CONTRACT DOCUMENTS
&
TECHNICAL SPECIFICATIONS

HU 2025-72

WEC 1 FLY ASH SILO
MECHANICAL CONSTRUCTION

CITY OF HASTINGS

Proposals Will Be Opened Promptly At
1:30 PM, Wednesday, August 27, 2025

Bid Submitted By: _____

HASTINGS
Nebraska

Table of Contents

CONTRACT AND SPECIFICATIONS
FOR
WEC UNIT 1 FLY ASH SILO
MECHANICAL CONSTRUCTION
FOR
CITY OF HASTINGS
HASTINGS, NEBRASKA

Contract No. HU 2025-72

I. BIDDING DOCUMENTS

Advertisement for Bids 1-2
Instruction to Bidders 3
Contact Sheet... 4
Submittal Instructions 5
Mailing Instructions 6

II. CONTRACT FORMS

Proposal 7-10
Formal Contract Agreement 11-12
Performance Bond 13-14
Insurance 15
Affidavit 16

III. TECHNICAL SPECIFICATIONS

Section 1 – General Conditions 17-36
Section 3 – General Description and Scope of Work 37-46
Section 4 – Technical Specifications 47-86
Appendix A –Site Pictures 87-92
Appendix B – Drawings 93

ADVERTISEMENT FOR BIDS

The City of Hastings, Nebraska, will receive bids for the **WEC 1 Fly Ash Silo Mechanical Construction, HU 2025-72** until 1:30 p.m. at the City of Hastings, 1228 N Denver Ave., Hastings, Nebraska, on Wednesday, August 27, 2025, at which time and place all bids will be publicly opened and read aloud. **Brief description of project: Installation of silo equipment and piping from economizer, air heater, and precipitator ash hoppers to fly ash silo in Hastings, Nebraska.** If you plan on bidding and are not already on our approved bidders list for this project, you are REQUIRED to fill out the Plan Holders Submittal Form that is located on the City website: https://www.cityofhastings.org/bids/.

The Contract Documents, including plans and specifications, are on file at the City of Hastings 1228 N Denver Avenue, Hastings, Nebraska 68901. Copies of the plans and specifications in electronic (PDF) format may be obtained by visiting the City of Hastings Website: www.cityofhastings.org/bids. A paper copy is available for $75.00, plus sales tax ($5.25), plus shipping.

Each bid shall be accompanied by a certified check, drawn on a solvent bank in the State of Nebraska, or a bid bond in an amount of not less than five percent (5%) of the total bid of all contract construction costs, made payable to the City Treasurer of the City of Hastings, Nebraska, as security that the bidder to whom the contract may be awarded will enter into a contract to build all the improvements in accordance with this notice and give bond in the sum hereinafter provided for the construction of improvements.

No bid shall be withdrawn after opening of bids without the consent of the City of Hastings, Nebraska, for a period of sixty (60) days after scheduled time of closing bids.

Time is of the essence in this contract. In evaluating bid(s) received, the City will consider the timelines of completion of prior construction contracts, existing workload of bidders and available manpower that bidder commits to the project.

The successful bidder will be required to furnish a Performance Bond in the sum of the full amount of the Contract within ten (10) days of the date of award. No additional time will be allowed the Contractor for providing the Performance Bond.

DATED AT HASTINGS, NEBRASKA, this 25th day of July, 2025.

CITY OF HASTINGS, NEBRASKA

_____

Tyler Ficken, City Clerk

Publish:
July 30, 2025
August 6, 2025

Furnish 2 proofs of publication

INSTRUCTIONS TO BIDDERS

All proposal information, including any unit price fill in sheets or other required information, shall be submitted on the proposal forms hereto attached. Copies of addenda, if any, shall be signed and attached. City of Hastings does NOT accept faxed or emailed bid returns.

Bidders shall inform themselves of all relevant matters, and, if awarded the contract, shall not be allowed any extra compensation by reason of any matter or thing concerning which such Bidder might not have fully informed himself, prior to the bidding.

The Bidder bidding on the Specifications herein, who has exceptions to those called for in the Specifications, must so state in the space provided below and/or attach a letter explaining in detail the exceptions taken to those required in the Specifications. This letter of explanation shall become a part of the bid and shall be attached hereto. Failure by the Bidder to outline his exceptions will require the successful Bidder to comply with these Specifications.

EXCEPTIONS TO SPECIFICATIONS:

_____

_____

_____

_____

_____

The City will not assume obligations resulting from losses or damages until acceptance of the equipment.

If any person contemplating submitting a bid for this contract is in doubt as to the true meaning of any part of the Specifications or other proposed contract documents, he may submit to Purchaser a written request for an interpretation thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by addendum duly issued or delivered to each person receiving a set of such documents. The Purchaser will not be responsible for any other explanation or interpretation of the proposed documents.

All addendums must be signed and attached to bid documents.

IF YOU HAVE QUESTIONS OR NEED HELP ON THESE SPECIFICATIONS

PLEASE CONTACT ANY OF THE FOLLOWING:

TECHNICAL QUESTIONS

Brandon Miller – Mechanical Engineer
1228 N Denver Ave
Hastings, NE 68901
Ph# 402-462-3653
Email: bidquestions@cityofhastings.org

GENERAL QUESTIONS OR REQUESTS

Renae Griess
Engineering Admin Assistant
Ph# 402-462-3665
Email: bidquestions@cityofhastings.org

IMPORTANT SUBMITTAL INSTRUCTIONS

ON HOW TO SUBMIT YOUR BID
FOR
CITY OF HASTINGS
WEC UNIT 1 FLY ASH SILO
MECHANICAL CONSTRUCTION
Contract No. HU 2025-72

Your bid MUST be returned by means of hand delivery, USPS, Fed-X, UPS, or other carrier. City of Hastings DOES NOT ACCEPT bids that are faxed or emailed.

ALL the following documents are TO BE SUBMITTED in your bid packet.

1. **Cover sheet with your company's name filled in**
2. **ALL addendums received – must be acknowledged and signed**
3. **Bid Bond**
4. **If Exceptions, Instructions to Bidders with any exceptions listed**
5. **Proposal Page(s)**

FAILURE TO RETURN REQUIRED BID DOCUMENTS

COULD SUBJECT YOUR BID PROPOSAL TO BE REJECTED

IMPORTANT MAILING (OR HAND DELIVERY) INSTRUCTIONS

Please address your return envelope as shown in the example below. All bids must be sealed in a properly marked envelope.

To hand deliver, please drop off between the hours of 8am – noon and 1-5pm Monday through Friday.

Your Return Address

City of Hastings
Attn: Renae Griess
1228 N Denver Avenue
Hastings, NE 68901

This Information MUST BE typed or written in the lower left hand corner of return envelope
OR SIMPLY CUT OUT AND TAPE ON YOUR RETURN ENVELOPE

✂ ✂ ✂ ✂

BID DOCUMENTS ENCLOSED
ATTN: Renae Griess
Contract No: Fly Ash Silo Mechanical Construction HU 2025-72
Bid Opens: Wednesday, August 27, 2025 @ 1:30 PM

If returning Fed-X or similar carrier, please enclose the bid in an "inner" envelope which is sealed. Please make sure BOTH envelopes are properly marked on the OUTSIDE OF THE ENVELOPE as shown in the example above.

One bid per envelope. Bid submittal via email is not allowed. Bids must be checked in to the City of Hastings prior to 1:30 pm deadline.

Proposal for WEC Unit 1
Fly Ash Silo Mechanical Construction
Contract No. HU 2025-72

TO: City of Hastings
1228 N. Denver Ave
Hastings, NE 68901

Bid Opening: Aug 27, 2025 (Wednesday)
SEALED BIDS MUST BE RECEIVED BY 1:30 P.M. AND WILL BE OPENED PROMPTLY AT THAT TIME

We, the undersigned, being familiar with all parts of these documents, being Notice to Bidders, Bid Proposal Price Sheets, Contract Document Forms, Plans and Specifications, Affidavit, Material List, and all other parts of this document, do herein submit our proposal to furnish, install, and perform all tasks required to complete said project area(s) for the total costs.

The labor portion is not subject to sales tax; however, the material portion is taxed accordingly. The project is outside of city limits and is subject to **5.5% sales tax**. See following tax rules and regulation language.

BID SECTION I: Fly Ash Silo System Construction

Item#	Description	Unit Price	Total
1	Mobilization	LUMP SUM	$
2	Labor for installation of UCC supplied equipment per the Equipment List, Project Drawings, and Scope of Work	LUMP SUM	$
3	Labor for installation of UCC supplied pipe rack, silo roof pipe tower, pipe supports, and pipe hangers per project drawings	LUMP SUM	$
4	Labor for installation of UCC supplied piping, fittings, valves and other hardware per valve list, project drawings, and scope of work	LUMP SUM	$
5	Labor for installation of COH supplied air receiver tank	LUMP SUM	$
6	Supply of materials for piping, fittings, valves for compressed air system and tie-ins to flue gas duct for vent lines	LUMP SUM	$
7	Labor for installation of piping, fittings, valves for compressed air system and tie-ins to flue gas duct for vent lines	LUMP SUM	$
8	Supply of materials for pipe insulation for ash conveyor lines, vent lines, and outdoor compressed air lines	LUMP SUM	$
9	Labor for installation of pipe insulation for ash conveyor lines, vent lines, and outdoor compressed air lines	LUMP SUM	$
10	Labor for demolition of existing piping, valves, and fittings per project drawings	LUMP SUM	$
11	Supply of materials for pipe supports, auxiliary steel, platform, ladder, and grating	LUMP SUM	$

	per Olsson design drawings		
12	Installation of pipe supports, auxiliary steel, platform, ladder, and grating per Olsson design drawings	LUMP SUM	$
13	Supply of materials for painting structural steel, utility rack, carbon steel pipe, and other unpainted equipment	LUMP SUM	$
14	Labor for painting structural steel, utility rack, carbon steel pipe, and other unpainted equipment	LUMP SUM	$
15	Sales Tax	*(For Option 1 Contractors only) Sales Tax on materials of the above items	$
TOTAL SECTION I			
			$
In Words			

BID SECTION II: Fly Ash Silo System Start-Up Support

Item#	Description	Unit Price	Total
1	Labor for start-up support provide a daily rate and expected number of crew members needed	LUMP SUM per day	$

Note: Material and Labor for building wall penetrations and seals, equipment base grouting, touch-up painting, all testing and NDE, and all other labor and materials not explicitly called out in proposal shall be subsidiary to line items listed in proposal.

Liquidated Damages: The Contractor shall pay a fee of $500.00 per working day for failure to deliver the work before the specified dates in accordance with Section 1.806 – Liquidated Damages of Section 1 – General Conditions.

Substantial Completion Date: November 20, 2025
Project Completion Date (including system checkout and startup): December 3, 2025

Note: Unit prices shall prevail in the case of potential mathematical discrepancies.

Proposal for WEC Unit 1
Fly Ash Silo Mechanical Construction
Contract No. HU 2025-72

The labor portion is not subject to sales tax; however, the material portion is taxed accordingly. See following tax rules and regulation language.

For purposes of sales/use tax, this project falls under Nebraska Sales and Use Tax Regulation 1-017 for Contractors. By definition, a contractor is "any person who repairs property annexed to, or who annexes property to, real estate, including leased property, by attaching building materials to the annexed property or improvement being built or repaired, or who arranges for annexation of property." Please refer to www.revenue.nebraska.gov/salestax.html for additional information.

For calculating this proposal:

- All contractors are to include sales/use tax on materials in the bidder's prices, if applicable.
- **Option 1 contractors must separately state materials, sales tax, labor, and other charges on all invoices for the project. Any invoices submitted that do not include this required breakdown of the charges will not be accepted for payment. (This requirement does not apply to Option 2 or 3 contractors.)**
- The sales/use tax rate on building materials is 7.0% for projects within Hastings' city limits and 5.5% for projects outside of city limits.
- Contractor labor charges for this proposal are not subject to sales/use tax per the Nebraska Department of Revenue Notice to Contractors effective October 1, 2007.
- In submitting this bid, the bidder certifies that he will comply with all applicable laws, ordinances, and codes of the City of Hastings and the State of Nebraska.
- For this project, Contractor will supply all materials.

What contractor option have you registered with the Nebraska Department of Labor (must select one)? Please refer to https://dol.nebraska.gov for additional information.

Option 1 _____

Option 2 _____

Option 3 _____

Is Nebraska Sales/Use Tax included in the above prices.

Yes _____ No _____

(ALL COSTS TO INCLUDE CITY AND STATE SALES TAX)

The undersigned bidder agrees to furnish the required performance bond and to enter into a contract within ten (10) days after acceptance of the Proposal and further agrees to complete all work covered by the foregoing Proposal in accordance with specified requirements.

Exceptions: No ☐ Yes ☐ (If yes, list on ***"Instructions to Bidders"*** page)

Proposal for WEC Unit 1
Fly Ash Silo Mechanical Construction
Contract No. HU 2025-72

Any modification of bid proposal will be considered non-conformance of the bid. All exceptions to the proposal shall be noted as an exception to the bid.

City of Hastings may at its own discretion delete any project area and / or component prior to award of contract. City of Hastings will award all bid sections to one contractor.

In submitting this proposal, it is further understood that the City of Hastings reserves the right to reject any or all proposals and may waive any informalities and may accept the proposal which best suits its needs. It is further understood that this proposal may not be withdrawn for a period of sixty days (60) days after bids are opened.

All bid documents, including proposals, bid bonds, subcontractor designation, etc., must be submitted with original signatures. No copies will be accepted.

OFFICIAL NAME & ADDRESS

Firm Name	Signature
Address	Typed or Printed Name
City, State, Zip	Title
Phone No.	Date
Fax No.	Email Address

ALL BIDS MUST BE CHECKED IN TO THE CITY OF HASTINGS PRIOR TO 1:30 PM DEADLINE

AGREEMENT

THIS AGREEMENT, made and entered into this __ day of _____, 2025, by and between the City of Hastings, Party of the First Part, hereinafter called the "Purchaser" or "City", and _____of (town) _____ in the State of _____, Party of the Second Part, hereinafter called the "Contractor".

WITNESSETH: THAT,

WHEREAS: The Purchaser has caused the necessary contract documents to be prepared for defining material, equipment, and/or labor to be supplied to the City of Hastings and delivered complete as specified in the accompanying contract documents.

WHEREAS: The Purchaser has advertised for bids from Contractors, has received said bids, analyzed same and duly awarded a contract to the "Contractor", "Party of the Second Part", for material, equipment, and/or labor as hereinafter set forth and as stated more in detail in the Proposal and related contract documents to wit; Notice to Bidders, Instructions to Bidders, Specifications; all of which documents are attached hereto and made a part of this Contract.

NOW, THEREFORE: It is hereby agreed that for the sum of_____. ($ _____)

to be paid by the Purchaser, within Thirty (30) days after the acceptance of material, equipment, and/or labor by the Purchaser, to the Contractor, the Contractor agrees to furnish all materials, equipment, and/or labor as required by the accompanying specifications, and the aforesaid contract documents, for **HU 2025-72 Fly Ash Silo Mechanical Construction.**

All materials, equipment, and/or labor shall be in accordance with the accompanying contract documents and specifications which are as much a part of this Agreement as if repeated verbatim herein.

It is further agreed that the Contractor will start work promptly, furnish the necessary drawings promptly and complete the work in the number of days set forth in the Proposal.

IN WITNESS WHEREOF: The Parties of the First and Second Parts have hereto set their hands and seals on the day and year above written.

CITY OF HASTINGS
Party of the First Part

By: _____

Date: _____

ATTEST:

_____
City Clerk

CONTRACTOR
Party of the Second Part

SEAL _____

By: _____

Title: _____

Date: _____

APPROVED TO FORM:

_____
City Attorney

Note: If executed by one other than President, Partner or the individual Owner, a Power-of-Attorney authorizing execution should accompany this Contract.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, the undersigned, _____,
as principal, and _____,
a corporation organized and existing under the laws of the State of _____,
and duly authorized to transact business in the State of Nebraska, as surety are held and firmly bound unto the CITY OF HASTINGS, NEBRASKA, a municipal corporation organized and existing under the laws of the State of Nebraska, hereinafter referred to as CITY, in the penal sum of _____ Dollars ($_____),
lawful money of the United States, for the payment of which will and truly be made, we the said principal and the said surety do hereby bind ourselves, our heirs, executors, administrators and assigns, jointly and severally, by these presents as follows:

The condition of this obligation is such that, whereas the principal, by an instrument in writing attached hereto and bearing the date of _____, 20____, has agreed with the CITY to do all work necessary and to furnish all labor, materials, supplies, tools and equipment to

_____

_____

_____

as specified thereby and in the specifications, proposals and contract forming the Contract Documents attached thereto and made a part hereof:

NOW THEREFORE, if the principal shall well and truly in good, sufficient and in a workmanlike manner, and to the satisfaction of the CITY perform and complete the work required, and shall defend, indemnify and save harmless the CITY against all damages, claims, demands, expenses and charges of every kind (including claims of patent infringement) arising from any act, omission or neglect of said principal, his agents, servants or employees, with relation to said work, and shall pay all costs, charges, rentals and expenses for labor, materials, supplies and equipment and deliver the said improvement to the CITY completed and ready for operation and free from all encumbrances or claims for labor, materials or otherwise, and shall pay all other expenses lawfully chargeable to the CITY, and this bond shall also be for the use and benefit of all persons who may perform any work or labor or furnish any material in the execution of said Contract and may be

sued on thereby in the name of any such party claiming the benefit hereof, then this obligation shall be void, otherwise the same shall remain in full force and effect. This obligation shall be in full force and effect for the full guarantee period provided in the specifications contained herein.

PROVIDED FURTHER, that 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 the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any change, extension of time, alteration or addition to terms of the Contract, to the work or to the specifications.

PROVIDED FURTHER, that if the principal of his, their or its subcontractor or subcontractors fail to duly pay for any labor, materials team, hire sustenance, provisions, provender or any other supplies or materials used or consumed by such contractor of his, their or its subcontractors in performance of the work contracted to be done, the surety will pay the same in any amount not exceeding the sum specified in the bond together with interest as provided by law.

IT WITNESS WHEREOF, said principal and surety have hereunto set their hands and seals at _____ this _____ day of _____, 20____,

This Bond is executed in triplicate counterparts.

_____
Principal

_____
Street Address

(SEAL)

_____ _____
Witness City, State, Zip

_____
Name of Person Executing

_____
Surety

ATTEST:

_____ By: _____
_____ Title: _____

INSURANCE COVERAGE

The undersigned hereby certifies that Workmen's Compensation, Public Liability and Property Damage, and Automobile Liability and Property Damage Insurance is in force and effect in accordance with the requirements contained in "Instruction To Bidders" which is a part of this document "Bid Proposal And Specifications". We further agree to give ten (10) days notice to the Public Power Generation Agency before effective date of cancellation or reduction of any of the above coverage.

This Insurance Coverage applies only to _____

_____

Dated _____

_____
SUPPLIER

By _____

Title_____

Date _____

_____
INSURANCE COMPANY

By_____

Title_____

Address_____

_____

Date_____

A F F I D A V I T

State of Nebraska)
) ss.
County of Adams)

I _____ , _____
Name Title

of _____
Firm Name

do hereby certify that all subcontractors, vendors, persons or firms who have furnished labor or material for the _____

_____

_____

have been fully paid and that all taxes have been paid.

_____
Signature

_____
Date

Subscribed and sworn to me this _____ day of _____, 20_____

_____
Notary Public

My commission expires _____.

A signed and notarized copy of affidavit must be in City of Hastings file before final payment may be made.

Copy of forms will be supplied by City of Hastings prior to final payment.

SECTION 1 - GENERAL CONDITIONS

GENERAL CONDITIONS

GC.1 Contract Documents

It is understood and agreed that the Notice to Bidders, Instructions to Bidders, Proposal, Proposal Data, Contract Agreement, Performance Bond, Payment Bond, General Conditions, Special Conditions, Specifications, Drawings, Addenda, and Change Orders issued by the Purchaser or the Engineer, and specifications and engineering data furnished by the Contractor and accepted by the Purchaser, are each included in this Contract and the work shall be done in accordance therewith.

GC.2 Definitions

Words, phrases, or other expressions used in these contract documents shall have meanings as follows.

1. "Contract" or "contract documents" shall include the items enumerated above under CONTRACT DOCUMENTS.
2. "Purchaser" shall mean the City of Hastings named and designated in the Contract Agreement as "Party of the First Part," and their duly authorized agents. All notices, letters, and other communication directed to the Purchaser shall be addressed and delivered to:

   City of Hastings
   1228 North Denver Avenue
   P.O. Box 398
   Hastings, Nebraska 68902-0289
   Attention: Brandon Miller
   Mechanical Engineer

3. "Contractor" shall mean the corporation, company, partnership, firm or individual named and designated in the Contract Agreement as the "Party of the Second Part," who has entered into this Contract for the performance of the work covered thereby, and its, his, or their duly authorized representatives.
4. "Subcontractor" shall mean and refer only to a corporation, partnership, or individual having a direct contract with the Contractor for performing work covered by these contract documents.
5. "Engineer" shall also refer to City of Hastings as the purchaser.
6. "Date of contract," or equivalent words, shall mean the date written in the first paragraph of the Contract Agreement.
7. "Day" or "days," unless herein otherwise expressly defined, shall mean a calendar day or days of 24 hours each.
8. "The work" shall mean the equipment, supplies, materials, labor, and services to be furnished under the contract and the carrying out of all obligations imposed by the contract documents.

9. "Drawings" or "plans" shall mean all (a) drawings furnished by the Purchaser as a basis for proposals, (b) supplementary drawings furnished by the Purchaser to clarify and to define in greater detail the intent of the contract drawings and specifications, (c) drawings submitted by the successful bidder with his proposal, provided such drawings are acceptable to the Purchaser, (d) drawings furnished by the Purchaser to the Contractor during the progress of the work, and (e) engineering data and drawings submitted by the Contractor during the progress of the work, provided such drawings are acceptable to the Engineer.

10. Whenever in these contract documents the words "as ordered," "as directed," "as required," "as permitted," "as allowed," or words or phrases of like import are used, it shall be understood that the order, direction, requirement, permission, or allowance of the Purchaser or Engineer is intended only to the extent of judging compliance with the terms of the contract; none of these terms shall imply that the Purchaser or the Engineer has any authority or responsibility for supervision of the Contractor's forces or construction operations, such supervision and the sole responsibility therefor being strictly reserved for the Contractor.

11. Similarly the words "approved," "reasonable," "suitable," "acceptable," "proper," "satisfactory," or words of like effect and import, unless otherwise particularly specified herein, shall mean approved, reasonable, suitable, acceptable, proper, or satisfactory in the judgment of the Purchaser or Engineer, to the extent provided in (10) above.

12. Whenever in these contract documents the expression "it is understood and agreed" or an expression of like import is used, such expression means the mutual understanding and agreement of the parties executing the Contract Agreement.

13. "Official acceptance" shall mean the Purchaser's written acceptance of all work performed under this Contract, based on the Engineer's final inspection and issuance of a final payment certificate.

14. “Project completion” shall mean that the Fly Ash Silo is ready for operation. The project construction completion date is at the end of day, November 20th, 2025 with the silo ready for operation on December 3rd, 2025.

15. “Final Acceptance” shall mean that all work has been completed in accordance with these specifications, the project has been walked down, punch list items have been completed, and Purchaser is ready to accept the Work as complete.

16. “Stop Work Order” shall mean that the Purchaser will provide a written order to the Contractor requiring the Contractor to stop all, or any part of, the work called for by this Contract, for a time defined by the order. The order shall specify the reasoning for the suspended work, which may include, but are not limited to, engineering considerations, changes to the

project scope, safety or environmental concerns, or other issues detrimental to the project. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order. As soon as practical, the Purchaser and Contractor shall discuss the impacted activities, schedule, materials, labor, and equipment. If applicable, Purchaser and Contractor will seek to negotiate an equitable adjustment in the schedule, Contract price, or both, and the contract shall be modified, or a change order issued, as necessary. Upon any agreement and finalization of commercial conditions, Purchaser to provide written order to cancel the stop work order.

GC.3 Execution of the Contract

Once the bids have been evaluated, the Purchaser will electronically submit the Contract Agreement to the Contractor. The Contractor shall sign the Contract Agreement and return to Purchaser for the final approval process. Upon final approvals, the Contract Agreement will be signed by the Purchaser and electronically returned to the Contractor. Contractor shall then mail one hardcopy of required bonds, one electronic or hardcopy of insurance documents, and one electronic or hardcopy of power of attorney forms to the Purchaser. The date of contract on the bond forms and power of attorney forms shall match the date provided on the Contract Agreement by the Purchaser.

The Purchaser will review the final documents and electronically send a final conformed contract to the Contractor.

GC.4 Legal Addresses

The business address of the Contractor listed in the Proposal is hereby designated as the place to which all notices, letters, and other communication to the Contractor will be mailed or delivered. The address of the Purchaser appearing in section GC.2 is hereby designated as the place to which all notices, letters, and other communication to the Purchaser shall be mailed or delivered. Either party may change his address at any time by an instrument in writing delivered to the Engineer and to the other party.

GC.5 Scope and Intent of Contract Documents

The various parts of the contract documents are intended to supplement but not necessarily duplicate each other. Any work exhibited in one part and not in another shall be executed as if it had been set forth in all parts, so that the work will be performed according to the complete design as determined by the Engineer.

Should anything necessary for a clear understanding of the work be omitted from the contract documents, or should the requirements appear to be in conflict, the Contractor shall secure written instructions from the Engineer before proceeding with the work affected thereby. It is understood and agreed that the work shall be performed according to the true intent of the contract documents.

GC.6 Independent Contractor

The relationship of the Contractor to the Purchaser shall be that of an independent contractor.

GC.7 Assignment

The Contractor shall not assign the work, or any part thereof, without the previous written consent of the Purchaser, nor shall he assign, by power of attorney or otherwise, any of the money payable under this Contract unless written consent of the Purchaser has been obtained. No right under this Contract, nor claim for any money due or to become due hereunder shall be asserted against the Purchaser, or persons acting for the Purchaser, by reason of any so-called assignment of this Contract or any part thereof, unless such assignment has been authorized by the written consent of the Purchaser. In case the Contractor is permitted to assign moneys due or to become due under this Contract, the instrument of assignment shall contain a clause subordinating the claim of the assignee to all prior liens for services rendered or materials supplied for the performance of the work.

GC.8 Oral Statements

It is understood and agreed that the written terms and provisions of this agreement shall supersede all oral statements of representatives of the Purchaser, and oral statements shall not be effective or be construed as being a part of this Contract.

GC.9 Reference Standards

Reference to the standards of any technical society, organization, or association, or to codes of local or state authorities, shall mean the latest standard, code, specification, or tentative standard adopted and published at the date of taking bids, unless specifically stated otherwise.

GC.10 Source of Materials

To the extent possible, materials, and equipment (including components thereof) furnished under these specifications shall be produced, processed, manufactured, and assembled within the United States of America. Substitution of foreign materials for domestic materials will not be permitted unless such substitution is clearly stated in the Proposal and accepted by the Purchaser.

GC.11 Contractor to Check Drawings and Lists

The Contractor shall check all dimensions, elevations, and quantities indicated on the drawings and lists furnished to him by the Engineer. The Contractor shall notify the Engineer of any discrepancy between the drawings and the conditions at the site, or any error or omission in the drawings, or in the layout as given by stakes, points, or instructions, which he may discover in the course of the work. The Contractor will not be allowed to take advantage of any error or omission in the drawings or other contract documents that a reasonable inspection of them by Contractor would reveal. Full instructions will be furnished by the Engineer should such error or omission be discovered, and the Contractor shall carry out such instructions as if originally specified.

GC.12 Figured Dimensions to Govern

Dimensions and elevations indicated on the drawings shall be accurately followed even though different from scaled measurements. No work indicated on the drawings, the dimensions of

which are not indicated, shall be executed until necessary dimensions have been obtained from the Engineer.

GC.13 No Waiver of Rights

Neither the inspection by the Purchaser or Engineer or any of their officials, employees, or agents, nor any order by the Purchaser or Engineer for payment of money, or any payment for, or acceptance of, the whole or any part of the work by the Purchaser or Engineer, nor any extension of time, nor any possession taken by the Purchaser or its employees, shall operate as a waiver of any provision of this Contract, or of any power herein reserved to the Purchaser, or any right to damages herein provided, nor shall any waiver of any breach in this Contract be held to be a waiver of any other or subsequent breach.

GC.14 Authority of the Engineer

To prevent delays and disputes, and to discourage litigation, it is agreed by the parties to this Contract that the Engineer shall determine the quantities of work which are to be paid for under the contract and shall resolve all questions in relation to the work.

If, in the opinion of the Contractor or the Purchaser, a decision made by the Engineer is not in accordance with the meaning and intent of the contract, either party may file with the Engineer and the other party to the contract, within 30 days after receipt of the decision, a written objection to the decision. Failure to file an objection within the allotted time will be considered acceptance of the Engineer's decision and the decision shall become final and conclusive.

The Engineer's decision and the filing of the written objection thereto shall be a condition precedent to the right to request arbitration or to start action in court.

It is the intent of this agreement that there shall be no delay in the execution of the work and the decision of the Engineer as rendered shall be promptly observed.

GC.15 Engineering Inspection

The Purchaser may appoint (either directly or through the Engineer) such inspectors as the Purchaser deems proper to inspect the work for compliance with the contract documents. The Contractor shall furnish all reasonable assistance required by the Engineer, or inspectors, for the proper inspection of the work. Should the Contractor object to any interpretation of the contract by an inspector, the Contractor may make written appeal to the Engineer for a decision.

Inspectors shall have the authority to reject work which is unsatisfactory, faulty, or defective or does not conform to the requirements of the contract documents. Inspection shall not relieve the Contractor from any obligation to construct the work strictly in accordance with the contract documents.

Upon the failure of the Contractor or its Subcontractors to comply with any of the requirements of this Contract (but not limited to quality or safety), the Purchaser shall have the authority to stop any portion of the work affected by such failure until such failure is

remedied. If the Purchaser issues a Stop Work Order, the Purchaser shall not be liable for any costs or expenses claimed by Contractor arising out of such issuance. The construction schedule shall not be delayed or extended as a result of the Purchaser's issuance of a Stop Work Order.

GC.16 Contractor Default

If the work to be done under this Contract is abandoned by the Contractor; or if this Contract is assigned by him without the written consent of the Purchaser; or if the Contractor is adjudged bankrupt; or if a general assignment of his assets is made for the benefit of his creditors; or if a receiver is appointed for the Contractor or any of his property; of if at any time the Engineer certifies in writing to the Purchaser that the performance of the work under this Contract is being unnecessarily delayed, that the Contractor is violating any of the conditions of this Contract, or that he is executing the same in bad faith or otherwise not in accordance with the terms of said contract; or if the work is not substantially completed within the time named for its completion or within the time to which such completion date may be extended; then the Purchaser may serve written notice upon the Contractor and his surety of the Purchaser's intention to terminate this Contract. Unless within 5 days after the serving of such notice, a satisfactory arrangement is made for continuance, this Contract shall terminate. In the event of such termination, the surety shall have the right to take over and complete the work, provided that if the surety does not commence performance within 30 days, the Purchaser may take over and prosecute the work to completion, by contract or otherwise. The Contractor and his surety shall be liable to the Purchaser for all excess cost sustained by the Purchaser by reason of such prosecution and completion. The Purchaser may take possession of, and utilize in completing the work, all materials, equipment, tools, and plant on the site of the work.

GC.17 Beginning, Progress, and Completion of the Work

The time of completion is a basic consideration of this Contract. Unless otherwise specified in these contract documents or advised by written order of the Purchaser, the Contractor shall begin work within 10 days after the date of contract. The work shall be prosecuted to completion in accordance with the specified schedule, subject to adjustment as provided in these contract documents.

A detailed construction schedule shall be prepared by the Contractor and submitted to the Purchaser for review. The schedule shall contain the various activities required to perform the work and the dates the activities will be started and completed in order to complete the work in accordance with the specified schedule requirements. The Contractor is responsible for determining the sequence and time estimates of the detailed construction activities. However, the Purchaser reserves the right to require the Contractor to modify any portion of the schedule the Purchaser determines to be impracticable or unreasonable; as required to coordinate the Contractor's activities with those of other contractors, if any, engaged in work for the Purchaser on the site; to avoid undue interference with the Purchaser's operations; and to assure completion of the work by the date or dates stipulated. Upon acceptance by the Purchaser of the Contractor's detailed construction schedule, the Contractor will be responsible for maintaining such schedule.

If at any time the Contractor's work is behind schedule, he shall immediately put into effect definite procedures for getting the work back on schedule. The procedures shall be subject to review and modification by the Purchaser.

GC.18 Hindrances and Delays

The Contractor expressly agrees that in undertaking to complete the work within the time specified, he has made allowances for all hindrances and delays which might usually be expected to occur in performing the work. No claims shall be made by the Contractor for such hindrances and delays.

If the Contractor experiences hindrances and delays which, in his opinion, are not usually to be expected in the performance of the work and which affect the performance of the work, he may request a change in the contract. Such hindrances and delays may include, but not be limited to, acts or failure to act by the Purchaser or other contractors employed by the Purchaser, fires, floods, labor disputes, epidemics, or acts of God. Such hindrances and delays shall not include rain, snow, or other non-severe inclement weather. Claims by the Contractor for any change in the contract due to such hindrances and delays shall be made in accordance with the requirements of Article GC.22, CHANGES TO THE CONTRACT. The Contractor shall use all reasonable means to minimize the extent of the delay.

GC.19 Suspension of Work

The Purchaser reserves the right to suspend and reinstate execution of the whole or any part of the work without invalidating the provisions of the contract. Suspension or reinstatement of the work will be by written notice to the Contractor from the Purchaser.

Suspension of work shall not automatically entitle the Contractor to additional compensation or a change in the contract time; however, the Contractor will be reimbursed for real and unavoidable direct costs incurred by him as a result of such suspension and/or the contract will be extended as required to compensate for any delay due to such suspension. Claims by the Contractor for change of contract time or an adjustment of the contract price, due to work suspensions ordered by the Purchaser shall be made in accordance with the requirements of Article GC.22, CHANGES TO THE CONTRACT. The Contractor shall use all reasonable means to minimize the consequences of such suspension.

GC.20 Cancellation of Work

The Purchaser reserves the right to cancel the unshipped portion of the work by giving written notice to the Contractor. In the event of cancellation, the Purchaser will pay the Contractor reasonable and proper cancellation costs.

Cancellation of the work shall not constitute the basis for a claim for damages or loss of anticipated profits.

The Contractor shall, after consultation with the Purchaser, take all reasonable steps to minimize the costs related to cancellation. The Contractor shall provide the Purchaser with an accounting of costs claimed, including adequate supporting information, and the Purchaser may, at its expense, audit the claimed costs and supporting information.

GC.21 Modifications

The Contractor shall modify the work whenever so ordered by the Purchaser and such modifications shall not affect the validity of the contract. Modifications may involve changes in the amount of the work to be performed or changes in the contract time for which appropriate changes to the contract will be made.

Contract changes due to modifications shall be made in accordance with the requirements of Article GC.22, CHANGES TO THE CONTRACT.

GC.22 Changes to the Contract

The contract may be changed only by duly executed change orders issued by the Purchaser.

If, in the opinion of the Purchaser or the Contractor, any event or action by the other party justifies a change in the contract, either party shall initiate with the other party, within 5 days after such event or action, a request for a change to the contract. All documentation required to substantiate the proposed change shall be submitted within a minimum reasonable time after initiating the request for change. Upon the parties reaching agreement regarding the proposed change, the Purchaser will issue a written change order therefor.
Notwithstanding the foregoing provisions requiring duly authorized change orders, in the event agreement has been reached between authorized representatives of the parties regarding the change in the contract pending processing of such change order, the Contractor shall proceed with the work on the basis of written interim authorization from the Purchaser.

If the Contractor claims that any instruction, request, drawing, specifications, or other directive or action of the Purchaser or the Engineer constitutes a change in the contract, but has not been authorized as such by a change order in writing by the Purchaser, the Contractor shall immediately request a written interim authorization and proceed without delay to perform the work in accordance with such authorization. The Contractor shall provide written notice of the claim or dispute to the Engineer and the Purchaser within 5 days of the request for interim authorization. The Contractor's failure to give said written notice within the 5 day period shall constitute a waiver and relinquishment of any such claim or dispute. The Purchaser's written interim authorization shall not constitute approval of the claim for increased or decreased work, but shall be a condition precedent to the Contractor's right to receive payment for such work and to the Contractor's right to prosecute or maintain any proceeding to recover for such work.

GC.22.1 Contract Price Changes

The contract price may be changed due to modifications which involve extra work or decreased work; or due to work suspensions, hindrances, and delays over which the Contractor has no control. Claims for changes in the contract price shall conform to the requirements specified herein.

GC.22.1.1 Increased Price

If a change in the contract is required due to work suspensions or hindrances and delays, the contract price will be increased according to agreed lump sums, agreed acceleration costs, or

other demonstrable costs submitted by the Contractor and substantiated to the satisfaction of the Purchaser.

If a change in the contract price is required due to a modification which increases the amount of the work, and the added work or any part thereof is of a type and character which can properly and fairly be classified under one or more unit price items of the contract, then the contract price will be increased according to the amount actually done and at the applicable unit price. Otherwise, such work shall be paid for as herein-after provided.

Contract price changes for modifications involving extra work will be based on agreed lump sums or on agreed unit prices whenever the Purchaser and the Contractor agree upon such prices before the extra work is started; otherwise, payments for extra work will be based on actual direct cost plus the specified percentage allowance.

For the purpose of determining whether proposed extra work will be authorized, or for determining the payment method for extra work, the Contractor shall submit to the Engineer, upon request, a detailed cost estimate for proposed extra work. The estimate shall indicate itemized quantities and charges for all elements of direct cost. Charges for the Contractor's and subcontractor's extra profit, extra general superintendence, extra field office expense, and extra overheads shall be indicated as a percentage addition to the total estimated direct cost. Unless otherwise agreed upon by the Contractor and the Purchaser, such percentage additions shall be 15 percent for the extra work performed by the Contractor's own forces or 20 percent for extra work performed by a subcontractor.

