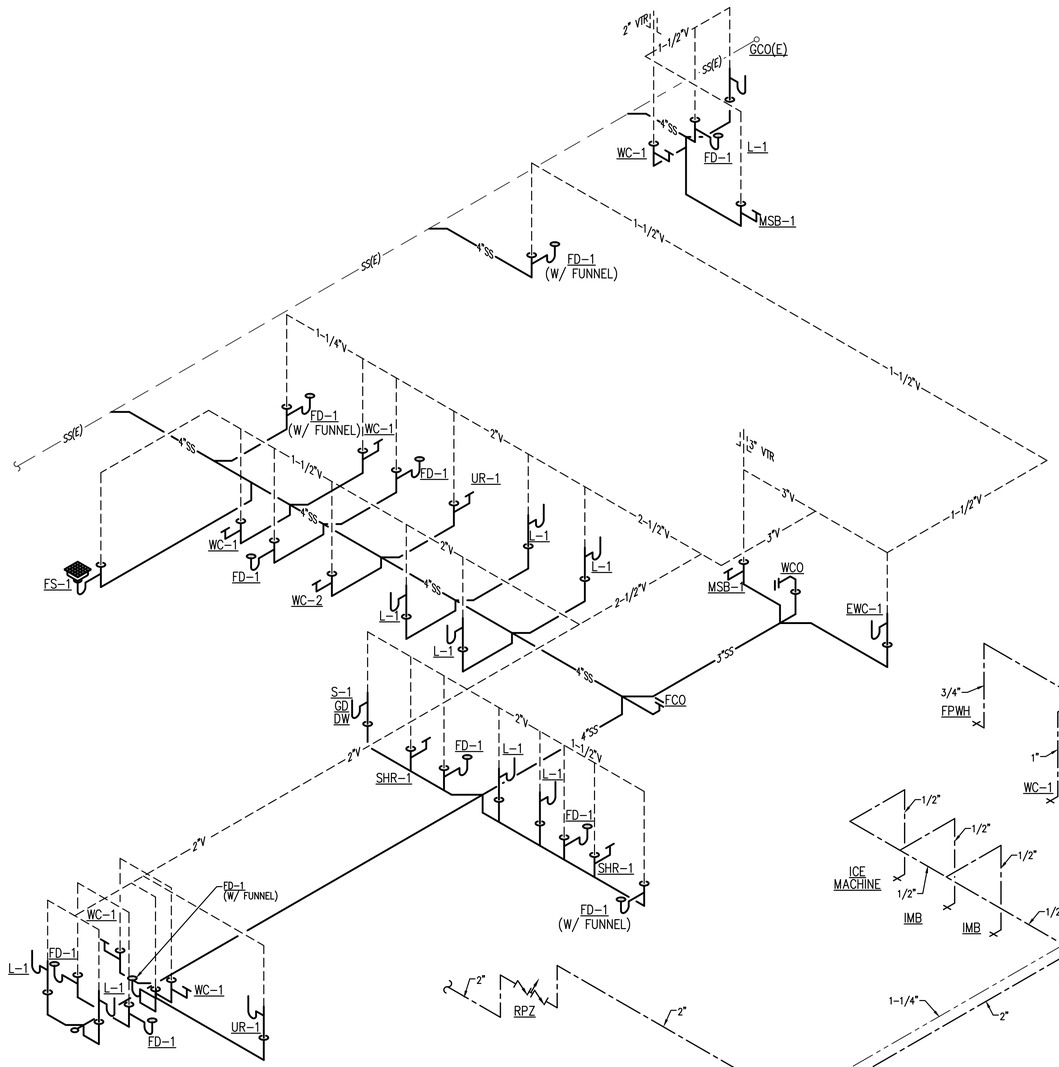
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

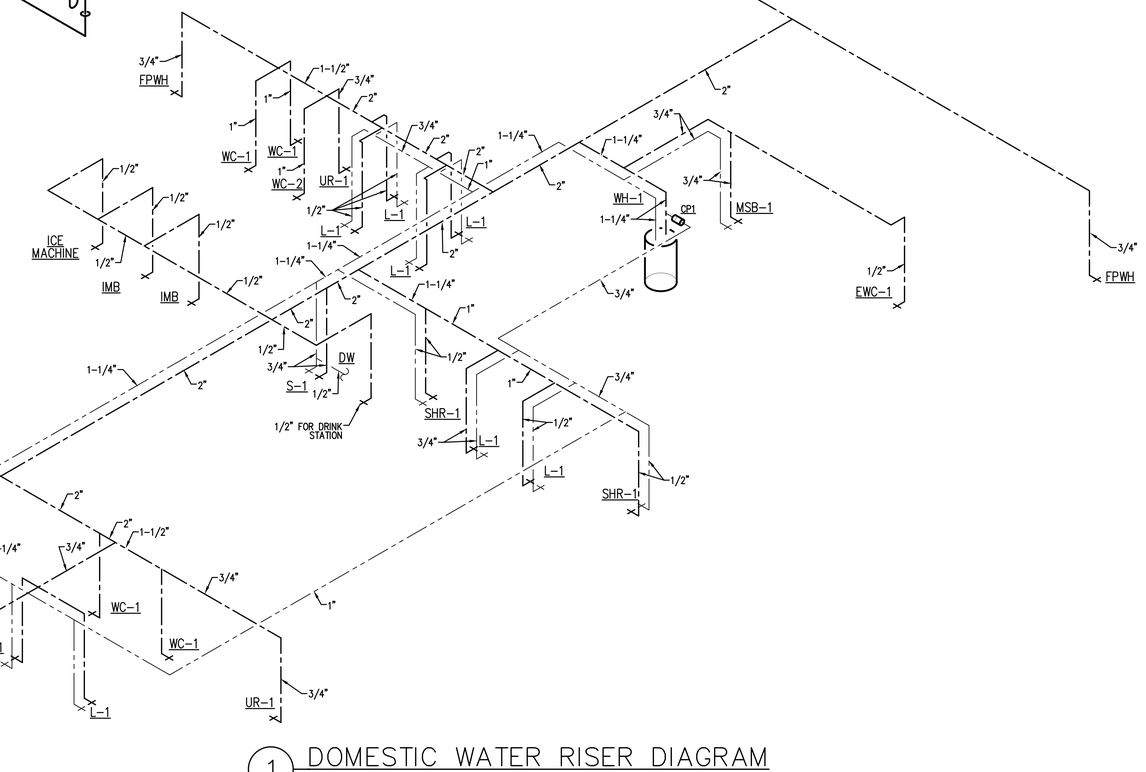
PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
GAS AND CONDENSATE FLOOR PLAN
EQUIPMENT BUILDING

SHEET NUMBER:
P3.1



2 SANITARY SEWER & VENT RISER DIAGRAM
N.T.S.



1 DOMESTIC WATER RISER DIAGRAM
N.T.S.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER
ABDOU JAAFAR
18906
8.13.25
OKLAHOMA

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
PLUMBING RISER DIAGRAMS

SHEET NUMBER:
P4.0

WATER HEATER SCHEDULE (NATURAL GAS)

MARK	QTY	MANUFACTURER	MODEL	STOR. TEMP. °F	STOR. CAP. GALLONS	°F. RISE	GAS INPUT	VOLTS/PHASE	REMARKS
WH1	1	AO SMITH	BTX-80	120	50	55	76,000 BTUH	115/1/60	1,2,3,4

REMARKS:
1. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
2. ROUTE 4" PVC INTAKE AND EXHAUST VENTS THRU ROOF AND TERMINATE PER MANUFACTURER'S INSTRUCTIONS.
3. PROVIDE TEMPERATURE AND PRESSURE RELIEF VALVE PER ASME OR AGA APPROVAL.
4. OTHER MANUFACTURER OFFERING EQUIVALENT PRODUCTS: STATE, RHEEM.

WATER HEATER SCHEDULE (ELECTRIC)

MARK	MANUFACTURER	MODEL	STOR. TEMP. °F	STOR. CAP. GALLONS	RECOVERY G.P.H.	°F. RISE	ELEMENT (KW)	TOTAL (KW)	VOLTS/PHASE	AMPS	REMARKS
WH-2	A.O. SMITH	DEL-20	110	20	18	90	2.0/2.0	4.0	208/1/60	---	1,2,3,4,5,6

REMARKS:
1. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
2. MOUNT ON FLOOR. ROUTE P&T PIPE TO JANITOR'S SINK.
3. PROVIDE TEMPERATURE AND PRESSURE RELIEF VALVE PER ASME OR AGA APPROVAL.
4. PROVIDE EXPANSION TANK.
5. OTHER MANUFACTURER OFFERING EQUIVALENT PRODUCTS: STATE, RHEEM.
6. MOUNT ON HOLDRITE PLATFORM. ROUTE P&T PIPE TO MOP SINK BELOW OR APPROVED RECEPTOR.

CIRCULATION PUMP SCHEDULE

MARK	MANUFACTURER	MODEL	SERVES	GPM	HEAD FT.	MIN. RETURN TEMP	AMPS	VOLT/PH	REMARKS
CP-1	TACO	008-SF6	WH-1	4	10	110°F	0.84	120/1	ALL

REMARKS:
1. PROVIDE WITH AQUASTAT WITH TIMER. AQUASTAT TO SHUT OFF PUMP WHEN RETURN WATER TEMP IS IN EXCESS OF SCHEDULED TEMP. PUMP TO TURN ON 15 MINUTES PRIOR TO SCHEDULED HOURS OF OPERATION AND SHUT OFF AFTER HOURS OF OPERATION. BY ELECTRICAL.
2. PROVIDE WITH STAINLESS STEEL STRAINER.
3. PUMP SHALL BE INSTALLED PER MANUFACTURE RECOMMENDATIONS.

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	MANUFACTURER/ CATALOG NO.	TRIM	CONNECTIONS				REMARKS
				WASTE	VENT	CW	HW	
WC-1	WATER CLOSET (FLOOR MOUNT, MANUAL FLUSH VALVE, ADA COMPLIANT)	AMERICAN STANDARD MADERA 3043.001	ELONGATED FLUSHOMETER TOILET, FLOOR MOUNT, WHITE VITREOUS CHINA, 1.6 GPF, RIM HEIGHT 16.5" AFF. TOP SPUD, ADA COMPLIANT. FLUSH VALVE: SLOAN ROYAL 111-1.6 GPF MANUAL FLUSH VALVE. SEAT: CHURCH 9500CT WHITE PLASTIC, ELONGATED, OPEN FRONT.	4"	2"	1-1/4"	---	1,2
WC-2	WATER CLOSET (FLOOR MOUNT, MANUAL FLUSH VALVE)	AMERICAN STANDARD MADERA 2234.001	ELONGATED FLUSHOMETER TOILET, FLOOR MOUNT, WHITE VITREOUS CHINA, 1.6 GPF, RIM HEIGHT 15.0" AFF. TOP SPUD. FLUSH VALVE: SLOAN ROYAL 111-1.6 GPF MANUAL FLUSH VALVE. SEAT: CHURCH 9500CT WHITE PLASTIC, ELONGATED, OPEN FRONT.	4"	2"	1-1/4"	---	1,2
LAV-1	LAVATORY (WALL HUNG, MANUAL FAUCET)	AMERICAN STANDARD DECLYN 0321.075	WALL MOUNTED, 3-HOLE DRILLING ON 4" CENTERS. FAUCET: ELKAY MODEL LK422L4 DECK MOUNT, SINGLE HANDLE CONTROL WITH GRID STRAINER DRAIN, 1-1/4" TAIL PIECE. CARRIER: ZURN Z1231 (CONCEALED ARM). FIXTURE COLOR: WHITE	2"	1-1/2"	1/2"	1/2"	1,2,3,4,5,15
UR-1	URINAL (WALL HUNG, FLUSH VALVE, ADA)	AMERICAN STANDARD PINTBROOK 6002.501	17" RIM HEIGHT, SLOAN ROYAL 186-0.5 MANUAL FLUSH VALVE, 0.5 GPF. FIXTURE COLOR: WHITE	2"	1-1/2"	3/4"	---	1,2
S-1	SINK (ONE COMPARTMENT, ADA, UNDERMOUNT BOWL)	ELKAY ECTSRAD25226TBG	ADA SINGLE BOWL UNDERMOUNT SINK (25"x22"x6" BASIN), 304 STAINLESS STEEL, 18 GAGE, SINGLE HOLE FAUCET. FAUCET: GROHE MODEL 31349100 SINGLE HOLE-SINGLE HANDLE, CHROME FINISH, 1.5 GPM FLOW RATE KITCHEN FAUCET. FLOW STRAINER WITH SWIVEL SPOUT. INTEGRATED NON-RETURN VALVE AND CHECK VALVE INCLUDED TO PREVENT BACKFLOW. UNDERMOUNT INSTALLATION LKAD35. PLUMBING CONTRACTOR TO PROVIDE ALL TRIMS, P-TRAP, TAIL PIECE, SUPPLIES, ESCUTCHEON AND STOPS. PROVIDE AND INSTALL FOOD WASTE DISPOSER (QD) AS MANUFACTURED BY INSINKERATOR MODEL #BADGER 5, 1/2HP MOTOR 120/1/60 WITH DISHWASHER CONNECTION	2"	1 1/2"	1/2"	1/2"	1,2,4,15
SHR-1	SHOWER	SILESTONE KADOR SUITE 51097:1992	CUSTOMISABLE SHOWER TRAY WITH NON SLIP, SAND BLASTED SURFACE. SIZE OF SHOWER TRAY TO CONFIRMED WITH ARCHITECTURAL PLANS. FAUCET: AMERICAN STANDARD - COLONY PRO - TU075507 SHOWER TRIM KIT WITH 1.75 GPM MAX FLOW RATE AND APPROPRIATE VALVE BODY.	2"	1 1/2"	1/2"	1/2"	18
MSB-1	MOP SERVICE BASIN	FIAT MSB-2424	24" X 24" MOLDED STONE FIXTURE WITH 830AA FAUCET, 832 HOSE/CLAMP, 889 MOP HANGER, DOME STRAINER WITH LINT BASKET DRAIN, MSG36 WALL SPLASH GUARD, COLOR: WHITE	3"	2"	3/4"	3/4"	
IMB	ICE MAKER OUTLET BOX	GUY GRAY #MIB1HAAB	ICE MAKER OUTLET BOX WITH 1/2" SWEAT CONNECTION, BRASS PLATED QUARTER TURN VALVE, LEAD FREE WITH WATER HAMMER ARRESTOR.	-	-	1/2"	-	
FPWH	FREEZE PROOF WALL HYDRANT	JAY R. SMITH 5519-CP	DURA-COATED CAST IRON BODY WITH BOTTOM OUTLET AND POLISHED BRONZE TYPE 'B' 8" SQUARE STRAINER AND TRAP PRIMER CONNECTION.	---	---	3/4"	---	6
FD-1	FLOOR DRAIN	JAY R. SMITH 2005-NB	CAST IRON BODY WITH ACID RESISTANT COATED INTERIOR AND NICKEL BRONZE TOP WITH FUNNEL. 8" DIAMETER TOP WITH TRAP PRIMER CONNECTION. PROVIDE NO-HUB ADAPTOR. PROVIDE WITH FLANGE BODY CLAMP FOR MOUNTING ON SECOND AND THIRD LEVELS. (PROVIDE WITH FUNNEL ACCESSORY GRATE WHERE INDICATED)	3"	1-1/2"	---	---	16
FS-1	FLOOR SINK	JAY R. SMITH 3431Y-12	12"X12" CAST IRON FLANGED RECEPTOR, 8" DEEP SUMP, ACID RESISTANT COATED INTERIOR, SEDIMENT BUCKET, A.R.C. 1/2 GRATE, BOTTOM DOME STRAINER.	3"	1-1/2"	---	---	
WHA	WATER HAMMER ARRESTOR	JAY R. SMITH 5000 SERIES	STAINLESS STEEL, FACTORY PRE-CHARGED, PERMANENTLY SEALED, ENGINEERED WATER HAMMER ARRESTER.	AS NOTED	---	---	---	7
FCO	FLOOR CLEANOUT	JAY R. SMITH 4033-L-NB	ADJUSTABLE	---	---	---	---	8
WCO	WALL CLEANOUT	JAY R. SMITH 4422-SS	ADJUSTABLE	---	---	---	---	9
TWCO	GRADE CLEANOUT (TWO-WAY)	JAY R. SMITH 4233-L	ADJUSTABLE	---	---	---	---	10
EWC-1	ELECTRIC WATER COOLER	ELKAY LZSTL8WSLK	BI-LEVEL, ADA, ELECTRIC WATER COOLER WITH BOTTLE FILING STATION. PROVIDES 8 GPH CHILLED WATER. ELECTRICAL REQUIREMENTS 115V/60HZ/6FLA. INSTALL FILTER IF PROVIDED WITH UNIT OR BY OWNER.	2"	1-1/4"	1/2"	---	1,2,7
TMV	THERMOSTATIC MIXING VALVE	POWERS E-480	FACTORY ASSEMBLED MIXING VALVE FOR SINGLE FIXTURE WITH TEMPERATURE CONTROL PER ASSE 1070 DOWN TO .5 GPM. ADJUSTABLE THERMAL ACTUATOR WITH LOCKNUT WITH INTERNAL CHECKS AND FACTORY SET TO 105°.	---	---	1/2"	1/2"	17

REMARKS:

1. REFER TO ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHTS, MOUNT PER ADA REQUIREMENTS WHERE INDICATED.
2. PROVIDE CHROME PLATED, HEAVY DUTY, COMMERCIAL GRADE, ANGLE SUPPLY (HOT AND COLD, AS REQUIRED) WITH WHEEL HANDLE STOP(S), STAINLESS STEEL FLEXIBLE RISER HOSE(S), AND CHROME PLATED WALL ESCUTCHEON(S).
3. PROVIDE ALL PUBLIC LAVATORY FAUCETS WITH VANDAL RESISTANT, 0.5 GPM MAXIMUM FLOW CONTROL, SPRAY OUTLET, OMNI MODEL A212-05-VR.
4. PROVIDE 17 GAUGE CHROME PLATED P-TRAP WITH CLEANOUT AND WALL ESCUTCHEON. INSTALL WASTE ELL AT BOTTOM OF BOWL AND PIPE HORIZONTALLY BACK TO P-TRAP INSTALLED AGAINST WALL.
5. PROVIDE PLUMBERFX PRO EXTREME OR EQUAL UNDERSINK PROTECTIVE PIPE COVERING MODEL X4333, FOR WASTE, HOT, AND COLD PIPING, COLOR: WHITE. COVERS SHALL BE SECURED WITH SNAP-CLIP FLUSH REUSABLE FASTENERS. PROVIDE ALL REQUIRED ACCESSORIES FOR A COMPLETE INSTALLATION MEETING CURRENT ADA STANDARDS WHERE REQUIRED.
6. COORDINATE WALL THICKNESS IN LOCATION OF NEW FPWH PRIOR TO PURCHASING.
7. WATER HAMMER ARRESTORS SHALL BE PROPERLY SIZED, PROPERLY LOCATED IN AN EFFECTIVE RANGE FROM EQUIPMENT, AND IN ACCORDANCE WITH PDI STANDARD WH201.
8. PROVIDE ROUND ACCESS COVER (DEPRESSED CENTER IN CARPETED AREA TO MARK LOCATION AND ACCOMMODATE FLOOR FINISH) WITH NICKEL-BRONZE SCORED FRAMES & PLATES. SIZE AS INDICATED ON DRAWINGS. ENSURE AMPLE CLEARANCE AT CLEANOUT FOR RODDING OF DRAINAGE SYSTEM.
9. PROVIDE CAULKED OR THREADED CLEANOUT, EXTEND ACCESS COVER TO FINISHED WALL SURFACE. ENSURE AMPLE CLEARANCE AT CLEANOUT FOR RODDING OF DRAINAGE SYSTEM.
10. ADJUSTABLE GRADE CLEANOUT, DURA-COATED CAST IRON BODY WITH GAS AND WATERTIGHT ABS TAPERED THREAD PLUG AND ROUND SCORIATED SECURED HEAVY DUTY TOP, ADJUSTABLE TO FINISHED GRADE.
11. PLUMBING CONTRACTOR SHALL COORDINATE WALL THICKNESS AT FREEZE PROOF WALL HYDRANT INSTALLATION WITH SUPPLIER WHEN ORDERING FIXTURES.
12. PROVIDE P-TRAP WITH CLEANOUT PLUG AND ESCUTCHEON.
13. PROVIDE CHROME PLATED WHEEL HANDLE STOPS WITH ESCUTCHEON AND FLEXIBLE RISER.
14. SINK FAUCETS TO BE PROVIDED WITH INTEGRAL CHECK VALVES.
15. INSTALL THERMOSTATIC MIXING VALVE (TMV) ON HW SUPPLY TO LAVATORIES AND HAND SINKS. SET OUTLET TEMPERATURE @ 105°F.
16. ALL FLOOR DRAINS SHALL BE SERVED BY TRAP PRIMER VALVE (TPV) EXCEPT IN KITCHEN AREA UNLESS SPECIFICALLY NOTED OTHERWISE.
17. REFER TO ARCHITECTURAL PLANS FOR LOCATION AND MOUNTING HEIGHT OF SHOWER VALVE, DIVERTER VALVE, WALL SHOWER AND HAND HELD SHOWER.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

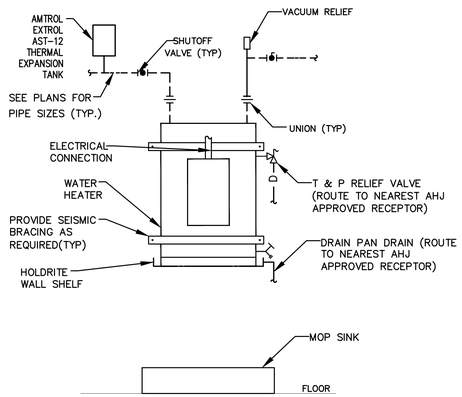
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

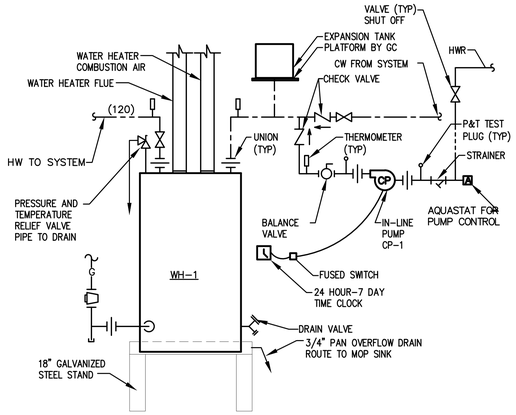
PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
PLUMBING SCHEDULES

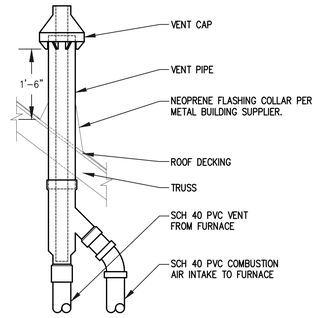
SHEET NUMBER:
P5.0



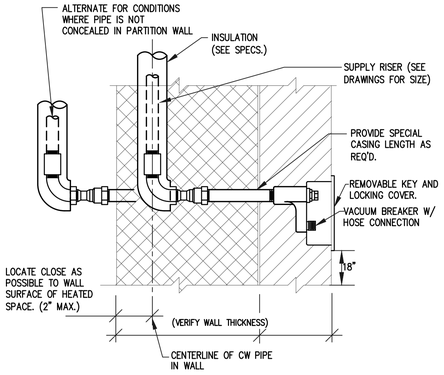
11 ELECTRIC WATER HEATER
SCALE: N.T.S



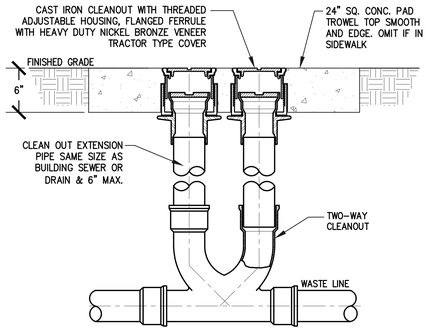
10 GAS WATER HEATER
SCALE: N.T.S



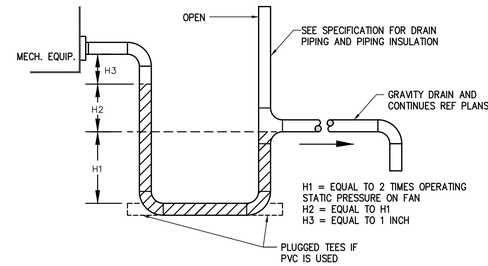
11 CONCENTRIC VENT TERMINATION
SCALE: N.T.S



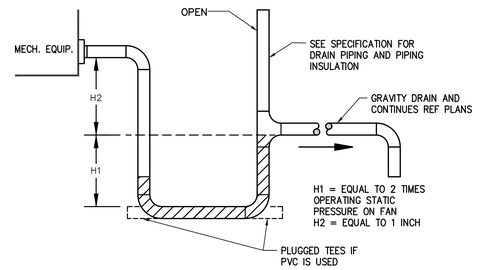
9 FREEZE PROOF WALL HYDRANT
SCALE: NTS



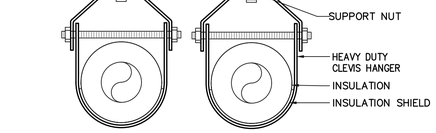
8 TWO-WAY GRADE CLEANOUT
SCALE: NTS



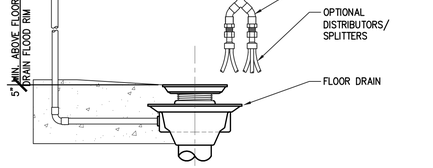
DRAW THRU CONDENSATE
SCALE: NTS



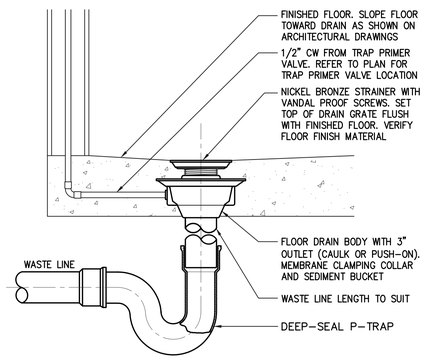
5 BLOW THRU CONDENSATE
SCALE: NTS



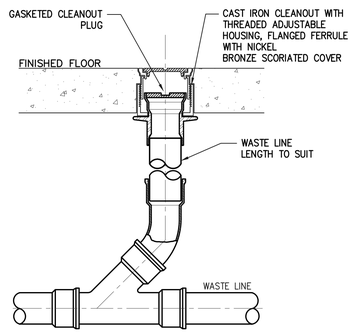
6 PIPE HANGER
SCALE: N.T.S



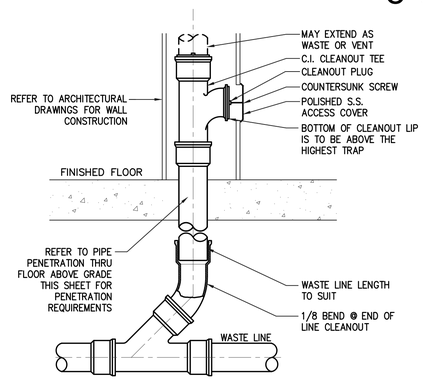
7 TRAP PRIMER
SCALE: NTS



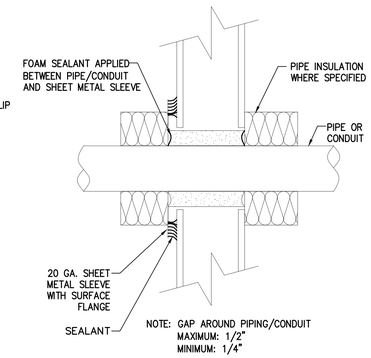
1 OPEN FLOOR AREA DRAIN
SCALE: NTS



2 FLOOR CLEANOUT
SCALE: NTS



3 WALL CLEANOUT
SCALE: NTS



4 PIPE PENETRATION
SCALE: NTS

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER ABDOU JAAFAR 18906 8.15.25 OKLAHOMA

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
PLUMBING DETAILS

SHEET NUMBER:
P6.0

FIRE PROTECTION DESIGN CRITERIA

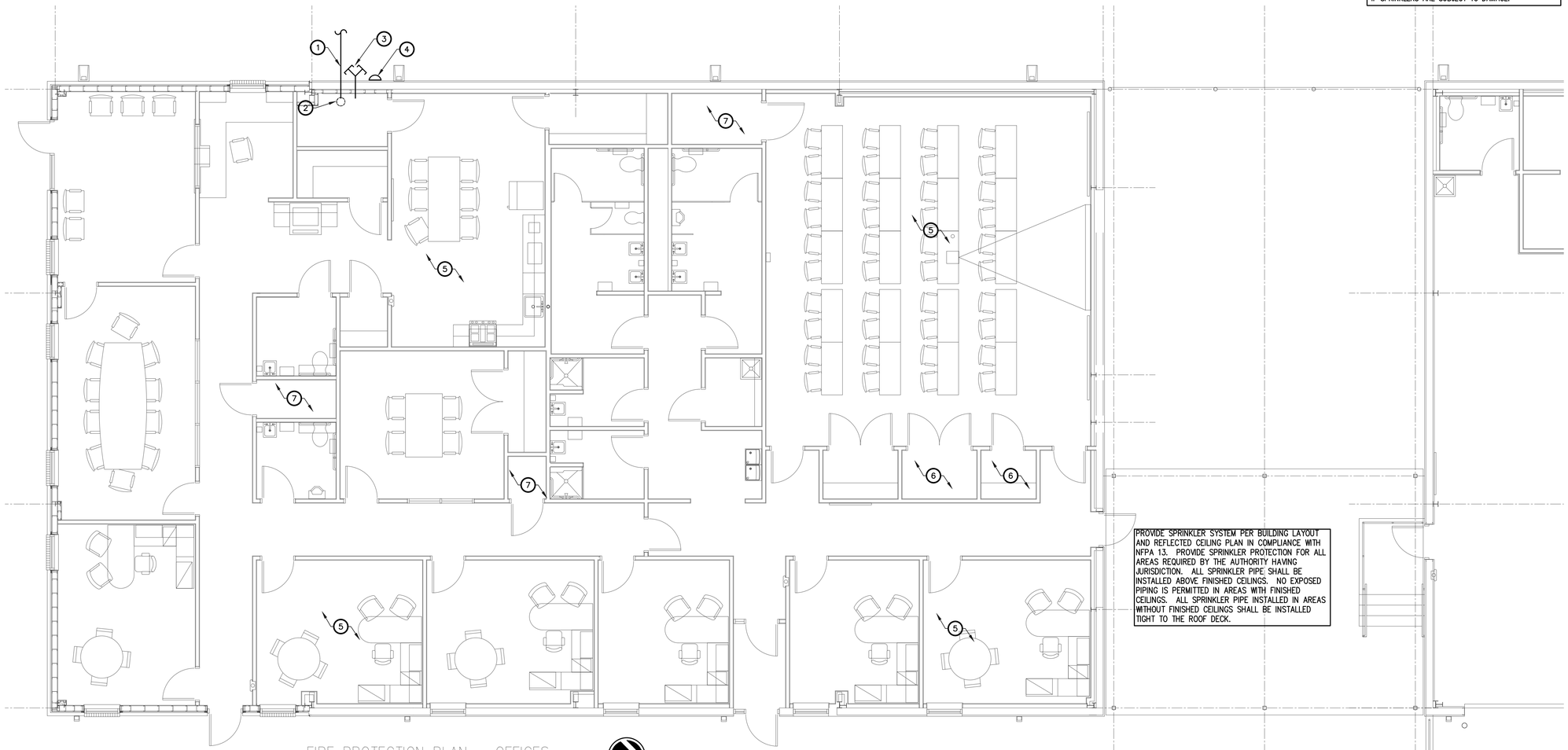
EQUIPMENT STORAGE GARAGE	ELECTRICAL/MECHANICAL/JANITOR	CORRIDORS/OFFICES/CONFERENCE ROOMS/RESTROOMS
CLASSIFICATION: ORDINARY HAZARD GROUP 2	CLASSIFICATION: ORDINARY HAZARD GROUP 1	CLASSIFICATION: LIGHT HAZARD
DENSITY: 0.20 GPM/SQ. FT.	DENSITY: 0.15 GPM/SQ. FT.	DENSITY: 0.10 GPM/SQ. FT.
MINIMUM CALCULATION AREA: 1,500 SQ. FT.	MINIMUM CALCULATION AREA: 1,500 SQ. FT.	MINIMUM CALCULATION AREA: 1,500 SQ. FT.
MAX. COVERAGE PER SPRINKLER: 130 SQ. FT.	MAX. COVERAGE PER SPRINKLER: 130 SQ. FT.	MAX. COVERAGE PER SPRINKLER: 225 SQ. FT.
HOSE STREAM ALLOWANCE: 250 GPM	HOSE STREAM ALLOWANCE: 250 GPM	HOSE STREAM ALLOWANCE: 100 GPM

NOTE: THE INFORMATION GIVEN ABOVE HAS BEEN PROVIDED TO ASSIST THE CONTRACTOR IN BIDDING AND SHOP DRAWING PREPARATION. IF ANY CONFLICT SHALL ARISE BETWEEN THE INFORMATION PROVIDED ABOVE AND THE REQUIREMENTS OF NFPA 13 AND/OR THE AUTHORITY HAVING JURISDICTION, CONTRACTOR SHALL ADHERE TO ALL NFPA 13 AND AUTHORITY HAVING JURISDICTION REQUIREMENTS.

WATER SUPPLY INFORMATION

CONTRACTOR NOTE:
THE SPRINKLER CONTRACTOR IS RESPONSIBLE FOR PERFORMANCE OF HIS OWN FLOW TEST. THIS FLOW TEST MUST BE SUPERVISED BY, AND ACCEPTED BY THE **CITY OF SAPULPA, OK.** THIS FLOW TEST MUST BE PERFORMED IN STRICT ACCORDANCE WITH NFPA 291. THIS FLOW TEST MUST BE SUBMITTED WITH THE SPRINKLER SHOP DRAWINGS TO PRECISION ENGINEERING AND THE LOCAL AUTHORITY HAVING JURISDICTION FOR REVIEW AND APPROVAL PRIOR TO ANY FABRICATION OR INSTALLATION OF SPRINKLER PIPING. WATER FLOW TEST PRESSURE MUST BE CALCULATED FROM THE SOURCE HYDRANT TO THE BASE OF RISER.

SPRINKLER NOTE:
ALL PENDENT SPRINKLERS SHALL BE CENTERED IN QUARTER– POINTS OF CEILING TILES. ANY UPRIGHT SPRINKLERS SHALL BE PROVIDED WITH GUARDS ADDED IF SPRINKLERS ARE SUBJECT TO DAMAGE.



1 FIRE PROTECTION PLAN – OFFICES
SCALE: 3/16"=1'-0"

PROJECT NORTH

GENERAL NOTES

1. SPRINKLER CONTRACTOR MUST REVIEW ALL CONSTRUCTION DOCUMENTS PRIOR TO BID. COORDINATE LOCATIONS OF ANY EXISTING FIRE PROTECTION COMPONENTS, INCLUDING PIPING, ALARMS, DRAINS, TEST POINTS, ETC. WITH THE NEW OFFICE ADDITIONS SPRINKLER REQUIREMENT.

2. ROUTE SPRINKLER LINES TO COORDINATE WITH OTHER TRADES.

3. PENETRATIONS OF "RATED ASSEMBLIES" SHALL BE FIRE STOPPED WITH AN APPROVED MATERIAL PER METHODS REQUIRED BY THE AUTHORITY HAVING JURISDICTION (AHJ).

4. THE FIRE PROTECTION ENGINEER OF RECORD SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NOR SHALL THEY BE REQUIRED TO SUPERVISE THE CONDUCT OF THE WORK, THE CONSTRUCTION PROCEDURES FOLLOWED BY THE CONTRACTOR. SUBCONTRACTORS, THEIR RESPECTIVE EMPLOYEES OR ANY OTHER PERSON AT THE JOB SITE OTHER THAN THAT OF THE ENGINEERING FIRM'S EMPLOYEES.

5. SHOULD MODIFICATIONS TO THESE PLANS BECOME NECESSARY TO PROPERLY COORDINATE THE SYSTEM WITH ALL OTHER TRADES, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN APPROVAL OF THE CHANGES FROM BOTH THE AHJ AND THE FIRE PROTECTION ENGINEER OF RECORD. IN ADDITION TO OBTAINING THE NECESSARY APPROVALS, THE CONTRACTOR MUST MAKE NOTE OF ANY FIELD OR COORDINATION CHANGES ON THE INSTALLATION DRAWINGS, AND THEN MUST PROVIDE A SET OF AS–BUILT DRAWINGS ONCE COMPLETE. AS–BUILTS SHALL BE MARKED–UP IN RED.

6. PROVIDE FLUSHING CONNECTIONS IN ACCORDANCE WITH NFPA 13.

7. PROVIDE ALL NECESSARY OFFSETS, RAISES OR DROPS IN PIPING AND AUXILIARY DRAINS REQUIRED BY BUILDING CONDITIONS.

8. PRIOR TO INTERIOR FINISHING , HYDROSTATICALLY TEST NEW AND MODIFIED ABOVE GROUND SPRINKLER PIPING FOR LEAKAGE IN PRESENCE OF AUTHORITY HAVING JURISDICTION.

9. COMPLETED TEST CERTIFICATES TO BE FORWARDED TO FIRE MARSHAL AND OWNER.

10. SUBMIT SPRINKLER SYSTEM DRAWINGS IDENTIFIED AS "WORKING PLANS" AND CALCULATIONS ACCORDING TO NFPA 13.

11. DESIGN AND INSTALLATION APPROVAL: COMPLY WITH THE MOST RECENTLY REVISED VERSIONS OF ALL APPLICABLE LAWS, CODES, STANDARDS, RECOMMENDATIONS OF TECHNICAL SOCIETIES, RULES, REGULATIONS, AND ORDINANCES OF FEDERAL, STATE, AND LOCAL AUTHORITIES. THESE CODES AND STANDARDS SHALL BE CONSIDERED A PART OF THIS SPECIFICATION AS THOUGH FULLY REPEATED HEREIN. MODIFICATIONS REQUIRED BY THE ABOVE MENTIONED AUTHORITIES SHALL BE MADE WITHOUT ADDITIONAL CHARGE TO THE OWNER.

12. HYDRAULICALLY DESIGN SPRINKLER SYSTEMS ACCORDING TO THE LOCALLY ACCEPTED NFPA 13 EDITION.

13. PROVIDE SPRINKLER HEAD GUARDS ON ALL SPRINKLERS IN AREAS THAT ARE SUBJECT TO DAMAGE.

14. COORDINATE INSPECTORS TEST/AUXILIARY DRAINS LOCATION WITH AUTHORITY HAVING JURISDICTION.

KEYNOTES
APPLICABLE TO FP1.0 AND FP1.1

1. 6" FIRE LINE. REF. CIVILS FOR CONTINUATION.
2. FIRE SPRINKLER RISER LOCATION. REF. 1/FP1.1 FOR DETAILS.
3. FIRE DEPARTMENT CONNECTION. CONSULT AUTHORITY HAVING JURISDICTION FOR SIZE, TYPE AND FINAL LOCATION.
4. HORN AND STROBE LOCATION. HORN AND STROBE SHALL BE PROVIDED DIRECTLY ABOVE FIRE DEPARTMENT CONNECTION.
5. SPRINKLER PIPING ROUTING SHALL NOT INTERFERE WITH HVAC EQUIPMENT SERVICE CLEARANCE. SPRINKLER CONTRACTOR SHALL COORDINATE SERVICE CLEARANCE REQUIREMENT WITH MECHANICAL CONTRACTOR PRIOR TO PIPING FABRICATION DURING SHOP DRAWING DESIGN.
6. DO NOT ROUTE SPINKLER MAIN ABOVE ELECTRICAL PANELS, TRANFORMER AND IT/AV ROOMS.
7. PROVIDE INTERMEDIATE TEMPERATURE SPRINKLERS WITHIN THE HVAC CLOSET.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER
ABDOU JAAFAR
18906
8.15.25
OKLAHOMA

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

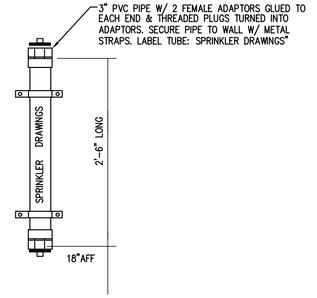
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

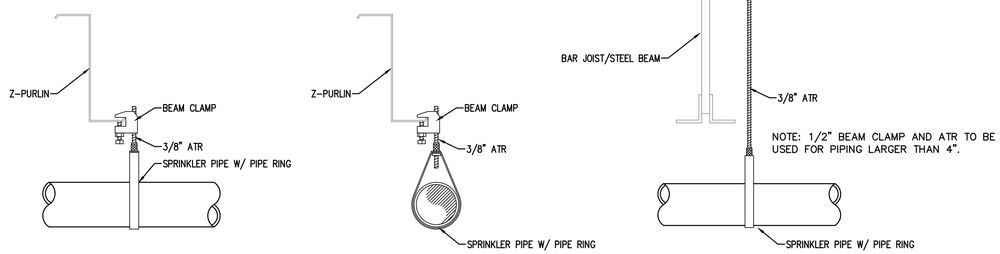
PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
FIRE PROTECTION PLAN – OFFICE BUILDING

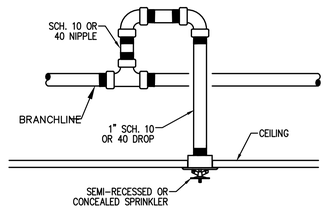
SHEET NUMBER:
FP1.0



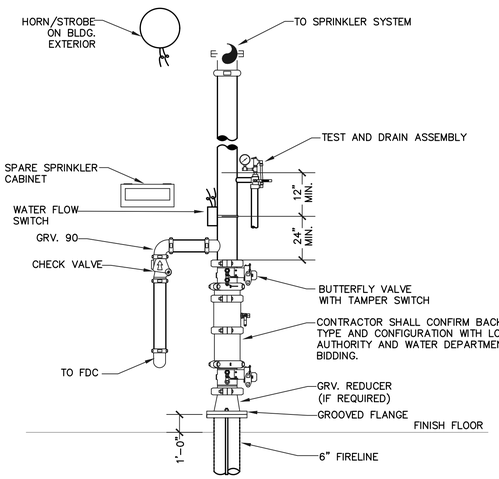
4 SHOP DRAWING PLAN HOLDER
N.T.S.



3 HANGER DETAILS
N.T.S.



2 GOOSENECK SPRINKLER DETAIL
N.T.S.



1 FIRE SPRINKLER RISER DETAIL
N.T.S.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

0	CONSTRUCTION DOCUMENTS	08.01.25
#	REVISION	DATE

SEALS:

REGISTERED PROFESSIONAL ENGINEER
ABDOU JAAFAR
18906
8.15.25
OKLAHOMA

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
FIRE PROTECTION DETAILS

SHEET NUMBER:
FP1.1

ABBREVIATIONS

AFF	ABOVE FINISH FLOOR
BFF	BELOW FINISH FLOOR
CD	CONDENSATE
CLG	CEILING
CO	CLEAN OUT
CW	COLD WATER
CWS	CONDENSOR WATER SUPPLY
CWR	CONDENSOR WATER RETURN
DEG	DEGREES
DIA	DIAMETER
DIM	DIMENSION
DWG	DRAWING
ELEV	ELEVATION
ENGR	ENGINEERING
EXH	EXHAUST
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN
FPWH	FREEZE PROOF WALL HYDRANT
G	GAS
HORIZ	HORIZONTAL
HP	HORSEPOWER
HB	HOSE BIB
HW	HOT WATER
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
LAV	LAVATORY
MFGR	MANUFACTURER
MAX	MAXIMUM
MECH	MECHANICAL
MTL	METAL
MISC	MISCELLANEOUS
NTS	NOT TO SCALE
LB	POUND
RE:	REFER
REQD	REQUIRED
SCHED	SCHEDULE
SECT	SECTION
SIM	SIMILAR
SPEC	SPECIFICATION
STD	STANDARD
TEMP	TEMPERATURE
THRU	THROUGH
TYP	TYPICAL
UR	URINAL
WC	WATER CLOSET
WH	WATER HEATER

MECHANICAL SYMBOLS

	SUPPLY AIR	S/A
	RETURN AIR	R/A
	OUTSIDE AIR	O/A
	EXHAUST AIR	E/A
	DOWN	DN
	ROUND DUCT SIZE	X"ø
A-x/x" XXX	DIFFUSER TYPE – NECK SIZE / CFM	
EF-X	EXHAUST FAN	
	NOT IN CONTRACT	N.I.C.
	UNDERCUT DOOR, RE: ARCH	U.C.
CHWS	CHILLED WATER SUPPLY PIPING	
CHWR	CHILLED WATER RETURN PIPING	
HWS	HEATING WATER SUPPLY PIPING	
HWR	HEATING WATER RETURN PIPING	
CWS	CONDENSER WATER SUPPLY PIPING	
CWR	CONDENSER WATER RETURN PIPING	
	SUPPLY DIFFUSER	
	RETURN GRILLE	
	EXHAUST GRILLE	
	KEYED NOTE X	(X)
	MANUAL VOLUME DAMPER (MVD)	
FS	FIRE/SMOKE DAMPER	
M	MOTORIZED DAMPER	
FD	FIRE DAMPER	
	CONNECT TO EXISTING	
H	THERMOSTAT / HUMIDISTAT	T /
HS	TEMP. SENSOR / HUMID. SENSOR	TS /
	EQUIPMENT TAG / EQUIPMENT NO.	RTU-XX

HVAC GENERAL NOTES

1. MOUNT TOP OF THERMOSTAT AT 48" A.F.F. TYPICAL UNLESS OTHERWISE NOTED.
2. PROVIDE FLEXIBLE DUCT CONNECTION IN MAIN SUPPLY AND RETURN AIR DUCTS SERVING ALL ELECTRICALLY DRIVEN MECHANICAL EQUIPMENT.
3. ALL MOTORIZED DAMPERS ARE TO BE 2 POSITIONS LOW LEAKAGE MOTORIZED DAMPERS UNLESS NOTED OTHERWISE. DAMPERS ARE TO HAVE 24V MOTOR WITH TRANSFORMER AND RELAYS.
4. PROVIDE ACCESS PANELS WHERE INDICATED OR REQUIRED FOR ACCESS TO PIPING AND DUCT WORK ACCESSORIES; SUCH AS, VALVES, DAMPERS, VENTS, OTHER ACCESSORIES, ETC.
5. BRANCH DUCTS SHALL BE THE SAME SIZE AS AIR DEVICE NECK UNLESS NOTED OTHERWISE.
6. PROVIDE BLANKET INSULATION OVER TOP OF ALL SUPPLY DIFFUSERS AND RETURN AIR GRILLES LOCATED IN DROP CEILINGS.
7. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH CODE REQUIREMENTS AND MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS, ADHERING TO REQUIRED CLEARANCES FOR OPERATION AND SERVICING.
8. ELECTRICAL REQUIREMENTS FOR DIVISION 23 EQUIPMENT AND SYSTEM COMPONENTS SHALL BE COORDINATED IN WRITING WITH DIVISION 26 CONTRACTOR FOR INCLUSION AND COORDINATION.
9. PROVIDE FLEXIBLE DUCT CONNECTION TO EXHAUST FANS, FAN COIL UNITS, AIR HANDLING EQUIPMENT, ENERGY RECOVERY UNITS, ETC.
10. DUCTWORK CONSTRUCTION AND INSTALLATION SHALL BE PER MOST RECENT SMACNA STANDARDS FOR PRESSURE AND VELOCITY OF SYSTEM INSTALLATION. ALL DUCT JOINTS SHALL BE SEALED AS NOTED IN THE SPECIFICATIONS.
11. DUCT SIZES SHOWN ON DRAWING ARE NET FREE AREA.
12. MAKE TRANSITION FROM DUCTWORK SIZES SHOWN ON THE DRAWINGS TO EQUIPMENT DUCT CONNECTION SIZES. VERIFY EQUIPMENT CONNECTION SIZES WITH FACTORY CERTIFIED DRAWINGS. MAKE ALL TRANSITIONS PER MOST RECENT SMACNA STANDARDS.
13. ALL MAJOR BRANCH DUCTS SHALL BE CONSTRUCTED USING OPPOSED BLADE DAMPERS WITH LOCKING DEVICE OR WITH SPLITTER DAMPER WITH LOCKING DEVICE FOR BALANCE OF DUCT SYSTEM.
14. TURNING VANES SHALL BE INSTALLED IN ALL RECTANGULAR 90 DEGREE ELBOWS IN SUPPLY, AND RETURN DUCTWORK, AND AS INDICATED ON THE DRAWINGS.
15. USE MINIMUM LENGTH FLEXIBLE DUCT TO AIR DEVICES, (MAXIMUM 5 FT.). USE FLEX DUCT ONLY IN FULLY ACCESSIBLE CEILING SPACES. PROVIDE 90 DEGREE SHEET METAL ELBOW AT CEILING DIFFUSER NECK CONNECTION. PROVIDE SADDLE UNDER FLEXIBLE DUCT HANGER TO SUPPORT DUCT AND PREVENT "PINCHING" OF DUCTWORK. FLEXIBLE DUCT SHALL BE INSTALLED SO AS NOT TO REDUCE CROSS SECTION AREA OF DUCT.
16. THE CONTRACTOR SHALL COORDINATE ROUTING AND SIZE OF DUCTWORK WITH ACTUAL FINAL BUILDING CONDITIONS OF STRUCTURE SIZE AND LOCATION, LIGHT LOCATIONS, ARCHITECTURAL FEATURES, AND WORK OF OTHER TRADES. WHERE DUCT SIZES MUST BE REVISED FROM THOSE SHOWN ON THE DRAWINGS MAINTAIN SAME CROSS SECTIONAL AREA, VELOCITY, AND PRESSURE DROP. WHEN NECESSARY, REROUTE DUCT TO CLEAR OBSTRUCTIONS WITH MINIMUM NUMBER OF FITTINGS AND ELEVATION CHANGES. WHERE DUCT MUST BE SIGNIFICANTLY ALTERED FROM THAT SHOWN ON THE DRAWINGS, NOTIFY THE ARCHITECT PRIOR TO PROCEEDING.
17. EXPOSED DUCTWORK AND ACCESSORIES IN FINISHED AREAS TO BE PAINTED AS DIRECTED BY ARCHITECT.
18. DIVISION 23 CONTRACTOR SHALL PROVIDE TEST AND BALANCE OF HVAC SYSTEMS. TEST AND BALANCE SHALL BE PERFORMED AND REPORTED AS DESCRIBED BY NEBB OR AABC. FILTERS SHALL BE NEW AND CLEAN, DUCTWORK CLEAN, AND EQUIPMENT CONTROLS AND DEVICES FULLY FUNCTIONAL AT THE TIME OF PERFORMING BALANCE WORK.
19. EXTEND FLUE VENTS 3'–0" ABOVE ROOF. MAINTAIN MINIMUM 10'–0" CLEAR BETWEEN ANY FLUE, VENT OR TOILET EXHAUST AND OUTSIDE AIR INTAKES. WHERE HORIZONTAL DISTANCE CANNOT BE PROVIDED, EXTEND FLUE VENTS 2'–0" ABOVE OUTSIDE AIR INTAKE.
20. INSTALL ALL MOTOR DRIVEN EQUIPMENT WITH VIBRATION ISOLATORS AND OR PADS TO REDUCE NOISE TRANSFER. TYPE AND METHOD OF ISOLATION SHALL BE IN CONFORMANCE WITH THOSE DESCRIBED IN THE SPECIFICATIONS FOR THE DUTY, TYPE, AND APPLICATION OF THE EQUIPMENT.
21. ALL EQUIPMENT SHALL BE PERMANENTLY LABELED WITH BAKELITE SIGNAGE SECURED TO EQUIPMENT.
22. CONDENSATE PIPING SHALL BE AS NOTED ON THE DRAWING, BUT IN NO CASE LESS THAN 3/4 INCHES.
23. ROUTE CONDENSATE PIPING TO APPROVED DISCHARGE LOCATION. PROVIDE CONDENSATE TRAP WITH CLEANOUTS AND VENT ON DISCHARGE SIDE OF TRAP FOR ALL UNITS WITH COOLING COILS. TRAP DEPTH SHALL BE A MINIMUM OF THE UNIT TOTAL PRESSURE PLUS 2 INCHES.
24. CONDENSATE PIPING INSTALLED WITHIN THE BUILDING SHALL BE FULLY INSULATED AND PROVIDED WITH VAPOR BARRIER.
25. FIRE DAMPERS SHALL BE MINIMUM 98% FREE AREA DYNAMIC TYPE. PROVIDE FIRE DAMPERS IN ALL DUCT PENETRATIONS TO FIRE RATED ASSEMBLIES. PROVIDE ACCESS DOORS IN DUCTWORK AND FIRE RATED ASSEMBLIES FOR OBSERVATION AND MAINTENANCE OF DAMPERS. REFER ARCHITECTURAL DRAWINGS FOR LOCATION, RATING, AND ASSEMBLY DEFINITION OF FIRE RATED WALL, CEILING, AND FLOOR ASSEMBLIES.
26. COORDINATE WORK SHOWN ON THE DRAWINGS WITH ALL OTHER TRADES WORK AND ACTUAL CONDITIONS OF CONSTRUCTION.
27. INTERIOR DUCT INSULATION (DUCT LINER) IS NOT ALLOWED.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER
ABDOU JAAFAR
18906
8.15.25
OKLAHOMA

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:

CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

MECHANICAL SYMBOLS & GENERAL NOTES

SHEET NUMBER:

M0.0

VRF SPECIFICATION

GENERAL OUTDOOR UNIT

PART 1. GENERAL

1.01 BASIS OF DESIGN SHALL BE LG

A. ACCEPTABLE STANDARDS SHALL BE SUPPLIED BASED UPON THE PERFORMANCE CHARACTERISTICS AND FEATURES OF THE LG MODEL NUMBER(S) SPECIFIED, LG MODEL FAMILIES SPECIFIED, AND AS OTHERWISE SPECIFIED HEREIN. ALTERNATE SUPPLIERS SHALL REQUEST PERMISSION TO BID, IN WRITING, FROM THE ENGINEER AT LEAST 10 DAYS PRIOR TO THE BID DATE. THIS REQUEST BY THE CONTRACTOR TO BID AN ALTERNATE SUPPLIER TO THE BASIS OF DESIGN, LISTED OR NOT LISTED, SHALL NOT RELIEVE THE CONTRACTOR OF SUPPLYING ALL MATERIALS, OPTIONS, CONTROLS, SEQUENCES, EFFICIENCIES AND INTENTS OF THE ORIGINAL SPECIFICATIONS WRITTEN OR IMPLIED BY LG MODEL NUMBER OR MODEL FAMILY OR AS OTHERWISE SPECIFIED. THE WRITTEN REQUEST AND ENGINEERS' WRITTEN RESPONSE TO SUCH REQUEST SHALL BE INCLUDED IN ALL SUBMITTAL DOCUMENTS FOR APPROVAL.

1.02 ALTERNATE EQUIPMENT BID INSTRUCTION

A. THE CONTRACTOR SHALL PROVIDE BASIS OF DESIGN BID AS SPECIFIED AND WITH SPECIFIED PRODUCTS. IF THE CONTRACTOR SHOULD WISH TO PROPOSE ANY ALTERNATE PRODUCTS TO THE BASIS OF DESIGNED PRODUCTS THEY SHALL PROVIDE A SEPARATE AND COMPLETE BID DETAILING THE PROPOSED ALTERNATE PRODUCTS AND THE ASSOCIATED ADJUSTMENT OF PRICE TO SUPPORT THE CHANGE FROM BASIS OF DESIGN PRODUCTS. THE CONTRACTOR BIDS THE ALTERNATE PRODUCT WITH FULL KNOWLEDGE THAT THE PROPOSED PRODUCT MAY NOT BE ACCEPTABLE OR APPROVED. IN NO EVENT SHALL THE CONTRACTOR BE ENTITLED TO ADDITIONAL COMPENSATION TO SUPPLY SUCH SPECIFIED PRODUCTS, OPTIONS, SEQUENCES OR INTENTS. ANY AND ALL ADDITIONAL COST, TO ANY PARTY, BECAUSE OF ANY PRODUCT SUBMITTED ON OR SUPPLIED OTHER THAN THAT OF THE ORIGINAL SPECIFIED PRODUCTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITHOUT RECOURSE. IT IS AGREED THAT ANY AND ALL DISPUTES REGARDING ANY DIFFERENCES BETWEEN THE SPECIFIED PRODUCTS, OPTIONS, SEQUENCES OR INTENTS AND THAT PROPOSED AS AN ALTERNATE SHALL BE ARBITRATED BY THE ENGINEER OF RECORD. IT SHALL BE FURTHER AGREED BY ALL PARTIES THAT ALL DECISIONS OF ARBITRATION SHALL BE FINAL AND BINDING. ANY PRODUCT PROPOSED AS AN ALTERNATE SHALL HAVE BEEN OFFERED, AS A VRF PRODUCT, IN THE UNITED STATES FOR A MINIMUM OF (5) YEARS.

1.03 SYSTEM PERFORMANCE DOCUMENTATION

A. THE MANUFACTURER SHALL PROVIDE PUBLISHED OUTDOOR UNIT PERFORMANCE DATA IN TABLE FORMAT WHICH STATES THE PRODUCT HEATING AND COOLING CAPACITIES EXPRESSED IN BRITISH THERMAL UNITS PER HOUR (BTUH) AND POWER CONSUMPTION EXPRESSED IN KILOWATTS (KW) AT A MINIMUM OF 8 POSSIBLE COMBINATIONS OF ALLOWED CONDITIONS BETWEEN 50% AND 130% CONNECTION RATIO (VRF SYSTEMS). POSSIBLE COMBINATIONS OF ALLOWED CONDITION VARIABLES INCLUDE COMBINATION RATIOS EXPRESSED AS A PERCENTAGE VALUE, OUTDOOR AMBIENT TEMPERATURE EXPRESSED IN DEGREES FAHRENHEIT (°F), AND INDOOR UNIT ENTERING AIR WET BULB AND DRY BULB TEMPERATURE EXPRESSED IN DEGREES FAHRENHEIT (°F). ANY PRODUCT WHOSE SYSTEM DESIGN AND ENGINEERING MANUALS OR GUIDES WHERE PUBLISHED DATA TABLES ARE EXPRESSED IN UNITS OTHER THAN THESE SPECIFIED SHALL NOT BE ACCEPTED.