When payment for extra work is based on actual direct cost, the Contractor will be paid the actual direct cost plus an allowance of 15 percent if the extra work is performed by the Contractor's own forces or 20 percent if the extra work is performed by a subcontractor. The allowance will be paid as full compensation for the Contractor's and sub-contractor's extra profit, extra general superintendence, extra field office expense, extra overheads, and all other elements of extra cost not defined herein as actual direct cost.

The actual direct cost shall include only those extra costs for labor and material expended in direct performance of the extra work and may include the following.

a. The actual payroll cost of all workmen such as laborers, mechanics, craftsmen, and foremen.

b. The Contractor's or subcontractor's net cost for materials and supplies.

c. The rental charge for vehicles and construction equipment.

d. The transportation charges for equipment.

e. The charges for extra power, fuel, lubricants, water, and special services.

f. The charges for extra payroll taxes, bond premiums, and insurance premiums.

The form in which actual direct cost records are kept, the construction methods, and the type and quantity of equipment used shall be acceptable to the Engineer.

Construction equipment which the Contractor has on the jobsite 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 1/2 percent of the latest applicable monthly rental rates as published by Dataquest Incorporated in its "Rental Rate Blue Book" and shall apply to only the actual time the equipment is used in performing the extra work.

When extra work requires the use of equipment which the Contractor does not have on the jobsite, the Contractor shall obtain the concurrence of the Engineer before renting or otherwise acquiring additional equipment. The rental charges for the additional equipment shall not exceed the latest applicable "Rental Rate Blue Book" published rental rates.

GC.22.1.2 Decreased Price

If a change in the contract price is required due to a modification which decreases the amount of work, such decrease shall not constitute the basis for a claim for damages or anticipated profits on work affected by such decrease. Where the value of omitted work is not covered by applicable unit prices, the Engineer shall determine, on an equitable basis, the amount of:

a. Credit due the Purchaser for contract work deleted as a result of an authorized change,

b. Allowance to the Contractor for any actual loss incurred in connection with the purchase, delivery, and subsequent disposal of materials or equipment required for use on the work as planned and which could not be used in any part of the work as actually built, and

c. 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.

Unless otherwise agreed upon by the Purchaser and the Contractor, the credit due the Purchaser for reductions in the amount of work to be done shall be the estimated direct cost of the deleted work plus an overhead allowance of the following.

- 10 percent of the estimated direct cost if the work was to have been done by the Contractor's own forces, or
- 15 percent of the estimated direct cost if the work was to have been done by a subcontractor.

Direct cost referred to above shall include the category of costs listed as actual direct costs, Items (a) to (f) inclusive of the article entitled Increased Price.

GC.22.2 Contract Time Changes

The contract time may be changed due to work modifications, hindrances and delays, and work suspensions over which the Contractor has no control.

Contract time will not be changed for delays caused by unfavorable weather or unsuitable ground conditions normally incident to the work, inadequate construction force, failure to

place timely orders for equipment and materials, or other causes within the control of the Contractor.

GC.23 Step Dispute Resolution

In the event of any controversy, claim or dispute between the Parties arising out of or relating to this Agreement, including its enforcement, such controversy, claim or dispute, including disputes regarded as such by only one of the Parties, the Parties shall negotiate in good faith to resolve such dispute, including third party mediation, if the Parties so agree.

If no settlement is achieved, either Party may pursue a claim in a federal or state court with competent jurisdiction.

GC.24 Laws and Regulations

The Contractor shall observe and comply with all ordinances, laws, and regulations, and shall protect and indemnify the Purchaser and the Purchaser's officers and agents, including the Engineer, against any claim or liability arising from or based on any violation of the same.

GC.25 Taxes, Permits, and Licenses

The Contractor shall pay all sales, use, and other taxes that are lawfully assessed against the Purchaser or Contractor in connection with the work and shall obtain and pay for all required licenses, permits, and inspections.

The Contractor will be compensated for any increase in tax rates, license fees, and permit fees or any new taxes, licenses, or permits imposed after the date of the Proposal; provided, however, that this provision shall be limited to sales, use, and excise taxes assessed against the completed work and to licenses and permits required specifically for the proposed work.

GC.26 Patents

Royalties and fees for patents covering materials, articles, apparatus, devices, equipment, or processes used in the work shall be included in the contract amount. The Contractor shall satisfy all demands that may be made at any time for such royalties or fees and he shall be liable for any damages or claims for patent infringements. The Contractor shall, at his own cost and expense, defend all suits or proceedings that may be instituted against the Purchaser for alleged infringement of any patents involved in the work and, in case of an award of damages, the Contractor shall pay such award. Final payment to the Contractor by the Purchaser will not be made while any such suit or claim remains unsettled.

GC.27 Materials and Equipment

Unless specifically provided otherwise in each case, all materials and equipment furnished for permanent installation in the work shall conform to applicable standard specifications and shall be new, unused, and undamaged when installed or otherwise incorporated in the work. No such material or equipment shall be used by the Contractor for any purpose other than that intended or specified, unless such use is specifically authorized by the Purchaser in each case.

All required tests in connection with acceptance of source of materials shall be made at the Contractor's expense by a properly equipped laboratory of established reputation whose work

and testing facilities are acceptable to the Purchaser. Any change in origin or method of preparation or manufacture of a material being routinely tested will require new tests. Reports of all tests shall be furnished to the Engineer or Purchaser in as many copies as required.

GC.28 Guarantee

The Contractor guarantees that the work herein contracted will be as specified and will be free from defects in design, workmanship, and materials. Contractor does not guarantee or warrant parts subject to normal wear and tear during operation. If within the guarantee period the work fails to meet the provisions of this guarantee, the Contractor shall promptly correct any defects, including nonconformance with the contract documents by adjustment, repair, or replacement of all defective parts or materials at the Contractor's option and expense, after consulting with the Purchaser on the proposed remedy plans.

Except as otherwise prescribed by the terms of any special guarantees required by the contract documents, the guarantee period shall begin on the date of final payment and shall end 12 months later.

The cost of all materials, parts, labor, transportation, supervision, special tools, and supplies required for replacement or repair of parts and for correction of defects shall be paid by the Contractor or by the surety.

This guarantee shall be extended to cover all repairs and replacements furnished under the guarantee and the period of the guarantee for each such repair or replacement shall be 1 year after correction of the defect except as otherwise prescribed by the terms of any special guarantees required by the contract documents.

The Contractor will be given an opportunity to confirm the existence of the defect, but he shall not delay the correction while making such determination.

If within 10 days after the Purchaser has notified the Contractor of a defect, failure, or abnormality in the work, the Contractor has not started to make the necessary repairs or adjustments, the Purchaser is hereby authorized to make the repairs or adjustments or to order the work to be done by a third party; the cost of the work to be paid by the Contractor.

In the event of an emergency where, in the judgment of the Purchaser, delay would cause serious loss or damage, repairs or adjustments may be made by the Purchaser or a third party chosen by the Purchaser without advance notice to the Contractor and the cost of the work shall be paid by the Contractor or by the surety.

GC.29 Contractor's Insurance Coverage

The Contractor shall not commence work under this Contract until Contractor has obtained all the insurance required under this article. Furthermore, the Contractor shall not allow any sub-contractor to commence work under this Contract until the sub-contractor has obtained the same insurance as is required of the Contractor. The sub-contractor alone shall be responsible for the sufficiency of its own insurance program.

GC.29.1 Certificates of Insurance
Certificates of Insurance acceptable to the Purchaser shall be filed with the Purchaser prior to commencement of the work. All insurance carried shall conform to the relevant provisions of the respective Project Documents and be with insurance companies which are rated "A, X" or better by Best's Insurance Guide, or other insurance companies of recognized responsibility satisfactory to the Purchaser.

GC.29.2 Proof of Carriage of Insurance. Satisfactory certificates of insurance shall be filed with the Purchaser prior to starting any construction work on this contract. The parties agree that the requirements with respect to requirements to procure and maintain insurance under this Section is a material part of this Agreement.

GC.29.3 Additional Insureds
Insurance coverages furnished under this Contract, with the exception of Workers' Compensation and Employer's Liability, shall include the City of Hastings and their members, directors, officers, agents, and employees as named Additional Insureds on a primary and noncontributory basis, and shall include Products and completed operations with respect to the activities of the Contractor and shall be maintained for the full duration of the project including for a period after completion to include the statute of repose.

Notwithstanding any other provision of these policies, the insurance afforded shall apply separately to each insured, with respect to any claim, suit, or judgment made or brought by or for any other insured, as though a separate policy had been issued to each, except the insurer's liability shall not be increased beyond the amount or amounts for which the insurer would have been liable had only one insured been named.

The Purchaser shall not by reason of their inclusion under these policies incur liability to the insurance carrier for payment of premium for these policies.

GC.29.4 Waiver of Subrogation
To the extent permitted by applicable law, the Contractor and their sub-contractor shall require their insurance carriers, with respect to all insurance policies, to waive all rights of subrogation against the Purchaser their partners, directors, officers, agents, and employees.

GC.29.5 Workers' Compensation and Employer's Liability Insurance
The Contractor shall procure, and shall maintain during the life of this Contract, Workers' Compensation Insurance as required by workers' compensation laws of the State of Nebraska and also of the state in which the sub-contractor is domiciled.

The Contractor shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of a workers' compensation law. The Employer's Liability Insurance shall contain the following limits of liability:

Bodily Injury by Accident	$500,000 each accident
Bodily Injury by Disease	$500,000 each employee

Bodily Injury by Disease	$500,000 policy limit

GC.29.6 General Liability Insurance

This insurance shall be written per project on an “occurrence” policy form, including coverage for premises/operations, products/completed operations, blanket contractual liability, independent contractors and personal injury, with no exclusions for explosion, sudden and accidental pollution or an absolute or total pollution exclusion, collapse and underground perils. The commercial general liability policy shall also include a severability of interest clause and a cross liability clause in the event more than one entity is “named insured” or “named additional insured” under the liability policy.

Limits of Insurance shall be as follows:

Each Occurrence Limit	$1,000,000
Products/Completed Operations	$2,000,000
General Aggregate Limit	$2,000,000
Personal and Advertising Injury	$1,000,000

GC.29.7 Automobile Liability Insurance

This insurance shall be written under a Business Auto Policy and shall protect the Contractor and Additional Insureds against claims arising from injuries to members of the public or damage to property of others arising from the use of automobiles whether such automobiles are owned, non-owned, or hired. Automobile insurance shall include Motor Carrier Endorsement Act MCS 90 and transportation pollution coverage if applicable. If work is being done near a railroad track, the 50’ railroad right of way exclusion must be deleted.

Limit of Liability	$1,000,000 each accident

GC.29.8 Umbrella Liability Policy

This insurance shall protect the Contractor and the Additional Insureds against all claims in excess of the limits provided under the employer's liability, automobile liability, and general liability policies. The liability limits of the umbrella liability policy shall be not less than $5,000,000 per occurrence. This policy shall be an "occurrence" type policy. However, Purchaser reserves the right to require higher limits with respect to each project.

GC.29.9 Pollution Liability – If Applicable

Limits of at least:	$1,000,000 per occurrence; $1,000,000 aggregate

If Contractor or its Sub-subcontractor's work includes but not limited to remediating, handling, processing or disposing of hazardous material including but not limited to asbestos containing materials, silica, lead, PCBs, contaminated soil, etc, coverage shall be provided for bodily injury, property damage and clean-up costs resulting for pollution conditions.

GC.29.10 Riggers Liability – If Applicable

Should work involve the moving, lifting, lowering, rigging or hoisting of property or equipment Contractor shall carry Rigger's Liability Insurance to insure against physical loss or damage to the property or equipment on a Replacement Cost Basis.

GC.29.11 Railroad Protective Liability – If Applicable

Limits of at least: As required by the railroad company

If Contractor or its Subcontractor's work includes working within a railroad right-of-way, Contractor shall carry Railroad Protective Liability Insurance to insure against physical loss or damage to the real property or any equipment located on such railroad right-of-way, on a replacement cost basis. Contractor shall name the railroad and PPGA as additional insureds, in such limits as required by such railroad company.

GC.29.12 Professional Liability – If Applicable

Limits of at least: $1,000,000 per occurrence; $1,000,000 aggregate

Policy shall provide for a retroactive date prior to the starting date of services for which this agreement applies. Policy shall not exclude damages for bodily injury, property damage, or pollution liability. Coverage shall remain in force for a minimum of 3 years following substantial completion of construction through either policy renewal or the purchase of an Extended Reporting Provision. Contractor agrees to waive its rights of recovery. Subcontractor's insurer shall endorse the policy to waive subrogation against Owner and their respective agents, officers, directors and employees.

GC.29.13 Transportation Insurance – If Applicable
Contractor shall purchase inland marine coverage at the expense of Contractor on all equipment and materials, where Purchaser has an insurable interest. Insurance shall protect for Contractor and Purchaser from physical loss of equipment while loading, unloading, in transit to jobsite, and until equipment or materials have been installed or received by Purchaser.

GC.29.14 Property Insurance A.K.A. Builder's Risk – If Applicable
Unless otherwise provided, Contractor shall purchase and maintain property insurance, a.k.a. builder's risk insurance, on the building construction project in amount thereto for entire work at site on a replacement cost basis. Such property insurance shall be maintained, unless otherwise provided in contract documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final acceptance of work by PPGA. Insurance shall include interests of PPGA, Contractor, Subcontractor, and sub-subcontractors in work. This property insurance covering work will have deductible for each occurrence, which will be responsibility of Contractor.

Before an exposure to loss may occur, the Contractor will provide a copy of the property insurance policy or evidence of property insurance, upon request that includes all property insurance coverages.

Waivers of Subrogation: PPGA, Contractor, and all Subcontractors waive all rights against

(1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) PPGA's or Contractor's consultants, separate contractors, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other perils to extent covered by property insurance obtained, or other property insurance applicable to work, except such rights as they have to proceeds of such insurance held by PPGA and/or Contractor as fiduciary. Contractor shall require of consultants, separate contractors, if any, and subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. Policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay insurance premium directly or indirectly and whether or not person or entity had an insurable interest in property damaged.

GC.30 Indemnification

To the fullest extent permitted by laws and regulations, the Contractor shall defend, indemnify, and hold harmless the Purchaser, their officers, directors, members, consultants, agents, and employees from and against all claims, damages, losses, and expenses, direct, indirect, or consequential (including but not limited to fees and charges of engineers, architects, attorneys, and other professionals and court and arbitration costs) arising out of or resulting from the negligent, wrongful, or defective performance of the work by the Contractor, any sub-contractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the work, or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder or arises by or is imposed by law and regulations regardless of the negligence of any such party.

In any and all claims against the Purchaser, or of any of their officers, directors, members, consultants, agents, or employees by any employee of the Contractor, any sub-contractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the work or anyone for whose acts any of them may be liable, this indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any such sub-contractor or other person or organization under workers' or workmen's compensation acts, disability benefit acts, or other employee benefit acts, nor shall this indemnification obligation be limited in any way by any limitation on the amount or type of insurance coverage provided by the Purchaser, the Contractor, or any of their sub-contractors.

GC.31 Release of Liability

Acceptance by the Contractor of the last payment shall be a release to the Purchaser and every officer and agent thereof, from all claims and liability hereunder for anything done or furnished for, or relating to the work, or for any act or neglect of the Purchaser or of any person relating to or affecting the work.

GC.32 Claims for Labor and Materials

The Contractor shall indemnify and save harmless the Purchaser from all claims for labor and materials furnished under this Contract. When requested by the Purchaser, the Contractor shall submit satisfactory evidence that all persons, firms, or corporations who have done work or furnished materials under this Contract, for which the Purchaser may become legally liable, have been fully paid or satisfactorily secured. In case such evidence is not furnished or is not satisfactory, an amount will be retained from money due the Contractor which, in addition to any other sums that may be retained, will be sufficient, in the opinion of the Purchaser, to liquidate all such claims. Such sum will be retained until the claims as aforesaid are fully settled or satisfactorily secured.

Before final acceptance of the work by the Purchaser, the Contractor shall submit to the Engineer in duplicate a notarized affidavit stating that all subcontractors, vendors, persons, or firms who have furnished labor or materials for the work have been fully paid and that all taxes have been paid. If a performance bond has been executed, a statement from the surety shall also be submitted consenting to the making of the final payment.

GC.33 Final Inspection

When the work has been substantially completed and at a time mutually agreeable to the Purchaser and Contractor, the Purchaser will make a final inspection of the work as to the acceptability and completeness of the work.

GC.34 Payments

Payment will be based on the Contractor's progress payment which he will submit to the Purchaser for approval. The Purchaser will retain 10% of the total contract amount for all work. The Purchaser will reduce the retainage to 5% after the project is 50% complete.

GC.35 Hazardous Materials

As required under Federal Hazardous Communications Standards and certain state and local laws, the Contractor shall provide Material Safety Data Sheets covering all hazardous materials furnished under or otherwise associated with the work under this Contract. The Contractor shall provide the Purchaser with either copies of the applicable Material Safety Data Sheets or copies of a document certifying that no Material Safety Data Sheets are required under any federal, state, or local law, regulation, statute, or ordinance in effect at the jobsite.

Hazardous materials are defined in the applicable statue which may use the terminology "toxic substances" instead of "hazardous materials." The Contractor is responsible for determining if any substance or material furnished, used, applied, or stored under this Contract is within the provisions of any applicable statute.

If the work under this Contract includes onsite construction or erection, the Contractor shall provide written notice of the presence of hazardous materials to local fire, medical, and law enforcement agencies as required with a copy of such notice to the Purchaser.

The Contractor shall provide labeling of hazardous materials and training of employees in the safe usage of such materials as required under any applicable federal, state, or local law, regulation, statute, or ordinance.

GC.36 Liquidated Damages

Time is a material provision of this Agreement. If the Contractor is unable to meet the agreed upon completion dates, the Contractor shall immediately notify the Purchaser and confirm the notice in writing within ten (10) business days of the delaying event. The notice shall contain detailed information of the delay including Contractor's estimate of the duration of the delay, Contractor's estimate of the delay's impact to Contractor's schedule and Contractor's plan to mitigate the effects of the delay.

Contractor shall be excused for delays in completion of the work only in accordance with GC.18. In the event of any such delay, Contractor shall only be allowed an extension of the date of completion for a period of time reasonably necessary to overcome the effect of the delay. Contractor shall not be entitled to any extra compensation for such delay. Contractor shall promptly notify the Purchaser in writing, with confirmation receipt of notification,

The liquidated damages amount per calendar day specified in the proposal form will be assessed, not as a penalty but as predetermined and agreed liquidated damages. The Purchaser and Contractor specifically agree the per calendar day amount to be assessed as liquidated damages is fair and reasonable and not excessive. The parties further agree that said per calendar day amount accurately reflect the anticipated loss and inconvenience to the public and lost revenue to or use by the Purchaser due to the project not being completed by the end of the project period or the end of the contract completion date.

The Purchaser shall have the right to deduct liquidated damages from any money in its hands, otherwise due, or to become due, to the Contractor; to submit invoice for payment; or to sue for and recover compensation for damages for nonperformance of this Contract within the time stipulated.

The Liquidated Damages for this project will be $500.00 per calendar day past the project completion date.

GC.37 Consequential Damages

Except for Supplier's third party obligations arising out of or liability for breach of Articles GC.26 and/or GC.30, Purchaser and Supplier will not be liable to each other for loss of profits, loss of use, loss of contracts, or consequential damages arising out of this Contract. This Section will not relieve Supplier of any obligation under GC.36.

GC.38 Limitation of Liability

With the exception of (a) indemnification stated in Article GC.30 and (b) the insurance coverages and limits set forth in Article GC.29, Supplier's total limit of liability on any claim, whether for breach of Contract, breach of warranty, tort, negligence, strict liability, or any other legal theory, for any loss or damage arising out of or connected to, or resulting from this Contract, shall be limited to the purchase price to be paid by Purchaser.

GC.39 Confidentiality

"Confidential Information" means the confidential or proprietary designs, know-how, processes, trade secrets, and other information owned or controlled by Purchaser, Engineer, or Supplier respectively. Supplier agrees to hold any Confidential Information received in the strictest confidence, shall only use the Confidential Information as necessary to perform the work. Purchaser agrees to hold any Confidential Information received in the strictest confidence and shall only use the confidential information as necessary for engineering, construction, start-up, commissioning, maintenance, or other purposes related to the project. Each party shall use the same degree of care as is used for its own information of similar importance, but no less than reasonable care.

GC.40 Work Eligibility Status

The Contractor is required and hereby agrees to use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska. A federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee.

GC.41 Fair Labor Standards

The Contractor agrees to comply with all current applicable State, Federal, and City fair labor standards in the execution of the contract. Pursuant to the Title VI Non-Discrimination Program of the City of Hastings, Contractor agrees to comply with the provisions set forth by CITY's Title VI Non-discrimination Program, if applicable. A copy of said provisions are as follows:

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

(1) Compliance with Regulations: The contractor shall comply with the Regulation relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, and the Federal Highway Administration (hereinafter "FHWA") Title 23, Code of Federal Regulations, Part 200 as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

(2) Nondiscrimination: The Contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin, sex, age, and disability/handicap in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by 49 CFR, section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

(3) Solicitations for Subcontractors, Including Procurements of Materials and Equipment: In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin, sex, age, and disability/handicap.

(4) Information and Reports: The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the (Recipient) or the FHWA to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to the (Recipient), or the FHWA as appropriate, and shall set forth what efforts it has made to obtain the information.

(5) Sanctions for Noncompliance: In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the (Recipient) shall impose such contract sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:

(a.) Withholding of payments to the contractor under the contract until the contractor complies, and/or

(b.) Cancellation, termination or suspension of the contract, in whole or in part.

(6) Incorporation of Provisions: The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

The contractor shall take such action with respect to any subcontract or procurement as the (Recipient) or the FHWA may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the (Recipient) to enter into such litigation to protect the interests of the (Recipient), and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

SECTION 3 – GENERAL DESCRIPTION AND SCOPE OF WORK

3.1 General:

The City of Hastings (Owner) is accepting bids for the installation of a new Fly Ash Silo and Conveying Equipment for Whelan Energy Center, Unit 1 in Hastings, Nebraska. The bidder is strongly encouraged to visit with Hastings prior to submitting a bid. The Bidder shall inform themselves of all conditions and factors which would affect the execution of the work. No claims for financial compensation or time extension, based on the lack of such prior information (or its effect on the cost of the work) will be permitted by the Owner. Please contact Brandon Miller, Mechanical Engineer, at 402-462-3653 if you have any questions about this project or would like to set up a visit.

3.2 Description of System:

Whelan Energy Center, Unit 1 (WEC1) is an 82 megawatt (MW), pulverized coal-fired generating plant located near Hastings, Nebraska. The Unit began commercial operation in 1981. The existing ash sluicing system is being replaced with a new fly ash silo and mechanical vacuum conveying system. The fly ash will be conveyed from existing precipitator, economizer, and air heater hoppers to a new fly ash silo being constructed north of the WEC1 precipitator building. Two mechanical exhausters will pull vacuum and convey the fly ash to the silo where it will be separated from the air stream by a filter separator on top of the silo. The fly ash will travel through a transfer hopper to the new silo. The silo will be equipped with a telescopic spout where it will be top loaded into a bulk transport trailer. The exhaust from the mechanical separators and vents from the telescopic spout and silo will be piped back to the flue gas duct upstream of the precipitator building.

3.3 Scope of Work Performed Under This Contract:

The contractor shall perform the following scope of work:

- Demolition of existing piping and equipment
  - Demolition of existing pipe, fittings, valves needed for routing of new pipe (See drawing PT-333-01 for details)
- Install UCC provided piping, fittings, and valves
  - Piping from existing economizer piping TP-1 and existing air heater piping TP-2 to precipitator hopper piping TP-3. (Dwg No. M-55650-05-004)
  - Piping from existing precipitator hopper piping TP-4 to filter separator. (Dwg No. M-55650-05-004)
  - Piping from telescopic spout to telescopic spout vent fan and from telescopic spout vent fan to connection at silo roof including all valves and fittings. (Dwg No. M-55650-05-005)
  - Piping from outlet plenum to silo vent fan motor and from silo vent fan motor to flue gas duct TP-6 including bypass line, valves, and fittings. (Dwg No. M-55650-05-005 and -008)
  - Silo relief valve SRV-1105
  - Piping from top of silo to filter separator including upper and lower equalizing valves (Dwg No. M-55650-05-005 and -006)

- Piping from filter separator to mechanical exhausters including valves, fittings, screens, and expansion joints. (Dwg No. M-55650-05-006 and -008)
- Piping from mechanical exhauster to flue gas duct TP-7 including all valves, expansion joints, silencers, and fittings. (Dwg No. M-55650-05-008)
- Valves and fittings, from compressed air branch line to silo fluidizing system. Piping is provided by contractor. (Dwg No. M-55650-05-007)
- All other inline piping equipment, fittings, and hardware not called out but needed for a complete piping installation.

- Furnish and install piping, fittings, and valves (labeled as GC on UCC drawings and all piping on COH drawings)
  - Piping, valves, and fittings from existing compressed air header to new air receiver in precipitator building. (Dwg No. PT-330-03 and -04)
  - Piping, valves, and fittings from new air receiver to silo area. (Dwg No. PT-330-03 and -04)
    - All new compressed air piping will be field routed from tie-in locations to equipment.
  - All piping, valves, and fittings labeled as GC on UCC drawings for compressed air system. (Dwg No. M-55650-05-006, -007, and -009)
  - Piping at TP-6 from weld neck flange to flue gas duct. Contractor is responsible for making connection to flue gas duct. (Ref. Dwg No. G5 and G2 by C-E Walther, Inc.)
  - Piping at TP-7 from weld neck flange to flue gas duct. Contractor is responsible for making connection to flue gas duct. (Ref. Dwg No. G5 and G2 by C-E Walther, Inc.)
- Furnish and Install piping insulation
  - 1-1/2” thick mineral fiber insulation on portion of piping from TP-4 in precipitator building to filter separator that is outside the precipitator building. (Dwg No. M-55650-05-004)
  - 1-1/2” thick mineral fiber insulation on piping from mechanical exhausters to flue gas duct. (Dwg No. M-55650-05-008)
  - 1” thick mineral fiber insulation on all compressed air piping routed outside buildings.
- Install UCC provided equipment:
  - Telescopic spout assembly THC-001 (Dwg No. M-55650-05-005)
  - Telescopic spout vent fan, FAN-002, and motor, M-002. (Dwg No. M-55650-05-005)
  - Silo vent fan, FAN-003, and motor, M-003. (Dwg No. M-55650-05-005)
  - Outlet plenum on silo roof (Dwg No. M-55650-05-005)
  - Manhole on silo roof (Dwg No. M-55650-05-005)
  - Transfer hopper, VSL-002 (Dwg No. M-55650-05-006 & MA-55650-05-001)
  - Filter Separator FLT-001 including filter cages and filter bags (Dwg No. M-55650-05-006 & MA-55650-05-001)
  - Mechanical exhausters, ME-001 and ME-002 including partial enclosures and enclosure vent fans, FAN-004 and FAN-005. (Dwg No. M-55650-05-008)
  - Bin Outlet Hopper, H1, fluidizing elements, and diffuser stones. (Dwg No. M-55650-05-007)
  - Ventilation Louvers, VNT-001 and VNT-002
  - Ladder and Platform from silo roof to Filter Separator
- Installation of City of Hastings Provided Equipment:
  - Air receiver

- Pipe Rack, Silo Roof Pipe Tower, Pipe Supports, and Pipe Hangers provided by UCC
    - Erect the T-Post pipe rack provided by UCC. (Dwg No. ASD-55650-05-001, -002, -011, -012)
    - Erect silo roof pipe tower provided by UCC. (Dwg No. ASD-55650-05-021 and -022)
    - Install pipe supports provided by UCC. (Dwg No. SD-55650-05-001 to -081)
- Pipe Supports, auxiliary steel, and platform provided by Contractor
    - Supply and install auxiliary steel per Olsson drawings S001 to S401 including:
        - Auxiliary Steel #1
        - Auxiliary Steel #2
        - Auxiliary Steel #3
        - Infilling grating on existing platform per Section 3 on drawing S102.
        - Installing new platform steel, grating, access ladder with cage, toekick, and all hardware needed per Sections 1 and 2 on drawing S103 and Sections 1 and 2 on drawing S201, and details on drawing S400 and S401.
    - Provide and install pipe support steel, pipe hangers, and hardware for all field routed compressed air piping (CAA system).
- Relocate existing equipment:
    - Existing valve 1ASB-ABV-1059. (Dwg No. M-55650-05-004)
- System Start-Up Support:
    - Contractor shall provide labor to support testing and checkout of system. Contractor shall repair and fix items from their scope of work found to be defective during testing.
- Other scope
    - Create pipe penetration in building wall and provide seals for economizer and air heater piping from Unit 1 boiler building.
    - Create pipe penetration and provide seal for economizer and air heater ash piping going into precipitator building.
    - Create pipe penetration and provide seal for ash piping from precipitator building to fly ash silo.
    - Create pipe penetration for compressed air piping from precipitator building to fly ash silo area.
    - Create pipe penetrations in silo unloading floor wall for vent piping and compressed air piping on silo.
    - Grouting under equipment and pipe support bases as noted on drawings.
    - Painting of carbon steel pipe, utility rack, structural steel, and other unpainted equipment as needed per section 4.5 of the technical specifications.
    - Touch-up painting on all welded connections and equipment where factory supplied top coat is damaged during installation.
    - Hydrotesting and weld inspections for all piping as specified by ASME B31.1.

3.4 <u>Work Performed by Others:</u>

The following will be performed under Contract HU 2024-50:

- Supply of equipment for the fly ash silo including items indicated as supplied by UCC on UCC provided contract drawings:
    - Fly ash silo
    - Filter separator and transfer hopper
    - Telescopic spout

    - Telescopic spout vent fan and silo vent fan
    - Two mechanical exhausters
- Supply of piping, valves, and fittings per UCC provided contract drawings:
    - Ash conveyor piping/valves/ fittings from terminal point on existing piping in precipitator building to filter separator
    - Ash conveyor piping from existing air heater piping to tie-in at precipitator building
    - Ash conveyor piping from existing economizer hopper piping to tie-in at precipitator building
    - Exhauster suction piping from filter separator to mechanical exhausters
    - Exhauster discharge piping from mechanical exhausters to flue gas duct

The following will be performed under Contract HU 2025-57:

- Site earthwork, grading, removal of existing concrete/ asphalt paving
- Silo foundations, paving, and aggregate surfacing
- Pipe support and utility rack foundations
- Removal of existing and installation of new silo/ precipitator area storm drain piping
- Concrete and conduit for underground electrical and controls duct bank
- Installation of pipe bollards

The following will be performed under Contract HU 2024-102:

- Installation of the UCC provided Silo
- Grouting the base of the silo
- Installing silo stairs

3.5 <u>Miscellaneous Materials and Services Scope:</u>

Miscellaneous Materials and Services Scope			
Item	Description	Contractor (Applies to)	Owner (Applies to)
1.	Receipt, inspection, unloading and storage of materials provided by Silo Supplier		X
2.	Receipt, inspection, unloading and storage of materials supplied by Contractor	X	
3.	Supply and installation of anchor bolts for contractor installed equipment	X	
4.	All hardware, welding supplies, and miscellaneous materials not provided by owner that is necessary for the completion of the work	X	
5.	Removal and disposal of all demolished equipment, piping and materials	X	
6.	Supply, installation, and removal of all temporary erection bracing, rigging, attachments and supports	X	
7.	All tooling and equipment required to perform the specified work	X	

8.	Survey and layout of the work from the Purchaser's designated control points	X	
9.	Supply of lifting equipment including cranes, man lifts, fork lifts, and telehandlers needed to complete the work	X	
10.	Supply of all work platforms including scaffolding, and OSHA required fall protection	X	
11.	Tests and inspections as required by specification	X	
12.	Grouting of equipment and column bases	X	
13.	Supply and install of touch up coatings	X	
14.	Station services including air, water, and electrical power		X
15.	Sanitary services in the form of portable toilets	X	
16.	Supply of common trash dumpster		X
17.	Clean up of work area	X	

3.6 Other Requirements:

The contractor shall comply with the following:

- All of Contractor's employees and any Sub-Contractor's employees shall take a mandatory safety orientation provided by City of Hastings before starting work on the project. The safety orientation is required once a year and is good from Jan 1 through Dec 31 each year.
- Contractor shall comply with site LOTO policy. LOTO will be performed by City of Hastings prior to starting any work on the system.
- Contractor shall comply with site Hotwork and Confined Spacy policies where applicable. Owner will provide Hotwork permits.
- Contractor shall follow all relevant OSHA regulations including fall protection and trenching and shoring.
- Weekly progress meetings between Contractor's project superintendent and Project Engineer.

3.7 Submittal Requirements:

The contractor shall submit the following information to the owner:

- Product data sheets for all contractor supplied materials.
  - Piping
  - Fittings
  - Valves
- Material test reports.
- Red-lined drawings indicating deviations from original drawing designs.

3.8 Project Schedule:

The new fly ash silo is scheduled to be completed during the WEC Unit 1 2025 Fall outage per the dates below. The existing ash sluicing system will need to be kept in-service until after ash has been

cleared from the precipitator hoppers once the outage begins. The below details work that will need to be done during the outage:

- Work to be completed during WEC1 Fall 2025 Outage:
  - Demolition of existing and installation of new piping, fittings, pipe supports, and hardware between TP-1 (economizer) and TP-2 (air heater) to TP-3 (upstream of precipitator ash hoppers).
  - New pipe supports in WEC1 boiler building.
  - Tie-in of piping for compressed air system into existing piping in Unit 1 boiler building.

- Work to be completed ahead of WEC1 Fall 2025 Outage:
  - Installation of all equipment on silo and silo foundation, utility racks, auxiliary steel, platform, ladder, all other equipment that does not affect existing piping or tie-in points. Including all piping downstream of TP-4 at precipitator to silo.
  - Installation of compressed air piping, air receiver, valves, and fittings with exception to tie-in, TP-20, to existing WEC1 system.
  - Vent Piping from silo and mechanical exhauster discharge piping, valves, fittings, with exception to tie-ins, TP-6 and TP-7, at flue gas duct upstream of precipitator.

Work will be coordinated with electrical and instrumentation contractors to allow completion during scheduled outage.

Material and Installation Contract:

Activity	Schedule
Bid Opening	Wednesday, August 27, 2025
Anticipated Contract Award Date	Monday, September 8, 2025

Preliminary Construction Schedule:

The work under this contract will have to be coordinated with City of Hastings and other Contractors to assure the Fly Ash Silo is completed before the end of the scheduled outage. A preliminary construction schedule is shown below.

Activity	**Schedule**
Completion of Silo Foundations and Paving	Friday, July 25, 2025
Delivery of Fly Ash Silo	Tuesday, August 5, 2025
Erection of Fly Ash Silo	Monday, August 11, 2025 through Friday, September 5, 2025
Start of Fall Outage	**Friday, November 7, 2025 at 23:59**
End of Fall Outage	**Thursday, December 4, 2025 at 11:59**
Pre-Outage Mechanical Construction	Monday, September 29, 2025 through Friday, November 7, 2025
Outage Mechanical Construction	Saturday, November 8, 2025 through Thursday, November 20, 2025

PLC Programming Controls and System Checkout	Friday, November 21, 2025 through Wednesday, December 3, 2025

3.9 **Project Drawings:**

The following drawings are part of the project. Vendor drawings for materials and equipment will be supplied to Contractor before the start of work. They are also available upon request. A full set of Issued For Construction drawings will be sent to the contractor electronically via Sharepoint after contract has been signed.

Drawing No.	Revision	Description
PT-333-01	-	DEMOLITION PLAN
PT-333-02	-	DEMOLITION PLAN
PT-333-03	-	STATION AIR P&ID
PT-333-04	-	COMPRESSED AIR PIPING PLAN
PT-333-05	-	VALVE LIST
PT-333-06	-	PIPELINE LIST
G2	C	CE WALTHER PRECIPITATOR ELEVATION
G5	C	CE WALTHER PRECIPITATOR INLET DUCTWORK
ASD-55650-05-001	0	AUXILIARY STEEL T-POSTS TO NEW FLY ASH SILO UNIT 1
ASD-55650-05-002	0	AUXILIARY STEEL T-POSTS TO NEW FLY ASH SILO UNIT 1
ASD-55650-05-011	0	AUXILIARY STEEL T-POSTS TO NEW FLY ASH SILO UNIT 1
ASD-55650-05-012	0	AUXILIARY STEEL T-POSTS TO NEW FLY ASH SILO UNIT 1
ASD-55650-05-021	0	AUXILIARY STEEL SILO ROOF TOWER UNIT 1
ASD-55650-05-022	0	AUXILIARY STEEL SILO ROOF TOWER UNIT 1
C-55650-05-001	0	GENERAL NOTES AND REFERENCE DRAWINGS PIPING
C-55650-05-002	0	GENERAL NOTES AND REFERENCE DRAWINGS PIPE SUPPORTS
C-55650-05-003	0	PLAN, SECTION AND DETAIL FLY ASH NUVEYOR VACUUM SYSTEM HOPPER AREA UNIT 1
C-55650-05-004	0	PLAN, SECTION AND DETAIL FLY ASH NUVEYOR VACUUM SYSTEM HOPPER AREA UNIT 1
C-55650-05-005	0	PLAN, SECTION AND DETAIL FLY ASH AIR VACUUM SYSTEM FILTER SEPARATORS TO EXHAUSTERS UNIT 1
C-55650-05-006	0	PLAN, SECTION AND DETAIL FLY ASH AIR VACUUM SYSTEM EXHAUSTERS DISCHARGE TO DUCT UNIT 1
C-55650-05-007	1	PLAN, SECTION AND DETAIL SILO VENT PIPING VENT FAN TO DUCT TIE-IN UNIT 1
C-55650-05-008	0	PLAN, SECTION AND DETAIL SILO VENT PIPING VENT FAN TO DUCT TIE-IN UNIT 1
CL-55650-05-001	A	PIPE SUPPORT LOAD DATA
CL-55650-05-002	A	PIPE SUPPORT LOAD DATA

CL-55650-05-003	A	PIPE SUPPORT LOAD DATA
CL-55650-05-004	A	PIPE SUPPORT LOAD DATA
CL-55650-05-005	A	PIPE SUPPORT LOAD DATA
CL-55650-05-006	B	PIPE SUPPORT LOAD DATA
EL-55650-05-001	D	I/O LIST
EL-55650-05-002	A	POWER DISTRIBUTION ELECTRICAL LOAD LIST
G-55650-05-001	C	GENERAL ARRANGEMENT OF FLY ASH SILO UNIT 1
G-55650-05-002	B	SILO FLOOR & UNLOADING FLOOR EQUIPMENT PLANS & SECTIONS UNIT 1
G-55650-05-003	B	SILO UNLOADING FLOOR EQUIPMENT ELEVATION
G-55650-05-004	B	SILO ROOF EQUIPMENT PLAN & SECTION
G-55650-05-005	B	SILO ROOF EQUIPMENT DETAILS
M-55650-05-001	C	P&I DIAGRAM GENERAL NOTES
M-55650-05-002	A	P&I DIAGRAM STANDARD SYMBOLS
M-55650-05-003	B	KEY PROCESS DIAGRAM FLY ASH NUVEYOR VACUUM SYSTEM
M-55650-05-004	C	P&I DIAGRAM FLY ASH NUVEYOR VACUUM SYSTEM HOPPER AREA
M-55650-05-005	C	P&I DIAGRAM FLY ASH NUVEYOR VACUUM AND UNLOADING SYSTEM SILO AREA
M-55650-05-006	C	P&I DIAGRAM FILTER SEPARATOR - CONTINUOUS OPERATION
M-55650-05-007	C	P&I DIAGRAM BIN FLUIDIZING SYSTEM
M-55650-05-008	C	P&I DIAGRAM MECHANICAL EXHAUSTERS
M-55650-05-009	C	P&I DIAGRAM COMPRESSED AIR FLY ASH NUVEYOR VACUUM SYSTEM
MA-55650-05-001	C	TRANSFER HOPPER STACKUP
ML-55650-05-001	B	VALVE LIST
ML-55650-05-002	B	INSTRUMENT LIST
ML-55650-05-003	A	EQUIPMENT LIST
ML-55650-05-004	A	TERMINAL POINT LIST
ML-55650-05-005	A	LUBRICATION LIST
S-55650-05-001	A	GENERAL NOTES FOR STRUCTURAL DRAWINGS
S-55650-05-002	A	DRAWING INDEX & ABBREVIATION LIST FOR STRUCTURAL DRAWINGS
SD-55650-05-001	0	ROD HANGER, ELEVATED, 6", VACUUM, NUVALOY, STEEL
SD-55650-05-002	0	ANCHOR, RISER, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-003	0	GUIDE, RISER, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-004	0	ROD HANGER, ELEVATED, 6", VACUUM, NUVALOY, STEEL
SD-55650-05-005	0	ANCHOR, RISER, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-006	0	GUIDE, ELEVATED, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-007	0	SUPPORT, ELEVATED, 6", VACUUM, DURITE, STEEL

SD-55650-05-008	0	ANCHOR, ELEVATED, 6", VACUUM, DURITE, STEEL
SD-55650-05-009	0	GUIDE, ELEVATED, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-010	0	ANCHOR, RISER, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-011	0	GUIDE, RISER, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-012	0	ANCHOR, FLOOR, 6", VACUUM, NUVOLOY, CONCRETE
SD-55650-05-013	0	ANCHOR, FLOOR, 6", VACUUM, DURITE, CONCRETE
SD-55650-05-014	0	SPRING HANGER, ELEVATED, 6", VACUUM, NUVALOY, STEEL
SD-55650-05-015	0	SPRING HANGER, ELEVATED, 6", VACUUM, NUVALOY, STEEL
SD-55650-05-016	0	ROD HANGER, ELEVATED, 6", VACUUM, NUVALOY, STEEL
SD-55650-05-017	0	GUIDE, ELEVATED, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-018	0	GUIDE, ELEVATED, 6", VACUUM, NUVOLOY, STEEL
SD-55650-05-020	0	ANCHOR, FLOOR, 8", VACUUM, DURITE, CONCRETE
SD-55650-05-021	0	ANCHOR, FLOOR, 8", VACUUM, NUVALOY, CONCRETE
SD-55650-05-022	0	GUIDE, FLOOR, 8", VACUUM, NUVALOY, CONCRETE
SD-55650-05-023	0	ANCHOR, RISER, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-024	0	GUIDE, RISER, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-025	0	ANCHOR, RISER, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-026	0	ANCHOR, RACK, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-027	0	GUIDE, RACK, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-028	0	ANCHOR, SILO, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-029	0	GUIDE, SILO, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-030	0	ANCHOR, RISER, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-031	0	GUIDE, RISER, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-032	0	GUIDE, RACK, 8", VACUUM, NUVALOY, STEEL
SD-55650-05-040	0	GUIDE, RACK, 8", VACUUM, CARBON STEEL, STEEL
SD-55650-05-041	0	GUIDE, SILO, 8", VACUUM, CARBON STEEL, STEEL
SD-55650-05-042	0	ANCHOR, SILO, 8", VACUUM, CARBON STEEL, STEEL
SD-55650-05-043	0	GUIDE, FLOOR, 8", VACUUM, CARBON STEEL, STEEL
SD-55650-05-044	0	ANCHOR, FLOOR, 8", VACUUM, CARBON STEEL, CONCRETE
SD-55650-05-045	0	SUPPORT, FLOOR, 8", VACUUM, CARBON STEEL, CONCRETE
SD-55650-05-050	0	ANCHOR, FLOOR, 8", VENT, CARBON STEEL, CONCRETE

SD-55650-05-051	0	SUPPORT, FLOOR, 8", VENT, CARBON STEEL, CONCRETE
SD-55650-05-052	0	GUIDE, FLOOR, 8", VENT, CARBON STEEL, CONCRETE
SD-55650-05-053	0	GUIDE, RACK, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-054	0	SUPPORT, RACK, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-055	0	SUPPORT, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-056	0	SUPPORT, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-057	0	GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-058	0	GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-059	0	SUPPORT, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-060	0	GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-061	0	GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-062	0	ANCHOR, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-070	0	GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-071	0	ANCHOR, SILO, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-072	0	GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-073	0	ROD HANGER, SILO, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-074	0	GUIDE, RACK, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-075	0	SUPPORT, RACK, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-076	0	SUPPORT, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-077	0	LINE STOP, RISER, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-078	0	GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SD-55650-05-079	0	GUIDE, FLOOR, 8" VENT, CARBON STEEL, STEEL
SD-55650-05-080	0	GUIDE, ELEVATED, 8", CARBON STEEL, STEEL
SD-55650-05-081	0	ANCHOR, ELEVATED, 8", VENT, CARBON STEEL, STEEL
SV-55650-05-S001		TARSCO SILO DRAWINGS

SECTION 4 – Technical Specifications

4.1 Structural Steel:

4.1.1 Scope of Supply:

Contractor shall be responsible for supplying and installing structural steel as indicated on Olsson drawing S100 as auxiliary steel #1, auxiliary steel #2 including infilling existing hole in existing platform grating, and auxiliary steel #3 including platform steel, new grating, ladder, and all hardware. All new structural steel shall meet the following specifications:

Table 1 – General Information		
General		
1	Application	Carbon steel structural steel
2	Installation Requirements	In accordance with the specifications and drawings See General Notes on Olsson Drawing S001
Codes and Standards		
3	Structural steel	Fabricated and erected in accordance to the latest edition of AISC 303 “Code of Standard Practice for Steel Building and Bridges”
4	Welding	All welding shall be performed by Certified/Qualified welders and shall conform to the latest edition of AWS D1.1 “Structural Welding Code – Steel”
Materials		
5	W / WT Shapes	ASMT A992
6	M and S Shapes	ASTM A36
7	HP Shapes	ASTM A572, Grade 50
8	Plates	ASTM A572, Grade 50
9	Angles	ASTM A572, Grade 50
10	C and MC Shapes	ASTM A992
11	HSS Square and Rectangular Tubes	ASTM A500, Grade C, Fy = 50 ksi
12	HSS Rounds	ASTM A500, Grade C, Fy = 50 ksi
13	Pipes	ASTM A53, Grade B, Fy = 35 ksi
14	Anchor Rods	ASTM A1554, Grade 55 with Supplement S1
15	High Strength Bolts	ASTM F3125, Grade 325, Type 1, UON ASTM F3125, Grade 490, Type 1
16	Washers for Hight Strength Bolts	ASTM F436
17	Direct-Tension Indicating Washers	ASTM F959
18	Heavy Hex Nuts	ASTM F563

19	Stick Electrodes	AWS Class E70XX AWS Class E6010 or E6011 (Galv. Surfaces)
Surface Finish		
20	Surface Prep	Surface shall be cleaned in accordance with SSPC-6, Commercial Blast Cleaning
21	Finish	Hot Dip Galvanizing per ASTM 123. Bolts shall be Galvanized by Mechanical Deposit according to ASTM B695, Class 55, Type 1

4.2 Demolition of Existing:

4.2.1 General:

Demolition of existing piping and equipment will be needed to route new pipe provided by UCC. This demolition work will have to be done during the fall outage period since the existing sluicing system needs to be operational until outage. LOTO of existing system will be performed by City of Hastings prior to beginning of demolition work. Care should be taken to prevent damage to parts of plant and equipment that are staying in service.

4.2.2 Equipment to be Demolished:

The following equipment and piping are to be demolished:

- Existing plant ash sluice piping between TP-1, TP-2, and TP-3.
- Elbow at TP-4 to be replaced with new tee.
- Valve ASB-1059 in ash line from Air Heater to be saved and relocated per UCC drawings.
- Demolish all equipment, piping, valves, and hardware necessary for the routing of new piping, valves, and fittings. All other equipment to remain and be Abandoned in Place.

4.2.3 Reference Drawings:

The following drawings show equipment and piping is to be demolished:

- PT-330-01 – Demolition Plan
- PT-330-02 – ASB System Demolition Plan

4.3 Equipment Installation:

4.3.1 General:

Equipment to be installed on the silo, that is provided by UCC and not installed by Silo Erection Contractor, can be installed ahead of outage once the silo has been erected. Erection procedures shall be in accordance with the recommendations of the equipment manufacturers. Equipment shall be checked prior to its installation to ensure that it is in conformance with the manufacturer's drawings. Any discrepancies shall be reported to the Purchaser. If the equipment to be erected by the Contractor is shipped unassembled, the complete assembly of such equipment shall be part of the work included under these specifications. Setting and all other erection work for this equipment shall be performed under this section.

4.3.2 Equipment to be installed:

The equipment to be installed under this contract includes but is not limited to:

- TCH-001 – Telescopic Spout
- FAN-002 – Telescopic Spout Vent Fan and Motor
- FAN-003 – Silo Vent Fan and Motor
- VNT-001 – Ventilation Louver
- VNT-002 – Ventilation Louver
- FLT-001 – Filter Separator including filter cages & filter bags
- VSL-002 – Transfer Hopper
- ME-001 – Mechanical Exhauster A including enclosures
- ME-002 – Mechanical Exhauster B
- FAN-004 – Exhauster Enclosure Vent Fan A
- FAN-005 – Exhauster Enclosure Vent Fan B
- Outlet Plenum and Manhole on Silo Roof
- Bin Outlet Hopper, Fluidizing air system including Fluidizing Elements and Diffuser Stones
- Access Ladder and Platform from Silo Roof to Filter Separator

Installation shall include all accessories and hardware associated with this equipment.

4.3.3 Location Tolerances:

All equipment shall be located within 1/8" of the dimensioned locations indicated on the drawings.

4.3.4 Leveling and Grouting:

The metal bases of all equipment installed under these specifications shall be grouted in place in accordance with the project drawings, equipment manufacturer's instructions and recommendations when available.

Prior to placing of grout, each base shall be set in place over its anchor bolts and shall be carefully aligned in proper position and then brought to accurate level, preferably by means of leveling screws with nuts above and below temporary lugs attached to the edges of the base. Steel shims may be used for leveling small bases, if permission is given by the Purchaser. Such shims shall be of a type that cannot be easily or accidentally dislodged. The use of wood blocking or wood wedges to hold the base in position will not be permitted.

4.3.5 Equipment Checkout:

All equipment shall be cleaned. Rotating machinery shall be lubricated and checked for freedom of movement by hand if possible, and all prerequisite operating conditions shall be established before the application of motive power. Equipment subject to pressure shall be checked for leakage.

4.3.6 Defects:

All defects in erection shall be corrected to the satisfaction of the purchaser. The dismantling and reassembly of Supplier-furnished equipment to remove defective parts, replace parts, or make adjustments shall be included as a part of the work under these specifications.

4.4 Piping Supply:

4.4.1 Piping Scope of Supply:

Scope of supply shall include all piping marked as “GC” or “by others” on UCC drawings. This includes the piping, valves, and fittings from the compressed air tie-in to the purchaser supplied air receiver and from the air receiver to valves, fluidizing system, and filter separator as indicated on the UCC drawings. All piping 2” and smaller shall be field routed. All piping, valves, and fittings shall be compatible with existing plant piping as shown in section 4.5.3.

All other piping shown on UCC drawings is supplied by UCC from tie-in points indicated to

4.4.2 Piping Isometric, Plan, and Section Drawings:

All piping 2” and smaller shall be field routed by the contractor. This includes the Compressed Air (CAA – service air and CAB – instrument air) system piping from existing plant piping to equipment at the fly ash silo.

All UCC piping shall be routed per UCC piping drawings C-55650-05-001 through -008

4.4.3. Existing Plant Materials:

Existing plant piping materials are shown by system code on the pipeline listing, drawing no. PT-333-05.

4.4.4 Piping Codes and Standards:

Work performed under these specifications shall be done in accordance with the following codes and standards. Unless otherwise specified, the applicable governing edition and addenda to be used for all references to codes or standards specified herein shall be interpreted to be the jurisdictionally approved edition and addenda. If a code or standard is not jurisdictionally mandated, then the current edition and addenda in effect at the date of this document shall apply. These references shall govern the work except where they conflict with the Purchaser’s specifications. In case of conflict, the latter shall govern to the extent of such difference:

Work	**In Accordance With**
Materials for piping and application of piping materials	The most current edition of the ASME Code for Pressure Piping, B31.1, Power Piping, including all addenda thereto
Sizes, schedule numbers, and dimensions of carbon steel and alloy steel pipe, and stainless steel pipe schedules not covered by ANSI B36.19M	ASME B36.10M

Work	In Accordance With
Wall thickness tolerances for carbon steel and alloy steel pipe	ASTM A530
Butt weld fitting manufacturing standard	ASME B16.9 and ASME B16.28
Socket-weld and threaded forged steel fittings manufacturing standard and minimum pressure class ratings	ASME B16.11
Carbon steel flanged fittings	ASME B16.5
Welding adapters	Paragraph 104.3 of ANSI/ASME B31.1
Socket weld fittings for use with stainless steel tubing	ASME B16.11
Braze joint fittings for use with copper tubing	ASME B16.22
Steel flange construction requirements	ASME B16.5
Compressed fiber gaskets and rubber gaskets	ASME B16.21
Ring joint gaskets	ASME B16.20
Flange bolting requirements - alloy steel bolting	ASME B16.5
Flange bolting requirements - carbon steel bolting	ASME B16.1
Carbon steel bolting dimensional standards	ANSI B18.2.1 and ANSI/ASME B18.2.2

4.4.5 <u>Piping Materials:</u>

All pipe shall be in accordance with the applicable codes and standards as designated in this section and the attachments thereto. Contractor shall submit from material supplier factory tests showing conformance to specified standards. Material substitutions shall not be made without written approval by the purchaser. The following materials shall be used:

Component	Material
Steel pipe	
Carbon steel	CAA-A system: ASTM A53 GR B
Carbon steel flange material standards, ANSI Pressure Classes 150 and 300	ASTM A181/A181M or ASTM A105/A105M
Carbon steel flange material standards, ANSI Pressure Class 600 and higher	ASTM A105/A105M

Component	Material
Carbon and alloy steel butt weld fitting material standards	ASTM A234/A234M
Carbon steel bolting materials	ASTM A307 Grade B, ASTM A563 Grade A Heavy Hex Nuts
Alloy steel bolting materials	ASTM A193 Grade B7, ASTM A194 Grade 2H Heavy Hex Nuts

4.4.6 Steel Pipe:

Steel piping shall be provided per the standards in sections 4.5.4, 4.5.5 and 4.5.6.

4.4.7 Valves:

Valves shall be provided per the standards in sections 4.5.4, and the pipeline list PT-333-05. Airline isolation valves shall be ball valves.

4.4.8 Pipe Fittings:

Contractor shall supply all fittings to provide a complete installation. Unless otherwise indicated on the attachment(s), steel fittings used shall be socket welded fittings and threaded steel fittings as specified in the drawings. Forged steel fittings shall be used for socket-welded and threaded connections. Socket-welded and threaded fittings shall conform to the applicable standards listed in 4.5.4. Metal thicknesses of fittings shall be adequate to provide actual bursting strengths equal to or greater than those of the pipe with which they are to be used. Minimum pressure class rating of socket-welded and threaded fittings shall be in accordance with the applicable standard listed in 4.5.4.

4.4.9 Piping Flanges:

Flanges shall conform to applicable standards indicated in 4.5.4. Unless otherwise specified, flanges shall be as follows:

For the case where the Contractor determines flanges to be furnished based on attached drawings or based on the Contractor's overall design, flanges mating with flanges on piping, valves, and equipment shall be of sizes, drillings, and facings that match all connecting flanges. Flange class ratings shall be adequate to meet the design pressure and temperature specified in the attachment(s) for the piping with which they are used. Flange materials shall be equivalent to the pipe with which they are used.

4.4.10 Gaskets:

Gaskets shall be furnished as indicated on the attachment(s). Gaskets shall be red rubber (SBR) or neoprene. Unless otherwise specified full face type gaskets shall be used with flat face flanges and raised face ring type gaskets shall be used with raised face flanges. Gaskets containing asbestos are not acceptable.

4.4.11 Flange Bolting:

Flange bolting shall be provided by UCC with all UCC supplied flanges.

Alloy steel bolting shall be used for joining all steel flanges having a design pressure rating of Class 150 or greater, except steel slip-on flanges.

Carbon steel bolting shall be used for joining all other flanges including steel slip-on flanges.

Bolting for bolt diameters 1-3/4 inches (45 mm) and larger shall consist of threaded studs and two nuts. Bolting for bolt diameters less than 1-3/4 inches (45 mm) may be threaded studs and nuts or bolts and nuts. Bolts and nuts shall be heavy hexagonal heads conforming to the standards listed in 4.5.5.

4.4.12 Unions:

All piping unions shall be of the ground joint type constructed of materials equivalent in alloy composition and strength to other fittings in the piping systems in which they are installed. Union pressure classes and end connections shall be the same as the fittings in the piping systems in which they are installed.

4.5 Piping Erection:

4.5.1 Piping Erection Scope of Work:

The work shall include erection of all piping, fittings, valves, supports, and piping specialties, as called for on the drawings and specifications, and by the codes and standards. This includes all materials furnished by the conveyor supplier and those furnished by The Contractor. The Contractor shall furnish all required materials and perform all related work for completion of the work included under these specifications unless specifically stated that item is Purchaser supplied.

Scope of Work	**Scope of Work for this package includes the following items:**		
System Name	**System Code**	**Category ***	**Material Supply**
Service water to bottom ash crushers, SGC1 tail flush, SGC1 head flush, and SGC2 tail flush	WSA	2	By Contractor
Instrument Air Piping	CAA	2	By Contractor
Conveyor Drain and Draw Down Piping	ASA	2	By Contractor
Relocation of Air Water Reservoir Water Piping	WSA	2	By Contractor
Relocation of Air Water Reservoir Air Piping	CAA	2	By Contractor
Pyrite Sluice Line	ASA	2	By Conveyor Supplier
SGC Vent Piping	ASA	2	By Conveyor Supplier
*Categories are as follows: 1. Hot (300°F and above operating temperature) piping system. 2. Cold (below 300°F operating temperature) piping system.			
The systems listed above include the following:			
Above grade piping	Yes		
Below grade piping	No		
Scope of Work includes the following services and materials:			

Routing of miscellaneous 2 inch (50 mm) and smaller pipe, fittings, and valves	Yes (Purchaser to approve of routing, suggested routing and tie-in points shown on drawings)
Installation of instrument and control piping and tubing as indicated on the drawings	Yes
Pressure testing of piping erected under these specifications	Yes-Pneumatic Leak Test
Hydrostatic testing of the following piping systems erected by others:	
Furnish water for hydrotest	N/A
Furnish chemicals for treatment of hydrotest water	No
Furnish and install piping insulation and lagging	Yes
Provide penetrations of structures for piping	Yes

4.5.2 Piping Erection Codes and Standards:

Work performed under these specifications shall be done in accordance with the following codes and standards. Unless otherwise specified, the applicable governing edition and addenda to be used for all references to codes or standards specified herein shall be interpreted to be the jurisdictionally approved edition and addenda. If a code or standard is not jurisdictionally mandated, then the current edition and addenda in effect at the date of this document shall apply. These references shall govern the work except where they conflict with the Purchaser's specifications. In case of conflict, the latter shall govern to the extent of such difference:

Work	In Accordance With
Piping Erection	ASME B31.1 Code for Pressure Piping ASME Boiler and Pressure Vessel Code

4.5.3 Piping Erection Execution:

All piping, valves, fittings, and piping specialties shall be erected in accordance with the requirements of this section and notes contained on UCC drawings C-55650-05-001 and -002. Any piping installation not specified herein shall be done in accordance with good engineering practice.

The drawings indicate the dimensions of the major lines. These dimensions are subject to change to accommodate the equipment, valves, and fittings actually furnished and the variations in equipment as actually installed. If the equipment, valves, fittings, and other components of the piping systems actually furnished differ in dimensions from those indicated,

the piping systems shall be altered as required to accommodate these changes. If, due to some unforeseen circumstance, the installation of the piping as indicated would result in an interference, the modifications or corrections required to install the piping free from interferences shall be made.

A field check of all connections to equipment and existing pipe, valves, or fittings for location, size, butt weld end preparation or flange drilling and facing shall be made prior to erecting interconnecting piping.

Allowances in fit-up and modifications to piping spools shall be made as required prior to completion of field welds and hoisting pipe spools into place as applicable.

Pipe, fittings, valves, and accessories shall be handled in a manner that will ensure installation in a sound, undamaged condition. Equipment, tools, and methods used in unloading, reloading, hauling, and laying pipe and fittings shall be such that the pipe and fittings are not damaged.

Particular care shall be taken to prevent damage to protective coatings. Slings shall be nonabrasive and located between the ends of each pipe section when lifting. Bare wire rope slings or the use of hooks to lift pipe will not be permitted.

4.5.4 Welding:

Field welding shall be in accordance with the requirements of the General Welding Section 4.7 of this specification. All piping welds and piping support welds will be visually inspected for cracks, undercutting, lack of fusion, incomplete penetration (if possible), surface porosity.

4.5.5 Piping Routing:

Piping routing and tie-in points shall be done according to the provided drawings. Special attention shall be given to securing a neat appearance. All piping shall be installed perpendicular or parallel to the major equipment, building structure, and floor levels except in special cases consented to by the Purchaser.
Pipe routing shall allow unobstructed maintenance of existing plant equipment, including maintenance pull spaces shown on the drawings. Pipe shall not interfere with operation of existing plant equipment including overhead cranes and access doors.

Valves shall be installed in such a manner that they can be operated from the main operating floors or platforms without the use of ladders or special operating devices where able.

Sketches of the proposed routing of all piping not located on the drawings shall be submitted to the Purchaser. The Purchaser's acceptance of all routings shall be obtained before the piping is erected. Approximate tie-in points are shown on the drawings but final location should be determined during routing of pipe.

4.5.6 Piping in Existing Areas:

Before installation of piping in existing areas, the routings of new piping to be installed shall be walked down to verify that the piping, insulation, and supports can be installed as designed without interference. If the piping as designed would interfere with existing facilities, the pipe routing shall be reviewed with the Engineer and shall then be altered or existing piping shall be relocated. All pipe routings shall be subject to acceptance by the Purchaser.

4.5.7 Thermal Expansion:

All piping shall be installed so that excessive or destructive expansion forces will not exist either in the cold condition or under conditions of maximum temperature.

4.5.8 Piping Supports:

All Pipe supports shall be installed by Contractor per the project drawings where specified. Pipe supports or hangers shall be provided and installed for all field routed piping. In all cases Contractor shall provide support to limit unsupported lengths of pipe to that suggested in ASME B31.1 Table 121.5. Support materials shall be installed level and square to piping and existing structure to be attached to. The use of standard support assemblies is allowed and recommended. Pipe supports shall not allow for excessive sag in piping or create excessive deformation due to misalignment.

Welding of pipe supports to structural steel forming a part of the building supporting structure shall be in accordance with the following. Welds shall run parallel with the length of the beam and all welding of lugs or attachments shall be staggered on the sides, with cooling allowed between subsequent weld bead deposits. Loaded beams shall be unloaded or properly shored prior to field welding if 10 percent or more of the flange width or web depth should be heated to over 500° F (260° C) at any one time.

Pipe supports shall utilize standard support materials when possible. Support designs shall minimize required field welding. “Bolt-on” materials such as beam clamps, pipe clamps, and threaded hanger rods are encouraged.

4.5.9 Cutting and Drilling Structures:

All necessary drilling, cutting, and patching of structures required for proper installation of piping or bolts shall be done, but only as indicated on the drawings, specified herein, or with the consent of the Purchaser. Any penetrations provided by others are shown on the drawings.

Holes cut in walls and roofs shall be complete with sleeves, collars, panel edge closures, reinforcing, flashing, and other accessories in accordance with the details indicated on the drawings. Hole size shall be drilled large enough to allow for expected expansion and contraction.

Field cut holes through walls or roof shall be done with proper cutting equipment, leaving a clean finished edge. Burning or other nonexact methods shall not be used.

Holes shall not be cut in structural steel. Wherever possible, clamps shall be used for attaching erection rigging. Lugs may be welded to structural steel only with the consent of the Purchaser. Upon completion of the work, the lugs shall be removed and the surfaces ground smooth.

Holes cut in grating or floor plate shall be banded and reinforced in accordance with the details indicated on the drawings, if details are provided. If no details are indicated on the drawings, holes cut in floor grating shall be banded with 1/4 inch (6 mm) steel bands or standard weight steel pipe welded to the main carrying bars. The bands shall extend the full depth of the grating and shall project 4 inches (100 mm) above the top of the grating.

If normal grating support is removed by the cutting of holes, the Contractor shall add miscellaneous angles or other steel as required to properly support the grating.

All openings in concrete shall be made by core drilling, saws, or similar clean cutting equipment.

All field cut holes and sleeves shall have adequate provisions to allow for insulation and expansion of piping as required.

Field cut holes through walls or roof shall be performed with proper cutting equipment, leaving a clean finished edge. All holes in walls or roofs shall be complete with sleeves, collars, panel edge closures, reinforcing, flashing, and seals.

4.5.10 Equipment Connections:

When attaching piping to equipment connections, special care shall be taken so that excessive stresses are not transmitted to, and imposed upon, such connections.

In the case of flanged connections, the piping shall be installed and supported so that accurate matching of bolt holes and uniform contact over the entire flange area are obtained prior to the installation of any flange bolts. Bolts shall be carefully tightened to uniformly compress the gaskets and minimize flange stress.

Fit-up of the flanges to equipment connections may be checked after the bolting has been installed at the request of the Project Field Manager. Such bolting shall be removed and replaced and new gaskets installed if requested by the Purchaser.

Final alignment checks and manufacturer representative's acceptance of connection alignment shall only be performed with all travel stops in place and all temporary supports removed. Making up of the welded joints on the conveyor system shall be done in strict accordance with the equipment manufacturer's requirements. It shall be the Contractor's responsibility to determine the manufacturer's requirements from the provided drawings.

After startup, if the connecting piping is found to be exerting excessive strains on the equipment, the piping shall be altered by adjusting the piping supports, cutting and rewelding joints, and removing sections of piping, all as necessary to eliminate the excessive strains.

4.5.11 Valve Installation:

Excessive piping strains and bending moments on valves shall be avoided. Excessive strains and moments will result in distorted valve seats. Valve should be checked for any debris that may prevent operation prior to final installation.

4.5.12 Making Flanged Connections:

The faces of all flanges and gaskets shall be wiped clean when making up flanged joints. The contact faces of all flanges shall meet squarely, and particular care shall be exercised in pulling up flanged joints to prevent overstressing of flanges or flange bolting.

The threads of all bolting shall be painted with a suitable thread lubricant before the joint is made. The lubricant shall be suitable for the operating temperatures involved.

4.5.13 Miscellaneous Small Connections:

All openings for vents, drains, instruments, and other similar connections made after erection of the piping systems shall be drilled. No burning of such openings will be permitted. Connections shall be made in accordance with the details indicated on the drawings. Any burrs remaining on the inside wall of the pipe after drilling shall be removed.

4.5.14 Damage to Machined Surfaces:

Special measures shall be taken to avoid damage to machined surfaces such as flange facings or pipe ends that have been prepared for welding. Any damage to welding ends shall be repaired prior to butting up for welding. If a flange facing is marred, scratched, or damaged to such an extent that, in the opinion of the Purchaser, the flange will be a cause for leakage, such flange shall be repaired or replaced.

When welding to equipment that is in the assembled condition, separate ground leads shall be attached to the equipment, pipes, or components to prevent stray welding currents from arcing the internals of the equipment. Wherever possible, the ground lead shall be 2/0 cable or larger directly and mechanically connected adjacent to the welding area and returned directly to the welding power source.

4.5.15 Penetration Seals:

Penetration seals shall be furnished and installed on piping that passes through walls and floors where indicated on the drawings.

Seals shall be designed for any expected axial and lateral movements.

For penetrations through corrugated steel building panels utilize the following:

Sealing method shall utilize EPDM rubber flashing boot with formable metal strip for molding to existing panel profile. DEKS Dektite roof flashing components or approved equal shall be utilized for wall penetrations though steel building panels. EPDM flashing boot shall be correct size for piping and shall provide tight fit around pipe diameter. Silicone shall be applied at the pipe and the building panel interface according to the manufacturer’s recommendations.

For penetrations through concrete or masonry walls utilize the following:

Hole shall be core drilled slightly larger than pipe diameter to allow for pipe movement. Gaps shall be sealed with expanding insulation.

Seals shall be installed and sealed in accordance with the manufacturer's installation instructions.

4.5.15 Pressure Testing:

Contractor will be responsible for the tests listed below of newly installed piping.

Compressed air lines will be subjected to an In-Service Leak Test (ISLT) according to the following.
Cycle: Pressurize the entire pipe to the rated pressure five (5) times, holding at rated pressure for five (5) minutes and at zero (0) pressure for five (5) minutes during each cycle. This requirement for cycling is in addition to ASME B31.1 requirements.

Hold: Pressurize the entire pipe to the specified test pressure and hold at this pressure for two (2) hours.

Test: Reduce pressure to specified design pressure and walk down the entire system to check for leaks. A liquid with foaming agent applied to all joints may be used to aid in

leak determination. In the event of repair needed all liquid shall be cleaned prior to beginning repair work.

Repair: If any leaks are found, they shall be repaired per manufacturer's recommendations and the entire process specified above shall be repeated until the entire system is demonstrated to be leak free.

Water and air lines shall be pneumatically pressure tested for leaks. Contractor shall install blind flange at either end with airline connection to one of the flanges to allow for pressurization. Tests shall not commence until pressure is established at or above the prescribed test pressure and the pressurizing source has been disconnected from the system. The pressure decay shall be zero for a period of 10 minutes. Should pressure decay occur, the test pressure shall be reduced to design pressure and the system checked for leaks. The test shall be repeated after the system defects have been repaired. A liquid with foaming agent applied to all joints may be used to aid in leak determination. In the event of repair needed all liquid shall be cleaned prior to beginning repair work.

4.5.16 Cleaning of Pipe:

The inside and outside surfaces of all pipe, tubing, valves, and fittings shall be cleaned of all dirt, sand, loose mill scale, and other foreign materials immediately after removal from storage and before erection. All lines shall be thoroughly flushed or blown before being placed in service. All compressed air lines shall be air blown.

4.5.17 Final Adjustment:

After a period of initial operation, all flange bolting shall be checked for tightness, and all hangers readjusted.

4.6 Welding:

4.6.1 General Welding Requirements:

Unless otherwise specified, the applicable governing edition and addenda to be used for all references to codes or standards specified herein shall be interpreted to be the jurisdictionally approved edition and addenda. If a code or standard is not jurisdictionally mandated, then the current edition and addenda in effect at the time of (contract or specification) approval shall govern.

For the purposes of this contract the following codes shall apply:
ASME B31.1
ASME Boiler and Pressure Vessel Code
MSS SP-58 for pipe support welding

All piping under this contract shall fall under the P-1 classification.

Where requirements of a referenced code or standard differ the more stringent or restrictive requirements shall apply.

Any request for deviation from specified requirements shall be submitted in writing and shall include the proposed deviation, rationale for the deviation, any technical data supporting the deviation, and historical experience supporting the deviation.

4.6.2 Welding Processes:

Unless otherwise specified, only shielded metal arc welding (SMAW), gas metal arc welding (GMAW), flux cored arc welding (FCAW), submerged arc welding (SAW), plasma arc welding (PAW), stud welding, and gas tungsten arc welding (GTAW) processes shall be permitted. Other welding processes may be used, provided the governing code or standard permits it and written approval has been granted by the Purchaser.

4.6.3 Welding Procedure Qualification:

Welding procedures shall be prepared and qualified in accordance with ASME Section IX except as modified by ASME B31.1.

Welding Procedure Specifications (WPS) and applicable Procedure Qualification Records (PQRs) shall be submitted for review by the Purchaser prior to start of fabrication. Submittal of welding procedures and applicable PQRs shall apply to all Contractors and subcontractors. Contractors shall review the documents in accordance with the applicable code and specification requirements and shall accept all of their subcontractors' welding procedures and applicable PQRs prior to submitting accepted documents to the B&V Materials Applications Section.

Due to the number of different nickel alloys within a nickel alloy P-number or S-number, WPSs for welding P-number or S-number 41 through 49, nickel alloy materials should identify the base materials by the Unified Numbering System (UNS) to aid in the proper application of the WPS, e.g., P45 (UNS N08367). As an alternative to identifying the UNS number on the WPS, the UNS number of the base material from the WPS may be cross referenced to the WPS by other means.

Standard Welding Procedure Specifications (SWPSs) produced by the American Welding Society (AWS) may be used when permitted by the jurisdictional code. Any supplemental requirements mandated by the jurisdictional code shall be met.

4.6.4 Welder/Welding Operator Performance Qualification:

Welders and welding operators shall be qualified in accordance with ASME Section IX except as modified by ASME B31.1. The welder and welding operator qualification records shall be available at the shop facility or construction site and shall be made available for review when requested and prior to start of work.

Each manufacturer or contractor is responsible for the qualification of welders or welding operators. Field welder or welding operator performance qualification testing shall be performed under the full supervision and control of the manufacturer or contractor at the project site or approved offsite testing facility prior to start of work.

4.6.5 United Association (UA) Welder Qualification:

Welders qualified and certified in accordance with the United Association (UA) Welder Qualification Program may be permitted to perform welding at the project construction site without further testing, provided the following requirements are met:

The UA Welder Qualification Program has been approved by state authorities and clients. Documentation of the UA Welder Qualification Program acceptance by the state jurisdiction and client shall be submitted to B&V Materials Applications Section and the Purchaser prior to permitting implementation of the program.

The UA Welder Qualification Program shall not be accepted for ASME Section I, boiler proper and ASME B31.1, boiler external piping. This program is applicable only for ASME B31.1, nonboiler external piping.

Project construction site personnel shall be provided with the applicable UA Welder Performance Qualification Test Record and the UA Welder's Record of Continuity as specified by ASME B31.1, Paragraph 127.5.3 (B).

If the provided documentation is acceptable, project construction site personnel shall prepare and sign a welder performance qualification record accepting responsibility for the ability of the welder in accordance with ASME B31.1, Paragraph 127.6.

At a minimum, the welder shall perform a workmanship sample of the processes qualified, or the first production weld of each welder will be 100 percent radiographed for performance qualification verification as permitted by ASME Section IX, QW-304.1. If the production weld does not meet the radiographic standards, the welder has failed the test. In this event, the production weld shall be repaired by a qualified welder.

4.6.6 Weld End Preparation:

Pipe ends for socket-weld connections shall be reamed to full inside diameter to remove all burrs and obstructions and to ensure proper assembly in accordance with ASME B31.1, Paragraph 127.3(E).

When weld joint details are specified by design documents, they shall be prepared in accordance with design documents.

4.6.7 Filler Materials:

Welding filler metal shall comply with the requirements of the referenced code and any modified requirements specified herein. The filler metal shall be as specified in the applicable WPS.

Unless otherwise specified, the welding filler metal shall have a chemical composition as similar as possible to the base materials to be welded. The finished weld as deposited, or after postweld heat treatment (PWHT) when required, shall be at least equal to the base metal as to strength, ductility, notch toughness, corrosion-erosion resistance, or other physical or thermal properties.

Unless otherwise approved in writing, the GTAW process shall require the addition of filler metal.

Unless otherwise specified, the use of the -G electrode/wire classification is prohibited.