B. ANY PRODUCT WHOSE PUBLISHED DOCUMENTATION REQUIRES THE DESIGN ENGINEER TO APPLY A CORRECTION FACTOR DERIVED FROM A PUBLISHED CURVE OR TABULAR DATA FOR COMBINATION RATIO, OUTDOOR AMBIENT TEMPERATURE, AND/OR ENTERING AIR TEMPERATURE AGAINST RATED CONDITIONS TO OBTAIN PERFORMANCE AT ANY POSSIBLE COMBINATION OF ALLOWED CONDITIONS WILL NOT BE ACCEPTED.

1.04 SUBMITTALS

A. A COMPLETE SUBMITTAL PACKAGE SHALL BE COMPILED AND 10 COPIES SHALL BE FORWARDED TO THE GENERAL CONTRACTOR WHO SHALL SUPPLY THE ARCHITECT WITH THE SUBMITTALS FOR DISSEMINATION TO ALL PARTIES. THE SUBMITTAL SHALL BE A COLLECTION OF DOCUMENTS THAT REPRESENT THE TECHNICAL ASPECTS OF EACH PRODUCT OR COLLECTION OF PRODUCTS TO BE USED ON THE PROJECT. ALL PERFORMANCE SUBMISSIONS SHALL BE CALCULATED AT THE DESIGN TEMPERATURES, NOMINAL PERFORMANCE DATA SHALL NOT BE ACCEPTED. THE SUBMISSION AND APPROVAL OF SAID SUBMITTALS DOES NOT RELIEVE THE CONTRACTOR OF SUPPLYING ALL REQUIREMENTS SET FORTH IN THE SPECIFICATION AND DRAWINGS. ANY SUBSTITUTIONS OFFERED BY THE CONTRACTOR SHALL, AS A SEPARATE DOCUMENT, LIST ANY AND ALL DIFFERENCES BETWEEN THE SUBMITTED PRODUCTS AND THE SPECIFIED PRODUCTS INCLUDING BUT NOT LIMITED TO, ALL DIMENSIONS, ELECTRICAL, CONTROL, WEIGHTS, WARRANTIES, COUNTRY OF ORIGIN.

B. IF SUBMITTALS CONTAIN ANY PROPOSED ALTERNATE EQUIPMENT SPECIFICATIONS, INSTALLATIONS, DIMENSIONS, ELECTRICAL SPECIFICATIONS, SOUND SPECIFICATIONS OR ANY OTHER MANDATED SUBMISSION WHICH ARE NOT ACCEPTED, ARE NOTED OR REJECTED FOR ANY REASON THE CONTRACTOR SHALL BE ALLOWED TO CORRECT ANY DEFICIENCY AND RE-SUBMIT A SECOND TIME. SHOULD THERE BE ANY IRREGULARITIES FOUND ON SECOND SUBMISSION, THE CONTRACTOR WILL BE DIRECTED TO AND AGREES TO SUBMIT ON THE ORIGINAL SPECIFIED PRODUCTS, INCLUDING ANY CHANGES OR REVISIONS, AND PROVIDE THOSE SPECIFIED PRODUCTS WITHOUT ANY ADDITIONAL COMPENSATION.

1.05 DELIVERY, STORAGE AND HANDLING

A. PROVIDE A DRY AND CLEAN PLACE FOR THE PRODUCTS. COMPLY WITH MANUFACTURER'S INSTRUCTIONS ON HANDLING TO PREVENT PRODUCTS FROM DAMAGING. IF PRODUCT IS DAMAGED UPON ARRIVAL, REJECT THE SHIPMENT. IF HIDDEN DAMAGE IS FOUND AFTER REMOVING THE PRODUCT FROM THE CONTAINER, RETAIN CONTAINER AND ALL PACKING MATERIAL. CONTRACTOR IS RESPONSIBLE FOR FILING A CLAIM WITH THE FREIGHT CARRIER.

1.06 UPON JOB COMPLETION

A. PROVIDE THE OWNER WITH AN LG TABLET CONTAINING A COPY OF APPROVED SUBMITTAL, LGAV (AVAILABLE (VRF SYSTEM SERVICE DIAGNOSTICS) SOFTWARE, PROJECT MECHANICAL AND CONTROL DRAWINGS, ALL AS-BUILT PIPING DRAWINGS, SEISMIC DATA CERTIFICATES, INSTALLATION, OPERATION AND MAINTENANCE MANUALS, TROUBLESHOOTING GUIDES, SERVICE MANUALS AND ENGINEERING MANUALS IN PDF FORMAT.

B. PROVIDE THE OWNER WITH AN LG TABLET CONTAINING A COPY OF THE APPROVED SUBMITTAL PACKAGE, A FULL SET OF DRAWINGS AND SPECIFICATIONS, ON BOARDING SOFTWARE, CUSTOM DOCUMENTS, SUCH AS CONTROL DRAWINGS, SHOP DRAWINGS, WIRING DIAGRAMS, BIM SOFTWARE, GUI IMAGE FILES, COMMISSIONING REPORTS, REFRIGERANT CHARGE CALCULATIONS, REFRIGERANT PIPING DESIGN AND AS-BUILT REPORTS, O&M'S, TROUBLESHOOTING GUIDES, SERVICE MANUALS, AND EQUIPMENT ENGINEERING MANUALS IN PDF FORMAT. TABLET SHALL ALSO INCLUDE A LICENSED COPY OF DELUXE VERSION OF THE VRF EQUIPMENT MANUFACTURER'S SERVICE DIAGNOSTICS.

PART 2. STANDARDS/CERTIFICATIONS

2.01 CERTIFIED PRODUCT PERFORMANCE RATINGS

C. ALL VRF (VARIABLE REFRIGERANT FLOW) AND VSMS (VARIABLE SPEED MULTI-SPLIT AND MINI- SPLIT) PRODUCTS SHALL HAVE PUBLISHED PERFORMANCE RATINGS CERTIFIED BY AHRI (AIR-CONDITIONING, HEATING, AND REFRIGERATION INSTITUTE) AND LISTED IN THE AHRI CERTIFIED PRODUCT DIRECTORIES AVAILABLE AT WWW.AHRIDIRECTORY.ORG.

2.02 PRODUCTION FACILITY CERTIFICATIONS

A. ALL SYSTEM COMPONENTS SHALL BE MANUFACTURED IN PRODUCTION FACILITIES MAINTAINING THE FOLLOWING ISO CERTIFICATIONS:

1. ISO 9001 QUALITY MANAGEMENT SYSTEM
2. ISO 14001 ENVIRONMENTAL MANAGEMENT SYSTEM

2.03 UL COMPLIANCE

A. ALL SYSTEM SHALL COMPLY WITH UNDERWRITERS LABORATORIES (UL) 1995 5TH EDITION OF THE STANDARD FOR SAFETY FOR HEATING AND COOLING EQUIPMENT STANDARD FOR SAFETY AND BEAR THE ELECTRICAL TESTING LABORATORIES (ETL) AND/OR CANADIAN STANDARDS ASSOCIATION (CSA) MARK ON THE PRODUCT NAME PLATE.

2.04 ELECTRICAL STANDARD

A. ALL SYSTEM ELECTRICAL POWER WIRING SHALL BE INSTALLED IN ACCORDANCE WITH THE NFPA 70 NATIONAL ELECTRICAL CODE (NEC) OR APPLICABLE STATE AND LOCAL BUILDING CODES.

2.05 CORROSION QUALITY CONTROL

A. OUTDOOR UNIT PAINTED SURFACES SHALL BE FACTORY TESTED FOR A MINIMUM OF 1000 HOURS USING THE ACCELERATED SALT SPRAY TEST PROCEDURE AS DOCUMENTED IN ASTM STANDARD B-117 USING THE SURFACE SCRATCH TEST PROCEDURE. PHOTOGRAPHIC EVIDENCE SHALL BE AVAILABLE UPON REQUEST BY THE ENGINEER OF RECORD.

B. PHOTOGRAPHIC EVIDENCE SHALL INCLUDE IMAGES OF THE TEST SAMPLE SHOWING THE SURFACE SCRATCH AREA AT ZERO (0) HOURS, 400 HOURS, AND 1000 HOURS. POST-TEST IMAGES OF THE SAMPLE MUST SHOW NO SIGNIFICANT DETERIORATION OF THE COATING MATERIAL, BLISTERING, FLAKING, PEELING, OR RUST FORMATION ALONG THE TEST SCRATCH.

2.06 BUY AMERICAN

PRODUCT MANUFACTURER SHALL PROVIDE DOCUMENTATION, APPROVED FOR BUY AMERICAN ACT (BAA) AND TRADE AGREEMENT ACT (TAA), SIGNED BY THE COMPANY'S LEGAL AGENT THAT CERTIFIES THAT NONE OF THE PROPOSED/SUPPLIED EQUIPMENT AND CONTROL DEVICES WERE MANUFACTURED OR ASSEMBLED IN CHINA/THAILAND OR ANY OTHER NON-WTO ORIGINAL SIGNATORY COUNTRY.

DUCTED HIGH-STATIC INDOOR UNIT

A. GENERAL

1. UNIT SHALL BE MANUFACTURED BY LG.
2. UNIT SHALL BE DESIGNED TO BE INSTALLED FOR INDOOR APPLICATION.
3. UNIT SHALL BE DESIGNED TO MOUNT FULLY CONCEALED ABOVE THE FINISHED CEILING.
4. UNIT SHALL HAVE OPENING TO SUPPLY AIR FROM FRONT HORIZONTAL AND A DEDICATED REAR HORIZONTAL RETURN.
5. THE SUPPLY AIR SHALL BE FLANGED FOR FIELD INSTALLED DUCTWORK THAT SHALL NOT EXCEED THE EXTERNAL STATIC PRESSURE LIMITATION OF THE UNIT.

B. CASING/PANEL

1. UNIT CASE SHALL BE MANUFACTURED USING GALVANIZED STEEL PLATE.
2. THE COLD SURFACES OF THE UNIT SHALL BE COVERED INTERNALLY WITH A COATED POLYSTYRENE INSULATING MATERIAL.
3. THE COLD SURFACES OF THE UNIT SHALL BE COVERED EXTERNALLY WITH SHEET INSULATION MADE OF ETHYLENE PROPYLENE DIENE MONOMER (M-CLASS) (EPDM)
4. THE EXTERNAL INSULATION SHALL BE PLENUM RATED AND CONFORM TO ASTM STANDARD D-1418.
5. UNIT SHALL BE PROVIDED WITH HANGER BRACKETS DESIGNED TO SUPPORT THE UNIT WEIGHT ON FOUR CORNERS.
6. HANGER BRACKETS SHALL HAVE PRE-PUNCHED HOLES DESIGNED TO ACCEPT FIELD SUPPLIED, ALL THREAD ROD HANGERS.

C. CABINET ASSEMBLY

1. UNIT SHALL HAVE HORIZONTAL SUPPLY AIR DISCHARGE OUTLETS AND A RETURN AIR INLET
2. UNIT SHALL BE EQUIPPED WITH FACTORY INSTALLED TEMPERATURE THERMISTORS FOR:
   a) RETURN AIR
   b) REFRIGERANT ENTERING COIL
   c) REFRIGERANT LEAVING COIL
3. UNIT SHALL HAVE A FACTORY ASSEMBLED, PIPED AND WIRED ELECTRONIC EXPANSION VALVE (EEV) FOR REFRIGERANT CONTROL.
4. UNIT SHALL HAVE A BUILT-IN CONTROL PANEL TO COMMUNICATE WITH OTHER INDOOR UNITS AND TO THE OUTDOOR UNIT.
5. UNIT SHALL HAVE THE FOLLOWING FUNCTIONS AS STANDARD:
   a) SELF-DIAGNOSTIC FUNCTION
   b) AUTO ADDRESSING
   c) AUTO RESTART FUNCTION
   d) AUTO CHANGEOVER FUNCTION (HEAT RECOVERY SYSTEM ONLY)
   e) AUTO OPERATION FUNCTION
   f) CHILD LOCK FUNCTION
   g) FORCED OPERATION
   h) DUAL THERMISTOR CONTROL
   i) SLEEP MODE
   j) EXTERNAL STATIC PRESSURE (ESP) CONTROL
   k) DUAL SET POINT CONTROL
   l) MULTIPLE AUX HEATER APPLICATIONS
   m) FILTER LIFE TIMER
   n) EXTERNAL ON/OFF INPUT
   o) WI-FI COMPATIBLE
   p) AUTO FAN OPERATION
   q) LEAK DETECTION LOGIC

D. FAN ASSEMBLY

1. THE UNIT SHALL HAVE TWO DIRECT DRIVE SIROCCO FANS MADE OF HIGH STRENGTH ABS GP-2200 POLYMERIC RESIN.
2. THE FAN IMPELLER SHALL BE STATICALLY AND DYNAMICALLY BALANCED.
3. THE FANS SHALL BE MOUNTED ON A COMMON SHAFT.
4. THE FAN MOTOR IS BRUSHLESS DIGITALLY COMMUTATED (BLDC) WITH PERMANENTLY LUBRICATED AND SEALED BALL BEARINGS.
5. THE FAN MOTOR SHALL INCLUDE THERMAL, OVERCURRENT AND LOW RPM PROTECTION.
6. THE FAN/MOTOR ASSEMBLY SHALL BE MOUNTED ON VIBRATION ATTENUATING RUBBER GROMMETS.
7. THE FAN SPEED SHALL BE CONTROLLED USING MICROPROCESSOR BASED DIRECT DIGITALLY CONTROLLED ALGORITHM THAT PROVIDES A MINIMUM OF THREE PRE-PROGRAMED FAN SPEEDS, EACH SETTING IS ALSO ADJUSTABLE BY FIELD SETTING TO COMPENSATE FOR A LIMITED AMOUNT OF ADDITIONAL RESISTANCE TO AIRFLOW BY ADJUSTING THE RPM OF THE FAN MOTOR.
8. IN COOLING MODE, THE INDOOR FAN SHALL HAVE THE FOLLOWING SETTINGS; LOW, MED, HIGH, AND AUTO.
9. IN HEATING MODE, THE INDOOR FAN SHALL HAVE THE FOLLOWING SETTINGS: LOW, MED, HIGH, AND AUTO.
10. EACH OF THE SETTINGS CAN BE FIELD ADJUSTED FROM THE FACTORY SETTING (RPM/ESP).
11. UNIT SHALL BE DESIGNED FOR HIGH SPEED AIR VOLUME AGAINST AN EXTERNAL STATIC PRESSURE OF UP TO 0.98" WATER GAUGE, MODEL DEPENDENT.

E. FILTER ASSEMBLY

1. THE RETURN AIR INLET SHALL HAVE A FACTORY SUPPLIED REMOVABLE, WASHABLE FILTER. MERV 13 FILTER RACK IS AVAILABLE AS AN OPTION, MODEL DEPENDENT.
2. THE FILTER ACCESS SHALL BE FROM THE REAR OF THE UNIT.

F. COIL ASSEMBLY

1. UNIT SHALL HAVE A FACTORY BUILT COIL COMPRISED OF ALUMINUM FINS MECHANICALLY BONDED ON COPPER TUBING.
2. THE COPPER TUBING SHALL HAVE INNER GROOVES TO EXPAND THE REFRIGERANT CONTACT SURFACE FOR HIGH EFFICIENCY HEAT EXCHANGER OPERATION.
3. UNIT SHALL HAVE A MINIMUM TWO TO THREE ROW COIL, 19~21 FINS PER INCH.
4. UNIT SHALL HAVE A FACTORY SUPPLIED CONDENSATE DRAIN PAN BELOW THE COIL CONSTRUCTED OF HIPS (HIGH IMPACT POLYSTYRENE RESIN).
5. UNIT SHALL INCLUDE AN INSTALLED AND WIRED CONDENSATE DRAIN LIFT PUMP CAPABLE OF PROVIDING MINIMUM 27.5 INCH LIFT FROM BOTTOM SURFACE OF THE UNIT. THE UNIT DRAIN PAN IS SUPPLIED WITH A SECONDARY DRAIN PORT/PLUG ALLOWING THE PAN TO BE GRAVITY DRAINED AND SERVICED.
6. THE DRAIN PUMP SHALL HAVE A SAFETY SWITCH TO SHUT OFF THE UNIT IF CONDENSATE RISES TOO HIGH IN THE DRAIN PAN, MODEL DEPENDENT.
7. UNIT SHALL HAVE PROVISION OF 45° FLARE REFRIGERANT PIPE CONNECTIONS.
8. THE COIL SHALL BE FACTORY PRESSURE TESTED AT A MINIMUM OF 550 PSIG.
9. ALL REFRIGERANT PIPING FROM OUTDOOR UNIT TO INDOOR UNIT SHALL BE FIELD INSULATED. EACH PIPE SHOULD BE INSULATED SEPARATELY. THICKNESS AND HEAT TRANSFER CHARACTERISTICS SHALL BE DETERMINED BY THE DESIGN ENGINEER AND SHALL MEET ALL CODE REQUIREMENTS.

G. MICROPROCESSOR CONTROL

1. THE UNIT SHALL HAVE A FACTORY INSTALLED MICROPROCESSOR CONTROLLER CAPABLE OF PERFORMING FUNCTIONS NECESSARY TO OPERATE THE SYSTEM WITH OR WITHOUT THE USE OF A WALL MOUNTED CONTROLLER. THE UNIT SHALL HAVE A FACTORY MOUNTED RETURN AIR THERMISTOR FOR USE AS A SPACE TEMPERATURE CONTROL DEVICE. ALL OPERATING PARAMETERS EXCEPT SCHEDULING SHALL BE STORED IN NON-VOLATILE MEMORY RESIDENT ON THE MICROPROCESSOR. THE MICROPROCESSOR SHALL PROVIDE THE FOLLOWING FUNCTIONS, SELF-DIAGNOSTICS, AUTO RE-START AFTER A POWER FAILURE AND A TEST RUN MODE.
2. THE UNIT SHALL BE ABLE TO COMMUNICATE WITH OTHER INDOOR UNITS AND THE OUTDOOR UNIT USING A FIELD SUPPLIED MINIMUM OF 18 AWG, TWO CORE, STRANDED, TWISTED, AND SHIELDED COMMUNICATION CABLE.
3. THE UNIT CONTROLS SHALL OPERATE THE INDOOR UNIT USING ONE OF THE FIVE OPERATING MODES:
   a) AUTO CHANGEOVER (HEAT RECOVERY SYSTEM ONLY)
   b) HEATING
   c) COOLING
   d) DRY
   e) FAN ONLY
4. THE UNIT SHALL BE ABLE TO OPERATE IN EITHER COOLING OR HEATING MODE FOR TESTING AND/OR COMMISSIONING.
5. THE UNIT SHALL BE ABLE TO OPERATE WITH THE FAN TURNED OFF DURING SYSTEM COOLING THERMAL OFF.
6. THE UNIT SHALL BE ABLE TO OPERATE WITH A CONTINUOUS FAN SETTING.
7. THE UNIT SHALL HAVE ADJUSTABLE, MULTI-STEP COOLING AND HEATING MODE THERMAL ON/OFF TEMPERATURE RANGE SETTINGS.
8. THE SYSTEM SHALL INCLUDE A PRODUCT CHECK FUNCTION TO ACCESS AND DISPLAY INDOOR UNIT TYPE AND CAPACITY FROM A WIRED PROGRAMMABLE THERMOSTAT CONTROLLER.

H. ELECTRICAL

THE UNIT ELECTRICAL POWER SHALL BE 208~230/1/60 (V/PH/HZ).

1. THE UNIT SHALL BE CAPABLE OF OPERATING WITHIN VOLTAGE LIMITS OF +/- 10% OF THE RATED VOLTAGE.

I. CONTROLS

10. UNIT SHALL USE CONTROLS PROVIDED BY THE MANUFACTURER TO PERFORM ALL FUNCTIONS NECESSARY TO OPERATE THE SYSTEM EFFECTIVELY AND EFFICIENTLY AND COMMUNICATE WITH THE OUTDOOR UNIT OVER AN RS-485 DAISY CHAIN.

J. SEISMIC INSTALLATIONS

PROVIDE WITH SUBMITTAL: 1) OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP) DOCUMENTS FOR CERTIFIED PRODUCT LISTED FOR THIS EQUIPMENT TO BE INSTALLED IN HIGH SEISMIC RISK AREAS. 2) EQUIPMENT INSTALLATION DOCUMENTS IN CONFORMANCE WITH CBC 2013, 2016 AND 2019 CALIFORNIA BUILDING CODE AND IBC 2012, 2015 AND 2018 INTERNATIONAL BUILDING CODE.

K. WARRANTY

1. PLEASE REFER TO THE RESPECTIVE OUTDOOR UNIT FOR APPLICABLE WARRANTY.

DEDICATED OUTDOOR AIR UNIT

1.01 MULTI V OUTSIDE AIR UNIT (OAU) (48,000 TO 96,000 BTU/H NOMINAL)

A. GENERAL

1. LG MULTI V OAU INDOOR UNITS, WITH NOMINAL COOLING CAPACITY RANGES FROM 48,000 BTU/H TO 96,000 BTU/H (MODEL DEPENDENT) DESIGNED SPECIFICALLY FOR USE WITH LG MULTI V, LG MULTI V, AND LG MULTI V S AIR SOURCE UNITS OR LG MULTI V WATER, LG MULTI V WATER MINI WATER SOURCE UNITS, SHALL BE FACTORY ASSEMBLED, WIRED, PIPED AND RUN TESTED.
2. ALL LG OAU INDOOR UNITS SHALL BE AVAILABLE AS DUCTED AND SHALL BE COMPLETE WITH FACTORY MOUNTED CONTROLS, FANS, COILS, ELECTRONIC EXPANSION VALVES (EEVS), CONDENSATE DRAIN PANS, CONDENSATE DRAIN LIFT PUMPS, FILTER RACKS, RETURN AIR TEMPERATURE SENSORS, DISCHARGE AIR TEMPERATURE SENSORS, REFRIGERANT PIPE TEMPERATURE SENSORS AND WIRING TERMINAL BLOCKS. THE UNITS SHALL HAVE MULTIPLE-SPEED CONSTANT-FLOW FAN ASSEMBLIES WITH DIRECT DRIVE DIGITALLY COMMUTATED BLDC MOTORS.
3. ALL LG MULTI V OAU INDOOR UNITS SHALL BE FACTORY EQUIPPED WITH A SINGLE SET OF CONFIGURABLE DRY CONTACTS FOR USE WITH INTEGRATION OF OTHER CONTROLS, CONTROL OF REMOTE DEVICES OR TO BE CONTROLLED BY OTHER DEVICES. LG MULTI V OAU INDOOR UNITS SHALL BE CAPABLE OF BEING CONTROLLED BY THE LG OAU CONTROLLER THAT SHIPS WITH EACH UNIT.
4. ALL OAU INDOOR UNIT COILS SHALL PRESSURE TESTED WITH DRY NITROGEN TO A MINIMUM OF 500 PSI IN THE FIELD, COILS AND INDOOR UNITS CONTAINING COILS NOT RATED FOR 500 PSI OR MORE SHALL NOT BE PERMITTED.
5. THE ENTIRETY OF THIS OAU INDOOR UNIT SPECIFICATION AND UNIT OPTIONS DEFINE THE MINIMUM ACCEPTABLE VRF INDOOR UNIT REQUIREMENTS FOR THIS PROJECT. ALL OAU INDOOR UNITS PROVIDED SHALL INCLUDE ALL FEATURES AND CAPABILITIES.
6. UNIT SHALL BE MANUFACTURED BY LG.
7. UNIT SHALL BE DESIGNED TO BE INSTALLED FOR INDOOR APPLICATION.
8. UNIT SHALL BE DESIGNED TO MOUNT FULLY CONCEALED ABOVE THE FINISHED CEILING.
9. UNIT SHALL HAVE OPENING TO SUPPLY AIR FROM FRONT HORIZONTAL AND A DEDICATED REAR HORIZONTAL ENTERING AIR OPENING.
10. THE SUPPLY AIR SHALL BE FLANGED FOR FIELD INSTALLED DUCTWORK THAT SHALL NOT EXCEED THE EXTERNAL STATIC PRESSURE LIMITATION OF THE UNIT.

A. CASING/PANEL

UNIT CASE SHALL BE MANUFACTURED USING GALVANIZED STEEL PLATE.

11. THE COLD SURFACES OF THE UNIT SHALL BE COVERED INTERNALLY WITH A COATED POLYSTYRENE INSULATING MATERIAL.
12. THE COLD SURFACES OF THE UNIT SHALL BE COVERED EXTERNALLY WITH SHEET INSULATION MADE OF ETHYLENE PROPYLENE DIENE MONOMER (M-CLASS) (EPDM)
13. THE EXTERNAL INSULATION SHALL BE PLENUM RATED AND CONFORM TO ASTM STANDARD D-1418.
14. UNIT SHALL BE PROVIDED WITH HANGER BRACKETS DESIGNED TO SUPPORT THE UNIT WEIGHT ON FOUR CORNERS.
15. HANGER BRACKETS SHALL HAVE PRE-PUNCHED HOLES DESIGNED TO ACCEPT FIELD SUPPLIED, ALL THREAD ROD HANGERS.

B. CABINET ASSEMBLY:

UNIT SHALL HAVE HORIZONTAL SUPPLY AIR DISCHARGE OUTLETS AND AN ENTERING AIR INLET

16. UNIT SHALL BE EQUIPPED WITH FACTORY INSTALLED TEMPERATURE THERMISTORS FOR:
   a) ENTERING AIR (RETURN AIR)
   b) DISCHARGE AIR
   c) REFRIGERANT ENTERING COIL
   d) REFRIGERANT LEAVING COIL
17. UNIT SHALL HAVE A FACTORY ASSEMBLED, PIPED AND WIRED ELECTRONIC EXPANSION VALVE (EEV) FOR REFRIGERANT CONTROL.
18. UNIT SHALL HAVE A BUILT-IN CONTROL PANEL TO COMMUNICATE WITH OTHER INDOOR UNITS AND TO THE OUTDOOR UNIT.
19. UNIT SHALL HAVE THE FOLLOWING FUNCTIONS AS STANDARD:
   a) SELF-DIAGNOSTIC FUNCTION
   b) AUTO ADDRESSING
   c) AUTO RESTART FUNCTION
   d) AUTO OPERATION FUNCTION
   e) CHILD LOCK FUNCTION
   f) FORCED OPERATION
   g) EXTERNAL STATIC PRESSURE (ESP) CONTROL
   h) EXTERNAL ON/OFF INPUT

C. FAN ASSEMBLY:

THE UNIT SHALL HAVE TWO DIRECT DRIVE SIROCCO FANS MADE OF HIGH STRENGTH ABS GP-2200 POLYMERIC RESIN.

20. THE FAN IMPELLER SHALL BE STATICALLY AND DYNAMICALLY BALANCED.
21. THE FANS SHALL BE MOUNTED ON A COMMON SHAFT.
22. THE FAN MOTOR IS BRUSHLESS DIGITALLY COMMUTATED (BLDC) WITH PERMANENTLY LUBRICATED AND SEALED BALL BEARINGS.
23. THE FAN MOTOR SHALL INCLUDE THERMAL, OVERCURRENT AND LOW RPM PROTECTION.
24. THE FAN/MOTOR ASSEMBLY SHALL BE MOUNTED ON VIBRATION ATTENUATING RUBBER GROMMETS.
25. THE FAN SPEED SHALL BE CONTROLLED USING MICROPROCESSOR BASED DIRECT DIGITALLY CONTROLLED ALGORITHM THAT PROVIDES A MINIMUM OF THREE PRE-PROGRAMED FAN SPEEDS, EACH SETTING IS ALSO ADJUSTABLE BY FIELD SETTING TO COMPENSATE FOR A LIMITED AMOUNT OF ADDITIONAL RESISTANCE TO AIRFLOW BY ADJUSTING THE RPM OF THE FAN MOTOR.
26. IN COOLING MODE, THE INDOOR FAN SHALL HAVE THE FOLLOWING SETTINGS; LOW, MED, HIGH, AND AUTO.
27. IN HEATING MODE, THE INDOOR FAN SHALL HAVE THE FOLLOWING SETTINGS: LOW, MED, HIGH, AND AUTO.
28. EACH OF THE SETTINGS CAN BE FIELD ADJUSTED FROM THE FACTORY SETTING (RPM/ESP).
29. UNIT SHALL BE DESIGNED FOR HIGH SPEED AIR VOLUME AGAINST AN EXTERNAL STATIC PRESSURE OF UP TO 0.98" WATER GAUGE, MODEL DEPENDENT.

D. FILTER ASSEMBLY:

THE ENTERING AIR INLET SHALL HAVE A FACTORY SUPPLIED REMOVABLE, WASHABLE FILTER. MERV 13 FILTER RACK IS AVAILABLE AS AN OPTION, MODEL DEPENDENT.

30. THE FILTER ACCESS SHALL BE FROM THE REAR OF THE UNIT.

E. COIL ASSEMBLY:

UNIT SHALL HAVE A FACTORY BUILT COIL COMPRISED OF ALUMINUM FINS MECHANICALLY BONDED ON COPPER TUBING.

31. THE COPPER TUBING SHALL HAVE INNER GROOVES TO EXPAND THE REFRIGERANT CONTACT SURFACE FOR HIGH EFFICIENCY HEAT EXCHANGER OPERATION.
32. UNIT SHALL HAVE A MINIMUM TWO TO THREE ROW COIL, 19~21 FINS PER INCH.
33. UNIT SHALL HAVE A FACTORY SUPPLIED CONDENSATE DRAIN PAN BELOW THE COIL CONSTRUCTED OF HIPS (HIGH IMPACT POLYSTYRENE RESIN).
34. UNIT SHALL INCLUDE AN INSTALLED AND WIRED CONDENSATE DRAIN LIFT PUMP CAPABLE OF PROVIDING MINIMUM 27.5 INCH LIFT FROM BOTTOM SURFACE OF THE UNIT. THE UNIT DRAIN PAN IS SUPPLIED WITH A SECONDARY DRAIN PORT/PLUG ALLOWING THE PAN TO BE GRAVITY DRAINED AND SERVICED.
35. THE DRAIN PUMP SHALL HAVE A SAFETY SWITCH TO SHUT OFF THE UNIT IF CONDENSATE RISES TOO HIGH IN THE DRAIN PAN, MODEL DEPENDENT.
36. UNIT SHALL HAVE PROVISION OF 45° FLARE REFRIGERANT PIPE CONNECTIONS.
37. THE COIL SHALL BE FACTORY PRESSURE TESTED AT A MINIMUM OF 550 PSIG.
38. ALL REFRIGERANT PIPING FROM OUTDOOR UNIT TO INDOOR UNIT SHALL BE FIELD INSULATED. EACH PIPE SHOULD BE INSULATED SEPARATELY. THICKNESS AND HEAT TRANSFER CHARACTERISTICS SHALL BE DETERMINED BY THE DESIGN ENGINEER AND SHALL MEET ALL CODE REQUIREMENTS.

F. MICROPROCESSOR CONTROL

THE UNIT SHALL HAVE A FACTORY INSTALLED MICROPROCESSOR CONTROLLER CAPABLE OF PERFORMING FUNCTIONS NECESSARY TO OPERATE THE SYSTEM WITH OR WITHOUT THE USE OF A WALL MOUNTED CONTROLLER. THE UNIT SHALL HAVE A FACTORY MOUNTED ENTERING AIR AND DISCHARGE AIR THERMISTOR FOR USE AS DISCHARGE AIR CONTROL. ALL OPERATING PARAMETERS EXCEPT SCHEDULING SHALL BE STORED IN NON-VOLATILE MEMORY RESIDENT ON THE MICROPROCESSOR. THE MICROPROCESSOR SHALL PROVIDE THE FOLLOWING FUNCTIONS, SELF-DIAGNOSTICS, AUTO RE-START AFTER A POWER FAILURE AND A TEST RUN MODE.

39. THE UNIT SHALL BE ABLE TO COMMUNICATE WITH OTHER INDOOR UNITS AND THE OUTDOOR UNIT USING A FIELD SUPPLIED MINIMUM OF 18 AWG, TWO CORE, STRANDED, TWISTED, AND SHIELDED COMMUNICATION CABLE.
40. THE UNIT CONTROLS SHALL OPERATE THE INDOOR UNIT USING ONE OF THE FOUR OPERATING MODES:
   a) AUTO
   b) HEATING
   c) COOLING
   d) FAN ONLY
41. THE UNIT SHALL BE ABLE TO OPERATE IN EITHER COOLING OR HEATING MODE FOR TESTING AND/OR COMMISSIONING.
42. THE UNIT SHALL BE ABLE TO SHUT OFF THE FAN WHEN ENTERING AIR TEMPERATURE FALLS BELOW 23°
43. THE UNIT SHALL OPERATE WITH A CONTINUOUS FAN SETTING.

G. ELECTRICAL:

THE UNIT ELECTRICAL POWER SHALL BE 208~230/1/60 (V/PH/HZ).

44. THE UNIT SHALL BE CAPABLE OF OPERATING WITHIN VOLTAGE LIMITS OF +/- 10% OF THE RATED VOLTAGE.

H. CONTROLS:

UNIT SHALL USE CONTROLS PROVIDED BY THE MANUFACTURER TO PERFORM ALL FUNCTIONS NECESSARY TO OPERATE THE SYSTEM EFFECTIVELY AND EFFICIENTLY AND COMMUNICATE WITH THE OUTDOOR UNIT OVER AN RS-485 DAISY CHAIN.

I. LIMITED WARRANTY:

PLEASE REFER TO THE RESPECTIVE OUTDOOR UNIT FOR APPLICABLE WARRANTY.

MINI-SPLIT OUTDOOR UNIT

1

(CONTINUATION)

A. SENSORS

THE OUTDOOR UNIT SHALL HAVE

a) SUCTION TEMPERATURE SENSOR

b) DISCHARGE TEMPERATURE SENSOR

c) HIGH PRESSURE SENSOR

d) LOW PRESSURE SENSOR

e) OUTDOOR TEMPERATURE SENSOR

f) OUTDOOR UNIT HEAT EXCHANGER TEMPERATURE SENSORS

B. WIND LOAD INSTALLATIONS FOR OUTDOOR UNITS

PROVIDE FLORIDA WIND LOAD INSTALLATION DRAWINGS THAT MEET THE REQUIREMENTS OF THE 2017 FLORIDA BUILDING CODE, 6TH EDITION AND ASCE STANDARD 7-2010 WITH SUBMITTAL.

C. SEISMIC INSTALLATIONS

PROVIDE WITH SUBMITTAL: 1) OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP) DOCUMENTS FOR CERTIFIED PRODUCT LIST OF VRF EQUIPMENT TO BE INSTALLED IN HIGH SEISMIC RISK AREAS. 2) EQUIPMENT INSTALLATION DOCUMENTS IN CONFORMANCE WITH CBC 2013, 2016 AND 2019 CALIFORNIA BUILDING CODE AND IBC 2012, 2015 AND 2018 INTERNATIONAL BUILDING CODE.

D. WARRANTY

LIMITED WARRANTY PERIOD

g) STANDARD ONE-YEAR PARTS WARRANTY FOR A QUALIFIED SYSTEM – THE PART(S) OF A QUALIFIED SYSTEM, INCLUDING THE COMPRESSOR, ARE WARRANTED FOR A PERIOD (THE 'STANDARD PARTS WARRANTY PERIOD') ENDING ON THE EARLIER TO OCCUR OF ONE (1) YEAR AFTER THE DATE OF ORIGINAL INSTALLATION, OR EIGHTEEN (18) MONTHS FROM THE DATE OF MANUFACTURE.

h) ADDITIONAL SIX (6) YEAR COMPRESSOR PART WARRANTY – THE COMPRESSOR IS WARRANTED FOR AN ADDITIONAL SIX (6) YEAR PERIOD AFTER THE END OF THE APPLICABLE STANDARD PART WARRANTY PERIOD (THE 'COMPRESSOR WARRANTY PERIOD').

2. EXTENDED WARRANTY

a) THE STANDARD WARRANTY PERIOD AND THE COMPRESSOR WARRANTY PERIOD ARE EXTENDED TO A TOTAL OF TEN (10) YEARS (THE 'EXTENDED WARRANTY PERIOD') FOR QUALIFIED SYSTEMS THAT HAVE BEEN (A) COMMISSIONED BY A PARTY THAT HAS COMPLETED THE CURRENT TRAINING REQUIREMENTS, (B) SUCH COMMISSIONING IS PURSUANT TO LG'S CURRENT PUBLISHED INSTRUCTIONS, AND (C) THE SYSTEM COMMISSIONING RESULTS AND SUPPORTING DOCUMENTS ARE ENTERED CORRECTLY INTO LG'S ONLINE COMMISSIONING SYSTEM. COMMISSIONING OF A SYSTEM REQUIRES ONE (1) HOUR OF LG MONITORING VIEW (LGMV) DATA. COMMISSIONING RESULTS MUST BE ENTERED INTO LG'S ONLINE COMMISSIONING SYSTEM WITHIN SIXTY (60) DAYS OF SYSTEM STARTUP.

NOTE: MULTI V S AIR COOLED HEAT PUMP (ARUN***GSS4) SYSTEMS AND MULTI V MINI AIR COOLED (ARUN***GS2) SYSTEMS DO NOT REQUIRE COMMISSIONING; HOWEVER, THESE SYSTEMS MUST BE REGISTERED AT WWW.LGHVAC.COM WITHIN SIXTY (60) DAYS OF INSTALLATION TO BE ELIGIBLE FOR THE EXTENDED WARRANTY.

1.02 PRODUCT(S) – HEAT RECOVERY UNITS (HEAT RECOVERY SYSTEMS ONLY)

GENERAL

1. HEAT RECOVERY UNIT SHALL BE DESIGNED AND MANUFACTURED BY THE SAME MANUFACTURER OF VRF INDOOR UNIT(S) AND OUTDOOR UNIT(S).
2. HEAT RECOVERY UNIT CASING SHALL BE CONSTRUCTED WITH GALVANIZED STEEL.
3. HEAT RECOVERY UNIT SHALL REQUIRE 208-230V/1-PHASE/60HZ POWER SUPPLY.
4. HEAT RECOVERY UNIT SHALL BE AN INTERMEDIATE REFRIGERANT CONTROL DEVICE BETWEEN THE AIR SOURCE OUTDOOR UNIT AND THE INDOOR UNITS TO CONTROL THE SYSTEMS COOLING AND HEATING OPERATION.
5. HEAT RECOVERY UNIT SHALL BE ENGINEERED TO WORK WITH A THREE PIPE VRF SYSTEM COMPRISING OF:

a) HIGH PRESSURE VAPOR PIPE

b) LOW PRESSURE VAPOR PIPE

c) LIQUID PIPE

6. HEAT RECOVERY UNITS' MAIN 3 PIPE CONNECTIONS SHALL BE CAPABLE OF SERIES OR PARALLEL PIPE CONFIGURATION.
7. THE QUANTITY OF HEAT RECOVERY UNITS THAT CAN BE PIPED IN SERIES SHALL BE LIMITED TO 16.
8. HEAT RECOVERY UNITS SHALL BE ENGINEERED FOR INSTALLATION IN A SEMI-CONDITIONED SPACE WHERE TEMPERATURE AND HUMIDITY IS MAINTAINED BETWEEN –22DEG F TO 130DEG F. HEAT RECOVERY UNIT'S CASE AND INTERNAL COMPONENTS WHERE SURFACE TEMPERATURES MAY OPERATE BELOW DEW POINT SHALL BE FACTORY INSULATED. HEAT RECOVERY UNITS THAT CONDENSE AND REQUIRE CONDENSATE DRAIN SHALL NOT BE ACCEPTABLE.
9. A SINGLE STRING OF SERIES PIPED HEAT RECOVERY UNITS SHALL BE CAPABLE OF SERVING ANY COMBINATION OF STYLES OF VRF INDOOR UNITS WITH A COMBINED NOMINAL CAPACITY OF UP TO 230 MBH.
10. HEAT RECOVERY UNIT SHALL HAVE 2, 3, 4, 6 OR 8 PORTS, EACH PORT SUPPORTING ONE OR MORE INDOOR UNITS WITH A MAXIMUM CONNECTED CAPACITY OF 60 MBH.
11. EACH PORT SHALL BE CAPABLE OF OPERATING IN COOLING OR HEATING INDEPENDENTLY REGARDLESS OF THE OPERATING MODE OF ANY OTHER PORT ON THE HEAT RECOVERY UNIT OR IN THE SYSTEM.
12. EACH PORT SHALL BE CAPABLE OF CONNECTING FROM 1 TO 8 INDOOR UNITS.
13. CONNECTION TO INDOOR UNITS TOTALING GREATER THAN 60MBH NOMINAL CAPACITY SHALL BE TWINNED TO TWO ADJACENT PORTS OF THE HEAT RECOVERY UNIT USING A REVERSE Y-BRANCH CONNECTOR SUPPLIED BY MANUFACTURE.
14. HEAT RECOVERY UNIT SHALL BE INTERNALLY PIPED, WIRED, ASSEMBLED AND RUN TESTED AT THE FACTORY.
15. HEAT RECOVERY UNIT SHALL BE DESIGNED FOR INSTALLATION IN A CONDITIONED ENVIRONMENT PER SPECIFICATIONS.
16. HEAT RECOVERY UNIT SHALL EMPLOY A LIQUID BYPASS VALVE.
17. HEAT RECOVERY UNIT SHALL HAVE (2) ELECTRONIC EXPANSION REFRIGERANT VALVES PER PORT.
18. HEAT RECOVERY UNIT SHALL HAVE A BALANCING VALVE TO CONTROL THE PRESSURE BETWEEN THE HIGH PRESSURE AND LOW PRESSURE PIPE DURING MODE SWITCHING TO MINIMIZE ANY CHANGE-OVER PRESSURE RELATED SOUNDS.
19. HEAT RECOVERY UNIT SHALL EMPLOY AN ELECTRONIC EXPANSION VALVE TO ENSURE PROPER SUB COOLING OF THE REFRIGERANT.
20. HEAT RECOVERY UNIT SHALL CONTAIN ONE DOUBLE SPIRAL SUB-COOLING HEAT EXCHANGER PER PORT.
21. HEAT RECOVERY UNIT SHALL NOT REQUIRE A CONDENSATE DRAIN OR CONNECTION.
22. HEAT RECOVERY UNIT SHALL BE INTERNALLY FACTORY INSULATED.
23. ALL FIELD REFRIGERANT LINES BETWEEN OUTDOOR UNIT AND HEAT RECOVERY UNIT AND FROM HEAT RECOVERY UNIT TO INDOOR UNIT SHALL BE FIELD ACR TUBING, INSULATED PER BUILDING OR ENERGY CODE AND AS INSTRUCTED BY THE MANUFACTURE.
24. THE HEAT RECOVERY UNIT SHALL NOT EXCEED A NET WEIGHT OF 68 LBS.
25. HEAT RECOVERY UNITS, FOR LINE LENGTH AND PRESSURE DROP CALCULATIONS, SHALL NOT EXCEED A MAXIMUM EQUIVALENT PIPE LENGTH VALUE OF 8.2 FEET.
26. THE VRF MANUFACTURER SHALL PROVIDE PUBLISHED DOCUMENTATION THAT SPECIFICALLY ALLOWS THE INSTALLATION OF FIELD PROVIDED ISOLATION VALVES ON ALL PIPES CONNECTED TO THE HEAT RECOVERY UNIT TO ALLOW THE SERVICING OF HEAT RECOVERY UNITS, REFRIGERANT CIRCUIT OR THE REPLACEMENT OF HEAT RECOVERY UNIT WITHOUT EVACUATING THE BALANCE OF THE PIPING SYSTEM.

E. CONTROLS

HEAT RECOVERY UNIT(S) SHALL HAVE FACTORY INSTALLED UNIT MOUNTED CONTROL BOARDS AND INTEGRAL MICROPROCESSOR TO COMMUNICATE WITH OTHER DEVICES IN THE VRF SYSTEM.

27. HEAT RECOVERY UNIT SHALL COMMUNICATE WITH THE INDOOR UNITS VIA A 2-CONDUCTOR STRANDED COMMUNICATIONS CABLE TERMINATED USING A DAISY CHAIN CONFIGURATION.
28. THE CONTRACTOR IS INSTRUCTED TO REVIEW THE ELECTRICAL AND ATC DRAWINGS AND SPECIFICATIONS FOR OTHER ITEMS OR TASKS WHICH THIS CONTRACTOR IS OR MAY BE RESPONSIBLE TO PROVIDE MATERIALS AND OR LABOR UNDER THIS CONTRACT. FAILURE TO DO SO WILL NOT RELIEVE THIS CONTRACTOR OF THEIR RESPONSIBILITY TO PROVIDE SUCH MATERIALS AND OR LABOR AND IN NO CASE SHALL THIS CONTRACTOR BE FURTHER COMPENSATED AS A RESULT.

F. SEISMIC INSTALLATIONS

PROVIDE WITH SUBMITTAL: 1) OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP) DOCUMENTS FOR CERTIFIED PRODUCT LIST OF VRF EQUIPMENT TO BE INSTALLED IN HIGH SEISMIC RISK AREAS. 2) EQUIPMENT INSTALLATION DOCUMENTS IN CONFORMANCE WITH CBC 2013, 2016 AND 2019 CALIFORNIA BUILDING CODE AND IBC 2012, 2015 AND 2018 INTERNATIONAL BUILDING CODE.

G. WARRANTY

PLEASE REFER TO THE RESPECTIVE OUTDOOR UNIT FOR APPLICABLE WARRANTY.

DUCTED VERTICAL/HORIZONTAL AIR HANDLING UNIT

A. GENERAL

1. UNIT SHALL BE MANUFACTURED BY LG.
2. UNIT SHALL BE FACTORY ASSEMBLED, WIRED, PIPED AND RUN TESTED.
3. UNIT SHALL BE DESIGNED TO BE INSTALLED FOR INDOOR APPLICATION.
4. UNIT SHALL BE DESIGNED TO MOUNT FULLY CONCEALED BEHIND THE WALL, IN A CLOSET OR ABOVE THE FINISHED CEILING.
5. THE UNIT CASE SHALL BE DESIGNED TO ACCEPT AN INTERNAL, OPTIONAL LG ELECTRIC STRIP HEATER MOUNTED IN THE REHEAT POSITION, AVAILABLE IN 5, 10, 15, AND 20 KW CAPACITIES FOR FIELD INSTALLATION PER INSTALLATION INSTRUCTIONS.
6. THE SUPPLY AIR SHALL BE FLANGED FOR FIELD INSTALLED DUCTWORK THAT SHALL NOT EXCEED THE EXTERNAL STATIC PRESSURE LIMITATION OF THE UNIT.

A. CASING/PANEL

UNIT CASE SHALL BE MANUFACTURED USING 22-GAUGE PRE COATED METAL (PCM).

7. THE EXTERNAL SURFACE SHALL BE FINISHED WITH A HIGH GLOSS BAKED ENAMEL FINISH.
8. THE FINISH COLOR SHALL BE MORNING FOG.
9. THE COLD SURFACES OF THE UNIT SHALL BE INTERNALLY INSULATED WITH 1/2 INCH FOIL FACED POLYSTYRENE FIBER INSULATION.
10. THE INSIDE SURFACE OF FAN ASSEMBLY DOOR ACCESS PANEL SHALL BE TREATED WITH 1/2 INCH POLYSTYRENE FIBER INSULATION, ENCAPSULATED ON BOTH SIDES.
11. THE ACCESS PANEL SHALL BE SEALED ALONG THE EDGES WITH REINFORCED FOIL FACED CAULKING TO PREVENT DETERIORATION CAUSED BY PANEL REMOVAL.
12. ALL THE ACCESS PANELS SHALL BE PROVIDED WITH GASKET SEALS TO MINIMIZE AIR LEAKAGE.
13. THE EXTERNAL INSULATION SHALL BE PLENUM RATED AND CONFORM TO ASTM STANDARD E-1418.

B. CABINET ASSEMBLY

THE UNIT SHALL BE DESIGNED TO OPERATE IN THE VERTICAL (UP FLOW) CONFIGURATION OR HORIZONTAL (LEFT) END DISCHARGE.

14. UNIT SHALL, IN THE VERTICAL POSITION, HAVE OPENING FOR SUPPLY AIR FROM TOP WITH A DEDICATED BOTTOM VERTICAL RETURN AND IN THE HORIZONTAL POSITION SUPPLY AIR SHALL BE FROM THE LEFT END WITH THE RETURN AIR FROM THE RIGHT END.
15. UNIT SHALL BE EQUIPPED WITH FACTORY INSTALLED TEMPERATURE THERMISTORS FOR:

a) RETURN AIR

b) REFRIGERANT ENTERING COIL

c) REFRIGERANT LEAVING COIL

16. UNIT SHALL HAVE A FACTORY ASSEMBLED, PIPED AND WIRED ELECTRONIC EXPANSION VALVE (EEV) FOR REFRIGERANT CONTROL.
17. UNIT SHALL HAVE A BUILT-IN CONTROL PANEL TO COMMUNICATE WITH OTHER INDOOR UNITS AND TO THE OUTDOOR UNIT.
18. UNIT SHALL HAVE THE FOLLOWING FUNCTIONS AS STANDARD:

a) SELF-DIAGNOSTIC FUNCTION

b) AUTO ADDRESSING

c) AUTO RESTART FUNCTION

d) AUTO CHANGEOVER FUNCTION (HEAT RECOVERY SYSTEM ONLY)

e) AUTO OPERATION FUNCTION

f) AUTO CLEAN FUNCTION

g) CHILD LOCK FUNCTION

h) FORCED OPERATION

i) DUAL THERMISTOR CONTROL

j) SLEEP MODE

k) EXTERNAL STATIC PRESSURE (ESP) CONTROL

l) DUAL SET POINT CONTROL

m) AUX HEATER APPLICATIONS

n) FILTER LIFE TIMER

o) EXTERNAL ON/OFF CONTROL INPUT

p) WI-FI COMPATIBLE

q) AUTO FAN OPERATION

r) REFRIGERANT REFRIGERANT LEAK DETECTION LOGIC

C. FAN ASSEMBLY

THE UNIT SHALL HAVE AN INTEGRAL FAN ASSEMBLY CONSISTING OF GALVANIZED STEEL HOUSING AND FORWARD CURVE FAN WHEEL.

19. THE FAN MOTOR IS BRUSHLESS DIGITALLY COMMUTATED (BLDC) WITH PERMANENTLY LUBRICATED AND SEALED BALL BEARINGS.
20. THE FAN MOTOR SHALL INCLUDE THERMAL, OVERCURRENT AND LOW RPM PROTECTION.
21. THE FAN/MOTOR ASSEMBLY SHALL BE MOUNTED ON VIBRATION ATTENUATING RUBBER GROMMETS.
22. THE FAN SPEED SHALL BE CONTROLLED USING MICROPROCESSOR BASED DIRECT DIGITALLY CONTROLLED ALGORITHM THAT PROVIDES A MINIMUM OF THREE PRE-PROGRAMED FAN SPEEDS. EACH SETTING IS ALSO ADJUSTABLE BY FIELD SETTING TO COMPENSATE FOR A LIMITED AMOUNT OF ADDITIONAL RESISTANCE TO AIRFLOW BY ADJUSTING THE RPM OF THE FAN MOTOR.
23. IN COOLING MODE, THE INDOOR FAN SHALL HAVE THE FOLLOWING SETTINGS: LOW, MED, HIGH, AND AUTO.
24. IN HEATING MODE, THE INDOOR FAN SHALL HAVE THE FOLLOWING SETTINGS: LOW, MED, HIGH, AND AUTO.
25. EACH OF THE SETTINGS CAN BE FIELD ADJUSTED FROM THE FACTORY SETTING (RPM/ESP).
26. UNIT SHALL BE DESIGNED FOR HIGH SPEED AIR VOLUME AGAINST AN EXTERNAL STATIC PRESSURE OF UP TO 1.0" WATER GAUGE MODEL DEPENDENT.

D. FILTER ASSEMBLY

THE UNIT COMES WITH A FILTER RACK CAPABLE OF ACCEPTING A FIELD SUPPLIED 16" X 20" X 1" FILTER CARTRIDGE

27. THE FILTER RACK SHALL BE EQUIPPED WITH GUIDES TO KEEP FILTER CENTERED IN THE RACK.
28. THE FILTER ACCESS SHALL BE FROM THE FRONT OF THE UNIT WITHOUT REMOVING COIL OR FAN AREA ACCESS PANEL.
29. THE FILTER ACCESS DOOR SHALL BE FITTED WITH THUMB SCREWS THAT CAN BE REMOVED WITHOUT THE USE OF ANY TOOL.

E. COIL ASSEMBLY

UNIT SHALL HAVE A FACTORY BUILT COIL COMPRISED OF ALUMINUM FINS MECHANICALLY BONDED ON COPPER TUBING.

30. THE COPPER TUBING SHALL HAVE INNER GROOVES TO EXPAND THE REFRIGERANT CONTACT SURFACE FOR HIGH EFFICIENCY HEAT EXCHANGER OPERATION.
31. UNIT SHALL HAVE MINIMUM TWO TO THREE ROW COIL, 18 FINS PER INCH.
32. UNIT SHALL HAVE A FACTORY SUPPLIED CONDENSATE DRAIN PAN BELOW THE COIL CONSTRUCTED OF HIPS (HIGH IMPACT POLYSTYRENE RESIN).
33. UNIT SHALL BE DESIGNED FOR GRAVITY DRAIN.
34. THE UNIT SHALL HAVE A SECONDARY DRAIN PORT PLUG FOR OVERFLOW.
35. UNIT SHALL HAVE PROVISION OF 45° FLARE REFRIGERANT PIPE CONNECTIONS.
36. THE COIL SHALL BE FACTORY PRESSURE TESTED AT A MINIMUM OF 550 PSIG.
37. ALL REFRIGERANT PIPING FROM OUTDOOR UNIT TO INDOOR UNIT SHALL BE FIELD INSULATED. EACH PIPE SHOULD BE INSULATED SEPARATELY. THICKNESS AND HEAT TRANSFER CHARACTERISTICS SHALL BE DETERMINED BY THE DESIGN ENGINEER AND SHALL MEET ALL CODE REQUIREMENTS.

F. MICROPROCESSOR CONTROL

THE UNIT SHALL HAVE A FACTORY INSTALLED MICROPROCESSOR CONTROLLER CAPABLE OF PERFORMING FUNCTIONS NECESSARY TO OPERATE THE SYSTEM WITH OR WITHOUT THE USE OF A WALL MOUNTED CONTROLLER. THE UNIT SHALL HAVE A FACTORY MOUNTED RETURN AIR THERMISTOR FOR USE AS A SPACE TEMPERATURE CONTROL DEVICE. ALL OPERATING PARAMETERS EXCEPT SCHEDULING SHALL BE STORED IN NON-VOLATILE MEMORY RESIDENT ON THE MICROPROCESSOR. THE MICROPROCESSOR SHALL PROVIDE THE FOLLOWING FUNCTIONS, SELF-DIAGNOSTICS, AUTO RE-START AFTER A POWER FAILURE AND A TEST RUN MODE.

38. THE UNIT SHALL BE ABLE TO COMMUNICATE WITH OTHER INDOOR UNITS AND THE OUTDOOR UNIT USING A FIELD SUPPLIED MINIMUM OF 18 AWG, TWO CORE, STRANDED, TWISTED, AND SHIELDED COMMUNICATION CABLE.
39. THE UNIT CONTROLS SHALL OPERATE THE INDOOR UNIT USING ONE OF THE FIVE OPERATING MODES:

a) AUTO CHANGEOVER (HEAT RECOVERY SYSTEM ONLY)

b) HEATING

c) COOLING

d) DRY

e) FAN ONLY

40. THE UNIT SHALL BE ABLE TO OPERATE IN EITHER COOLING OR HEATING MODE FOR TESTING AND/OR COMMISSIONING.
41. THE UNIT SHALL BE ABLE TO OPERATE WITH THE FAN TURNED OFF DURING SYSTEM COOLING THERMAL OFF.
42. THE UNIT SHALL BE ABLE TO OPERATE WITH A CONTINUOUS FAN SETTING.
43. THE UNIT SHALL HAVE ADJUSTABLE, MULTI-STEP COOLING AND HEATING MODE THERMAL ON/OFF TEMPERATURE RANGE SETTINGS.
44. THE SYSTEM SHALL INCLUDE A PRODUCT CHECK FUNCTION TO ACCESS AND DISPLAY INDOOR UNIT TYPE AND CAPACITY FROM A WIRED PROGRAMMABLE ZONE CONTROLLER.

G. ELECTRICAL

THE UNIT ELECTRICAL POWER SHALL BE 208-230/1/60 (V/PH/HZ).

45. THE UNIT SHALL BE CAPABLE OF OPERATING WITHIN VOLTAGE LIMITS OF +/– 10% OF THE RATED VOLTAGE.

H. CONTROLS

UNIT SHALL USE CONTROLS PROVIDED BY THE MANUFACTURER TO PERFORM ALL FUNCTIONS NECESSARY TO OPERATE THE SYSTEM EFFECTIVELY AND EFFICIENTLY AND COMMUNICATE WITH THE OUTDOOR UNIT OVER AN RS-485 DAISY CHAIN.

I. SEISMIC INSTALLATIONS

PROVIDE WITH SUBMITTAL: 1) OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP) DOCUMENTS FOR CERTIFIED PRODUCT LIST OF VRF EQUIPMENT TO BE INSTALLED IN HIGH SEISMIC RISK AREAS. 2) EQUIPMENT INSTALLATION DOCUMENTS IN CONFORMANCE WITH CBC 2013, 2016 AND 2019 CALIFORNIA BUILDING CODE AND IBC 2012, 2015 AND 2018 INTERNATIONAL BUILDING CODE.

J. WARRANTY

PLEASE REFER TO THE RESPECTIVE OUTDOOR UNIT FOR APPLICABLE WARRANTY.

WALL MOUNTED INDOOR UNIT

GENERAL

1. UNIT SHALL BE MANUFACTURED BY LG.
2. UNIT SHALL BE DESIGNED TO BE INSTALLED FOR INDOOR APPLICATION.
3. UNIT SHALL BE ATTACHED TO AN INSTALLATION PLATE/BRACKET THAT SECURES UNIT TO THE WALL.
4. THE DEPTH OF THE UNIT SHALL NOT EXCEED 8.25 INCHES.