SAW multipass weld deposits shall use an essentially neutral flux. Alloy, semiactive, or active fluxes shall not be used except as specified otherwise. Fluxes that compensate for losses of alloying elements are permitted. Active flux may be used for single pass welding of carbon steels, provided the weld deposit thickness is approximately 1/4 inch (6 mm) maximum each side for a double-V-groove joint design or approximately 1/4 inch (6 mm) one side for a single-V-groove joint design. The joint thickness shall not exceed 1/2 inch (13 mm) nominal.

The SAW process shall not use recrushed slag.

SMAW low-hydrogen type electrodes, including stainless steel and nickel and nickel alloy electrodes, shall be purchased in hermetically sealed or vacuum packed containers only.

4.6.8 Filler Material Control:

Storage, handling, and drying of SMAW electrodes and SAW flux shall, as a minimum, be in accordance with the manufacturers' recommendations. In addition, SMAW low-hydrogen type carbon and low alloy steel electrodes shall be stored in ovens at 250° F (120° C) minimum after the hermetically sealed or vacuum packed container is opened. Bare rod in straight lengths shall be individually flag tagged, stamped, or otherwise identified with the AWS classification or product classification. Each spool of solid or cored rod shall be tagged, labeled, or otherwise identified with the AWS classification or product classification. SMAW low-hydrogen type covered electrodes shall only be reconditioned one time. Any SMAW low-hydrogen type electrodes that have been wet or have damaged coatings shall not be used. Any welding filler metals or fluxes not readily identifiable shall not be used.

4.7 Fabrication Controls:

4.7.1 Welding Preheat and Interpass Temperature:

The preheat and interpass temperature requirements are essential variables and shall be in accordance with the referenced code and as specified herein. The WPS for the material being welded shall specify the minimum preheat and maximum interpass temperature requirements. The thickness used to determine preheat requirements shall be the thickness of the thickest part at the point of welding. Preheating shall be applied prior to any welding or thermal removal process.

Preheat and interpass temperatures shall be monitored and checked by temperature indicating crayons, thermocouples, surface contact pyrometers or thermometers, or other suitable methods.

Preheating shall be performed using electric resistance, induction heating, or oxyfuel heating methods that will provide uniform heating over the complete weld or thermal removal process area.
Preheat of pressure retaining components for carbon steel P-number 1 or S-number 1 materials shall be 175° F (79° C) when the material specified carbon content is in excess of 0.30 percent and the nominal thickness at the joint is in excess of 1 inch (25 mm). In addition, 200° F (93° C) minimum preheat is required for nominal thickness over 1.25 inches (32 mm), regardless of carbon content. A minimum preheat temperature of 50° F (10° C) is required for all other carbon steel P-number 1 or S-number 1 materials.

4.7.2 Miscellaneous Fabrication Control Requirements:

Welding shall not be performed when surfaces of the parts to be welded are wet. The parts to be welded shall be protected from deleterious contamination and from rain, snow, and excessive wind during welding.

Prior to welding, the weld preparation and adjacent base material surfaces shall be cleaned and kept free from paint, oil, grease, dirt, scale, rust, and other foreign materials.

The weld end preparation on carbon and low alloy steel materials that will be stored for extended periods of time may consist of coating with deoxaluminate or an equivalent protective material. This coating may be welded through if applied within the manufacturer's maximum weldable limit of 1.25 mils. Complete removal of the coating is neither required nor prohibited, unless signs of rust or other foreign materials such as oil, grease, dirt, or excessive coating are apparent, in which case these areas shall be cleaned.

Acceptable cleaning solvents include new or redistilled acetone (acetone reclaimed by other methods shall not be used), alcohol (ethyl, methanol, or isopropanol), methyl ethyl ketone, or toluene (toluol). Halogenated cleaning solvents shall not be used for cleaning or degreasing.

All groove butt joints shall be complete joint penetration unless specified otherwise by design documents or the applicable code.

Complete penetration joints welded from both sides shall have the root of the first layer or pass chipped, gouged, ground, or machined to sound metal prior to welding from the second side.

Welded joints shall be made by completing each weld layer before succeeding weld layers are deposited. Partial fill passes are permitted to correct localized underfill conditions and for the purpose of maintaining alignment. Block welding is prohibited.

As-welded surfaces are permitted; however, the surfaces of welds shall be uniform in width and size throughout their full length. The cover pass shall be free from coarse ripples, grooves, overlaps, abrupt ridges, and valleys. The surface condition of the finished welds shall be suitable for the proper interpretation of nondestructive examination. If the surface of the weld requires grinding to meet the above criteria, care shall be taken to avoid reducing the weld or base material below the minimum required thickness.

All socket welds shall be welded using only the GTAW or SMAW welding processes and shall meet the following requirements:

A minimum of two weld layers is required for pipe or tube over 1/2 inch (13 mm) nominal pipe size. Either GTAW or manual SMAW processes may be used.

For pipe or tube 1/2 inch (13 mm) or less in nominal pipe size, the GTAW process should be used and a single weld layer is permitted. The SMAW process may be used provided a minimum of two weld layers is deposited.

Welding slag and spatter shall be removed from all welds.

A gas or gas mixture used for shielding shall be welding grade or shall meet Specification SFA-5.32 and have a dew point of -40° F (-40° C) or lower.

Fabricators and Contractors shall check for residual magnetism at each end of the machined field pipe weld bevels. Weld bevels containing residual magnetism greater than 5 gauss shall be demagnetized.

Arc strikes outside of the area of permanent welds should be avoided on any base metal. Cracks or blemishes caused by arc strikes shall be ground to a smooth contour and checked to ensure soundness.

Peening is prohibited. The use of power tools for slag removal is not considered peening.

The application of heat to correct weld distortion and dimensional deviation without prior written approval from the Purchaser is prohibited.

Temporary attachments to pressure boundary components should be avoided and only used when absolutely necessary. When required, clamps, welded clips, tack welds, or other appropriate means shall be used to properly align the joint for welding. Welded attachments used for fit-up shall be compatible with the base material and shall be welded with a qualified welding procedure. Attachments shall not be knocked off base material. The attachments shall be removed by suitable methods, such as grinding, machining, or sawing, followed by grinding flush with the base material. When thermal cutting is used to remove attachments, approximately 3/16 inch of material shall be left for final removal by grinding. The ground area shall then be visually examined for defects. The area from which attachments have been removed shall be examined as required by the governing code or specification. Any defects found shall be repaired.

All defects in welds or base materials shall be removed and repaired in accordance with the referenced code.

Welding machine ground leads and clamps shall be located to avoid passing welding current through equipment, snubbers, bearings, or any other items where transfer of electrical current may result in damage to equipment.

A complete repair procedure for repairs that are documented as the basis of a nonconformance report shall be submitted to the Purchaser for review and approval in writing prior to performing the repair. If repair by welding is required, the applicable WPSs and supporting PQRs shall be submitted with the repair procedure. All nonconformance report dispositions shall comply with applicable code requirements.

4.7.3 Nondestructive Examination (NDE):

The Contractor shall conduct visual inspection of all piping and pipe support welds for cracks, undercutting, lack of fusion, incomplete penetration (if possible), surface porosity. If deemed necessary the Contractor shall hire an independent contractor to handle all of NDE tests and associated cost. Repair of defective welds and reexamination shall be at the Contractor's expense. Weld acceptance standards shall be in accordance with applicable codes and design specifications. If an individual interpretation is in question, the final authority shall be the responsibility of the Purchaser

NDE shall be performed in accordance with written procedures that are prepared in accordance with the referenced code and as specified herein.

NDE personnel performing NDE other than visual shall be qualified and certified for the applicable NDE method. Personnel shall meet written practice ASNT SNT-TC-1A, unless permitted otherwise by the referencing code. NDE personnel qualification records shall be made available for review when requested.

Personnel performing or supervising the visual examination of welds, including ASME Boiler and Pressure Vessel components, shall be qualified as a Certified Welding Inspector (CWI) in accordance with the American Welding Society AWS QC 1 or previously approved equivalent program. Visual inspectors' qualifications and certificates shall be submitted for review and verification.

All welds shall receive 100 percent visual examination. Visual weld examination acceptance criteria and other NDE acceptance criteria shall be in accordance with applicable referenced codes and design documents. Records of these examinations shall be documented.

4.7.4 Records:

Records of inspections, NDE, impact testing, hardness testing, PWHT charts or records, base material test reports, filler material test reports, radiographic film with applicable reader sheets, deviation requests including resolution documentation, nonconformance reports, and other records, as required, shall be retained by the Contractor for 5 years after completion of the work. Records shall be submitted to the Purchaser.

Quality records, including applicable Data Report Forms generated by a manufacturer or assembler in accordance with an approved Quality Control System and applicable Certificates of Authorization from the ASME Boiler & Pressure Vessel Code, shall be provided in accordance with the approved contract or purchase order. Quality records shall be legible, appropriately completed, and sufficiently detailed to permit traceability to the item or activity involved.

4.8 Grouting:

Table 1 – General		
General		
1	Application	Grout placed under baseplates, soleplates, and skids for equipment and structures. Equipment grouting shall be performed in accordance with the materials and procedures specified by the equipment supplier in their installation/instruction manual. When the equipment supplier does not specify the requirements for equipment grouting, equipment grouting shall comply with the requirements of this specification and the grout manufacturer's installation procedures and requirements.
Codes and Standards		
2	Cementitious Grout	ASTM C1107
3	Fluid grout test for cementitious grout	ASTM C939
4	Flowable grout test for cementitious grout	ASTM C1437
5	Compressive strength test method for cementitious grout	ASTM C109 as modified by ASTM C1107
6	Compressive strength test method for epoxy grout	ASTM C579, test method B

Table 2 - Products		
Requirements and Performance		
1	**General Purpose Non-shrink Cementitious Grout**	
2	Minimum Requirements	ASTM C1107
3	Temperature Range	Between 50° F (10° C) and 90° F (32° C).
4	Minimum Compressive strength at 28 days	5000 psi (35 MPa)
5	Working times at a flowable consistency	30 minutes
6	Bleeding	None at manufacturer's maximum recommended water content.
7	Approved Products	Master Builders "MasterFlow 100 or 555" L & M "Duragrout" Dayton Superior 1107 Advantage Unisorb "V-1" Non-shrink Euclid "NS" Grout Five Star Products "Five Star Grout"
8	**Precision Non-shrinking Cementitious Grout**	
9	Minimum Requirements	ASTM C1107
10	Temperature Range	Between 45° F (7° C) and 90° F (32° C).
11	Minimum Compressive strength at 28 days	5000 psi
12	Working time at a flowable consistency	30 minutes
13	Bleeding	None at manufacturer's maximum recommended water content.

14	Approved Products	Master Builders "MasterFlow 928,555, or 4316 Grout" Five Star Products "Five Star Fluid Grout 100" Five Star Products “Five Star Grout” L & M "Crystex" Unisorb "V-1 Non-shrink" Euclid "Hi-Flow" CGM Pro Grout 100

Table 3 - Execution		
General		
1	Surface preparation, mixing, placing, finishing, and curing	In accordance with Grout Manufacturer’s Instructions.
2	Anchor bolt protection	In accordance with Grout Manufacturer’s Instructions.
3	Installation of shims/wedges and leveling devices	In accordance with Grout Manufacturer’s Instructions.
Additional Requirements		
4	Surface preparation of concrete	Remove laitance, expose sound surface mortar, and provide an exposed aggregate surface. Remove oil, grease, curing compound, or other foreign materials. Use of a chemical surface retarder to expose aggregate immediately after placing and finishing concrete is permitted on new installations, unless the grout manufacturer requires a mechanical means of roughening.
5	Installation methods	Sufficient to provide complete, void free filling of all space beneath the baseplate
6	Forms	Enclose the base and contain flowable grout mixtures.
7	Spacing between the form and base	Sufficient to permit manipulation of the grout and not less than 0.75 inches.
8	Form height	Top higher than the bottom of base.
9	Anchor bolt sleeves	Remove closed cell foam and all water prior to grouting operations.
10	Alignment and Level	
11	Pre-placement verification	By Purchaser.
12	Control	Three-point control.
13	Leveling method	Leveling screws or steel shims/wedges.
14	Leveling screw nut	Locate above and below temporary lugs attached to the base.
15	Steel Shims/Wedges	Prevent steel shims/wedges from being dislodged during grout placement.
16	Steel Shim/Wedge Grout Encapsulation	2 inch (50 mm) minimum Steel shims/wedges shall be a minimum of 2 inches (50 mm) from the edge of the baseplate or skid frame.
17	Wood Shims/Wedges	Prohibited.
18	Finishing	
19	Grout Protection	Protect from disturbance until a stiff set is obtained.

20	Edges of grout (grout shoulders)	Remove forms and excess grout. Width of grout shoulders should not exceed 3 inches (75 mm). Avoid large areas of unconfined grout.
21	Grout Edge Bevel	Approximately 45 degrees from bottom of base
22	Exposed Edges and Adjacent Surfaces	Clean to remove all grout. 90° edges should have a 45° chamfer. The chamfer may be cut into the grout before final set (cementitious grout only) or built into the formwork (epoxy grout).
Applications		
23	General Purpose Non-Shrinking Cementitious Grout	Pipe Supports Instrument Stands Stairs Light structural columns Tank Bases (required grout flow less than 2 ft)
24	Precision Non-Shrinking Cementitious Grout	Heavy structural columns Fans Pumps Compressors Tank Bases (required grout flow more than 2 ft)

4.9 Post-Installed Anchorage to Concrete (Structural):

General		
1	Application	Anchorage to hardened concrete using Mechanical (Expansion) or Adhesive Anchors for specific uses as indicated below.
2	Structural anchors shall be suitable for cracked concrete	Yes
3	Seismic Design Category	A
4	Furnish and Install	Anchors, compatible nuts and washers, adhesives
5	Installation Requirements	In accordance with Manufacturer's Printed Installation Instructions (MPII) and ICC-ES Evaluation Reports. Reinforcing shall not be cut during anchor installation without approval by Purchaser.
Codes and Standards		
6	Concrete Design Code	ACI 318-14, Chapter 17
7	Acceptance Criteria basis for ICC Evaluation Reports – Mechanical Anchors	ICC-ES AC193
8	Acceptance Criteria basis for ICC Evaluation Reports– Adhesive Anchors	ICC-ES AC308
Requirements and Performance		
9	**Mechanical (Expansion) Anchors**	
10	Usage	Structural elements. Guardrails. Fire Protection components including pipe hangers Suspended or horizontal pipe or cable tray supports where the tributary load to the support exceeds 400 pounds (180 kg).
11	Type	Wedge Anchor
12	Compliance with ICC Evaluation Report	Required
13	Anchor Selection based on Exposure Conditions	
14	Interior, Dry	Hilti Kwik-Bolt TZ, Carbon steel with electroplated zinc coating (ICC ESR-1917)
15	Interior, Damp or Wet. Exterior.	Hilti Kwik-Bolt TZ, Type 304 Stainless Steel body, nut, and washer, Type 316 Stainless steel sleeve (ICC ESR-1917)
16	Saltwater exposure. High corrosion locations.	Not Applicable
17	Alternate manufacturers. See Note 2.	ITW Red Head, DeWalt, Simpson Strong-Tie
18	**Mechanical (Expansion) Anchors**	
19	Usage	Mechanical and electrical equipment weighing over 400 pounds (180 kg). Bottom supported pipe or cable tray supports where the tributary load to the support exceeds 400 pounds (180 kg).
20	Type	Wedge Anchor
21	Compliance with ICC Evaluation Report	Not required

22	Anchor Selection based on Exposure Conditions	
23	Interior, Dry	Hilti Kwik-Bolt TZ, Carbon steel with electroplated zinc coating
24	Interior, Damp or Wet. Exterior.	Hilti Kwik-Bolt TZ, Type 304 Stainless Steel body, nut, and washer, Type 316 Stainless steel sleeve
25	Saltwater exposure. High corrosion locations.	Not Applicable
26	Alternate manufacturers. See Note 2.	ITW Red Head, DeWalt, Simpson Strong-Tie
27	**Adhesive Anchors**	
28	Usage	Structural elements. Guardrails. Fire Protection components including pipe hangers except adhesive anchors shall not be used in an upwardly inclined installation. Suspended, horizontal, or bottom supported pipe or cable tray supports where the tributary load to the support exceeds 400 pounds (180 kg). Mechanical and electrical equipment weighing over 400 pounds (180 kg).
29	Compliance with ICC Evaluation Report	Required
30	Anchor Selection based on Exposure Conditions	
31	Interior, Dry	ASTM F1554 Threaded Rod, Grade 36 unless otherwise noted on drawings. Hot dipped galvanized.
32	Interior, Damp or Wet. Exterior.	ASTM F1554 Threaded Rod, Grade 36 unless otherwise noted on drawings. Hot dipped galvanized.
33	Saltwater exposure. High corrosion locations.	Not Applicable
34	Adhesive	Hilti HY-200 (ICC ESR-3187)
35	Alternate manufacturers. See Note 2.	ITW Red Head, DeWalt, Simpson Strong-Tie
36	Minimum Age of Concrete Prior to Anchor Installation	21 days
37	Concrete Temperature Range at time of Installation	14 F (-10 C) to 104 F (40 C)
38	In-Service Concrete Temperature Limits	Maximum short-term temperature 176 F (80 C), maximum long term temperature 110 F (43 C)
39	Moisture Condition at time of installation	Dry Concrete
40	Type of Lightweight Concrete	Not Applicable
41	Hole Drilling and Preparation	Hammer drill only. Clean hole with steel brushes and compressed air.
42	Installer Certification Requirements for Horizontal or Upwardly Inclined Anchors	ACI/CRSI Adhesive Anchor Installation Program
Inspection		
43	Building Code Required Special Inspection per IBC Chapter 17.	Not Required
44	Inspection of Mechanical Anchors as specified in Note 3, shall be performed by	Purchaser
45	Inspection of Adhesive Anchors as specified in Note 4, shall be performed by	Purchaser

Notes	
	1. Not Used. 2. Pre-approval by Purchaser required prior to use of product from alternate manufacturer. Alternate product shall provide comparable performance to specified anchor. Vendor data sheets and ICC-ES Evaluation Report required with submittal. Purchaser reserves the right to reject an alternate product or manufacturer, even if listed herein. 3. Mechanical (Expansion) Anchors Inspections. Perform the following inspections during initial installation of each type and size for each installer followed by 5% of remaining anchors: Verify horizontal and vertical location of anchor(s). Verify diameter and depth of drilled hole, compliance with drill bit requirements. Verify hole is clean, dry, and free of debris. Verify installer has cleaned holes using clean, oil-free compressed air, a wire brush and then compressed air again. Verify anchors are free of oil, dirt, loose rust, loose dry mortar, or damage. Verify anchor embedment and tightening torque. Verify installation in accordance with manufacturer's printed installation instructions. 4. Adhesive Anchor Inspections. Perform the following inspections during initial installation of each type and size for each installer followed by 5% of remaining anchors, except for anchors installed horizontally or upwardly inclined which shall be 100% inspected: Verify horizontal and vertical location of anchor(s). Verify diameter and depth of drilled hole, compliance with drill bit requirements. Verify hole is clean, dry, and free of debris. Verify installer has cleaned holes using clean, oil-free compressed air, a wire brush and then compressed air again. Verify anchors are free of oil, dirt, loose rust, loose dry mortar, or damage. Verify application of adhesive to bottom of hole and during withdrawal. Verify insertion of anchor to proper depth with proper length extending out of hole. Verify proper coating of anchor by noting extrusion of adhesive from hole and twisting to coat entire anchor. Verify installation in accordance with manufacturer's printed installation instructions.

4.10 Post-Installed Anchorage to Concrete (Non-Structural):

General		
1	Application	Anchorage of the following to hardened concrete using Mechanical (Expansion) or Adhesive Anchors: Architectural components Suspended, horizontal, or bottom supported pipe or cable tray supports where the tributary load to the support is 400 pounds (180 kg) or less with the exception of fire protection components including pipe hangers. Mechanical and electrical equipment weighing 400 pounds (180 kg) or less.
2	Furnish and Install	Anchors, compatible nuts and washers, adhesives
3	Installation Requirements	In accordance with Manufacturer's Printed Installation Instructions (MPII). Reinforcing shall not be cut during anchor installation without approval by Purchaser.
Requirements and Performance		
4	**Mechanical (Expansion) Anchors**	
5	Type	Sleeve or Drop-in anchor. See Note 1.
6	Anchor Selection based on Exposure Conditions	
7	Interior, Dry Interior, Damp or Wet. Exterior	Hilti HLC Sleeve Anchor, carbon steel with zinc plated coating; Hilti HDI/HDI-L Drop-in Anchor, carbon steel with zinc plated coating ITW Red Head Dynabolt sleeve anchor, carbon steel with zinc plated coating; ITW Red Head Multi-Set II drop-in anchor, carbon steel with zinc plated coating DeWalt Lok-Bolt AS sleeve anchor, carbon steel with zinc plated coating; DeWalt Steel Dropin anchor, carbon steel with zinc plated coating Simpson Strong-Tie Sleeve-All sleeve anchor, carbon steel with zinc plated coating; Simpson Strong-Tie Drop-in Anchor, carbon steel with zinc plated coating
8	Saltwater exposure. High corrosion locations.	Not Applicable
9	Alternate manufacturers	See Note 2.
10	**Adhesive Anchors**	
11	Type	Threaded Rod
12	Anchor Selection based on Exposure Conditions	
13	Interior, Dry	ASTM F1554 Threaded Rod, Grade 36 unless otherwise noted on drawings. Hot dipped galvanized.
14	Interior, Damp or Wet Exterior	ASTM F1554 Threaded Rod, Grade 36 unless otherwise noted on drawings. Hot-dip galvanized.

15	Saltwater exposure. High corrosion locations.	Not Applicable
16	Adhesive	Hilti HY-200
17	Alternate manufacturers. See Note 2.	ITW Red Head, DeWalt, Simpson Strong-Tie
18	Type	Internally Threaded Insert. Use only where specifically noted on drawings.
19	Anchor Selection based on Exposure Conditions	
20	Interior, Dry	Hilti HIS-N Carbon Steel with electroplated zinc coating
21	Interior, Damp or Wet Exterior	Hilti HIS-RN 316 SS Stainless Steel
22	Saltwater exposure. High corrosion locations.	Not Applicable
23	Adhesive	Hilti HY-200
24	Alternate manufacturers	See Note 2
Notes		
	1. Structural mechanical anchors specified in 4.9 may be substituted for non-structural mechanical anchors specified herein. 2. Pre-approval by Purchaser required prior to use of product from alternate manufacturer. Alternate product shall provide comparable performance to specified anchor. Vendor data sheets required with submittal. Purchaser reserves the right to reject an alternate product or manufacturer, even if listed herein.	

4.11 Insulation:

4.11.1 Piping Insulation and Jacketing:

Piping insulation and jacketing shall be furnished for the piping as indicated on the UCC piping drawings C-55650-05-001 through -008. The following pipe shall be insulated:

- Ash conveyor piping from outside wall of precipitator building to filter separator (dwg no. C-55650-05-003 and -004)
- Suction piping between filter separator and mechanical exhausters (dwg no. C-55650-05-004)
- Discharge piping from mechanical exhausters to the flue gas duct (dwg no. C-55650-05-006).
- All compressed air piping outside of precipitator building to silo.

General Requirements	
Maximum surface temperature allowable for personnel protection	150° F (66° C)
Material Types	
Piping insulation materials shall be	1-1/2” diameter Mineral fiber with a nominal density of 8 lbs/ cu ft
Material Requirements	
Where mineral fiber blanket is furnished, it shall be provided	Without facings **or** With woven wire mesh facing on one side **or** With woven wire mesh facing on both sides **or** With expanded metal lath facing on one side **or** With expanded metal lath facing on both sides
Jacketing	Embossed aluminum with a minimum thickness of 0.016 inch
Method of securing insulation to equipment shall be	Steel bands **or** Welded studs **or** Impaling pins and speed washers **or** Steel bands, welded studs, or impaling pins and speed washers, as determined for each application
Jacketing for elbows shall be	Preformed aluminum elbows **or** Field fabricated from aluminum sheet **or** Preformed aluminum elbows or field fabricated from aluminum sheet
A moisture barrier is required for jacketing for these systems or areas	All outdoor installations
Moisture barrier shall be	3 mil (76 micron) polysurlyn moisture barrier factory heat laminated to the interior surface **or** 1.5 mil (0.040 mm) polyethylene and 40 pound basis weight (65.2 grams per square meter) kraft paper
Neoprene washers are required on screws for the listed jacketing	All outdoor installations

4.12 Field Applied Protective Coatings:

Table 1 - General		
General		
1	Application	Field coatings
Codes and Standards		
2	Code compliance	Use the jurisdictionally approved code editions and addenda for all codes. Use the most recent edition and addenda in effect at the date of this document if none are jurisdictionally mandated.
3	Fabrication details, surface finish requirements, and proper design considerations for tanks and vessels to be lined for immersion service	NACE SP0178
4	Mineral and Slag Abrasives	SSPC-AB 1
5	Cleanliness of Recycled Ferrous Metallic Abrasives	SSPC-AB 2
6	Newly Manufactured or Remanufactured Steel Abrasives	SSPC-AB 3
7	Solvent cleaning	SSPC-SP 1
8	Hand tool cleaning	SSPC-SP 2
9	Power tool cleaning	SSPC-SP 3
10	White metal blast cleaning	SSPC-SP 5 / NACE No. 1
11	Near white blast cleaning	SSPC-SP 10 / NACE No. 2
12	Commercial blast cleaning	SSPC-SP 6 / NACE No. 3
13	Brush-off blast cleaning	SSPC-SP 7 / NACE No. 4
14	Power tool cleaning to bare metal	SSPC-SP 11
15	Surface Preparation and Cleaning of Steel and Other Hard Materials by High- and Ultra-High Pressure Water Jetting Prior to Recoating	SSPC-SP 12
16	Brush Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels and Non-Ferrous Metals	SSPC-SP 16
17	Shop, field, and maintenance painting of steel	SSPC-PA 1
18	A guide to safety in paint application	SSPC-PA Guide 3
19	Standard procedure for evaluating painting contractors	SSPC-QP 1
20	Visual standard for abrasive blast cleaned steel	SSPC-VIS 1
21	Visual standard for power and hand tool cleaned surfaces	SSPC-VIS 3
22	Dehumidification and Temperature Control	SSPC-TR 3 / NACE 9A192
23	Surface Preparation of Soluble Salt Contaminated Steel Substrates	NACE 6G186

24	Handling and storage	Abide by all EPA, OSHA, and state regulations regarding storage, handling, and use of flammable and combustible liquids

Table 2 - Products		
Materials		
1	Coating Materials	Use new and undamaged materials. Deliver to the job in original, unopened containers, with labels intact.
2	Material handling	Maintain within the temperature range required by the coating manufacturer during transportation, storage, mixing and application. Store appropriately to ensure proper quality when used. Do NOT add any adulterant, unauthorized thinner, or other material not included in the coating formulation to the coating for any purpose.
3	Air quality regulation	Ensure all coatings conform to the air quality regulations applicable at the location of use. Do NOT use coating materials that cannot be guaranteed by the manufacturer to conform to the regulations, whether or not specified by product designation.
4	Multiple coatings	For successive field coats, use coatings produced by the same manufacturer. Cause no wrinkling, lifting, or other damage when applying first field coating over underlying shop coats
5	Tinting	Use factory tinted coatings
Material Safety		
6	Employees who will be using chemicals (solvents, cleaners, lubricants, coatings, linings, etc.)	Knowledgeable and skilled in the proper use of and the hazards associated with these chemicals in accordance with SDSs
Testing Requirements		
7	Indicating moisture in concrete by the plastic sheet method	ASTM D4263
8	Indicating oil or water in compressed air	ASTM D4285
9	Measurement of wet film thickness by notch gauges	ASTM D4414
10	Field measurement of surface profile of blast cleaned steel	ASTM D4417
11	Pull-off strength of coatings using portable adhesion testers	ASTM D4541
12	Measurement of dry paint thickness with magnetic gauges	SSPC-PA 2
13	Discontinuity (Holiday) testing of new protective coatings on conductive substrates	NACE SP0188
14	Guide for Illumination of Industrial Painting Projects	SSPC Guide No. 12

15	Field Methods for Retrieval and Analysis of Soluble Salts	SSPC-TG 15
Quality Assurance		
16	Coating system submittal	Provided manufacturers standard data sheets. Develop and submit a separate submittal for each variation or change in coating system or surface coated.
17	Certification	Review and approve of, in writing, the coating manufacturer's recommendations for intended service. Submit, in writing, any variations from these specifications or the coating manufacturers published recommendations. Any variations must be approved.
18	Color cards	Use owner provided color codes or owner chosen colors
19	Submittal approval	Submittals must be approved prior to the commencement of work

Table 3 - Execution		
General		
1	Manufacturer's recommendations	Meet or exceed the coating manufacturer's minimum recommendations for cleaning, surface preparation, and coating application. Comply with the manufacturer's minimum recommendations even if they exceed the specified requirements.
2	Coating inspector	Assign an experienced coating inspector to supervise the entire process to ensure that all procedures meet or exceed the specifications or the coating manufacturer's recommendations. A third party lining inspector may be provided to ensure compliance with this specification.

3	Items not to be coated Unless otherwise noted	Metal wall panels and flashings (exterior). Glass and glazing. Acoustical ceiling. Aluminum surfaces. Brass and Bronze. Quarry tile, ceramic tile, or ceramic granular flooring. Resilient floor coverings. Hardware. Floor plates. Embedments (galvanized). Grating. Galvanized ductwork, dampers, and fan boxes. Light fixtures, except supports. Electrical conductors, insulated or uninsulated. Electrical conduits, wireways, and junction boxes. Cable trays and supports. Chromium plated metals. Gauges. Rotating shafts and couplings. Rubber belts, skirting, gaskets, and idler disks.
4	Coating plant equipment	Coat all exposed surfaces of the equipment as directed on the Coating System Data Sheets. The remainder of the plant equipment will be coated under separate specifications.
5	Coating applicators	Employ supervisors and workers qualified by commercial experience installing the types of materials specified.
Surface Preparation		
6	Surface preparation specification	These surface preparation requirements are a minimum. Where the requirements published in the coating manufacturer's data sheets exceed the limits specified, use the data sheets as the minimum requirement.
7	Surfaces to be coated	Clean and dry all surfaces before coating. Completely remove Oil and grease using techniques described in SSPC-SP 1 before mechanical cleaning is started. Meet the recommendations of the coating manufacturer for surface preparation. Ensure surfaces are free of cracks, pits, projections, or other imperfections that would interfere with the formation of a smooth, unbroken coating film.

8	Previously coated surfaces For touchup or repair	Dull the gloss on previously coated surfaces if necessary for proper adhesion of topcoats. Clean as recommended by the coating manufacturer. Feather the edges of the repaired area by sanding or wire brushing to produce a smooth transition that will not be noticeable after the coating is applied. Completely remove all coatings made brittle or otherwise damaged by heat of welding. All repairs must be in accordance with the original manufacturer's recommendations for repair
9	Abrasive blasting	Verify the quality of compressed air in accordance with ASTM D4285 prior to abrasive blasting. Carry out the test at the beginning of each shift and witnessed by the coating inspector.
10	**Ferrous Metal Surfaces**	
11	Ferrous metal surface preparation	Prepare for coating by using one or more of the following cleaning procedures: solvents (SSPC-SP1); hand tools (SSPC-SP2); power tools (SSPC-SP3 or -SP11); abrasive blasting (SSPC-SP5, -SP6, -SP7, or -SP10); or water jetting (-SP12). Completely remove oil and grease in accordance with SSPC-SP1 before beginning any other cleaning.
12	Welds on ferrous metal surfaces	Scrape and grind the surfaces of welds as necessary to remove all slag and weld spatter. Unless specified otherwise in the Coating System Data Sheets, grind welds smooth and free of all defects in accordance with NACE Standard SP0178, Appendix C, Designation E on all ferrous metal surfaces.
13	Ferrous metal surface blasting	Remove all blasting residue, waste, and accumulation before coating application
14	Ferrous metal surface coating	Coat or line cleaned surfaces with coating, primer, or touchup within 6 hours of cleaning, or before rust bloom occurs. Do NOT allow blast cleaned surfaces to stand overnight before coating.
Coating Work		
15	**Mixing and Thinning**	
16	Coating storage and use	Keep coating containers tightly closed except while coating is being withdrawn. Mix coatings thoroughly each time any is withdrawn from the container.
17	Factory mixing	Use coatings factory mixed to proper consistency and viscosity for hot weather application with thinning and thinners recommended by the manufacturer for ambient temperatures

18	Thinning	Thin only as necessary to obtain recommended coverage at lower application temperatures. Do NOT reduce the wet film thickness of applied coating, by addition of coating thinner or otherwise, below the thickness recommended by the coating manufacturer. Conduct thinning in compliance with all applicable air quality regulations.
19	Coating pigmentation	Maintain uniform suspension of coating pigments during application. Jobsite tinting is NOT permitted.
20	**Coating Application**	
21	General coating	Apply coating in a neat manner producing an even film of uniform and proper thickness, with finished surfaces free of runs, sags, ridges, laps, and brush marks. Do not apply coating at a rate of coverage greater than the maximum rate recommended by the coating manufacturer. Apply coating materials in accordance with the manufacturer's recommendations by competent and experienced applicators. Protect freshly coated surfaces from dust and other contaminants.
22	Ventilation	Provide ventilation adequate to remove all particulates and solvent vapors. Where natural ventilation is inadequate, employ a mechanical ventilation system. Provide a clean air supply during all phases of coating operations.
23	Failed coatings	Will not be accepted. Remove entirely down to the substrate and recoat the surface. Failures include but are not limited to, checking, cracking, teardrops, fat edges, fisheyes, or delamination.
24	Protection of surfaces	Use proper dropcloths, masking tapes, and other protective measures throughout the work to protect surfaces from accidental spraying, splattering, or spilling of coatings. Correct and repair damage resulting from coating operations. Immediately remove coatings deposited on surfaces not currently being coated.
25	Hardware, components, and fittings	Remove and reinstall, or provide adequate in-place protection for, valve and equipment identification tags, gauges, installed hardware, accessories, lighting and electrical components, factory finished materials, plumbing fixtures and fittings, and other materials that may become splattered or damaged by coating materials

26	**Environmental Conditions**	
27	Weather and debris	Do not apply coatings during wet, damp, or foggy weather, or when windblown dust, dirt, debris, or insects will collect on freshly applied coating except under environmentally controlled conditions
28	Low temperatures	Do NOT apply coatings at temperatures less than the minimum temperature recommended by the coating manufacturer
29	High temperatures	Do NOT apply coatings at temperatures or greater than the maximum temperature recommended by the coating manufacturer. During periods of elevated ambient temperatures, ensure that proper application is performed including adherence to all re-coat window requirements. Keep the surface temperature during application below 100°F by shading the application area from direct sunlight, applying coating in the evening or at night, and ventilating the area to reduce the humidity and temperature.
30	Humidity	Do NOT install coating or lining material if substrate temperature is within 5° F of the dewpoint temperature or if the relative humidity is greater than 85%. Do NOT apply coatings to metal surfaces where conditions are likely to cause condensation, regardless of the air temperature. Do NOT apply coatings when the relative humidity is greater than the maximum or less than the minimum values recommended by the coating manufacturer.
31	Temporary enclosures	Provide where necessary. Maintain the temperature within acceptable temperature limits during surface preparation and coating application activities and until the coating has fully cured. Maintain the relative humidity within acceptable temperature limits during surface preparation and coating application activities and until the coating has fully cured.
Field Quality Control		
32	Required testing and inspection	Visual inspection, surface profile, wet and dry film thickness, spark testing, and adhesion testing
33	Visual inspection	Visually inspect the surface of the protective coatings
34	Film thickness	Verify the coating film thickness by measuring the film thickness of each coat as it is applied and the dry film thickness of the entire system. Measured dry film thickness in accordance with SSPC-PA 2. Measured wet film thickness using a gauge that will measure the wet film thickness with an accuracy of ±0.5 mil in accordance with ASTM D4414.

35	Holiday testing	Where specified on the Coating System Data Sheets (CSDS), holiday test coatings using an acceptable electrical spark tester set at the recommended voltage. Thin films may be tested with the low voltage sponge test procedure. Observe the spark testing and verify the testing equipment is working properly before starting the spark testing of the coating. Use an electrode with continuous movement and that will proceed in a systematic manner to cover 100% of the coated surface in one pass only. Ensure the electrode maintains continuous contact with the coated surface. Conduct holiday testing for coatings on metal in accordance with NACE SP0188. Mark and repair all detected holidays and pinholes Perform repairs in accordance with the coating manufacturer's published recommendations.
36	**Coating Adhesion**	
37	Coating adhesion testing	Where coated surfaces contain visible defects that could adversely affect the adhesive or cohesive properties of the film, conduct an adhesion test to validate the integrity of the coating system. Visible defects in the film that require performance of an adhesion test include; overspray, cratering, runs or sags, solvent blistering, dirt or debris in the film, flaking, lifting or cracking. Allow the coated test area to cure completely according to the coating manufacturer's published recommendations prior to performing the adhesion test. Perform a minimum of one adhesion test in accordance with ASTM D4541 for steel substrates and SSPC-SP 13 for concrete substrates. The resultant coating adhesion strength must meet or exceed the minimum value specified in the coating manufacturer's published literature or, for concrete, exceed the minimum surface tensile strength of the substrate.

38	Coating adhesion failure	If the surface tested fails to comply with the minimum specified adhesion strength, expand adhesion testing to adjacent surfaces until sound coating, meeting or exceeding the minimum adhesion strength value specified in the coating manufacturer's published literature, is obtained. Remove coating materials, down to the substrate, from surfaces that exhibit adhesion values less than the specified minimum and replace. Remove coating by mechanical means, such as hand/power tool and/or abrasive blasting. Reapply the coating in accordance with the applicable coating system data sheet. Treat interfaces and tie-ins between the previously coated surfaces and surfaces that have been replaced in compliance with recommendations stated in the coating manufacturer's published literature.