A. CASING/PANEL

UNIT CASE SHALL BE MANUFACTURED USING ACRYLONITRILE BUTADIENE STYRENE (ABS) POLYMERIC RESIN AND HAS A PEARL WHITE FINISH DESIGNED FOR MOUNTING ON A VERTICAL SURFACE AND INCLUDES AN INSTALLATION MOUNTING TEMPLATE AND HANGING BRACKET.

B. CABINET ASSEMBLY

UNIT SHALL HAVE ONE SUPPLY AIR OUTLET AND ONE RETURN AIR INLET WITH A MANUAL OR MOTORIZED SWEEPING GUIDE VANE THAT AUTOMATICALLY CHANGES THE DIRECTION OF AIRFLOW FROM SIDE-TO-SIDE AND UP-AND-DOWN.

5. UNIT SHALL BE EQUIPPED WITH FACTORY INSTALLED TEMPERATURE THERMISTORS FOR:

a) RETURN AIR

b) REFRIGERANT ENTERING COIL

c) REFRIGERANT LEAVING COIL

6. UNIT SHALL HAVE A FACTORY ASSEMBLED, PIPED AND WIRED ELECTRONIC EXPANSION VALVE (EEV) FOR REFRIGERANT CONTROL.
7. UNIT SHALL HAVE A BUILT-IN CONTROL PANEL TO COMMUNICATE WITH OTHER INDOOR UNITS AND TO THE OUTDOOR UNIT.
8. UNIT SHALL HAVE THE FOLLOWING FUNCTIONS AS STANDARD:

a) SELF-DIAGNOSTIC FUNCTION

b) AUTO ADDRESSING

c) AUTO RESTART FUNCTION

d) AUTO CHANGEOVER FUNCTION (HEAT RECOVERY SYSTEM ONLY)

e) AUTO OPERATION FUNCTION

f) AUTO CLEAN FUNCTION

g) CHILD LOCK FUNCTION

h) FORCED OPERATION

i) DUAL THERMISTOR CONTROL

j) SLEEP MODE

k) DUAL SET POINT CONTROL

l) FILTER LIFE TIMER

m) EXTERNAL ON/OFF CONTROL INPUT

n) WI-FI COMPATIBLE

o) AUTO FAN OPERATION

p) LEAK DETECTION LOGIC

9. UNIT SHALL BE CAPABLE OF REFRIGERANT PIPING IN FOUR DIFFERENT DIRECTIONS.
10. UNIT SHALL BE CAPABLE OF DRAIN PIPING IN TWO DIFFERENT DIRECTIONS.

C. FAN ASSEMBLY

THE UNIT SHALL HAVE A SINGLE, DIRECT DRIVEN CROSSFLOW TANGENTIAL SIROCCO FAN MADE OF HIGH STRENGTH ABS BSN-7530 POLYMERIC RESIN.

11. THE FAN IMPELLER SHALL BE STATICALLY AND DYNAMICALLY BALANCED.
12. THE FAN MOTOR IS BRUSHLESS DIGITALLY COMMUTATED (BLDC) WITH PERMANENTLY LUBRICATED AND SEALED BALL BEARINGS.
13. THE FAN MOTOR SHALL INCLUDE THERMAL, OVERCURRENT AND LOW RPM PROTECTION.
14. THE FAN/MOTOR ASSEMBLY SHALL BE MOUNTED ON VIBRATION ATTENUATING RUBBER GROMMETS.
15. THE FAN SPEED SHALL BE CONTROLLED USING MICROPROCESSOR BASED DIRECT DIGITALLY CONTROLLED ALGORITHM THAT PROVIDES A MINIMUM OF THREE PRE-PROGRAMED FAN SPEEDS IN THE HEATING MODE AND FAN ONLY MODE AND FOUR SPEEDS IN THE COOLING MODE. THE FAN SPEED ALGORITHM PROVIDES A FIELD SELECTABLE FIXED SPEED.
16. IN COOLING MODE, THE INDOOR FAN SHALL HAVE THE FOLLOWING SETTINGS: LOW, MED, HIGH, POWER COOL, AND AUTO.
17. IN HEATING MODE, THE INDOOR FAN SHALL HAVE THE FOLLOWING SETTINGS: LOW, MED, HIGH, AND AUTO.
18. UNIT SHALL HAVE FACTORY INSTALLED MOTORIZED LOUVER TO PROVIDE FLOW OF AIR IN UP AND DOWN DIRECTION FOR UNIFORM AIRFLOW.
19. UNIT SHALL HAVE FACTORY INSTALLED MOTORIZED GUIDE VANE TO CONTROL THE DIRECTION OF FLOW OF AIR FROM SIDE TO SIDE.

D. FILTER ASSEMBLY

THE RETURN AIR INLET SHALL HAVE A FACTORY SUPPLIED REMOVABLE, WASHABLE FILTER

20. THE FILTER ACCESS SHALL BE FROM THE FRONT OF THE UNIT WITHOUT THE NEED OF TOOLS.

E. COIL ASSEMBLY

UNIT SHALL HAVE A FACTORY BUILT COIL COMPRISED OF ALUMINUM FINS MECHANICALLY BONDED ON COPPER TUBING.

21. THE COPPER TUBING SHALL HAVE INNER GROOVES TO EXPAND THE REFRIGERANT CONTACT SURFACE FOR HIGH EFFICIENCY HEAT EXCHANGER OPERATION.
22. UNIT SHALL HAVE A MINIMUM TWO ROW COIL, 18 FINS PER INCH.
23. UNIT SHALL HAVE A FACTORY SUPPLIED CONDENSATE DRAIN PAN BELOW THE COIL CONSTRUCTED OF EPS (EXPANDABLE POLYSTYRENE RESIN).
24. UNIT SHALL BE DESIGNED FOR GRAVITY DRAIN.
25. UNIT SHALL HAVE A 5/8" INSIDE DIAMETER FACTORY INSULATED DRAIN HOSE TO HANDLE CONDENSATE.
26. UNIT SHALL HAVE PROVISION OF 45° FLARE REFRIGERANT PIPE CONNECTIONS.
27. THE COIL SHALL BE FACTORY PRESSURE TESTED AT A MINIMUM OF 550 PSIG.
28. ALL REFRIGERANT PIPING FROM OUTDOOR UNIT TO INDOOR UNIT SHALL BE FIELD INSULATED. EACH PIPE SHOULD BE INSULATED SEPARATELY.
29. THICKNESS AND HEAT TRANSFER CHARACTERISTICS SHALL BE DETERMINED BY THE DESIGN ENGINEER AND SHALL MEET ALL CODE REQUIREMENTS.

F. MICROPROCESSOR CONTROL

THE UNIT SHALL HAVE A FACTORY INSTALLED MICROPROCESSOR CONTROLLER CAPABLE OF PERFORMING FUNCTIONS NECESSARY TO OPERATE THE SYSTEM WITH OR WITHOUT THE USE OF A WALL MOUNTED ZONE CONTROLLER. THE UNIT SHALL HAVE A FACTORY MOUNTED RETURN AIR THERMISTOR FOR USE AS A SPACE TEMPERATURE CONTROL DEVICE. ALL OPERATING PARAMETERS EXCEPT SCHEDULING SHALL BE STORED IN NON-VOLATILE MEMORY RESIDENT ON THE MICROPROCESSOR. THE MICROPROCESSOR SHALL PROVIDE THE FOLLOWING FUNCTIONS, SELF-DIAGNOSTICS, AUTO RE-START AFTER A POWER FAILURE AND A TEST RUN MODE.

30. UNIT SHALL HAVE PROVISION OF 45° FLARE REFRIGERANT PIPE CONNECTIONS.
31. THE COIL SHALL BE FACTORY PRESSURE TESTED AT A MINIMUM OF 550 PSIG.
32. ALL REFRIGERANT PIPING FROM OUTDOOR UNIT TO INDOOR UNIT SHALL BE FIELD INSULATED. EACH PIPE SHOULD BE INSULATED SEPARATELY.
33. THICKNESS AND HEAT TRANSFER CHARACTERISTICS SHALL BE DETERMINED BY THE DESIGN ENGINEER AND SHALL MEET ALL CODE REQUIREMENTS.

F. MICROPROCESSOR CONTROL

THE UNIT SHALL HAVE A FACTORY INSTALLED MICROPROCESSOR CONTROLLER CAPABLE OF PERFORMING FUNCTIONS NECESSARY TO OPERATE THE SYSTEM WITH OR WITHOUT THE USE OF A WALL MOUNTED ZONE CONTROLLER. THE UNIT SHALL HAVE A FACTORY MOUNTED RETURN AIR THERMISTOR FOR USE AS A SPACE TEMPERATURE CONTROL DEVICE. ALL OPERATING PARAMETERS EXCEPT SCHEDULING SHALL BE STORED IN NON-VOLATILE MEMORY RESIDENT ON THE MICROPROCESSOR. THE MICROPROCESSOR SHALL PROVIDE THE FOLLOWING FUNCTIONS, SELF-DIAGNOSTICS, AUTO RE-START AND A TEST RUN MODE.

8. UNIT SHALL HAVE THE FOLLOWING FUNCTIONS AS STANDARD:

a) SELF-DIAGNOSTIC FUNCTION

b) AUTO ADDRESSING

c) AUTO RESTART FUNCTION

d) AUTO CHANGEOVER FUNCTION (HEAT RECOVERY SYSTEM ONLY)

e) AUTO OPERATION FUNCTION

f) AUTO CLEAN FUNCTION

g) CHILD LOCK FUNCTION

h) FORCED OPERATION

i) DUAL THERMISTOR CONTROL

j) SLEEP MODE

k) DUAL SET POINT CONTROL

l) FILTER LIFE TIMER

m) EXTERNAL ON/OFF CONTROL INPUT

n) WI-FI COMPATIBLE

o) AUTO FAN OPERATION

p) LEAK DETECTION LOGIC

9. UNIT SHALL BE CAPABLE OF REFRIGERANT PIPING IN FOUR DIFFERENT DIRECTIONS.
10. UNIT SHALL BE CAPABLE OF DRAIN PIPING IN TWO DIFFERENT DIRECTIONS.

C. FAN ASSEMBLY

THE UNIT SHALL HAVE A SINGLE, DIRECT DRIVEN CROSSFLOW TANGENTIAL SIROCCO FAN MADE OF HIGH STRENGTH ABS BSN-7530 POLYMERIC RESIN.

11. THE FAN IMPELLER SHALL BE STATICALLY AND DYNAMICALLY BALANCED.
12. THE FAN MOTOR IS BRUSHLESS DIGITALLY COMMUTATED (BLDC) WITH PERMANENTLY LUBRICATED AND SEALED BALL BEARINGS.
13. THE FAN MOTOR SHALL INCLUDE THERMAL, OVERCURRENT AND LOW RPM PROTECTION.
14. THE FAN/MOTOR ASSEMBLY SHALL BE MOUNTED ON VIBRATION ATTENUATING RUBBER GROMMETS.
15. THE FAN SPEED SHALL BE CONTROLLED USING MICROPROCESSOR BASED DIRECT DIGITALLY CONTROLLED ALGORITHM THAT PROVIDES A MINIMUM OF THREE PRE-PROGRAMED FAN SPEEDS IN THE HEATING MODE AND FAN ONLY MODE AND FOUR SPEEDS IN THE COOLING MODE. THE FAN SPEED ALGORITHM PROVIDES A FIELD SELECTABLE FIXED SPEED.
16. IN COOLING MODE, THE INDOOR FAN SHALL HAVE THE FOLLOWING SETTINGS: LOW, MED, HIGH, POWER COOL, AND AUTO.
17. IN HEATING MODE, THE INDOOR FAN SHALL HAVE THE FOLLOWING SETTINGS: LOW, MED, HIGH, AND AUTO.
18. UNIT SHALL HAVE FACTORY INSTALLED MOTORIZED LOUVER TO PROVIDE FLOW OF AIR IN UP AND DOWN DIRECTION FOR UNIFORM AIRFLOW.
19. UNIT SHALL HAVE FACTORY INSTALLED MOTORIZED GUIDE VANE TO CONTROL THE DIRECTION OF FLOW OF AIR FROM SIDE TO SIDE.

D. FILTER ASSEMBLY

THE RETURN AIR INLET SHALL HAVE A FACTORY SUPPLIED REMOVABLE, WASHABLE FILTER

20. THE FILTER ACCESS SHALL BE FROM THE FRONT OF THE UNIT WITHOUT THE NEED OF TOOLS.

E. COIL ASSEMBLY

UNIT SHALL HAVE A FACTORY BUILT COIL COMPRISED OF ALUMINUM FINS MECHANICALLY BONDED ON COPPER TUBING.

21. THE COPPER TUBING SHALL HAVE INNER GROOVES TO EXPAND THE REFRIGERANT CONTACT SURFACE FOR HIGH EFFICIENCY HEAT EXCHANGER OPERATION.
22. UNIT SHALL HAVE A MINIMUM TWO ROW COIL, 18 FINS PER INCH.
23. UNIT SHALL HAVE A FACTORY SUPPLIED CONDENSATE DRAIN PAN BELOW THE COIL CONSTRUCTED OF EPS (EXPANDABLE POLYSTYRENE RESIN).
24. UNIT SHALL BE DESIGNED FOR GRAVITY DRAIN.
25. UNIT SHALL HAVE A 5/8" INSIDE DIAMETER FACTORY INSULATED DRAIN HOSE TO HANDLE CONDENSATE.

BASIC MECHANICAL MATERIALS AND METHODS

PART 1 – GENERAL

1.1 CONTRACTOR SHALL PROVIDE LABOR, MATERIALS, TOOLS, AND SERVICES FOR A COMPLETE INSTALLATION OF EQUIPMENT AND SYSTEM CONTAINED IN THE CONTRACT DOCUMENTS

HVAC SPECIFICATION

SPLIT SYSTEM DX WITH ELECTRIC HEAT

WARRANTY:
WARRANTY ON COMPRESSOR AND HEAT EXCHANGER: PROVIDE WRITTEN WARRANTY, SIGNED BY MANUFACTURER, AGREEING TO REPLACE/REPAIR, WITHIN WARRANTY PERIOD, COMPRESSORS AND HEAT EXCHANGERS WITH INADEQUATE AND DEFECTIVE MATERIALS AND WORKMANSHIP, INCLUDING LEAKAGE, BREAKAGE, IMPROPER ASSEMBLY, OR FAILURE TO PERFORM AS REQUIRED; PROVIDED MANUFACTURER'S INSTRUCTIONS FOR HANDLING, INSTALLING, PROTECTING, AND MAINTAINING UNITS HAVE BEEN ADHERED TO DURING WARRANTY PERIOD. REPLACEMENT IS LIMITED TO COMPONENT REPLACEMENT ONLY, AND DOES NOT INCLUDE LABOR FOR REMOVAL AND REINSTALLATION.
WARRANTY PERIOD: 5 YEARS FROM DATE OF OWNER ACCEPTANCE.

PART 1 – GENERAL
SYSTEM DESCRIPTION

A. INDOOR,
10.1. SPLIT-SYSTEM AIR-HANDLING UNIT FOR USE IN COMMERCIAL OR RESIDENTIAL SPLIT SYSTEMS. UNIT SHALL HAVE A MULTI-POSITION DESIGN AND SHALL BE CAPABLE OF HORIZONTAL INSTALLATION IN A CEILING, WITHOUT DUCTWORK.
10.2. UNIT MUST BE DESIGNED TO OPERATE WITH R-410A REFRIGERANT CIRCUIT WITH A MATCHING AIR-COOLED CONDENSING UNIT, FOR MATCHED SYSTEMS APPROVED BY THE MANUFACTURER.
B. QUALITY ASSURANCE
1.1. ALL COILS SHALL BE DESIGNED AND TESTED IN ACCORDANCE WITH ASHRAE 15 SAFETY CODE FOR MECHANICAL REFRIGERATION, LATEST EDITION.
1.2. UNIT SHALL BE CONSTRUCTED IN ACCORDANCE WITH UL AND ETL, CANADA, STANDARDS AND SHALL CARRY THE UL AND CANADA, LABELS.
1.3. UNIT INSULATION AND ADHESIVE SHALL COMPLY WITH NFPA-90A REQUIREMENTS FOR FLAME SPREAD AND SMOKE GENERATION. INSULATION SHALL CONTAIN AN EPA-REGISTERED IMMOBILIZED ANTIMICROBIAL AGENT TO EFFECTIVELY RESIST THE GROWTH OF BACTERIA AND FUNGI AS PROVEN BY TESTS IN ACCORDANCE WITH ASTM STANDARDS G21 AND 22.
1.4. UNIT SHALL BE MANUFACTURED IN A FACILITY REGISTERED TO THE ISO 9001:2000 MANUFACTURING QUALITY STANDARD.
1.5. DIRECT-EXPANSION COILS SHALL BE LEAK TESTED AT 150 PSIG AND PRESSURE TESTED AT 650 PSIG AND QUALIFIED TO UL BURST TEST AT 1980 PSIG.
1.6. UNIT WILL BE CERTIFIED FOR CAPACITY AND EFFICIENCY AND LISTED IN THE LATEST AHRI CONSUMER'S DIRECTORY OF CERTIFIED EFFICIENCY RATINGS.

DELIVERY AND STORAGE
A. UNITS SHALL BE STORED AND HANDLED PER MANUFACTURER'S RECOMMENDATIONS.

PART 2 – PRODUCTS (INDOOR UNIT)
EQUIPMENT
A. INDOOR MOUNTED, DRAW-THRU, SPLIT-SYSTEM AIR-HANDLING UNIT THAT CAN BE USED WITH OR WITHOUT DUCTWORK IN A SUSPENDED HORIZONTAL CONFIGURATION OR FREE-STANDING VERTICAL CONFIGURATION. UNIT SHALL BE INDOOR COMPONENT OF A SPLIT SYSTEM. UNIT SHALL CONSIST OF FORWARD-CURVED BELT-DRIVEN CENTRIFUGAL FAN(S), MOTOR AND DRIVE ASSEMBLY, PREWIRED FAN MOTOR CONTACTOR, FACTORY-INSTALLED REFRIGERANT METERING DEVICES, BYPASS CHECK VALVES, COOLING COIL, 2-IN. DISPOSABLE AIR FILTERS, AND CONDENSATE DRAIN PANS FOR VERTICAL OR HORIZONTAL CONFIGURATIONS.
B. BASE UNIT:
1.1. CABINET SHALL BE CONSTRUCTED OF MILL-GALVANIZED STEEL.
1.2. CABINET PANELS SHALL BE FULLY INSULATED WITH 1/2-IN. FIRE-RETARDANT MATERIAL. INSULATION SHALL CONTAIN AN EPA-REGISTERED IMMOBILIZED ANTIMICROBIAL AGENT TO EFFECTIVELY RESIST THE GROWTH OF BACTERIA AND FUNGI AS PROVEN BY TESTS IN ACCORDANCE WITH ASTM STANDARDS G21 AND 22.
1.3. UNIT SHALL CONTAIN CORROSION-FREE CONDENSATE DRAIN PANS FOR BOTH VERTICAL AND HORIZONTAL APPLICATIONS. DRAIN PANS SHALL HAVE CONNECTIONS ON RIGHT AND LEFT SIDES OF UNIT TO FACILITATE FIELD CONNECTION. DRAIN PANS SHALL HAVE THE ABILITY TO BE SLOPED TOWARD THE RIGHT OR LEFT SIDE OF THE UNIT TO PREVENT STANDING WATER FROM ACCUMULATING IN PANS.
1.4. UNIT SHALL HAVE FACTORY-SUPPLIED 2-IN. THROWAWAY-TYPE FILTERS INSTALLED UPSTREAM FROM THE COOLING COIL. FILTER ACCESS SHALL BE FROM EITHER THE RIGHT OR LEFT SIDE OF THE UNIT.
C. COILS:
1.1. COILS SHALL CONSIST OF 3 ROWS OR 4 ROWS OF COPPER TUBES WITH SINE-WAVE ALUMINUM FINS BONDED TO THE TUBES BY MECHANICAL EXPANSION. COIL TUBING SHALL BE INTERNALLY RIFLED TO MAXIMIZE HEAT TRANSFER. REFRIGERANT LINE CONNECTIONS SHALL BE MADE ON THE SAME SIDE OF THE COIL.
1.2. COILS SHALL FEATURE FACTORY-INSTALLED THERMOSTATIC EXPANSION VALVES (TXVS) FOR REFRIGERANT CONTROL. THE TXVS SHALL BE CAPABLE OF EXTERNAL ADJUSTMENT.
1.3. COILS SHALL HAVE A FACTORY-INSTALLED BYPASS LINE AND CHECK VALVE ASSEMBLY AROUND THE TXVS TO ALLOW LIQUID FLOW FROM THE COIL TO THE OUTDOOR UNIT DURING HEATING MODE.
D. MOTOR:
1.1. FAN MOTOR OF THE SIZE AND ELECTRICAL CHARACTERISTICS SPECIFIED ON THE EQUIPMENT SCHEDULE SHALL BE FACTORY-SUPPLIED AND FACTORY-INSTALLED.
1.2. INDOOR-FAN MOTOR SHALL HAVE PERMANENTLY LUBRICATED, SEALED BEARINGS AND INHERENT AUTOMATIC-RESET THERMAL OVERLOAD PROTECTION (MOTORS SMALLER THAN 5 HP) OR MANUAL RESET CALIBRATED CIRCUIT BREAKERS (MOTORS EQUAL OR LARGER THAN 5 HP). MOTORS ARE DESIGNED AND QUALIFIED IN THE "AIR-OVER" LOCATION DOWNSTREAM OF THE COOLING COIL AND CARRY A MAXIMUM CONTINUOUS BHP RATING THAT IS THE MAXIMUM APPLICATION BHP RATING FOR THE MOTORS; NO "SAFETY FACTORS" ABOVE THAT RATING MAY BE APPLIED.
1.3. ALL INDOOR FAN MOTORS 5 HP AND LARGER SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS AS ESTABLISHED BY THE MOST RECENT ENERGY POLICY ENACTED BY DEPARTMENT OF ENERGY.
E. SPECIAL FEATURES: (REFER TO SCHEDULE FOR APPLICABLE OPTIONS)
1.1. ALTERNATE MOTOR AND DRIVE: AN ALTERNATE MOTOR AND MEDIUM OR HIGH-STATIC DRIVE SHALL BE AVAILABLE TO MEET THE AIRFLOW AND EXTERNAL STATIC PRESSURE REQUIREMENTS SPECIFIED ON THE EQUIPMENT SCHEDULE.
1.2. EXTERNAL PAINT CABINET: WHERE CONDITIONS REQUIRE, UNITS SHALL BE PAINTED WITH AN AMERICAN STERLING GRAY FINISH.

F. ELECTRIC HEATERS (WHEN SCHEDULED ON PLAN):
1.1. HEATERS FOR NOMINAL POWER SUPPLY (REFER TO SCHEDULE) SHALL BE FACTORY-SUPPLIED FOR FIELD INSTALLATION AS SHOWN ON THE EQUIPMENT DRAWINGS. ELECTRIC HEAT ASSEMBLY SHALL BE UL AND ETL, CANADA; AGENCY APPROVED, AND SHALL HAVE SINGLE-POINT POWER WIRING. HEATER ASSEMBLY SHALL INCLUDE CONTACTORS WITH 24-V COILS, POWER WIRING, 24-V CONTROL WIRING TERMINAL BLOCKS, AND A HINGED ACCESS PANEL.
1.2. AIR DISCHARGE PLENUM: PLENUM SHALL BE FACTORY-SUPPLIED TO PROVIDE FREE-BLOW AIR DISTRIBUTION FOR VERTICAL FLOOR-MOUNTED UNITS. A GRILLE WITH MOVEABLE VANES FOR HORIZONTAL OR VERTICAL AIRFLOW ADJUSTMENT SHALL BE INCLUDED. PLENUM HOUSING SHALL BE FIELD-INSTALLED ON THE UNIT'S FAN DECK FOR BLOW-THRU AIR DISTRIBUTION.
1.3. RETURN AIR GRILLE: GRILLE SHALL BE FACTORY-SUPPLIED FOR FIELD INSTALLATION ON THE UNIT'S RETURN AIR OPENING.
G. ECONOMIZER (WHEN REQUIRED BY CODE):
1.1. ECONOMIZER FOR VENTILATION OR "FREE" COOLING SHALL BE FACTORY-PROVIDED FOR FIELD INSTALLATION. FOR FREE COOLING APPLICATIONS, ECONOMIZER SHALL BE COMPATIBLE WITH FACTORY-SUPPLIED THERMOSTAT; ECONOMIZER DAMPERS SHALL OPEN WHEN OUTDOOR AIR ENTHALPY IS SUITABLE FOR FREE COOLING. ECONOMIZER SHALL BE COMPATIBLE WITH FACTORY-SUPPLIED CO2 SENSOR; ECONOMIZER DAMPERS SHALL OPEN WHEN INDOOR CO2 LEVEL RISES ABOVE PREDETERMINED SET POINT. ECONOMIZER SHALL INCLUDE ENTHALPY CONTROL AND DAMPER ACTUATOR.
H. CO2 SENSOR (WHEN SCHEDULED ON PLAN): SENSOR SHALL PROVIDE THE ABILITY TO SIGNAL THE ECONOMIZER OR MOTORIZED DAMPER TO OPEN WHEN THE SPACE CO2 LEVEL EXCEEDS THE PREDETERMINED SET POINT. SENSOR SHALL HAVE THE CAPABILITY OF BEING CONNECTED AND INTERLOCKED TO ECONOMIZER OR MOTORIZED DAMPER.

I. THERMOSTAT CONTROLS: PROGRAMMABLE MULTI-STAGE THERMOSTAT WITH 7-DAY CLOCK, HOLIDAY SCHEDULING, LARGE BACKLIT DISPLAY, REMOTE SENSOR CAPABILITY, TIME OF DAY INTERLOCK WITH MOTORIZED DAMPERS AND TITLE 24 COMPLIANCE.

J. OVERHEAD SUSPENSION PACKAGE: PACKAGE SHALL INCLUDE NECESSARY BRACKETS TO SUPPORT UNITS IN A HORIZONTAL CEILING INSTALLATION.

K. CONDENSATE DRAIN TRAP: TRAP SHALL HAVE TRANSPARENT, SERVICEABLE DESIGN FOR EASY CLEANING. KIT SHALL ALSO INCLUDE OVERFLOW SHUTOFF SWITCH AND WIRING HARNESS FOR CONNECTION TO ALARM IF DESIRED.

L. CONNECTIONS:
1.1. CONNECT PRECHARGED REFRIGERANT TUBING TO COMPONENT'S QUICK-CONNECT FITTINGS. INSTALL TUBING TO ALLOW ACCESS TO UNIT.
1.2. CONNECT SUPPLY AND RETURN WATER COIL WITH SHUTOFF-DUTY VALVE AND UNION OR FLANGE ON THE SUPPLY CONNECTION AND WITH THROTTLING-DUTY VALVE AND UNION OR FLANGE ON THE RETURN CONNECTION.
1.3. CONNECT SUPPLY AND RETURN CONDENSER CONNECTIONS WITH SHUTOFF-DUTY VALVE AND UNION OR FLANGE ON THE SUPPLY CONNECTION AND WITH THROTTLING-DUTY VALVE AND UNION OR FLANGE ON THE RETURN CONNECTION.
2. INSTALL PIPING ADJACENT TO UNIT TO ALLOW SERVICE AND MAINTENANCE.

M. SEIZMIC RESTRAINT:
1.1. WHEN REQUIRED BY LOCAL ORDIANANCES OR CODES SEIZMIC RESTRAINT SHALL BE ADDED, AS REQUIRED, TO ALL EQUIPMENT IN ACCORDANCE WITH SEISMIC HAZARD LEVEL (SHL) "_" OF THE SEISMIC RESTRAINT MANUAL: GUIDELINES FOR MECHANICAL SYSTEMS, DATED 2008, PUBLISHED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. (SMACNA) AND IN ACCORDANCE WITH YOUR LOCAL CODES. SEISMIC HAZARD LEVEL SHALL BE CONFIRMED WITH LOCAL AUTORITY.

N. FIELD QUALITY CONTROL:
1.1. MANUFACTURER'S FIELD SERVICE: ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO INSPECT[, TEST, AND ADJUST] FIELD-ASSEMBLED COMPONENTS AND EQUIPMENT INSTALLATION, INCLUDING CONNECTIONS[, AND TO ASSIST IN FIELD TESTING]. REPORT RESULTS IN WRITING.
1.2. LEAK TEST: AFTER INSTALLATION, CHARGE SYSTEM AND TEST FOR LEAKS. REPAIR LEAKS AND RETEST UNTIL NO LEAKS EXIST.
1.3. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, START UNITS TO CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATION. REMOVE MALFUNCTIONING UNITS, REPLACE WITH NEW COMPONENTS, AND RETEST.
1.4. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.

GENERAL (OUTDOOR UNIT)

A. SYSTEM DESCRIPTION
1.1. OUTDOOR-MOUNTED, ELECTRICALLY CONTROLLED, AIR-COOLED SPLIT SYSTEM SUITABLE FOR ON-THE-GROUND OR ROOFTOP INSTALLATION. UNIT SHALL CONSIST OF A SCROLL AIR-CONDITIONING COMPRESSOR ASSEMBLY, AN AIR-COOLED COIL, PROPELLER- TYPE CONDENSER FANS, AND A CONTROL BOX. UNIT SHALL DISCHARGE SUPPLY AIR UPWARD AS SHOWN ON CONTRACT DRAWINGS. UNIT SHALL FUNCTION AS THE OUTDOOR COMPONENT OF THE AIR TO AIR DIRECT EXPANSION SPLIT SYSTEM.
1.2. UNIT MUST BE DESIGNED WITH A R-410A REFRIGERANT CIRCUIT TO MATCH INDOOR AIR HANDLER.
1.3. UNIT SHALL HAVE REVERSING VALVE AND LOW-TEMPERATURE AIR CUT-OFF THERMOSTAT.
1.4. UNIT SHALL HAVE LOW AMBIENT KIT TO PERMIT OPERATION DOWN TO 0?.

B. QUALITY ASSURANCE
1.1. UNIT SHALL BE RATED IN ACCORDANCE WITH ARI STANDARD 340/360.
1.2. UNIT CONSTRUCTION SHALL COMPLY WITH ANSI/ASHRAE 15 SAFETY CODE LATEST REVISION AND COMPLY WITH NEC.
1.3. UNIT SHALL BE CONSTRUCTED IN ACCORDANCE WITH UL 1995 STANDARD AND SHALL CARRY THE UL AND UL, CANADA LABEL.
1.4. UNIT CABINET SHALL BE CAPABLE OF WITHSTANDING 500-HOUR SALT SPRAY EXPOSURE PER ASTM B117 (SCRIBED SPECIMEN).
1.5. AIR-COOLED OUTDOOR COILS SHALL BE LEAK TESTED AT 150 PSIG AND PRESSURE TESTED AT 650 PSIG AND QUALIFIED TO UL BURST TEST AT 1980 PSIG.
1.6. UNIT SHALL BE MANUFACTURED IN A FACILITY REGISTERED TO ISO 9001:2000 MANUFACTURING QUALITY STANDARD.

ELECTRIC HEATING TERMINALS

HEATERS (REFER TO SCHEDULE):
GENERAL: PROVIDE A HEAVY DUTY FAN FORCED WALL OR CEILING HEATER. HEATING GRID SHALL BE MADE UP OF RUGGED STEEL FINS, COPPER BRAZED TO NON GLOWING, STEEL SHEATHED ELEMENTS. UNIT TO HAVE BUILT IN, TAMPER PROOF THERMOSTAT OR REMOTE THERMOSTAT, BUILT IN DISCONNECT SWITCH. FRONT COVER SHALL BE DECORATIVE 16 GAUGE WELDED BAR GRILLE. FAN DELAY AND THERMAL CUTOUT ARE STANDARD. PROVIDE ALL REQUIRED CONTROL TRANSFORMERS.
MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE WALL OR CEILING HEATERS OF ONE OF THE FOLLOWING:
BERKO
OMARK
MARKEL
RAYWALL

INSTALLATION OF HEATING TERMINALS:
INSTALL ELECTRIC HEATING TERMINAL UNITS INCLUDING COMPONENTS AS INDICATED, IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S WRITTEN INSTRUCTIONS, AND WITH RECOGNIZED INDUSTRY PRACTICES; COMPLYING WITH APPLICABLE INSTALLATION REQUIREMENTS OF NEC AND NECA'S "STANDARD OF INSTALLATION".
COORDINATE WITH OTHER ELECTRICAL WORK, INCLUDING WIRING/CABLING, AS NECESSARY TO PROPERLY INTERFACE INSTALLATION OF HEATING TERMINAL UNITS WITH OTHER WORK.
CLEAN DUST AND DEBRIS FROM EACH HEATING TERMINAL AS IT IS INSTALLED TO ENSURE CLEANLINESS.
COMB OUT DAMAGED FINS WHERE BENT OR CRUSHED BEFORE COVERING ELEMENTS WITH ENCLOSURES.
TOUCH-UP SCRATCHED OR MARRED HEATING TERMINAL ENCLOSURE SURFACES TO MATCH ORIGINAL FINISHES.
TIGHTEN CONNECTORS AND TERMINALS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR EQUIPMENT CONNECTORS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT INDICATED, TIGHTEN CONNECTORS AND TERMINALS TO COMPLY WITH TIGHTENING TORQUES SPECIFIED IN UL STD 486A.

GROUNDING:
PROVIDE EQUIPMENT GROUNDING CONNECTIONS FOR ELECTRIC HEATING TERMINALS AS INDICATED. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUES SPECIFIED IN UL STD 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.

FIELD QUALITY CONTROL:
UPON COMPLETION OF INSTALLATION OF ELECTRIC HEATING TERMINALS, AND AFTER BUILDING CIRCUITRY HAS BEEN ENERGIZED, TEST HEATING TERMINALS TO DEMONSTRATE CAPABILITY AND COMPLIANCE WITH REQUIREMENTS. WHERE POSSIBLE, FIELD CORRECT MALFUNCTIONING UNITS, THEN RETEST TO DEMONSTRATE COMPLIANCE; OTHERWISE, REMOVE AND REPLACE WITH NEW UNITS AND PROCEED WITH RETESTING.
REPLACE ELECTRIC HEATING TERMINALS AND ACCESSORIES WHICH ARE DAMAGED AND REMOVE DAMAGED ITEMS FROM CONSTRUCTION SITE.

FANS AND VENTILATORS

CEILING VENTILATORS
CENTRIFUGAL CEILING EXHAUSTERS: PROVIDE CENTRIFUGAL ROOF OR CEILING EXHAUST, OF TYPE, SIZE AND CAPACITY AS SCHEDULED.
PROVIDE AMCA CERTIFIED RATINGS SEAL.
MANUFACTURER: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE CENTRIFUGAL CEILING EXHAUSTERS OF ONE OF THE FOLLOWING:
ACME
COOK CO., LOREN.
GREENHECK.
PENN VENTILATOR CO., INC.
TWIN CITY FAN & BLOWER

INSPECTION
GENERAL: EXAMINE AREAS AND CONDITIONS UNDER WHICH POWER AND GRAVITY VENTILATORS ARE TO BE INSTALLED. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

INSTALLATION OF POWER AND GRAVITY VENTILATORS
COORDINATE VENTILATOR WORK WITH WORK OF ROOFING, WALLS, AND CEILINGS, AS NECESSARY FOR PROPER INTERFACING.
PROVIDE ACCESS DOOR IN DUCT BELOW VENTILATOR TO SERVICE DAMPER.
SOLDER BOTTOM JOINTS AND UP 2" OF SIDE JOINTS OF DUCT UNDER ROOF VENTILATOR TO RETAIN ANY MOISTURE ENTERING VENTILATOR.
ACCESS: PROVIDE ACCESS AND SERVICE SPACE AROUND AND OVER FANS AS INDICATED, BUT IN NO CASE LESS THAN THAT RECOMMENDED BY MANUFACTURER.
ROOF CURBS: FURNISH ROOF CURBS TO ROOFING INSTALLER FOR INSTALLATION. INSTALL ACCORDING TO ROOFING MANUFACTURER'S RECOMMENDATION AND SPECIFICATIONS.
ELECTRICAL WIRING: INSTALL ELECTRICAL DEVICES FURNISHED BY MANUFACTURER BUT NOT SPECIFIED TO BE FACTORY-MOUNTED. FURNISH COPY OF MANUFACTURER'S WIRING DIAGRAM SUBMITTAL TO ELECTRICAL INSTALLER.
VERIFY THAT ELECTRICAL WIRING INSTALLATION IS IN ACCORDANCE WITH MANUFACTURER'S SUBMITTAL AND INSTALLATION REQUIREMENTS OF DIVISION-16 SECTIONS. ENSURE THAT ROTATION IS IN DIRECTION INDICATED AND INTENDED FOR PROPER PERFORMANCE. DO NOT PROCEED WITH CENTRIFUGAL FAN START-UP UNTIL WIRING INSTALLATION IS ACCEPTABLE TO FAN INSTALLER.

FIELD QUALITY CONTROL
TESTING: AFTER INSTALLATION OF VENTILATORS HAS BEEN COMPLETED, TEST EACH VENTILATOR TO DEMONSTRATE PROPER OPERATION OF UNITS AT PERFORMANCE REQUIREMENTS SPECIFIED. WHEN POSSIBLE, FIELD CORRECT MALFUNCTIONING UNITS, THEN RETEST TO DEMONSTRATE COMPLIANCE. REPLACE UNITS, WHICH CANNOT BE SATISFACTORILY CORRECTED.

ADJUSTING AND CLEANING
CLEANING: CLEAN FACTORY-FINISHED SURFACES. REPAIR ANY MARRED OR SCRATCHED SURFACES WITH MANUFACTURER'S TOUCH-UP PAINT.

SEQUENCE OF OPERATION:

SPLIT SYSTEM DX

STARTUP:
1. THE UNIT SHALL OPERATE ON A 7 DAY/NIGHT PROGRAMMABLE THERMOSTAT DURING STARTUP, THE FAN SHALL RUN WITH THE DAMPERS IN THE FULL RECIRCULATION POSITION. PROVIDE OCCUPIED CHANGEOVER SEQUENCE WITH OPTIMUM START FUNCTION. WHEN THE RETURN AIR TEMPERATURE REACHES OCCUPIED SETPOINT (ADJUSTABLE), THE MINIMUM OUTSIDE AIR DAMPER SHALL OPEN TO THE CONTROLLED MINIMUM OUTDOOR AIR POSITION.
2. SUPPLY FAN CONTROL: THE SUPPLY FAN SPEED SHALL BE CONSTANT AND SET TO THE REQUIRED CFM.
3. SPACE TEMPERATURE CONTROL: PROVIDE LOCAL WALL MOUNTED ROOM TEMPERATURE THERMOSTAT WITH DIGITAL DISPLAY OF ROOM TEMPERATURE AND SETPOINT (+/- DEG. F. ADJUSTABLE), AND OVERRIDE FEATURE.
4. MINIMUM OUTSIDE AIR CONTROL: DURING OCCUPIED MODE THE MINIMUM OUTSIDE AIR DAMPER SHALL BE OPEN. WHEN CO2 SENSER IS ENERGIZED OUTSIDE AIR DAMPER SHALL OPEN TO MAXIMUM OUTDOOR AIR POSITION.
5. COOLING CONTROL: COOLING SHALL BE CONTROLLED TO MAINTAIN TEMPERATURE SETPOINT. ON A CALL FOR COOLING, THE HEATING SHALL BE OFF. ON A FURTHER CALL FOR COOLING THE MECHANICAL COOLING SHALL BE STAGED ON.
6. HEATING CONTROL: HEATING SHALL BE CONTROLLED TO MAINTAIN TEMPERATURE SETPOINT. ON A CALL FOR HEATING, THE MECHANICAL COOLING SHALL BE OFF. ON A FURTHER CALL FOR HEATING THE ELECTRIC STRIP HEAT SHALL BE STAGED ON.
7. UNOCCUPIED MODE: DURING THE UNOCCUPIED MODE OF OPERATION, THE UNIT SHALL GO INTO NIGHT SETBACK MODE.
8. NIGHT SETBACK/SHUTDOWN: AT NIGHT SETBACK/SHUTDOWN THE SPLIT SYSTEM SHALL GO TO FAIL SAFE POSITION. FAIL SAFE POSITION IS DEFINED BY THE FOLLOWING: THE SUPPLY FAN IS OFF, THE OUTDOOR AIR INTAKE DAMPER IS CLOSED, THE HEATING IS OFF AND MECHANICAL COOLING IS OFF. THE SUPPLY FAN SHALL CYCLE IN CONJUNCTION WITH EITHER THE HEATING OR COOLING SYSTEM TO MAINTAIN A MINIMUM/MAXIMUM SPACE TEMPERATURE DEPENDING ON THE SEASON.

EXHAUST FANS:
TOILET EXHAUST FANS (REFER TO SCHEDULE)
EXHAUST FANS SHALL BE CONTROLLED BY LOCAL MANUAL SWITCH FURNISHED, INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. WHEN ACTIVATED, EXHAUST FAN MOTOR DAMPER SHALL OPEN AND FAN SHALL START.

TERMINAL UNITS
ELECTRIC UNIT HEATER
PROVIDE A SELF-CONTAINED INTEGRAL THERMOSTAT WITH ADJUSTABLE SETPOINT. ON A CALL FOR HEATING, FAN SHALL START AND COIL SHALL ACTIVATE TO MAINTAIN ROOM TEMPERATURE SETPOINT.

CONTROL WIRING
LOW VOLTAGE THERMOSTATS
LOW VOLTAGE THERMOSTATS SHALL BE FURNISHED, INSTALLED AND WIRED BY THE HVAC CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL PROVIDE 4" SQUARE X 1-1/2" DEEP WALL OUTLET BOXES AT 54" ABOVE FINISHED FLOOR (WITH SINGLE-GANG RINGS) FOR ALL THERMOSTATS/SENSORS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ONE 3/4" EMPTY CONDUIT FROM EACH THERMOSTAT/SENSOR LOCATION, TURNED OUT ABOVE ACCESSIBLE CEILINGS (IN JOIST SPACE OR AGAINST OVERHEAD SLAB/DECK). THE HVAC/TEMPERATURE CONTROL CONTRACTOR SHALL PROVIDE ALL OTHER NECESSARY CONDUIT, RACEWAY AND WIRING RELATED WORK. CONDUIT SHALL BE IDENTIFIED IN CEILING CAVITY AND SHALL BE PROVIDED WITH SWEEP BENDS, BUSHINGS AND DRAGLINE.
GENERAL CONTROL WIRING REQUIREMENTS AND INSTALLATION METHODS
EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE ABOVE, THE HVAC/TEMPERATURE CONTROL CONTRACTOR SHALL PROVIDE ALL ELECTRICAL WORK AS REQUIRED FOR ALL TEMPERATURE CONTROL RELATED WIRING (I.E. CONDUIT, RACEWAY, OUTLET BOXES, JUNCTION BOXES, WIRING, ETC.) IN ACCORDANCE WITH DIVISION 16 REQUIREMENTS. ALL CONDUIT SHALL BE 3/4" MINIMUM.
COORDINATE ALL THERMOSTAT/SENSOR LOCATIONS IN FIELD (CASE BY CASE) WITH ARCHITECT, OWNER AND ELECTRICAL CONTRACTOR TO ENSURE THAT THEY ARE PLACED IN LOCATIONS THAT WILL NOT INTERFERE WITH FURNITURE, EQUIPMENT, ARTWORK, WALL-HUNG SPECIALTIES, ROOM FINISHES, ETC. ALL THERMOSTAT/SENSOR WALL LOCATIONS INDICATED ON HVAC DRAWINGS ARE SCHEMATIC ONLY AND MUST BE VERIFIED CASE-BY-CASE PRIOR TO ROUGH-IN.
ALL ELECTRICAL WORK AS DESCRIBED IN THIS SPECIFICATION SHALL BE PER THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) AND PER APPLICABLE STATE AND LOCAL CODES.
WHERE "FREE-AIR" INSTALLATION METHODS (EITHER EXPOSED ABOVE THE CEILINGS, IN BRIDLE RINGS OR IN CABLE TRAYS) ARE PERMITTED UNDER DIVISION 16 ABOVE CEILINGS, PROVIDE PLENUM-RATED CABLES WHEREVER PLENUM CEILINGS (IF ANY) EXIST AND INSTALL AS DEFINED UNDER DIVISION 16. INSTALL LOW VOLTAGE CIRCUITS, LOCATED IN CONCRETE SLABS AND MASONRY WALLS, IN INACCESSIBLE LOCATIONS, OR EXPOSED IN OCCUPIED AREAS, IN ELECTRICAL CONDUIT REGARDLESS OF WHAT WIRING METHODS ARE PERMITTED UNDER DIVISION 16.
WHERE CABLE TRAYS OR BRIDLE RINGS ARE PROVIDED BY THE ELECTRICAL CONTRACTOR FOR LOW VOLTAGE CABLES, THESE RACEWAYS MAY BE UTILIZED FOR CONTROL WIRING BY THIS CONTRACTOR (PROVIDE SPECIAL COLOR CODED JACKETS, LABEL CABLE JACKETS PER DIVISION 16 AND GROUP CONTROL WIRING CABLES TOGETHER). PROVIDE CONDUIT DROPS FROM CABLE TRAY/BRIDLE RING PATHS TO WALL OUTLET BOXES AND EQUIPMENT UNLESS DIRECTED OTHERWISE UNDER DIVISION 16.
REGARDLESS OF PERMITTED METHODS IN DIVISION 16, ALL CABLES/WIRING INSTALLED CONCEALED BY GYPSUM BOARD, MASONRY OR OTHER INACCESSIBLE MATERIALS IN WALLS OR ABOVE CEILINGS SHALL BE INSTALLED IN CONDUIT, 3/4" MINIMUM.
ALL CONDUIT, BRIDLE RINGS, RACEWAY, OUTLET BOXES, ETC. NECESSARY FOR COMPLETE OPERATIONAL INSTALLATION OF CONTROL WIRING SHALL BE PROVIDED (FURNISHED AND INSTALLED) BY THE TEMPERATURE CONTROL CONTRACTOR IN STRICT COMPLIANCE WITH DIVISION 16 DOCUMENTS. COORDINATE ALL WORK WITH ALL OTHER APPLICABLE TRADES INCLUDING THE ELECTRICAL CONTRACTOR.
PROVIDE ALL REQUIRED CONDUIT WORK TO AND BETWEEN EQUIPMENT IN A MANNER COMPLIANT WITH THAT DESCRIBED ABOVE (I.E. BETWEEN VAV BOXES, TO BOILERS, STARTERS, CONDENSING UNITS, ETC. AS APPLICABLE).

SMOKE DETECTOR
ALL DUCT SMOKE DETECTORS WILL BE FURNISHED BY ELECTRICAL CONTRACTOR (UNLESS OTHERWISE NOTED), INSTALLED BY THE HVAC CONTRACTOR, AND WIRED BY THE ELECTRICAL CONTRACTOR PER LOCAL CODES. HVAC CONTRACTOR WILL INTERLOCK RTU FAN WITH SMOKE DETECTOR.

CONTROLS:
ELECTRICAL CONTRACTOR WILL PROVIDE POWER WIRING. HVAC CONTRACTOR SHALL PROVIDE ALL THE LOW VOLTAGE WIRING OF HVAC UNITS AND CONTROLS, THERMOSTATS AND CONTROLLERS. THERMOSTAT SHALL BE (HEAT/COOL/AUTO/OFF) WITH NIGHT SETBACK. REFER TO MECHANICAL DRAWINGS. PROVIDE PLASTIC PROTECTIVE COVER FOR ALL THERMOSTATS.

MOTOR OPERATED DAMPERS:
ALL FRESH AIR INTAKES AND EXHAUST LOUVERS SHALL HAVE MOTOR OPERATED DAMPERS. DAMPERS SHALL BE LOW LEAK WITH BLADE AND EDGE SEALS. MOTOR OPERATED DAMPERS SHALL BE LINE VOLTAGE, PROVIDED, INSTALLED AND WIRED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED. PROVIDE ALL NECESSARY TRANSFORMERS, CONTACTORS, CONTROLS AND WIRING FOR INTERLOCKING EQUIPMENT TO MOTOR OPERATED DAMPERS.

AIR BALANCING:
BEFORE FINAL APPROVAL, BALANCE ENTIRE SYSTEM WITH QUANTITIES LISTED. PROVIDE MANUAL VOLUME DAMPERS AS REQUIRED TO OBTAIN DESIGN AIR FLOWS. BALANCE REPORT SHALL CLEARLY STATE THE SUPPLY, RETURN, OUTSIDE AIR AND EXHAUST CFM FOR EACH OUTLET OR INLET. BALANCE REPORT SHALL INDICATE THE DESIGN AND ACTUAL TOTAL AIR FLOW, SUCTION AND DISCHARGE STATIC PRESSURE, BRAKE HORSEPOWER AND AMPS OF ALL FANS FOR THE PROJECT. PROVIDE ALL NECESSARY DAMPERS, DIVERTERS AS REQUIRED. PROVIDE A COPY OF THE BALANCE REPORT TO THE OWNER AND LANDLORD.

LOUVERS AND DAMPERS:
PROVIDE LOUVERS, DAMPERS, AND FIRE DAMPERS OF SIZE AS NOTED. FIRE DAMPERS SHALL BE "HIGH HAT" TYPE "B" WITH DAMPER OUTSIDE OF AIR STREAM. MANUFACTURER EQUAL TO LOUVERS AND DAMPERS, AEROLITE, PREFCO.

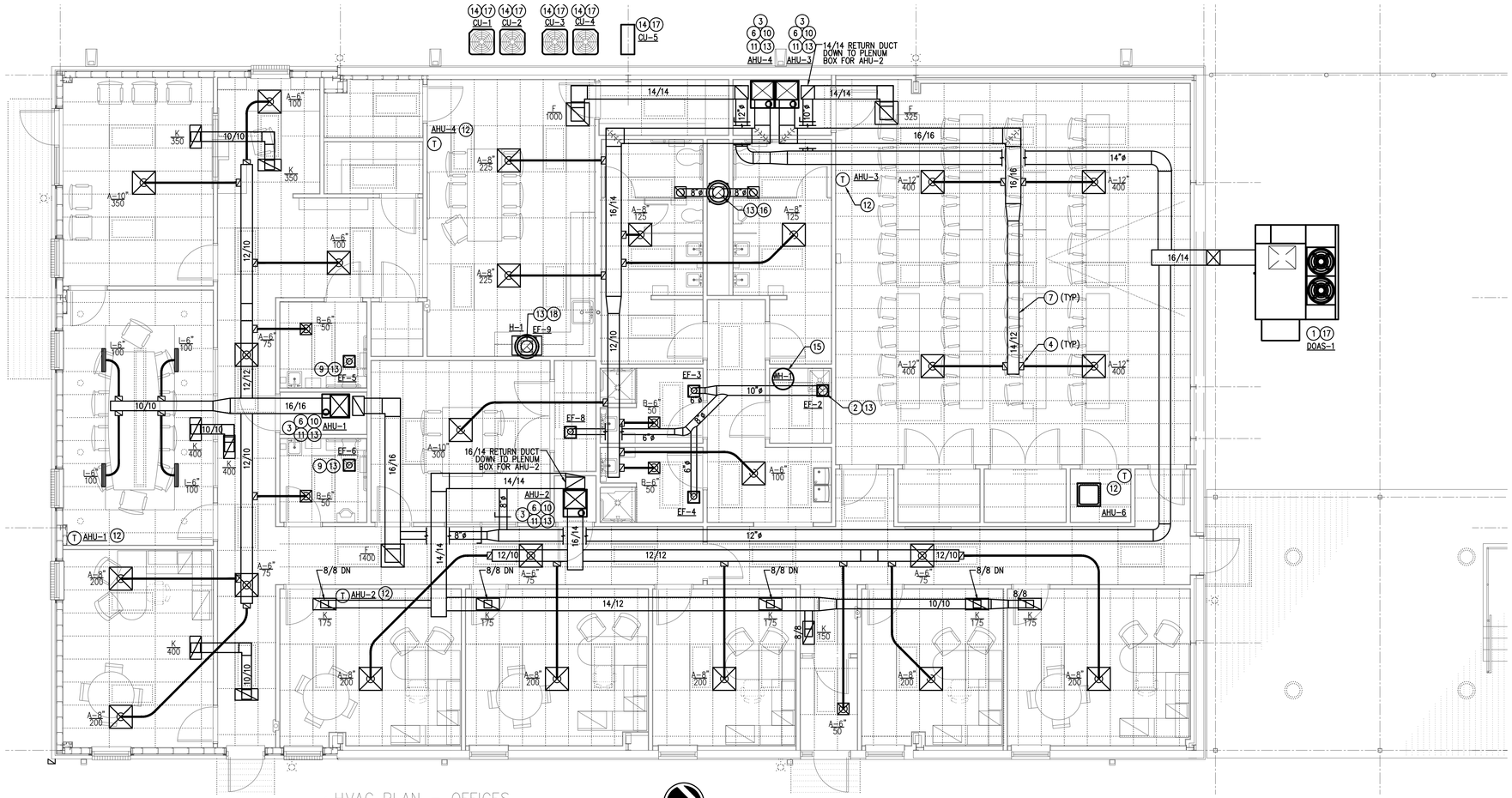
GAS PIPING:
ALL GAS PIPING AND CONNECTIONS BY THE PLUMBING CONTRACTOR UNLESS OTHERWISE NOTED.

DUCTWORK INSULATION:(R-6 MINIMUM)
PROVIDE INSULATION ON ALL CONCEALED SUPPLY AND RETURN DUCTWORK. ALL LINERS, INSULATION AND ADHESIVES SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50.
RIGID FIBERGLASS DUCTWORK INSULATION: GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 612, TYPE IB, WITHOUT FACING AND WITH VAPOR BARRIER ALL-SERVICE JACK

NOTE:
BALANCE DAMPERS ARE REQUIRED FOR BALANCING THE HVAC SYSTEM. CONTRACTOR SHALL BE RESPONSIBLE TO FURNISH AND INSTALL EVEN IF NOT SHOWN ON THE AIR OUTLET SCHEDULE OR PLANS.