Datasheets

39	**Description**	**Approved Products** **Manufacturer: First Coat, Second Coat**	**Dry Film Thickness (First Coat/Second Coat)**
40	Outdoor Structural Steel	Sherwin Williams: Kem Bond HS, Industrial Enamel VOC Carboline: Carbozinc 859, Carbothane 133 LH International: Interzinc 315, Interthane 870 Jotun: Barrier Plus, Hardtop XP PPG: Amercoat 68HS, Sigmacover 550H	1st Coat - 3.0-4.0 2nd Coat – 3.4-5.0
41	Hot Dipped Galvanized Steel	Carboline: Carboguard 60, Carbothane 134 HG International: Interseal 670HS, Interthane 990 Jotun: Penguard Universal, Hardtop XP PPG: Amerlock 2, Pitthane Ultra Sherwin Williams: Macropoxy 646, Acrolon 7300 Tnemec: Series 27, Series 1095	1st Coat - 3.0-4.0 2nd Coat – 2.0-3.0
42	Carbon Steel Pipe (no insulation <200 °F)	Carboline: Carboguard 893 SG, Carbothane 133 LH International: Interseal 475HS, Interthane 870 Jotun: Penguard Universal, Hardtop XP PPG: Amerlock 2/400, Sigmadur 550 H Sherwin Williams: Macropoxy 646, Acrolon 7300 Tnemec: Series 61, Series 290	1st Coat - 4.0-6.0 2nd Coat – 3.0-4.0
43	Carbon Steel Pipe (no insulation >200 °F)	Carboline: Carbozinc 11 Series, Thermaline 4000 AL International: Interzinc 22, Intertherm 50 PPG: Dimecote 9, Hi-Temp 1000	1st Coat - 2.0-3.0 2nd Coat – 1.0-2.0
44	Carbon Steel Pipe (under insulation <350 °F)	Carboline: Thermaline 450 EP, Thermaline 450 EP International: Interbond 2340UPC, Interbond 2340UPC Jotun: Jotatemp 250, Jotatemp 250 PPG: Hi-Temp 900, Hi-Temp 900 Sherwin Williams: Cor-Cote HT, Cor-Cote HT	1st Coat - 4.0-6.0 2nd Coat – 4.0-6.0
45	Carbon Steel Pipe (under insulation >350 °F)	Carboline: Carbocoat 153 International: Interprime 198 Jotun: Pilot QD Primer Tnemec: Series 10	1st Coat - 2.0-3.0

APPENDIX A – SITE PICTURES

FOR

CONTRACT NO. HU 2025-72

FLY ASH SILO

MECHANICAL CONSTRUCTION

WHELAN ENERGY CENTER, UNIT I

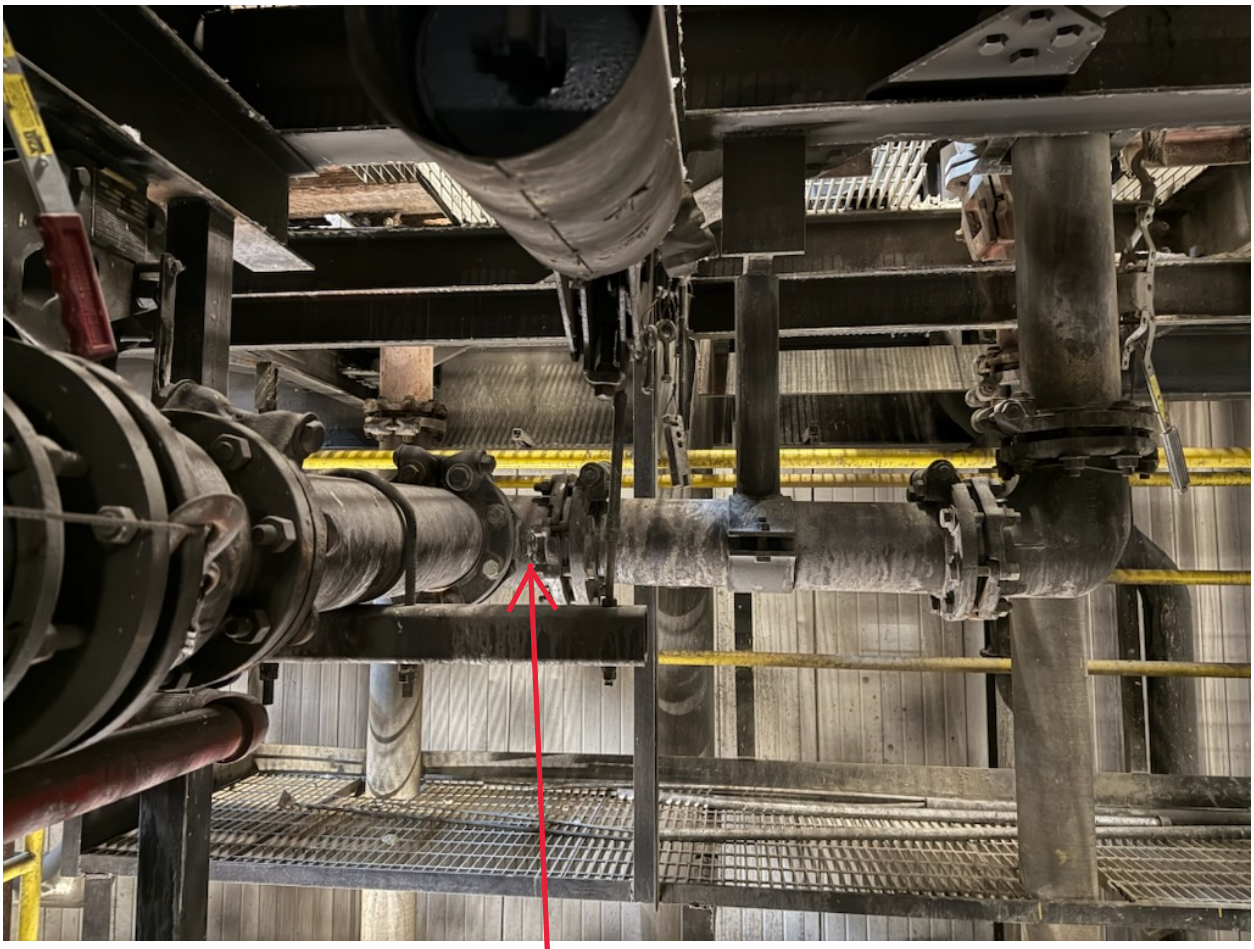
CITY OF HASTINGS

HASTINGS, NEBRASKA

Existing Ash Piping between boiler building and precipitator building. Area for aux steel #2 from Olsson drawings.

Tie-in location for vent piping to flue gas duct. Location of Aux steel #3, new platform, grating, and ladder per Olsson drawings.

Location of Aux. Steel #1 in precipitator building per Olsson Drawings. Pipe penetrations going to silo on far wall.



Terminal Point TP-1 piping from Economizer hoppers.

Terminal Point TP-2 from air heater hoppers. Valve ASB-BV-1059 to be relocated.

APPENDIX B – DRAWINGS

FOR

CONTRACT NO. HU 2025-72

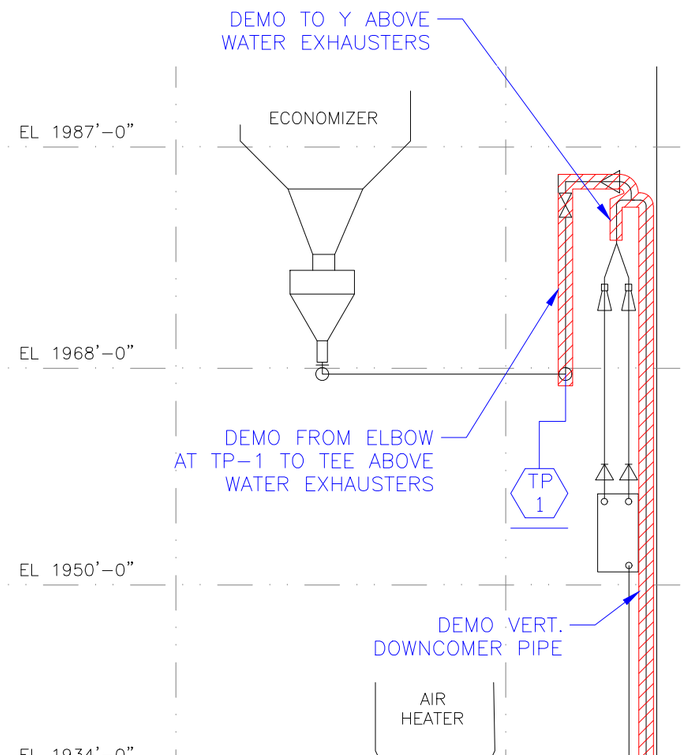
FLY ASH SILO

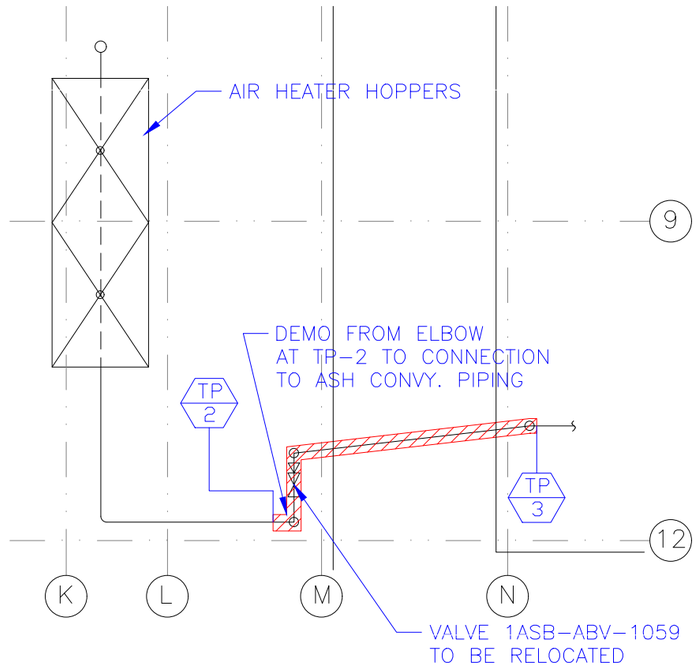
MECHANICAL CONSTRUCTION

WHELAN ENERGY CENTER, UNIT I

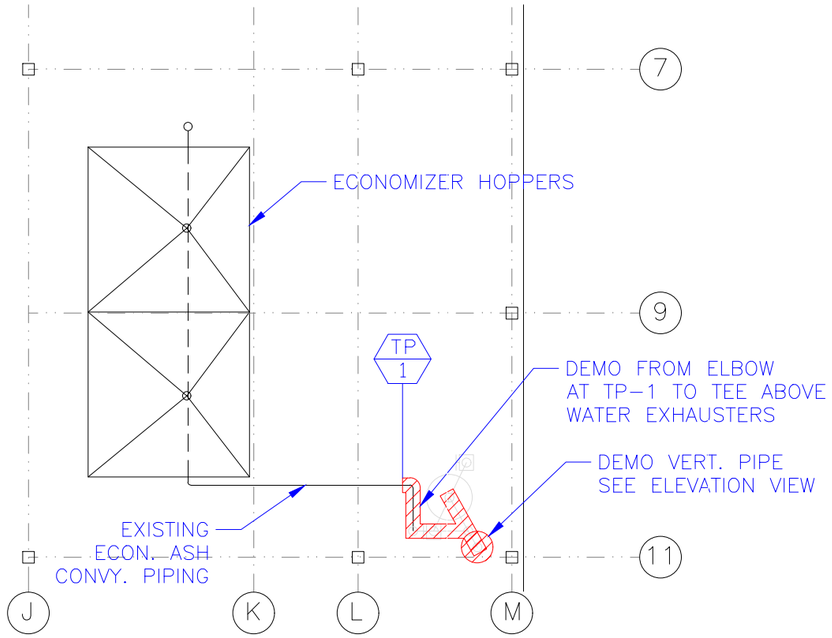
CITY OF HASTINGS

HASTINGS, NEBRASKA

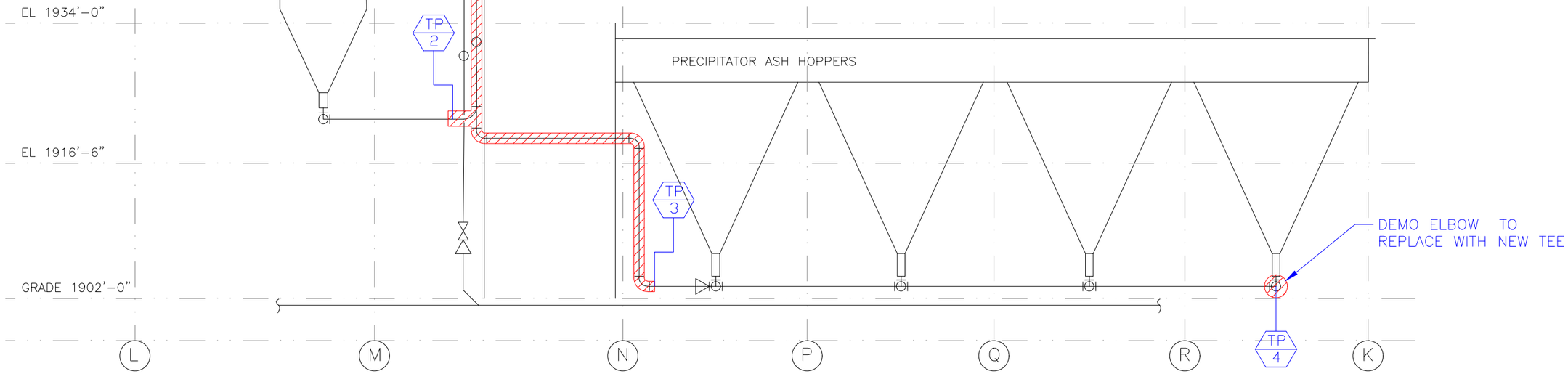




PLAN VIEW - AIR HEATER
EL. 1921'-4 1/2"



PLAN VIEW - ECONOMIZER
EL. 1967'-8 3/8"



ELEVATION VIEW

NOTES:

1. DEMO ONLY PIPING AND EQUIPMENT NECESSARY TO COMPLETE NEW INSTALLATION. ALL OTHER EQUIPMENT IN EXISTING ASH SLUICING SYSTEM TO BE ABANDONED IN PLACE.

No.	Revision	By	Date

HASTINGS UTILITIES

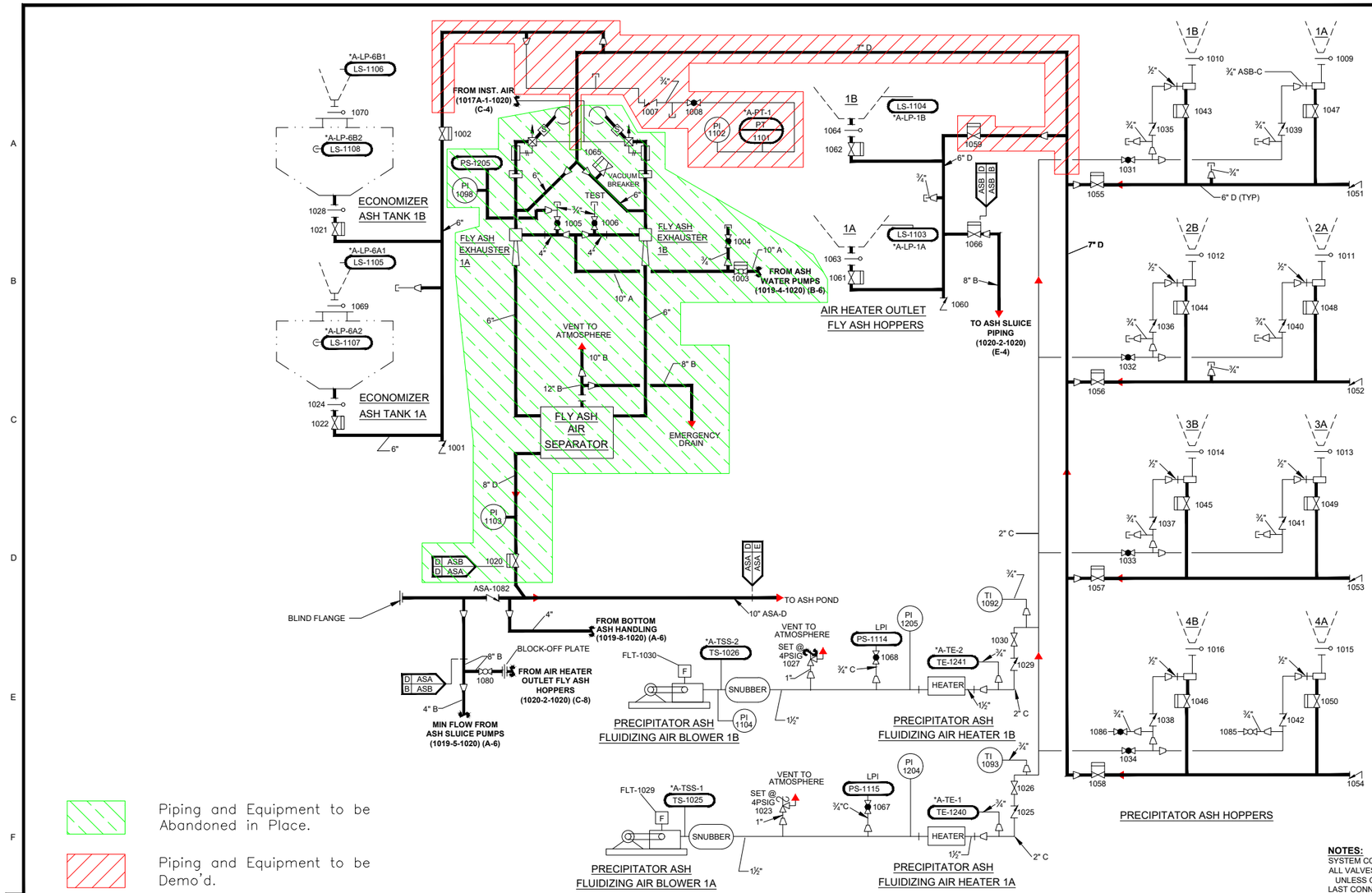
CITY OF HASTINGS ENGINEERING DEPT.

SCALE: N.T.S.	CONTRACTOR -	DRN. BY.	BWM
DATE: 6/6/25		APPRD. BY.	-

WEC1 FLY ASH SILO

DEMOLITION PLAN

DRG. NO. PT-333-01



NO	DATE	REVISIONS	DWN	CK	ACC	APP
8	5/9/24	REVISED FOR BOTTOM ASH CONVEYORS	BM	AB		
7	6/22/18	OPERATIONS VERIFICATIONS 2018	EK	AC		
6	11/6/15	REVIEWED AND VERIFIED	EK	TQ		CW
5	11-15-13	REVISED	EK	DZ		
4	12-9-05	AUTOCAD FORMAT	JES			KWL
3	9/15/81	CONFORMED TO CONST RECORDS	AGG			RTT CJS
2	9/28/79	REVISED AS CIRCLED	AGG			RTT CJS
1	2/23/79	ISSUE FOR CONSTRUCTION	AGG			RTT CJS
0	12/15/78	BID 72.0000	AGG			

A-G NO. BE042:

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA.
SIGNED H.C. TEMME
DATE 2-23-79 REG. NO. E-2965

BLACK & VEATCH CONSULTING ENGINEERS
PROJECT 7677

CITY OF HASTINGS, NEBRASKA
WHELAN ENERGY CENTER UNIT 1
PIPING AND INSTRUMENT DIAGRAM
FLY ASH HANDLING

B&V DWG NO. M1020
REV. 8

NOTES:

1. DEMO ONLY PIPING AND EQUIPMENT NECESSARY TO COMPLETE NEW INSTALLATION. ALL OTHER EQUIPMENT IN EXISTING ASH SLUICING SYSTEM TO BE ABANDONED IN PLACE.

No.	Revision	By	Date

HASTINGS UTILITIES

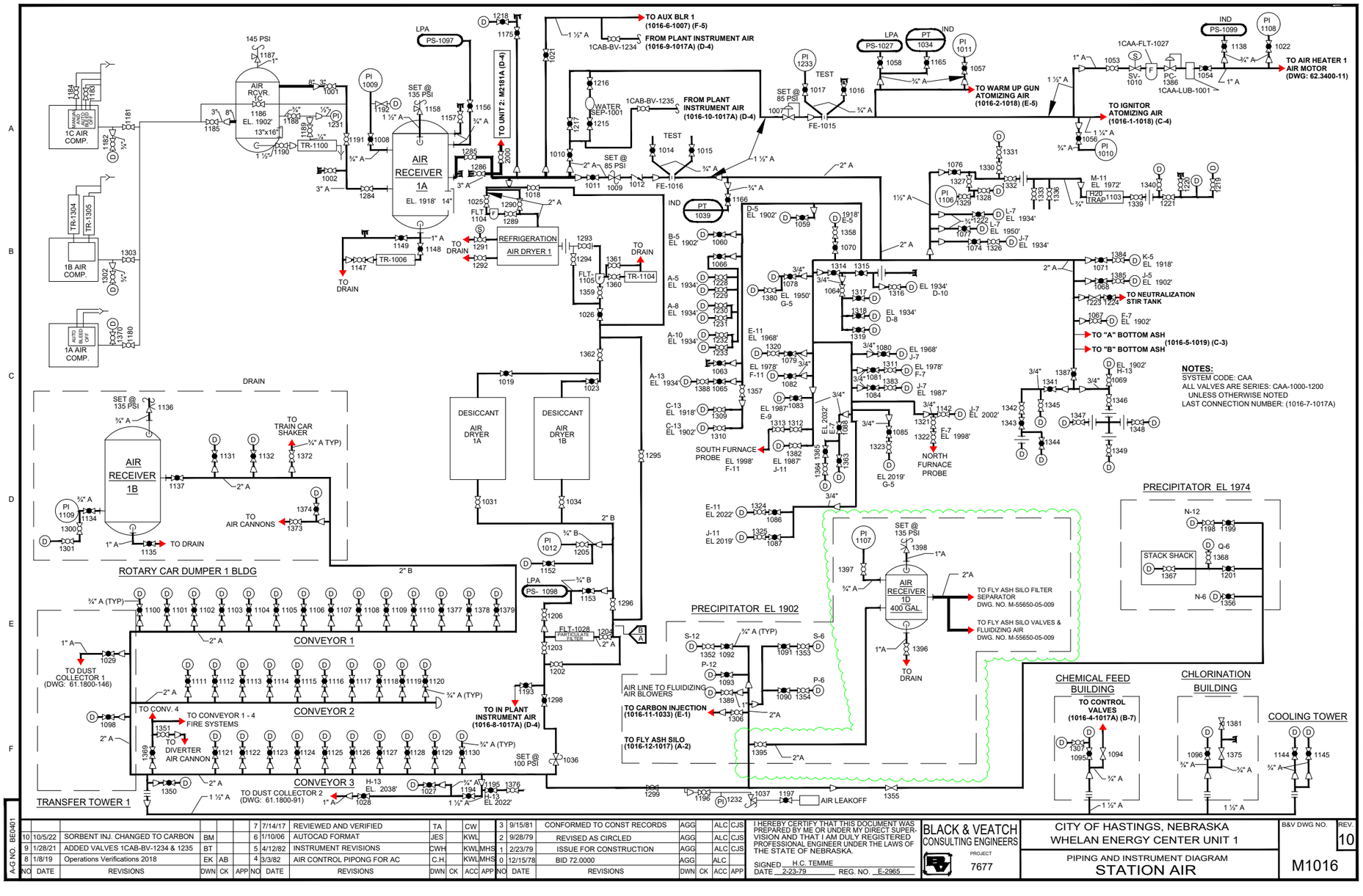
CITY OF HASTINGS ENGINEERING DEPT.

SCALE: N.T.S.	CONTRACTOR -	DRN. BY.	BWM
DATE: 7/15/25		APPRD. BY.	-

WEC1 FLY ASH SILO

Demolition Plan

DRG. NO. PT-333-02



NOTES:
SYSTEM CODE: CAA
ALL VALVES ARE SERIES: CAA-1000-1200 UNLESS OTHERWISE NOTED
LAST CONNECTION NUMBER: (1016-7-1017A)

NO	DATE	REVISIONS	DWN	CK	APP
10	10/5/22	SORBENT INJ. CHANGED TO CARBON	BM		
9	1/28/21	ADDED VALVES 1CAB-BV-1234 & 1235	BT		
8	1/8/19	Operations Verifications 2018	EK	AB	
7	7/14/17	REVIEWED AND VERIFIED	TA		CW
6	1/10/06	AUTOCAD FORMAT	JES		KWL
5	4/12/82	INSTRUMENT REVISIONS	CWH		KWL MHS
4	3/3/82	AIR CONTROL PIPONG FOR AC	C.H.		KWL MHS
3	9/15/81	CONFORMED TO CONST RECORDS	AGG		ALC CJS
2	9/28/79	REVISED AS CIRCLED	AGG		ALC CJS
1	2/23/79	ISSUE FOR CONSTRUCTION	AGG		ALC CJS
0	12/15/78	BID 72.0000	AGG		ALC

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEBRASKA.
SIGNED H.C. TEMME
DATE 2-23-79 REG. NO. E-2965

BLACK & VEATCH CONSULTING ENGINEERS
PROJECT 7677

CITY OF HASTINGS, NEBRASKA
WHELAN ENERGY CENTER UNIT 1
PIPING AND INSTRUMENT DIAGRAM
STATION AIR

B&V DWG NO. M1016
REV. 10

A-G NO. BE0401

NOTES:
1. SEE PT-333-05 FOR PIPING LAYOUT.
2. SEE UCC P&ID M-55650-05-001 THROUGH -009 FOR THE REST OF THE FLY ASH SILO SYSTEM.

No.	Revision	By	Date

HASTINGS UTILITIES

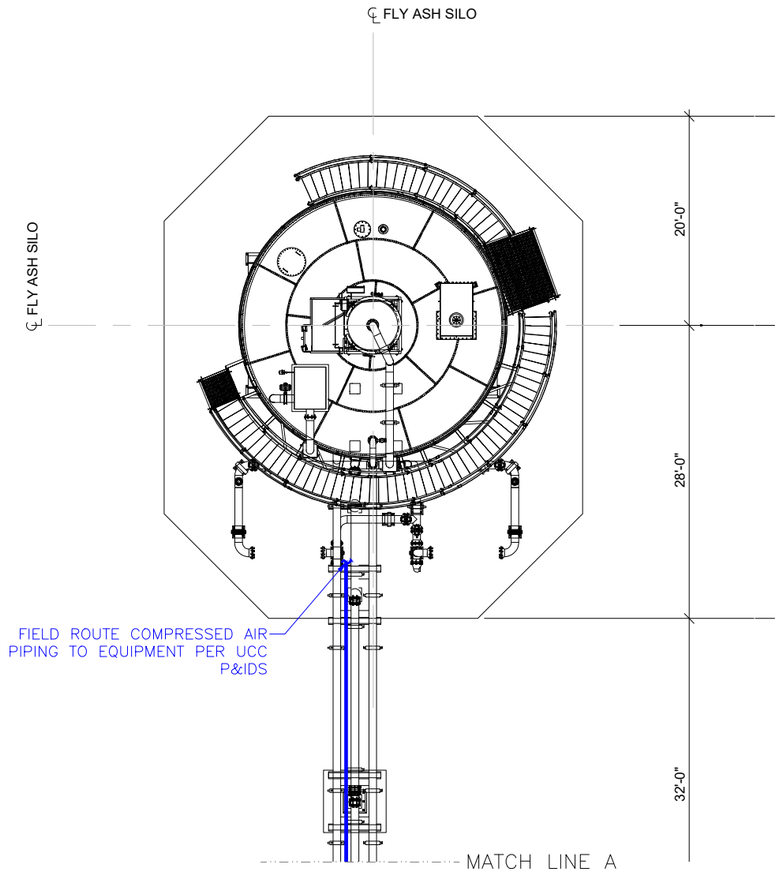
CITY OF HASTINGS ENGINEERING DEPT.

SCALE: N.T.S.	CONTRACTOR -	DRN. BY.	BWM
DATE: 7/15/25		APPRD. BY.	-

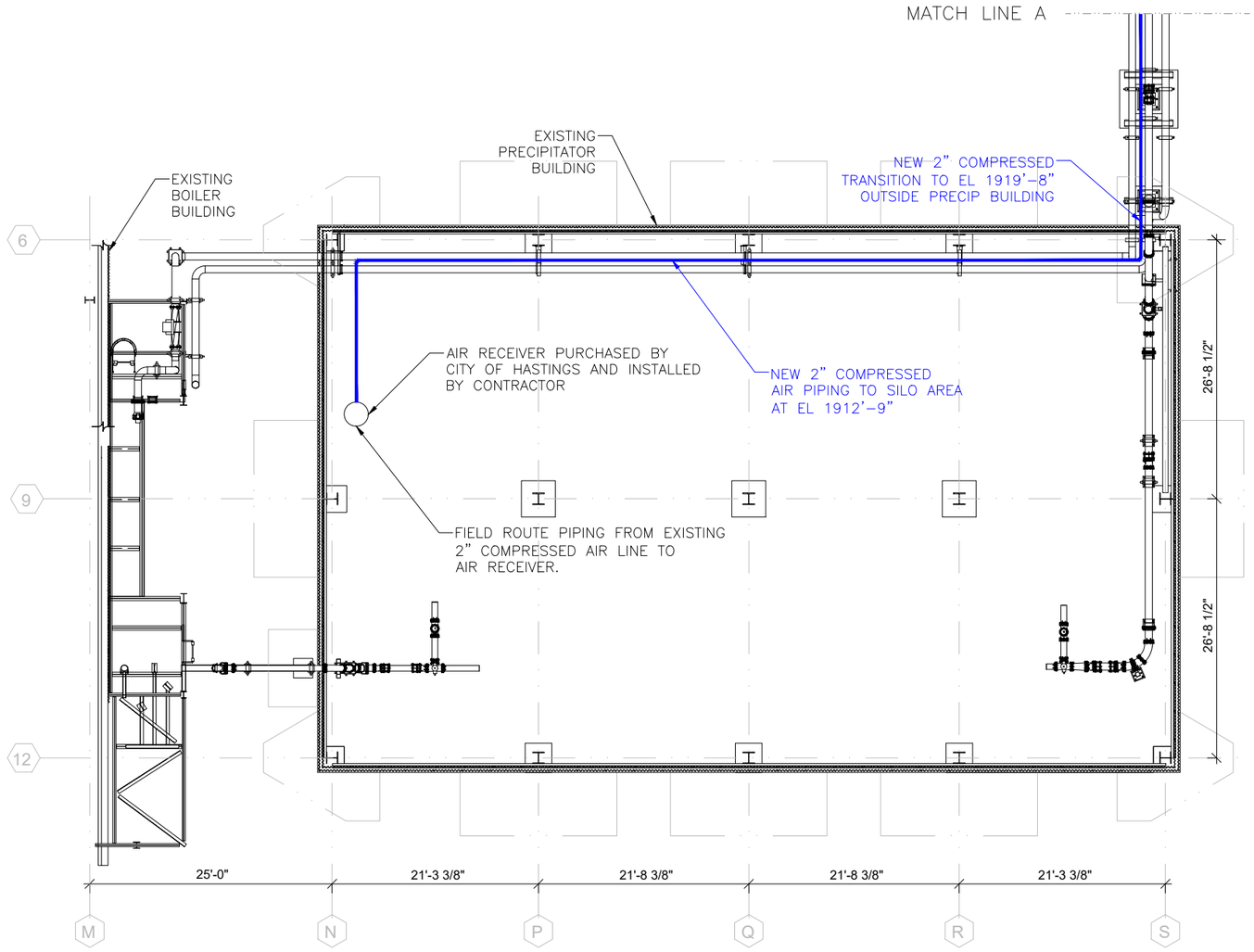
WEC1 FLY ASH SILO

STATION AIR P&ID

DRG. NO. PT-333-03



PLAN VIEW - SILO
AREA EL 1902'



PLAN VIEW - PRECIPITATOR
BUILDING EL 1902'

NOTES:

1. SUGGESTED PIPE ROUTING FROM AIR RECEIVER TO SILO. PIPING TO END EQUIPMENT TO BE FIELD ROUTED. SEE UCC P&ID'S FOR CONNECTIONS TO EQUIPMENT AND VALVES.
2. ALL PIPE SUPPORTS FOR COMPRESSED AIR PIPING BY CONTRACTOR.

No.	Revision	By	Date

HASTINGS UTILITIES

CITY OF HASTINGS ENGINEERING DEPT.

SCALE: N.T.S.	CONTRACTOR -	DRN. BY.	BWM
DATE: 7/18/25		APPRD. BY.	-

WEC1 FLY ASH SILO

COMPRESSED AIR PIPING PLAN

DRG. NO. PT-333-04

VALVE LIST - VALVES PURCHASED BY CONTRACTOR								7/21/2025
WEC 1 FLY ASH SILO								REV A
VALVE NUMBER	SIZE	TYPE	MATERIAL	CLASS	CONNECTION	MAX PRESSURE	DESCRIPTION	P&ID NO.
1ASB - BV - 1107	1/2"	BALL	CARBON STEEL	CLASS 200	NPT	-	ISOLATION VALVE FOR PT-1252	M-55650-05-005
1ASB - BV - 1118	1/2"	BALL	CARBON STEEL	CLASS 200	NPT	-	ISOLATION VALVE FOR PS-1262	M-55650-05-006
1ASB - BV - 1119	1/2"	BALL	CARBON STEEL	CLASS 200	NPT	-	ISOLATION VALVE FOR PT-1256	M-55650-05-006
1ASB - BV - 1121	1/2"	BALL	CARBON STEEL	CLASS 200	NPT	-	ISOLATION VALVE FOR PI-1282	M-55650-05-006
1CAA - BV - 1395	2"	BALL	CARBON STEEL	CLASS 200	SOCKET WELD	135 PSI	ISOLATION VALVE SILO SERVICE AIR	M1016
1CAA - BV - 1396	1"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	DRAIN VALVE AIR RECV. 1D	M1016
1CAA - BV - 1397	3/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE PI-1107	M1016
1CAA - PSV - 1398	1"	SAFETY RELIEF	CARBON STEEL	CLASS 200	NPT	135 PSI	SAFETY RELIEF VALVE (SET AT 135 PSI)	M1016
1CAB - BV - 1255	1/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE FOR FILTER SEPARATOR	M-55650-05-009
1CAB - BV - 1256	1/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE FOR SILO ROOF AREA	M-55650-05-009
1CAB - BV - 1257	1/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE FOR UNLOADING FLOOR	M-55650-05-009
1CAB - BV - 1258	1/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE FOR MECHANICAL EXHAUSTER AREA	M-55650-05-009
1CAB - BV - 1259	1/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE FOR ASB-ABV-1101	M-55650-05-009
1CAB - BV - 1260	1/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE FOR ASB-ABV-1102	M-55650-05-009
1CAB - BV - 1261	1/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE FOR ASB-ABV-1108	M-55650-05-009
1CAB - BV - 1262	1/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE FOR ASB-ABV-1100	M-55650-05-009
1CAB - BV - 1263	1/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE FOR ASB-ABV-1103	M-55650-05-009
1CAB - BV - 1264	1/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE FOR ASB-ABV-1104	M-55650-05-009
1CAB - BV - 1265	1/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE FOR ASB-ABV-1183	M-55650-05-009
1CAB - BV - 1266	1/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE FOR ASB-ABV-1136	M-55650-05-009
1CAB - BV - 1267	1/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE FOR ASB-ABV-1140	M-55650-05-009
1CAB - BV - 1268	1/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE FOR ASB-ABV-1137	M-55650-05-009
1CAB - BV - 1269	1/4"	BALL	CARBON STEEL	CLASS 200	NPT	135 PSI	ISOLATION VALVE FOR ASB-ABV-1141	M-55650-05-009

No.	Revision	By	Date

HASTINGS UTILITIES

CITY OF HASTINGS ENGINEERING DEPT.

SCALE: N.T.S.	CONTRACTOR -	DRN. BY. BWM
DATE: 7/18/25		APPRD. BY. -

WEC1 FLY ASH SILO

VALVE LIST

DRG. NO. PT-333-05

PIPELINE LIST							7/21/2025
WEC 1 FLY ASH SILO							REV A
			PRESSURE		TEMPERATURES		
PIPELINE LISTING	DESCRIPTION	MATERIAL	OPER	DESIGN	OPER	DESIGN	P&ID NO.
CAA-A (SERVICE AIR)	COMPRESSED AIR PIPING FROM EXISTING HEADER TO AIR RECEIVER	ASTM A53 GR. B SCH 80	125 PSIG	150 PSIG	100 F	115 F	M1016
CAA-A (SERVICE AIR)	COMPRESSED AIR PIPING FROM AIR RECEIVER TO SILO AREA HEADERS	ASTM A53 GR. B SCH 80	125 PSIG	150 PSIG	100 F	115 F	M1016
CAA-A (SERVICE AIR)	COMPRESSED AIR PIPING FROM SILO AREA HEADERS TO EQUIPMENT	ASTM A53 GR. B SCH 80	125 PSIG	150 PSIG	100 F	115 F	M1016

No.	Revision	By	Date

HASTINGS UTILITIES

CITY OF HASTINGS ENGINEERING DEPT.

SCALE: N.T.S.	CONTRACTOR -	DRN. BY. BWM
DATE: 7/18/25		APPRD. BY. -

WEC1 FLY ASH SILO

PIPELINE LIST

DRG. NO. PT-333-05

MATCH LINE (G5)

MATCH LINE (G4)

12'-4 5/8 | 36'-8 | 5" | 8'-0 | 5'-6

ELEV. 1972'-9 1/4 TOP/INS. COMP.

22'-0

2 3/16 (EXP.)

WALKWAY (BY OTHERS)

4-4 3/4 | 2'-3 | 2'-1 3/4 | 1 5/8 (EXP.)

ELEV. 1958'-6 7/8

ELEV. 1955'-6 TOP/GRTG.