KEY NOTES (#)

1. CONTRACTOR SHALL VERIFY THAT MECHANICAL EQUIPMENT IS INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND IS OPERATING TO NOMINAL PERFORMANCE SPECIFICATIONS. COORDINATE LOCATION IN FIELD.
2. 10" EXHAUST DUCT ROUTED THROUGH ROOF. TERMINATE WITH MANUFACTURERS ROOF CAP.
3. TRANSITION DUCTWORK AS REQUIRED TO CONNECT TO AIR HANDLER.
4. PROVIDE BALANCE DAMPER AT DUCT BRANCH.
5. NOT USED
6. PROVIDE INTERNALLY ACOUSTICALLY LINED SUPPLY AND RETURN DUCTWORK FOR FIRST 10'-0" FROM AHU.
7. COORDINATE EXACT LOCATION OF DUCTWORK WITH EXISTING STRUCTURAL ELEMENTS AND NEW WALLS.
8. NOT USED
9. 6" EXHAUST DUCT ROUTED UP THROUGH ROOF. TERMINATE WITH MANUFACTURERS ROOF CAP.
10. EXTEND FURNACE FLUE/INTAKE THRU ROOF AND TERMINATE WITH APPROVED CONCENTRIC VENT CAP. MAINTAIN 10'-0" MINIMUM CLEARANCE TO ANY FRESH AIR INTAKE.
11. CONTRACTOR SHALL VERIFY THAT NEW SPLIT SYSTEM AC UNIT IS INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND IS OPERATING TO NOMINAL PERFORMANCE SPECIFICATIONS. COORDINATE EXACT LOCATION ON GROUND WITH EXISTING CONDITIONS.
12. PROVIDE PROGRAMMABLE THERMOSTAT AT 48" A.F.F. THERMOSTAT SHALL BE 7-DAY PROGRAMMABLE TYPE WITH AUTO CHANGEOVER AND TIME OF DAY INTERLOCK. COORDINATE EXACT LOCATION WITH ARCHITECT IN THE FIELD.
13. COORDINATE ROOF PENETRATIONS WITH ROOFING CONTRACTOR AND STRUCTURAL ENGINEER. MAINTAIN 10'-0" CLEARANCE FROM ANY OUTDOOR AIR INTAKES.
14. EXTEND REFRIGERATION SUCTION AND LIQUID LINES TO AIR HANDLING UNIT/FURNACE INSIDE SPACE.
15. ROUTE CONCENTRIC INTAKE/VENT TO ROOF.
16. 10" EXHAUST DUCT ROUTED THROUGH ROOF AND CONNECTED TO ROOF MOUNTED EXHAUST FAN, EF-1.
17. CONDENSING UNIT AND DOAS TO BE GROUND MOUNTED ON CONCRETE HOUSEKEEPING PAD..
18. 12" EXHAUST DUCT ROUTED THROUGH ROOF AND CONNECTED TO ROOF MOUNTED EXHAUST FAN, EF-9



1 HVAC PLAN – OFFICES
SCALE: 3/16"=1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER
ABDOU JAAFAR
18906
OKLAHOMA
6.13.25

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

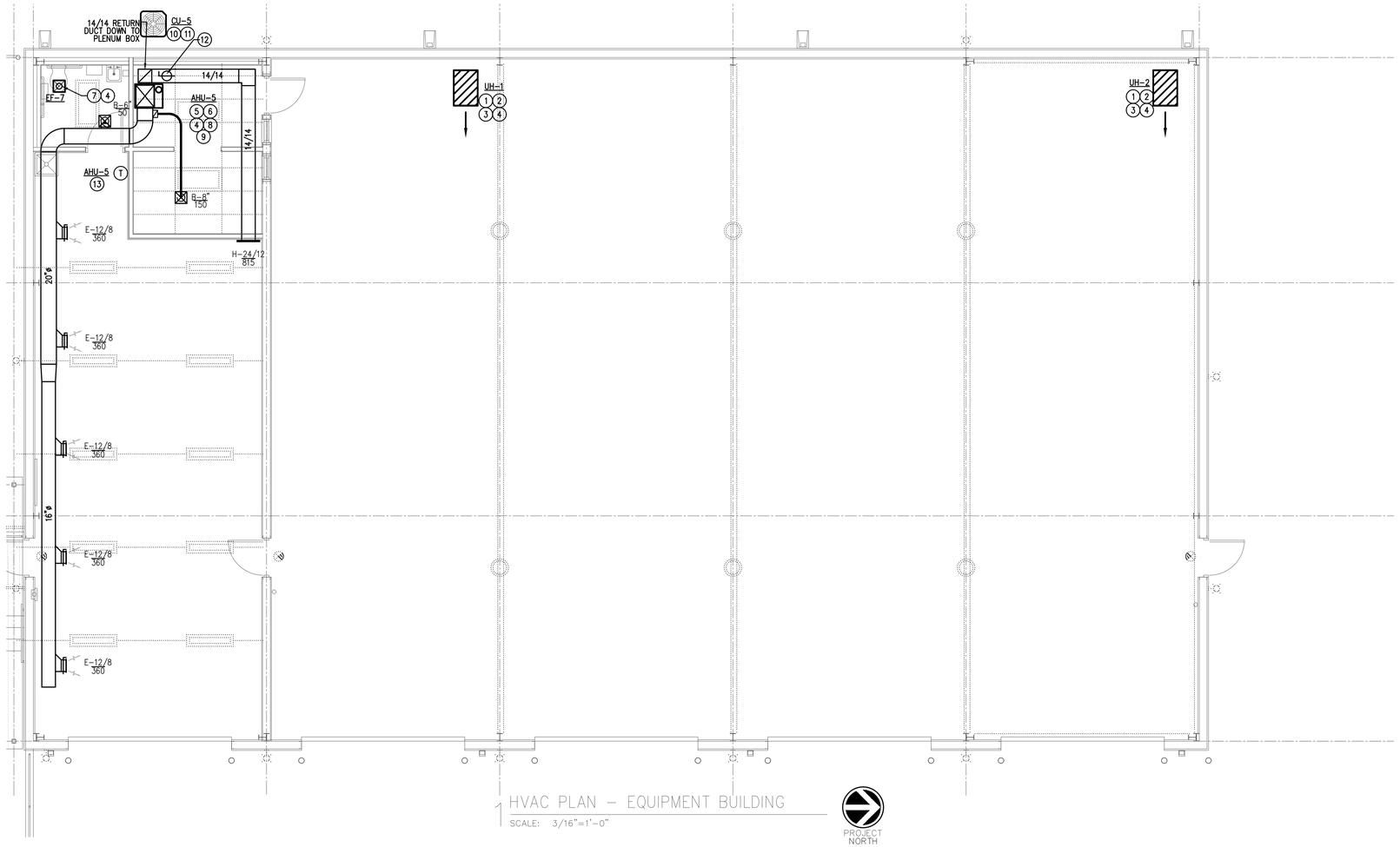
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
HVAC PLAN – OFFICE BUILDING

SHEET NUMBER:
M1.0



1 HVAC PLAN – EQUIPMENT BUILDING

SCALE: 3/16"=1'-0"

PROJECT NORTH

KEY NOTES ①

1. UNIT HEATER MOUNTING LOCATION SHALL BE COORDINATED WITH OTHER TRADES.
2. NEW UNIT HEATER TO BE MOUNTED FROM STRUCTURE AT 15'-0"A.F.F. WITH CEILING MOUNTED KIT AND UNIT MOUNTED THERMOSTAT. EXTEND FLUE UP TO ROOF AND TERMINATE WITH FLUE CAP. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
3. CONTRACTOR SHALL VERIFY THAT MECHANICAL EQUIPMENT IS INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND IS OPERATING TO NOMINAL PERFORMANCE SPECIFICATIONS. COORDINATE LOCATION IN FIELD.
4. COORDINATE ROOF PENETRATIONS WITH ROOFING CONTRACTOR AND STRUCTURAL ENGINEER. MAINTAIN 10'-0" CLEARANCE FROM ANY OUTDOOR AIR INTAKES.
5. PROVIDE INTERNALLY ACOUSTICALLY LINED SUPPLY AND RETURN DUCTWORK FOR FIRST 10'-0" FROM AHU
6. TRANSITION DUCTWORK AS REQUIRED TO CONNECT TO AIR HANDLER.
7. 6" EXHAUST DUCT ROUTED UP THROUGH ROOF. TERMINATE WITH MANUFACTURERS ROOF CAP.
8. EXTEND FURNACE FLUE/INTAKE THRU ROOF AND TERMINATE WITH APPROVED CONCENTRIC VENT CAP. MAINTAIN 10'-0" MINIMUM CLEARANCE TO ANY FRESH AIR INTAKE.
9. CONTRACTOR SHALL VERIFY THAT NEW SPLIT SYSTEM AC UNIT IS INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND IS OPERATING TO NOMINAL PERFORMANCE SPECIFICATIONS. COORDINATE EXACT LOCATION ON GROUND WITH EXISTING CONDITIONS.
10. EXTEND REFRIGERATION SUCTION AND LIQUID LINES TO AIR HANDLING UNIT/FURNACE INSIDE SPACE.
11. CONDENSING UNIT DOAS TO BE GROUND MOUNTED ON CONCRETE HOUSEKEEPING PAD.
12. EXTEND 10"ø OUTSIDE AIR DUCT TO ROOF. TERMINATE WITH ROOF CAP..
13. PROVIDE PROGRAMMABLE THERMOSTAT AT 48" A.F.F. THERMOSTAT SHALL BE 7-DAY PROGRAMMABLE TYPE WITH AUTO CHANGEOVER AND TIME OF DAY INTERLOCK. COORDINATE EXACT LOCATION WITH ARCHITECT IN THE FIELD.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER ABDOU JAAFAR 18906 OKLAHOMA 8.13.25

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
HVAC PLAN – EQUIPMENT BUILDING

SHEET NUMBER:
M1.1

OUTDOOR AIR UNIT

MARK	AREA SERVED	MANUFACTURER	MODEL STRING	NOMINAL TONS	CONFIGERATION	ESP	SUPPLY FAN HP	TOTAL CFM	COOLING CAPACITY						HEATING (NATURAL GAS)			ELECTRICAL INFO			ASHRAE ISMRE	WEIGHT (LBS)	REMARKS
									CAPACITY (MBH)		ENT AIR		LVG AIR		CAPACITY (MBH)		LEAVING AIR TEMP						
									SENSIBLE	TOTAL	DB	WB	DB	WB	INPUT	OUTPUT	FAHRENHEIT	VOLTAGE	MCA	MOCP			
DOAS-1	ALL	AAON	RNA-008-3-0-GABD-00-A1	8.0	GROUND HORIZONTAL	1.5	1.0	1250	37.6	96.8	84.3	77.9	72.0	61.6	150	121.5	86.5	208/3	44	70	5.0	1229	ALL

NOTES:
1. COOLING CAPACITIES ARE BASED ON UNIT CFM SUPPLY AIR AND ACTUAL ENTERING AIR DRY BULB, WET BULB, AND 105F AMBIENT AIR ENTERING CONDENSER. EER IS BASED ON ARI CONDITIONS.
2. PROVIDE UNIT WITH R410A REFRIGERANT.
3. PROVIDE 2" MERV 8 PLEATED FILTER.
4. UNIT SHALL RUN CONTINUOUSLY DURING HOURS OF OPERATION.
5. PROVIDE CONDENSATE TRAP WITH UNIT.

ACCESSORIES: (COORDINATE WITH EQUIPMENT SUPPLIER FOR FIELD INSTALLED ACCESSORIES)
A. MANUFACTURER'S 12" CURB FOR MOUNTING STRUCTURAL PLATFORM. REFER TO ARCHITECTURAL SHEETS FOR PLATFORM DETAILS.
B. NON-FUSED DISCONNECT AND POWERED CONVENIENCE RECEPTACLE
C. 2" FOAM-INJECTED DOUBLE WALL CONSTRUCTION, PITCHED ROOF, AND ACCESS DOORS.
D. DISCHARGE AIR CONTROL WITH DISCHARGE AIR DUCT SENSOR FOR FIELD MOUNTING.
E. STAINLESS STEEL DRAIN PAN W/ CONDENSATE OVERFLOW SWITCH
F. COMPREHENSIVE FACTORY RUN TEST PRIOR TO SHIPMENT.
G. R-410A DX EVAPORATOR COLI, CONDENSER COIL, AND HOT GAS REHEAT COIL.
H. INDIRECT GAS HEAT WITH 4:1 TURNDOWN
I. HUMIDITY SENSOR AND TEMPERATURE SENSOR.
J. DIRTY FILTER/FAN FAILURE SWITCH.
K. HAIL GUARDS, FROSTAT.
L. FACTORY DISCONNECT SWITCH AND UNPOWERED CONVENIENCE RECEPTACLE.
APPROVED EQUALS: AAON, GREENHECK

M. MODULATING HOT-GAS REHEAT
N. FACTORY REMOTE INTERFACE SPACE CONTROL PANEL, FIELD INSTALLED AND WIRED. CAT-5/6 WIRING BY ELECTRICAL.
O. FACTORY START-UP AND OWNER TRAINING.
P. AIR FLOW MONITORING.
Q. HINGED ACCESS DOOR.
R. ELECTRICAL STATIC PRESSURE FOR DUCTWORK NOT INCLUDING INTERNAL PRESSURE DROP.

SPLIT SYSTEM WITH DX COOLING SCHEDULE

FURNACE												OUTDOOR UNIT										
MARK	MFR	MODEL	FAN				ELECTRICAL			EVAP COIL	GAS HEATER	MARK	MFR	MODEL	COOLING CAPACITY MBH			ELECTRICAL DATA			REMARKS
			CFM	OUTDOOR AIR	ESP	HP	FLA	MOCP	VOLTAGE	MODEL	INPUT (MBH) / OUTPUT (MBH)				TONS	TOTAL	SENSIBLE	EFF. (SEER2)	MCA	MOCP	VOLTAGE	
AHU-1	GUARDIAN	RG1908OC20MPS1	1600	385	0.5	1/2	6.4	15	120/1/60	CTF60C5CGS1	80 / 76	CU-1	GUARDIAN	XC36OE3S11	5.0	60.0	–	– (13.4)	24	40	208/3/60	ALL
AHU-2	GUARDIAN	RG1906OB12MPS1	1200	335	0.5	1/2	6.4	15	120/1/60	CTF36B5CDS1	60 / 57	CU-2	GUARDIAN	XC336E3S11	3.0	36.0	–	– (13.4)	16.9	25	208/3/60	ALL
AHU-3	GUARDIAN	RG1908OC20MPS1	1600	385	0.5	1/2	6.4	15	120/1/60	CTF60C5CGS1	80 / 76	CU-3	GUARDIAN	XC36OE3S11	5.0	60.0	–	– (13.4)	24	40	208/3/60	ALL
AHU-4	GUARDIAN	RG1906OB12MPS1	1200	335	0.5	1/2	6.4	15	120/1/60	CTF36B5CDS1	60 / 57	CU-4	GUARDIAN	XC336E3S11	3.0	36.0	–	– (13.4)	16.9	25	208/3/60	ALL
AHU-5	GUARDIAN	RG1908OC20MPS1	1600	385	0.5	1/2	6.4	15	120/1/60	CTF60C5CGS1	80 / 76	CU-5	GUARDIAN	XC36OE3S11	5.0	60.0	–	– (13.4)	24	40	208/3/60	ALL

REMARKS:
1. COOLING CAPACITIES ARE RATED AT 80° DB AND 67° AIR CONDITIONS AND 105° AMBIENT OUTDOOR CONDENSER AIR TEMPERATURE, WITH INDOOR DESIGN TEMPERATURE 75° DB/50% RH., AND NOMINAL AIR QUANTITY LISTED.
2. OUTDOOR UNIT SHALL HAVE A MINIMUM 14.0 SEER RATING.
3. PROVIDE MANUFACTURER CLEARANCES FOR UNITS.
4. FURNACE DISCONNECT AND CONDENSING UNIT FUSED DISCONNECT SWITCHES FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
5. PROVIDE APPROVED ROOF FLUE TERMINATION KIT, SEAL PER ARCHITECTURAL RECOMMENDATIONS. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR VENTING MATERIAL, TYPE AND SIZING INSTRUCTIONS.
6. PROVIDE REFRIGERANT LINES, SOLENOID AND EXPANSION VALVES PER MANUFACTURERS REQUIREMENTS.
7. PROVIDE FURNACE AND COIL CONDENSATE PIPING AS REQUIRED, ROUTE TO THE NEAREST APPROVED RECEPTOR.
8. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT WITH AUTOMATIC SWITCHOVER AND LOCKING COVER PER SPECIFICATION.
9. PROVIDE ALL NECESSARY COMPONENTS FOR CODE COMPLIANCE AND A COMPLETE AND OPERATIONAL SYSTEM.
10. CONDENSING UNITS TO BE MOUNTED ON PLATFORM ON ROOF. REFER TO ARCHITECTURAL SHEETS FOR PLATFORM DETAILS

NOTES:
1. APPROVED EQUALS: LENNOX, CARRIER, YORK

AIR BALANCE SCHEDULE (MAIN)

MARK	S/A	R/A	O/A (FROM DOAS)	EXH AIR	PRESSURE
AHU-1	1600	1400	200	---	200
AHU-2	1200	1025	175	---	175
AHU-3	1600	1325	275	---	275
AHU-4	1200	600	600	---	600
AHU-6	300	300	0	---	0
EF-1	---	---	---	300	-300
EF-2	---	---	---	50	-50
EF-3	---	---	---	85	-85
EF-4	---	---	---	85	-85
EF-5	---	---	---	75	-75
EF-6	---	---	---	75	-75
EF-8	---	---	---	50	-50
TOTAL			1250	720	530

AIR BALANCE SCHEDULE (STORAGE)

MARK	S/A	R/A	O/A	EXH AIR	PRESSURE
AHU-5	1600	1300	300	---	300
EF-7	---	---	---	85	-85
TOTAL			300	85	215

CEILING CASSETTE/ CONDENSING UNIT SCHEDULE

INDOOR UNIT								OUTDOOR UNIT									REMARKS
MARK	AREA SERVED	MANUFACTURER	MODEL NO.	CFM (LOW/MEDIUM/HIGH)	OUTSIDE AIR (CFM)	VOLTAGE/PHASE	WEIGHT (LBS)	MARK	MANUFACTURER	MODEL NO.	COOLING CAPACITY: NOMINAL TONS	COOLING CAPACITY: TOTAL (BTUH)	HEATING CAPACITY (BTUH)	ELECTRICAL DATA: M.C.A.	ELECTRICAL DATA: MAX O.C.P.	ELECTRICAL DATA: VOLTAGE/PHASE	EFFICIENCY: EER2/SEER2/HSPF2	WEIGHT (LBS)	
AHU-6	AV ROOM	LG	KNUDB121A	247/283/335	–	POWERED VIA OUTDOOR UNIT	50	CU-6	LG	KUSXB121A	1	12000	15000	13.4	15	208-230/1	13.0/21.5/10.1	81	ALL

REMARKS:
1. COOLING CAPACITIES ARE BASED ON ARI CONDITIONS, 80°F EDB – 67°F EWB, WITH 95°F CONDENSER TEMPERATURE.
2. PROVIDE SYSTEM WITH WIRED CONTROLLER. CONTROLLER FURNISHED BY MECHANICAL CONTRACTOR, WIRED BY ELECTRICAL.
3. PROVIDE REFRIGERANT PIPING BETWEEN INDOOR AND OUTDOOR UNITS PER MANUFACTURERS INSTALLATION REQUIREMENTS.
4. MOUNT INDOOR UNIT PER MANUFACTURERS INSTALLATION REQUIREMENTS. SUPPORT FROM STRUCTURE.
5. PROVIDE BUILT-IN CONTROL TRANSFORMER (12VDC CONTROL VOLTAGE).
6. PROVIDE MANUFACTURE'S BUILT-IN CONDENSATE PUMP.
7. SET THERMOSTAT AT 70 DEG. F. (ADJUSTABLE)
8. R-410A REFRIGERANT.
9. LOW AMBIENT KIT TO 0°F.
10. PROVIDE ALL COMPONENTS REQUIRED FOR CODE COMPLIANCE AND A COMPLETE AND OPERATIONAL SYSTEM.
APPROVED EQUALS: LENNOX, LG, TRANE, CARRIER

HOOD SCHEDULE

MARK	SERVES	MANUFACTURER	MODEL	MCA W/ FAN	MOCP	VOLTAGE	PHASE	HOOD WEIGHT	FAN WEIGHT	NOTES
H-1	BREAKROOM	DENLAR	D1030-D-RF	4.6	15	120	1	55	37	ALL

NOTES:
1. PROVIDE ELECTRICAL DISCONNECT AND GAS SHUT-OFF TO BE INTERLOCKED TO RANGE BY ELECTRICAL CONTRACTOR.
2. PROVIDE WITH FACTORY ADA FAN/LIGHT ON/OFF CONTROL
3. FACTORY INSTALLED FIRE SUPPRESSION.
4. UNIT SHALL BE LISTED, TESTED TO UL300A AND FAN MEET UL507
5. WET CHEMICAL EXTINGUISHING AGENT LOW PH AMEREX
6. UNIT SHALL BE FURNISHED WITH WIRE ALARM CONTACT RELAY.
7. LIGHT BULB SHALL BE SHATTER-PROOF.
8. FUSIBLE LINK ACTIVATION SHALL BE 212°F.
9. HOOD SUPPLIED WITH 500 MAX CFM ROOF MOUNTED FAN (EF-9). PROVIDE 12" ROOF CURB PER METAL BUILDING SUPPLIER & ROOFING CONTRACTOR. COORDINATE INSTALLATION WITH ROOFING CONTRACTOR.

GAS UNIT HEATER SCHEDULE

GENERAL							FAN			HEATING			ELECTRICAL		
MARK	NEW/ EXISTING	MFR.	MODEL #	GAS TYPE	MOUNTING TYPE	WEIGHT (LB)	CFM	FAN TYPE	DRIVE TYPE	MOTOR SIZE	INPUT (MBH)	OUTPUT HTG CAPACTY (MBH)	EFFICIENCY	VENT DIAMETER	VOLTS/ PH	MCA	REMARKS
UH-1	NEW	STERLING	TF125A1NS	NATURAL	SUSPENDED	145	2200	PROPELLER	DIRECT	0.25	125	103.8	83%	5	120/1	8.1	1,2,3,4,6,7,9,10,11
UH-2	NEW	STERLING	TF125A1NS	NATURAL	SUSPENDED	145	2200	PROPELLER	DIRECT	0.25	125	103.8	83%	5	120/1	8.1	1,2,3,4,6,7,9,10,11

NOTES
A. EQUIPMENT TO BE CLEARLY LABELED
B. ACCEPTABLE MANUFACTURES ARE: CHROMALOZ, INDEECO, RENZOR, STERLING
C. COORDINATE EXACT LOCATION WITH LANDLORD AND STRUCTURAL ENGINEER.

REMARKS:
1. STEEL CABINET CONSTRUCTION WITH BAKED ENAMEL FINISH
2. NATURAL GAS ALUMINIZED HEAT EXCHANGER TUBULAR
3. 24V CONTROL TRANSFORMER
4. INTERNAL OVERLOAD PROTECTION, HIGH LIMIT SWITCH, AIR PRESSURE SWITCH
5. POWER VENTED
6. DIRECT SPARK IGNITION
7. OSHA FAN GUARD
8. 321 STAINLESS STEEL BURNER BOX
9. GAS VALVE – SINGLE STAGE
10. 24V THERMOSTAT WITH LOCKING COVER
11. FLUE COLLAR – FIELD INSTALLED BY MECHANICAL CONTRACTOR

FAN SCHEDULE

MARK	AREA SERVED	MANUFACTURER	MODEL	TYPE	CFM	ESP IN. W.C.	MOTOR: DRIVE	MOTOR: HP(W)	MOTOR: ELECTRICAL	CONTROL	REMARKS
EF-1	RESTROOMS 108/109	COOK	90C15DH	ROOF	300	0.35	DIRECT	(72.9W)	120/1	CONTINUOUS	1,2,4
EF-2	JANITOR 110	COOK	GC-128	CEILING	50	0.35	DIRECT	(26.9W)	120/1	CONTINUOUS	1,2,6,7
EF-3	SHOWER 112	BROAN	765HL	CEILING	85	0.35	DIRECT	14.0 A	120/1	SWITCH	1,2,5,6,7,9
EF-4	SHOWER 113	BROAN	765HL	CEILING	85	0.35	DIRECT	14.0 A	120/1	SWITCH	1,2,5,6,7,9
EF-5	WOMEN'S 119	COOK	GC-146	CEILING	75	0.35	DIRECT	(33.2W)	120/1	LIGHTSWITCH	1,2,3,6,7
EF-6	MEN'S 120	COOK	GC-146	CEILING	75	0.35	DIRECT	(33.2W)	120/1	LIGHTSWITCH	1,2,3,6,7
EF-7	WAREHOUSE RR	BROAN	765HL	CEILING	85	0.35	DIRECT	14.0 A	120/1	SWITCH	1,2,5,6,7,9
EF-8	EVIDENCE	COOK	GC-128	CEILING	50	0.35	DIRECT	(26.9W)	120/1	SWITCH	1,2,3,6,7

REMARKS:
1. PROVIDE WITH VARIABLE SPEED CONTROLLER.
2. PROVIDE WITH BACK DRAFT DAMPER W/ BIRD SCREEN (WHEN APPLICABLE).
3. FAN CONTROLLED VIA LIGHT SWITCH. PROVIDED BY ELECTRICAL.
4. PROVIDE MANUFACTURER'S 12" ROOF CURB PER METAL BUILDING SUPPLIER & ROOFING CONTRACTOR. COORDINATE INSTALLATION WITH ROOFING CONTRACTOR.
5. FAN CONTROLLED VIA 3-PRONG SWITCH FOR LIGHT, HEAT AND FAN
6. PROVIDE VIBRATION ISOLATION.
7. PROVIDE MANUFACTURER'S ROOF OR WALL CAP
8. FAN CONTROLLED VIA THERMOSTAT SET TO 90°F.
9. FAN INCLUDES 1.5 KW ELECTRIC HEAT.

NOTES:
1. APPROVED EQUALS: ACME, GREENHECK, TWIN CITY.

GRILLES, REGISTERS, & DIFFUSERS SCHEDULE

MARK	SERVICE	TYPE	BASIS OF DESIGN MANUFACTURER	MODEL	CONSTRUCTION	FACE SIZE	NECK SIZE	NC	FINISH	MOUNTING	REMARKS
A	SUPPLY	CEILING	TITUS	TMS-AA	ALUMINUM	24x24	PLAN	< 30	WHITE	LAY-IN	1,2,3,5,9
B	SUPPLY	CEILING	TITUS	TMS-AA	ALUMINUM	12x12	PLAN	< 30	WHITE	LAY-IN	1,2,3,5,9
C	SUPPLY	CEILING	TITUS	TMS-AA	ALUMINUM	24x24	PLAN	< 30	WHITE	FLANGED	1,2,3,5,9,10
D	SUPPLY	CEILING	TITUS	TMS-AA	ALUMINUM	12x12	PLAN	< 30	WHITE	FLANGED	1,2,3,5,9,10
E	SUPPLY	DUCT	TITUS	300FL	ALUMINUM	PLANS	PLANS	<30	WHITE	DUCT	1,4,7,9
F	RETURN/EXH	CEILING	TITUS	50F	ALUMINUM	24x24	22x22	< 30	WHITE	LAY-IN	1,2,4,5,9
G	RETURN/EXH	CEILING	TITUS	50F	ALUMINUM	12x12	10x10	< 30	WHITE	FLANGED	1,2,4,5,9,10
H	RETURN	SURFACE	TITUS	350FL	ALUMINUM	PLANS	PLANS	< 30	WHITE	FLANGED	1,4,5,7,9,10
I	SUPPLY	CEILING	TITUS	MIL39 (2 SLOT)	ALUMINUM	2'-0"	PLAN	< 30	WHITE	LAY-IN	1,2,3,5,9
J	RETURN	CEILING	TITUS	MLR39	ALUMINUM	2'-0"	PLAN	< 30	WHITE	LAY-IN	1,2,5,7,9
K	RETURN/EXH	CEILING	TITUS	50F	ALUMINUM	24x12	22x10	< 30	WHITE	LAY-IN	1,2,4,5,9

REMARKS:
1. BRANCH DUCT SERVING DIFFUSER TO BE SAME SIZE AS DIFFUSER NECK UNLESS OTHERWISE NOTED.
2. REFER TO REFLECTED CEILING PLAN FOR EXACT LOCATION.
3. PROVIDE WITH 4-WAY THROW PATTERN UNLESS OTHERWISE NOTED ON PLAN.
4. PROVIDE WITH OPPOSED BLADE DAMPER.
5. REFER TO PLAN FOR NECK SIZES.
6. PROVIDE TWO GRILLES, ONE ON EACH SIDE OF WALL.
7. 0° DEFLECTION SUPPLY, 35° DEFLECTION RETURN
8. PROVIDE WITH FASTENERS FOR COMPLETE (NON-HINGED) REMOVABILITY OF GRILLE, DO NOT PROVIDE FILTER.
9. PAINT GRILLE/DIFFUSER. REFER TO ARCHITECT FOR COLOR.
10. PROVIDE PLASTER FRAME MOUNTING KIT WHEN INSTALLED IN HARD CEILING OR WALL.

(X)A-B
250
- QUANTITY
- UNIT TYPE
- NECK SIZE (INCHES)
- TOTAL AIR QUANTITY (CFM EACH)

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

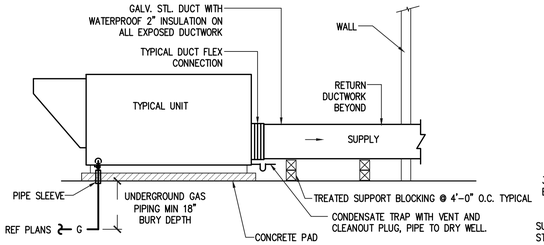
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

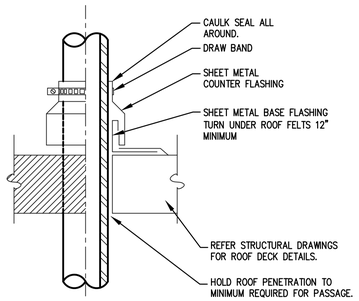
PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
MECHANICAL SCHEDULES

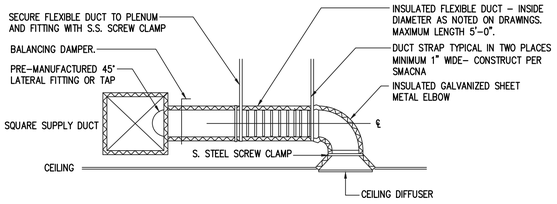
SHEET NUMBER:
M2.0



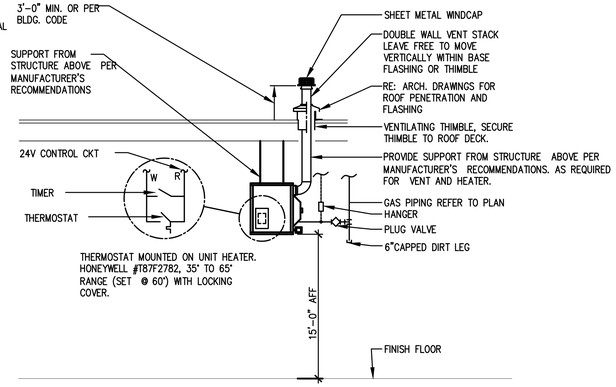
13 GROUND MTD. UNIT - SIDE DISCHARGE
SCALE: NTS



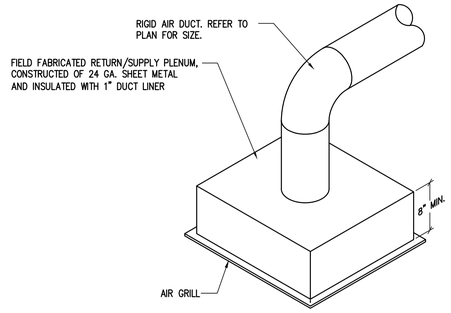
9 PIPE PENETRATION THRU ROOF
SCALE: NTS



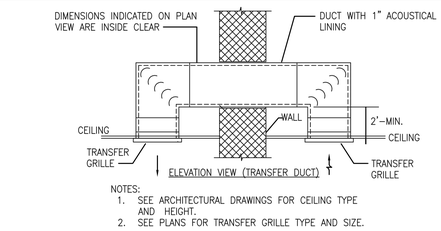
5 DUCT BRANCH RUNOUT DETAIL
SCALE: NTS



10 GAS UNIT HEATER MOUNTING DETAIL
SCALE: NTS

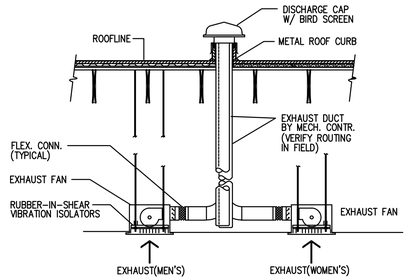


6 DIFFUSER WITH INSULATED PLENUM
SCALE: NTS

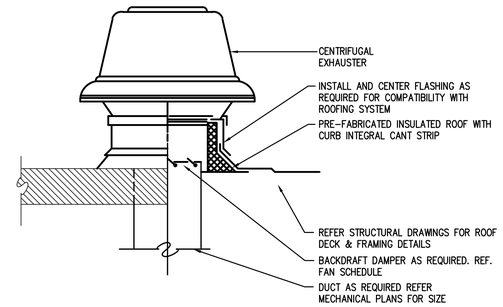


NOTES:
1. SEE ARCHITECTURAL DRAWINGS FOR CEILING TYPE AND HEIGHT.
2. SEE PLANS FOR TRANSFER GRILLE TYPE AND SIZE.

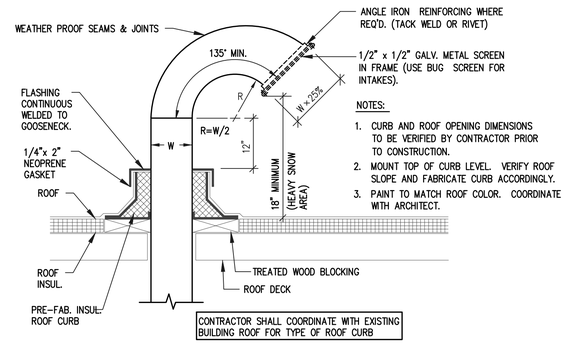
14 TRANSFER GRILLE DETAIL
SCALE: NTS



11 DOUBLE CEILING EXHAUST FAN
SCALE: NTS

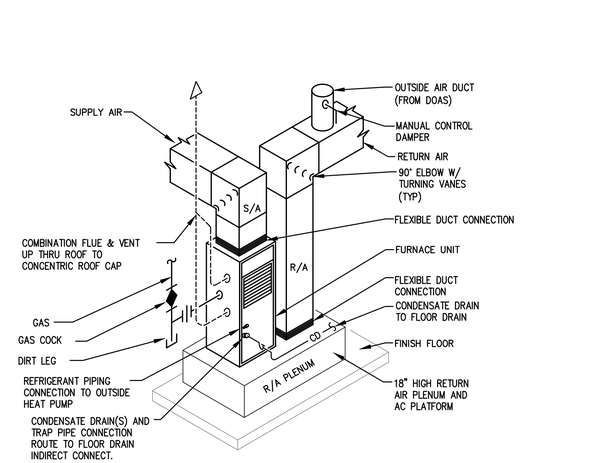


12 ROOF MOUNTED EXHAUST FAN
SCALE: NTS

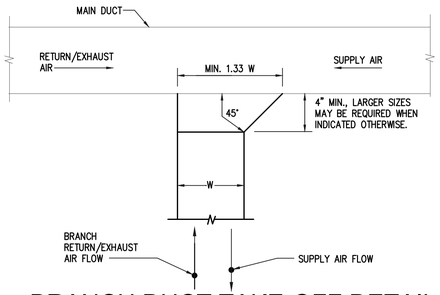


NOTES:
1. CURB AND ROOF OPENING DIMENSIONS TO BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION.
2. MOUNT TOP OF CURB LEVEL. VERIFY ROOF SLOPE AND FABRICATE CURB ACCORDINGLY.
3. PAINT TO MATCH ROOF COLOR. COORDINATE WITH ARCHITECT.

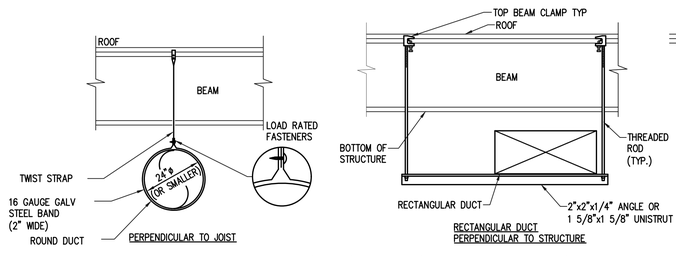
7 GOOSENECK EXHAUST/INTAKE
SCALE: N.T.S.



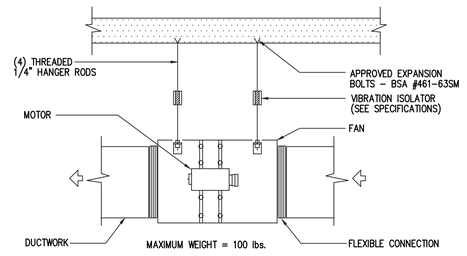
8 GAS FURNACE W/COIL - VERTICAL
SCALE: NTS



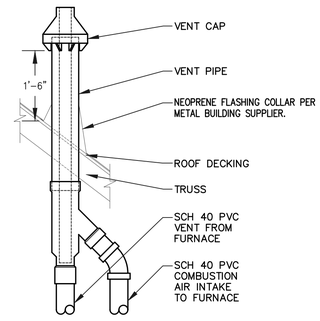
1 BRANCH DUCT TAKE-OFF DETAIL
SCALE: NTS



2 DUCT SUPPORT DETAILS
SCALE: NTS



3 INLINE FAN HANGING SUPPORT DETAIL
SCALE: NTS



4 CONCENTRIC VENT ROOF TERMINATION
SCALE: N.T.S.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

REGISTERED PROFESSIONAL ENGINEER — ABDOU JAAFAR — 18906 — 8.13.25 — OKLAHOMA

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 wb: gshelms.com
424 e. main st. jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
MECHANICAL DETAILS

SHEET NUMBER:
M3.0

ABBREVIATIONS	
AC	8" ABOVE COUNTER
CF	CEILING FAN
CO	CHECK OUT
CW	CASH/WRAP
EF	EXHAUST FAN
(EX)	EXISTING TO REMAIN
G	GROUND
GFI	GROUND FAULT CIRCUIT INTERRUPTER
IG	ISOLATED GROUND
NL	NIGHT LIGHT
REC	REFRIGERATION ELECTRICAL CONTRACTOR
RC	REFRIGERATION CONTRACTOR
RH	RADIANT HEATER
SC	SECURITY CAMERA
UC	UNDER COUNTER
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
WH	WATER HEATER
WP	WEATHER PROOF

GENERAL NOTES

1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CALIFORNIA CODE OF REGULATION, CALIFORNIA ELECTRICAL CODE 2019 EDITION AND ALL APPLICABLE LOCAL CODES AND REGULATIONS.
2. ALL WORK SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH GOOD INSTALLATION PRACTICES, SPECIFICATIONS, AND THE LATEST EDITIONS OF ALL APPLICABLE LOCAL, STATE AND NATIONAL CODES. ALL COMPONENTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
3. PLANS SHOWN ARE DIAGRAMMATICAL IN NATURE AND DO NOT INDICATE EVERY FITTING, TRANSITION, BOX, ETC REQUIRED. THEREFORE, CONTRACTOR IS TO COORDINATE ALL ELECTRICAL REQUIREMENTS WITH OTHER TRADES PRIOR TO INSTALLATION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING COMPLETE AND OPERATIONAL SYSTEMS SHOWN ON PLAN.
5. ALL CONDUIT, POWER WIRES, RECEPTACLE BOXES, RECEPTACLES, AND OVERLOAD PROTECTION DEVICES SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
6. ALL CONDUIT SIZES SHALL BE DETERMINED BY ELECTRICAL CONTRACTOR, UNLESS OTHERWISE NOTED.
7. PROVIDE A SEPARATE CODE SIZED GREEN EQUIPMENT GROUND CONDUCTOR IN ALL CONDUITS AND RACEWAYS CONTAINING LINE VOLTAGE CIRCUITS. FOR ALL 20A CIRCUITS, EQUIPMENT GROUND CONDUCTOR SIZE SHALL MATCH PHASE CONDUCTOR SIZE. FOR CIRCUIT UPSIZED FOR VOLTAGE DROP INCREASE EQUIPMENT GROUNDING CONDUCTOR SIZE PER 2019 CALIFORNIA ELECTRICAL CODE.
8. LOCATION OF LOCAL WALL SWITCHES ARE SUBJECT TO MODIFICATIONS. AT OR NEAR DOORS, INSTALL SWITCHES ON SIDE OPPOSITE TO DOOR HINGES. VERIFY FINAL HINGE LOCATION IN FIELD PRIOR TO ANY WORK.
9. CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL WALL OUTLET BOXES FOR SWITCHES, STROBES/HORNS, STROBES, FIRE ALARM PULL STATIONS, RECEPTACLES, ETC. WITH TACK BOARDS, CABINETS, FURNITURE, EQUIPMENT ETC. TO AVOID CONFLICT.
10. LIGHTING, POWER, TELEPHONE AND COMMUNICATIONS OUTLETS SHALL NOT BE PLACED BACK TO BACK. OUTLETS SHALL BE HORIZONTALLY SEPARATED MIN. OF 24" FOR RATED WALL AND MIN. OF 18" FOR NON-RATED WALL.
11. PROVIDE PULL BOXES WHEREVER NECESSARY TO FACILITATE PULLING OF CONDUCTORS. COORDINATE LOCATIONS OF BOXES WITH OTHER TRADES TO AVOID CONFLICT. PULL BOXES SHALL BE ACCESSIBLE. THE SIZE OF PULLBOX SHALL COMPLY WITH CEC REQUIREMENTS.
12. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILING SHALL BE ACCESSIBLE THROUGH OPENING OPERATED BY REMOVAL OF FIXTURES.
13. CONFIRM WIRING DEVICE AND COVER PLATE FINISHES WITH ARCHITECT.
14. WIRING SHALL INCLUDE FINAL CONNECTION TO ALL EQUIPMENT IN CONFORMANCE WITH EQUIPMENT SUPPLIER WIRING DIAGRAMS.
15. CONTRACTOR IS RESPONSIBLE FOR PROVIDING COMPLETE PANELBOARD IDENTIFICATION SCHEDULES.
16. WHERE BRANCH CIRCUITS ARE GROUPED, SIZE CONDUIT AND DERATE CURRENT CARRYING CONDUCTORS PER 2019 CALIFORNIA ELECTRICAL CODE.
17. NOT MORE THAN THREE LIGHTING OR CONVENIENCE OUTLET CIRCUITS ARE PERMITTED IN ONE CONDUIT, UNLESS OTHERWISE INDICATED. PROVIDE SEPARATE CONDUIT FOR EACH HOMERUN INDICATED ON THE DRAWING.
18. WHERE EQUIPMENT NAMEPLATE PROTECTIVE DEVICE RATING DIFFERS FROM SIZE PROVIDED, CHANGE OUT BRANCH CIRCUIT WIRING AND OVERCURRENT DEVICE TO APPROPRIATE RATING PER NEC.
19. NO ALUMINUM WIRE CONDUCTORS SHALL BE USED FOR INSTALLATION OF BRANCH OR FEEDER CIRCUITS. USE COPPER WIRE CONDUCTORS.
20. EQUIPMENT SHALL BE OF MATERIALS SUITABLE FOR AND RATED FOR THE ENVIRONMENT IN WHICH THEY ARE TO BE INSTALLED.
21. WORKING CLEARANCES FOR ELECTRICAL EQUIPMENT SHALL BE IN COMPLIANCE WITH 2019 CALIFORNIA ELECTRICAL CODE ARTICLE 110.
22. PROVIDE UPDATED TYPE-WRITTEN PANELBOARD SCHEDULES AT ALL EXISTING PANELBOARDS AFFECTED BY WORK AND FOR ALL NEWLY INSTALLED PANELS. SCHEDULES SHALL REFLECT AS-BUILT CONDITIONS. TRACE ALL EXISTING CIRCUITS TO VERIFY AND UPDATE SCHEDULES. INDIVIDUAL CIRCUIT DESCRIPTIONS SHALL BE UNIQUE PER ELECTRICAL CODE REQUIREMENTS.
23. CONTRACTOR SHALL PERMANENTLY LABEL CIRCUIT AND PANEL NAME ON ALL OUTLETS.
24. MAXIMUM COMBINED FEEDER AND BRANCH CIRCUITS SHALL NOT EXCEED 5% VOLTAGE DROP, AND THE MAXIMUM ON THE FEEDER OR BRANCH CIRCUIT SHALL NOT EXCEED 3% VOLTAGE DROP. ELECTRICAL CONTRACTOR TO INCREASE WIRE/CONDUIT SIZE AS NECESSARY TO MAINTAIN VOLTAGE DROP RECOMMENDATIONS.
25. ALL PENETRATIONS THROUGH FIRE RATED WALLS, FLOORS OR PARTITIONS SHALL BE PROPERLY SEALED TO PREVENT THE SPREAD OF SMOKE AND FIRE. THE RATING OF THE PENETRATION SEAL SHALL AT A MINIMUM BE THE SAME RATING AS THAT OF THE WALL, FLOOR OR PARTITION ASSEMBLY. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
26. ALL WIRING SHALL BE IN RACEWAY (EMT OR RIGID). FLEXIBLE METAL CONDUIT MAY ONLY BE USED FOR FINAL CONNECTIONS FROM OUTLET BOXES TO LIGHT FIXTURES, MOTORS, APPLIANCES, ETC., MAXIMUM LENGTH 6'-0". NO 'BX', 'ROMEX', ARMORED CABLE, ETC., ALLOWED. ALL CONDUITS SHALL BE CONCEALED WHENEVER POSSIBLE.
27. EXPOSED CONDUIT SHALL BE INSTALLED IN STRAIGHT LINES, PARALLEL WITH OR AT RIGHT ANGLES TO THE BUILDING STRUCTURE. DO NOT LOOP EXCESS FLEXIBLE CONDUIT IN CEILING SPACE.
28. PASS RACEWAYS OVER WATER AND OTHER PIPING WHEN PULL BOXES ARE NOT REQUIRED. NO RACEWAY WITHIN 3" OF HOT WATER PIPES, OR APPLIANCES, EXCEPT CROSSING WHERE RACEWAY SHALL BE AT LEAST 1" FROM PIPE COVER.
29. PROVIDE APPROVED EXPANSION FITTINGS WHERE RACEWAY CROSSES BUILDING EXPANSION JOINTS.
30. PROVIDE NYLON BUSHINGS FOR ALL CONDUIT STUB-UP LOCATIONS TERMINATED WITHOUT A JUNCTION BOX UNLESS NOTED OTHERWISE.
31. PROVIDE PULL WIRE IN EACH RACEWAY RUN OVER 10 FEET IN LENGTH IN WHICH PERMANENT WIRING IS NOT INSTALLED.
32. ALL SINGLE-PHASE RECEPTACLES THAT ARE 50 AMPERES OR LESS, RATED 150 VOLTS TO GROUND OR LESS, AND ALL THREE-PHASE RECEPTACLES THAT ARE 100 AMPERES OR LESS, RATED 150 VOLTS TO GROUND OR LESS IN BATHROOMS, KITCHENS, ROOFTOPS, OUTDOORS, WET LOCATIONS, LOCKER ROOMS, GARAGES, UNFINISHED BASEMENTS, AND WITHIN 6FT OF SINKS TO BE GFCI AND IN READILY ACCESSIBLE LOCATION. IF READILY ACCESSIBLE LOCATION NOT AVAILABLE CIRCUIT TO BE FURNISHED WITH GFCI BREAKER
33. ALL LOW VOLTAGE WIRING FOR CONTROLS, AUDIO/VISUAL, TELEPHONE/DATA AND SECURITY SYSTEMS NOT INSTALLED IN CONDUIT SHALL BE PLENUM RATED CONDUCTORS. LOW VOLTAGE WIRING SHALL BE PROPERLY BUNDLED AND SUPPORTED IN WORKMAN LIKE MANNER IN ACCORDANCE WITH THE BICSI STANDARDS AND ELECTRICAL CODES. CABLES SHALL BE INSTALLED AT RIGHT ANGLES OR PERPENDICULAR TO THE BUILDING STRUCTURE. CONTRACTOR SHALL VERIFY WITH LOCAL AUTHORITY HAVING JURISDICTION AND OWNER IF LOW VOLTAGE WIRING IS REQUIRED TO BE INSTALLED IN CONDUIT.
34. UPON COMPLETION OF ALL ELECTRICAL WORK, ELECTRICAL CONTRACTOR SHALL ADJUST AND TEST ALL CIRCUITS, OUTLETS, SWITCHES, LIGHTS, MOTORS, AND OTHER ELECTRICAL ITEMS. DAMAGED ITEMS SHALL BE IMMEDIATELY REPAIRED OR REPLACED WITH ALL NEW EQUIPMENT AND THAT PART OF THE SYSTEM SHALL THEN BE RETESTED. ALL SUCH REPLACEMENT OR REPAIR SHALL BE DONE AT NO ADDITIONAL COST TO THE OWNER.
35. AFTER COMPLETION OF WORK UNDER THIS SECTION, CLEAN-UP ALL RESULTANT DEBRIS FROM THIS WORK AND REMOVE FROM THE SITE.
36. ALL ELECTRICAL EQUIPMENT SHALL BE LISTED BY U.L. OR CITY OF SAN DIEGO APPROVED THIRD PARTY TESTING FACILITY.
37. SEE MECHANICAL AND PLUMBING DRAWINGS AND SPECIFICATION FOR ADDITIONAL CONNECTION REQUIREMENTS TO CONTROL PANELS AND TRANSFORMERS, 120V FOR CONTROL SYSTEM, SWITCHES, TIME CLOCK, VALVES, STATS, RELAYS, DUCT SMOKE DETECTOR LOCATION, VAV BOXES, SMOKE FIRE DAMPERS, AND ETC. CONTRACTOR SHALL VERIFY FINAL CONTROL WIRING REQUIREMENTS WITH DIVISION 22 & 23 PRIOR TO ANY WORK AND PROVIDE ALL NECESSARY WIRING, DEVICES AND CONNECTIONS AS REQUIRED.
38. CONTRACTOR SHALL LABEL ALL SWITCHED RECEPTACLES PER TITLE 24 REQUIREMENTS. FOR EACH FULL SWITCHED RECEPTACLE PROVIDE TWO LABELS, ONE ON EACH CORNER (TOP RIGHT AND BOTTOM RIGHT). FOR EACH HALF SWITCHED RECEPTACLE PROVIDE ONE LABEL ON TOP RIGHT CORNER.

GENERAL LIGHTING NOTES

1. EXIT SIGN MOUNTING
   A. WALL FIXTURE: CENTER 12" ABOVE DOOR OPENING.
   B. CEILING/PENDANT FIXTURE: ON CEILING OR AT HEIGHT SPECIFIED ON DRAWINGS.
2. EMERGENCY LIGHT MOUNTING
   C. WALL FIXTURE: 12" BELOW FINISHED CEILING OR +10'-0" IN AREAS OF EXPOSED STRUCTURE, UNLESS NOTED OTHERWISE.
   D. PENDANT FIXTURE: BOTTOM OF FIXTURE AT HEIGHT SPECIFIED ON DRAWINGS.
   E. REMOTE HEAD FIXTURE: HEADS CENTER 12" ABOVE DOOR OPENING, UNLESS NOTED OTHERWISE AND BATTERY PACK MOUNTED ON INTERIOR SIDE OF WALL 12" BELOW FINISHED CEILING OR AT BAR JOIST IN AREAS OF EXPOSED STRUCTURE.
3. EXIT SIGNS, EMERGENCY BATTERY PACKS, AND NIGHT LIGHTS SHALL NOT BE SWITCHED.
4. WHERE MORE THAN ONE LIGHT SWITCH OCCURS AT SAME LOCATION, SWITCHES SHALL BE MOUNTED IN A MULTIPLE GANG BOX UNDER A SINGLE COVER PLATE. PLATES WITH MORE THAN (3) LIGHT SWITCHES SHALL BE LABELED TO INDICATE THE LIGHT FIXTURES CONTROLLED. SWITCH(ES) CONTROLLING LIGHTS ON EMERGENCY CIRCUIT SHALL BE IN A SEPARATE BOX UNDER THE SAME COVER PLATE AS THE OTHER SWITCHES.
5. ELECTRICAL CONTRACTOR WILL PROVIDE A ROOF MOUNTED PHOTOCELL IN A NEUTRAL POSITION THAT IS NOT FACING EAST OR WEST, TO CONTROL ALL EXTERIOR LIGHTS AND SIGNS.
6. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN AND DETAILS FOR THE EXACT LOCATION OF ALL LIGHTING FIXTURES AND ANY OTHER EQUIPMENT INSTALLED IN THE CEILING SYSTEM. VERIFY EXACT LOCATIONS AND FINISHES WITH ARCHITECT.
7. ADDITIONAL EXIT AND EMERGENCY LIGHTS MAY BE REQUIRED BY THE AUTHORITY HAVING JURISDICTION. ADDITIONAL FIXTURES SHALL BE ADDED AS DIRECTED BY THE LOCAL AUTHORITY.
8. PROVIDE NEUTRAL CONDUCTOR TO ALL LINE VOLTAGE WALL LIGHT SWITCH LOCATIONS. IF NEUTRAL TERMINATION IS NOT REQUIRED, CAP CONDUCTOR AND TAG AS "NEUTRAL FOR FUTURE USE".
9. PROVIDE DEDICATED NEUTRAL FOR ALL DIMMED LIGHTING CIRCUITS.
10. PROVIDE ALL REQUIRED MOUNTING AND SUPPORT HARDWARE FOR LIGHT FIXTURES TO MEET MOUNTING HEIGHTS INDICATED ON ELECTRICAL AND ARCHITECTURAL DRAWINGS.
11. PROVIDE A FACTORY-INSTALLED MAXIMUM WATTAGE LABEL THAT CORRESPONDS TO THE MAXIMUM WATTAGE INDICATED IN THE LIGHT FIXTURE SCHEDULE ON ALL MEDIUM SCREW BASE LIGHT FIXTURES.
12. INSTALL AND MAKE POWER CONNECTIONS TO ALL LOW-VOLTAGE LIGHT FIXTURES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND FURNISH REQUIRED POWER SUPPLIES AND ACCESSORIES.
13. MAINTAIN 3" CLEARANCE MINIMUM BETWEEN NON-IC RATED LIGHT FIXTURE HOUSING AND ALL DUCTWORK AND ENVELOPE INSULATION.
14. PROVIDE ALL REQUIRED MOUNTING AND SUPPORT HARDWARE FOR LIGHT FIXTURES TO MEET SPECIFIED MOUNTING HEIGHTS.

ELECTRICAL SYMBOLS LEGEND

(SYMBOLS APPLY ONLY WHEN USED ON DRAWINGS)

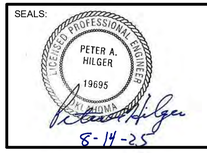
SYMBOL	DESCRIPTION
	2X4 TROFFER FIXTURE
	2X4 TROFFER FIXTURE WITH EMERGENCY BATTERY PACK
HO / O	LIGHT FIXTURE (WALL MOUNTED/CEILING MOUNTED)
	STRIP FIXTURE
	STRIP FIXTURE WITH EMERGENCY BATTERY PACK
HX / X	EXIT FIXTURE (WALL MOUNTED/CEILING MOUNTED)
$	SWITCH, SINGLE POLE
$3	SWITCH, 3-WAY
$4	SWITCH, 4-WAY
$K	SWITCH, KEYED
$D	SWITCH, DIMMER
$VS	SWITCH, VARIABLE SPEED
$MS	SWITCH, MANUAL MOTOR RATED
$OS	SWITCH, OCCUPANCY SENSOR
$BLOS	SWITCH, BI-LEVEL OCCUPANCY SENSOR
	RECEPTACLE, DUPLEX +18" AFF UNO
	RECEPTACLE, DUPLEX, MOUNTED HORIZONTALLY
	RECEPTACLE, DUPLEX FLUSH FLOOR
	RECEPTACLE, DUPLEX ISOLATED GROUND FLUSH FLOOR
	RECEPTACLE, DOUBLE DUPLEX +18"AFF UNO.
	RECEPTACLE, DUPLEX GFCI
	RECEPTACLE, DOUBLE DUPLEX, GFCI
	RECEPTACLE, SIMPLEX TWIST LOCK,
	RECEPTACLE, SIMPLEX TWIST LOCK, ISOLATED GROUND
	RECEPTACLE, DUPLEX TWIST LOCK,
	RECEPTACLE, DUPLEX TWIST LOCK, ISOLATED GROUND
	RECEPTACLE, SPECIAL
	RECEPTACLE, SIMPLEX
	RECEPTACLE, PLUG-MOLD
J	JUNCTION BOX (WALL MOUNTED/CEILING MOUNTED)
A	ALARM JUNCTION BOX, (WALL MOUNTED/CEILING MOUNTED)
R	ALARM JUNCTION BOX, FOR REMOTE TEST/RESET (WALL MOUNTED/CEILING MOUNTED)
TV	TV BOX CONNECTION. (VERIFY EXACT REQ. W/SERVICE PROVIDER.)
	EQUIPMENT CONNECTION POINT (PROVIDED WITH EQUIPMENT)
	NON-FUSED DISCONNECT
	FUSED DISCONNECT
	CONDUIT SLEEVE
	FLUSH MOUNTED PANELBOARD
	SURFACE MOUNTED PANELBOARD
	DATA/TELEPHONE/DATA & TELEPHONE
	TELEPHONE, FLUSH FLOOR
	MOTOR
CR	CARD READER
ES	DOOR ELECTRIC STRIKE
	BUZZER
	CONDUIT, CONCEALED IN SLAB

NOTE: GENERAL NOTES SHOWN HERE SHALL GOVERN FOR ALL ELECTRICAL SHEETS.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:



PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257 wb: gshelms.com
424 e. main st. jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
ELECTRICAL GENERAL NOTES & SYMBOLS LEGEND

SHEET NUMBER:
E0.1

PART 1 – GENERAL

A. SCOPE

1. FURNISH AND INSTALL A COMPLETELY WIRED AND OPERATIONAL ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO, THESE MAJOR ITEMS.

   a. LIGHTING FIXTURES AS INDICATED AND SPECIFIED ON THE PLANS.

   b. ELECTRICAL PANELS, CONTROLS, SERVICE, DISCONNECTS, CONDUIT WIRING, ETC., FOR ALL OUTLETS AND EQUIPMENT.

   c. TELEPHONE OUTLETS AND CONDUIT AS INDICATED.

   d. CONDUIT AND OUTLETS FOR ALARM, COMPUTER, AND SECURITY SYSTEMS AS INDICATED.

   e. CONTROL WIRING FOR ELECTRICAL SYSTEMS.

2. PROVIDE PERMITS AND INSPECTIONS AS REQUIRED.

B. CODES, REGULATIONS AND STANDARDS

1. THE INSTALLATION SHALL COMPLY WITH APPLICABLE LOCAL AND STATE CODES AND ORDINANCES, WITH THE REGULATIONS OF THE LATEST ADOPTED EDITION OF THE FOLLOWING CODES AND WITH THE REQUIREMENTS OF THE POWER AND TELEPHONE COMPANIES FURNISHING SERVICES TO THIS INSTALLATION.

2. THE FOLLOWING INDUSTRY STANDARDS, SPECIFICATIONS AND CODES ARE MINIMUM REQUIREMENTS:

   a. NEMA–NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION.

   b. CEC–CALIFORNIA ELECTRICAL CODE

   c. UL–UNDERWRITER LABORATORIES INCORPORATED STANDARDS

   d. ANSI–AMERICAN NATIONAL STANDARDS INSTITUTE

   e. IEEE–INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

   f. NESC–NATIONAL ELECTRICAL SAFETY CODE

   g. TITLE 24–CALIFORNIA ENERGY COMMISSION.

C. INSPECTION OF SITE

1. PRIOR TO SUBMITTING A BID FOR ELECTRICAL WORK, THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED CONSTRUCTION AND SHALL THOROUGHLY ACQUAINT HIMSELF WITH EXISTING UTILITIES AND WORKING CONDITIONS TO BE ENCOUNTERED, ETC. ALLOWANCE WILL NOT BE MADE FOR NON–COMPLIANCE WITH THIS CONDITION AFTER BIDDING.

D. GENERAL WORKMANSHIP

1. ALL WORK SHALL BE EXECUTED AND FINISHED IN A PRACTICAL MANNER AND SHALL PRESENT A NEAT AND WORKMANLIKE APPEARANCE WHEN COMPLETED.

2. ALL WORK MUST BE ACCEPTABLE TO THE OWNER. WHERE A DETAILED METHOD OF INSTALLING THE WORK IS NOT SPECIFIED OR INDICATED, INSTALL WORK AS DIRECTED BY THE OWNER.

E. RELATED WORK BY OTHERS

1. ELECTRICAL DRAWINGS IDENTIFY UTILITY SERVICE REQUIREMENTS FOR POWER, TELEPHONE, AND CABLE TV WITHIN AND UP TO FIVE FEET OUTSIDE THE BUILDING. UTILITY ELECTRICAL SERVICE TRANSFORMER(S), WHERE SHOWN ON THE SITE PLAN, ARE FOR INFORMATION ONLY AND INDICATE THE PREFERRED POINT OF SERVICE. UTILITY CONDUIT SYSTEMS, PULLBOXES, AND OTHER STRUCTURES, WHERE SHOWN ON THE SITE PLAN, ARE ALSO FOR INFORMATION ONLY AND INDICATED PREFERRED ROUTING. THE ELECTRICAL CONTRACTOR SHALL REFER TO UTILITY SERVICE DRAWINGS FOR ACTUAL UTILITY SERVICE REQUIREMENTS FOR THIS PROJECT. UTILITY SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPROVED UTILITY SERVICE DRAWINGS. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO CONTACT AND FOLLOW–UP WITH ALL UTILITY COMPANIES TO OBTAIN BOTH PRELIMINARY AND FINAL DESIGN DRAWINGS FOR THIS PROJECT.

   a. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE ELECTRICAL SERVICE ENTRANCE, MEET ALL POWER COMPANY REQUIREMENTS AND SHALL PAY ALL UTILITY COMPANY CHARGES.

   b. THE LOCAL TELEPHONE COMPANY WILL FURNISH AND INSTALL ALL TELEPHONE WIRING AND EQUIPMENT AND WILL MAKE ALL FINAL TELEPHONE CONNECTIONS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE TELEPHONE SERVICE ENTRANCE, MEET ALL TELEPHONE REQUIREMENTS AND SHALL PAY ALL UTILITY COMPANY CHARGES.

   c. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE CABLE SERVICE ENTRANCE, MEET ALL CABLE COMPANY REQUIREMENTS AND SHALL PAY ALL UTILITY COMPANY CHARGES.

F. COOPERATION WITH OTHER CONTRACTORS

1. COOPERATE WITH THE OTHER TRADES SO THAT THE INSTALLATION OF THE ELECTRICAL OUTLETS AND EQUIPMENT WILL BE PROPERLY COORDINATED. CONDUIT, FIXTURES, AND OTHER EQUIPMENT LOCATIONS SHALL BE CHECKED WITH THE OTHER TRADES TO AVOID CONFLICT WITH THE PIPING, DUCTWORK, STEEL BEAMS, OR OTHER OBSTRUCTIONS.

2. CAREFULLY CHECK THE LOCATIONS OF THE OUTLET BOXES AND DETERMINE THAT THEY HAVE NOT BEEN DISTURBED DURING THE INSTALLATION OF MATERIALS OF OTHER TRADES.

3. COORDINATE THE LOCATION OF TRENCHES AND CONDUITS FOR UTILITY SERVICES AND OTHER DISCIPLINES WITH THE GENERAL CONTRACTOR.

G. MECHANICAL AND ELECTRICAL COORDINATION

1. ANY DEVICE WHICH CARRIES THE FULL LOAD CURRENT OF THE ELECTRICALLY DRIVEN MACHINERY, AS OPPOSED TO THE CONTROL OF INSTRUMENTATION CURRENT IN THE HOLDING COIL, IS A POWER CIRCUIT AND IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. CONTROL OR INSTRUMENTATION CIRCUITS CONNECTING HOLDING COILS TO THE CONTROL SYSTEM AS SPECIFIED BY THE MECHANICAL ENGINEER ARE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.

2. THE POWER CIRCUIT IS DEFINED AS ALL DEVICES NECESSARY TO OPERATE, AND AS REQUIRED BY CODE TO PROTECT AND SERVICE THE UNIT, INCLUDING BRANCH CIRCUIT PROTECTIVE DEVICES, DISCONNECTS, MAGNETIC MOTOR STARTERS WITH RUNNING OVERLOAD AND SINGLE PHASING PROTECTION, MAGNETIC CONTACTORS, ETC.

3. THE CONTROL OR INSTRUMENTATION CIRCUIT IS DEFINED AS ALL DEVICES NECESSARY TO INTERFACE THE ELECTRICAL POWER CIRCUIT WITH THE CONTROL SYSTEM AS SPECIFIED BY THE MECHANICAL ENGINEER INCLUDING CONDUIT, BOXES, CONDUIT FITTINGS, CONDUCTORS, ELECTRIC–PNEUMATIC SWITCHES, PNEUMATIC–ELECTRIC SWITCHES, ELECTRICAL AND PNEUMATIC RELAYS, PNEUMATIC TUBING, ETC.

4. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE 120V DUPLE RECEPTACLES WITHIN 25 FEET OF ALL ROOF MOUNTED EQUIPMENT, PER NEC 210.63.

H. DRAWINGS

1. THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT AND LOCATIONS OF THE ELECTRICAL WORK. INFORMATION PRESENTED ON THESE DRAWINGS ARE AS ACCURATE AS PLANNING CAN DETERMINE, BUT FIELD VERIFICATION OF ALL DIMENSIONS, LOCATIONS, LEVELS, ETC., TO SUIT FIELD CONDITIONS IS REQUIRED. REVIEW ALL ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS AND ADJUST ALL WORK TO MEET THE REQUIREMENTS OF CONDITIONS SHOWN. THE ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS. DISCREPANCIES BETWEEN DIFFERENT PLANS, OR BETWEEN DRAWINGS AND SPECIFICATIONS, OR REGULATIONS AND CODES GOVERNING THE INSTALLATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING BEFORE THE DATE OF BID OPENING. WHERE DISCREPANCIES OR CONFLICTS OCCUR, THE BID SHALL REFLECT THE MOST STRINGENT REQUIREMENTS. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO FIELD MEASURE AND CONFIRM MOUNTING HEIGHTS AND LOCATION OF ELECTRICAL EQUIPMENT WITH RESPECT TO COUNTERS, ETC. DO NOT SCALE DISTANCES OFF THE ELECTRICAL DRAWINGS. USE ACTUAL BUILDING DIMENSIONS.

2. UPON COMPLETION OF THE WORK UNDER THESE DRAWINGS AND SPECIFICATIONS, THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE OWNER WITH A COMPLETE SET OF MARKED–UP ELECTRICAL DRAWINGS SHOWING THE "AS–BUILT" CONDITION OF THE WORK. BOND PRINTS OF THE DRAWINGS REQUIRED WILL BE FURNISHED BY THE OWNER, FOR THIS PURPOSE.

3. ALL OPERATING INSTRUCTIONS, PARTS LISTS AND SPARE PARTS FOR MATERIAL AND EQUIPMENT FURNISHED AND/OR INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL BE TURNED OVER TO THE OWNER (THREE COPIES).

I. SHOP DRAWINGS AND APPROVALS

1. SUBMITTALS SHALL CONSIST OF DETAILED SHOP DRAWINGS, SPECIFICATIONS, BLOCK WIRING DIAGRAMS, "CATALOG CUTS" AND DATA SHEETS CONTAINING PHYSICAL AND DIMENSIONAL INFORMATION, PERFORMANCE DATA, ELECTRICAL CHARACTERISTICS, MATERIALS USED IN FABRICATION, AND MATERIAL FINISH. CLEARLY INDICATE BY ARROWS OR BRACKETS PRECISELY WHAT IS BEING SUBMITTED ON AND THOSE OPTIONAL ACCESSORIES WHICH ARE INCLUDED AND THOSE OPTIONAL ACCESSORIES WHICH ARE INCLUDED AND THOSE WHICH ARE EXCLUDED.

2. EACH SUBMITTAL SHALL BE ACCOMPANIED SHALL BEAR A STAMP STATING THAT THE SUBMITTAL HAS TO BE THOROUGHLY REVIEWED BY THE CONTRACTOR AND IS IN FULL COMPLIANCE WITH THE REQUIREMENTS OF CONTRACT DOCUMENTS. COVER LETTERS SHALL LIST IN FULL THE ITEMS AND DATA SUBMITTED. FAILURE TO COMPLY WITH THIS REQUIREMENTS SHALL CONSTITUTE GROUNDS FOR REJECTION OF DATA.

3. THE CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF ALL ELECTRICAL EQUIPMENT AND GENERATOR ROOMS, YARDS, AND UTILITY AREAS. MINIMUM SCALE: 1/4"–1'–0".

4. AS PART OF THE EQUIPMENT SUBMITTALS, THE MANUFACTURER SHALL PROVIDE ANCHORAGE CALCULATIONS FOR FLOOR AND WALL MOUNTED ELECTRICAL EQUIPMENT. STRUCTURAL CALCULATIONS SHALL BE PREPARED AND SIGNED BY REGISTERED STRUCTURAL ENGINEER IN CALIFORNIA.

5. ALL RESUBMITALS SHALL INCLUDE A COVER LETTER THAT LISTS THE ACTION TAKEN AND REVISIONS MADE TO EVERY DRAWING AND EQUIPMENT DATA SHEET IN RESPONSE TO SUBMITTAL REVIEW COMMENTS. FAILURE TO INCLUDE THIS COVER LETTER WILL CONSTITUTE REJECTION OF THE RESUBMITTAL PACKAGE.

6. CONTRACTOR SHALL SUBMIT SHORT CIRCUIT AND COORDINATION STUDIES SIGNED BY A REGISTERED ELECTRICAL ENGINEER. STUDIES SHALL BE PERFORMED IN ACCEPTANCE WITH IEEE GUIDELINES. CONTRACTOR SHALL BE SUBMITTED FOR ARCHITECT–ENGINEER REVIEW PRIOR TO ORDERING AND INSTALLING ANY EQUIPMENT. CONTRACTOR SHALL ENSURE THAT THE ACTUAL FEEDER LENGTHS MATCH STUDIES (REVISE STUDIES IF NECESSARY). SERVICE EQUIPMENT MARKINGS AS REQUIRED PER NEC 110.24 SHALL BE BASED ON CONTRACTOR SUBMITTED STUDIES.

7. SUBMIT CONDUITS; FITTINGS; OUTLET PULL AND JUNCTION BOXES; SAFETY SWITCHES; FUSES; TRANSFORMERS; PANELBOARDS; SWITCHBOARDS; CIRCUIT BREAKERS; LIGHTING CONTROL SYSTEM/DEVICES; AND FIRE ALARM SYSTEMS.

J. SUBSTITUTIONS

1. ALL REQUESTS FOR SUBSTITUTIONS SHALL CONFORM TO THE GENERAL REQUIREMENTS AND PROCEDURE OUTLINED IN DIVISION 1.

2. WHERE ITEMS ARE NOTED AS "OR EQUAL", A PRODUCT OF EQUAL DESIGN, CONSTRUCTION AND PERFORMANCE WILL BE CONSIDERED.

3. SUBSTITUTIONS SHALL BE EQUAL, IN THE OPINION OF THE OWNER'S REPRESENTATIVE, TO THE SPECIFIED PRODUCT.

4. THE BURDEN OF PROOF OF EQUALITY OF A PROPOSED SUBSTITUTION FOR A SPECIFIED ITEM SHALL BE UPON THE ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL SUPPORT ITS REQUEST WITH SUFFICIENT TEST DATA, PHOTOMETRIC ANALYSIS, DETAILED BREAKDOWN DEFINING COST SAVINGS, AND OTHER MEANS TO PERMIT THE ARCHITECT AND/OR ENGINEER TO MAKE A FAIR AND EQUITABLE DECISION ON THE MERITS OF THE PROPOSED SUBSTITUTION. ANY ITEM BY A MANUFACTURER OTHER THAN THOSE SPECIFIED, OR A OF BRAND NAME OR MODEL NUMBER WILL BE CONSIDERED A SUBSTITUTION. THE ARCHITECT AND/OR ENGINEER WILL BE THE SOLE JUDGE OF WHETHER OR NOT THE SUBSTITUTION IS EQUAL IN QUALITY, UTILITY AND ECONOMY TO THAT SPECIFIED.

5. APPROVAL OF A SUBSTITUTION SHALL NOT RELIEVE ELECTRICAL CONTRACTOR FROM RESPONSIBILITY FOR COMPLIANCE WITH ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS. ELECTRICAL CONTRACTOR SHALL BEAR THE EXPENSE FOR ANY CHANGES IN OTHER PARTS OF THIS WORK OR OTHER WORK CAUSED BY THE PROPOSED SUBSTITUTION.

6. IF ARCHITECT AND/OR ENGINEER REJECTS ELECTRICAL CONTRACTOR'S SUBSTITUTE ITEM ON THE FIRST SUBMITTAL, ELECTRICAL CONTRACTOR MAY MAKE ONLY ONE ADDITIONAL REQUEST FOR SUBSTITUTION IN THE SAME CATEGORY.

K. GUARANTEE & TESTING

1. GUARANTEE ALL MATERIAL FURNISHED AND ALL WORKMANSHIP PERFORMED FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK. ANY DEFECTS DEVELOPING WITHIN THIS PERIOD, TRACEABLE TO MATERIAL FURNISHED AS PART OF THIS SECTION OR WORKMANSHIP PERFORMED HEREUNDER, SHALL BE CORRECTED AS NECESSARY AT NO COST TO THE OWNER.

2. SYSTEM SHALL BE TESTED FOR PROPER OPERATION. IF TEST SHOW THAT WORK IS DEFECTIVE, ELECTRICAL CONTRACTOR SHALL MAKE CORRECTIONS AS NECESSARY AT NO COST TO THE OWNER.

L. LABELING

1. PROVIDE ENGRAVED NAME PLATES ON SWITCHBOARDS, PANEL BOARDS, DISCONNECT SWITCHES, MOTOR CONTROL CENTERS, TRANSFORMERS, ETC., INDICATING EQUIPMENT DESIGNATED (OR DESIGNATION OF EQUIPMENT SERVED) AND VOLTAGE.

M. HOUSEKEEPING PADS

1. PROVIDE 4 INCH HIGH CONCRETE EQUIPMENT PADS FOR ALL FLOOR–MOUNTED EQUIPMENT INCLUDING SWITCHBOARDS, MOTOR CONTROL CENTER, TRANSFORMERS, ETC.

N. MATERIALS

1. ALL MATERIALS SHALL BE NEW AND OF QUALITY AS SPECIFIED ON THE PLANS OR SPECIFICATIONS AND MUST CARRY THE UNDERWRITER'S LABORATORIES APPROVAL COVERING THE PURPOSE FOR WHICH THEY ARE USED, IN ADDITION TO MEETING ALL RECRUITMENTS OF THE CURRENT APPLICABLE CODES AND REGULATIONS.

2. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION OR FACTORY WIRING IN EQUIPMENT PROVIDED UNDER THIS SECTION.

O. STORAGE AND HANDLING OF MATERIAL

1. DELIVER MATERIALS AND EQUIPMENT TO THE PROJECT IN THE MANUFACTURER'S ORIGINAL, UNOPENED, LABELED CONTAINERS. PROTECT AGAINST MOISTURE, TAMPERING, OR DAMAGE FROM IMPROPER HANDLING OR STORAGE. ELECTRICAL CONTRACTOR SHALL PROTECT AND BE RESPONSIBLE FOR ANY DAMAGE TO WORK OR MATERIALS UNTIL FINAL ACCEPTANCE BY THE OWNER, AND SHALL MAKE GOOD WITHOUT COST TO THE OWNER, ANY DAMAGE OR LOSS THAT MAY OCCUR DURING THIS PERIOD.

2. ARRANGE FOR TIMELY DELIVERY OF MATERIALS AND EQUIPMENT TO THE JOBSITE IN ORDER TO MINIMIZE THE LENGTH OF TIME BETWEEN DELIVERY AND INSTALLATION.

3. ARRANGE FOR TIMELY DELIVERY OF OWNER SUPPLIED MATERIALS AND EQUIPMENT TO THE JOBSITE IN ORDER TO MINIMIZE THE LENGTH OF TIME BETWEEN DELIVERY AND INSTALLATION.

4. COVER AND PROTECT ANY MATERIAL WHICH MAY BE AFFECTED BY THE WEATHER WHILE IN TRANSIT OR STORED AT THE PROJECT SITE. ANY MATERIAL FOUND DEFECTIVE OR NOT INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS MAY BE REJECTED BY THE ENGINEER.

5. NO ELECTRICAL WORK SHALL BE INSTALLED IN AREAS WHERE OTHER TRADES'S WORK MIGHT CAUSE PHYSICAL DAMAGE TO WIRES, CONDUIT, EQUIPMENT, BOXES OR FITTINGS UNTIL THE OTHER TRADE'S WORK HAS BEEN COMPLETED. ANY EQUIPMENT OR MATERIALS WHICH BECOME DAMAGED SHALL BE REMOVED AND REPLACED AT NO EXTRA COST TO THE OWNER.

P. CLEAN–UP

1. KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS, OR RUBBISH CAUSED BY EMPLOYEES OR WORK UNDER THIS DIVISION OF THE SPECIFICATIONS. AT THE COMPLETION OF THE WORK, REMOVE ALL SURPLUS MATERIALS, TOOLS, ETC., AND LEAVE THE PREMISES "BROOM–CLEAN".

Q. EXCAVATION, CUTTING AND FITTING

1. PERFORM THE EXCAVATION, CUTTING, FITTING, REPAIRING AND FINISHING OF THE WORK NECESSARY FOR THE INSTALLATION OF ELECTRICAL EQUIPMENT. HOWEVER, NO CUTTING OF THE WORK OF OTHER TRADES OR OF ANY STRUCTURAL MEMBER SHALL BE DONE WITHOUT THE CONSENT OF THE ARCHITECT.

R. EXCAVATION AND BACKFILL

1. PERFORM ALL EXCAVATION AND BACKFILLING REQUIRED FOR WORK PERFORMED UNDER THIS DIVISION OF THE SPECIFICATIONS. TRENCH BOTTOMS SHALL BE GRADED TRUE AND FREE FROM STONES OR SOFT SPOTS. USE EXCAVATED MATERIALS FOR BACKFILL UNLESS OFF SITE MATERIALS ARE DEEMED NECESSARY BY THE ARCHITECT. TRENCHING AND BACKFILLING FOR ELECTRICAL AND TELEPHONE UTILITY SERVICES TO BUILDING SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR IN ACCORDANCE WITH UTILITY COMPANY REQUIREMENTS.

2. VERIFY LOCATION OF EXISTING UNDER GROUND UTILITIES PRIOR TO TRENCHING.

PART 2 – PRODUCTS AND EXECUTION

A. CONDUIT

1. ALL WIRING SHALL BE INSTALLED IN LISTED METALLIC CONDUIT EXCEPT AS PERMITTED BELOW. GRC MAY BE USED IN ALL AREAS. IMC MAY BE USED IN INDOOR LOCATIONS NOT IN CONTACT WITH EARTH. EMT MAY BE USED IN INDOOR LOCATIONS NOT IN CONTACT WITH EARTH, NOT IN CONCRETE SLABS OR WALLS AND NOT SUBJECT TO DAMAGE. PVC MAY BE USED IN OR BELOW CONCRETE AND DIRECT BURIED IN EARTH. FLEXIBLE STEEL CONDUIT SHALL BE USED FOR INDOOR FINAL CONNECTIONS TO MECHANICAL EQUIPMENT NOT TO EXCEED 36", AND RECESSED REMOVABLE LIGHT FIXTURES NOT TO EXCEED 72". LIQUID–TIGHT FLEXIBLE STEEL CONDUIT SHALL BE FOR OUTDOOR FINAL CONNECTIONS TO EQUIPMENT NOT TO EXCEED 36".

2. WHERE THE CONDUIT ENTERS OUTLET BOXES, FIXTURE OR CABINETS, FIRMLY FASTEN BY DOUBLE LOCKNUTS AND BUSHINGS (GRC AND IMC ONLY). FIRMLY FASTEN CONDUIT TO THE BUILDING CONSTRUCTION. RUN EXPOSED CONDUIT PARALLEL TO THE BUILDING LINES, SUPPORTED BY APPROPRIATE HANGERS.

3. COVER METALLIC CONDUIT IN CONTACT WITH EARTH OR FILL WITH POLYETHYLENE TAPE SPIRAL WRAPPED, 1/2" LAPPED TO PROVIDE DOUBLE THICKNESS. TAPE SHALL BE SCOTCH NO. 50 TAPE. CONDUIT AND DUCTS NOT UNDER BUILDINGS AND FEEDER DUCTS SHALL BE INSTALLED PER NEC 300.5, EXCEPT THAT THE BENDS IN CONDUIT LARGER THAN 1" IN DIAMETER SHALL BE MADE WITH GALVANIZED STEEL CONDUIT TREATED AS NOTED ABOVE. MAKE JOINTS WITH COMPOUND TO BE WATERTIGHT.

4. CONDUIT SIZES SHALL BE AS REQUIRED BY CODE AND AS INDICATED OR SPECIFIED ON DRAWINGS. NO CONDUIT SMALLER THAN 3/4 INCH TRADE SIZE SHALL BE USED.

5. PENETRATION THROUGH FLOOR SLABS WHERE SUBJECT TO DAMAGE SHALL BE IN WRAPPED RIGID STEEL. SCHEDULE 40 PVC ELBOWS AND PENETRATIONS MAY BE USED IN SLAB ON GRADE WHERE PENETRATIONS OCCUR IN PROTECTED AREAS (WALLS, ELECTRICAL ROOMS, ETC.).

6. CONDUITS AND OUTLETS SHALL BE CONCEALED WITH THE BUILDING STRUCTURE, EXCEPT THAT CERTAIN MOTOR AND LIGHTING FEEDER CONDUITS MAY BE RUN EXPOSED IN CERTAIN AREAS AS INDICATED ON THE DRAWINGS. CONDUIT SHOWN TO BE INSTALLED IN CABINETS, COUNTERS, AND CASEWORK SHALL BE RUN AS DIRECTED BY THE ARCHITECT.

7. ALL CONDUIT SERVING ROOF MOUNTED EQUIPMENT AND DEVICES INCLUDING HVAC EQUIPMENT, GFCI MAINTENANCE RECEPTACLES AND DUCT TYPE SMOKE DETECTORS SHALL BE ROUTED IN THE CEILING SPACE. CONDUIT SHALL PENETRATE ROOF AT EQUIPMENT LOCATIONS ONLY NO CONDUIT SHALL BE INSTALLED HORIZONTALLY ACROSS ROOF SURFACE.

8. FLEXIBLE METALLIC AND NON–METALLIC CONDUIT SYSTEMS SHALL HAVE A CODE SIZED COPPER GROUND CONDUCTOR. INCREASE CONDUIT SIZE AS REQUIRED.

9. FLEXIBLE METAL CONDUIT/CUT–IN BOXES FOR LOW VOLTAGE SYSTEMS (TEL/DATA) MAY BE USED IN WALL CAVITIES PROVIDED THE INSTALLATION COMPLIES WITH NEC ARTICLE 348. ALL CONDUIT FOR LOW VOLTAGE WIRING SYSTEMS IN NEW WALL PARTITIONS SHALL BE EMT FLEXIBLE METAL CONDUIT FOR THESE SYSTEMS IS NOT ACCEPTABLE IN NEW WALLS.

10. ALL EMPTY CONDUIT SYSTEMS SHALL HAVE A 200 POUND TEST PULL CORD INSTALLED TO FACILITATE INSTALLATION OF FUTURE WIRE.

B. FITTINGS

1. EMT–FITTINGS AND CONDUIT BODIES SHALL BE STEEL, MALLEABLE IRON OR DIE CAST COMPRESSION OR SET SCREW TYPE.

2. IMC AND GRC–SHALL BE STEEL OR MALLEABLE IRON TYPE AND SHALL ENGAGE A MINIMUM OF FIVE (5) THREADS.

C. OUTLET, PULL AND JUNCTION BOXES

1. PULL AND/OR JUNCTION BOXES SHALL BE INSTALLED WHEREVER SHOWN ON THE DRAWINGS OR AS REQUIRED BY CODE.

2. EACH SWITCH, LIGHT, RECEPTACLE OR OTHER OUTLET BOX. JUNCTION AND PULLBOXES SHALL BE CODE GAUGE, GALVANIZED STEEL OUTLET BOX. JUNCTION AND PULLBOXES SHALL BE CODE GAUGE, GALVANIZED STEEL. OUTLET BOXES SHALL BE OF THE ONE PIECE, KNOCKOUT TYPE, IN GENERAL 4–INCH SQUARE, 2 1/8–INCH WITH PLASTER RING. PLASTER RINGS SHALL BE SET TO PROVIDE NOT MORE THAN 1/8" FROM WALL SURFACE TO RING. IN NO CASE SHALL PLASTER RING PROJECT BEYOND SURFACE OF WALL. SINGLE GANG RINGS SIMILAR TO STEEL CITY 52050 SHALL BE USED FOR

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

LICENSED PROFESSIONAL ENGINEER
PETER A. HILGER
19695
OKLAHOMA
8-14-25

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
ELECTRICAL SPECIFICAITONS

SHEET NUMBER:
E0.2

4" BOXES IN UNFINISHED BRICK. NUMBER 180 BOXES MAY BE USED FOR UNFINISHED MASONRY FLUSH WALL OUTLETS. CENTER ALL OUTLET BOXES IN BLOCK COURSE.

3. BOXES INSTALLED IN POURED CEMENT FLOORS SHALL BE FLUSH TYPE CAST IRON WITH WATERTIGHT GASKETED COVERS, GRAY METALLIC FINISH. WHERE BOXES ARE INSTALLED IN FLOORS WITH TILE OR CARPET FLOOR COVERING, COVERS SHALL BE OF THE RECESSED TYPE TO ACCOMMODATE THE FLOOR COVERING.

4. BOXES INSTALLED FOR THE ALARM, COMPUTER AND SECURITY SYSTEM SHALL BE PROVIDED WITH APPROPRIATE COVERPLATES.

5. PULL BOXES SHALL BE THE TYPES, SIZE AND DESIGN AS APPROVED BY THE NEC FOR THE CLASS OF INSTALLATION REQUIRED.

6. PULL BOXES AND OUTLET BOXES SHALL BE SIZED BY THE ELECTRICAL CONTRACTOR AS REQUIRED BY THE NEC BASED ON NUMBER OF CONDUCTORS, YOKES, STRAPS, ETC., USED IN THE INSTALLATION.

D. WIRE

4. MATCH BUILDING STANDARDS IF APPLICABLE IN AN EXISTING BUILDING CONDITION, UNLESS OTHERWISE FOLLOW THE SPECIFICATIONS BELOW.

5. CONDUCTOR SIZE SHOWN ON THE DRAWINGS BASED ON COPPER WIRE. UNLESS OTHERWISE SPECIFIED, ALL WIRE SHALL BE 75 DEGREE C TYPE THWN OR XHHW. ALL BRANCH CIRCUIT AND FEEDER WIRING SHALL BE COPPER. WHERE RACEWAY AND CABLES EXPOSED TO DIRECT SUNLIGHT ON OR ABOVE ROOFTOPS, PROVIDE TYPE XHHW-2 INSULATED CONDUCTORS.

6. WIRES SHALL BE MARKED WITH COLOR TO SIMPLIFY CIRCUIT IDENTIFICATION. UNLESS OTHERWISE REQUIRED BY LOCAL ORDINANCES, IDENTIFICATION SHALL BE AS FOLLOWS:

   a. 120/208V AND 120/240V

      PHASE A: BLACK. PHASE B: RED. PHASE C: BLUE. NEUTRAL: WHITE. GROUND: GREEN.

   b. 277/480V

      PHASE A: BROWN. PHASE B: ORANGE. PHASE C: YELLOW. NEUTRAL: GRAY. GROUND: GREEN.

4. THE WIRE SHALL BE #12 AWG UNLESS OTHERWISE INDICATED.

5. NO WIRE SHALL BE INSTALLED IN THE CONDUIT SYSTEM UNTIL THE CONDUIT SYSTEM IS COMPLETE. USE U.L. APPROVED LUBRICANT TO FACILITATE THE INSTALLATION OF THE CONDUCTORS IN THE CONDUIT SYSTEM.

6. CONDUCTORS NO. 10 AWG AND SMALLER SHALL BE SOLID. CONDUCTORS LARGER THAN NO. 10 AWG SHALL BE STRANDED.

7. MC CABLE MAY BE UTILIZED FOR #10 AND #12 BRANCH CIRCUIT WIRING WITH THE FOLLOWING LIMITATIONS:

   a. THE INSTALLATION IS IN ACCORDANCE WITH NEC ARTICLE 330.

   b. MC CABLE USE IS LIMITED TO WIRING WITHIN PARTITIONS AND WALLS AND TO CONNECTIONS TO AND BETWEEN SWITCHES AND WIRING DEVICES.

   c. MC CABLE IS NOT TO BE USED FOR HOME RUN CIRCUITING. HOME RUN CIRCUITING SHALL BE INDIVIDUAL CONDUCTORS INSTALLED IN EMT CONDUIT.

E. WIRING DEVICES

1. SWITCHES: WALL SWITCHES SHALL BE SPECIFICATION GRADE AC SILENT TYPE SWITCHES 20A, 120 – 277 VOLT. HUBBELL 1221 (SP), 1222 (DP), 1223 (3-WAY) AND 1224 (4-WAY). DIMMERS SHALL BE SPECIFICATION GRADE WITH RESET SLIDE CONTROL. COLOR SHALL BE AS APPROVED BY THE ARCHITECT/OWNER. MATCH BUILDING STANDARD (IF EXISTING).

2. RECEPTACLES: DUPLEX TYPE OUTLETS SHALL BE HEAVY DUTY, SPECIFICATION GRADE NEMA 5-20R, 20A, 120V GROUNDED TYPE EQUAL TO HUBBELL 5362. ISOLATED GROUND OUTLETS SHALL BE EQUAL TO HUBBELL IG5362. SPECIAL APPLICATION RECEPTACLES SHALL BE AS INDICATED ON PLANS AND VERIFIED WITH EQUIPMENT SUPPLIER. COLOR SHALL BE AS APPROVED BY THE ARCHITECT/OWNER. MATCH BUILDING STANDARD (IF EXISTING).

3. WEATHERPROOF RECEPTACLES: COVERS SHALL BE HUBBELL WPFS26 WITH 5362 DUPLEX OUTLET OR EQUAL.

4. GFCI RECEPTACLES: SHALL BE HUBBELL GF5362. GFCI RECEPTACLES SHALL BE USED IN ALL OUTDOOR APPLICATIONS AS WELL AS THOSE PLACED WITHIN 6' OF WATER SOURCE AND ALL OTHER NEC REQUIRED LOCATIONS.

5. MOUNTING HEIGHTS: SWITCHES – +48 INCHES. RECEPTACLES – +18 INCHES. COMMUNICATION DEVICES – +18 INCHES. FIRE ALARM DEVICES – AS REQUIRED BY ADA, NFPA 72 OR AUTHORITY HAVING JURISDICTION. ALL MOUNTING HEIGHTS ARE TO CENTERLINE OF DEVICE.

6. DEVICE PLATES SHALL BE EQUAL TO SIERRA SMOOTH-LINE PLASTIC WALL PLATES. COLOR SHALL BE AS APPROVED BY THE ARCHITECT/OWNER. MATCH BUILDING STANDARD (IF EXISTING).

7. IN ALL CASES, SWITCHES CONTROLLING LIGHTING ARE TO BE LOCATED ON THE STRIKE SIDE OF DOORS. LOCATIONS INDICATED FOR SWITCH AND OUTLETS ARE APPROXIMATE. OWNER MAY MAKE MINOR RELOCATIONS AT NO ADDITIONAL CHARGE.

F. LIGHTING FIXTURES

1. COORDINATE THE FINAL LOCATION OF FIXTURES SHOWN DIAGRAMMATICALLY ON THE DRAWINGS WITH OTHER TRADES IN ORDER TO AVOID INTERFERENCES. RELOCATE FIXTURES AS REQUIRED AS PART OF THE WORK UNDER THIS DIVISION IF NEW LOCATION IS WITHIN A FIVE FOOT RADIUS OF LOCATION SHOW.

2. PROVIDE ALL LIGHTING FIXTURES, WIRED AND CONNECTED. THE DRAWINGS INDICATE THE FIXTURES FOR EACH LOCATION. ELECTRICAL CONTRACTOR SHALL VERIFY FIXTURE LOCATIONS, MOUNTING REQUIREMENT AND U.L. LABELING OF ALL FIXTURES PRIOR TO ORDERING. INCLUDE ALL ACCESSORIES NEED FOR A COMPLETE INSTALLATION INCLUDING MOUNTING CLIPS, PLASTER FRAMERS, HANGERS AND HARDWARE IN BASE BID. PROVIDE LAMPS FOR ALL FIXTURES. VERIFY CEILING CONSTRUCTION BEFORE ORDERING RECESSED UNITS.

3. ADJUSTABLE FIXTURES SHALL BE LOCATED AND PROPERLY AIMED AS DIRECTED BY THE ARCHITECT OR THE LIGHTING DESIGNER.

4. SUPPORT RECESSED FIXTURE FROM CEILING STRUCTURAL SUPPORT PER ADOPTED BUILDING CODES.

5. ALL FIXTURES TO BEAR THE U.L. LABEL. ALL OUTDOOR FIXTURES SHALL BE U.L. LABELED FOR WET OR DAMP LOCATION AS DEFINED BY NEC ARTICLE 100.

G. LAMPS

1. LAMPS SHALL BE BY THE SAME MANUFACTURER. LAMPS SHALL BE MANUFACTURED BY GE, PHILIPS, USHIO, NICHIA, SAMSUNG LED OR CREE.

2. ALL LAMPS SHALL BE LIGHT EMITTING DIODE (LED) TYPE – MINIMUM 80 CRI INDOORS AND 70 CRI OUTDOORS, 3500K (U.N.O.), 50,000 RATED LAMP HOURS. LEDs MUST BE FROM THE SAME MANUFACTURER AND BATCH.

H. LED DRIVERS

1. DRIVERS SHALL BE EASILY ACCESSIBLE WITHOUT THE USE OF SPECIAL TOOLS. LUMINARES SHALL BE CAPABLE OF BEING OPERATED BY STANDARD MOTION/VACANCY SENSORS, DAYLIGHT SENSORS, AND DIMMERS. DIMMING FOR 0-10 VOLT DC CONTROL CIRCUITS MINIMUM. DRIVERS SHALL BE SPECIFICALLY COMPATIBLE WITH LIGHTING CONTROL SYSTEM BEING PROVIDED.

2. TEMPERATURE RATING; -20 DEGREES CELSIUS MINIMUM STARTING TEMPERATURE. LUMINARES ACCESSORIES SHALL BE ABLE TO WITHSTAND TEMPERATURES IN EXCESS OF 110 FAHRENHEIT DEGREES.

3. 90-PERCENT MINIMUM POWER FACTOR, 50-60 HZ FREQUENCY, TOTAL HARMONIC DISTORTION LESS THAT 20-PERCENT, LED AND DRIVER LIFE EXPECTANCY OF 50,000 MINIMUM PROJECTED HOURS AT 6,000 HOURS TESTING FOR BOTH LEDS AND DRIVERS; LUMINARES IN CONTACT WITH INSULATION MATERIAL SALL BE IC RATED; RATED FOR DRY AND DAMP LOCAITONS.

4. APPROVED DRIVER MANUFACTURERS INCLUDE OSRAM, PHILIPS, KENALL, ELDOLED, GENERAL ELECTRIC, AND OTHER ONLY IF APPROVED.

I. SAFETY SWITCHES

1. SAFETY SWITCHES SHALL BE GENERAL DUTY TYPE, 250 VOLT FOR 208 VOLT EQUIPMENT AND HEAVY DUTY TYPE, 600 VOLT FOR 480 VOLT EQUIPMENT. SAFETY SWITCHES SHALL HAVE THE NUMBER OF POLES REQUIRED. WIRE TERMINATIONS SHALL BE LISTED AS SPECIFIED BY THE NEC. SAFETY SWITCHES FOR AIR CONDITIONING USE SHALL BE OF THE FUSIBLE TYPE WHERE RECOMMENDED BY EQUIPMENT MANUFACTURER. FUSIBLE SWITCHES SHALL ACCEPT CLASS 'R' FUSES ONLY AND WILL REJECT ALL OTHER TYPES. THE SWITCH SIZE, NUMBER OF POLES AND VOLTAGE RATING SHALL BE AS REQUIRED BY CODE AND AS INDICATED ON THE DRAWINGS. WHERE OUTSIDE THE BUILDING, THE SWITCHES SHALL BE TYPE NEMA 3R WEATHERPROOF. ALL SWITCHES SHALL BE LOCKABLE.

2. PROVIDE DYMO-TAPE TAG INSIDE COVER OF EACH FUSIBLE SWITCH, INDICATING SIZE AND TYPE OF FUSES PROVIDED.

J. FUSES

1. FUSES SHALL BE DUAL ELEMENT TIME DELAY TYPE, AS MANUFACTURED BY BUSSMAN MFG. COMPANY, OR AS INDICATED OR REQUIRED BY EQUIPMENT SUPPLIED.

2. PROVIDE TWO (2) SETS OF THREE (3) SPARE FUSES FOR EACH SIZE AND TYPE PROVIDED ON THIS PROJECT. INSTALL FUSES IN A HINGED DOOR, SHEET METAL STORAGE CABINET EQUIPMENT WITH CLIPS OR CUBICLES, EACH MARKED WITH SIZE AND TYPE OF FUSE STORED THEREIN. PROVIDE NAMEPLATE "SPARE FUSES." INSTALL IN LOCATION AS DIRECTED BY OWNER.

K. SERVICE ENTRANCE

1. THE SERVICE ENTRANCE EQUIPMENT SIZE, VOLTAGE AND RATING SHALL BE AS INDICATED ON THE DRAWINGS. PROVIDE COPPER BUSING UNLESS OTHERWISE NOTED OR PERMITTED. EQUIPMENT SHALL CARRY THE U.L. LABEL AND SHALL CONFORM TO THE POWER COMPANY REGULATIONS.

2. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO VERIFY AND CONFIRM THAT EQUIPMENT SUBMITTED SHALL FIT WITHIN THE ALLOTTED SPACE REQUIREMENTS SHOWN ON THE PLANS. DRAWINGS INDICATE MAXIMUM DIMENSIONS FOR THE SWITCHBOARDS INCLUDING CLEARANCES BETWEEN SWITCHBOARDS ON ADJACENT SURFACES AND OTHER ITEMS. COMPLY WITH MAXIMUM DIMENSIONS. IF ANY SPACE OR SIZE DISCREPANCIES ARE ANTICIPATED IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER PRIOR TO SUBMITTAL. ONCE THE SUBMITTALS HAVE BEEN APPROVED IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO INSTALL THE EQUIPMENT WITHIN THE ALLOTTED SPACE AT NO ADDITIONAL COST TO THE OWNER.

3. SERVICE ENTRANCE EQUIPMENT SHALL BE MANUFACTURED BY GENERAL ELECTRIC, SQUARE D, CUTLER-HAMMER, SIEMENS OR APPROVED EQUAL.

4. ALL OVERCURRENT PROTECTION DEVICES AND ELECTRICAL DISTRIBUTION EQUIPMENT SHALL BE FULLY (100%) RATED FOR AVAILABLE FAULT CURRENT INDICATED. SERIES RATED DEVICES ARE NOTE ACCEPTABLE.

L. TRANSFORMERS

1. TRANSFORMERS SHALL BE DRY TYPE WITH COPPER WINDINGS, 115 DEGREE TEMPERATURE RISE, AND DOE10 CFR PART 431 APPENDIX A OF SUBPART K 2016. ENERGY EFFICIENCY UNDER DOE 2016 REQUIREMENTS IS TO BE ENERGY VERIFIED BY U.L.

2. ALL TRANSFORMERS SHALL BE PROVIDED WITH CLASS 220 DEGREE CELSIUS INSULATION SYSTEM AND SHALL BE COMPLETELY ENCLOSED EXCEPT FOR VENTILATION OPENINGS.

3. TRANSFORMERS SHALL BE 115 DEGREE TEMPERATURE RISE ABOVE 40 DEGREE CELSIUS AMBIENT TEMPERATURE.

4. TRANSFORMERS SHALL BE EQUIPMENT WITH 2-1/2% (2 ABOVE AND 2 BELOW NORMAL VOLTAGE) PRIMARY TAPS.

M. PANELBOARDS

1. CIRCUIT BREAKER TYPE AS INDICATED ON DRAWINGS. ALL PANELS SHALL HAVE PANELBOARD TYPE CONSTRUCTION WITH BOLT-ON CIRCUIT BREAKERS. PANELS INDICATED AS LOADCENTERS SHALL HAVE PLUG-ON CIRCUIT BREAKERS.

2. BUSING SHALL BE COPPER UNLESS OTHERWISE NOTED OR PERMITTED.

3. MANUFACTURERS SHALL BE GENERAL ELECTRIC, SQUARE D, CUTLER-HAMMER, SIEMENS WITH VOLTAGE, SIZES AND RATING AS INDICATED ON DRAWINGS. ALL PANELBOARDS IN THE FACILITY SHALL BE BY THE SAME MANUFACTURER.

4. THE CIRCUIT BREAKERS SHALL BE OPERABLE IN ANY POSITION AND BE REMOVABLE FROM THE FRONT OF THE PANELBOARD WITHOUT DISTURBING THE ADJACENT UNITS. BRANCH BREAKERS SHALL BE OF SUCH DESIGN THAT COMBINATION OF SINGLE-POLE, DOUBLE-POLE AND THREE-POLE BREAKERS CAN BE ASSEMBLED ON THE SAME PANEL. EACH BRANCH CIRCUIT SHALL BE CLEARLY NUMBERED. BRANCH AND MAIN TERMINALS SHALL BE OF THE SOLDERLESS TYPE. HANDLE TIES TO FORM MULTI-POLE BREAKERS ARE NOTE ACCEPTABLE.

5. WIRE TERMINATION FOR PANELBOARDS, LOADCENTERS AND CIRCUIT BREAKERS SHALL BE LISTED AS SPECIFIED BY THE NEC.

6. PROVIDE A TYPEWRITTEN CIRCUIT INDEX BEHIND CLEAR PLASTIC COVER ON INSIDE OF DOOR. INFORMATION SHALL INCLUDE ROOM AND TYPE OF LOAD SERVED. ALL CIRCUIT BREAKERS SHALL BE IDENTIFIED, INCLUDING SPARES. INDEX CARD FRAME SHALL BE METAL, SECURED TO DOOR.

7. WHERE PANELBOARDS ARE INSTALLED FLUSH WITH THE WALLS, EXTEND EMPTY CONDUITS FROM THE PANELBOARD TO AN ACCESSIBLE SPACE ABOVE OR BELOW. PROVIDE 3/4" (MINIMUM SIZE) CONDUIT FOR EVERY THREE SINGLE SPARE CIRCUIT BREAKERS OR SPACE OR EQUIVALENT MULTI-POLE ARRANGEMENT, OR FRACTION THEREOF, BUT NOT LESS THAN TWO CONDUITS FOR EACH PANELBOARD.

N. SYSTEM GROUNDING

1. GROUNDING SHALL COMPLY WITH REQUIREMENTS OF ARTICLE 250. ALL EXPOSED NONCURRENT-CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, METALLIC RACEWAY SYSTEMS, METALLIC CABLE ARMOR, GROUNDING CONDUCTOR OF NONMETALLIC SHEATHED CABLES, GROUNDING CONDUCTOR IN NONMETALLIC RACEWAYS, AND GROUNDED CONDUCTORS OF THE WIRING SYSTEM SHALL BE GROUNDED.

2. THE GROUNDED CONDUCTOR (NEUTRAL) OF THE WIRING SYSTEM SHALL BE CONNECTED TO THE SYSTEM GROUNDING CONDUCTOR AT A SINGLE PLACE IN EACH SYSTEM BY REMOVABLE BONDING UMPERS, SIZED ACCORDING TO THE APPLICABLE PROVISIONS OF THE NEC. THE GROUNDED CONDUCTOR (NEUTRAL) TO THE GROUNDING CONDUCTOR CONNECTION SHALL BE LOCATED IN THE ENCLOSURE FOR THE SYSTEM'S OVERCURRENT PROTECTION OR WHERE OTHERWISE INDICATED ON THE PLANS OR SPECIFICATIONS.

3. GROUND BUS SEPARATE FROM THE NEUTRAL BUS SHALL BE PROVIDED IN ALL SWITCHBOARDS AND PANELBOARDS. GROUND BUS SHALL BE RETORQUED (CHECKED) PRIOR TO ENERGIZING EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.

4. GROUND BUSES AND NEUTRAL BUSES IN ALL DISTRIBUTION PANELS, SWITCHBOARDS, PANELBOARDS AND THOSE PROVIDED IN ANY EQUIPMENT SHALL BE ISOLATED EXCEPT WHERE REQUIRED TO BE CONNECTED AS SPECIFIED ABOVE FOR THE SERVICE ENTRANCE AND IN TRANSFORMER TERMINAL COMPARTMENTS.

5. WHEN INDICATED ON THE DRAWINGS, EQUIPMENT GROUNDING CONDUCTORS SHALL BE EXTENDED FROM THE GROUND BUS IN THE DISTRIBUTION EQUIPMENT TO THE RECEPTACLE, FIXTURE OR DEVICE LUGS WHERE THEY ARE PROVIDED. WHEN NOT PROVIDED, THEY SHALL BE CONNECTED TO EQUIPMENT ENCLOSURES. THE CONNECTION SHALL BE ARRANGED SUCH THAT REMOVAL OF THE RECEPTACLES, THE EQUIPMENT GROUND CONDUCTORS, OR THE GROUND JUMPERS FROM GROUND BUSING SHALL NOT AFFECT THE GROUND SYSTEM.

6. RACEWAYS MAY NOT BE USED AS A GROUNDING CONDUCTOR FOR POWER AND LIGHTING CIRCUITS. EVERY CONDUIT SUPPLYING POWER AND LIGHTING CIRCUITS SHALL HAVE A SEPARATE CODE SIZED GREEN GROUND WIRE INSTALLED IN THE CONDUIT TO ENSURE A CONTINUOUS GROUNDING PATH.

7. IN INACCESSIBLE LOCATIONS MAKE CONNECTIONS BY EXOTHERMIC WELD PROCESS.

8. IN ACCESSIBLE LOCATIONS, CONNECTION SHALL BE MADE WITH APPROVED BOLTED BRONZE GROUNDING DEVICES.

O. EQUIPMENT CONNECTIONS

1. ALL MOTORS SHALL BE WIRED TO CONFORM WITH MANUFACTURER'S RECOMMENDATIONS AND WITH APPLICABLE CODES. FURNISH NECESSARY MATERIALS, SUCH AS WIRE, CONDUIT, FITTINGS, ETC. REQUIRED TO CONNECT MOTOR. HOWEVER, MOTORS, CONTROLS, ETC. SHALL BE FURNISHED BY THE SUPPLIER OF THE DRIVEN EQUIPMENT. VERIFY EQUIPMENT LOCATION AND SIZES WITH THE TRADE SUPPLYING THE MOTOR BEFORE INSTALLING THE CONDUIT OR OUTLETS.

2. FINAL CONNECTION TO ALL HVAC OR MOTOR LOADS FROM LOAD SIDE OF DISCONNECT SHALL BE MADE USING COPPER WIRE ONLY, ALUMINUM WIRE IS NOT ACCEPTABLE.

P. COMMUNICATION SYSTEMS

1. FOR ALL COMMUNICATION OUTLETS PROVIDE DOUBLE GANG BACK BOX WITH SINGLE GANG PLASTER RING. PROVIDE 1" CONDUIT TO 6" ABOVE ACCESSIBLE CEILING WITH 90 DEGREE BEND AND CONDUIT BUSHING UNLESS OTHERWISE NOTED ON DRAWINGS. FOR NON-ACCESSIBLE CEILING, ROUTE CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE OR TO NEAREST COMMUNICATION CLOSET. PROVIDE BLANK COVER PLATES FOR ALL UNUSED BOXES.

2. PROVIDE 3/4" FIRE RATED PLYWOOD FOR TELEPHONE TERMINAL BACKBOARD AND PAINT TO MATCH WALL SURFACE. REFER TO DRAWINGS FOR DIMENSIONS OF BACKBOARD.

3. PROVIDE #6 AWG CU GROUND WIRE FROM EQUIPMENT BACKBOARD TO BUILDING SERVICE GROUND.

Q. LIGHTING CONTROL

1. FURNISH AND INSTALL LIGHTING CONTROL PANELS, OVERRIDE SWITCHES, TIME SWITCHES, PHOTOCELLS AND CONTACTORS REQUIRED FOR LIGHTING CONTROL AS INDICATED ON THE DRAWINGS. LIGHTING CONTROL PANEL AND ALL ASSOCIATED COMPONENTS SHALL CONFORM TO ADOPTED ENERGY CODES.

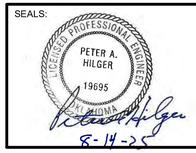
R. FIRE ALARM SYSTEM

1. FIRE ALARM IS NOT SHOWN ON THESE DRAWINGS. FIRE ALARM IS REQUIRED AS PART OF THE CONTRACTOR'S SCOPE OF WORK. CONTRACTOR SHALL ENGAGE THE SERVICES OF A STATE LICENSED FIRE ALARM CONTRACTOR FOR THE DESIGN AND INSTALL OF A COMPLETE AND OPERABLE FIRE ALARM SYSTEM THAT COMPLIES WITH ALL NFPA, NEC AND LOCAL ORDINANCE AND REQUIREMENTS APPROVED BY AUTHORITY HAVING JURISDICTION. . MANUFACTURER OF FIRE ALARM SYSTEM SHALL BE APPROVED BY LANDLORD AND AUTHORITY HAVING JURISDICTION. INCLUDE ALL COSTS IN BASE BID.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:



PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
ELECTRICAL SPECIFICATIONS

SHEET NUMBER:
E0.3

KEYNOTES (#)

1. REMOVE ALL ELECTRICAL DEVICES BACK TO PANELBOARD.
2. ALL EXISTING LIGHTING TO BE REMOVED. REFER TO E2.1 AND E2.2 FOR NEW LIGHTING PLANS.
3. REMOVE ALL EXISTING ELECTRICAL SERVICE EQUIPMENT AND DEVICES.

DEMOLITION NOTES

A. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID AND SHALL BE FAMILIAR WITH THE LIMITS OF DEMOLITION REQUIRED FOR ALL TRADES. COORDINATE DEMOLITION WITH REQUIREMENTS OF NEW CONSTRUCTION PRIOR TO INITIATING WORK.

B. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING COMPLETE REMOVAL AND DISCARDING OF ALL DEMOLITION WASTE INCLUDING ANY UNFORESEEN ITEMS WITHIN THE SCOPE OF THE PROJECT.

C. CONTRACTOR SHALL COORDINATE DEMOLITION OPERATIONS WITH CONTINUING OWNER OCCUPATION OF ADJACENT SPACES. ALL DEMOLITION WORK TO BE COORDINATED WITH OWNER AND CONDUCTED UNDER CONTROLLED CONDITIONS.

D. REPAIR/PATCH AS REQUIRED FOR DEMOLITION OF VARIOUS CONSTRUCTION ITEMS. VERIFY AND COORDINATE ANY REQUIRED OPENINGS WITH RESPECTIVE TRADES. FOR ANY WORK THAT SHALL OCCUR OUTSIDE OF DEMOLITION AREA, CONTRACTOR SHALL RETURN SPACE TO ORIGINAL CONDITION.

E. THE ELECTRICAL CONTRACTOR WILL BE RESPONSIBLE FOR ALL REQUIRED ELECTRICAL DEMOLITION OF THIS SPACE TO COMPLETE THIS PROJECT. REFER TO MECHANICAL AND ARCHITECTURAL DRAWINGS.

F. PRIOR TO DEMOLITION FIELD VERIFY AND IDENTIFY ANY EXISTING EQUIPMENT TO REMAIN IN SERVICE THAT IS SERVED BY SYSTEMS TO BE DEMOLISHED. NOTIFY ENGINEER OF ANY SUCH CONDITIONS AND REMOVE AND/OR RELOCATE THE SERVICES AS DIRECTED.

G. MEET WITH OWNER OR AN OWNER'S REPRESENTATIVE PRIOR TO DEMOLITION TO IDENTIFY SYSTEMS, EQUIPMENT, ETC. THAT ARE TO BE SALVAGED OR TO BE DISPOSED. SALVAGE OR DISPOSE IN AN APPROVED MANNER AS DIRECTED BY THE OWNER.

H. ALL MATERIAL AND LABOR NECESSARY TO COMPLETE THIS PROJECT IS PROVIDED BY THE CONTRACTOR UNLESS SPECIFICALLY CALLED OUT TO BE PROVIDED BY OTHERS.

I. CONTRACTOR WILL BE RESPONSIBLE FOR ANY TEMPORARY POWER REQUIRED FOR THE COMPLETION OF THE JOB.

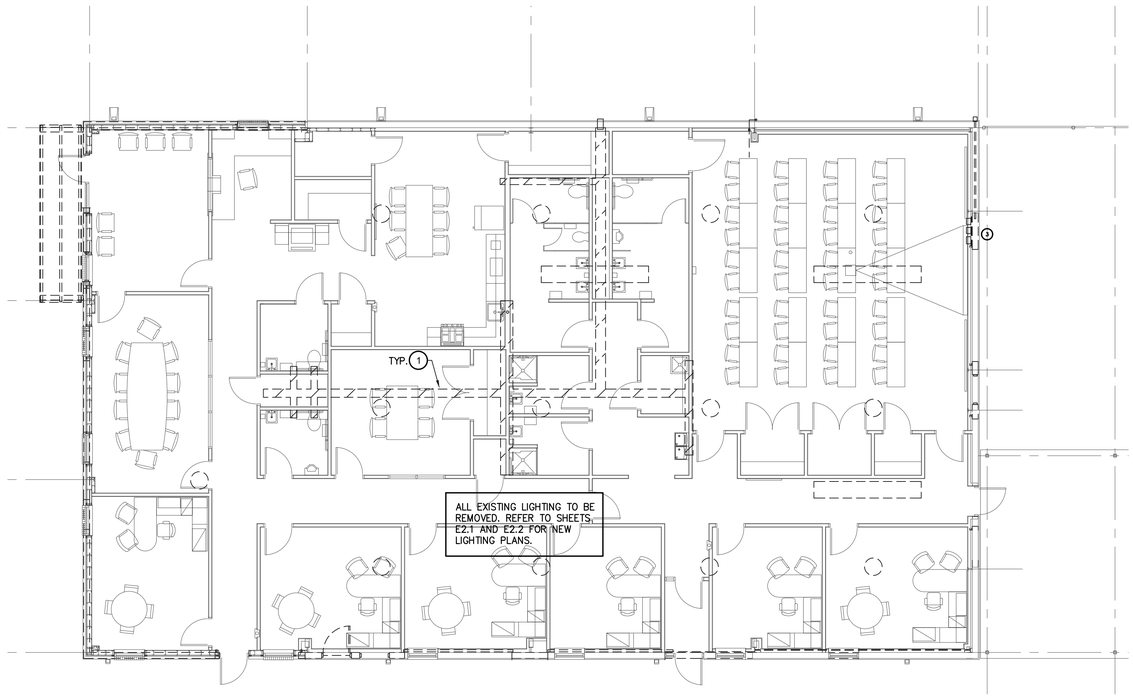
J. ALL NOTES ON THE ARCHITECTURAL DEMOLITION SHEETS APPLY TO THIS WORK.

K. CONTRACTOR IS TO REMOVE ALL EXISTING ELECTRICAL DEVICES, CONDUIT WIRE ETC THAT WILL NOT BE REUSED UNLESS NOTED OTHERWISE.WHERE REQUIRED, COORDINATE EQUIPMENT ELECTRICAL TERMINATION REQUIREMENTS WITH ELECTRICAL CONTRACTOR.

L. THE DEFINITION OF ELECTRICAL IS ALL WIRING I.E. POWER, DATA, PHONE, ETC. THEREFORE WHEN A NOTE REFERS TO DISCONNECTING, CONNECTING OR RECONNECTING ELECTRICAL IT REFERS TO ALL WIRING NOT JUST POWER.

M. WHEN REMOVING OR RELOCATING AN ELECTRICAL DEVICE ALL ELECTRICAL SERVICE MATERIAL I.E. CONDUIT, WIRE, FITTINGS, HANGERS, ETC. THAT ARE NOT TO BE REUSED ARE TO BE REMOVED BACK TO THE FEEDING ELECTRICAL PANEL.