13'-6

INSULATION (BY OTHERS)

FLOW

ELEV. 1958'-6 ℄ D.E. DRIVE

48'-0 3/4

37'-8

ELEV. 1936'-5 1/2 TOP/GRTG.

ELEV. 1939'-5 1/2 ℄ D.E. DRIVE

ELEV. 1930'-0 1/4 ℄ C.E. DRIVE

ELEV. 1928'-11 3/4 TOP/GRTG.

ELEV. 1924'-5 TOP/SUPT. STL.

6'-0 | 2@ 4'-0

3 1/2

SUPPORT STEEL (BY OTHERS)

FIXED

ELEV. 1906'-0 FACE OF HOPPER FLG.

22'-5

20'-8 1/2

4'-0

ELEV. 1902'-0 GROUND FL.

1'-1 3/8 | 3/4 | 3/8 | 3/8 | 1'-1 3/8

21'-3 3/8 | 21'-8 3/8 | 21'-8 3/8 | 21'-3 3/8

N | P | Q | R | 5

SUPT. STL. (BY OTHERS)

ELEV. 1938'-9 1/2

28'-3

1'-4

ELEV. 1918'-5 3/4

19'-3 3/4

EL. 1919'-5 3/4

B&V 7677.62-0200-2 M1

EL. 1911'-5 1/2

10'-2 1/2

9'-5 1/2

NO EXCEPTIONS NOTED
EXCEPTIONS NOTED
REVISE & RESUBMIT FOR DISTRIBUTION
RETURNED FOR CORRECTION
MAY 7 1979
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS OR DEVIATIONS FROM CONTRACT REQUIREMENTS.
BLACK & VEATCH

RECEIVED
MAY 10 1979
BLACK & VEATCH
Hastings Energy Center

CERTIFIED FOR CONSTRUCTION
C-E WALTHER INC.
BY [signature] DATE 5-22-79

REV.	DESCRIPTION	BY	DATE	APPR.	RE-VIEWED
C	3 CHG'D ELEV.	JLN	4-3-79	KR	5/10/79
B	10 12 CHG'D. DIMENSIONS 13 CHG'D. ELEVATIONS 16 ADDED ELEVATION	PJS	5/14/79	KR	5/14/79
A	4 CHG'D. DIM. 5 CHG'D. TITLE. 6 CHG'D. COL. DESIGNATIONS 1 ADD WALKWAY 2 ADD ITEM NO.	JLN	8-1-78	JCB	1'-6"

TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTION
DECIMAL
ANGULAR
SURFACE FIN √ RMS

NEXT ASSY.

	BY	DATE
DRAWN	J.L. Norris	4-26-78
CHECKED	C.P. Ritchey	5/9/78
APPROVED	[signature]	5-22-79
REVIEWED	[signature]	5-24-79
REVIEWED	[signature]	5/31/79

ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED. ACCUMULATION OF TOLERANCES NOT PERMISSIBLE.

THIS DRAWING AND ALL INFORMATION THEREON IS THE PROPERTY OF C-E WALTHER INC. AND MAY NOT BE MADE PUBLIC OR COPIED UNLESS AUTHORIZED BY THEM.

MODEL NO. 1P2C25D4F/12 x 40 x 64-14@16

C-E WALTHER, INC.
A SUBSIDIARY OF COMBUSTION ENGINEERING, INC.
BIRMINGHAM, ALABAMA

CUSTOMER: HASTINGS ENERGY CENTER, UNIT 1 FOR CITY OF HASTINGS, NEBRASKA

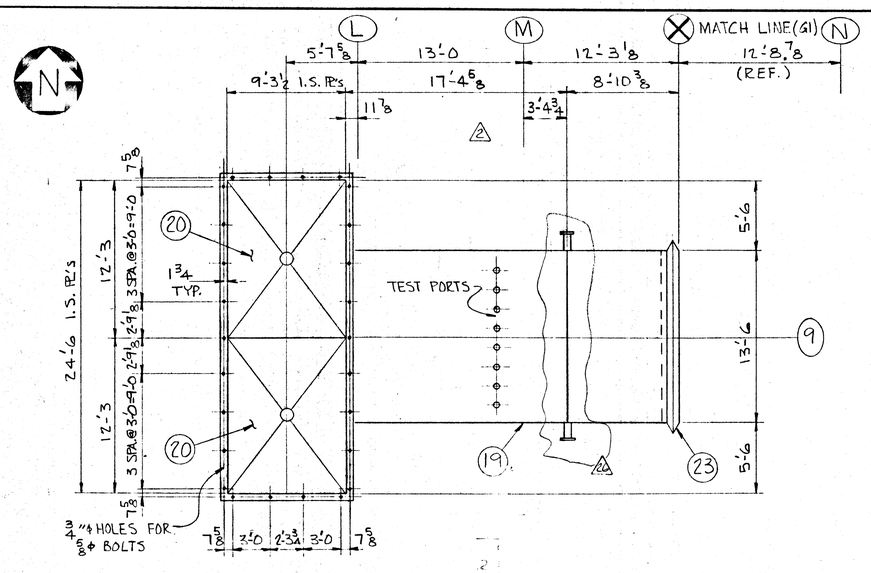
SCALE: 3/16"=1'-0

TITLE: PRECIPITATOR - 1 ELEVATION 5

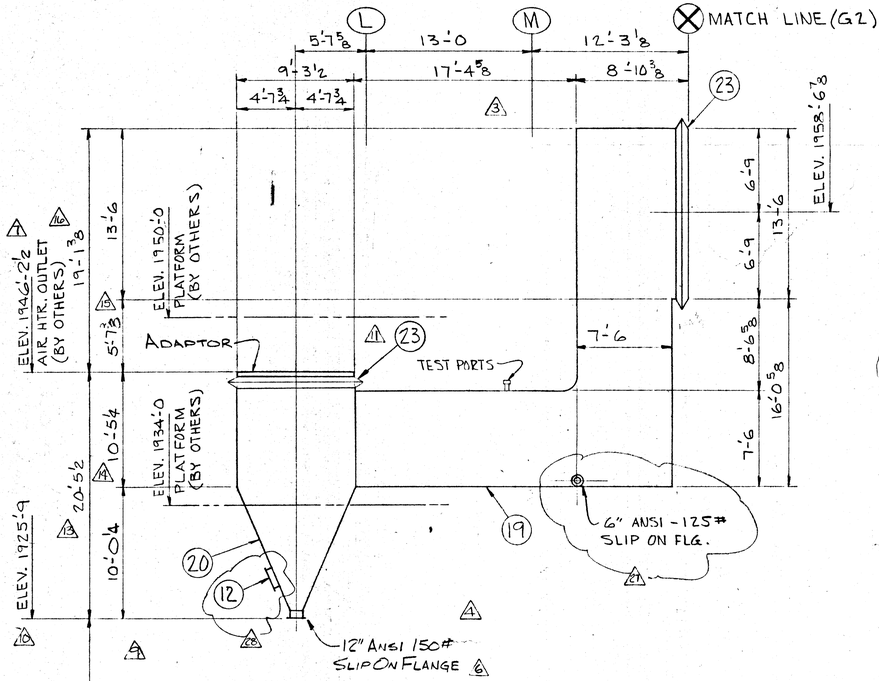
CONTRACT NO. EP-6587-52

DWG. NO. G2

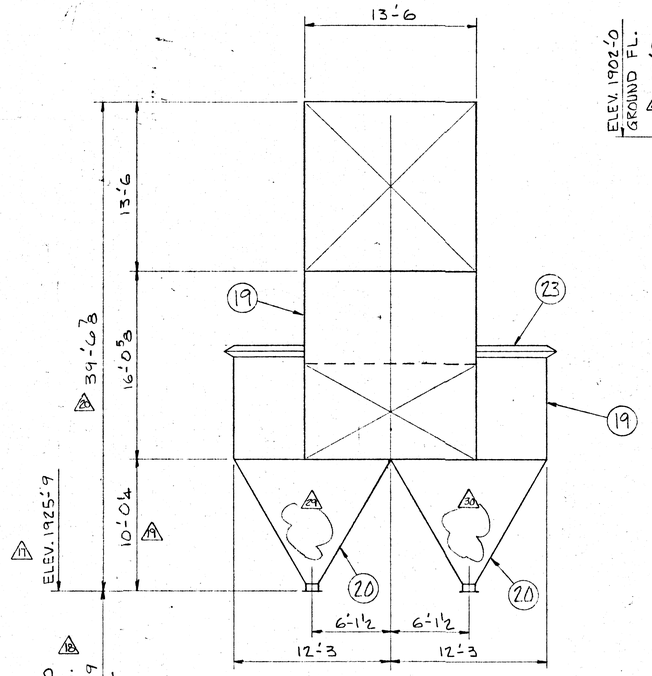
REV. C



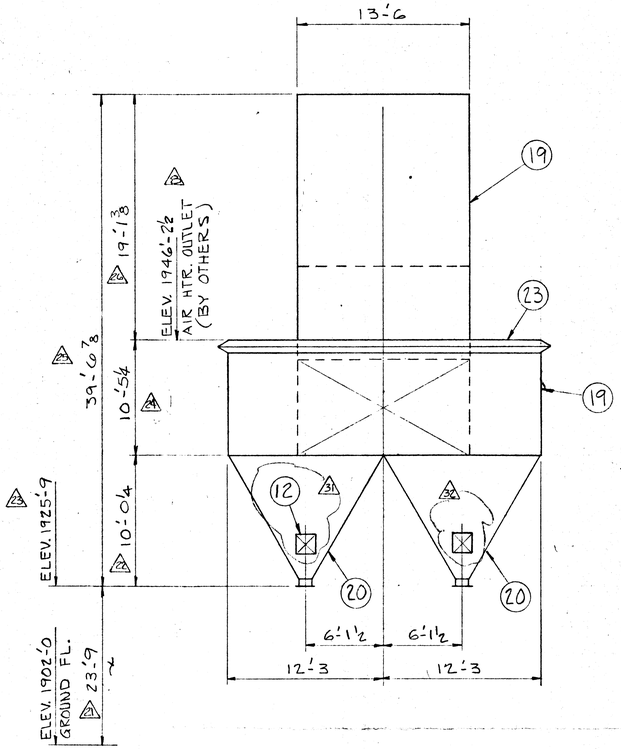
1 PLAN



ELEVATION (LOOKING NORTH)



ELEVATION (LOOKING WEST)



ELEVATION (LOOKING EAST)

B&V 7677.62.0200-5 M1

NO EXCEPTIONS NOTED
EXCEPTIONS NOTED REVISE & RESUBMIT FOR DISTRIBUTION
RETURNED FOR CORRECTION
MAY 7 1979
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS OR DEVIATIONS FROM CONTRACT REQUIREMENTS.
BLACK & VEATCH

RECEIVED
MAY 10 1979
BLACK & VEATCH Hastings Energy Center

CERTIFIED FOR CONSTRUCTION
C-E WALTHER, INC.
BY _____ DATE 5-2-79

REV.	DESCRIPTION	BY	DATE	APPR.	RE-VIEWED
D	(37) (6) RELOCATED DOORS ADD 6" FLG.	JLN	3-21-79	KR	
C	(37) WAS 39'-10 5/8; (13) WAS 10'-3 3/4; (17) EL. WAS 1925'-5 1/2; (15) WAS 19'-6 5/8; (18) WAS 6'-10 5/8; (19) WAS 10'-8; (20) WAS 20'-3 3/4; (21) WAS 22'-5 1/2	A.J.P.	1-23-78	KR	
B	(11) CHG'D PICTURE & ADDED ADAPTER	D.L. DEAN	10/17/78	W.	
B	(4) WAS EL. 1925'-5 1/2; (4) WAS 10'-3 3/4; (7) (8) ELEV. WAS 1945'-9 1/4; (6) ADDED NOTE	D.L. DEAN	10/17/78	W.	
A	(5) CHG'D. TITLE. (4) ADD FLG. SIZE. (1) (3) REVISED DIMENSIONS.	JLN	8-1-78	JCB	

TOLERANCES UNLESS OTHERWISE SPECIFIED	NEXT ASSY.
FRACTION	DRAWN BY J.L. NORRIS 5-5-78
DECIMAL	CHECKED BY C.P. Richter 5/14/79
ANGULAR	APPROVED BY M.D. Hanna 5-23-79
SURFACE FIN. √ RMS.	REVIEWED BY L. Hill 5-24-79
	REVIEWED BY [illegible] 5/24/79

MODEL NO. 1P2C25D4F/12X40'X64(4@16')

C-E WALTHER, INC.
A SUBSIDIARY OF COMBUSTION ENGINEERING, INC.
BIRMINGHAM, ALABAMA

CUSTOMER HASTINGS ENERGY CENTER, UNIT 1 FOR CITY OF HASTINGS, NEBRASKA

SCALE 3/16"=1'-0

TITLE PRECIPITATOR 1 INLET DUCTWORK (5)

ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED. ACCUMULATION OF TOLERANCES NOT PERMISSIBLE.

CONTRACT NO. EP-6587-52 | DWG. NO. G5 | REV. D

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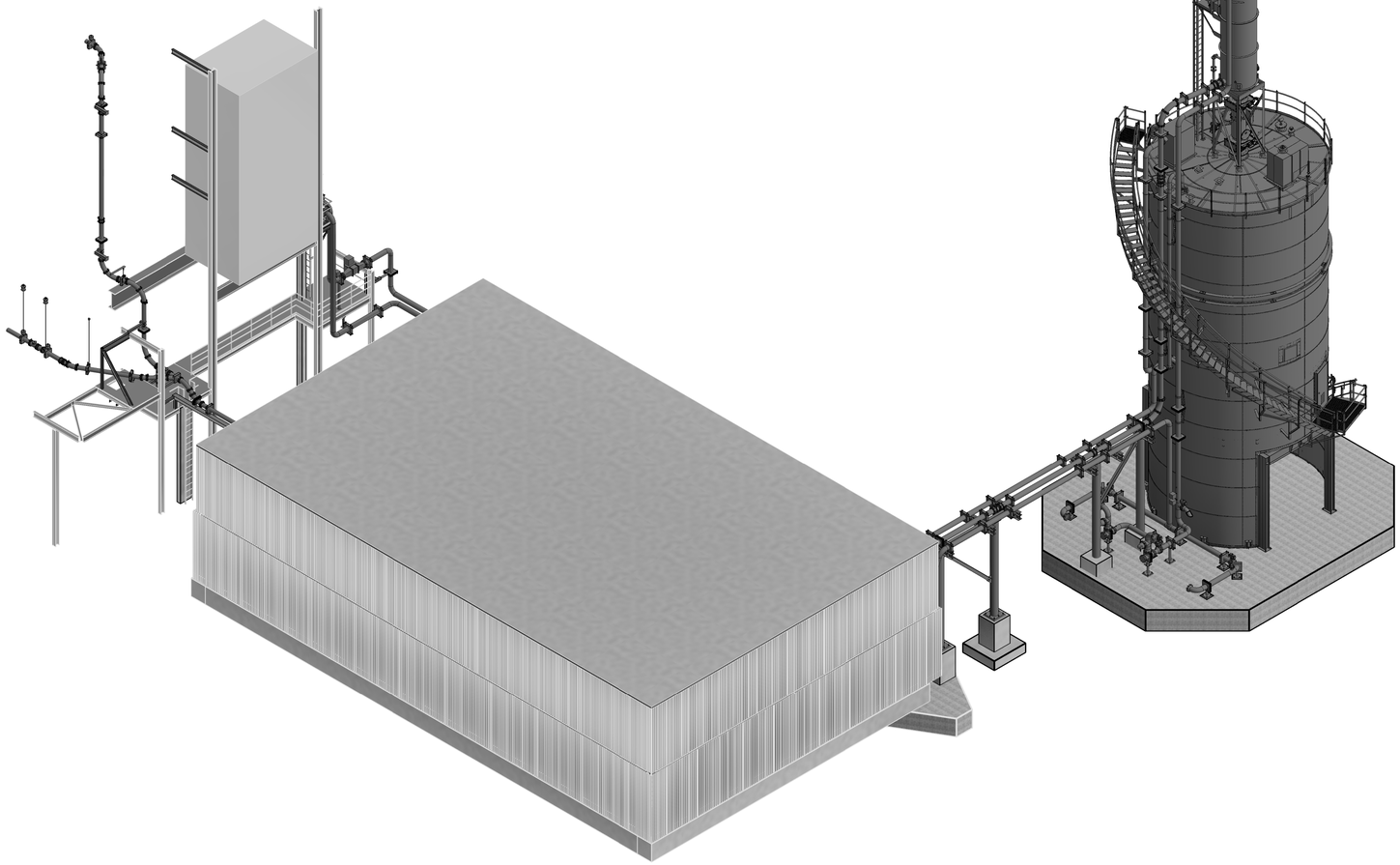
WEC 1 FLY ASH SYSTEM FOUNDATION

4520 E SOUTH ST, HASTINGS, NE 68901



SHEET INDEX

SHEET	SHEET NAME	REVISION DATE	REV
G000	COVER SHEET	04/29/2025	0
S001	GENERAL NOTES	04/29/2025	0
S002	SPECIAL INSPECTIONS	04/29/2025	0
S100	OVERALL STRUCTURAL PLAN	04/29/2025	0
S101	FOUNDATION PLAN	04/29/2025	0
S103	FRAMING PLANS	04/29/2025	0
S200	FRAMING SECTIONS	04/29/2025	0
S201	FRAMING SECTIONS	04/29/2025	0
S300	FOUNDATION DETAILS	04/29/2025	0
S301	FOUNDATION DETAILS	04/29/2025	0
S400	FRAMING DETAILS	04/29/2025	0
S401	FRAMING DETAILS	04/29/2025	0

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FAX 402.341.5895
Olsson - Engineering
Nebraska COA #CA-0638

PROFESSIONAL CIVIL ENGINEER
GEORGE B. LITTLE
E-7743
STATE OF NEBRASKA

4/29/2025

REV. NO.	DATE	REVISION DESCRIPTION	BY
0	04/29/2025	ISSUED FOR CONSTRUCTION	PMG

REVISIONS

COVER SHEET

WEC1 FLY ASH SYSTEM FOUNDATION

HASTINGS, NE

2025

drawn by: PMG
checked by: GBL
project no.: 024-07087
date 04-29-2025

SHEET
G000

C:\Revit Local Files\S_Hasting NE WEC1 Fly Ash System Foundation_Central_024-07087_R25_detached_pmg_pgregg79SKX.rvt
4/29/2025 4:36:16 PM

BUILDING CODE AND STANDARDS

2018 INTERNATIONAL BUILDING CODE (IBC 2018) WITH STANDARDS AS REFERENCED IN IBC CHAPTER 35.

STRUCTURAL DESIGN LOADS:

DEAD LOAD

WEIGHT OF MATERIALS USED		
FLY ASH SILO	135 K	(PROVIDED BY TARSCO)
FLY ASH SILO MATERIAL	736 K	(PROVIDED BY TARSCO)

LIVE LOAD

FLY ASH SILO	211 K	(PROVIDED BY TARSCO)

SNOW DESIGN DATA

GROUND SNOW LOAD, P_G	25 PSF	
SNOW EXPOSURE FACTOR, C_E	1.0	
SNOW LOAD IMPORTANCE FACTOR, I_S	1.0	
THERMAL FACTOR, C_T	1.2	

WIND DESIGN DATA

BASIC WIND SPEED, V_{ULT}	120 MPH	
RISK CATEGORY	III	
WIND EXPOSURE	C	
FLY ASH SILO WIND SHEAR	26 K	(PROVIDED BY TARSCO)
FLY ASH SILO WIND OVERTURNING MOMENT	773 K-FT	(PROVIDED BY TARSCO)
T-POST NORTH/SOUTH SHEAR	5.6 K	(PROVIDED BY UCC ENVIRONMENTAL)
T-POST NORTH/SOUTH OVERTURNING	27.5 K-FT	(PROVIDED BY UCC ENVIRONMENTAL)
T-POST EAST/WEST SHEAR	2.5 K	(PROVIDED BY UCC ENVIRONMENTAL)
T-POST EAST/WEST OVERTURNING	35.2 K-FT	(PROVIDED BY UCC ENVIRONMENTAL)
T-POST UPLIFT	1.1 K	(PROVIDED BY UCC ENVIRONMENTAL)

EARTHQUAKE DESIGN DATA

RISK CATEGORY	III	
SEISMIC IMPORTANCE FACTOR, I_e	1.0	
SITE CLASS	D	
SPECTRAL RESPONSE COEFFICIENTS	S_S = 0.077 g; S_1 = 0.041 g	
DESIGN SPECTRAL RESPONSE COEFF'S	S_{DS} = 0.082 g; S_{D1} = 0.065g	
SEISMIC DESIGN CATEGORY	A	
FLY ASH SILO SEISMIC SHEAR	43 K	(PROVIDED BY TARSCO)

MATERIAL DATA:

CONCRETE & REINFORCING

CONCRETE WEIGHT	NORMAL WEIGHT CONCRETE - TYPICAL, UON
C.I.P. CONCRETE STRENGTH	4,000 PSI (MIN f'_c AT 28 DAYS)
CEMENT TYPE	ORDINARY PORTLAND CEMENT (OPC) TYPE I/II - ASTM C150
AGGREGATES	REGULAR WEIGHT HARDROCK TYPE - ASTM C33
ADMIXTURES	ASTM C494
AIR-ENTRAINMENT	ASTM C260
REINFORCING STEEL	ASTM A615, GRADE 60, DEFORMED
WELDABLE REINFORCING STEEL	ASTM A706, GRADE 60, DEFORMED
DEFORMED BAR ANCHORS	ASTM 1064-18, GRADE 70, DEFORMED
NON-SHRINK GROUT (8,000 PSI, MIN.)	ASTM C1107, FACTORY PREMIXED
PREFORMED EXPANSION JOINT (1/2", UON)	ASTM D1751

STEEL

W SHAPES, WT SHAPES	ASTM A992
M AND S SHAPES	ASTM A36
HP SHAPES	ASTM A572, GRADE 50
PLATES	ASTM A572, GRADE 50
ANGLES	ASTM A572, GRADE 50
C AND MC SHAPES	ASTM A992
HSS SQUARE AND RECTANGULAR TUBES	ASTM A500 GRADE C, F_y = 50 ksi
HSS ROUNDS	ASTM A500, GRADE C, F_y = 50 ksi
PIPES	ASTM A53, GRADE B, F_y = 35 ksi
ANCHOR RODS	ASTM F1554, GRADE 55 WITH SUPPLEMENT S1
HIGH STRENGTH BOLTS	ASTM F3125, GRADE 325, TYPE 1, UON ASTM F3125, GRADE 490, TYPE 1
WASHERS FOR HIGH STRENGTH BOLTS	ASTM F436
DIRECT-TENSION INDICATING WASHERS	ASTM F959
HEAVY HEX NUTS	ASTM A563
STICK ELECTRODES	AWS CLASS E70XX AWS CLASS E6010 OR E6011 (GALV. SURFACES)

GENERAL NOTES

1. THE STRUCTURAL DRAWINGS ARE TO BE COORDINATED AND USED IN CONJUNCTION WITH THE CIVIL, MECHANICAL, AND ELECTRICAL DRAWINGS. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH CIVIL, MECHANICAL, AND ELECTRICAL DRAWINGS AND IMMEDIATELY NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES.

2. OLSSON SHALL NOT BE RESPONSIBLE FOR, NOR HAVE CHARGE OF, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES FOR THE SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THIS PROJECT AND SHALL NOT BE RESPONSIBLE FOR CONTRACTOR'S FAILURE TO CARRY OUT WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

3. OLSSON SHALL NOT BE RESPONSIBLE FOR, NOR HAVE CONTROL OVER, THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, ANY OF THEIR AGENTS OR EMPLOYEES, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK, OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

4. THE CONTRACTOR SHALL PROVIDE AND BE RESPONSIBLE FOR ALL TEMPORARY SHORING AND BRACING REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT. ALL SHORING AND BRACING MEMBERS AND CONNECTIONS SHALL BE OF SUFFICIENT STRENGTH TO SUPPORT THE IMPOSED LOADS. TEMPORARY MEMBERS AND CONNECTIONS SHALL NOT BE REMOVED UNTIL PERMANENT MEMBERS ARE IN PLACE AND FINAL CONNECTIONS ARE MADE.

5. THE CONTRACTOR SHALL FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE DRAWINGS.

6. NO FIELD MODIFICATIONS TO ANY STRUCTURAL COMPONENTS SHALL BE MADE WITHOUT PRIOR APPROVAL BY THE STRUCTURAL ENGINEER. THIS INCLUDES, BUT IS NOT LIMITED TO, REVISIONS DUE TO MIS-LOCATION, MISFIT, OR ANY OTHER CONSTRUCTION ERRORS.

7. NO OPENING SHALL BE PLACED IN ANY STRUCTURAL MEMBER (OTHER THAN AS INDICATED ON APPROVED SHOP DRAWINGS) UNTIL THE LOCATION HAS BEEN APPROVED BY THE STRUCTURAL ENGINEER.

8. ALL DETAILS, SECTIONS, AND NOTES ON THE DRAWINGS ARE INTENDED TO BE TYPICAL FOR SIMILAR SITUATIONS ELSEWHERE UNLESS OTHERWISE NOTED.

9. MATERIALS AND EQUIPMENT SHALL BE STORED AND TRANSPORTED IN A MANNER SO AS NOT TO EXCEED THE ALLOWABLE CAPACITY OF THE CONSTRUCTION.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN AND PROVISION OF ANY AND ALL TEMPORARY BRACING AND SHORING AGAINST WIND, ERECTION AND ALL CONSTRUCTION LOADS UNTIL ALL ELEMENTS, MEMBERS, AND CONNECTIONS (FLOORS, ROOF, SHEAR WALLS, ETC), AS SHOWN ON THE CONTRACT DOCUMENTS ARE COMPLETELY INSTALLED. THE STRUCTURAL MEMBERS SHOWN ON THE CONTRACT DOCUMENTS ARE DESIGNED FOR THE ANTICIPATED LOADS THAT THE STRUCTURE WILL BE SUBJECTED TO ONLY AFTER ALL STRUCTURAL ELEMENTS ARE IN PLACE AND FINAL CONNECTIONS ARE COMPLETE.

11. THE ENGINEER HAS ASSUMED THAT THE EXISTING CONSTRUCTION WAS DESIGNED AND CONSTRUCTED IN CONFORMITY WITH GOOD PRACTICES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES AND PRECAUTIONS NECESSARY INCLUDING BRACING OR SHORING TO PREVENT DAMAGE AND/OR SETTLEMENT TO THE EXISTING STRUCTURE. FURTHERMORE, THEY SHALL AGREE TO ASSUME ALL RESPONSIBILITY FOR THE PRESERVATION OF THE EXISTING STRUCTURE.

12. IF DURING CONSTRUCTION, MOVEMENTS OR SETTLEMENTS OF THE EXISTING STRUCTURE ARE OBSERVED, TAKE PRECAUTIONS NECESSARY TO SECURE THE SAFETY OF THE SUBJECT AND/OR ADJOINING PREMISES, AND CONTACT THE ENGINEER.

13. THE EXISTING INFORMATION SHOWN ON THE DRAWINGS IS AS EXACT AS COULD BE SECURED INSOFAR AS BUILDING CONSTRUCTION AND EXISTING CONDITIONS ARE CONCERNED. EXTREME ACCURACY IS NOT GUARANTEED. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED FOR THE ASSISTANCE OF THE CONTRACTOR IN ACHIEVING THE END RESULTS. MANY OF THE DIMENSIONS AND CONDITIONS NOTED ON THE DRAWINGS ARE BASED ON INFORMATION OBTAINED FROM THE ORIGINAL DRAWINGS AND MAY OR MAY NOT BE CORRECT. EXACT LOCATIONS, MEASUREMENTS, DISTANCES, LEVELS, ETC. WILL BE GOVERNED BY CONDITIONS AT THE JOB SITE. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, INCLUDING EXISTING MEMBER SIZES, DIMENSIONS, AND ELEVATIONS WHICH AFFECT WORK TO BE PERFORMED AS PART OF THIS PROJECT, PRIOR TO ANY NEW CONSTRUCTION OR MATERIAL FABRICATION. ALL FIELD VERIFIED DIMENSIONS AND DISCREPANCIES MUST BE SHOWN ON THE STRUCTURAL SHOP DRAWINGS OR ON A SEPARATE SUBMITTAL SO THAT THE STRUCTURAL ENGINEER CAN MAKE ANY ADJUSTMENT IN MEMBER SIZES OR DETAILS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL CONSTRUCTION CHANGES WHICH ARE A RESULT OF EXISTING JOB SITE CONDITIONS, AND WHICH ARE NOT ACCURATELY DOCUMENTED FOR THE OWNER IMMEDIATELY AFTER THE CONTRACTOR'S FIELD VERIFICATION EFFORTS.

FOUNDATIONS

1. !!STOP!! CALL BEFORE YOU DIG! THE CONTRACTOR SHALL BE RESPONSIBLE TO CALL "811" AND COORDINATE FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES PRIOR TO BEGINNING GRADING ACTIVITIES. NOTIFY THE STRUCTURAL ENGINEER WHENEVER CONFLICTS ARE ENCOUNTERED. THE CONTRACTOR SHALL PROTECT ANY EXISTING UTILITIES FROM DAMAGE OR INTERRUPTION DURING CONSTRUCTION.

2. REFERENCE THE APPROVED GEOTECHNICAL INVESTIGATION REPORT PREPARED BY MID-STATE, DATED 04-03-2025. THE CONTRACTOR SHALL OBTAIN A COPY OF THE REPORT AND ANY AVAILABLE ADDENDA OR SUPPLEMENTS. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE REPORT AND SHALL FOLLOW ALL CONCLUSIONS AND RECOMMENDATIONS CONTAINED IN THE REPORT.

3. BEAR FOOTINGS ON NATURAL SOILS OR SUITABLE COMPACTED FILL MATERIALS. ALL SPREAD FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE NET BEARING PRESSURE OF 1,500 PSF. NO FOOTINGS SHALL BE PLACED ON FROZEN SOILS. MAT FOUNDATIONS HAVE BEEN DESIGNED FOR AN ALLOWABLE NET BEARING PRESSURE OF 2,000 PSF AND ARE DESIGNED TO BEAR ON 4-FT THICK SOIL RAFTS PER THE RECOMMENDATIONS IN GEOTECHNICAL REPORT LISTED ABOVE.

4. A GEOTECHNICAL ENGINEER SHALL BE RETAINED FOR TESTING AND OBSERVATION DURING ALL EARTHWORK AND FOUNDATION CONSTRUCTION PHASES TO VERIFY THAT THE RECOMMENDATIONS OF THE SUBSOIL INVESTIGATION ARE BEING IMPLEMENTED. THE GEOTECHNICAL ENGINEER SHALL INSPECT ALL FOOTING EXCAVATIONS AND SLAB SUBGRADE IMMEDIATELY PRIOR TO PLACEMENT OF ANY CONCRETE AND SHALL TEST ALL FILL FOR PROPER COMPACTION.

5. REMOVE ALL TOPSOIL, RUBBLE, AND TREE ROOTS MORE THAN 2-INCH IN DIAMETER TO DEPTHS AND EXTENTS AS DIRECTED BY THE GEOTECHNICAL ENGINEER AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. SOILS BELOW FOOTING LEVEL DISTURBED BY GRUBBING SHALL BE RECOMPACTED AS DIRECTED BY THE GEOTECHNICAL REPORT AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

6. STRUCTURAL FILL MATERIALS SHALL CONSIST OF SUITABLE ON-SITE OR BORROW MATERIALS APPROVED BY THE GEOTECHNICAL ENGINEER AND COMPACTED TO DEPTHS AND EXTENTS AS DIRECTED BY THE GEOTECHNICAL REPORT AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

7. GENERAL CONTRACTOR SHALL COMPACT EXPOSED FOOTING BOTTOMS AND EXPOSED AGGREGATE PIER SURFACES WITH HAND-OPERATED, MECHANICAL COMPACTION EQUIPMENT AFTER EACH FOOTING EXCAVATIONS IS COMPLETED AND PRIOR TO PLACING STEEL OR CONCRETE.

8. SHOULD UNSUITABLE BEARING CONDITIONS BE ENCOUNTERED DURING EXCAVATION, NOTIFY THE OWNER, ARCHITECT, AND STRUCTURAL ENGINEER BEFORE CONTINUING WITH CONSTRUCTION.

9. THE CONTRACTOR MUST PROVIDE SURFACE DRAINAGE AND PUMPS TO PROTECT ALL EXCAVATION FROM FLOODING. FLOODING OF ANY EXCAVATION AFTER APPROVAL OF THE SUBGRADE WILL BE CAUSE FOR RE-PREPARATION AND RE-APPROVAL OF THE SUBGRADE.

10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY WATER, FROST, OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUBGRADE BEFORE AND AFTER PLACING OF CONCRETE AND UNTIL SUCH SUBGRADES ARE FULLY PROTECTED BY THE PERMANENT BUILDING STRUCTURE.

11. RECORDS OF ANY EXISTING SUBGRADE INTERFERENCES, OTHER THAN THOSE INTERFERENCES SHOWN OR INDICATED ON THE CIVIL CONSTRUCTION DOCUMENTS, ARE NOT CURRENTLY AVAILABLE. DURING EXCAVATION WORK, INTERFERENCES MAY BE DISCOVERED. CONTRACTOR SHALL DOCUMENT CONSTRUCTION-RELATED DIMENSIONS OF ALL INTERFERENCES. CONTRACTOR SHALL FURNISH THE ABOVE INFORMATION IN THE FORM OF DETAILED SKETCHES TO THE STRUCTURAL ENGINEER FOR REVIEW.

12. THE CONTRACTOR SHALL REVIEW ALL EXISTING SITE CONDITIONS AND THE GEOTECHNICAL REPORT AND ESTABLISH SPECIFIC "CONSTRUCTION PROCEDURES AND SEQUENCES" FOR THE EXCAVATION, COMPACTION, FILL, AND INSTALLATION OF THE NEW BUILDING FOUNDATION. SUBMIT THESE FOR REVIEW TO THE OWNER'S SOIL TESTING LABORATORY, OWNER'S REPRESENTATIVE, AND STRUCTURAL ENGINEER.

13. FLOWABLE FILL FOR USE AS FOUNDATION SUPPORT IS DEFINED AS CONTROLLED LOW STRENGTH MATERIAL (CLSM) CONFORMING TO THE RECOMMENDATIONS OF ACI 229R-99.

14. FLOWABLE FILL FOR USE AS FOUNDATION SUPPORT IS DEFINED AS CONTROLLED LOW STRENGTH MATERIAL (CLSM)
    A. FLOWABLE FILL IN NOT INTENDED TO BE EXCAVATABLE IN THE FUTURE.
    B. PROVIDE CONCRETE CONTRACTOR'S STANDARD MIX FOR FLOWABLE FILL THAT MEETS THE FOLLOWING REQUIREMENTS:
        a. CONFORM TO THE RECOMMENDATIONS OF ACI 229R-99.
        b. 28 DAY MINIMUM COMPRESSIVE STRENGTHS OF 100PSI.
        c. MIXTURE SHALL FLOW INTO PLACE AND CONSOLIDATE DUE TO ITS FLUIDITY WITHOUT VIBRATION OR PUDDLING ACTION.
        d. LIMIT SUBSIDENCE OF FLOWABLE FILL TO 1/8" PER FOOT OF DEPTH
        e. CURING PROCEDURES ARE NOT REQUIRED, BUT PROTECT FROM FREEZING UNTIL MIX HAS HARDENED.

15. REFER TO THE TESTING AND INSPECTION SECTION OF THESE NOTES FOR THE FOUNDATION TESTING AND INSPECTION REQUIREMENTS.

STRUCTURAL CONCRETE

1. CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF:
    A. ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE"
    B. ACI 302.1R "GUIDE TO CONCRETE FLOOR AND SLAB CONSTRUCTION"
    C. ACI 304 "GUIDE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE"
    D. ACI 311.1R "MANUAL OF CONCRETE INSPECTION"
    E. ACI 315R "GUIDE TO PRESENTING REINFORCING STEEL DESIGN DETAILS"
    F. ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
    G. ACI 347 "GUIDE TO FORMWORK FOR CONCRETE"

2. SUBMIT A CONCRETE MIX DESIGN FOR EACH CLASS OF CONCRETE FOR APPROVAL BY THE PROJECT ENGINEER. THE MIX DESIGN SHALL INCLUDE THE PROPORTIONS AND TEST RESULTS OR CERTIFICATIONS FOR ALL COMPONENTS OF THE MIX IN ACCORDANCE WITH THE LATEST ACI 301. SUBMIT DOCUMENTED RESULTS OF "FIELD TEST DATA" OR "TRIAL MIXTURES" IN ACCORDANCE WITH ACI 301 FOR EACH CLASS OF CONCRETE TO BE USED. THE MIX DESIGNS SHALL MEET THE GUIDELINES AS LISTED IN THE "MATERIAL DATA" SECTION, EXCEPT AS APPROVED BY THE PROJECT ENGINEER.

3. THE COARSE AGGREGATE IN NORMAL WEIGHT CONCRETE MIXES SHALL BE LIMESTONE AND THE LIMESTONE SHALL MAKE UP APPROXIMATELY 30% OF THE WEIGHT OF ALL THE AGGREGATE IN THE MIX, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

4. THE ADDITION OF WATER TO THE MIX ON SITE WILL NOT BE ALLOWED, UNLESS SPECIFICALLY APPROVED.

5. CONCRETE MAY NOT BE PLACED DURING FREEZING WEATHER UNLESS SUITABLY PROTECTED, PER ACI 306.1. CONFORM TO ACI 305.1 FOR HOT WEATHER CONCRETING.

6. THE CONTRACTOR SHALL SUBMIT CHECKED, DETAILED REINFORCEMENT SHOP DRAWINGS SHOWING THE LOCATIONS AND DETAILING OF ALL FOOTINGS, WALLS, PIERS, BEAMS, COLUMNS, SLABS, CONSTRUCTION JOINTS, CONTROL JOINTS, ETC, PRIOR TO FABRICATION. DETAILS SHALL INCLUDE BAR SIZES, LAPS, SPACING, AND PLACEMENT.