N. POWER IS TO BE DISCONNECTED BY A LICENSED ELECTRICIAN.INTERRUPTION TO FACILITY POWER SHALL BE COORDINATED WITH OWNER.



1 ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

0	CONSTRUCTION DOCUMENTS	08.01.25
#	REVISION	DATE

SEALS:

OKLAHOMA LICENSED PROFESSIONAL ENGINEER
PETER A. HILGER
19695
8-14-25

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

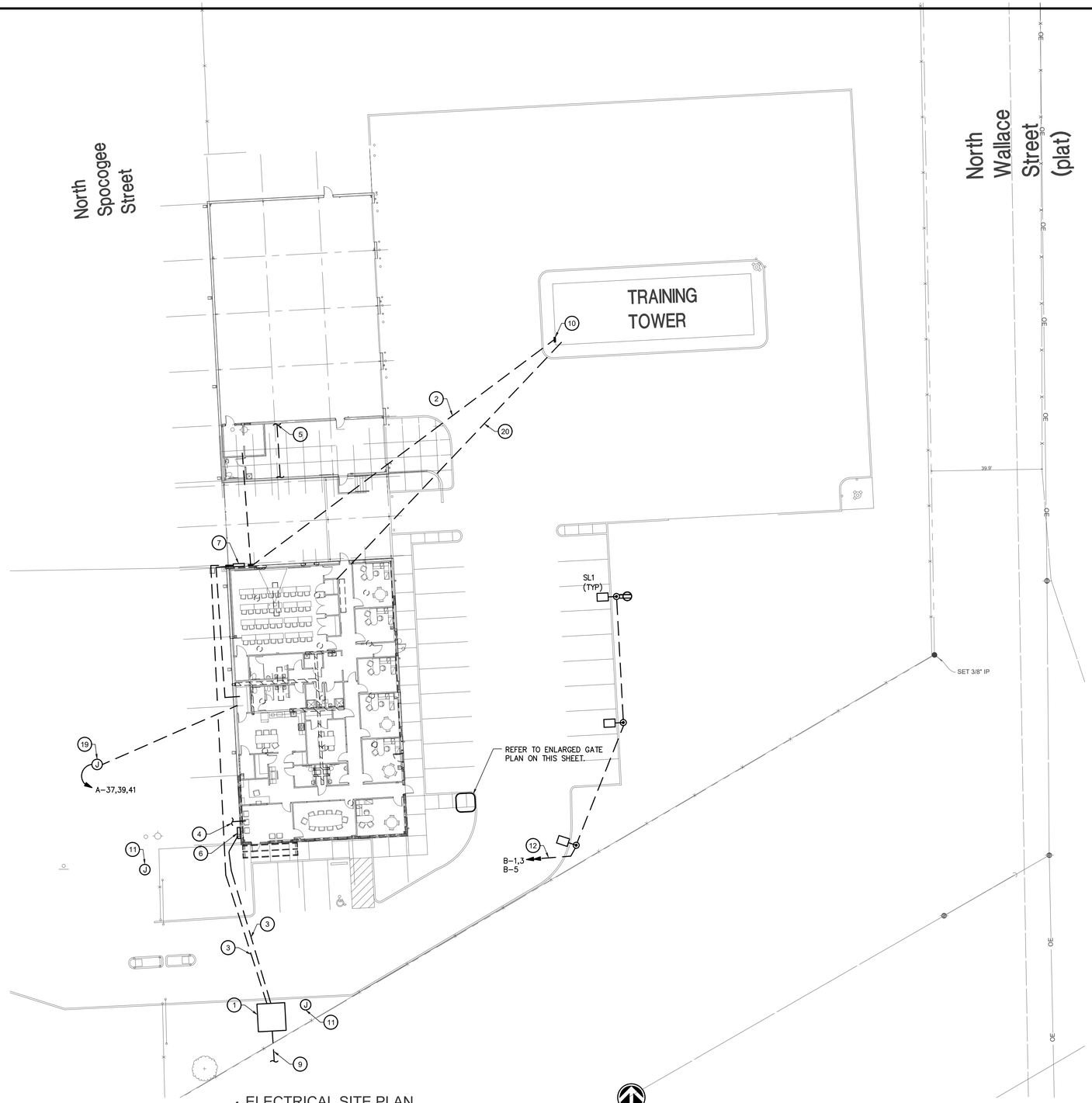
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

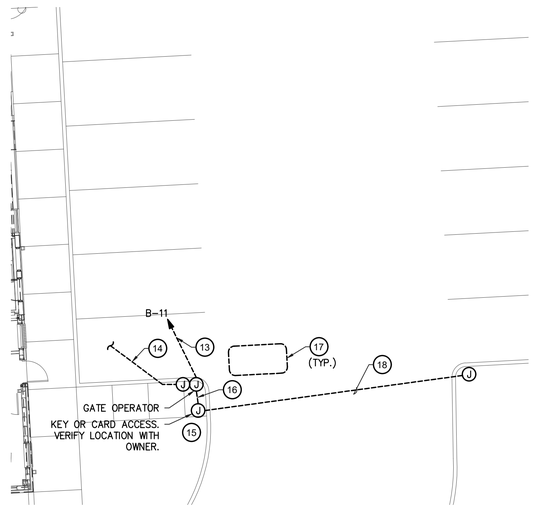
Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
ELECTRICAL DEMOLITION PLAN

SHEET NUMBER:
ED1.0





2 ENLARGED GATE PLAN

SCALE: 1" = 10'-0"

PROJECT NORTH

1 ELECTRICAL SITE PLAN

SCALE: 1" = 20'-0"

PROJECT NORTH

GENERAL NOTES

A. CONTRACTOR SHALL OBTAIN FINAL UTILITY COMPANY DRAWINGS PRIOR TO SUBMITTING BID AND PROVIDE ALL ITEMS INDICATED ON THE UTILITY COMPANY DRAWINGS AS A PART OF THE CONTACTOR'S RESPONSIBILITY. INCLUDE ALL COSTS FOR INSTALLATION OF UTILITY EQUIPMENT IN THE BASE BID.

B. CONTRACTOR SHALL INCLUDE IN HIS BID THE COST OF CONDUIT, TRENCH AND BACKFILL FROM SERVICE SWITCHBOARD TO THE UTILITY TRANSFORMER. IF THE UTILITY COMPANY INSTALLATION DRAWINGS DIFFER FROM THAT SHOWN AN ADJUSTMENT WILL BE MADE AFTER THE AWARD OF CONTRACT.

C. VERIFY ALL UTILITY LOCATIONS AND REQUIREMENTS WITH UTILITY CO. INSTALLATIONS DRAWINGS FOR THIS PROJECT PRIOR TO BEGINNING OF EXCAVATION.

D. ALL EXTERIOR CONDUIT INSTALLED UNDERGROUND SHALL BE 1" MINIMUM UNLESS INDICATED OTHERWISE.

E. ALL EXTERIOR WRING INSTALLED UNDERGROUND SHALL BE #10 MINIMUM UNLESS INDICATED OTHERWISE.

F. REFER TO FINAL APPROVED UTILITY DRAWINGS FOR ADDITIONAL INFORMATION AND REQUIREMENTS PRIOR TO BID AND COORDINATE INSTALLATION WITH THE FINAL APPROVED UTILITY DRAWINGS PRIOR TO ROUGH-IN.

G. ALL BENDS, TURNS, AND CHANGES OF DIRECTION IN CONDUIT SHALL BE MADE UTILIZING RIGID STEEL FITTINGS TO PREVENT DAMAGE TO CONDUIT AND FUTURE CABLES DURING CABLE INSTALLATION.

H. ALL GRADE MOUNTED PULL BOXES SHALL HAVE A 4" CONCRETE COLLAR UNLESS NOTED OTHERWISE.

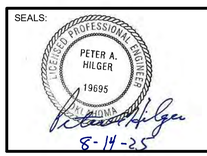
KEY NOTES (#)

1. NEW PAD MOUNTED ELECTRICAL UTILITY TRANSFORMER. COORDINATE WITH UTILITY FOR EXACT REQUIREMENTS.
2. ONE 2" C. IN SCHEDULE 40 BURIED 48" UNDER GROUND WITH LONG SWEEP STEEL ELBOWS.
3. TWO 3" C. IN SCHEDULE 40 BURIED 48" UNDER GROUND WITH LONG SWEEP STEEL ELBOWS.
4. TWO 2" C. FOR TELEPHONE SERVICE. TERMINATE AT UTILITY POINT OF CONNECTION. VERIFY EXACT REQUIREMENTS WITH SERVICE PROVIDER.
5. ONE 1" C. BURIED 24" UNDER GROUND FOR TELEPHONE SERVICE. STUB UP AND TERMINATE AT TELEPHONE BOARD AS REQUIRED.
6. BUILDING SERVICE DISCONNECT "D1". REF:1/E4.1.
7. BUILDING SERVICE DISCONNECT "D2". REF:1/E4.1.
8. BUILDING SERVICE DISCONNECT. REFER TO POWER PLAN ON SHEET E2.4.
9. PRIMARY ELECTRICAL SERVICE. COORDINATE WITH UTILITY COMPANY FOR EXACT REQUIREMENTS.
10. STUB-UP AND CONNECT TO TRAINING TOWER FOR FUTURE PANELBOARD. REFER TO ONE-LINE DIAGRAM ON SHEET E4.1.
11. POWER AND DATA STUB-UP FOR FUTURE SIGN. ROUTE (2) 1" C. 24" UNDER GROUND WITH PULL WIRE. TERMINATE AT PANEL "A".
12. (2)#6 & (1)#12 GND. CIRCUIT FOR LIGHTS AND (2)#10 & (1)#12 GND. FOR RECEPTACLES. IN 1"C.
13. 1"C. 24" UNDER GROUND W/(2)#12 & (1)#12 GND. FOR POWER.
14. 1"C. 24" UNDER GROUND FOR CONTROL WIRING PER MANUFACTURER REQUIREMENTS. TERMINATE AT GATE OPERATING STATION. CONFIRM LOCATION WITH OWNER AND PROVIDE ALL REQUIRED DEVICES TO REMOTELY OPERATE GATE PER MANUFACTURER REQUIREMENTS.
15. CONNECT CONTROLS AND POWER TO GATE OPERATOR PER MANUFACTURER REQUIREMENTS.
16. ROUTE 1" C. UNDERGROUND FOR ACCESS KEYPAD/CARD READER. PROVIDE CONTROL WIRING PER MANUFACTURER REQUIREMENTS.
17. MAGNETIC SENSOR LOOP. PROVIDE LOOP DETECTORS AND CONNECT TO GATE OPERATOR PER MANUFACTURER REQUIREMENTS.
18. ROUTE (2) 1" C. UNDERGROUND AND EXTEND POWER AND CONTROLS TO SECOND GATE OPERATOR PER MANUFACTURER REQUIREMENTS.
19. CONNECT TO LIFT STATION. PROVIDE POWER AND CONTROL CABLE AND CONTROLLER PER MANUFACTURER REQUIREMENTS. REFER TO SPECIFICATIONS FOR ANY ADDITIONAL REQUIREMENTS
20. CONTRACTOR TO PROVIDE (2) 2"C. PVC SCHEDULE 40 ONE FOR POWER AND ONE FOR DATA CONTRACTOR TO ROUTE CONDUIT TO A/V & DATA EQUIPMENT FROM TRAINING TOWER

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:



PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:

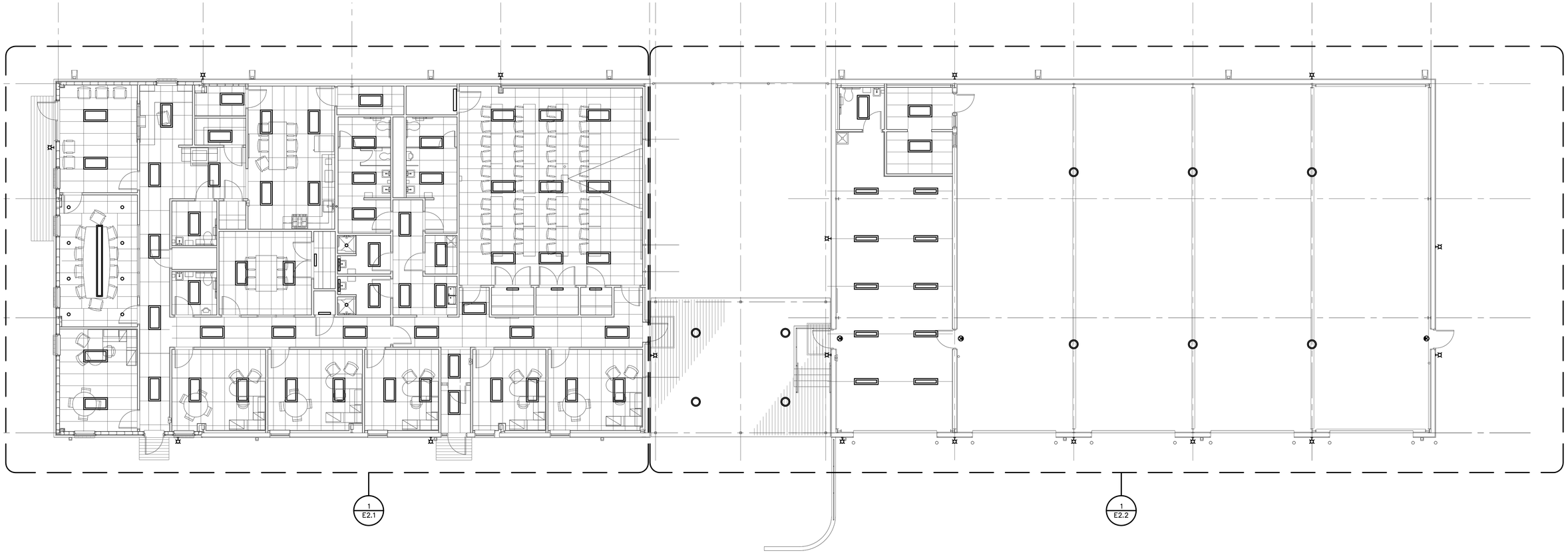
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

ELECTRICAL SITE PLAN

SHEET NUMBER:

E1.0



1 OVERALL LIGHTING PLAN

SCALE: 1/8" = 1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

OKLAHOMA REGISTERED PROFESSIONAL ENGINEER
PETER A. HILGER
19695
8-14-25

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:

CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

OVERALL LIGHTING PLAN

SHEET NUMBER:

E2.0

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NUMBER	VOLTS	WATTS	LAMPS	LAMP TYPE	MOUNTING	DESCRIPTION	NOTES
A	METALUX	24FP4735C	120	41.4	N/A	LED	RECESSED	FLAT 2X4 PANEL	
B1	HALO	PR6FS12D010 PR6M12WDBFSMW 1500Lm3500K	120	13.9	N/A	LED	RECESSED	DOWNLIGHT	
C	CORELITE	SQ4F-QU-D75D-835-1-D-UNV-STD-UM-12-CC	120	80.4	N/A	LED	SUSPENDED	SUSPENDED LINEAR FIXTURE	
C4	CORELITE	VB-WS-5-L35-1-D-UNV-AC-4-STD-CC	120	79.2	N/A	LED	SUSPENDED	SUSPENDED LINEAR FIXTURE	
D	METALUX	2-BCLED-LD4-85L-F-UNV-L835	120	10	N/A	LED	WALL	WALL MOUNTED VANITY	
E1	SURE-LITES	CU2-LED-WHITE	120	2	N/A	LED	WALL/CEILING	EMERGENCY BUGEYE	1
EX	SURE-LITES	APXH7-R-BK	120	2	N/A	LED	WALL	EXIT SIGN	1
ER	LUMARK	XTOR1B-W-PC1	120	12	N/A	LED	WALL	EXTERIOR EGRESS LIGHT	1,2,5
F2	METALUX	2ST1L1040R	120	9.8	N/A	LED	WALL	2' STRIP LIGHT	
F4	METALUX	4ST2L4040R	120	39.2	N/A	LED	SURFACE	4' STRIP LIGHT	
G	PORTFOLIO	LSRS8860D010 EC8B50708040 8LBS3LI	120	60	N/A	LED	SURFACE	LED CYLINDER	
H	METALUX	UHB-18-UNV-L840-CD	120	147	N/A	LED	SUSPENDED	HIGH BAY	
W1	McGRAW-EDISON	GWC-SA2C-740-U-T4W-XX	120	113	N/A	LED	WALL	EXTERIOR WALL PACK	2
J	LUMARK	NFFLD C40 E UNV 66 S XX	120	128	N/A	LED	WALL	FLAG FLOOD LIGHT	2,3
K	HALO	HU11-24-D9-S-X	120	11	N/A	LED	SURFACE	UNDER CABINET LIGHT	
L	CALI	ALS600T-45X45-CC(RED)-4000K-8W-SF-WET-UNV	120	8W/FT	N/A	LED	WALL	LINEAR LIGHT FOR SIGNAGE. REF. PLANS FOR LENGTH	2,6
SL1	LUMARK	PRV-PA2B-740-U-T4W-BZ	208	151	N/A	LED	POLE	SITE LIGHT	2,4
SL2	LUMARK	TWO 180° PRV-PA2B-740-U-T4W-BZ	208	302	N/A	LED	POLE	SITE LIGHT	2,4

GENERAL NOTES:

a. THE FIXTURE SCHEDULE INDICATES GENERAL DESCRIPTION OF LIGHTING FIXTURES AND MANUFACTURER'S CATALOG NUMBERS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE CORRECT CEILING CONFIGURATION AND PROVIDE THE FIXTURES WITH ALL NECESSARY TRIMS AND MOUNTING HARDWARE SO THAT BOTH THE CEILING SYSTEM AND THE FIXTURE CONSTRUCTION MATCHES. PROVIDE SEISMIC HANGERS AS REQUIRED.

b. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION OF ALL LIGHTING FIXTURES AND TYPE OF CEILING WITH ARCHITECTURAL REFLECTED CEILING PLAN PRIOR TO ANY WORK.

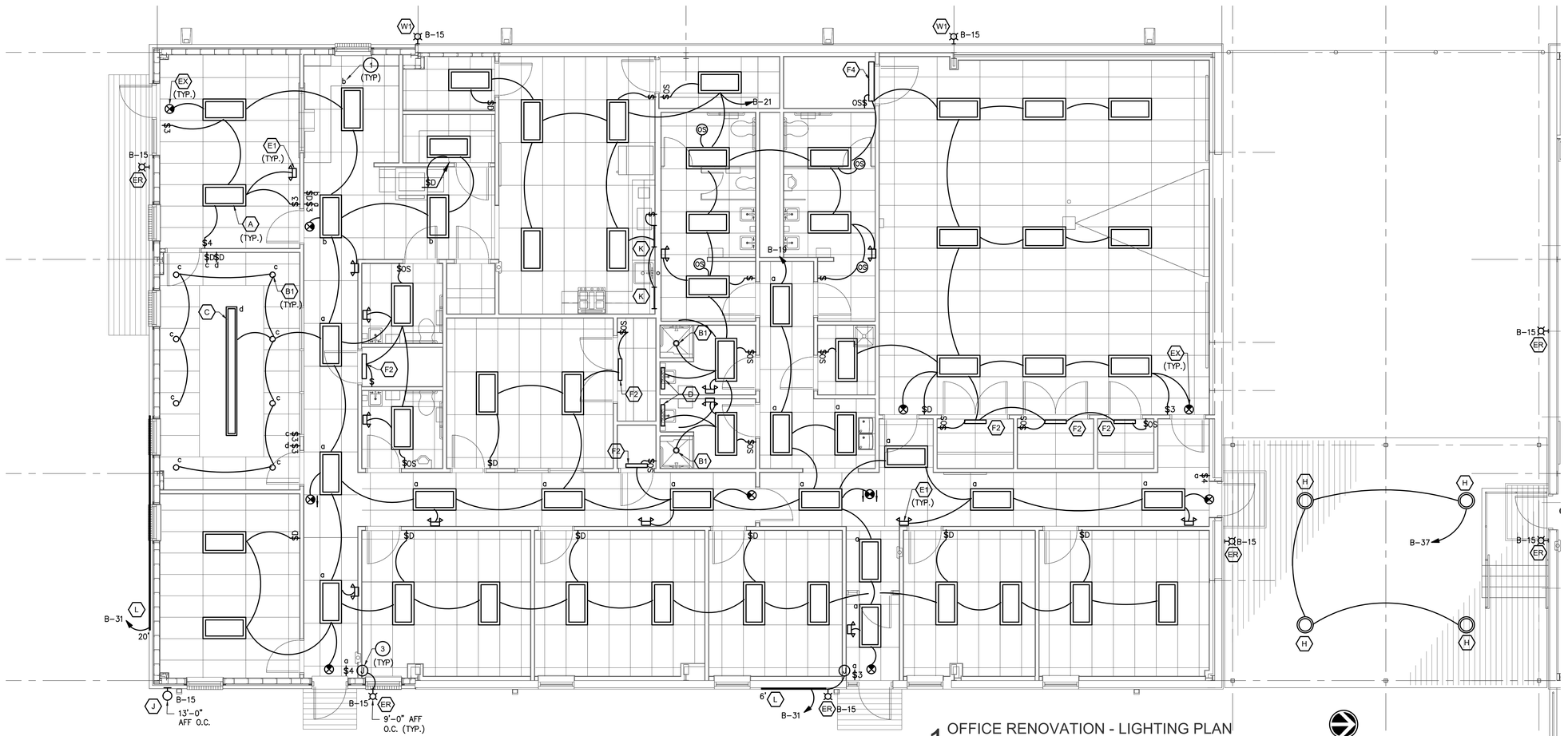
c. VERIFY TRIMS, FINISHES AND COLOR OF LIGHT FIXTURE WITH ARCHITECT PRIOR TO ORDERING.

NOTES:

1.) FIXTURE UTILIZES AN EMERGENCY BATTERY BACKUP SYSTEM AND SHALL PROVIDE 90 MINUTES ON BATTERY BACKUP POWER.
2.) FIXTURE SHALL BE U.L. LISTED AND LABELED FOR WET LOCATIONS.
3.) PROVIDE WITH RAB BRACKET FOR MOUNTING. VERIFY FINISH WITH ARCHITECT.
4.) PROVIDE WITH 25' SSS POLE SSS-5-M25-S-M. REFER TO SITE PLAN FOR NUMBER AND LOCATION OF ARMS. PROVIDE WITH GFCI OUTLET WHERE SHOWN ON SITE PLAN SHEET E1.0.
5.) PROVIDE WITH REMOTE EMERGENCY DRIVER IOTA-ILB-CP07 OR APPROVED EQUAL.
6.) PROVIDE WITH -30 DEGREE TILT ARMS

KEY NOTES (#)

1. SMALL CASE LETTER FOR LIGHT CONTROL DESIGNATION.
2. LINEAR FIXTURE FOR EXTERIOR SIGNAGE. COORDINATE WITH SIGN VENDOR FOR EXACT LOCATION AND REQUIREMENTS.
3. PROVIDE REMOTE EMERGENCY DRIVER. LOCATE ABOVE CEILING OR AT STRUCTURE. REFER TO LIGHT SCHEDULE FOR MODEL NUMBER.



1 OFFICE RENOVATION - LIGHTING PLAN
SCALE: 3/16" = 1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

OKLAHOMA LICENSED PROFESSIONAL ENGINEER
PETER A. HILGER
19695
8-14-25

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

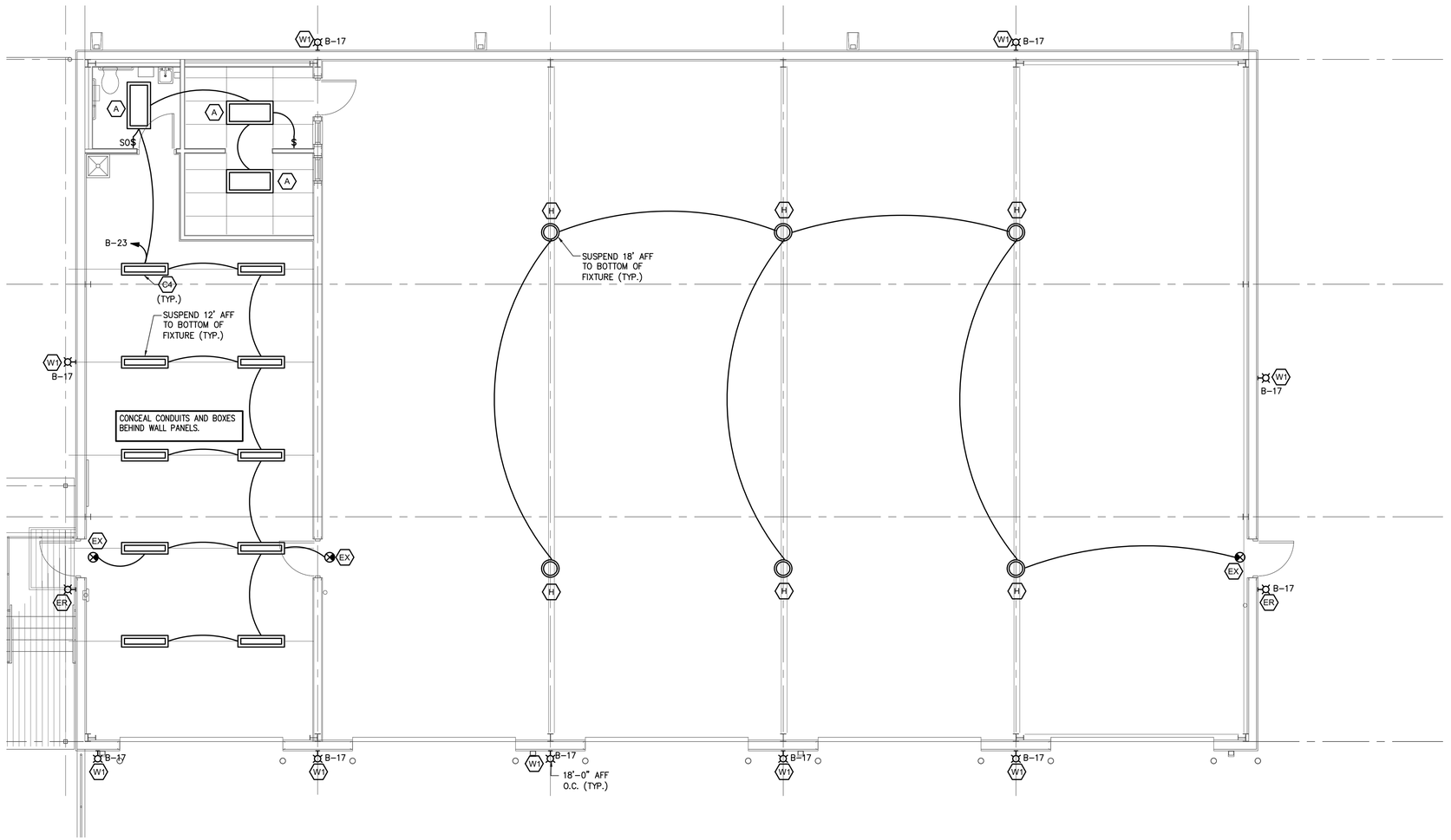
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
OFFICE RENOVATION LIGHTING PLAN

SHEET NUMBER:
E2.1



1 EQUIPMENT BUILDING - LIGHTING PLAN

SCALE: 3/16" = 1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

OKLAHOMA REGISTERED PROFESSIONAL ENGINEER
PETER A. HILGER
19695
8-14-25

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:

GS HELMS + ASSOCIATES

ph: 918.298.7257
wb: gshelms.com

424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:

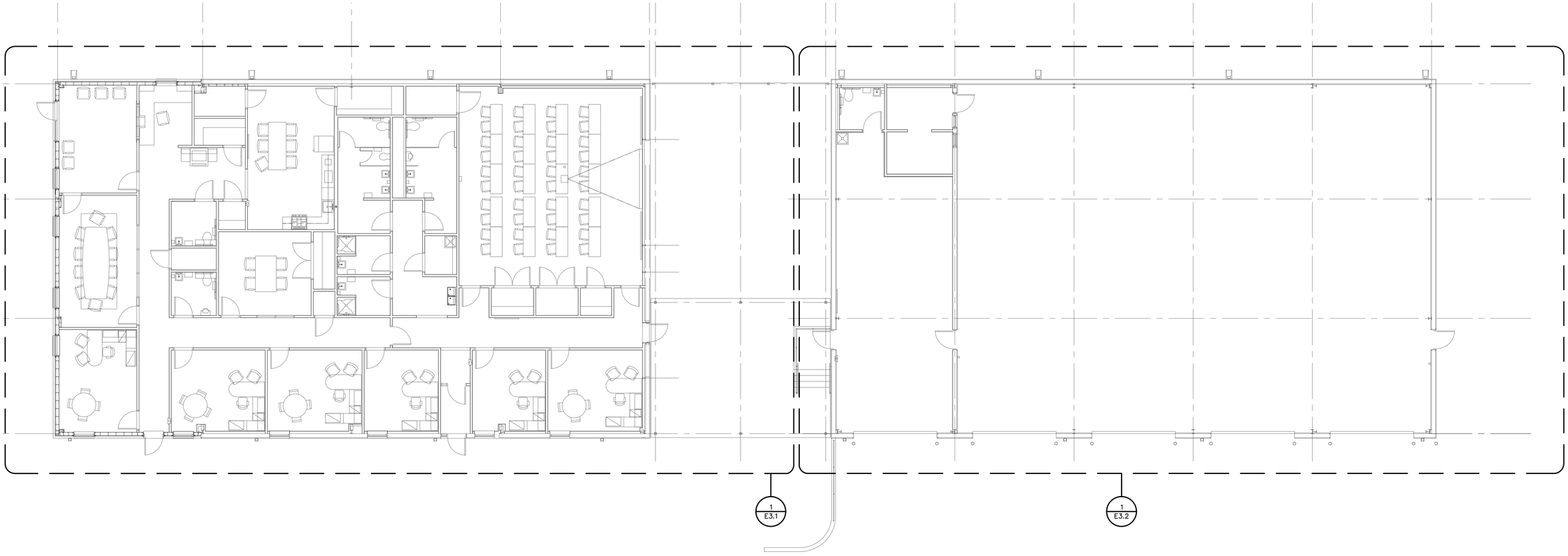
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

EQUIPMENT BUILDING LIGHTING PLAN

SHEET NUMBER:

E2.2



1 OVERALL POWER PLAN
SCALE: 1/8" = 1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

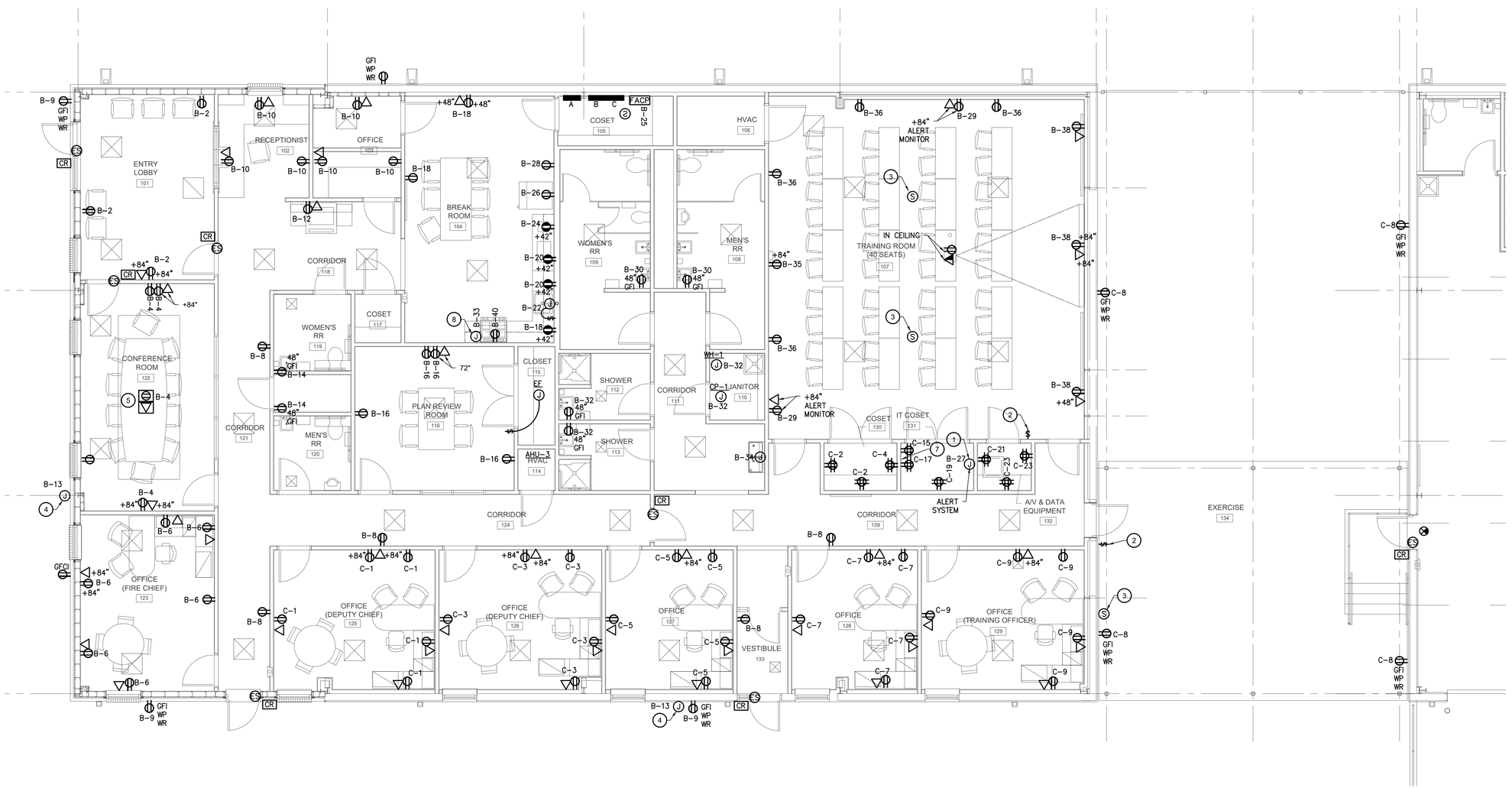
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
OVERALL POWER PLAN

SHEET NUMBER:
E3.0



KEY NOTES (#)

1. INTERLOCK ALERT SYSTEM WITH SPEAKERS, ALERT MONITORS AND SPEAKER SWITCH PER MANUFACTURER REQUIREMENTS.
2. ALERT SPEAKER SWITCH TO CONTROL SPEAKERS IN THIS AREA. INTERLOCK WITH ALERT SYSTEMS AS REQUIRED.
3. ALERT SYSTEM SPEAKER.
4. CONNECT TO EXTERIOR SIGN. COORDINATE EXACT REQUIREMENTS WITH SIGN VENDOR. REF: 3/E4.1 FOR LIGHTING CONTROLS.
5. FLOOR BOX, HUBBELL SYSTEMONE 2G CFB2G25RCR WITH 6" COVER HUBBELL CFBSIR6CVRNKL WITH 20A., 125V., DUPLEX RECEPTACLE AND DATA OUTLETS. PROVIDE WITH (1) CFBBRCVRR075 AND (1) CFBBRCVRR3 STACKING RINGS INSTALLED PRIOR TO CONCRETE POUR. VERIFY NUMBER OF OUTLETS WITH OWNER. ROUTE 3/4"C. DATA CONDUIT AND BRANCH CIRCUIT TO NEAREST WALL OR COLUMN AND HOMERUN TO IT CABINET OR PANELBOARD SHOWN.
6. CONNECT TO OVERHEAD DOOR MOTOR AS REQUIRED.
7. PROVIDE 4'X4'X3/4" FIRE RATED PLYWOOD TELEPHONE BOARD. ROUTE (2) 1" CONDUIT FROM UTILITY DEMARCATION TO TELEPHONE BOARD. VERIFY EXACT REQUIREMENTS WITH SERVICE PROVIDER.
8. CONNECT TO KITCHEN HOOD. VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
9. PROVIDE 3 BUTTON OPERATED CONTROL STATION WITH OPEN, CLOSE AND STOP BUTTONS FOR EACH OVERHEAD DOORS

1 OFFICE RENOVATION - POWER PLAN

SCALE: 3/16" = 1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

OKLAHOMA REGISTERED PROFESSIONAL ENGINEER PETER A. HILGER 19695

8-14-25

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:

GS HELMS + ASSOCIATES

ph: 918.298.7257
wb: gshelms.com

424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:

CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

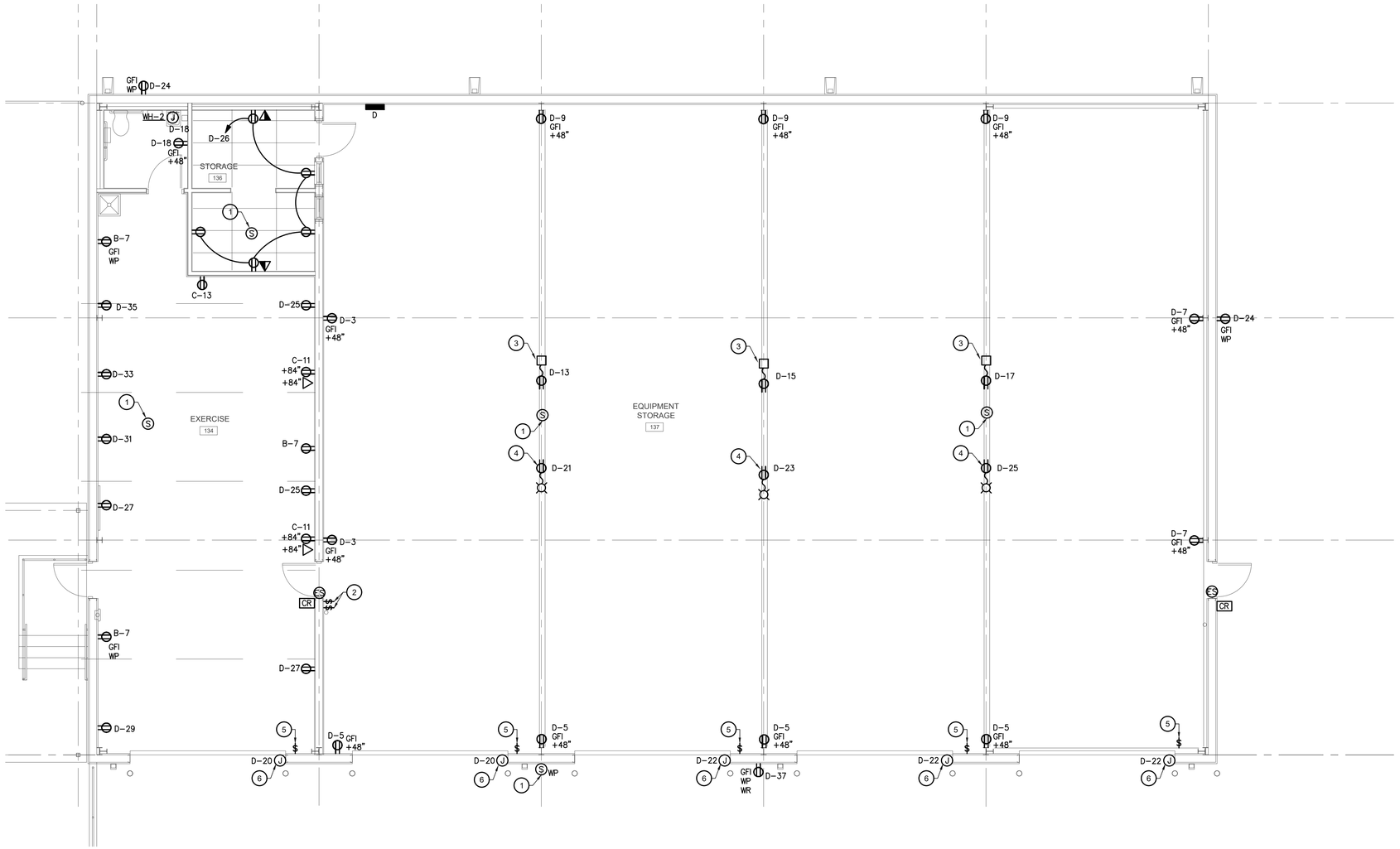
OFFICE RENOVATION POWER PLAN

SHEET NUMBER:

E3.1

KEY NOTES (#)

1. ALERT SYSTEM SPEAKER. INTERLOCK WITH ALERT SYSTEM REFER TO E3.1 FOR LOCATION.
2. FAN CONTROLLERS SUPPLIED WITH FANS. CONNECT EACH CONTROLLER TO DESIGNATED FAN. VERIFY LOCATION WITH SFD PRIOR TO ROUGH-IN.
3. 1200 SERIES CONDUCTIX POWERREEL WITH DUAL 20 AMP 120V DUAL DUPLEX OUTLET W/3-12AWG RATED CABLE. VERIFY LENGTH WITH OWNER PRIOR TO ORDERING.
4. 50' RETRACTABLE COMMERCIAL GRADE REEL LIGHT MODEL: ERICSON 3143-50-HL OR APPROVED EQUAL. PROVIDE DUPLEX RECEPTACLE AT STRUCTURE ABOVE FOR CONNECTION.
5. PROVIDE 3 BUTTON OPERATED CONTROL STATION WITH OPEN, CLOSE AND STOP BUTTONS FOR EACH OVERHEAD DOORS
6. CONNECT TO OVERHEAD DOOR MOTOR AS REQUIRED.



1 EQUIPMENT BUILDING - POWER PLAN

SCALE: 3/16" = 1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

OKLAHOMA REGISTERED PROFESSIONAL ENGINEER PETER A. HILGER 19695

8-14-25

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:

GS HELMS + ASSOCIATES

ph: 918.298.7257
wb: gshelms.com

424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:

CITY OF SAPULPA, OK

SAPULPA FIRE DEPARTMENT TRAINING FACILITY

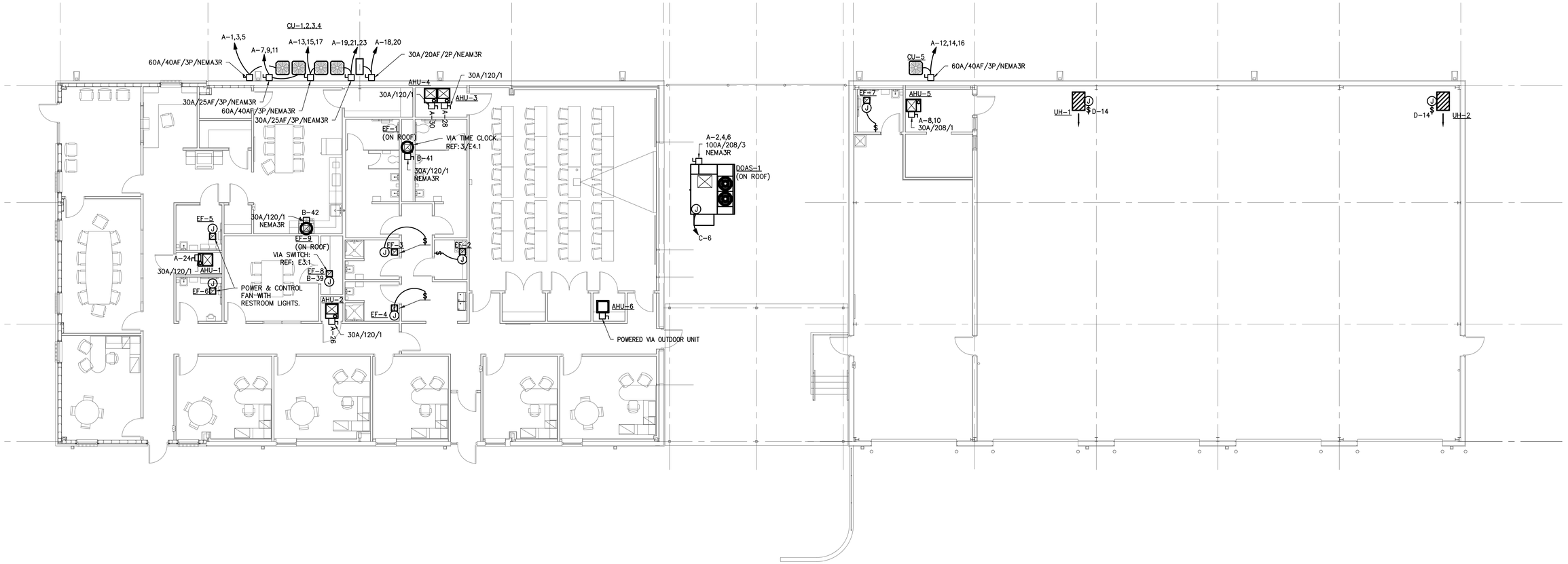
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:

EQUIPMENT BUILDING POWER PLAN

SHEET NUMBER:

E3.2



1 HVAC POWER PLAN
SCALE: 1/8" = 1'-0"

PROJECT NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

OKLAHOMA LICENSED PROFESSIONAL ENGINEER
PETER A. HILGER
19695
8-14-25

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

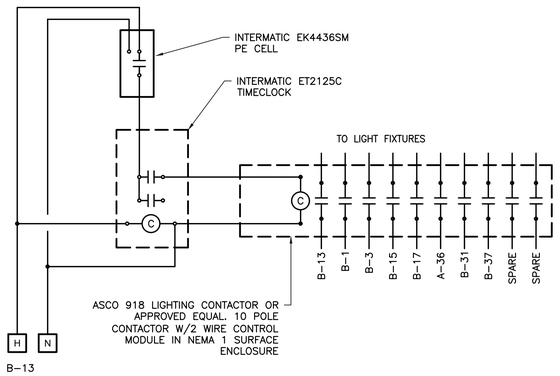
ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

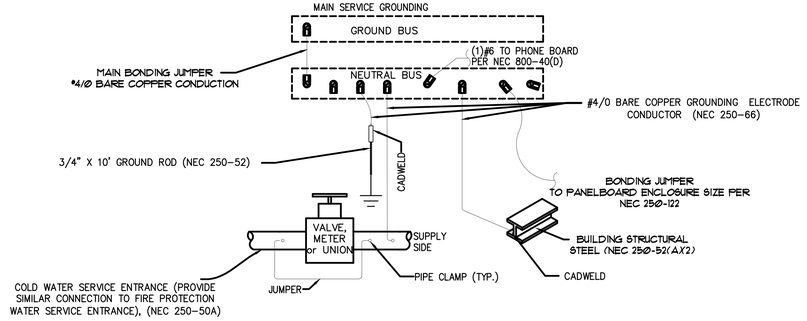
PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
HVAC POWER PLAN

SHEET NUMBER:
E3.3



3 / E4.1 EXTERIOR LIGHTING CONTROLS
SCALE: NTS

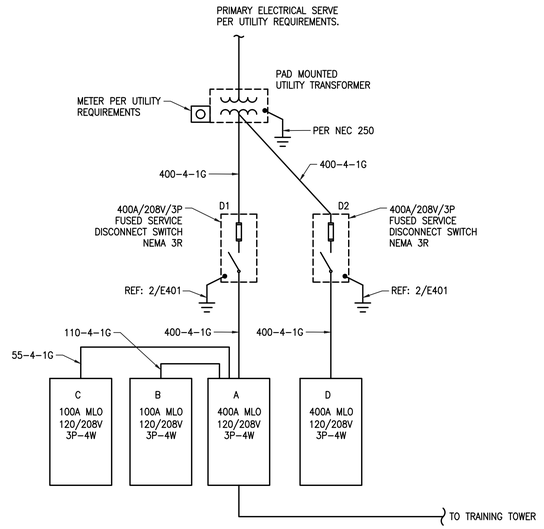


NOTE: ALL GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH ARTICLE 250-50 OF THE NATIONAL ELECTRICAL CODE.

NOTE: ALL GROUNDING CABLES SHALL BE #4/0 kcmil UNLESS NOTED OTHERWISE.

NOTE: REFER TO ELECTRICAL SPECIFICATIONS FOR ADDITIONAL GROUNDING REQUIREMENTS

2 / E4.1 ELECTRICAL GROUNDING DETAIL
SCALE: NTS



1 / E4.1 ELECTRICAL SINGLE LINE DIAGRAM
SCALE: NTS

ARC FLASH NOTE

SWITCHBOARDS, PANELBOARDS, AND METER SOCKET ENCLOSURES WHICH ARE LIKELY TO REQUIRE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE WHILE ENERGIZED, SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS PER NEC 110.16. A WARNING LABEL SHALL BE SUFFICIENT. ARC FLASH CALCULATIONS ARE NOT NECESSARY UNLESS REQUIRED BY THE AUTHORITY HAVING JURISDICTION OR UNLESS THE OWNER SPECIFICALLY REQUIRES IT. THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING OR MAINTENANCE OF THE EQUIPMENT.

ELECTRICAL RISER NOTES

A. CONTRACTOR SHALL COORDINATE WITH ELECTRIC UTILITY, TELECOMMUNICATIONS, AND CATV COMPANIES PRIOR TO BID. FURNISH AND INSTALL ALL MATERIAL AND LABOR NECESSARY TO COMPLY WITH UTILITY REQUIREMENTS FOR THE ESTABLISHMENT OF SERVICES. ALL ASSOCIATED COSTS SHALL BE INCLUDED IN BID.

B. ALL ELECTRICAL EQUIPMENT AND DEVICES SHALL BE FULLY RATED TO WITHSTAND THE AVAILABLE FAULT CURRENT. SERIES RATING IS NOT ACCEPTABLE.

C. SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT. THE MARKINGS SHALL INCLUDE THE DATE THE FAULT CURRENT CALCULATION WAS PERFORMED AND BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.

D. ANY MODIFICATIONS TO THE ELECTRICAL INSTALLATION THAT AFFECT THE MAXIMUM AVAILABLE FAULT CURRENT AT THE SERVICE SHALL BE VERIFIED OR RECALCULATED AS NECESSARY TO ENSURE THE SERVICE EQUIPMENT RATING ARE SUFFICIENT FOR THE MAXIMUM AVAILABLE FAULT CURRENT OF THE EQUIPMENT. THE REQUIRED FIELD MARKINGS SHALL BE ADJUSTED TO REFLECT THE NEW LEVEL OF MAXIMUM AVAILABLE FAULT CURRENT.

E. ALL SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, AND MOTOR CONTROL CENTERS SHALL BE MARKED TO INDICATE THE DEVICE OR EQUIPMENT WHERE THE POWER SUPPLY ORIGINATES.

F. PROVIDE APPROVED HANDLE TIE ON CIRCUIT BREAKERS TO CIRCUITS/HOMERUNS WITH SHARED NEUTRAL.

CONDUIT AND WIRE SCHEDULE

FEEDER TYPE	COPPER CONDUCTORS		CONDUIT SIZE			
	Ø & N	GND	2Ø+N+GND	3Ø+GND	3Ø+N+GND	3Ø+2N+2GND
20	#12	#12	16 (1/2")	16 (1/2")	16 (1/2")	21 (3/4")
30	#10	#10	16 (1/2")	16 (1/2")	21 (3/4")	21 (3/4")
40	#8	#10	21 (3/4")	21 (3/4")	27 (1")	27 (1")
55	#6	#10	27 (1")	27 (1")	27 (1")	27 (1")
70	#4	#8	35 (1 1/4")	35 (1 1/4")	35 (1 1/4")	35 (1 1/4")
85	#3	#8	35 (1 1/4")	35 (1 1/4")	35 (1 1/4")	41 (1 1/2")
95	#2	#8	35 (1 1/4")	35 (1 1/4")	41 (1 1/2")	41 (1 1/2")
110	#1	#6	41 (1 1/2")	41 (1 1/2")	41 (1 1/2")	53 (2")
150	#1/0	#6	41 (1 1/2")	41 (1 1/2")	53 (2")	53 (2")
175	#2/0	#6	53 (2")	53 (2")	53 (2")	63 (2 1/2")
200	#3/0	#6	53 (2")	53 (2")	53 (2")	63 (2 1/2")
230	#4/0	#4	53 (2")	53 (2")	63 (2 1/2")	63 (2 1/2")
255	250 kCM	#4	63 (2 1/2")	63 (2 1/2")	63 (2 1/2")	78 (3")
285	300 kCM	#4	63 (2 1/2")	78 (3")	78 (3")	78 (3")
310	350 kCM	#3	78 (3")	78 (3")	78 (3")	91 (3 1/2")
335	400 kCM	#3	78 (3")	78 (3")	78 (3")	91 (3 1/2")
380	500 kCM	#3	78 (3")	78 (3")	91 (3 1/2")	103 (4")
400	(2) 3/0	(2) #3	(2) 53 (2")	(2) 53 (2 ")	(2) 53 (2")	(2) 63 (2 1/2")
510	(2) 250 kCM	(2) #1	(2) 63 (2 1/2")	(2) 63 (2 1/2")	(2) 78 (3")	(2) 78 (3")
570	(2) 300 kCM	(2) #1	(2) 63 (2 1/2")	(2) 63 (2 1/2")	(2) 78 (3")	(2) 91 (3 1/2")
620	(2) 350 kCM	(2) #1	(2) 78 (3")	(2) 78 (3")	(2) 78 (3")	(2) 91 (3 1/2")
760	(2) 500 kCM	(2) #1/0	(2) 78 (3")	(2) 78 (3")	(2) 91 (3 1/2")	(2) 103 (4")
1005	(3) 400 kCM	(3) #2/0	(3) 78 (3")	(3) 78 (3")	(3) 78 (3")	(3) 91 (3 1/2")
1240	(4) 350 kCM	(4) #3/0	(4) 78 (3")	(4) 78 (3")	(4) 78 (3")	(4) 91 (3 1/2")
1260	(3) 600 kCM	(3) #3/0	(3) 91 (3 1/2")	(3) 91 (3 1/2")	(3) 103 (4")	(3) 129 (5")
1675	(5) 400 kCM	(5) #4/0	(5) 78 (3")	(5) 78 (3")	(5) 91 (3 1/2")	(5) 103 (4")
1680	(4) 600 kCM	(4) #4/0	(4) 91 (3 1/2")	(4) 91 (3 1/2")	(4) 103 (4")	(4) 129 (5")
2010	(6) 400 kCM	(6) 250 kCM	(6) 78 (3")	(6) 78 (3")	(6) 91 (3 1/2")	(6) 103 (4")
2100	(5) 600 kCM	(5) 250 kCM	(5) 91 (3 1/2")	(5) 91 (3 1/2")	(5) 103 (4")	(5) 129 (5")
2520	(6) 600 kCM	(6) 350 kCM	(6) 91 (3 1/2")	(6) 91 (3 1/2")	(6) 103 (4")	(6) 129 (5")
2660	(7) 500 kCM	(7) 350 kCM	(7) 91 (3 1/2")	(7) 91 (3 1/2")	(7) 91 (3 1/2")	(7) 129 (5")
3040	(8) 500 kCM	(8) 400 kCM	(8) 91 (3 1/2")	(8) 91 (3 1/2")	(8) 91 (3 1/2")	(8) 129 (5")
4275	(8) 750 kCM	(8) 500 kCM	(8) 103 (4")	(8) 103 (4")	(8) 129 (5")	(8) 129 (5")
EQ	EQUIPMENT FEEDER - REFER TO ELECTRICAL EQUIPMENT SCHEDULE					

200 - 4 - 1G FEEDER DESIGNATION

- GROUND CONDUCTORS:
  - (0) - NO GROUND
  - (1G) - EQUIPMENT GND
  - (2G) - EQUIPMENT GND AND ISOLATED GND
- SYSTEM DESCRIPTION:
  - (3) - 1Ø, 3W OR 3Ø, 3W
  - (4) - 3Ø, 4W
  - (5) - 3Ø, 5W (2 NEUTRALS)
- CONDUCTOR AMPACITY:
  - (SEE FEEDER SCHEDULE)

GENERAL NOTES:

A. THE ABOVE FEEDER SCHEDULE IS A SCHEDULE OF TYPICAL FEEDERS AND SOME SIZES MAY NOT BE UTILIZED.

B. ALL CONDUCTOR AMPACITIES ARE BASED ON TABLE 310-15(b)(16) OF THE NEC FOR COPPER CONDUCTOR TYPE THW/THWN.

C. FEEDER SIZES SHOWN ON THE RISER DIAGRAM INDICATE FEEDER AMPACITIES AND DO NOT NECESSARILY CORRESPOND TO CIRCUIT BREAKER AMPACITIES. CERTAIN FEEDERS MAY BE SIZED FOR THE DERATION FACTORS REQUIRED BY CODE AND/OR ARE OVERSIZED FOR VOLTAGE DROP.

D. WHERE MULTIPLE CONDUITS AND CONDUCTORS ARE INDICATED FOR A SINGLE FEEDER, EACH CONDUIT SHALL CONTAIN 1 PARALLEL PHASE, NEUTRAL, AND GROUND CONDUCTORS INDICATED.

E. CONDUIT ABOVE GRADE INDOORS SHALL BE EMT. CONDUIT ABOVE GRADE OUTDOORS SHALL BE GALVANIZED IMC OR RMC. CONDUIT BELOW GRADE SHALL BE PVC WITH GALVANIZED RMC ELBOWS. CONDUIT SIZE INDICATED IS MINIMUM SIZE REGARDLESS OF CONDUIT TYPE.

F. CONDUITS SIZED LARGER THAN INDICATED SHALL BE PERMITTED FOR RUNS WITH UP TO (4) 90° ELBOWS, OR FOR PULLING LONGER RUNS.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:

PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
ELECTRICAL ONE-LINE DIAGRAM & DETAILS

SHEET NUMBER:
E4.1

A — ELECTRICAL PANEL SCHEDULE

SERVICE: 120/208,3PH,4W,+G — **BUS RATING:** 400A MLO — **SECTIONS:** 1
PANEL TYPE: NEMA 1 — **AIC RATING:** 42K — **MOUNTING:** SURFACE

EQUIP				LOADS	WIRE			CKT	PHASE			CKT			WIRE		LOADS				EQUIP
No.	DESCRIPTION	NOTE	AMPS	(KVA)	N	PH	CB/P	#	A	B	C	#	CB/P	PH	N	(KVA)	AMPS	NOTE	DESCRIPTION	No.
	CU-1		24.0	2.880		8	40/3	1	*			2	70/3	4		5.280	44.0		DOAS-1	
	-----		24.0	2.880		8		3		*		4		4		5.280	44.0		-----	
	-----		24.0	2.880		8		5			*	6		4		5.280	44.0		-----	
	CU-2		16.9	2.028		10	25/3	7	*			8	20/1	12	12	0.768	6.4		AHU 5	
	-----		16.9	2.028		10		9		*		10				0.000	0.0		SPARE	
	-----		16.9	2.028		10		11			*	12	40/3	10		2.880	24.0		CU-5	
	CU-3		24.0	2.880		8	40/3	13	*			14		10		2.880	24.0		-----	
	-----		24.0	2.880		8		15		*		16		10		2.880	24.0		-----	
	-----		24.0	2.880		8		17			*	18	20/2	12		1.608	13.4		CU-6	
	CU-4		16.9	2.028		10	25/3	19	*			20		12		1.608	13.4		-----	
	-----		16.9	2.028		10		21		*		22	20/1			0.000	0.0		SPARE	
	-----		16.9	2.028		10		23			*	24	15/1	12	12	0.768	6.4		AHU 1	
	PANEL B	3	72.2	8.666			100/3	25	*			26	15/1	12	12	0.768	6.4		AHU-2	
	-----		85.0	10.202				27		*		28	15/1	12	12	0.768	6.4		AHU 3	
	-----		72.8	8.731				29			*	30	15/1	12	12	0.768	6.4		AHU 4	
	PANEL C	3	34.5	4.140			50/3	31	*			32	20/1	12	12	0.180	1.5	2	WH-1/CP-1	
	-----		24.0	2.880				33		*		34	20/1	12	12	0.180	1.5		EF-8	
	-----		18.0	2.160				35			*	36	20/1	12	12	0.500	4.2		EF-1	
	LIFT STATION	1	11.0	1.320		10	20/3	37	*			38	20/1	12	12	1.000	8.3		EF-9	
	-----		11.0	1.320		10		39		*		40	20/1			0.000	0.0		SPARE	
	-----		11.0	1.320		10		41			*	42	20/1			0.000	0.0		SPARE	

TOTAL CONNECTED LOAD: 103.6 KVA
TOTAL CONNECTED AMPS: 288.8 AMPS

PHASE "A": 36.426 KVA 304 AMPS
PHASE "B": 33.326 KVA 278 AMPS
PHASE "C": 33.831 KVA 282 AMPS

TOTAL CALCULATED LOAD: 95.89 KVA
TOTAL CALCULATED AMPS: 267.4 AMPS

NOTES:
1. INSTALL LOCKING DEVICE (LOCK-OFF FOR MAINTENANCE)
2. INSTALL LOCKING DEVICE (LOCK-ON FOR CRITICAL LOAD)
3. REF ONE-LINE DIAGRAM FOR WIRE SIZES.
4. REFER TO SITE LIGHTING PLAN FOR WIRE SIZES.
5. CONTROLLED VIA LIGHTING CONTACTORS.

B — ELECTRICAL PANEL SCHEDULE

SERVICE: 120/208,3PH,4W,+G — **BUS RATING:** 100A MLO — **SECTIONS:** 1
PANEL TYPE: NEMA 1 — **AIC RATING:** 42K — **MOUNTING:** SURFACE

EQUIP				LOADS	WIRE			CKT	PHASE			CKT			WIRE		LOADS				EQUIP
No.	DESCRIPTION	NOTE	AMPS	(KVA)	N	PH	CB/P	#	A	B	C	#	CB/P	PH	N	(KVA)	AMPS	NOTE	DESCRIPTION	No.
	SITE LIGHTING	3,5	1.9	0.227			20/2	1	*			2	20/1	12	12	0.540	4.5		RCPT: ENTRY LOBBY	
	-----	3,5	1.9	0.227				3		*		4	20/1	12	12	0.720	6.0		RCPT: CONFERENCE ROOM	
	SITE LIGHTING RECEPT.	3	6.0	0.720			20/1	5			*	6	20/1	12	12	0.540	4.5		RCPT: OFFICE	
	EXTERIOR CONV. RECEPTS.		4.5	0.540	12	12	20/1	7	*			8	20/1	12	12	0.720	6.0		RCPT: CORRIDOR	
	EXTERIOR CONV. RECEPTS.		4.5	0.540	12	12	20/1	9		*		10	20/1	12	12	1.080	9.0		RCPT: OFFICES	
	GATE OPERATOR		10.0	1.200	12	12	20/1	11			*	12	20/1	12	12	1.500	12.5		COPIER	
	EXTERIOR SIGN	5	10.0	1.200	12	12	20/1	13	*			14	20/1	12	12	0.360	3.0		RCPT: RESTROOMS	
	EXTERIOR BUILD. LIGHTS	5	11.1	1.333	12	12	20/1	15		*		16	20/1	12	12	0.720	6.0		RCPT: PLAN REVIEW ROOM	
	EXTERIOR BUILD. LIGHTS	5	10.8	1.297	12	12	20/1	17			*	18	20/1	12	12	0.360	3.0		RCPT: BREAKER ROOM	
	LIGHTING		15.4	1.843	12	12	20/1	19	*			20	20/1	12	12	0.360	3.0		RCPT: BREAKER ROOM	
	LIGHTING		9.4	1.122	12	12	20/1	21		*		22	20/1	12	12	1.500	12.5		DISPOSAL	
	LIGHTING		5.6	0.674	12	12	20/1	23			*	24	20/1	12	12	1.000	8.3		REFRIGERATOR	
	FIRE ALARM PANEL	2	1.5	0.180	12	12	20/1	25	*			26	20/1	12	12	1.000	8.3	GFI	REFRIGERATOR	
	ALERT SYSTEM PANEL	2	1.5	0.180	12	12	20/1	27		*		28	20/1	12	12	1.000	8.3	GFI	ICE MAKER	
	ALERT MONITOR	2	3.0	0.360	12	12	20/1	29			*	30	20/1	12	12	0.360	3.0		RCPT: RESTROOMS	
	EXTERIOR SIGN		1.7	0.208	12	12	20/1	31	*			32	20/1	12	12	0.360	3.0		RCPT: SHOWERS	
	H-1		5.0	0.600	12	12	15/1	33		*		34	20/1	12	12	1.000	8.3	1	DRINKING FOUNTAIN	
	RCPT: TRAINING ROOM		1.5	0.180	12	12	20/1	35			*	36	20/1	12	12	0.540	4.5		RCPT: TRAINING ROOM	
	EXTERIOR LIGHTING		4.9	0.588	12	12	20/1	37	*			38	20/1	12	12	0.540	4.5		RCPT: TRAINING ROOM	
	SPARE		0.0	0.000			20/1	39		*		40	20/1			0.180	1.5	GFI	RANGE	
	SPARE		0.0	0.000			20/1	41			*	42	20/1			0.000	0.0		SPARE	

TOTAL CONNECTED LOAD: 27.6 KVA
TOTAL CONNECTED AMPS: 77.0 AMPS

PHASE "A": 8.666 KVA 72 AMPS
PHASE "B": 10.202 KVA 85 AMPS
PHASE "C": 8.731 KVA 73 AMPS

TOTAL CALCULATED LOAD: 24.58 KVA
TOTAL CALCULATED AMPS: 68.5 AMPS

NOTES:
1. INSTALL LOCKING DEVICE (LOCK-OFF FOR MAINTENANCE)
2. INSTALL LOCKING DEVICE (LOCK-ON FOR CRITICAL LOAD)
3. REF ONE-LINE DIAGRAM FOR WIRE SIZES.
4. REFER TO SITE LIGHTING PLAN FOR WIRE SIZES.
5. CONTROLLED VIA LIGHTING CONTACTORS.

C — ELECTRICAL PANEL SCHEDULE

SERVICE: 120/208,3PH,4W,+G — **BUS RATING:** 100A MLO — **SECTIONS:** 1
PANEL TYPE: NEMA 1 — **AIC RATING:** 42K — **MOUNTING:** SURFACE

EQUIP				LOADS	WIRE			CKT	PHASE			CKT			WIRE		LOADS				EQUIP
No.	DESCRIPTION	NOTE	AMPS	(KVA)	N	PH	CB/P	#	A	B	C	#	CB/P	PH	N	(KVA)	AMPS	NOTE	DESCRIPTION	No.
	RCPT: OFFICE		7.5	0.900	12	12	20/1	1	*			2	20/1	12	12	0.720	6.0		RECEPTACLES	
	RCPT: OFFICE		7.5	0.900	12	12	20/1	3		*		4	20/1	12	12	0.360	3.0		RECEPTACLES	
	RCPT: OFFICE		7.5	0.900	12	12	20/1	5			*	6	20/1	12	12	0.180	1.5		DOAS RECEP	
	RCPT: OFFICE		7.5	0.900	12	12	20/1	7	*			8	20/1	12	12	0.720	6.0		EXTERIOR RECEP	
	RCPT: OFFICE		7.5	0.900	12	12	20/1	9		*		10	20/1			0.000	0.0		SPARE	
	RCPT EXERCISE ROOM		3.0	0.360	12	12	20/1	11			*	12	20/1			0.000	0.0		SPARE	
	RCPT: EXERCISE ROOM		4.5	0.540	12	12	20/1	13	*			14	20/1			0.000	0.0		SPARE	
	RCPT: TELEPHONE BOARD		3.0	0.360	12	12	20/1	15		*		16	20/1			0.000	0.0		SPARE	
	RCPT: TELEPHONE BOARD		3.0	0.360	12	12	20/1	17			*	18	20/1			0.000	0.0		SPARE	
	RCPT: IT CLOSET		3.0	0.360	12	12	20/1	19	*			20	20/1			0.000	0.0		SPARE	
	RECPT: A/V & DATA		3.0	0.360	12	12	20/1	21		*		22	20/1			0.000	0.0		SPARE	
	RECPT: A/V & DATA		3.0	0.360	12	12	20/1	23			*	24	20/1			0.000	0.0		SPARE	
	SPARE		0.0	0.000	12	12	20/1	25	*			26				0.000	0.0		SPACE	
	SPARE		0.0	0.000			20/1	27		*		28				0.000	0.0		SPACE	
	SPARE		0.0	0.000			20/1	29			*	30				0.000	0.0		SPACE	
	SPARE		0.0	0.000			20/1	31	*			32				0.000	0.0		SPACE	
	SPARE		0.0	0.000			20/1	33		*		34				0.000	0.0		SPACE	
	SPARE		0.0	0.000			20/1	35			*	36				0.000	0.0		SPACE	
	SPARE		0.0	0.000			20/1	37	*			38				0.000	0.0		SPACE	
	SPARE		0.0	0.000			20/1	39		*		40				0.000	0.0		SPACE	
	SPARE		0.0	0.000			20/1	41			*	42				0.000	0.0		SPACE	

TOTAL CONNECTED LOAD: 9.18 KVA
TOTAL CONNECTED AMPS: 25.6 AMPS

PHASE "A": 4.140 KVA 35 AMPS
PHASE "B": 2.880 KVA 24 AMPS
PHASE "C": 2.160 KVA 18 AMPS

TOTAL CALCULATED LOAD: 9.18 KVA
TOTAL CALCULATED AMPS: 25.6 AMPS

NOTES:
1. INSTALL LOCKING DEVICE (LOCK-OFF FOR MAINTENANCE)
2. INSTALL LOCKING DEVICE (LOCK-ON FOR CRITICAL LOAD)
3. REF ONE-LINE DIAGRAM FOR WIRE SIZES.
4. REFER TO SITE LIGHTING PLAN FOR WIRE SIZES.
5. CONTROLLED VIA LIGHTING CONTACTORS.

D — ELECTRICAL PANEL SCHEDULE

SERVICE: 120/208,3PH,4W,+G — **BUS RATING:** 400A MLO — **SECTIONS:** 1
PANEL TYPE: NEMA 1 — **AIC RATING:** 42K — **MOUNTING:** SURFACE

EQUIP				LOADS	WIRE			CKT	PHASE			CKT			WIRE		LOADS				EQUIP
No.	DESCRIPTION	NOTE	AMPS	(KVA)	N	PH	CB/P	#	A	B	C	#	CB/P	PH	N	(KVA)	AMPS	NOTE	DESCRIPTION	No.
	LIGHTING		10.6	1.276	12	12	20/1	1	*			2	20/1			0.000	0.0		SPARE	
	RCPT: EQUIPMENT BUILD.		3.0	0.360	12	12	20/1	3		*		4	20/1			0.000	0.0		SPARE	
	RCPT: EQUIPMENT BUILD.		6.0	0.720	12	12	20/1	5			*	6	20/1			0.000	0.0		SPARE	
	RCPT: EQUIPMENT BUILD.		3.0	0.360	12	12	20/1	7	*			8	20/1			0.000	0.0		SPARE	
	RCPT: EQUIPMENT BUILD.		16.0	1.920	12	12	20/1	9		*		10	20/1			0.000	0.0		SPARE	
	SPARE		0.0	0.000	12	12	20/1	11			*	12	20/1			0.000	0.0		SPARE	
	POWER REEL		16.0	1.920	12	12	20/1	13	*			14	20/1	12	12	0.972	8.1		UH-1	
	POWER REEL		16.0	1.920	12	12	20/1	15		*		16	20/1	12	12	0.972	8.1		UH-2	
	POWER REEL		16.0	1.920	12	12	20/1	17			*	18	40/1	8	8	3.500	29.2	1	WH-2	
	SPARE		0.0	0.000	12	12	20/1	19	*			20	20/1	12	12	1.500	12.5		OVERHEAD DOOR	
	LIGHTING REEL		16.0	1.920	12	12	20/1	21		*		22	20/1	12	12	1.500	12.5		OVERHEAD DOOR	
	LIGHTING REEL		16.0	1.920	12	12	20/1	23			*	24	20/1	12	12	0.180	1.5		EXTERIOR RECEP	
	RCPT: EXERCISE ROOM		3.0	0.360	12	12	20/1	25	*			26	20/1	12	12	0.900	7.5		STORAGE RECEP 136	
	RCPT: EXERCISE ROOM		3.0	0.360	12	12	20/1	27		*		28				0.000	0.0		SPACE	
	RCPT: EXERCISE ROOM		3.0	0.360	12	12	20/1	29			*	30				0.000	0.0		SPACE	
	RCPT: EXERCISE ROOM		10.0	1.200	12	12	20/1	31	*			32				0.000	0.0		SPACE	
	RCPT: EXERCISE ROOM		10.0	1.200	12	12	20/1	33		*		34				0.000	0.0		SPACE	
	RCPT: EXERCISE ROOM		10.0	1.200	12	12	20/1	35			*	36				0.000	0.0		SPACE	
	EXTERIOR RECEP		1.5	0.180	12	12	20/1	37	*			38				0.000	0.0		SPACE	
	SPARE		0.0	0.000			20/1	39		*		40				0.000	0.0		SPACE	
	SPARE		0.0	0.000			20/1	41			*	42				0.000	0.0		SPACE	

TOTAL CONNECTED LOAD: 28.62 KVA
TOTAL CONNECTED AMPS: 79.8 AMPS

PHASE "A": 8.668 KVA 72 AMPS
PHASE "B": 10.152 KVA 85 AMPS
PHASE "C": 9.800 KVA 82 AMPS

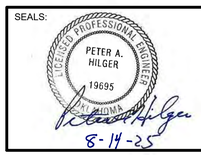
TOTAL CALCULATED LOAD: 25.364 KVA
TOTAL CALCULATED AMPS: 70.7 AMPS

NOTES:
1. INSTALL LOCKING DEVICE (LOCK-OFF FOR MAINTENANCE)
2. INSTALL LOCKING DEVICE (LOCK-ON FOR CRITICAL LOAD)
3. REF ONE-LINE DIAGRAM FOR WIRE SIZES.
4. REFER TO SITE LIGHTING PLAN FOR WIRE SIZES.
5. CONTROLLED VIA LIGHTING CONTACTORS.

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS	08.01.25

SEALS:



PROJECT NO.:	17-00900
FILE:	
ISSUE DATE:	08.01.25
SCALE:	AS NOTED
DRAWN BY:	GSH
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
424 e. main st.
jenks, ok 74037

Precision Engineering Group LLC
5800 East Skelly Drive, Suite 1100
Tulsa, Oklahoma 74135
p: 918-749-3000
f: 918-749-3003

PROJECT TITLE:
CITY OF SAPULPA, OK
SAPULPA FIRE DEPARTMENT
TRAINING FACILITY
15 SAHOMA LAKE ROAD SAPULPA, OK 74066

SHEET TITLE:
ELECTRICAL PANEL SCHEDULES

SHEET NUMBER:
E5.1

SECTION II.
SURETY BONDS

STATUTORY BOND

KNOW ALL MEN BY THESE PRESENTS, that we _____, as Principal(s) and _____, a Corporation organized under the laws of the State of _____, and authorized to transact business in the State of Oklahoma, as Surety, are held and firmly bound unto the State of Oklahoma, in the penal sum of _____ _____ dollars ($_____) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our successors and assigns, jointly and severely, firmly by these presents. Signed and sealed and delivered this __ _____day of _____, 20___, in triplicate counterparts.

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH THAT WHEREAS, the said _____has on this ___day of _____, 20___, entered into a written Contract with the City of Sapulpa, State of Oklahoma for _____ according to the Plans and Specifications attached to said Contract, which includes the furnishing of all necessary tools, equipment, material and labor, in accordance with the Plans and Specifications contained in said Contract and made a part thereof, which Contract, Plans and Specifications, are by reference thereto made a part of this bond. The said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed thereunder or the Terms and Conditions accompanying the same shall in any way affect its obligations on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the Terms and Conditions of the Contract or to the Work or to the Plans and Specifications.

NOW, THEREFORE, if said _____ shall pay all indebtedness incurred by the Contractor, or his Subcontractor who perform Work, in the performance of such Contract, for labor and materials and repairs to and parts for equipment used and consumed in the performance of said Contract, then this obligation shall become null and void; otherwise to be in full force and effect.

By: _____

_____
Surety Company

By:_____
Attorney in Fact

(Accompany this bond with Attorney-in-Fact's authority from Company) (One copy to be filed with the Clerk of the District Court)

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we _____, and _____ general offices in _____, a corporation organized under the laws of the State of _____and authorized to transact business in the State of Oklahoma, as Surety, and held and firmly bound unto the City of Sapulpa, Oklahoma, a municipal corporation existing under the laws of the State of Oklahoma, in the penal sum of _____ _____ dollars ($_____) lawful money of the United States, in payment of which sum well and truly to be made, the said Principal and Surety bind themselves, their successors and assigns, jointly and severally, firmly by these presents. Signed, sealed, and delivered this _day of _____, 20___.

WHEREAS, said Principal has entered into a written Contract with the City of Sapulpa dated ____ _____, 20____, according to the Plans and Specifications attached to said Contract, which includes the furnishing of all necessary tools, equipment, materials, and labor, a copy of which Contract, together with all Plans and Specifications is hereto attached and made a part hereof as if set out in full herein; and for the payment to the City of Sapulpa, Oklahoma, of all sums due, or which may become due, by the terms of this Contract, as well as by reason of any violation thereof by the Principal herein; and for the payment of any and all judgments, costs of suits and actions brought against the City of Sapulpa, Oklahoma, or its officers, for any cause whatever arising from, or on account of, any injuries or damage to life or property, suffered or sustained by any person, or persons, firm, or corporation, caused by the Principal herein, its agents, servants, or employees, in the construction of said Work, or by or in consequence of, any negligence, carelessness, or misconduct, in guarding or protecting the same, or from any improper defective materials used in the construction of said Work, or any act of omission of said Principal, or its agents, servants, or employees; and for the protection of the City of Sapulpa, Oklahoma, against all suits or claims for infringements, or alleged infringements, or patent rights or processes. The said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the Terms and Conditions of the Contract or to the Work to be performed thereunder or the Plans and Specifications accompanying the same shall in any way affect its obligations on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the Terms and Conditions of the Contract or to the Work or to the Plan and Specifications.

NOW, THEREFORE, the said Principal has caused these presents to be executed in its name, and its corporate seal to be hereto affixed by its duly authorized officers, and the said Surety has caused these presents to be executed in its name, and its corporate seal to be hereunto affixed, by its attorney in fact, duly authorized thereunto to do so, the day and year first above written and these presents have been executed in triplicate counterparts.

By:_____

_____
Surety Company

By:_____

_____
Attorney in Fact

MAINTENANCE BOND

WHEREAS, the undersigned, _____ has executed Contract No. _____, dated the _____ day of _____, 20____, designated and known as _____ _____ for the construction of _____ including all of the Work mentioned and described in said Contract, and to be performed by the undersigned strictly and punctually in accordance with the Terms and Conditions and the Plans and Specifications thereof.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS, that _____ _____, of _____as Principal, and as Surety, are jointly and severally, firmly held and bound into the City of Sapulpa the sum of _____ dollars ($_____) lawful money of the United States of American, same being the approximate cost of the Contract herein referred to, for the payment of which sum well and truly to be made, we hereby bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS BOND is such that the said Principal and Surety herein named do hereby agree and bind themselves unto and guarantee the City of Sapulpa that all work done under said Contract was constructed with materials and in such a manner that the same shall endure without need of any repair whatsoever for a period of one (1) year from and after the formal acceptance of said project by the City of Sapulpa, and that all the expense of said Principal and/or Surety, all failures occurring and arising from any defect in material or workmanship within said period of _____ (_____) year shall be promptly repaired, within ten (10) days after notice to said Principal by letter deposited in the United States mail, addressed to said Principal at _____ and copied to said Surety; and it being further agreed that upon the neglect, failure or refusal of the Principal to make any needed repairs or backfills upon said project or any work connected therewith within the aforesaid ten (10) day period or other City negotiated period that the said Principal and Surety shall jointly and severally be liable to the City of Sapulpa, Oklahoma, for the costs and expenses of making such repairs or backfills, or making good such defects or imperfections.

NOW, THEREFORE, if the said Principal and Surety shall faithfully and securely keep and perform all the obligations herein provided to be kept and performed by them, or either of them, then this obligation shall be null and void and of no force and effect, otherwise to be and remain in full force and effect at all times.

Signed, sealed and delivered the _____ day of _____, 20____.

_____
Contractor Principal

Attest: By:_____

_____ _____
Title Title (seal)

_____ _____
Surety (seal) Attorney in Fact

(Accompany this bond with Power of Attorney)

Approved as to Form:

_____
Attorney

SECTION III.
CITY OF SAPULPA'S STANDARD CONTRACT TERMS AND CONDITIONS FOR A PUBLIC CONSTRUCTION PROJECT

CITY OF SAPULPA'S STANDARD CONTRACT TERMS AND CONDITIONS FOR A PUBLIC CONSTRUCTION PROJECT

1.0 DEFINITIONS

1.1 The following Definitions are for terms utilized in the Contract Documents. Whenever these terms appear in any of the Contract Documents relating to this Public Construction Project, the following terms (or pronouns in place of them) and definitions for those terms govern. If a term is defined but is not utilized within any of the Contract Documents for a particular Public Construction Project, then it will not apply.

1.1.1. AASHTO means the American Association of State Highway and Transportation Officials.

1.1.2. Addenda means any additional or supplemental documents, which were not included with the Bid packet and are usually written interpretations or modifications of the Contract Documents, provided prior to Bid opening.

1.1.3. ASTM means the American Society of Testing and Materials.

1.1.4. AWWA means the American Water Works Association.

1.1.5. Bid means the Bidder's Proposal with all documents attached thereto by the Bidder, submitted by the Bidder to perform the Work, which Bid shall become a part of the Contract Documents upon becoming successfully awarded to the Bidder.

1.1.6. Bidder means any person, partnership, joint venture or corporation submitting a Proposal for performing the Work.

1.1.7. Bond(s) mean(s) the Proposal Guaranty, Performance Bond, Statutory Bond or Maintenance Bond furnished by the Contractor and the Surety to the City as a guaranty that the Contractor will enter into a Public Construction Contract with the City and completely perform the Contract according to its terms and conditions.

1.1.8. City means the City of Sapulpa, Oklahoma, a municipal corporation or any of its Trusts or Authorities as indicated by the entity executing this Contract, its duly elected and qualified governing body and/or its agents and officers duly authorized to act for the City or to represent the City relative to this Contract and to perform the powers and duties specified by the City hereunder.

1.1.9. Change Order(s) mean(s) a written order to the Contractor for Extra Work, increases or decreases in Contract quantities and additions or alterations to the Plans or Specifications, within the scope of the Contract.

1.1.10. Construction Project means the Public Construction Project for which the Work is to be completed under the Contract Documents.

1.1.11. Contract means the Public Construction Contract, executed by the parties, which pertains to the performance of and the furnishing of labor and materials for the Work on the Public Construction Project. The Contract includes all of the Contract Documents, whether attached thereto or incorporated by reference.

1.1.12. Contract Administrator means the City representative primarily responsible for administration and oversight of the Contract. The Contract Administrator will be the designated Project Manager and/or Project Engineer as applicable.

1.1.13. Contract Documents mean all the documents included in the Bid Packet, which includes,

but is not limited to, the Notice to Bidders, Invitation to Bid, Instructions to Bidders, Proposal Form, Performance Bonds, Statutory Bonds, Maintenance Bonds, the successful Bidder's Bid, City of Sapulpa's Standard Contract Terms and Conditions for Public Construction Projects and the Plans and Specification, other Drawings, Supplemental Agreements, Supplemental Plans and Specifications, other Drawings and/or other data and may also refer to the unsigned forms of such documents.

1.1.14. Contractor means the corporation, partnership, company, firm or individual, named and designated in the Contract and who has entered into this Contract or the performance of the Work covered thereby and/or the Contractor's duly authorized agents and other legal representatives.

1.1.15. Days mean calendar days unless otherwise specified.

1.1.16. Drawings means and includes all Drawings, Plans or other Drawings prepared by the City or by an Architect/Engineering firm contracted with the City that were included in the City's Proposal for Bids; all Drawings submitted by the successful Bidder with the successful Bidder's Proposal and used as a basis for the successful Bid; all Drawings by the Contractor when and as approved by the Contract Administrator and/or Engineer; and all Drawings submitted by the City to the Contractor during the progress of the Work as provided for herein.

1.1.17. Engineer means the engineer or engineers who have been designated, appointed or employed by the City for this Work or the Engineers' duly authorized agents; such agents acting within the scope of the particular duties entrusted to such agents in each case.

1.1.18. Extra Work means, Work that is unforeseen or Work made necessary by alteration of Plans and Specifications or necessary to complete the Work for other reasons, for which no specific prices or compensations are provided in the Contract. Extra Work shall be performed by the Contractor in accordance with the Plans and Specifications and as directed; provided, however, before any Extra Work is started, an approved Change Order from Owner shall be delivered to the Contractor by the Contract Administrator for the Extra Work.

1.1.19. Inspector means the authorized representative of the Engineer or the technical inspector or inspectors duly authorized by the Contract Administrator, assigned to make a detailed inspection of any or all portions of the Work, or materials thereof.

1.1.20. Laboratory means the laboratory or laboratories employed by the Contractor for testing the materials used in the Work.

1.1.21. Lump Sum means the price or an item of Work including all things necessary to complete the item as shown on the Plans and Specifications. Such an item is not measured in units but is defined by description.

1.1.22. Maintenance Bond means the Surety Bond that secures that the Work performed was is accordance with the Contract Documents and that for a period of time after completion of the Work the Contractor will continue to perform such maintenance and/or repairs on the Project arising from any failures or defects in materials or workmanship or asset set out in the Contract Documents.

1.1.23. Materials mean all raw and prepared materials and manufactured and fabricated products entering into the finished Work.

1.1.24. Notice to Bidders means the notice provided by the City to Bidders to inform them of the Public Construction Project and Work contemplated by this Contract.

1.1.25. Performance Bond means the Surety Bond that secures that the Work to be done in accordance with the Contract Documents and will be performed in the entirety.

1.1.26. Plans and Specifications means those specific items or Drawings identified for this Public Construction Project regarding construction equipment, construction details, material details, details pertaining to the methods of manner of performing the Work, the equipment to be used, or to the quantities or qualities of materials to be furnished for the Work, which are bound into and are a part of the Contract Documents. They also include the official Drawings or Plans and the profiles, typical cross sections, general cross sections, working Drawings and supplemental Drawings, or exact reproductions thereof, prepared or approved by the Engineer, which show the location, character, dimensions and details of the Work.

1.1.27. Project means the Public Construction Project and the Work contemplated by this Contract.

1.1.28. Project Engineer means the Professional Engineer responsible for interpreting Plans and Specifications and/or Drawings for the Project. The Project Engineer may also act as the Contract Administrator.

1.1.29. Proposal means the offer of the Bidder to perform the Work, when completed and submitted on the prescribed Proposal Form, properly signed.

1.1.30. Proposal Form means the form required by the City, prepared and submitted by the Bidder to make a formal Bid for the performance of the Work.

1.1.31. Proposal Guarantee means the security furnished by the Bidder as a guaranty that the Bidder will enter into the Contract with the City to complete the Work if the Bidder is the successful Bidder and that the Bidder will secure the performance of the Contract.

1.1.32. Public Construction Project means any one of the numerous Projects commenced by the City and paid for out of public funds. It may include any number of parts or divisions, which the Work is divided for the purpose of awarding Public Construction Contracts. Any one (1) Public Construction Contract may, when provided for in the applicable Notice to Bidders, cover Work for more than one Public Construction Project.

1.1.33. Public Road means any road, highway, street, alley or way, which is open or has been dedicated to be used by the public, regardless of by whom, or by what agency or divisions of government, it is owned, controlled or maintained.

1.1.34. Special Provisions means the portion of the Contract setting forth terms and conditions or requirements peculiar to the Work or materials involved in the Proposal and not satisfactorily or completely covered by the Standard Contract Terms and Conditions or the Supplementary Plans and Specifications or may be utilized for setting out additional terms and conditions and/or covenants of the Contract.

1.1.35. Statutory Bond means the Surety Bond that secures the Work will be done in accordance with the Contract Documents, which includes the furnishing of all necessary tools, equipment, material and labor, in accordance with the Contract Documents.

1.1.36. Subcontractor means any person, partnership, joint venture or corporation undertaking to perform any part of the obligations of the Contractor, with the written consent of the Contract Administrator.

1.1.37. Superintendent means the executive representative of the Contractor, present on the Work at all times during its progress, authorized to receive and fulfill instructions from the Engineer, and capable of superintending the Work efficiently.

1.1.38. Supplemental Agreements means written agreements executed by the Contractor and by

the City covering alterations necessary to the Work, as hereinafter provided.

1.1.39. Supplemental Plans and Specifications means additions to and amendments of the General Specifications. Included in them will be construction and materials Specifications, and provisions regarding pay items, relating to the Work. Only those portions of the Supplemental Specifications, which are specifically mentioned in the Notice to Bidders or the Proposal, constitute a part of the Contract Documents.

1.1.40. Surety means the corporate body which, or the individual or individuals who, is bound with and for the Contractor under the Performance Bond for the performance of the Contract according to its terms, under the Statutory Bond as required by law, the Maintenance Bond for the performance of maintenance according to its terms. A Surety company authorized to do business in the State of Oklahoma, having a local representative, and satisfactory to the City, will be required as Surety on the required bonds.

1.1.41. Surety Bonds means the Performance Bond, Statutory Bond, the Maintenance Bond and the Bond required by the Oklahoma Tax Commission for non-resident contractors and non-resident subcontractors.

1.1.42. MUTCD means the Manual on Uniform Traffic Control Devices for Streets and Highways, most current edition.

1.1.43. Unit Price means the price per specified unit of measurement of Work and/or material.

1.1.44. Work means all work specified in the Specifications or indicated on the Plans for the contemplated construction and covered by the Contract.

1.2. Whenever the words "as ordered", "as permitted", "as directed", or words or phrases of like significance are used, it is understood by the parties that the order of directions, requirements, permissions or allowances of the Contract Administrator govern.

1.3. Similarly, the words, "approved," "reasonable," "suitable," "acceptable," "proper," "satisfactory" or words of like effect and significance, unless otherwise specified herein, shall mean approved, reasonable, suitable, acceptable, proper or satisfactory as in the judgment of the Contract Administrator.

2.0 SCOPE

2.1. The Contract Terms and Conditions, which follow, are general in scope and may refer to conditions that will not be encountered in the performance of the Work included in this Public Construction Contract and are therefore not applicable hereto. Any Terms and Conditions, requirements, provisions or other stipulations of the Contract Documents, which pertain to a nonexistent condition and are not applicable to the Work performed hereunder, shall have no meaning to the Contract. All Terms and Conditions, requirements, provisions or other stipulations that are encountered in the performance of the Work or are significant to the Terms and Conditions of the Contract shall fully apply and be strictly adhered to.

2.2. The Plans and Specifications are intended to supplement, but not necessarily duplicate each other and together constitute one (1) complete set of Plans and Specifications, so that any Work exhibited in the one and not in the other shall be executed just as if it had been set forth in both, so that the Work shall be completed according to the complete design or designs as decided and determined by the Engineer.

2.3. Should anything be omitted from the Plans and Specifications that was not previously identified prior to the Contract being awarded to the Contractor and which is necessary for a clear understanding of the Work or it appears that various instructions are conflicting, then the Contractor shall request written instructions from the Engineer to clarify such omissions or discrepancies.

2.4. The Plans and Specifications and all Supplemental Documents are an essential part of the Contract and a requirement appearing in one is as binding as if it appeared in all. All Contract Documents are intended to be complementary to complete the Work.

2.4.1. In case of a discrepancy in the dimensions, the governing ranking will be: 1) Plans and Specifications Dimensions; 2) Calculated Dimensions; 3) Standard Specifications; 4) Standard Plan Sheets; 5) Scaled Dimensions.

2.4.2. In case of a discrepancy in the information, the governing ranking will be: 1) Plans and Specifications; 2) Supplemental Specifications; and 3) Standard Plan Sheets.

2.4.3. The Addenda attached to the Contract shall govern over all Contract Documents except Amendments or modifications to the Contract authorized by the City and executed by the parties.

3.0 CONTRACT ADMINISTRATOR'S POWER AND DUTIES

3.1. The Contract Administrator shall give all orders and directions contemplated under the Contract Documents relative to the execution of the Work. The Contract Administrator shall determine the amount, quality, acceptability, and fitness of the several kinds of work and materials, which are to be paid for under this Contract and shall decide all questions relative to said Work and the construction thereof. The Contract Administrator's estimates and decisions shall be final and conclusive, except as herein otherwise expressly provided. In case any questions shall arise between the parties hereto relative to the Contract Documents, the Contract Administrator's determination or decision shall be a condition precedent to the right of the Contractor to receive any money under this Contract for anything affected in any manner or extent by such questions.

3.2. The Contract Administrator or Project Engineer shall decide the meaning and intent of any portion of the Plans and Specifications or Drawings, where the same may be found obscure or be in dispute; and the Contract Administrator or Project Engineer shall have the right to correct any errors or omissions therein when such corrections are necessary to properly perform the intent of Plans and Specifications or Drawings. Any such corrections shall be implemented immediately from the time that the Contract Administrator gives notice, in writing thereof, to the Contractor.

3.3. Any differences or conflicts, which may arise between the Contractor and other contractors with the City in regard to the Work to be performed under this Contract shall be determined and resolved by the Contract Administrator.

3.4. Nothing in this Section 3 shall be construed as authorizing any changes to the Contract that increase the Contract cost to the City, decrease the aggregate value of the materials furnished to the City or increase the time of completion. Such changes to the Contract can only be made in writing and shall be executed by the parties in the manner set out herein.

3.5. Nothing in this Section shall be construed to forbid conferences between the Contractor and the City in the case of actual disputes with the Contract Administrator; provided that the Contract Administrator and the Contractor must negotiate in good faith in an attempt to resolve any disputes prior to and as a condition for such issues being raised and discussed with the City. The City reserves the right to require the Contract Administrator and the Contractor to agree upon any proposed changes or to get a full and complete report from both the Contractor and the Contract Administrator and reserves the right to conduct an independent investigation prior to responding to any dispute that cannot be resolved between the Contract Administrator and the Contractor.

3.6. The Contract Administrator or Project Engineer shall decide all questions, which may arise as to the quality or acceptability of materials furnished and Work performed, as to the manner of performance and rate of progress of the Work, whether or not such questions involve the interpretation of the Plans and Specifications. The Contract Administrator's or Project Engineer's decision on such questions shall be final

and the Contract Administrator or Project Engineer shall have executive authority to enforce and make effective such decisions and orders.

4.0 TIME FOR COMPLETION

4.1. The Work shall be commenced within ten (10) days from and after the date of written order from the City. The Contractor agrees that the Work shall be prosecuted regularly, diligently, and uninterruptedly at a uniform rate of progress to ensure completion within the number of days stated in the Proposal. It is understood and agreed that the said time for the completion of the Work described herein is a reasonable time for the completion of the same.

4.2. If required by the Contract, the Contractor shall furnish the Contract Administrator with a proposed progress schedule, in a format approved by the Contract Administrator, setting forth in detail the procedure the Contractor proposes to follow, giving the dates that the Contractor expects to start and complete separate portions of the Work. If the Contract Administrator deems it desirable, the Contract Administrator may require the Contractor to furnish revised progress schedules not less often than quarterly. Such revised progress schedules shall show the start dates and the completion dates (or proposed completion dates) of all or any portion of the Work that such a revised schedule is required.

4.3. Time is of the essence for completion of this Contract. If the Contractor fails to complete the Work within the time specified, then the Contractor agrees to pay the City, not as penalty, but as liquidated damages for such breach of Contract, the amount set forth in the Contract Documents for each day of failure to complete the Work after the specified time set forth in the Bid Proposal. In the event the Contractor does not maintain the Work schedule approved by the Contract Administrator, a sum equal to the liquidated damages for the number of days Contractor is behind schedule may be retained by the City out of the amounts due the Contractor from time to time, to guarantee the City against losses by reason of the failure of the Contractor to complete the Work or any part thereof in the time provided herein. The amount of damages finally determined to be due may be withheld from any sums finally determined to be due Contractor hereunder, or otherwise.

4.4. If the Plans and Specifications set a definite and certain time for the performance of any act and the Contract allows additional time for the completion of any Work, the additional time for completion shall govern in this Contract.

4.5. Should the Contractor be delayed in the final completion of the Work by any act or neglect of the City or Contract Administrator or by any employees of either or by strikes, injunctions, fire or other force majeure and in the opinion of the Contract Administrator such delay could not have been anticipated or avoided, then an extension of time sufficient to compensate for such delay shall be granted by the City, provided, however, that the Contractor shall give the City and the Contract Administrator notice in writing of the cause of delay within ten (10) days of the occurrence of the event that caused the delay.

> 4.5.1. Force Majeure means an "Act of God" such as an earthquake, flood, cloudburst, cyclone, or other cataclysmic phenomenon of nature beyond the power of the Contractor to foresee or to make preparation in defense against. A rain, windstorm, or other natural phenomenon of normal intensity, based on U.S. Weather Bureau reports, for the particular locality and for the particular season of the year in which the Work is being done, shall not be construed as an Act of God and no extension of time will be granted for the delays resulting there from. No extension of time will be granted for any delay or suspension of the Work due to the fault of the Contractor. No extension of time on account of a delay due to unforeseen causes will be granted if a written request is not filed with the Contract Administrator within ten (10) days of the date of the occurrence of the Act of God.

4.6. The City shall not be liable or responsible to the Contractor, Surety or any other person for or on account of any Work stoppages or delays arising out of an injunction or any other kind of legal or equitable proceeding or from, by or on account of any other cause whatsoever.

4.7. If the Contract be amended in any material respect and the City determines that such amendment will cause delay in the completion of the Work, the City shall postpone the completion time by the number of days it determines to be equitable.

4.8. If the Contract Administrator suspends the Work in whole or in part the Contract Administrator shall postpone the time for completion of the Work by the number of days, if any, that the Contract Administrator determines to be equitable.

4.8.1. The Contract Administrator may instruct the Contractor to delay the start of the Work or suspend the operations in whole or in part for the length of time the Contract Administrator may deem necessary because of conditions that the Contract Administrator considers unfavorable for commencement of the Work. In such an event, the Contractor shall start or resume the Work when notified to proceed by the City Contract Administrator.

4.9. If the Contractor fails to perform or complete any of the Work to the reasonable satisfaction of the City within any of the times allowed by the Contract or if the Contractor fails to discharge any of the Contract obligations, the City may, upon written notice to the Contractor, terminate the Contract. Failure of the City to exercise its rights to terminate shall not be deemed a waiver of said right or any other rights or privileges hereunder or by law with respect to any continuing or subsequent breaches of this Contract.

4.9.1. If the City terminates the Contract as provided herein, no payments of any type, other than payment due and payable at the time of termination shall thereafter be made to the Contractor. The default in completing the Work within the time allowed by the Contract will result in the payment of liquidated damages. The City shall recover liquidated damages by deducting the amount thereof out of any monies due or that may become due the Contractor and if said monies are insufficient to cover said damages, then the Contractor or the Surety shall pay the amount due.

5.0 LIQUIDATED DAMAGES

5.1. Liquidated damages for this Contract are the sum of **One Thousand** dollars and no cents ($ **1,000.00**) per day for each day the Contractor exceeds the Contract time for completion. This amount is fixed and agreed upon because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages sustained by the City in such event.

6.0 CONTRACTOR'S DUTIES AND RESPONSIBILITIES REGARDING THE WORK

6.1. The Plans and Specifications that indicate general outlines and details necessary for a comprehensive understanding of the Work are part of the Contract and are on file in the Contract Administrator's office. The Contractor will receive one (1) hard copy and a digital file copy of these Plans and Specifications, free of charge. The Contractor shall keep one copy of each at the site of the Work. The Work shall be constructed in all respects in compliance with requirements of the Plans and Specifications. The approved Plans and Specifications will be supplemented by working and Supplemental Drawings as necessary to adequately define the requirements and information given on the approved Plans and Specifications. No changes shall be made
on any Plan and Specification or Drawing after the same has been prepared or approved by the Engineer, except on the direction of the Engineer.

6.1.1. The Contractor shall furnish, on sheets of the size required by the Engineer, such working Drawings not furnished by the City as may be required by the Engineer for any part of the finished construction. Upon completion of the Work, the Contractor shall deliver to the City a complete set of said Drawings on a good-quality bond paper. Shop Drawings may be submitted in pencil on a good grade of tracing paper.

6.1.1.a. The compensation of the Contractor for furnishing all working Drawings shall be included in the prices Bid for the various scheduled items.

6.1.2. Working Drawings for any structure shall consist of such detailed Supplemental Plans and Specifications as may be needed for the prosecution of the Work and which are not included in the Plans and Specifications furnished by the City. They shall include shop details, erection plans, masonry-layout diagrams and bending diagrams for reinforcing steel and must be approved by the Engineer before any Work involving these Supplemental Plans and Specifications shall be performed. Plans for cribs, cofferdams, falsework, centering and formwork may be required by the Engineer, and in such cases shall be likewise subject to approval, unless approval be waived by the Engineer.

6.1.3. It is expressly understood and agreed that approval by the Engineer of the Contractor's working Drawings does not relieve the Contractor of any responsibility for accuracy of dimensions and details. The Contractor shall be responsible for obtaining the approval by the Engineer of his working Drawings and for their conformity with the Plans and Specifications.

6.2. If any Work consists of repairs, extensions, or alterations of existing structures, the Contractor shall make measurements of prior construction as may be required to accurately join the old construction with the new Work. Any measurements, which may appear in the Plans and Specifications that indicate the extent and nature of such repairs, extensions, and alterations, shall not relieve the Contractor of this responsibility.

6.3. Finished surfaces in all cases shall conform to lines, grades, cross sections and dimensions shown on the Plans and Specifications. Any deviations from the Plans and Specifications and approved working Drawings may be required by the exigencies of construction and will in all cases be determined by the Engineer and authorized in writing.

6.4. The Contractor shall give the Work the constant attention that is necessary to facilitate the progress thereof and shall cooperate in every way possible with the Contract Administrator, Engineer, other Contractors, public agencies, railroads, public utilities and all other agencies and persons involved in the Work. The Contractor shall at all times have a competent Superintendent, capable of reading and thoroughly understanding the Plans and Specifications, who shall act as the Contractor’s agent for the Work and who shall receive instructions from the Contract Administrator or Engineer.

6.4.1. Such Superintendent shall have full authority to execute and shall execute the orders and directions of the Contract Administrator without delay and shall promptly supply such materials, tools, equipment, and labor as may be required. Such Superintendent shall be furnished irrespective of the amount of Work sublet.

6.5. The Engineer will furnish survey data and benchmarks for the Work. The Contractor shall stake lines, grades, structures and temporary benchmarks and shall lay out from the Work to be performed under this Contract. The Contractor shall be responsible for the finished Work conforming to the lines, grades and benchmarks given by the Engineer. The Contractor shall establish offset base lines, reference points, slope stakes, supplementary benchmarks and any other horizontal and vertical control not established by the Engineer. The cost to the Contractor of laying out the Work as above described shall be included in the amounts Bid for the various scheduled items. The Contractor shall notify the Engineer in writing not less than five (5) days in advance, when benchmarks and section lines are required. Each request for stakes and other engineering services described herein shall, except in emergency, cover sufficient Work for not less than one (1) full day of the workforce needed for the Work. The Contractor shall exercise care in the preservation of stakes and benchmarks set for the Work. If any such stakes or benchmarks be damaged, lost, displaced or removed by the Contractor, the Contractor shall have them reset at the Contractor’s expense.

6.6. The Contractor shall furnish the Engineer, laboratory representative and Inspectors with every reasonable facility for ascertaining whether or not the Work performed and materials used are in accordance with the requirements of the Contract. If the Engineer requests, the Contractor shall at any time before final acceptance of the Work remove or uncover such portion of finished Work as may be specified. After examination by the Engineer, the Contractor shall restore said portions of the Work to the standard required

by the Plans and Specifications. Should any portion of the Work thus exposed and examined prove acceptable, the uncovering or removing and the replacing of the covering or making good of the portion removed, will be paid for as Extra Work but should any portion so exposed and examined prove unacceptable, the uncovering or removing and the replacing of the covering or making good of the portion removed, shall be at the Contractor's expense. No Work shall be done nor materials used without suitable supervision by the Contractor or without inspection. Failure of the City to reject any defective Work or materials shall not in any way prevent later rejection when such defects are discovered.

6.6.1. When any railroad corporation is directly affected by the Work, the Work shall be subject to the inspection of its representatives. Such inspection shall not make the railroad corporation a party to this Contract and will in no way interfere with the rights of either party hereunder.

6.7. Holes resulting from the removal of test cores shall be refilled by the Contractor with materials similar to that of the cores and be compacted and finished to conform to the surrounding construction. The cost of such Work shall be included in the amount of the Bid for the various scheduled items.

6.8. The Contractor, at his own expense, shall remedy, remove and/or replace all rejected Work in a manner acceptable to the Contract Administrator. Any Work done beyond the lines and grades shown on the Plans and Specifications or as given by the Engineer, except as herein provided, or any Extra Work done without authority, will be considered as unauthorized and at the expense of the Contractor, and will not be measured or paid for. Should the Contractor fail to remedy, remove and/or replace the rejected Work, the Contract Administrator shall have authority to cause any rejected Work to be remedied, removed or replaced and any unauthorized work to be removed and the costs thereof shall be deducted from any monies due or to become due to the Contractor.

6.9. The Contractor shall be responsible for all damages caused by his equipment or operations. No loads shall be placed or permitted on a pavement or base before the expiration of the curing period.

6.10. With respect to all Work performed under this Contract, the Contractor shall:

6.10.1. Comply with the safety standards provisions or applicable laws, building and construction codes and the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596), as amended and the requirements of Title 20 of the Code of Federal Regulations, Section 1518 as published in the "Federal Register", Volume 36, No. 75 - Saturday, April 17, 1971, as amended.

6.10.2. Exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees) and property.

6.10.3. Maintain at the Contractor’s office or at an obvious location at the job site, all items necessary for giving first aid to anyone injured on the job site. In no case shall the Work commence until the Contractor has made standing arrangements for removal of injured persons to a hospital or a doctor's care.

6.10.4. During the performance of the Contract, if any operation, practice or condition is deemed unsafe by the Contract Administrator, the Contractor, when advised by the Contract Administrator, shall take any necessary corrective actions as shall be appropriate in the circumstances or as shall be directed by the Contract Administrator.

6.10.5. Nothing in the foregoing paragraphs shall be construed as relieving the Contractor from full responsibility for the safe prosecution of the Work at all times.

6.11. The Contractor shall provide all necessary pumps, drains, ditches and other means for removing water from the site of the Work and shall satisfactorily remove the water. Contractor shall provide additional pumps or drains at any place where the Contract Administrator deems them necessary.

6.12. If performing the Work in any way involves cutting, obstructing, or otherwise making impassable, with safety, the traveled surfaces of any existing Public Road, the Contractor shall construct or otherwise provide and maintain in safe and passable condition, such detours, by-passes and temporary approaches, without undue delay to the traffic that passes over such Public Road. In all such cases, while performing the Work that in any way impedes traffic or endanger persons or property moving over Public Roads, the Contractor shall provide flagmen and warning signs and all other traffic and safety controls, as may be necessary for adequate protection of the traveling public against all hazards created or involved in performing the Work. The maintenance of a temporary way in a safe and passable condition shall include prompt snow removal and de-icing. When the Work affecting any Public Road prevents normal ingress to and egress from any lands abutting such Public Road, the Contractor shall construct or otherwise provide and maintain in safe and passable condition, temporary means of ingress to and egress from such lands; these shall be so maintained until the original means of ingress and egress are restored by the Contractor or until any permanent alternative means of ingress and egress required by the Plans and Specifications shall have been constructed and open to travel.

6.12.1. Unless and to the extent otherwise specifically provided in the Proposal, the cost of maintenance of local traffic shall be included in the amounts Bid for various scheduled items.

6.13. The Contractor shall provide for the removal of all dirt and materials that are spilled on existing pavements over which the dirt or materials are hauled or washed or otherwise deposited from the trucks utilized in performing the Work and whenever in the opinion of the Contract Administrator or the City of the existing pavement, the accumulation is sufficient to cause the formation of mud, interfere with drainage or create a traffic hazard.

6.14. All fences, buildings, non-used structures, and obstructions of any character to the construction of the Work, which are within the limits of the right-of-way, shall be removed or otherwise disposed of by the Contractor.

6.15. The Contractor, subject to the approval of the Contract Administrator, may use in the performance of the Work, such stone, gravel, sand, and other materials as may be found in any excavation, which the Contractor is required to make, and will be paid for the excavation of such materials, at the Contract prices therefor. However, the Contractor shall replace such materials, at their own expense, with other suitable material all of that portion of the material so removed and used as was provided in the Plans and Specifications to be used in embankments, backfills, approaches or otherwise. No charge for materials so used will be made against the Contractor except the replacement herein provided for. The Contractor shall not excavate nor remove any material from within the right-of-way, which is not a required excavation as indicated by the slope and grade line, without written authorization from the Contract Administrator.

6.16. Immediately upon completion of any portion of the Work, the Contractor shall restore all fills, topsoil and utilities to their location and condition prior to construction.

6.17. The City reserves the right to do work by other contractors or by City forces and to permit public utility companies and others to do work during the progress and within the limits of or adjacent to the Work. The Contractor shall conduct his Work and cooperate with such other parties so as to cause as little interference as possible with such other work and as the Contract Administrator may direct. The Contractor shall make no claims against the City for additional payment due to delays or other conditions created by the operations of such other parties. If there is a difference of opinion as to the respective rights of the Contractor and others doing work within the limits of or adjacent to the Work, the Contract Administrator will decide as to such rights in order to secure the completion of the Work. The Contract Administrator's decision shall be final and binding on the Contractor.

6.18. Upon commencing the Work, the Contractor shall have suitable photographs, or digital imaging satisfactory to the Contract Administrator, taken on or about the first of each month showing the general condition of the Work. Copies of each view shall be supplied to the Contract Administrator, without charge,

as soon as practicable after the first of each month. The City shall retain the negatives or discs. The cost of furnishing the photographs shall be included in the amounts Bid for the various scheduled items

6.19. Upon the presentation an authorized permit, which provides that all necessary repair work will be paid for by the party to whom such permit is issued, the Contract Administrator may authorize the Contractor to allow the party bearing such permit to make openings in the Work or in public roads crossing the Work.

6.20. The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of the Contractor's employees and City representatives to comply with the requirements and regulations of the Oklahoma Department of Health, Oklahoma Department of Environmental Quality, and other authorities having jurisdiction and shall commit no public nuisance. Portable facilities shall be provided at the Work sites.

6.21. No public road shall be closed to the public until the Contract Administrator has authorized such action in writing.

6.21.1. The Contractor shall notify the Contract Administrator in writing at least ten (10) days in advance of the date proposed to close any portion of a public road.

6.21.2. Unless otherwise indicated on the Plans and Specifications or in other Contract Documents, the width of the traveled roadway on the approaches to any bridge supporting a Public Road shall be not less than the width of the roadway of the bridge itself.

6.21.3. Materials stored upon the Right-of-Way or elsewhere shall be placed in a manner that causes no obstruction to the traveling public.

6.21.4. The Contractor shall furnish, erect, maintain and upon reopening the pubic road shall remove all barricades, Temporary Route, Road Closed, Load Limit, Warning and other required sign used for temporary routes or road closures. These signs, when utilized, including the signs utilized to close Public Roads at each point where traffic leaves it, shall be lighted and maintained by the Contractor.

6.21.5. When any Public Road is closed, the Contractor shall provide, erect and maintain barricades, approved by the Contract Administrator. The Contractor shall also provide, erect and maintain suitable and sufficient lights and danger signals (1) at the limits of each closed portion, (2) where other Public Roads intersect the Work and (3) at such other points as are shown on the Plans and Specifications, in accordance with the MUTCD.

6.21.6. When any Public Road is under construction, serving as a detour or is being used by the traveling public, the Contractor shall maintain, by the use of labor, equipment and materials, that portion of the Public Road being so used that it shall be kept smooth and free from holes, ruts, ridges, bumps, and dust, and it shall be sloped and provided with the necessary outlets to drain freely, including during periods of suspension of the Work. The Contractor shall maintain all structures on such portions of such Public Roads in a condition for safe and convenient use. The Contractor shall also furnish and maintain such guardrails, temporary guide markers as described in the MUTCD, lights, signs, other traffic-control devices, and flaggers as may be necessary to maintain safe traffic conditions. The Contractor may furnish, erect and maintain such additional signs and safety devices as they deem essential and as approved by the Contract Administrator.

6.21.7. The installation and operation of all traffic-control and safety devices shall conform to the requirements of the latest and current edition or revision of the MUTCD.

6.21.8. All flaggers furnished for the protection of the public and direction of traffic shall wear

high-visibility safety apparel conforming to the MUTCD at all times during the performance of their duties. Flaggers shall be properly trained and shall perform their duties in a courteous manner to ensure the safety and convenience of the traveling public within the limits of the traffic controlled area. The Contractor shall immediately correct any deficiency in number, equipment or procedure of flaggers which is brought to their attention by the Contract Administrator or otherwise.

6.21.9. Each flagger shall be supplied with the necessary equipment.

6.21.10. Between the hours of sunset and sunrise, each flagger shall be equipped with retro-reflectorized or lighted equipment conforming to the MUTCD. Except in emergency situations, flagger stations shall be illuminated at night.

6.21.11. At locations where workers and equipment are adjacent to the part of the highway used by the traveling public, construction and maintenance signage shall be installed in accordance to the MUTCD.

6.21.12. Whenever it is necessary to divert the flow of traffic from its normal lanes of travel into another lane of travel, the lane of travel for such diverted traffic shall be clearly delineated by temporary guide markers or barricades. On tangents, the temporary guide markers shall be spaced no farther apart than two hundred (200) feet; and on curves, as directed by the Contract Administrator. Between the hours of sunset and sunrise each temporary guide marker, unless suitably reflectorized, shall be illuminated by a warning lights placed on top of it, and each barricade shall be illuminated by sufficient warning lights and marked by reflectorized devices to make the temporary guide marker clearly visible. All markers, warning lights and reflectorized devices shall be furnished and maintained by the Contractor.

6.21.13. The Contractor may, in lieu of flaggers supplementing them, install and operate a manually controlled signal approved by the Contract Administrator. Where the vertical distance between the top edge of the pavement and the adjoining berm is four inches (4”) or more, the Contractor shall, at the direction of the Contract Administrator, either correct the condition by placing suitable material against the edge of the pavement or may erect and maintain temporary guide markers as hereinbefore described.

6.21.14. Whenever one-way traffic is put into effect for a distance of not to exceed two hundred (200) feet, at least one (1) flagger shall be used during daylight hours and at least two (2) flaggers shall be used between sunset and sunrise. Whenever the length of one-way traffic exceeds two hundred (200) feet, a minimum of two (2) flaggers or traffic signals shall be used during the daylight hours. Whenever either end of a portion of a Public Road restricted to one-way traffic is not visible for an approach distance of at least five hundred (500) feet a sign or traffic signal approved by the Contract Administrator shall be placed approximately five hundred (500) feet from the end of the restricted area. The sign or traffic signal shall be properly lighted between the hours of sunset and sunrise. The Contractor shall furnish and maintain positive and quick means of communication between the flaggers or traffic signals at opposite ends of the restricted area. The Contractor shall keep the flaggers supplied with sufficient signaling equipment.

6.21.15. Equipment and materials stored on any Public Road shall at all times be marked. From the hour of sunset to sunrise, any such material or equipment stored between the side ditches or between the lines five (5) feet behind any raised curbs shall be clearly outlined with warning lights or other equally dependable devices in conformance with the MUTCD and approved by the Contract Administrator. In addition, when the restricted portion of a Public Road includes sidewalks, the Contractor shall provide any other light, barricades, etc., that may be needed for the protection of pedestrian traffic. No earth or other material shall be dumped or stockpiled on any new or existing pavement. Such material shall be kept clear of pavement areas at all times.

6.21.16. All barricades, signs, and obstructions shall be illuminated at night and all lights for this

purpose shall be kept burning from sunset to sunrise. Between the hours of sunset and sunrise the Contractor shall provide and maintain two (2) red lights (one above the other) at each barricade and such other points as are necessary to protect the traveling public. When or where there occurs any direct or indirect damage or injury to public or private property, by or on account of an act, omission, neglect or misconduct or in consequence of executing the Work, such property shall be restored by the Contractor at the Contractor's expense to a condition equal to that existing before such damage or injury was done, by repairing, rebuilding or otherwise restoring the same or the Contractor shall make good in a manner acceptable to the Contract Administrator and to the owner or owners of such property.

6.21.17. Opening of a Portion of the Work to Traffic and Acceptance of Structures. When a portion of Work is complete, that portion may be accepted and put in service when the City believes that such service will benefit the public or the City.

6.22. The Contractor shall cooperate with the Contract Administrator in protecting and preserving all cornerstones and monuments that are within the Right-of-Way of the Work or of any Public Road. The Contractor shall not start grading or other operations until the Contractor has referenced all known cornerstones, monuments, and land markers in the Work area. Monuments, cornerstones, and land markers unexpectedly encountered shall be protected, referenced and preserved.

6.22.1. When cornerstones, monuments and land markers are encountered in the performance of the Work and monument covers are not listed in the Contract Documents, the Contractor will furnish them. The Contractor will supervise the precise location and installation of the monument covers and will furnish all the labor, tools and other materials incidental to such installations.

6.22.2. The cost to the City for repair, re-determination of location and replacement of any cornerstone, monument or land marker within the Right-of-Way which is damaged, destroyed or made inaccessible during the progress of the Work by the Contractor in violation of these provisions is a charge deductible from any monies payable to him on account of the Work.

6.23. When the use of explosives is necessary for the prosecution of the Work, the Contractor shall use the highest degree of care so as not to endanger the life or property.

6.23.1. The Contractor agrees and warrants that the Contractor will observe Federal, State and local laws and ordinances and regulations relative to the use and storing of such explosives as may be used or kept on the job and all such storage places shall be marked clearly "DANGEROUS-EXPLOSIVES".

6.23.2. The attention of the Contractor is directed to the provisions of all City ordinances relative to the use, storage and transportation of explosives. A blasting permit must be obtained from the City Engineer's office prior to any blasting.

6.24. The Contractor shall adequately and suitably box, fence or otherwise protect all trees, other woody plants and vegetation that are to remain in place; and shall repair injuries to bark, trunk, limbs and roots of remaining plants by properly dressing, cutting and painting. The Contractor shall provide for safekeeping of cattle, horses, and other animals by fencing the Work site. Gates shall be locked when not in use. The Contractor shall be responsible for the loss of animals as a result of the Work.

6.25. Before doing any Work over, under or near railroad tracks, telephone, power, sewer or pipelines the Contractor shall make, at his own expense, arrangements for properly securing and protecting the utilities until the Work is completed.

6.26. All work on navigable waters shall be conducted so the free navigation of the waterways will not be interfered with, and the existing navigable depths will not be impaired.

6.26.1. In cases where Work is to be done in the bed of a navigable stream the Contractor shall advise the local U.S. Corps of Engineers of the intention to do such Work and the Contractor shall conform to such practices and regulations as the Corps of Engineers may deem necessary to protect water-borne traffic.

6.27. Within 24 hours after the occurrence of any accident or other event, which results in or might result in, injury to person(s) or property, arising out of or involves any omission or act of the Contractor or any Subcontractor or any employee or agent of either in any manner from the performance of the Contract, the Contractor shall send written report of such accident or other event to the Contract Administrator and the City's Attorney, setting forth a full and precise statement of facts pertaining thereto. The Contractor shall also immediately send to the City's Attorney a copy of any summons, subpoena, notice, or other document served upon or received by the Contractor or any Subcontractor or any agent, employee or representative of either, in connection with any matter before any court, arising out of the Contractor's Work or the performance of the Contract.