7. THE MINIMUM CONCRETE COVER FOR CAST-IN-PLACE (NON-PRESTRESSED) CONCRETE SHALL BE IN ACCORDANCE WITH THE FOLLOWING:
    A. CONCRETE CAST AGAINST/PERMANENTLY EXPOSED TO EARTH: 3"
    B. CONCRETE EXPOSED TO EARTH OR WEATHER:
        a. NO 6 THROUGH NO 18 BARS 2"
        b. NO 5 BAR, W31 OR D31 WIRE, AND SMALLER 1 1/2"
    C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
        a. SLABS, WALLS, JOISTS:
            • NO 14 AND NO 18 BARS 1 1/2"
            • NO. 11 BAR AND SMALLER 3/4"
        b. BEAMS, COLUMNS:
            • PRIMARY REINFORCEMENT 1 1/2"
        c. TIES, STIRRUPS, SPIRALS 1 1/2"

8. PROVIDE LAP SPLICES AS INDICATED BELOW UNLESS OTHERWISE NOTED IN THE DRAWINGS.

BAR SIZE	SPLICE LENGTH: TOP BARS*	SPLICE LENGTH: OTHER BARS
#3	1'-3"	1'-0"
#4	1'-8"	1'-3"
#5	2'-5"	1'-10"
#6	3'-4"	2'-7"
#7	4'-0"	3'-1"
#8	5'-0"	3'-11"
#9	6'-5"	4'-11"
#10	7'-10"	6'-1"
#11	9'-6"	7'-4"

* TOP BAR CONDITION OCCURS WHERE HORIZONTAL REINFORCEMENT IS PLACED SUCH THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST BELOW THE SPLICE.

9. UNLESS DETAILED OTHERWISE, BEND DIAMETERS AND HOOK LENGTHS FOR "STANDARD HOOKS" USED FOR STIRRUPS, TIES, AND HOOPS SHALL BE AS SHOWN IN ACI 318-14, TABLE 25.3.2. BEND DIAMETERS AND HOOK LENGTHS FOR "STANDARD HOOKS" EMBEDDED INTO FOOTINGS SHALL BE PER TABLE 25.3.1. (SEE DRAWINGS FOR EMBEDMENT LENGTH OF HOOK INTO FOOTING).

10. MECHANICAL COUPLERS CAPABLE OF SUSTAINING 125% OF THE BAR ULTIMATE TENSILE CAPACITY MAY BE USED IN LIEU OF LAP SPLICES.

11. ALL EXPOSED CONCRETE EDGES SHALL HAVE 3/4" CHAMFERS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST EDITION OF AISC 303 "CODE OF STANDARD PRACTICE FOR STEEL BUILDING AND BRIDGES".

2. THE STEEL FABRICATOR/ERECTOR SHALL DOCUMENT ANY CONSTRUCTION RELATED DISCREPANCIES AND SHALL FURNISH SAID INFORMATION IN THE FORM OF DETAILED SKETCHES TO THE STRUCTURAL ENGINEER FOR REVIEW. THERE SHALL BE RESOLUTION TO THE NOTED DISCREPANCIES PRIOR TO FABRICATION OF ANY NEW STRUCTURAL ELEMENTS.

3. THE FABRICATOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW, ENGINEERED AND CHECKED DRAWINGS SHOWING FABRICATION DETAILS, FIELD ASSEMBLY DETAILS, AND ERECTION DIAGRAMS FOR ALL STRUCTURAL STEEL ELEMENTS.

4. ALL BEAMS AND JOISTS SHALL BE FABRICATED WITH THE NATURAL CAMBER UP.

5. ALL WELDING SHALL BE PERFORMED BY CERTIFIED/QUALIFIED WELDERS AND SHALL CONFORM TO THE LATEST EDITION OF AWS D1.1 "STRUCTURAL WELDING CODE - STEEL".

6. STRUCTURAL TUBE AND PIPE MEMBERS SHALL BE FULLY SEALED WITH NO HOLES OR OPENING IN MEMBERS UNLESS DETAILED OTHERWISE. PROVIDE 1/4" END PLATE WITH 3/16" MINIMUM SEAL WELD ALL AROUND.

7. BOLTS ARE TO BE TIGHTENED TO THE "SNUG TIGHT" CONDITION, UNLESS OTHERWISE NOTED. SNUG TIGHT IS THE TIGHTNESS THAT EXISTS WHEN ALL PLIES IN A JOINT ARE IN FORM CONTACT AND MAY BE ACHIEVED BY A FEW IMPACTS OF AN IMPACT WRECH OR THE FULL EFFORT OF A MAN USING AN ORDINARY SPUD WRENCH.

8. SURFACE PREPARATION/PAINTING:
    A. SURFACE SHALL BE CLEANED IN ACCORDANCE WITH SSPC-6, COMMERCIAL BLAST CLEANING.
    B. FINISH: HOT DIP GALVANIZING PER ASTM 123. BOLTS SHALL BE GALVANIZED BY MECHANICAL DEPOSIT ACCORDING TO ASTM B695, CLASS 55, TYPE-1.

9. THE THICKNESS OF CURVED ANGLES AND TUBES INDICATED ON THESE DRAWINGS IS A MINIMUM AND SHALL BE INCREASED AS REQUIRED BY THE FABRICATION METHOD UTILIZED TO PREVENT BUCKLING.

POST-INSTALLED ANCHORS

1. ADHESIVE ANCHORS:
    1. FOR CONCRETE BASE CONDITIONS: USE HILTI 'HIT-HY 200' ADHESIVE, UNLESS OTHERWISE SPECIFIED.
    2. MINIMUM EMBEDMENT SHALL BE 9 TIMES ANCHOR DIAMETER, UNLESS OTHERWISE SPECIFIED, OR LIMITED BY THICKNESS OF CONCRETE OR CONCRETE MASONRY.
    3. ANCHOR RODS TO BE HILTI 'HAS' THREADED ROD, UNLESS OTHERWISE SPECIFIED.

2. ALL POST-INSTALLED ANCHORS SHALL BE INSTALLED BY QUALIFIED INDIVIDUALS IN STRICT CONFORMANCE TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS INCLUDING FINISH, MINIMUM EMBEDMENT, ADHESIVE TYPES, RECOMMENDED ACCESSORIES FOR BASE CONDITIONS, AND CURE TIMES FOR WEATHER CONDITIONS.

3. ALL POST-INSTALLED ANCHORS SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENT VERSIONS OF ACI 355.2 OR ACI 355.4.

4. SUBSTITIONS OF SIMILAR PRODUCTS INCLUDING ALTERNATIVE MANUFACTURER'S CAN BE MADE PROVIDED THAT THE ANCHOR'S SHEAR AND TENSION ALLOWABLE LOAD CAPACITIES ARE EQUIVALENT TO THE SPECIFIED ANCHORS. SUBSTITUIONS MUST BE AUTHORIZED BY THE ENGINEER PRIOR TO INSTALLATION.

SHOP DRAWINGS

1. EACH SHOP DRAWING AND SUBMITTAL THAT HAS BEEN PREPARED BY THE GENERAL CONTRACTOR'S SUBCONTRACTOR SHALL BE REVIEWED, APPROVED, AND STAMPED BY THE SUBCONTRACTOR, PRIOR TO SUBMITTING TO THE STRUCTURAL ENGINEER FOR REVIEW.

2. THE GENERAL CONTRACTOR SHALL REVIEW ALL SUBMISSIONS FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS, MEANS, METHODS, TECHNIQUES, SEQUENCES, AND OPERATION OF CONSTRUCTION, TECHNICAL CONTENT, COORDINATION OF TRADES, DIMENSIONAL ACCURACY, SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

3. ANY DEVIATIONS FROM THE ORIGINAL DESIGN OR DESIGN CRITERIA AS SPECIFIED ON THE "FOR CONSTRUCTION" DESIGN DOCUMENTS OF THE PROJECT SHALL BE BOLDLY NOTED AND CLOUDED ON THE SHOP DRAWINGS THAT ARE SUBMITTED FOR APPROVAL TO BRING TO THE EOR'S ATTENTION.

4. ALL CHANGES TO RESUBMITTED SHOP DRAWINGS SHALL BE CLOUDED.

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4/29/2025

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY
0	04/29/2025	ISSUED FOR CONSTRUCTION	PMG

GENERAL NOTES

WEC1 FLY ASH SYSTEM FOUNDATION

HASTINGS, NE

2025

drawn by: PMG
checked by: GBL
project no.: 024-07087
date 04-29-2025

SHEET
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IBC SCHEDULE OF SPECIAL INSPECTION SERVICES

INSPECTION ITEM REQUIRED	FREQUENCY CONTINUOUS	FREQUENCY PERIODIC	CODE REFERENCE	REMARKS
GENERAL				
CONDUCT WEEKLY VISUAL OBSERVATIONS OF THE STRUCTURAL SYSTEMS FOR GENERAL CONFORMANCE TO THE CONSTRUCTION DOCUMENTS AND PREPARE WEEKLY REPORTS OF OBSERVATIONS DESCRIBING WORK PROGRESS AND NON-CONFORMING ITEMS		X		
EARTHWORK				
VERIFY MATERIAL BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY		X		
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		X		ALL FOOTING AND PILE CAP EXCAVATIONS SHALL BE OBSERVED AND APPROVED PRIOR TO CONCRETE PLACEMENT
PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS		X		TEST EACH SOURCE
DURING FILL PLACEMENT, VERIFY USE OF PROPOER MATERIALS AND PROCEDURES IN ACCORDANCE WITH THE PROVISIONS OF THE APPROVED GEOTECHNICAL REPORT, VERIFY DENSITIES AND LIFT THICKNESSES FURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X			
DURING PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY		X		
TESTING AND EVALUATION OF IN-PLACE DENSITY OF COMPACTED FILL AS WORK PROGRESSES		X		ONE DENSITY TEST FOR EACH LIFT, DAYS OPERATION, OR 5000 SQ. FT. OF FILL AREA
CONCRETE & REINFORCING STEEL				
INSPECT REINFORCEMENT AND VERIFY PLACEMENT PRIOR TO CLOSING OF FORMS AND ARRIVAL OF CONCRETE TO THE JOB-SITE		X	IBC: 1908.4 ACI 318: CH. 20, 25.2, 25.3, 26.6.1-26.6.3	
REINFORCING BAR WELDING: a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706		X	AWS D1.4 ACI 318: 26.6.4	
b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"		X		
c. INSPECT ALL OTHER WELDS	X			
OBSERVE & VERIFY PLACEMENT OF EMBEDDED BOLTS & RODS PRIOR TO CONCRETE PLACEMENT	X			
INSPECT ANCHORS CAST IN CONCRETE		X	ACI 318: 17.8.2	
INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS: a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY UP UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	X		ACI 318: 17.8.2.4	SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318, OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO COMMENCEMENT OF THE WORK
b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED ABOVE		X	ACI 318: 17.8.2	
VERIFY USE OF REQUIRED MIX DESIGN		X	IBC: 1904.1, 1904.2, 1908.2, 1908.3 ACI 318: CH. 19, 26.4.3, 26.4.4	

IBC SCHEDULE OF SPECIAL INSPECTION SERVICES

INSPECTION ITEM REQUIRED	FREQUENCY CONTINUOUS	FREQUENCY PERIODIC	CODE REFERENCE	REMARKS
CONCRETE & REINFORCING STEEL CONTINUED				
PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X		IBC: 1908.10 ASTM: C172, C31 ACI 318: 26.5, 26.12	ADDITIONAL CYLINDERS SHALL BE MADE AS NEEDED FOR EARLY FORM REMOVAL. NOTE: TWO 6X12 OR 4X8 CYLINDERS ARE REQUIRED FOR AN ACCEPTABLE TEST.
SAMPLE CONCRETE SPECIMENS FOR STRENGTH TESTS TO BE PERFORMED IN LAB. A MINIMUM OF FIVE (5) CYLINDERS SHALL BE MADE. TEST TWO AT 7 DAYS AND TWO AT 28 DAYS. THE 5TH CYLINDER SHALL BE HELD IN RESERVE	X			OBTAIN ONE COMPOSITE SAMPLE FOR EACH 100 CUBIC YARDS OR FRACTION THEREOF OF EACH CONCRETE MIX PLACED EACH DAY. WHEN FREQUENCY OF TESTING WILL PROVIDE FEWER THAN FIVE COMPRESSIVE STRENGTH TESTS FOR EACH CONCRETE MIX, TESTING SHALL BE CONDUCTED FROM AT LEAST FIVE RANDOMLY SELECTED BATCHES OR FROM EACH BATCH IF FEWER THAN FIVE ARE USED.
PERFORM CONCRETE STRENGTH TESTING		X		
MAINTAIN A SPREADSHEET SHOWING DATE, SEQUENTIAL ORDER OF STRENGTH TEST RESULTS, AND INDICATE RUNNING AVERAGE	X		ACI 318 PAR. 6.2	
INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X		IBC: 1908.6, 1908.7, 1908.8 ACI 318: 26.5	
VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		X	IBC: 1908.9 ACI 318: 26.5.3-26.5.5	
VERIFY THAT THE NECESSARY DESIGN STRENGTH HAS BEEN REACHED PRIOR TO THE REMOVAL OF FORMS		X		
VERIFY IN-SITU CONCRETE STRENGTH PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS		X	ACI 318: CH. 26.11.2	
INSPECT CONCRETE FORMWORK FOR SHAPE, LOCATION, AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED		X	ACI 318: 26.11.1.2(b)	
VERIFY CORRECT MATERIAL USED, INCLUDING THE USE OF A706 IN WELDED SPLICES, IF ANY		X	AWS: D1.4	
STRUCTURAL STEEL				
VISIT FABRICATION SHOP TO OBSERVE FABRICATION PROCEDURES		X		ONLY ONE INSPECTION IS REQUIRED UNLESS ON-SITE EVENTS INDICATE FURTHER INSPECTIONS ARE NECESSARY
VERIFY FABRICATOR CERTIFICATION		X		
VERIFY CORRECT STRUCTURAL STEEL MATERIAL DELIVERED TO JOB SITE.		X		
VERIFY WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE	X			
VERIFY MANUFACTURERS CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	X			
VERIFY MATERIAL IDENTIFICATIONS (TYPE/GRADE)		X		
OBSERVE WELDER IDENTIFICATION SYSTEM		X		THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE.
OBSERVE CONFIGURATION AND FINISH OF ACCESS HOLES		X		
OBSERVE FIT-UP OF FILLET WELDS, DIMENSIONS (ALIGNMENT, GAPS AT ROOT), CLEANLINESS (CONDITION OF STEEL SURFACES), TACKING (TACK WELD QUALITY AND LOCATION)		X		
OBSERVE USE OF QUALIFIED WELDERS		X		
OBSERVE CONTROL AND HANDLING OF WELDING CONSUMABLES, (PACKAGING AND EXPOSURE CONTROL)		X		
VERIFY NO WELDING OVER CRACKED TACK WELDS		X		
OBSERVE ENVIRONMENTAL CONDITIONS (WIND SPEED WITHIN LIMITS, PRECIPITATION, AND TEMPERATURE)		X		
VERIFY WPS FOLLOWED (WELDING EQUIPMENT SETTINGS, TRAVEL SPEED, SELECTED WELDING MATERIALS, SHIELDING GAS TYPE/FLOW RATE, PREHEAT APPLIED, INTERPASS TEMPERATURE MAINTAINED [MIN/MAX], PROPER POSITION [F, V, H, OH])		X		

IBC SCHEDULE OF SPECIAL INSPECTION SERVICES

INSPECTION ITEM REQUIRED	FREQUENCY CONTINUOUS	FREQUENCY PERIODIC	CODE REFERENCE	REMARKS
STRUCTURAL STEEL CONTINUED				
OBSERVE WELDING TECHNIQUES (INTERPASS AND FINAL CLEANING, EACH PASS WITHIN PROFILE LIMITS AND EACH PASS MEETS QUALITY REQUIREMENTS)		X		
VISUALLY INSPECT ALL WELDS FOR SIZE, LENGTH, AND LOCATION OF WELD. PROVIDE CONTINUOUS INSPECTION ON ALL FULL OR PARTIAL PENETRATION WELDS AND FILLET WELDS GREATER THAN 5/16"	X			
PERFORM ULTRASONIC TESTING ON ALL FULL PENETRATION WELDS	X			
VERIFY NO ARC STRIKES EXIST	X			
VISUALLY INSPECT k-AREA. WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES, OR STIFFENERS HAS BEEN PERFORMED IN THE k-AREA, FOR CRACKS WITHIN 3" OF THE WELD	X			
VERIFY REPAIR ACTIVITY ACCEPTABILITY AS APPLICABLE	X			
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINTS OR MEMBERS	X			
PERFORM MAGNETIC PARTICLE TESTING ON 20% OF ALL PARTIAL PENETRATION AND FILLET WELDS GREATER THAN 5/16"		X		
PERFORM MAGNETIC PARTICLE TESTING OR PENETRANT TESTING THERMALLY CUT SURFACES OF ACCESS HOLES WHERE THE FLANGE THICKNESS EXCEEDS 2 IN. FOR ROLLED SHAPES, OR WHEN THE WEB THICKNESS EXCEEDS 2 IN. FOR BUILT-UP SHAPES.		X		ANY CRACK SHALL BE DEEMED UNACCEPTABLE REGARDLESS OF THE SIZE OR LOCATION
VERIFY MANUFACTURER'S CERTIFICATIONS FOR FASTENER MATERIALS ARE AVAILABLE	X			
VERIFY FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS		X		
VERIFY PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM THE SHEAR PLANE)		X		
VERIFY PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL		X		
VERIFY CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS		X		
CONFIRM PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED		X		
VERIFY PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS		X		
VERIFY FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED		X		
VERIFY JOINT BROUGHT TO SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION		X		
VERIFY FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING		X		
VERIFY FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES		X		
DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS		X		
DOCUMENT ACCEPTANCE OR REJECTION OF STEEL ELEMENTS	X			

NOTES:
1. SPECIAL INSPECTIONS SHALL BE PERFORMED BY APPROVED AGENCY EMPLOYED BY OWNER.
2. SPECIAL INSPECTIONS SHALL BE QUALIFIED IN ACCORDANCE WITH IBC 1704.2.1
3. REPORTS OF SPECIAL INSPECTIONS SHALL BE SUBMITTED TO OWNER, BUILDING OFFICIALS AND ENGINEER OF RECORD IN ACCORDANCE WITH IBC 1704.2.4

STRUCTURAL ABBREVIATIONS

AE	AIR ENTRAINING	KLF	KIPS PER LINEAR FOOT
AFF	ABOVE FINISHED FLOOR	LB, #	POUNDS
AHU	AIR HANDLING UNIT	LH	LEFT HAND
ALT	ALTERNATE	LL	LIVE LOAD
APPROX	APPROXIMATE(LY)	LLH	LONG LEG HORIZONTAL
ARCH	ARCHITECT(URAL)	LLV	LONG LEG VERTICAL
B/	BOTTOM OF	LVL	LAMINATED VENEER LUMBER
BLDG	BUILDING	MAX	MAXIMUM
BM	BEAM	MECH	MECHANICAL
BOT	BOTTOM	MEP	MECHANICAL, ELECTRICAL, PLUMBING
BRG	BEARING	MFR	MANUFACTURER
C	COMPRESSION	MIN	MINIMUM
CA	CAISSON	MISC	MICELLANEOUS
CIP	CAST-IN-PLACE	NA	NOT APPLICABLE
CJ	CONTROL JOINT	NO, #	NUMBER
CL	CENTERLINE	NTS	NOT TO SCALE
CLR	CLEAR	OC	ON CENTER
CMU	CONCRETE MASONRY UNIT	OCEW	ON CENTER EACH WAY
COL	COLUMN	OD	OUTSIDE DIAMETER
CONC	CONCRETE	OH	OPPOSITE HAND
CONN	CONNECTION	PEMB	PRE-ENGINEERED METAL BUILDING
CONST	CONSTRUCTION	PJF	PREMOLDED JOINT FILLER
CONT	CONTINUE(D)(OUS)	PL	PLATE
DBA	DEFORMED BAR ANCHOR	PLF	POUNDS PER LINEAR FOOT
DBL	DOUBLE	PSF	POUND PER SQUARE FOOT
DET	DETAIL	PSI	POUND PER SQUARE INCH
DIA	DIAMETER	PT	POST TENSION(ED)
DIM	DIMENSION(S)	QTY	QUANTITY
DL	DEAD LOAD	R	RADIUS
DP	DRILLED PIER	REINF	REINFORCE(D)
DWG	DRAWING	REV	REVISED/REVISION
EA	EACH	RH	RIGHT HAND
ECC	ECCENTRICITY	RO	ROUGH OPENING
EF	EACH FACE	RTU	ROOF TOP UNIT
EJ	EXPANSION JOINT	SF	SQUARE FOOT
ELEV	ELEVATION	SIM	SIMILAR
EOR	ENGINEER OF RECORD	SPEC	SPECIFICATION
EQ	EQUAL	SS	STAINLESS STEEL
EQUIP	EQUIPMENT	STD	STANDARD
ES	EACH SIDE	T	TENSION
EW	EACH WAY	T&B	TOP AND BOTTOM
EWEF	EACH WAY EACH FACE	T&G	TONGUE AND GROVE
FF	FINISHED FLOOR	T/	TOP OF
FND	FOUNDATION	TBD	TO BE DETERMINED
FT	FEET (FOOT)	TYP	TYPICAL
FTG	FOOTING	UON	UNLESS OTHERWISE NOTED
GA	GAUGE	V	SHEAR
GALV	GALVANIZED	VERT	VERTICAL
GB	GRADE BEAM	VIF	VERIFY IN FIELD
GL	GLUE LAMINATE TIMBER	W/	WITH
HORZ	HORIZONTAL	W/O	WITHOUT
HS	HEADED STUD	WG	WORKABLE GAGE
ID	INSIDE DIAMETER	WP	WORKING POINT
K	KIP (1000 POUNDS)	WWR	WELDED WIRE REINFORCEMENT

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4/29/2025

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY
0	04/29/2025	ISSUED FOR CONSTRUCTION	PMG

SPECIAL INSPECTIONS

WEC1 FLY ASH SYSTEM FOUNDATION

HASTINGS, NE

2025

drawn by: PMG
checked by: GBL
project no.: 024-07087
date 04-29-2025

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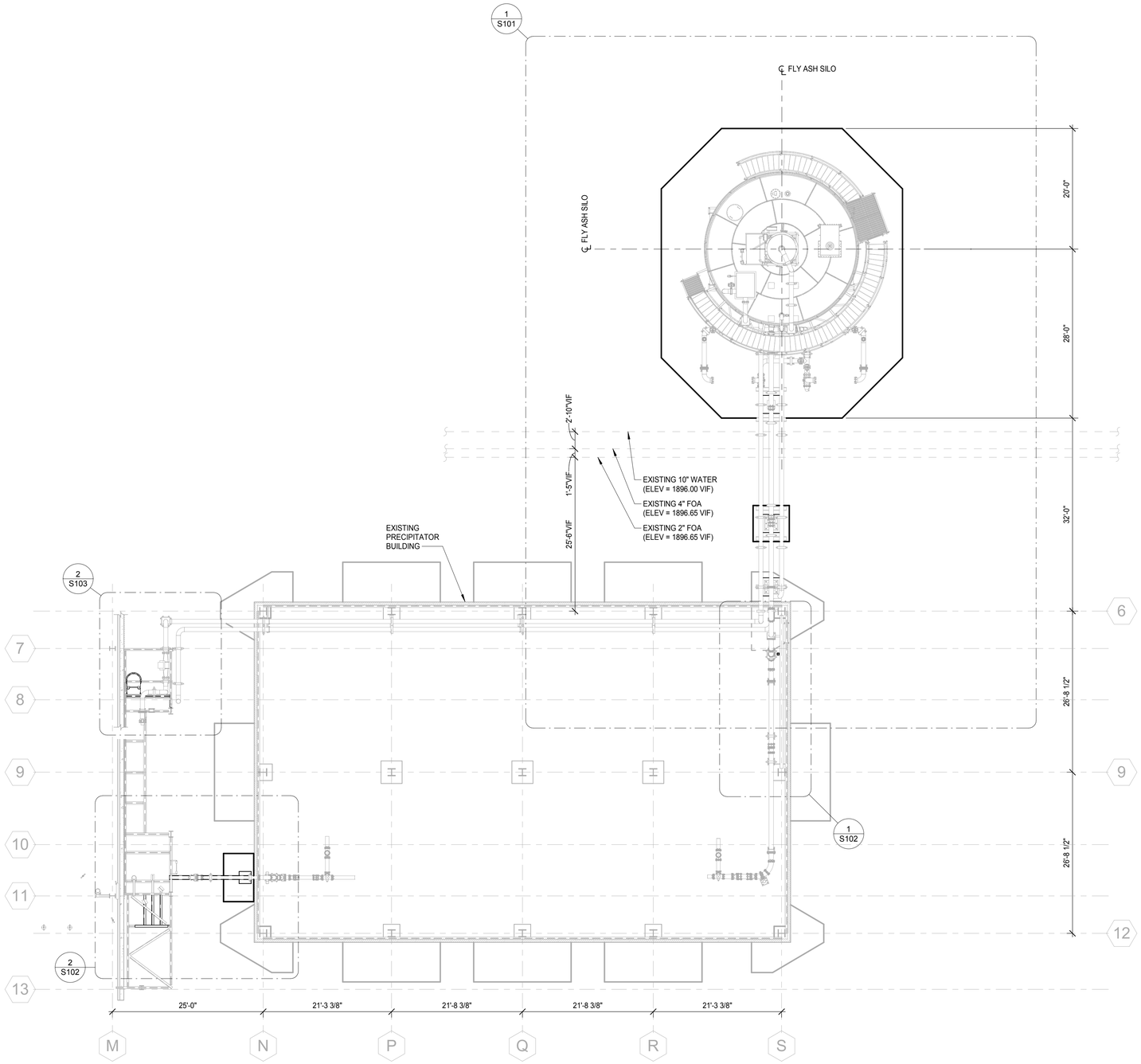

GENERAL SHEET NOTES

1. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS, ELEVATIONS, DIMENSIONS, AND MEMBER SIZES PRIOR TO ORDERING OR FABRICATION OF ANY MATERIALS.
2. SEE DRAWINGS S001 & S002 FOR GENERAL NOTES AND SPECIAL INSPECTIONS.
3. ALL MEMBERS SHOWN AS HALFTONE ARE EXISTING.

1 OVERALL STRUCTURAL PLAN
SCALE: 1" = 10'-0"

NORTH

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TEL 402.341.1116
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PROFESSIONAL CIVIL ENGINEER
GEORGE B. LITTLE
E-7743
STATE OF NEBRASKA
4/29/2025

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY
0	04/29/2025	ISSUED FOR CONSTRUCTION	PMG

OVERALL STRUCTURAL PLAN

WEC1 FLY ASH SYSTEM FOUNDATION

HASTINGS, NE

2025

drawn by: PMG
checked by: GBL
project no.: 024-07087
date 04-29-2025

SHEET
S100

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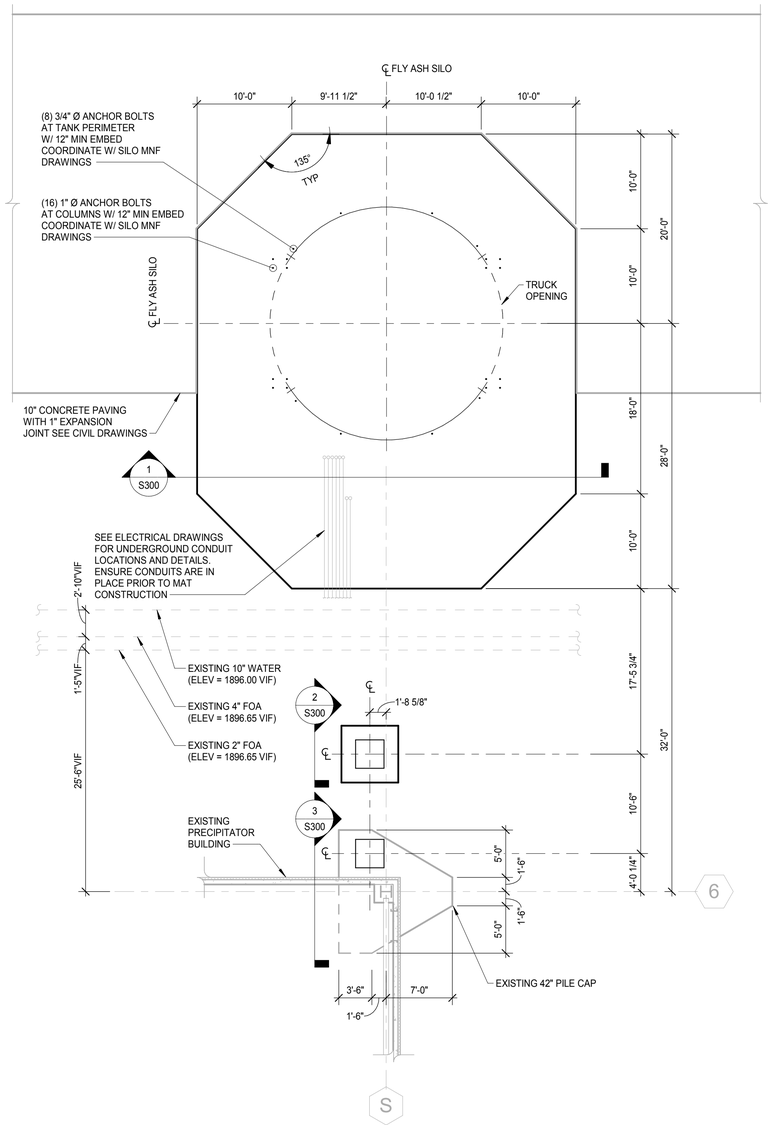

1 FOUNDATION PLAN

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

NORTH

GENERAL SHEET NOTES

1. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS, ELEVATIONS, DIMENSIONS, AND MEMBER SIZES PRIOR TO ORDERING OR FABRICATION OF ANY MATERIALS.
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3. ALL MEMBERS SHOWN AS HALFTONE ARE EXISTING.

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4/29/2025

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REV. NO.	DATE	REVISION DESCRIPTION	BY
0	04/29/2025	ISSUED FOR CONSTRUCTION	PMG

FOUNDATION PLAN

WEC1 FLY ASH SYSTEM FOUNDATION

HASTINGS, NE

2025

drawn by: PMG
checked by: GBL
project no.: 024-07087
date 04-29-2025

SHEET
S101

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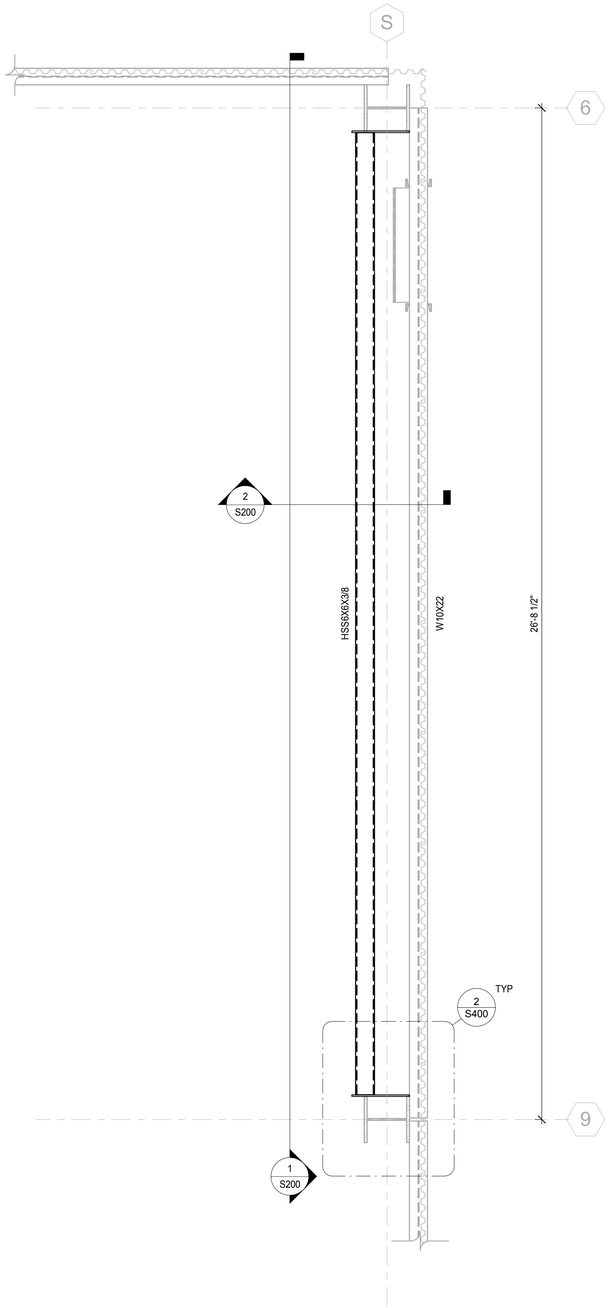
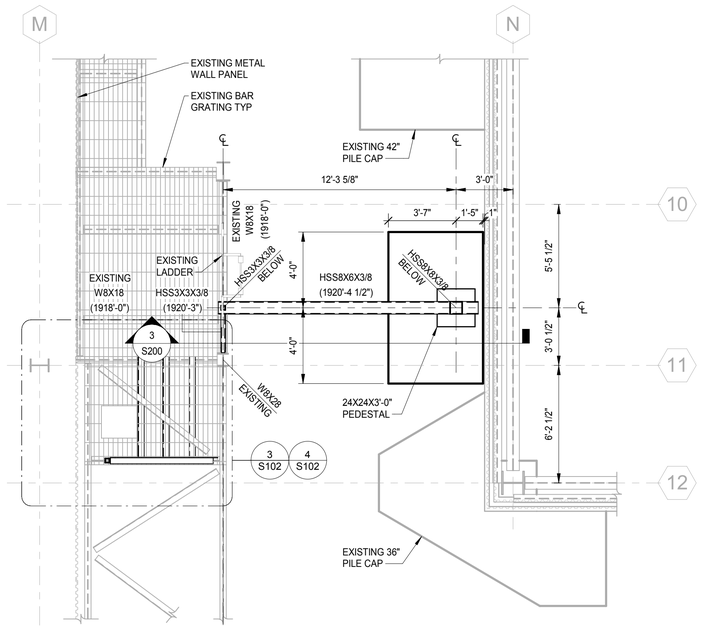
GENERAL SHEET NOTES

1. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS, ELEVATIONS, DIMENSIONS, AND MEMBER SIZES PRIOR TO ORDERING OR FABRICATION OF ANY MATERIALS.
2. SEE DRAWINGS S001 & S002 FOR GENERAL NOTES AND SPECIAL INSPECTIONS.
3. ALL MEMBERS SHOWN AS HALFTONE ARE EXISTING.
4. FOR TYPICAL STEEL TO STEEL CONNECTION SEE DETAIL 1/S400.