6.28. The Contractor shall cooperate with the owners and operators of all underground and overhead utility lines in the removal or rearrangement operations in order that their services may proceed in a reasonable manner, that duplication of rearrangement work may be reduced to a minimum and that services rendered by such owners and operators will not be unnecessarily interrupted.

6.28.1. In the event of intended or accidental interruption to utility services as a result of the Work, the Contractor shall promptly notify the proper authority. The Contractor shall cooperate with the said utility in the restoration of service as promptly as possible. In no case shall interruption to water service be allowed outside of working hours. Fire hydrants shall be accessible to the Fire Department at all times and no materials shall be kept or stockpiled within fifteen (15) feet of any fire hydrant.

6.28.2. The Contractor shall notify in writing the utility company and the municipal authorities that may be affected by any Work involving public utility facilities before commencing Work. Copies of all such notices shall be promptly filed with the Contract Administrator. The Contractor shall give notices for the removal or relocation of utilities in ample time. The Contractor shall locate all storm sewers, culverts, buried telephone or electrical conduits, cable television sanitary sewers, water mains, and gas mains that might interfere with the construction of the project.

6.28.3. The revision and crossings of the various types of lines shall be made as follows:

6.28.3.a. Storm sewers and culverts may be removed at the time of crossing or may be adequately braced and held in position while the pipe is placed beneath them. If the storm sewer or culvert is removed, it shall be replaced with pipe of the same type and size as that removed and it shall be re-joined to the undisturbed line with a joint satisfactory to the Contract Administrator. Backfill over the main up to and around the storm sewer shall be thoroughly compacted in order that no settlement will occur.

6.28.3.b. All overhead and buried telephone and electrical conduits, cable television and gas mains to be revised or crossed by the construction of this Project shall be protected in accordance with the directions of the utility company owning the conduits and/or mains. The Contractor shall notify the companies and obtain their permission before making any crossings or revisions. Any overhead cables, buried cables, conduits or gas mains damaged by the Contractor shall be repaired at the Contractor's expense to the satisfaction of the Contract Administrator.

6.28.3.c. The Contractor shall not remove any water or sanitary sewer lines except as directed by the Contract Administrator or as required by the Plans and Specifications and shall adequately brace and protect the lines from any damage during construction. The Contractor will repair any existing water main or sewer main or lateral line damaged by

the Contractor's operations. The repairs shall be inspected by the Inspector. The Contractor shall notify the City immediately after damaging any pipe. The repairs will be made at the Contractor's expense.

6.28.3.d. The location of utility service lines serving individual properties are not shown on the Plans and Specifications and it shall be the Contractor's responsibility to make any necessary changes in the line and/or grade of such services or to secure the necessary changes to be made by the particular utility company involved or the owner thereof or by an agent or independent contractor approved by such utility company or owner. Contractor shall pay the cost of all such revisions whether performed by the Contractor, the utility company or owner, or any contractor. In the event of interruption of a utility service as a result of accidental breakage, Contractor shall promptly notify the Contract Administrator and the owner of the utility and shall repair or cause the same to be repaired, in the same manner as necessary changes above provided. The Contractor shall do all things necessary to see that the restoration of service is accomplished as promptly as reasonably possible. All sanitary sewer service lines damaged shall be replaced as directed by the Contract Administrator regardless of type or kind of damage.

6.28.4. In the event the Contractor in any way fails to comply with the requirements of protecting, repairing and restoring of any utility or utility service, the Contract Administrator may, upon written notice, proceed to protect, repair, rebuild or otherwise restore such utility or utility service as may be deemed necessary and the cost thereof will be deducted from any money due or which may become due the Contractor pursuant to the terms of his Contract.

6.29. Necessary sanitary conveniences for the use of employees on the Work, properly secluded from public observation, shall be provided and maintained by the Contractor. The construction and location of the facility and disposal of the contents shall comply with all laws of the City and State, relating to health and sanitation regulations.

7.0 CONTRACTOR'S OBLIGATION AND RISK

7.1. The performance of the Contract and the Work is at the risk of the Contractor until the final acceptance and payment by the City. The Contractor shall take all responsibility of the Work and shall bear all losses that may arise out of the character of the Work, the nature of the land in or upon which the Work is done, whether or not it is due to the fact that the land is different from what is assumed or expected or on account of inclement weather, floods, fire, windstorm or other actions of the elements or any other cause or causes. The Contractor, at Contractor's expense, shall restore the same or remedy the damage.

7.2. Unless otherwise provided by the Plans and Specifications, all materials, supplies, machinery and equipment are warranted new, first-class, of the best of their kind and grade and all of the Work performed by Contractor shall be good, first-class and workmanlike. Contractor warrants that all machinery and equipment furnished will operate properly and perform the Work for which it was purchased. All warranties for the materials, supplies, machinery, equipment and Work herein shall survive acceptance and payment for the Work.

7.3. Unless otherwise expressly omitted, the Contractor shall perform all Work and furnish all supplies and materials, machinery, equipment, facilities and means, necessary or proper to perform and complete all the Work required by this Contract within the time herein specified and in accordance with the provisions of the Contract Documents. The Contractor shall observe, comply with, and be subject to all Terms and Conditions, requirements and limitations of the Contract and shall complete all of the Work contemplated by this Contract to the satisfaction of the Contract Administrator and the City.

8.0 CONTRACTOR TO CHECK DRAWINGS AND SCHEDULES

8.1. The Contractor shall check all dimensions, elevations and quantities shown on the Plans and

Specifications and estimates or schedules given to the Contractor by the Contract Administrator; and shall notify the Contract Administrator of any discrepancies. The Contract Administrator or Project Engineer will provide corrections, interpretations, and instructions necessary to perform the intent of the Contract and the Contractor shall carry out such instructions as if originally specified.

8.2. Figured dimensions govern. Indicated dimensions, when given on the Plans and Specifications, shall be accurately followed, even though they differ from the scale measurements. If dimensions are not indicated on the Plans and Specifications, then the Contractor shall not perform the Work until such time that the Contractor has received written instructions from the Engineer regarding the dimensions to be used.

8.3. Any Work done without being properly located and established by base lines, off-set stakes, benchmarks, or other basic reference points, which are located, established or checked by the Engineer, may be required to be removed and replaced at the Contractor's cost or expense.

9.0 DRAWINGS FURNISHED BY CONTRACTOR

9.1. The Contractor shall furnish all shop, fabrication, assembly, foundation and other Drawings required by the Plans and Specifications; Drawings of equipment and devices, offered by the Contractor for approval of the Contract Administrator, in sufficient detail to adequately show the construction and operation thereof; and Drawings depicting essential details of any changes in design or construction proposed by the Contractor in lieu of the design or arrangement required by the Contract or any item of Extra Work. The Contractor shall submit to the Contract Administrator the number of copies required by Contract Administrator of each such Drawing for the Contract Administrator's approval. After approval by the Contract Administrator, all such Drawings shall become a part of the Contract Documents and the work or equipment shown therein shall be in conformity therewith unless otherwise required by the Contract Administrator.

9.2. The Engineer's check and approval of Drawings, submitted by the Contractor, will apply to the general conformity of the Plans and Specifications and does not constitute a comprehensive approval of all of the dimensions, quantities and details of the material or equipment depicted therein; nor does such check and approval relieve the Contractor of the Contractor's responsibility for errors contained in such Drawings.

10.0 PATENT RIGHTS

10.1. All fees for any patented invention, article or arrangement that is based upon, or in any manner connected with, the construction, erection or maintenance of the Work or any part hereof embraced in this Contract and these Specifications, shall be included in the Proposal amounts in the Contract for said Work. The Contractor shall protect and hold harmless the City against any and/or all demands of such fees or claims.

11.0 MODIFICATION AND ALTERATIONS

11.1. The Contractor agrees that the City has the right to make such modifications, changes and alterations as the City may see fit in any part of the line, grade, form, arrangement, dimension, extent or in the materials to be used in or of the Work contracted to be done without affecting the validity of the Contract or the liability of the Sureties upon the performance of this Contract or the Bonds.

11.2. Where any modification, change or alteration increases the quantity of Work to be performed and is within the scope of a fair interpretation thereof, such increase shall be paid for according to the quantity of Work actually done, either at unit prices included in the Contract, or in the absence of such unit, as Extra Work. Modifications and alterations, which reduce the quantity of Work to be done, shall not constitute a claim for damages for loss of anticipated profits on the Work or materials involved in such reduction.

11.3. The Contract Administrator shall determine, on an equitable basis, the amount of credit due the City for Contract Work not performed as a result of modifications or alterations authorized hereunder where the

value of the omitted Work is not fixed by unit prices in the Contract. The Contract Administrator shall give an allowance to the Contractor for any actual loss incurred in connection with the purchase, delivery and subsequent disposal of materials and equipment required for use on the Work as actually built; and shall make any other adjustment of the Contract amount where the method to be used in making such adjustment is not clearly defined in the Contract Documents. In this respect, such determination shall be final and binding only when approved in writing by the City and/or the Contract Administrator.

11.4. All orders for modifications, changes or alterations in the Work as herein provided shall be in writing, either by the Contract Administrator or by the City Manager through the direction of the City Council. Provided, however, all orders for modifications, changes, or alterations in the Work, which increase the amount of money due the Contractor less than twenty-five thousand dollars ($25,000.00) may be approved by the City Manager, increases in excess of twenty-five thousand dollars ($25,000.00) must be approved in advance by the City Council and shall be in writing and executed by the parties in order to be binding.

12.0 SUSPENSION OF WORK ON NOTICE

12.1. The Contractor shall delay or suspend the progress of the Work or any part thereof, whenever the Contractor is required by written order of the City or Contract Administrator and for such periods of time as determined by the City. Any such order shall not modify or invalidate in any way the provisions of this Contract.

13.0 CITY'S RIGHT TO TERMINATE CONTRACT

13.1. In addition to any other right set out in the Contract Documents, the City has and retains the right to terminate the Contract, upon giving written notice to the Contractor for the following:

13.1.1. If the Contractor abandons the Work by moving equipment off-site and does not man the job for a period of five (5) working days.

13.1.2. If the Contractor assigns this Contract by a method otherwise than as herein provided.

13.1.3. If the Contractor is adjudged bankrupt.

13.1.4. If a general assignment of the Contractor's assets be made for the benefit of his creditors.

13.1.5. If a receiver should be appointed for the Contractor or any of his property.

13.1.6. If at any time the Engineer shall certify in writing to the City that the performance of the Work under this Contract is being unnecessarily delayed.

13.1.7. If at any time the Engineer shall certify in writing to the City that the Contractor is willfully violating any of the conditions or covenants of this Contract.

13.1.8. If at any time the Engineer shall certify in writing to the City that the Contractor is executing the Work in bad faith or otherwise not in accordance with the terms of this Contract.

13.1.9. If the Work be not substantially completed within the time named for its completion, or within the time to which such completion date may be extended.

13.2. The City will serve written notice upon the Contractor and their Surety of the City's intention to terminate this Contract. The notice will state that the Contract shall cease and terminate unless within five (5) working days after the notice is served, a satisfactory arrangement is made for the continuance of the Contract.

13.3. In the event of termination. the Surety shall have the right to take over and complete the Work. The

Surety must commence performance of the Contract or make a satisfactory arrangement for the continuance of the Contract within twenty (20) working days from the date of notice of termination.

13.4. If the Surety does not perform the Contract or make satisfactory arrangements for the completion of the Work within twenty (20) working days from the date of the notice of termination, the City may take over the Work and prosecute it to completion. The City may complete the Contract with a new Contractor or with its own work force. The Contractor and the Contractor's Surety shall be liable to the City for any and all excess costs sustained by the City by reason of such prosecution and completion of the Work.

13.5. In the event of termination of the Contract, the City may take possession of and utilize in completing the Work all such materials, equipment and tools as may be on site of the Work. If the City chooses not to use the materials and equipment left on site, it will notify the Contractor and the Contractor will have ten (10) working days to remove said items from the Work site. After the ten (10) working day period the remaining materials and equipment will be considered abandoned by the Contractor and will be disposed of by the City, and the Contractor will have no claim against the City for said disposal of abandoned items.

14.0 CONTRACTORS' RIGHT OF PROTEST

14.1. If the Contractor considers any work demanded to be outside the requirements of the Contract or considers any record or ruling of the Contract Administrator to be unfair, the Contractor shall immediately request the Contract Administrator provide written instructions or decisions, whereupon the Contractor shall proceed, without delay, to perform the Work in conformance with the instructions or decisions. Within ten (10) days after the date of receipt of the written instructions or decisions, the Contractor shall file a written protest with the Contract Administrator, stating clearly and in detail the basis of the objections. Except for such protest and objections made of record in the manner herein specified and within the time stated, the instructions or decisions of the Contract Administrator shall be final and conclusive. Contractor may protest and claim against the instructions and decisions of the Contract Administrator between the Plans and Specifications, and the conditions on the ground, or any errors or omissions in the Plans and Specifications, estimates, or layout as given by stakes, points, or instructions, which may be discovered in the course of the Work. The Contractor may not take advantage of any errors or omissions in the Plans and Specifications, as full instructions contained in letters transmitting Plans and Specifications to the Contractor shall be considered as written instructions or decisions. In the event the Contractor suffers actual damages as a result of the written instruction or decisions under protest for which the Contractor seeks to hold the City liable, Contractor must submit a written itemized statement of costs within thirty (30) days of the discovery of the claimed loss and allow the City access to all Contractors' records to audit the claim. Failure of Contractor to timely file the statement or to allow the audit waives any recovery for damages.

15.0 EXTRA WORK

15.1. If the Contractor does any work or furnish any materials, which are not classified under any of the terms of this Contract and are necessary in order to complete the Work under this Contract and such Work is ordered, in writing, by the Contract Administrator, the Work or materials shall be considered Extra Work. All Extra Work and any costs related thereto shall be approved by the City Council and agreed to by commencing the Extra Work.

15.2. If a modification or amendment to this Contract increases the amount of Work and the Extra Work or any part thereof is of a type and character that can properly and fairly be classified under one, or more unit price items of the Proposal, then the Extra Work shall be paid according to the amount of Extra Work actually performed and at the applicable unit price. Otherwise, such Extra Work shall be paid for as hereinafter provided.

15.3. Claims for Extra Work will not be paid unless the City authorized the Extra Work in writing. The Contractor shall not have the right to prosecute or take action in court to recover for Extra Work unless the claim is based upon a written Change Order from the City. Payments for Extra Work will be based on an agreed lump sum or on agreed unit prices whenever the City and the Contractor agree upon such prices

before the Extra Work is commenced; otherwise, payment shall be a specified percentage allowance as set forth herein.

15.4. For the purpose of determining whether Extra Work proposed will be authorized or for determining the payment method for Extra Work, the Contractor shall submit to the Contract Administrator a detailed cost estimate for proposed Extra Work. The estimate shall show itemized quantities and charges for all elements of direct cost. Charges for the Contractor's extra profit, extra general superintendence, extra field office expenses, bonds and extra overheads shall not be paid except as a percentage addition to the total estimated net cost. Unless otherwise agreed to by the parties, such percentage additions shall be ten percent (10%) of the direct costs for the Extra Work performed by the Contractor's own work forces or ten percent (10%) of the direct costs for Extra Work performed by a Subcontractor.

15.5. The payment for Extra Work will be paid as full compensation for the Contractor's and Subcontractor's extra profit, extra general superintendence, extra field office expense, extra overheads and all other elements of extra cost not defined herein as actual field cost.

15.5.1. The actual field cost shall include those extra costs for labor and materials expended in direct performance of the Extra Work and may include:

15.5.1.a. The actual payroll cost of all workmen, such as laborers, mechanics, craftsmen, and foremen.

15.5.1.b. The Contractor's or Subcontractor's net cost for materials and supplies.

15.5.1.c. Contractor owned equipment, which the Contractor has on the job site and which is of a type and size suitable for use in performing the Extra Work shall be used. The hourly rental charges for equipment shall not exceed one-half of one percent (1/2 of 1%) over the latest applicable Associated Equipment Distributors published rental rates.

15.5.1.d. The actual net rental charge for vehicles and construction equipment not owned by the Contractor or Subcontractor and are not available from the equipment of Contractor or Subcontractor.

15.5.1.e. The transportation charges for rented equipment.

15.5.1.f. The charges for extra power, fuel, lubricants, water, and special services.

15.5.1.g. The charges for extra payroll taxes, bond premiums and insurance premiums.

15.5.2. The form in which actual field cost records are kept, the construction methods and the type and quantity of equipment used shall be acceptable to the Contract Administrator and shall distinguish Extra Work and work under protest from all other work.

15.6. The Contractor shall file with the Contract Administrator, certified lists in duplicate, of any equipment and the schedule of pay rates for common and semi-skilled labor and operators of various classes, which are intended to be used in performing the Work covered by this Contract. These rates shall be subject to the approval of the Contract Administrator. This information will be used by the Contract Administrator for computation of Extra Work as mentioned above, however, if the Contractor fails to file these lists with the Contract Administrator prior to starting any Work covered by Contract, then the Contract Administrator's computation shall be based on the prevailing hourly rate of wages in the locality for each craft or type of workmen needed to execute the Contract as ascertained by the Oklahoma Labor Commissioner.

16.0 SUPERVISION AND INSPECTION

16.1. The City shall appoint or employ such Contract Administrator(s), Engineer(s) or Inspector(s) as the

City may deem proper, to examine and observe the materials furnished and the Work performed, and to see that the said materials are furnished, and that the Work is performed, in accordance with the Plans and Specifications therefore. The Contractor shall furnish all reasonable aid and assistance required by the Contract Administrator, Engineer, or Inspector, for the proper examination and observation of the Work and all parts thereof.

16.1.1. Such inspections are for the benefit of the City and shall not relieve the Contractor from any obligation to perform the Work strictly in accordance with the Contract Documents. Any work not constructed in accordance with the Contract Documents shall be removed and made good by the Contractor at his own expense, whenever so ordered by the Contract Administrator.

17.0 CONTROL OF MATERIALS

17.1. The Contract Administrator shall approve the source of supply of each of the materials incorporated into the Work before the delivery of the same is conducted. If requested by the Contract Administrator or the Laboratory representative, preliminary samples of the character and quantity prescribed shall be submitted by the Contractor or producer for examination and tested in accordance with the methods prescribed herein. Only materials proposed to be used may be inspected or tested at any time during their preparation and use. If, after testing it is found that the sources of the supplies, which have been approved, do not furnish a uniform product or if the product from any other source does not meet the Plans and Specifications at any time, the Contractor shall furnish approved materials from other approved sources. No material that has become unfit for use shall be used in the Work even if it was previously approved.

17.1.1. In order to ensure the use of suitable material, the Contract Administrator may require any or all materials to be subject to tests by means of samples or otherwise as determined by the Contract Administrator. The Contractor shall provide such facilities as the Contract Administrator may require for collecting and forwarding samples and shall not make use of or incorporate in the Work any material represented by the samples until the tests have been made and the materials found acceptable and in accordance with the requirements of the Specifications. The Contractor, in all cases shall furnish the required samples without charge.

17.1.2. Within 24 hours after receiving a shipment of material, the Contractor shall advise the Contract Administrator, in writing, of the kind, size, quantity and location thereof.

17.1.3. Where a standard American Society for Testing Materials, American Concrete Institute, American Association of State Transportation Officials or other agency designation is specified for a material, that designation shall be the current revision, either tentative or adopted. If a referenced specification is in disagreement with the Plans and Specifications, the City's Plans and Specifications shall govern.

17.1.3.a. Methods not covered in these publications shall be as approved by the Contract Administrator. In the case of agricultural seeds, samples and test methods shall be as prescribed by the United States Department of Agriculture Current Regulation Announcements.

17.1.4. All materials shall be tested by a Laboratory of good reputation, previously approved by the City. No material shall be accepted for construction unless it bears the approval of the Laboratory. Reports of tests shall be forwarded to the City. Before final acceptance of the project, all parts shall be tested and shall be found in good and proper condition or shall be placed in such condition.

17.1.5. For the verification of weights or proportions and character of materials and determinations of temperatures used in the preparation of the materials and mixtures, the Contract Administrator, Inspector and Laboratory representative shall have access at all times to all parts of all concrete plants and other plants furnishing materials for use in the Work.

17.1.6. The Contractor shall facilitate and assist in the verifications of the accuracy of all scales, measures and other devices, which the Contractor operates.

17.1.7. All sieves shall conform to the requirements of the standard specifications for sieves for Testing Purposes, ASTM Designation E11.

17.1.8. The Contractor guarantees that all materials used and all Work done under this Contract, will fully comply with the requirements of the Plans and Specifications.

17.2. Materials shall be stored in order to ensure the protection of their quality and fitness for the Work and shall be located in order to facilitate prompt inspection. All existing materials, which are listed for removal and storage during the progress of the Work shall be carefully removed and stored in the Right-of-Way, at locations determined by the Contract Administrator or at specific locations provided in the Plans and Specifications. That portion of the Right-of-Way not required for Work and travel, unless elsewhere prohibited, may be used for storage purposes and for the placing of the Contractor's plants and equipment, and any additional space required for equipment or new materials shall be provided by the Contractor at the Contractor's expense. Adequate cement storage shall be provided for at least a full day's run.

17.3. All materials not conforming to the requirements of the Plans and Specifications shall be considered defective and all such materials shall be rejected. Unless otherwise permitted by the Contract Administrator such defective materials shall be removed immediately from the site of the Work. No rejected material that has had the defects corrected shall be used until approval has been given by the Contract Administrator. The failure on the part of the Contractor to comply with any order of the Contract Administrator regarding the defective materials shall constitute cause for any defective materials to be removed and replaced and to cause the deduction of the cost of removal and replacement from any amounts due or to become due to the Contractor.

18.0 LEGAL DUTIES AND RESPONSIBILITIES TO THE PUBLIC

18.1. The Contractor warrants that the Contractor is familiar with and shall comply with all federal, state and local laws, statutes, ordinances, rules and regulations and any orders and decrees of any courts or administrative bodies or tribunals in any manner affecting the performance of the Contract, including, without limitation, Workman's Compensation laws, minimum and maximum salary and wage statutes and regulations if applicable, laws with respect to permits and licenses and fees in connection therewith, laws regarding maximum working hours and laws and regulations with respect to the use of explosives. Contractor certifies that the Project, when completed will comply, with the applicable provisions of the Department of Justice implementation plan of Title III of the Americans with Disabilities Act, Title 42 USCA § 12101-12213, as outlined in 28 CFR Part 35; and Contractor further stipulates and agrees to comply with Title VI of the Civil Rights Act of 1964, Title 78 OS § 252.42, USCA § 2000d, *et*. *seq*.; and if the Work contemplated by this Contract qualifies as a federally assisted program of the Department of Transportation Effectuation of Title VI of the Civil Rights Act of 1964, then Contractor agrees to comply with all requirements imposed by or pursuant to Title 49 CFR Part 21.

18.2. Whenever required, the Contractor shall furnish the City Attorney or the Contract Administrator with satisfactory proof of compliance with said laws, statutes, etc.

18.3. In the hiring of employees for the performance of Work under the Contract the Contractor and any Subcontractor thereunder shall not, by reason of race, color, sex, age, disability, or national origin, discriminate against any citizen of the United States in the employment of laborers or workers, who are qualified and available to perform the Work to which the employment relates.

18.3.1. No Contractor or Subcontractor, nor any person on behalf of either, shall in any manner discriminate against or intimidate any employee hired for the performance of Work under this Contract, on account of race, color, sex, age, disability or national origin.

18.4. The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices, necessary and incident to the due and lawful prosecution of the Work.

18.5. Without exception, the Bid amounts include all royalties and costs arising from patents, trademarks, and copyrights in any way involved in the Work. It is the intent hereof that whenever the Contractor is required or desires to use any design, device, material or process covered by letters patent, trademark or copyright, the Contractor shall provide for the right to such use by suitable agreement with the patentee, owner or assignee and a copy of such agreement shall be filed with the City; however, whether or not such agreement is made or filed as herein provided, the Contractor and the Surety in all cases shall indemnify and save harmless the City and any affected railroad or railway company or political subdivision from any and all claims for infringement at any time after the award of the Contract.

19.0 CONTRACTOR IS INDEPENDENT CONTRACTOR

19.1. It is expressly agreed that the Contractor is an independent Contractor and is not in any way whatsoever an agent, servant or employee of the City and the City shall in no way or under any circumstance be liable for any acts or omissions, contracts, subcontracts, or torts of said Contractor.

20.0 CONTRACTOR'S EMPLOYEES

20.1. The Contractor shall employ competent foremen, experienced mechanics, and others skilled in the several parts of the Work given them to do, for performance of the Work contemplated by this Contract; and shall promptly discharge any and all incompetent or otherwise unsatisfactory employees.

20.2. The Contractor agrees that the Contractor (and Contractor's Subcontractors, if any) will not fail or refuse to hire or discharge any individual or otherwise discriminate against any individual with respect to his compensation, terms, conditions or privileges of employees due to consideration of race, color, sex, age, or national origin, and further agrees that it will not (nor will their Subcontractors, if any) limit, segregate or classify Contractor's employees in any way which would deprive or tend to deprive any individual of employment opportunities or otherwise adversely affect Contractor's employee's status as an employee, because of such individual's race, color, sex, age, or national origin. Contractor agrees not to discriminate on the basis of disability if the prospective employee is otherwise qualified to perform the duties of the job. Contractor further agrees that this Contract may be terminated by the City in the event there shall be a violation of any of the provisions of this Section, upon notice in writing, and all claims for monies to become due pursuant to any other provisions of this Contract from the date of termination shall thereafter be forfeited, the Contractor being entitled only to monies expended and services performed and up to and including the date of termination.

20.3. All workmen must have sufficient skill and experience to properly perform the Work in a proper and skillful manner. If any workman is disrespectful, disorderly, or otherwise objectionable then that workman shall be discharged by the Contractor or Subcontractor employing such workman, upon written request of the Contract Administrator and shall not thereafter be employed on any portion of the Work without the written consent of the Contract Administrator. Should the Contractor fail to remove such workman the Contract Administrator may withhold all estimates, which are or may become due, or may suspend the Work for each day the Contractor fails to comply with this Section.

20.4. The Contractor shall not sell, sublet, or assign any portion of the Contract or Work without the written consent of the Contract Administrator and the granting of any such consent shall not relieve the Contractor of any responsibility under the Contract. The Contractor shall be responsible for the satisfactory settlement by any and all Subcontractors of all claims and obligations arising in connection with the execution of their respective portions of the Contract and for furnishing to the City, to its satisfaction, evidence thereof.

21.0 ASSIGNMENT AND SUBLETTING OF CONTRACT

21.1. The Contractor shall give attention to the fulfillment of this Contract, and shall not let, assign or transfer the Contract or any other rights, titles or interests in or to the same or any part thereof, by attorney or otherwise, or sublet any part of the Work to any other person without the prior consent of the City in writing.

21.2. Should any Subcontractor fail to perform the Work undertaken by the Subcontractor in a satisfactory manner, then the subcontract shall be immediately terminated by the Contractor upon notice from the City. The Contractor shall be fully responsible to the City for the acts and/or omissions of any Subcontractor and of persons either directly or indirectly employed by any Subcontractor, as the Contractor is for the acts and/or omissions of persons directly employed by the Contractor. Nothing contained in the Contract Documents shall create any contractual relationships between any Subcontractor and the City.

22.0. INDEMNIFICATION AND DEFENSE OF SUITS

22.1. Contractor shall indemnify and hold harmless and defend the City from any and all claims made or actions at law or in equity brought against the City or any of its officers, agents or employees for or on account of the failure, omission or neglect of the Contractor to do and perform any of the covenants, acts, matters or things by this Contract undertaken to be done or performed; or is brought for any injury(ies) or damage(s) caused by negligence or willful act of the Contractor or their Subcontractors or their agents or is brought in connection with any claim or claims based on the lawful demands of the Subcontractors, workmen, material men or suppliers of machinery and parts thereof, or against any equipment, power tools and supplies incurred in the performance of this Contract,

22.1.1. The Contractor shall indemnify and save harmless the City, its officers, agents and employees from all losses, damages, costs, expenses, attorney fees, judgments, or decrees whatever arising out of any such action or suit that may be brought as aforesaid.

22.2. Contractor shall indemnify and hold harmless and defend the City from any and all claims made or actions at law or in equity brought against the City or any of its officers, agents or employees for or on account of any and all injuries or damages alleged to have been received or sustained by any parties by reason of, or arising out of the failure of the Contractor to refill all trenches or ditches, or failure to repair all breaks or failures of said Work, which injuries or damages are alleged to have been received within one (l) year from the final acceptance of the Work hereunder.

22.2.1. Contractor further agrees to pay for any and all judgments that might be rendered against the City in any suits and actions, together with such expenses or attorney's fees expended or incurred by the City in the defense thereof. The Contractor hereby expressly waives any notice that might, by law, be required to be given to the Contractor by the City of any defect, break, settling or failure or of any other condition that might be the cause of injury or damage to any person on account of which the claim or suit was made or filed against the City, or a judgment taken for damages against the City. It is expressly agreed that the acceptance of the Work by the City shall constitute no bar against any person injured or damaged by the failure of the Contractor to perform all of his covenants and agreements hereunder from maintaining an action against the Contractor, or against City from enforcing its rights against the Contractor hereunder.

22.3. The City may suspend payments of any sum due or to become due for Work done on this Contract until such claims and/or suits, actions or proceedings are final and liability has been determined. The amount of such damage or liability shall be deducted from sums due or to become due on this Contract. The City will retain the sums mentioned above until the Contractor furnishes evidence that satisfactory settlement has been made. Any action taken by the City shall not excuse the Contractor for failure to perform this Contract or bar the City from legal action to recover from the Contractor the amount of damages or liability suffered in excess of the amount retained.

23.0 WORKER'S COMPENSATION, EMPLOYER'S LIABILITY INSURANCE, OWNER'S RISK AND LIABILITY INSURANCE AND PROPERTY INSURANCE REQUIREMENTS

23.1. The Contractor and their Subcontractors shall obtain and maintain, during the life of this Contract, Workmen's Compensation Insurance as prescribed by laws of the State of Oklahoma and Employer's Liability Insurance.

23.2. Contractor's liability insurance policies shall inure to the benefit of the Contractor as the insured and shall contain an agreement by the insurer to indemnify the Contractor against any and all actions, claims, judgments or demands for damages arising on account of injuries of whatsoever kind and character sustained by a person or persons on account of the construction of this Work or performance of the Contract by the Contractor.

23.3. Where applicable, property damage liability insurance must be endorsed for blasting, the collapse of or structural injury to any building or structure, and damage to underground property, such as wires, conduit pipes, main sewers, or other similar property.

23.4. The Contractor shall furnish an owner's liability insurance policy with the City named as an additional insured, issued by the same insurance company as the Contractor's liability coverage, which indemnifies the City and the Engineer(s) against any and all actions, claims, judgments or demands arising out of or on account of injuries of whatsoever kind and character, sustained by any person or persons on account of the construction of the Work or the performance of the Contract by the Contractor. The limits of this coverage shall be as set out in this Contract.

23.5. The Contractor shall obtain and maintain fire insurance policy with extended coverage, vandalism, and malicious mischief endorsements upon the site where the Work of this Contractor is to be done, on the completed value form, with one hundred percent (100%) co-insurance. Such insurance shall cover both building and the Contractor as their interests appear.

23.7. Contractor shall provide to the City Certificates of insurance in a form acceptable to the City and shall be filed through the Engineer prior to commencing the Work. The Contractor shall submit the Certificates in duplicate, one original policy or Certificate and one copy of proof of insurance requirements set forth above. The Certificates shall contain a provision that coverage afforded under these policies will not be canceled until at least thirty (30) days written notice has been given to the City. Partial occupancy of the project by the owner shall not affect insurance coverage.

24.0 MINIMUM INSURANCE AMOUNTS

24.1. Owners Liability Insurance minimum coverage limits shall be no less than:

Comprehensive General Liability (with Broad form GCL endorsement)	
Per Accident	$1,000,000.00
Bodily Injury, per person	100,000.00
Property Damage, per claimant	100,000.00

24.2. Public Liability, other than Automobile minimum coverage limits shall be no less than:

Personal Injury, per person	$ 100,000.00
Personal Injury, per accident	1,000,000.00
Property Damage, per person	100,000.00
Property Damage, per occurrence	1,000,000.00

24.3. Automobiles and Truck; Owner, Hired and Non-owned minimum coverage limits shall be no less than:

Personal Injury, per person	$ 100,000.00
Personal Injury, per accident	1,000,000.00
Property Damage, per person	100,000.00

Property Damage, per accident	1,000,000.00

24.4. Employers Insurance minimum coverage limits shall be no less than:

Employers Liability, per accident	$1,000,000.00
Comprehensive General Liability, per accident	1,000,000.00
Bodily Injury, per accident	1,000,000.00
Property Damage, per claimant	100,000.00

24.5. Railroad Insurance minimum coverage limits shall be no less than:
(Railroad only required when working within the railroad Right-of-Way)

General Liability per accident	$2,000,000.00
General Aggregate Limit	4,000,000.00
Automobile Public Liability Insurance, per accident	2,000,000.00

25.0 METHOD AND BASIS OF PAYMENT FOR ITEMS OF WORK

25.1. The Contractor shall be paid for all Work performed under this Contract based on the Contract Administrator's computations of as-built quantities and the Contractor's unit price or lump sum Bid per item. This payment shall be full compensation for: furnishing all supplies, materials, tools, equipment, transportation, labor and services required to do the Work; all loss or damage, because of the nature of the Work, from the action of the elements or from any unforeseen obstruction or difficulty which may be encountered in the performance of the Work and is not specifically provided; all expenses incurred by or because of any suspension or discontinuance of all or any part of the Work; and faithfully completing the Work according to the Contract Documents and the requirements of the Contract Administrator.

25.2. The Contractor, in case of unit-price items, will be paid for the actual amount of Work performed in accordance with the Plans and Specifications as shown by the final measurements.

25.2.1. All Work completed under the Contract will be measured by the Contract Administrator according to United States Standard Measurements. All longitudinal measurements for area will be made along the actual surface of the roadway and not horizontally and no deductions will be made for individual fixtures in the roadway having an area of nine (9) square feet or less. For all transverse measurements for area of base courses and pavements, the dimensions to be used in calculating the pay area shall be the neat dimensions shown on the Plans and Specifications or ordered in writing by the City. All materials, which are specified for measurement by the cubic yard "loose measurement" or "measured in the vehicle", shall be hauled in vehicles approved by the Contract Administrator and measured therein at the point of delivery on the road, unless otherwise provided in the Plans and Specifications. Approved vehicles for this purpose may be of any type or size satisfactory to the Contract Administrator provided that the body of such type that the actual contents may be readily and accurately determined. All approved vehicles must bear a plainly legible identification mark indicating the specified approved capacity. The Inspector may reject all loads not hauled in such approved vehicles.

25.3. The Contractor, in case of lump sum contracts or lump sum items in a unit price contract, will be paid for the actual amount of Work performed in accordance with the Plans and Specifications as shown by the final measurements.

25.3.1. All Work completed under lump sum items in the Contract will be determined by the Contract Administrator. Major items of work in a lump sum contract and the cost therefore will be identified at the beginning of the Work. Pay estimates will then be computed based on the portion of each item completed, as determined by the Contract Administrator. The sum of all Work completed on all items of work will constitute the basis of payment.

25.4. The City shall pay the Contractor for Extra Work in the following manner:

25.4.1. An amount to the sum of: (1) the Contractors (or Subcontractors) Direct Cost (as defined below) in performing such Extra Work and (2) ten percent (10%) thereof for all Extra Work performed pursuant to the Terms and Conditions of this Contract. Provided that payment can be authorized only to the extent authorized by law.

25.4.2. Direct Costs means and includes: (1) all payments for wages and other labor costs incurred in performing the Extra Work; (2) the cost of all materials used or consumed in performing the Extra Work and including any sales, use, or excise taxes required by law to be paid with respect to such materials being delivered to the site of the Work; (3) all taxes and insurance and bond premiums paid as a percentage of the aforesaid wages; and (4) allowances for the use of equipment in the performance of the Extra Work, at the rates set forth in the latest edition, published prior to the opening of Bids for this Contract of the Compilation of Rental Rates for Construction Equipment, prepared by the Associated Equipment Distributors. When any piece of equipment is used on any Extra Work job for three (3) days or less, the daily rates set forth in the Compilation of Rental Rates for Construction Equipment shall apply; when used for more than three (3) days and less than twenty-two (22) days, the weekly rates shall apply and when used more than twenty-one (21) days, the monthly rates shall apply. When a weekly rate is applied to a period of over seven (7) days, the rate for the excess days shall be one-seventh of the weekly rate. When a monthly rate is applied to a period of over thirty (30) days, the rate for the excess days shall be one-thirtieth (1/30) of the monthly rate.

25.4.3. If the wages paid by the Contractor for any Extra Work include any premium pay (i.e. anything over straight-time rates) for overtime, Sunday or holiday work, and the like, the amount of all such premiums shall be deducted from the Direct Costs for the purpose of calculating the aforesaid allowance of ten percent (10%). Said allowance is to cover profit and all costs of the Extra Work for which reimbursement is made, including superintendence, overhead and use of tools and equipment for which no specific allowance is made.

25.4.4. At the end of each day, the Contractor and Contract Administrator shall check and verify records of payrolls for labor furnished for Extra Work on that day. Each invoice for Extra Work shall be in form satisfactory to the Contract Administrator and shall be submitted to the Contract Administrator by the Contractor in quadruplicate. Attached to each invoice shall be the original receipted bills and invoices covering the costs of all materials, including freight and haulage charges, which are used or consumed in performing the Extra Work. An invoice for each Extra Work job shall be submitted not later than the 20th day of each month following any of the Extra Work that was actually performed. The City shall retain ten percent (10%) of all Extra-Work payments until the final completion and acceptance of the Work.

26.0 ADMINISTRATIVE COSTS AND FEES

26.1. In the event the improvements are to be paid for in cash the costs and fees for publication, engineering, filing, recording, abstracting, acquisition of easements, and City water (where available) for flushing and pipe testing shall be paid by the City unless otherwise provided for in the Contract Documents.

27.0 PAYMENTS

27.1. If the Work is progressing in a satisfactory manner on or about the first day of each month, the Engineer will prepare an estimate for a partial payment of the Work completed after receiving a written request from the Contractor by the first day of the month. An estimate for partial payment shall include items actually incorporated in the Work and may include materials acceptable to the Engineer that are delivered to the Work site, provided the Engineer is furnished duplicate copies of actual manufacturer's invoices of material to be included in the estimate. The estimate shall be submitted to the Director of Engineering and Construction who shall either authorize payment or notify the Contractor in writing of the

reason payment has been delayed or denied; this payment or notice shall be mailed no later than one month following receipt of the estimate.

27.1.1. Partial payments will be made to the Contractor in accordance with the following schedule:

27.1.1.a. In the amount of 95 percent (95%) of the value of the Work completed.

27.1.1.b. If the Contractor has performed satisfactorily and the Work is substantially complete (operational or beneficial occupancy) the withheld amount may be reduced to only that amount necessary to assure completion.

27.1.1. c. In addition to the conditions set forth in a and b above, payments will always be less any sums that may be retained or deducted by the City under the terms of any of the Contract Documents and less any sums that may be retained to cover monetary guarantees for equipment, materials or process performance.

27.1.2. The Contractor may withdraw any part, or the whole, of the amount which has been retained from partial payment to the Contractor pursuant to the terms of Contract, upon depositing with or delivery to the Director of Engineering and Construction one of the following:

27.1.2.a. United States Treasury Bonds, United States Treasury Notes, United States Treasury Bills in an amount equal to the amount of the retainage withdrawn, or

27.1.2.b. General Obligation Bonds of the State of Oklahoma in an amount equal to the amount of the retainage withdrawn, or

27.1.2.c. Certificates of Deposit in an amount equal to the amount withdrawn from the retainage from a state or national bank having its principal office in the State of Oklahoma. No retained amount shall be withdrawn, which would represent an amount in excess of the market value of the securities at the time of deposit or of the per value of such securities, whichever is lower.

27.1.3. All materials and Work included in partial payments shall become the property of the City and materials included in a partial payment shall not be removed from the Work site. However, this provision shall not be construed as relieving the Contractor of responsibility for the care and protection of the materials and Work for which payments have been made; or does it relieve the Contractor from being required to restore any damaged Work, or materials removed from the Work site by unknown parties, and it is not a waiver of any of the Terms and Conditions of the Contract.

27.2. Final payment will be made when the Work has been completed. The Engineer shall carefully measure and determine the as-built quantities of each class of Work as shown on the schedule of Bid items and such Extra Work performed by order of the Engineer. The aggregate cost of the Work done and the materials furnished shall constitute the amount due for the completed Work. All prior estimates and payments shall be subject to correction in the final estimate and payment.

28.0 RELEASE OF LIABILITY AND ACCEPTANCE

28.1. The acceptance of the final payment by the Contractor shall operate as and shall be a release to the City, its officers, agents, and employees thereof, from all claims and/or liability from the Contractor for anything done or furnished by the City relating to or affecting the Work or for any act or negligence by the City, its officers, agents, and employees relating to or affecting the Work. No person, firm, or corporation other than the Contractor as a party to this Contract will have any interest hereunder, and no claim shall be made or be valid and neither the City, its officers, agents nor employees shall be liable or be held to pay any additional money.

28.2. It shall be the duty of the Contract Administrator to determine when the Work is complete and the Contract fully performed and to recommend its acceptance by the City. The Work herein specified to be performed shall not be considered finally accepted until all the Work has been accepted by the City.

29.0 PAYMENT OR ACCEPTANCE NOT A WAIVER BY CITY

29.1. Neither acceptance by the City, the Contract Administrator or any employee of either, nor any order by the City for the payment of money or the actual payment thereof, nor any taking of possession by the City, nor the granting of any extension of time, shall operate as a waiver of any rights or powers, whether by Contract or by laws, of the City. In the event that after the Work has been accepted and final payment made, it is discovered that any part of this Contract has not been fully performed or has been done in a faulty or improper manner, the Contractor shall immediately remedy such defect. In the event that the Contractor neglects to remedy any such defect within a reasonable time after written notice thereof, the Contractor shall be liable for and shall pay to the City the costs of remedying such defect, or a sum equal to the damage caused thereby, or both, as the City may elect. The acceptance of the Work or final payment therefore shall be no bar to claim or suit against the Contractor or Surety, or both.

29.2. Upon the satisfactory completion of all Work required under the Contract, the Contract Administrator shall certify to the City, in writing, the total amount of Work performed, and compensation earned by the Contractor. No unauthorized Work shall be included or paid for. Within thirty (30) days, upon receipt of said certification, the City shall make full payment to the Contractor, less the total of all partial payments in accordance with the Terms and Conditions for final payment. Provided, however, that before making final payment of the full amount earned by the Contractor, the City may require the Contractor to furnish satisfactory evidence that the Contractor and his Subcontractors have paid all of their payrolls, bills, expenses and costs of every type and nature whatsoever connected with the performance of the Contract. The acceptance by the Contractor of final payment shall operate as a release to the City from claims and liabilities of every type and nature owing to the Contractor in connection with the performance of the Contract. The date of the Contract Administrator's approval by will be the date of acceptance of the Work.

30.0 CONTRACTOR'S OBLIGATION AFTER ACCEPTANCE

30.1. Contractor agrees, without cost other than is specially provided for in this Contract, that at any and all times during one (1) year next following the completion and final acceptance of the Work performed under this Contract and without notice from the City, to repair, fix, and or otherwise correct any defect or failure that may occur in the Work including without limitation, to refill all trenches or ditches that may sink or settle, and to repair all breaks or other failures.

31.0 CONTRACTOR’S WARRANTIES AND GUARANTIES

31.1. The Contractor warrants and guarantees that all Work, including without limitation, all materials used in the Work will conform to the Plans and Specifications and that all Work will be performed in a proper and workmanlike manner and in accordance with the Contract.

32.0 LAWS AND ORDINANCES

32.1 This Contract shall be construed under the laws of the State of Oklahoma and jurisdiction shall be in the County where the Work is performed and the Work site property is located.

32.2. The Contractor is obligated to keep fully informed of all existing and current regulations of the City, County, State and Federal laws, which in any way limit or control the actions or operations of those engaged upon the Work or affecting the materials supplied to or by it. The Contractor shall at all times observe and comply with all applicable ordinances, laws and regulations; and shall protect and indemnify the City, its officers, agents and employees against any claims or liability arising from or based on any violation of the same. All such applicable laws and ordinances are a part of this Contract as though fully set forth herein.

33.0. IMMIGRATION COMPLIANCE

33.1 Contractor shall demonstrate that he:

33.1.1 Has complied, and shall at all times during the term of this Contract, comply in all respects with all immigration-related laws, statutes, ordinances and regulations including without limitation, the Immigration and Nationality Act, as amended, the Immigration Reform and Control Act of 1986, as amended, and the Oklahoma Taxpayer and Citizen Protection Act of 2007 (Oklahoma HB 1804) and any successor laws, ordinances or regulations (collectively, the Immigration Laws"); and

33.1.2 Has properly maintained, and shall at all times during the term of this Contract, maintain any and all employee records required by the U.S. Department of Homeland Security ("DHS"), including, without limitation, properly completed and maintained Form I-9s for each of the Contractor's employees; and

33.1.3 Has verified the employment eligibility for all employees hired on or after July 1, 2008 through DHS's E-Verify system, and shall at all times continue to verify the employment eligibility of all employees hired during the term of this Contract; and

33.1.4 Has required, and will at all times during the term of this Contract, require any sub-contractor utilized, hired or sub-contracted for by Contractor for the completion or undertaking of any duties, tasks or responsibilities under this Contract, to comply the requirements and obligations imposed by the Immigration Laws and set forth in Paragraph (I), parts (a), (b) and (c), above, with regards to each of the sub-contractor's employees.

33.2. Contractor will indemnify, defend and hold harmless City against any loss, cost, liability, expense (including, without limitation, costs and expenses of litigation and reasonable attorney's fees) demands, claims, actions, causes of action, liabilities, suits, damages, including special and consequential damages that arise from or in connection with, directly or indirectly, Contractor's failure, deliberate or negligent, to fulfill its obligations and representations regarding verifying the employment eligibility of its employees and the employees of any subcontractor utilized by Contractor as set forth more fully in Paragraph 33.1 above.

34.0 NOTICES

34.1. Any notices or other communications hereunder may be given to Contractor at the address given in their Proposal, to the Surety at the office of the Attorney-in-Fact signing the Contract or at Surety's home office address on file with the Insurance Commissioner of the State of Oklahoma and to the City in care of the Contract Administrator or at such place as may be otherwise designated in writing. The personal delivery at such address or depositing in any United States mailbox regularly maintained by the Post Office, of any notice, letter or other communication to the Contractor or the City, shall be deemed sufficient service thereof, and the date of said service shall be the date of such personal delivery or mailing.

34.2. Any address may be changed at any time by an instrument in writing, executed by the Contractor or the Surety and delivered to the Contract Administrator. Nothing herein contained shall be deemed to preclude or tender inoperative the service of any notice, letter, or communication upon the Contractor personally.

35.0 SECTIONS AND PARAGRAPH CAPTIONS

35.1. The Section and paragraph captions and headings are not a part of the Contract Documents. They are included for convenience only and are not to be considered in the interpretation of the Contract Documents. Said captions and headings are mere labels, intended as aids in locating and reading the various portions of the Contract Documents.

36.0 CONTRACT BINDING ON THE PARTIES

36.1. Except as otherwise expressly limited herein, this Contract shall be binding upon the parties and their respective heirs, representatives, successors or assigns.

[The remainder of this page intentionally left blank]

SECTION IV.
GENERAL SPECIFICATIONS

DIVISION I
CONTROL OF EQUIPMENT

(General): All equipment necessary for completion of the Work contemplated under this Contract shall be in first-class operating condition and shall have been inspected and approved by the Contract Administrator before construction where the equipment is used will be permitted to begin. Thereafter, the equipment shall be maintained in first-class operating condition throughout its use for the Work under this Contract.

DIVISION II
CONSTRUCTION SPECIFICATIONS

All Work shall be accomplished in accordance with ODOT, EPA, and ODEQ regulations, AWWA Standards and City of Sapulpa Codes and Standard Construction Specifications.

DIVISION III
MATERIAL SPECIFICATIONS

All materials shall be in accordance with materials as specified in the City of Sapulpa Engineering Design Criteria and Standard Specifications.

SECTION V.
CHANGE ORDER

Change Order
No. _____

Date of Issuance:_____ Effective Date:_____

Project: Sapulpa Fire Training Center	Owner: City of Sapulpa, OK	Owner's Contract No.: COS-10118
Contract: for Construction Services		Date of Contract:
Contractor:		Notice to Proceed:

The Contract Documents are modified as follows upon execution of this Change Order:
Description:

_____

_____

_____

Attachments (list documents supporting change):

_____

_____

CHANGE IN CONTRACT PRICE:

Original Contract Price:

$ _____

[Increase] [Decrease] from previously approved Change Orders No. ____ to No. ____

$ _____

Contract Price prior to this Change Order:

$ _____

[Increase] [Decrease] of this Change Order:

$ _____

Contract Price incorporating this Change Order:
$ _____

CHANGE IN CONTRACT TIMES:

Original Contract Times: ☐Working days ☐Calendar days
Substantial completion (days or date): _____
Ready for final payment (days or date): _____

[Increase] [Decrease] from previously approved Change Orders No. ____ to No. ____ :
Substantial completion (days): _____
Ready for final payment (days): _____

Contract Times prior to this Change Order:
Substantial completion (days or date): _____
Ready for final payment (days or date): _____

[Increase] [Decrease] of this Change Order:
Substantial completion (days or date): _____
Ready for final payment (days or date): _____

Contract Times with all approved Change Orders:
Substantial completion (days or date): _____
Ready for final payment (days or date): _____

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By:_____ Engineer/Project Mgr.	By:_____ Owner	By:_____ Contractor
Date: _____	Date: _____	Date: _____

APPROVED: _____ Date: _____

Change Order

Instructions

I. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

II. COMPLETING THE CHANGE ORDER FORM

Engineer/Project Mgr. normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer/Project Mgr. has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer/Project Mgr. should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.

SECTION VI.
NOTICE TO PROCEED

SAPULPA
OKLAHOMA

NOTICE TO PROCEED

Date: _____ _____, 2025

To: Company Name
Address
City, State Zip

Project: Sapulpa Fire Training Center

You are hereby notified to commence **Work** in accordance with the **Contract** dated _____ _____, 2025, with completion date set for **000 calendar days** from the date of this Notice to Proceed authorizing the Contractor to commence work on this project.

CITY OF SAPULPA
Owner

By: _____

Title: PROJECT MANAGER

****

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by:

_____

this_____day of_____, 2025.

By: _____

Title: _____

(Please complete and return *Acceptance of Notice* as soon as possible.)

SECTION VII.
PUBLIC IMPROVEMENT CONTRACT AGREEMENT

PUBLIC IMPROVEMENT CONTRACT AGREEMENT

[Sapulpa Fire Training Center]

THIS AGREEMENT**,** made and entered into on the ____ day of _____, 2025, by and between _____, hereinafter called the Contractor, and the **City of Sapulpa, Oklahoma**, hereinafter called the Owner:

W I T N E S S E T H:

WHEREAS, the Owner has caused to be prepared, in accordance with law, certain specifications, plans, and other bidding documents for the work hereinafter described and has approved and adopted all of said bidding documents, and has caused solicitation for bids to be given and advertised as required by law, and has received sealed proposals for furnishing materials, labor and equipment for construction of the **Sapulpa Fire Training Center** public improvement project; and

WHEREAS, the Contractor, in response to said solicitation for bids, has submitted to the Owner in the manner and at the time specified, a sealed proposal in accordance with the terms of this Contract; and,

WHEREAS, the Owner, in the manner provided by law, has publicly opened, examined, and canvassed the proposals submitted and has determined and declared the above-named Contractor to be the lowest responsible bidder on the above-described project, and has duly awarded this Contract to said Contractor, and the said Contractor agrees to receive and accept the sum named in the proposal and designated below as full compensation for doing all the work contemplated and embraced in this agreement; also for all loss or damage arising out of the nature of the work aforesaid, or from the action of the elements, or from any unforeseen difficulties or obstructions which may arise or be encountered in the prosecution of the work until its acceptance by the Owner, and for all risks of every description connected with the work; also for all expenses incurred by or in consequence of the suspension or discontinuance of work, and for well and faithfully completing the work and the whole thereof, in the manner and according to the plans, specifications, and the requirements of the Project Manager and/or engineer under them, to wit:

and 00/100 DOLLARS
($0.00)

NOW THEREFORE, for and in consideration of the mutual agreements and covenants herein contained, the parties to this Contract have agreed, and hereby agree, as follows:

1. That the Contractor shall furnish all the materials, and perform all of the work in manner and form as required and provided for by the drawings, specifications, conditions and documents attached hereto and made a part hereof, and entitled:

"**Sapulpa Fire Training Center CONSTRUCTION DOCUMENTS**"

2. That the Owner hereby agrees to pay to the Contractor for the faithful performance of this Agreement in lawful money of the United States, the amount of: $0.00.

3. The Contractor shall complete all work in accordance with the terms of this Agreement with the substantial completion date set for _____ (000) calendar days from the Notice to Proceed and the final completion at _____ (000) calendar days following issuance of the Notice to Proceed authorizing the Contractor to commence work on this project. The Contractor further agrees to pay liquidated damages as provided in these documents.

4. That the Owner reserves the right to add to or subtract from the amount of work to be performed. Any revision to the work to be performed shall be negotiated.

5. That the Contractor will not undertake to furnish any materials or to perform any work not specifically authorized under the terms of this Agreement unless additional materials or work are authorized by written Change Order from the Owner and that in the event any additions are provided by the Contractor without such authorization, the Contractor shall not be entitled to any compensation therefor whatsoever.

6. That if any additional work is performed or additional materials provided by the Contractor upon authorization by the Owner, the Contractor shall be compensated therefore at the negotiated price bid and as agreed to by both parties in the execution of a Change Order.

7. That the Contractor shall perform the work and provide the materials strictly in accordance with the specifications as to quality and kind and all work and materials shall be subject to rejection by the Owner through its authorized representatives for failure to meet such requirements, and in the event of such rejection, the Contractor shall replace the work and materials without compensation therefor by the Owner.

8. The Contractor shall furnish bonds and proof of insurance as specified, which bonds and insurance must be approved by the Owner prior to issuance of the Work Order and commencement of work on the project.

9. That within 30 days of receipt of an approved payment request, the Owner shall make partial payments to the Contractor on the basis of a duly certified and approved estimate of work performed during the preceding calendar month by the Contractor, LESS the retainage provided, which is to be withheld by the Owner until all work within a particular part has been performed strictly in accordance with this Agreement and until such work has been accepted by the Owner.

10. That on completion of the work, but prior to the acceptance thereof by the Owner, the City Manager, or his/her representative shall determine if the work has been completely and fully performed in accordance with said Contract Documents; and upon making such determination said official shall make his final certificate to the City of Sapulpa.

11. That upon submission by the Contractor of evidence satisfactory to the Owner that all payrolls, material bills, and other costs incurred by the Contractor in connection with the construction of the work have been paid in full, final payment on account of this Agreement shall be made within 60 days after the completion by the Contractor of all work covered by this Agreement and the acceptance of such work by the Owner.

12. Liquidated Damages: Owner and Contractor recognize that time is of the essence of this Agreement and the Owner will suffer financial loss if the Work is not completed within the time specified in above, plus any extensions thereof allowed in accordance with the General Conditions. They also recognize the delays, expense, and difficulties involved in proving the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Owner One Thousand Dollars ($1,000.00) for each day that expires after the time specified in Paragraph 3 for completion and readiness for final payment. In addition, in the event the Work is not completed on time and more than seven late days has expired, the parties agree to a stipulated breach of contract by the Contractor entitling the Owner to pursue any and all remedies against the Contractor for all resulting and consequential damages, costs and fees, including cover costs, attorney and expert witness fees.

13. It is further mutually agreed between the parties hereto that if, at any time after the execution of this Agreement and the Surety Bond hereto attached for its faithful performance and payment, the Owner shall deem the Surety or Sureties upon such bond to be unsatisfactory or if, for any reason such bond ceases to be adequate to cover the performance of the work, the Contractor shall, at his expense, within 5 days after the receipt of notice from the Owner, furnish an additional bond or bonds in such form and amount and with such Surety or Sureties as shall be satisfactory to the

Owner. In such event, no further payment to the Contractor shall be deemed to be due under this Agreement until such new or additional security for the faithful performance of the work shall be furnished in manner and form satisfactory to the Owner.

14. The Owner and Contractor agree that any controversy or claim arising out of or relating to the Contract, or breach thereof, shall be settled by arbitration administered by the American Arbitration Association under its Construction Industry Arbitration Rules, and judgement on the award rendered by the arbitrator(s) may be entered in Creek County District Court.

IN WITNESS WHEREOF, the Mayor of the City of Sapulpa, Oklahoma has hereunto set his hand, for and on behalf of the City of Sapulpa and the Contractor has signed, or caused his name to be signed, and seal affixed by proper authority, the day and year first above written, and these presents have been executed in triplicate counterparts.

OWNER:
City of Sapulpa, a Municipal Corporation

By_____
Mayor

Approved as to form:

By _____
City Attorney

Date _____

Attest:

_____
City Clerk

Date _____

CONTRACTOR NAME:

_____
"Company Name"

By_____

_____
(Printed name and title)

Date_____

(CORPORATE SEAL) if applicable

Attest_____

_____
(Printed name and title)

Date_____

VERIFICATION

STATE OF OKLAHOMA)
) ss:
COUNTY OF CREEK)

Before me, a Notary Public, on this _____ day of _____, 20__, personally appeared _____, known to be to be the (President, Vice-President, Corporate Officer, Member, Partner, or Other: _____ of _____(Company name), and to be the identical person who executed the within and foregoing instrument, and acknowledged to me that he executed the same as his free and voluntary act and deed for the uses and purposes therein set forth.

Notary Public: _____

My Commission Expires: _____