1 AUXILIARY STEEL #1

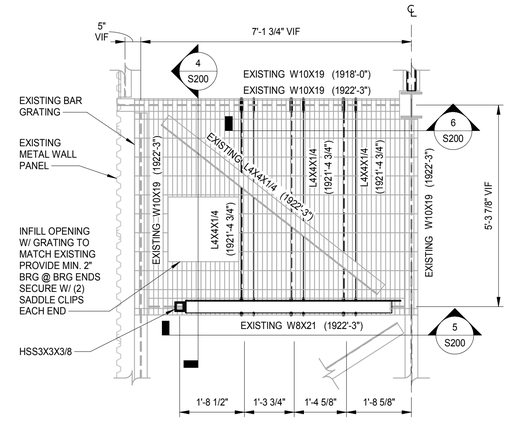
SCALE: 1/2" = 1'-0"



2 AUXILIARY STEEL #2

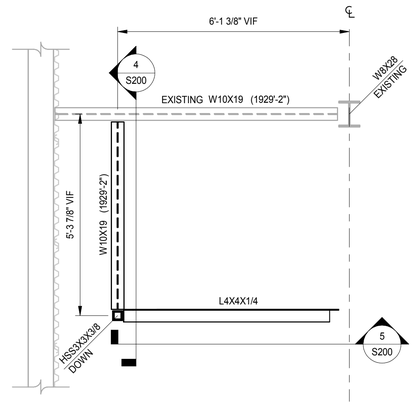
SCALE: 1/4" = 1'-0"

NORTH



3 AUXILIARY STEEL #2 (T/STEEL = 1922'-3")

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



4 AUXILIARY STEEL #2 (T/STEEL = 1929'-2")

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

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STATE OF NEBRASKA
4/29/2025

REV. NO.	DATE	REVISION DESCRIPTION	BY
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REVISIONS

FRAMING PLANS

WEC1 FLY ASH SYSTEM FOUNDATION

HASTINGS, NE

2025

drawn by: PMG
checked by: GBL
project no.: 024-07087
date 04-29-2025

SHEET
S102

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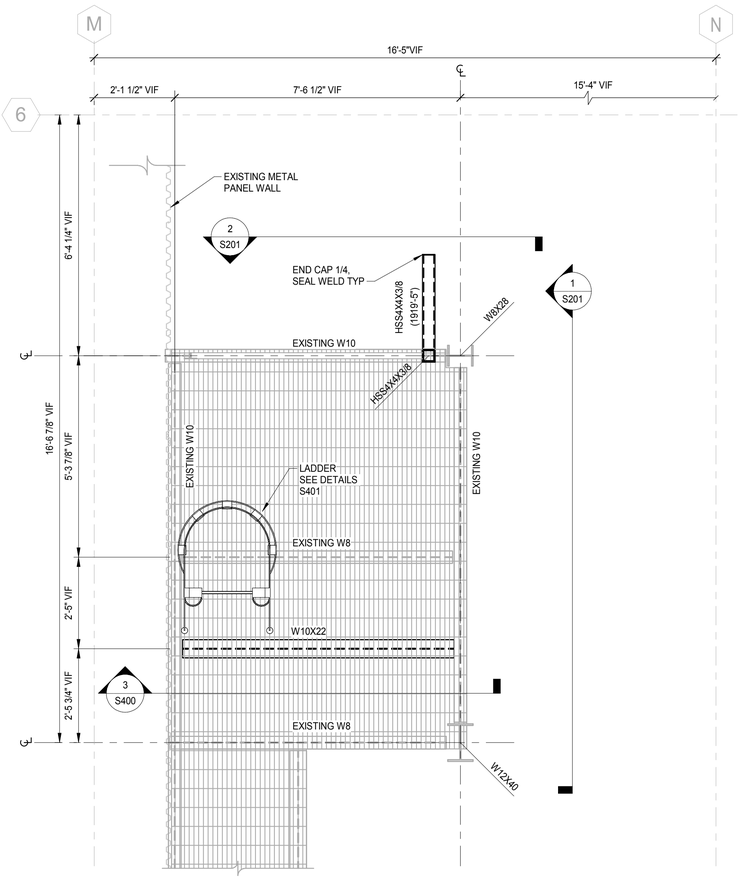
GENERAL SHEET NOTES

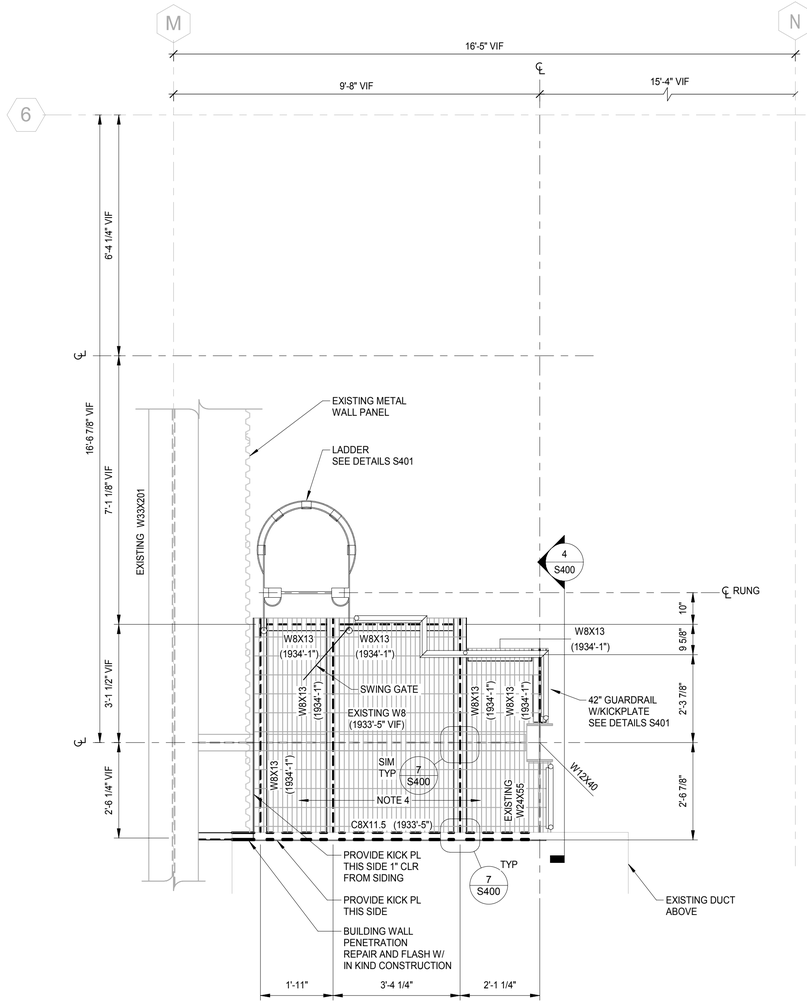
1. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS, ELEVATIONS, DIMENSIONS, AND MEMBER SIZES PRIOR TO ORDERING OR FABRICATION OF ANY MATERIALS.
2. SEE DRAWINGS S001 & S002 FOR GENERAL NOTES AND SPECIAL INSPECTIONS.
3. ALL MEMBERS SHOWN AS HALFTONE ARE EXISTING.
4. INDICATES SPAN OF 1-1/4" SERRATED METAL BAR GRATING.
5. FOR TYPICAL STEEL TO STEEL CONNECTION SEE DETAIL 1/S400.



1 AUXILIARY STEEL #3 (T/STEEL = 1918'-0" VIF (UON))

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

NORTH



2 AUXILIARY STEEL #3 (T/STEEL = 1933'-3" VIF (UON))

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

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4/29/2025

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REVISIONS

FRAMING PLANS

WEC1 FLY ASH SYSTEM FOUNDATION

HASTINGS, NE

2025

drawn by: PMG
checked by: GBL
project no.: 024-07087
date 04-29-2025

SHEET
S103

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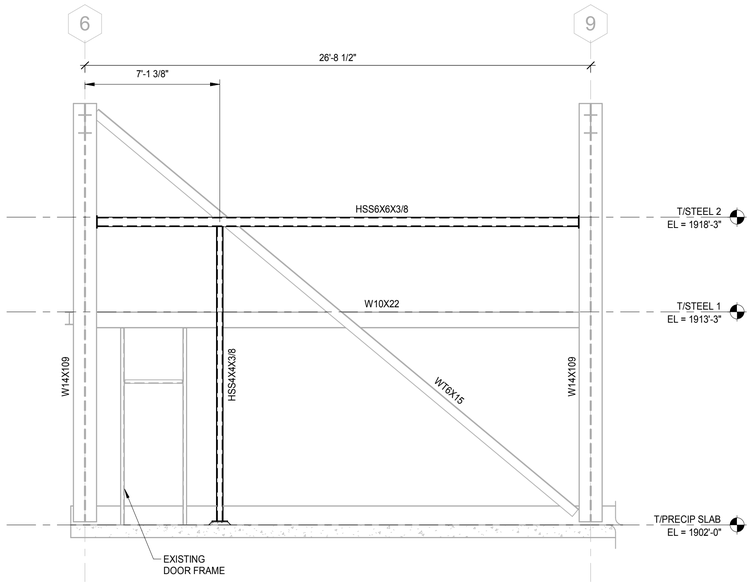
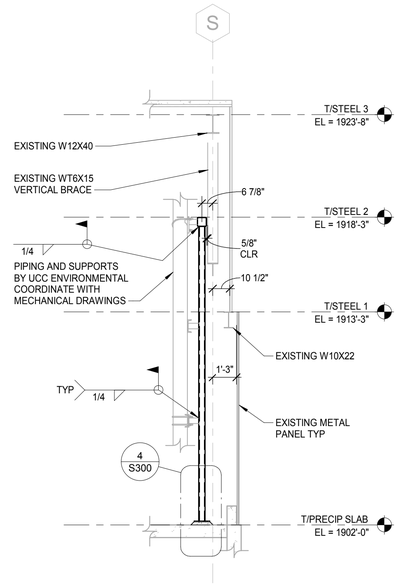


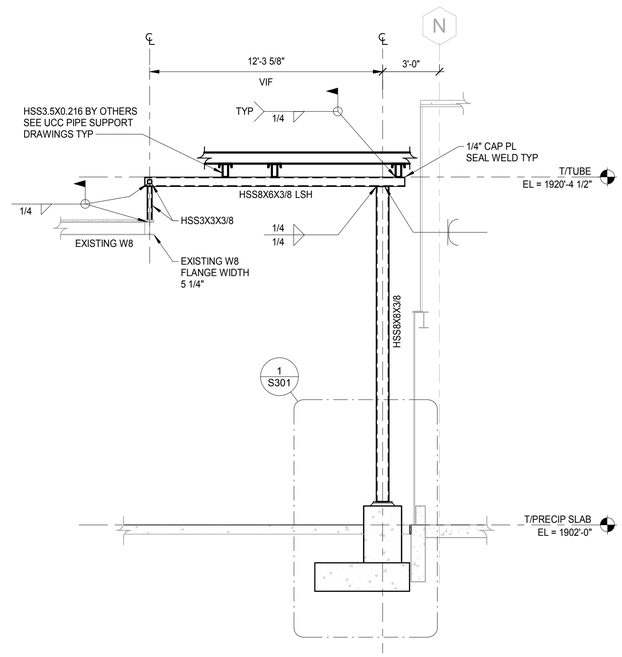
1 AUXILIARY STEEL #1 (LOOKING EAST)

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



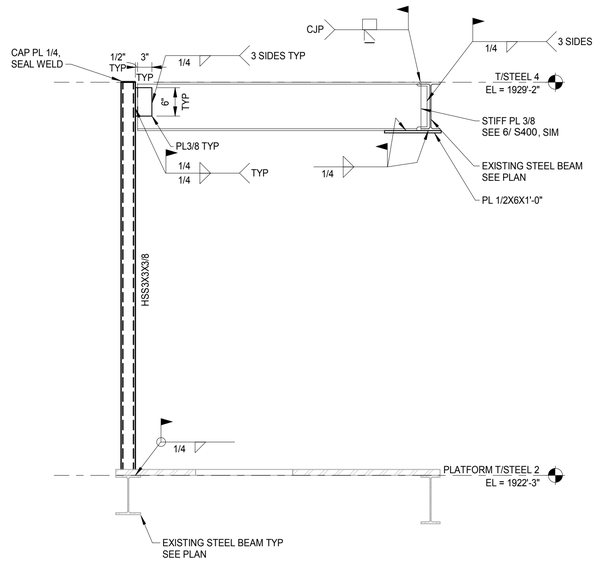
2 AUXILIARY STEEL #1 (LOOKING NORTH)

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



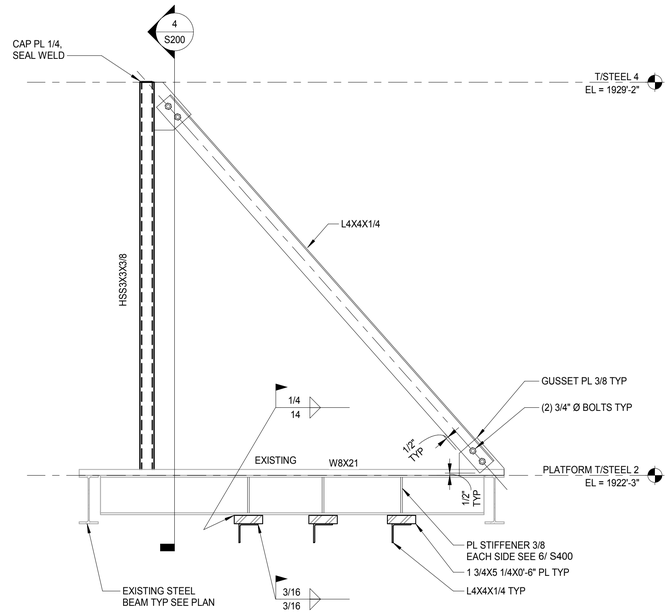
3 AUXILIARY STEEL #2 (LOOKING NORTH)

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



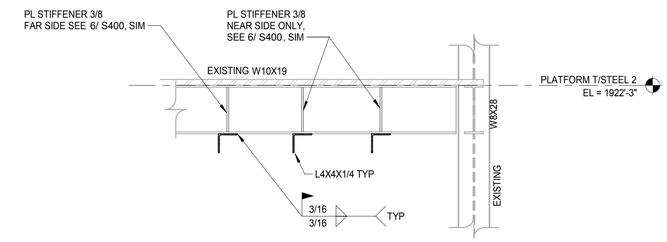
4 AUXILIARY STEEL #2 (LOOKING WEST)

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



5 AUXILIARY STEEL #2 BRACE

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



6 AUXILIARY STEEL #2 BACKSPANS

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

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STATE OF NEBRASKA
4/29/2025

REVISIONS

REV. NO.	DATE	REVISION DESCRIPTION	BY
0	04/29/2025	ISSUED FOR CONSTRUCTION	PMG

FRAMING SECTIONS

WEC1 FLY ASH SYSTEM FOUNDATION

HASTINGS, NE

2025

drawn by: PMG
checked by: GBL
project no.: 024-07087
date 04-29-2025

SHEET
S200

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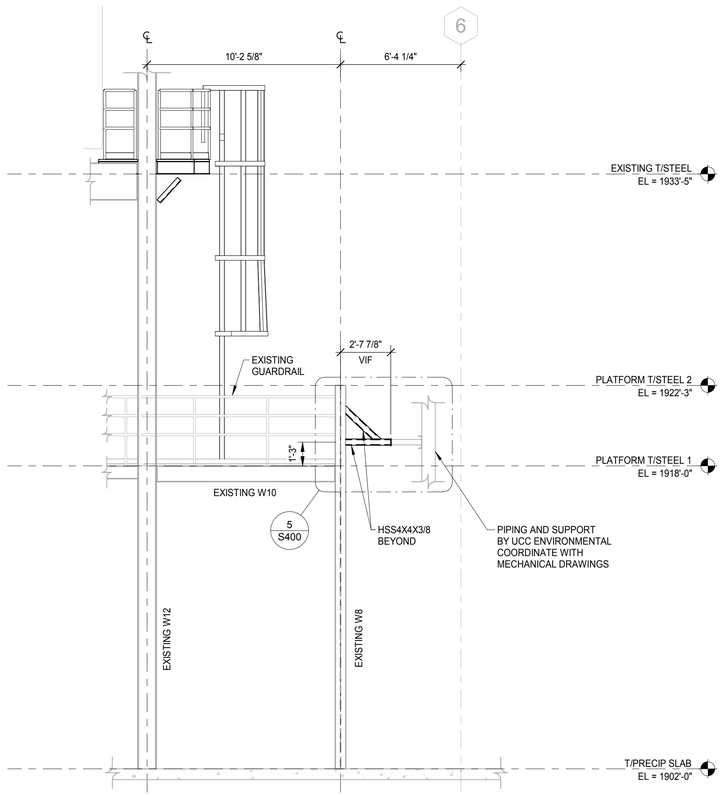
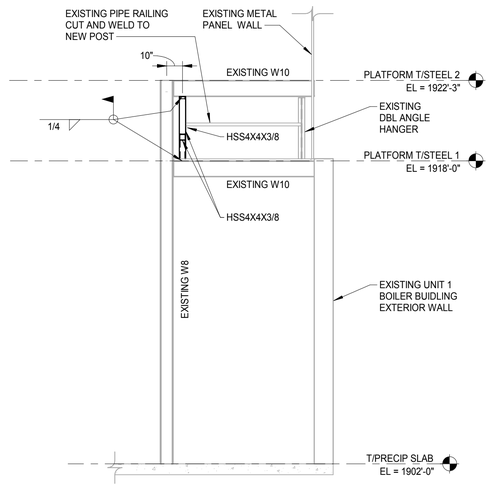


1 AUXILIARY STEEL #3 (LOOKING WEST)

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



2 AUXILIARY STEEL #3 (LOOKING NORTH)

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

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STATE OF NEBRASKA
4/29/2025

REVISIONS

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FRAMING SECTIONS

WEC1 FLY ASH SYSTEM FOUNDATION

HASTINGS, NE

2025

drawn by: PMG
checked by: GBL
project no.: 024-07087
date 04-29-2025

SHEET
S201

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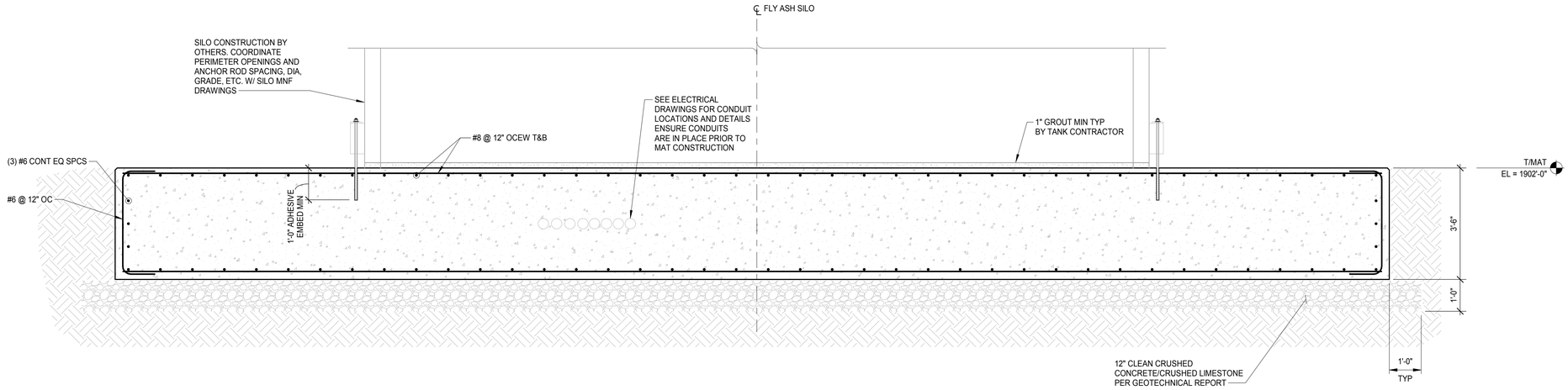
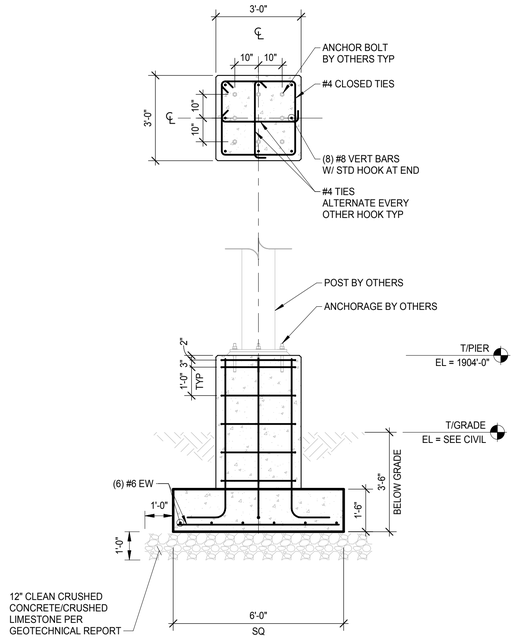


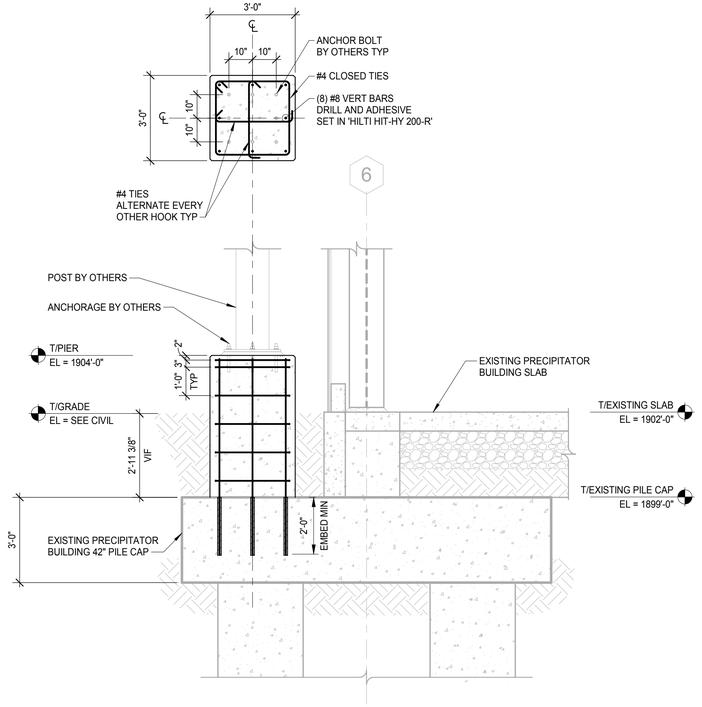
1 MAT FOUNDATION SECTION

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



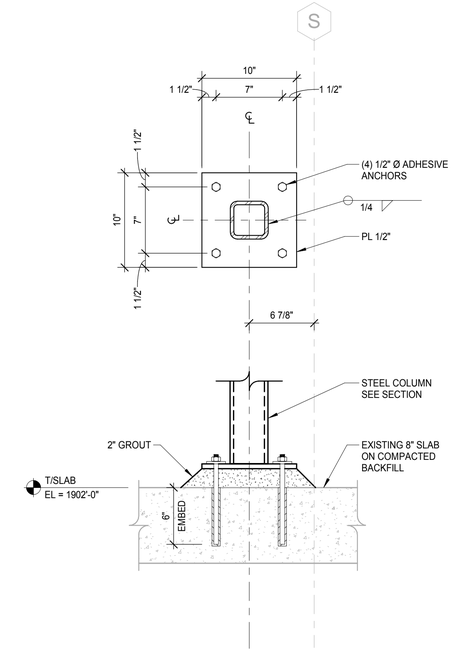
2 SPREAD FOOTING & PEDESTAL

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



3 PEDESTAL AT EXISTING PILE CAP

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



4 BASEPLATE AND ANCHORAGE

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

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STATE OF NEBRASKA
4/29/2025

REVISIONS

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FOUNDATION DETAILS

WEC1 FLY ASH SYSTEM FOUNDATION

HASTINGS, NE

2025

drawn by: PMG
checked by: GBL
project no.: 024-07087
date 04-29-2025

SHEET
S300

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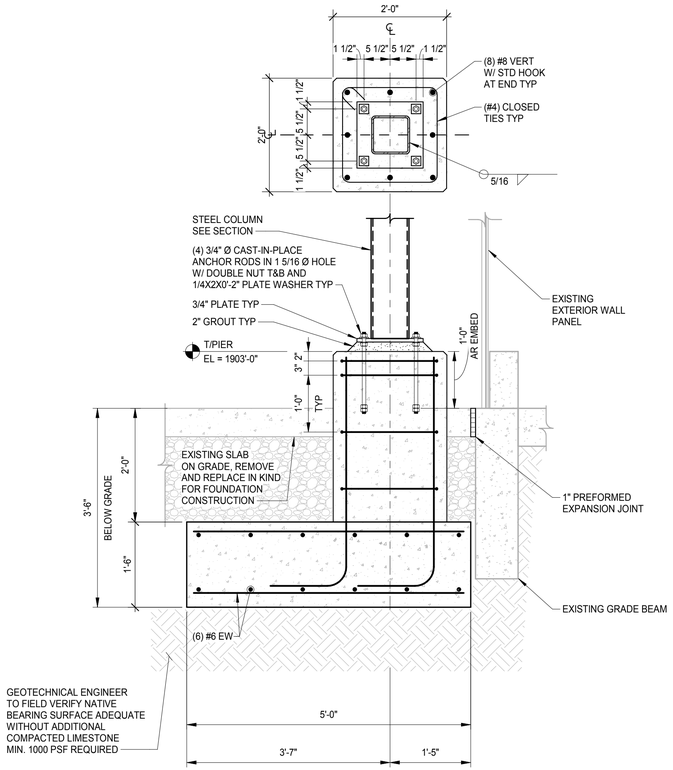

1 SPREAD FOOTING & PEDESTAL

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

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4/29/2025

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FOUNDATION DETAILS

WEC1 FLY ASH SYSTEM FOUNDATION

HASTINGS, NE

2025

drawn by: PMG
checked by: GBL
project no.: 024-07087
date 04-29-2025

SHEET
S301

C:\Revit Local Files\S_Hasting NE WEC1 Fly Ash System Foundation_Central_024-07087_R25_detached_pmg_pgregg79SKX.rvt
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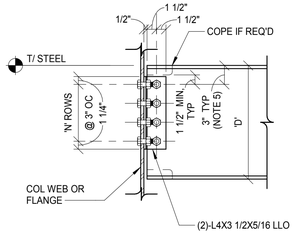
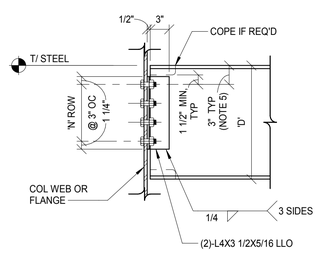
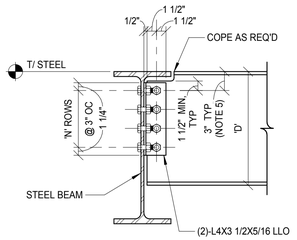


OPTION 1:
BOLTED - BOLTED

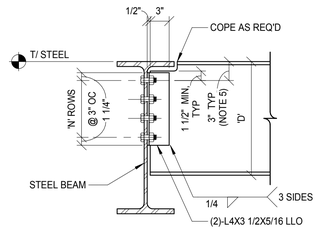


OPTION 2:
BOLTED - WELDED

TYPICAL CONNECTION AT COLUMNS



OPTION 1:
BOLTED - BOLTED



OPTION 2:
BOLTED - WELDED

TYPICAL CONNECTION AT GIRDERS

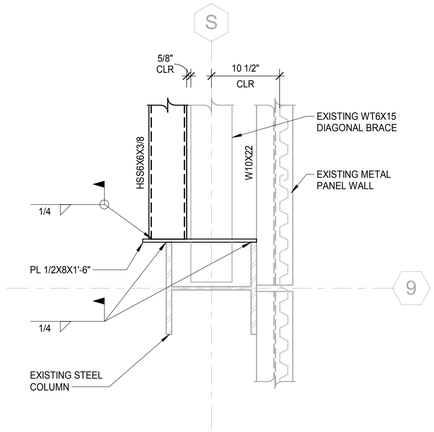
CONNECTION SCHEDULE	
NOMINAL BEAM SIZE 'D'	NUMBER OF BOLT ROWS 'N'
W8, C8, C9, W10, C10	2
W12, C12, W14	3
C15, W16, W18	4
W21, W24	6
W27, W30, W33	7
W36, W40, W44	8

NOTES:

1. PROVIDE DOUBLE ANGLE CONNECTION AT ALL BEAM TO WIDE-FLANGE COLUMN AND GIRDER CONNECTIONS, UNLESS OTHERWISE NOTED.
2. AT CONTRACTOR'S OPTION, ANGLES MAY BE BOLTED (OPTION 1) OR WELDED (OPTION 2) TO SUPPORTED BEAM WEB. ALL DOUBLE ANGLE CONNECTIONS SHOWN ON PLAN SHEETS MUST BE WELDED TO THE BEAM WEB (OPTION 2), WHERE SHOWN ON THE PLAN, THUS:
3. ALL BOLTS SHALL BE 3/4"Ø, CONFORMING TO ASTM F3125, GRADE A325-N AND TIGHTENED TO 'SNUG TIGHT'. ASTM F1852 'TWIST-OFF' BOLTS MAY BE PROVIDED AT CONTRACTOR'S OPTION. BOLT HOLES SHALL BE STANDARD IN BEAM WEB AND STANDARD OR HORIZ. SHORT-SLOTTED IN ANGLES.
4. WHERE BEAMS FRAME INTO BOTH SIDES OF SUPPORTING MEMBER, THE DETAILER SHALL ENSURE CONFORMANCE WITH OSHA ERECTION GUIDELINES. ADD ADDITIONAL ROWS OF BOLTS OR STAGGER ANGLES AS REQUIRED.
5. MIN. EDGE DISTANCE FROM TOP OR BOTTOM BOLT TO A COPE SHALL BE 1 1/2". WHERE DEEP COPES ARE REQD., INCREASE DISTANCE FROM TOP OF BEAM TO CL OF TOP BOLT.
6. PROVIDE MINIMUM NUMBER OF BOLT ROWS PER SCHEDULE, EXCEPT ADJUST NUMBER OF BOLT ROWS WHEN DENOTED ON PLANS, THUS: (4) ROWS

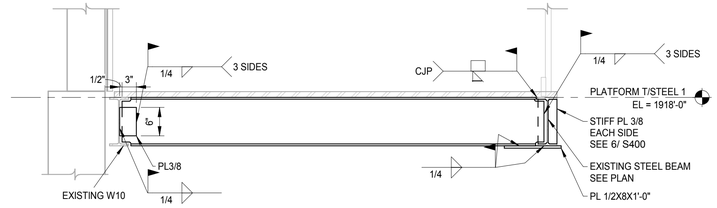
1 TYPICAL DOUBLE ANGLE SHEAR CONNECTION DETAIL

SCALE: 1" = 1'-0"



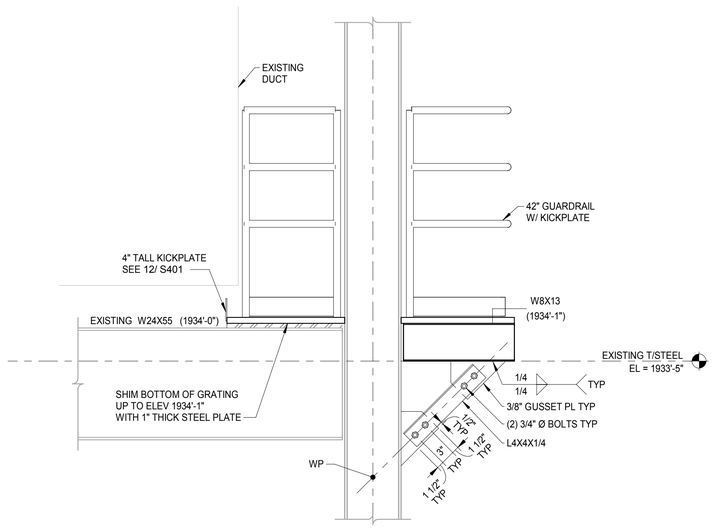
2 TUBE TO PLATE CONNECTION

SCALE: 1" = 1'-0"



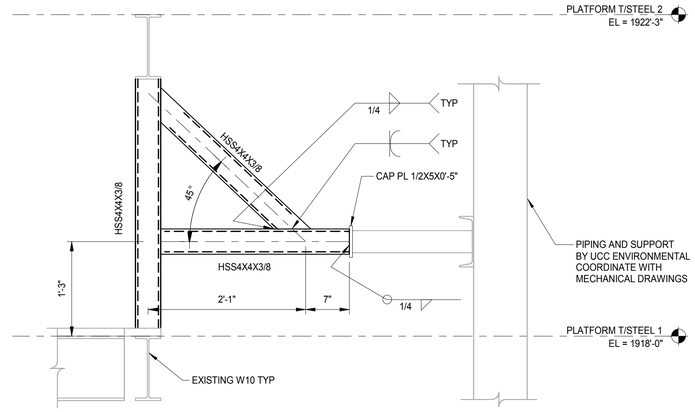
3 BEAM CONNECTION DETAIL

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



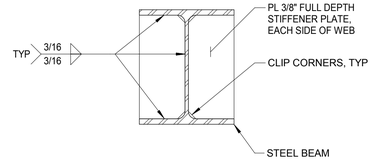
4 PLATFORM DETAIL

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



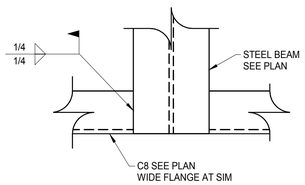
5 HSS SUPPORT

SCALE: 1" = 1'-0"



6 TYPICAL WEB STIFFENER DETAIL

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



7 BEAM OVER BEAM CONNECTION DETAIL

SCALE: 3" = 1'-0"

olsson
2111 South 67th Street
Suite 200
Omaha, NE 68106
olsson.com
TEL 402.341.1116
FAX 402.341.5895
Olsson - Engineering
Nebraska COA #CA-0638

PROFESSIONAL CIVIL ENGINEER
GEORGE B. LITTLE
E-7743
STATE OF NEBRASKA
4/29/2025

REV. NO.	DATE	REVISION DESCRIPTION	BY
0	04/29/2025	ISSUED FOR CONSTRUCTION	PMG

REVISIONS

FRAMING DETAILS

WEC1 FLY ASH SYSTEM FOUNDATION

HASTINGS, NE

2025

drawn by: PMG
checked by: GBL
project no.: 024-07087
date 04-29-2025

SHEET
S400

C:\Revit Local Files\S_Hasting NE WEC1 Fly Ash System Foundation_Central_024-07087_R25_detached_pmg_pgregg79SKX.rvt
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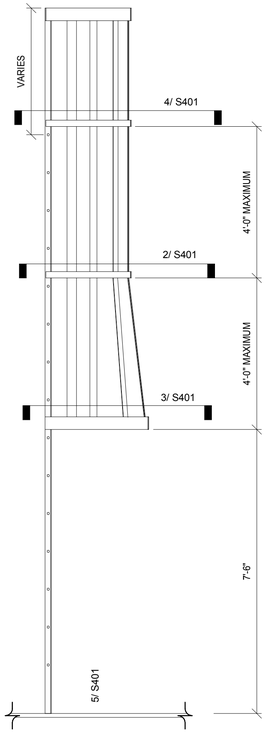
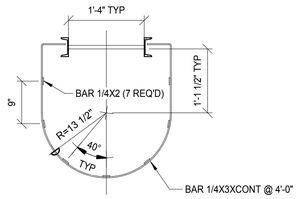
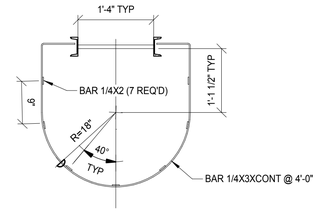


NOTE:
1. PROVIDE PERSONAL FALL ARREST SYSTEM IF LADDER HEIGHT IS GREATER THAN 24 FEET.
2. CAGE IS NOT REQUIRED, PROVIDE CAGE AT OWNERS OPTION.

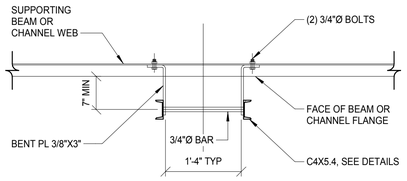
1 TYPICAL LADDER ELEVATION
SCALE: 1/2" = 1'-0"



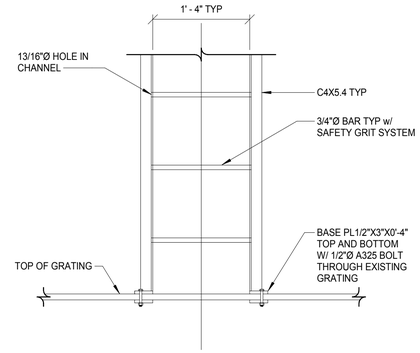
2 TYPICAL LADDER SECTION 1
SCALE: 3/4" = 1'-0"



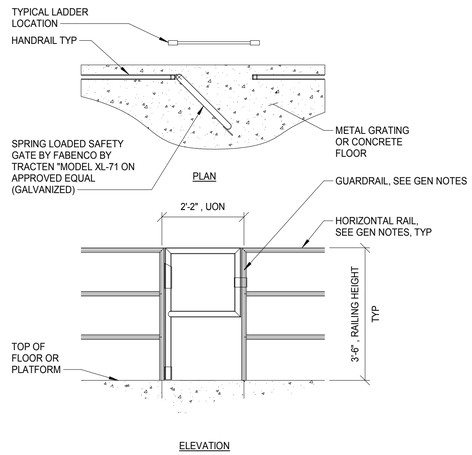
3 TYPICAL LADDER SECTION 2
SCALE: 3/4" = 1'-0"



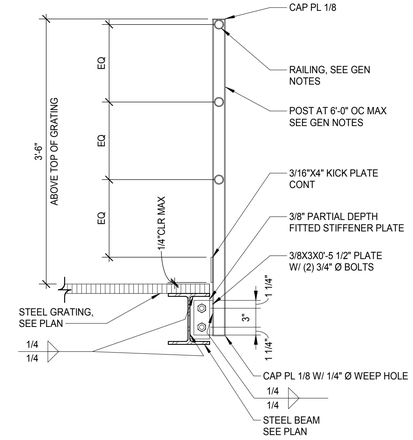
4 TYPICAL TOP LADDER CONNECTION DETAIL
SCALE: 3/4" = 1'-0"



5 TYPICAL BOTTOM LADDER CONNECTION TO STEEL DETAIL
SCALE: 3/4" = 1'-0"

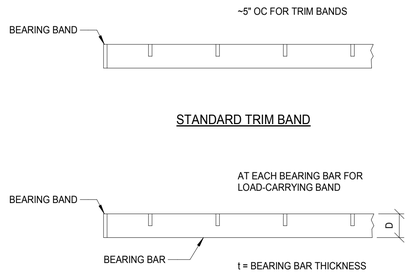


6 TYPICAL SAFETY GATE DETAIL
SCALE: 1/2" = 1'-0"

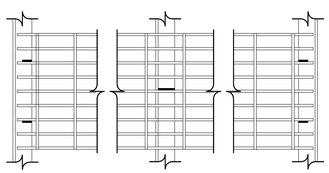


7 TYPICAL GUARDRAIL DETAIL
SCALE: 1" = 1'-0"

8 TYPICAL GUARDRAIL DETAIL
SCALE: 1" = 1'-0"

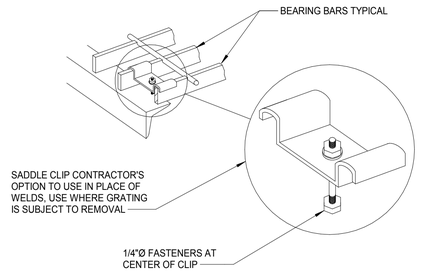


9 TYPICAL GRATING WELD DETAILS
SCALE: 3" = 1'-0"

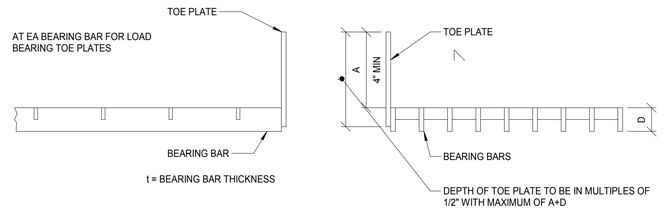


NOTE: THIS DETAIL NOT USED WHEN UTILIZING GALVANIZED STRUCTURAL MEMBERS

10 TYPICAL METAL GRATING ATTACHMENT
SCALE: 1 1/2" = 1'-0"



11 OPTIONAL TYPE H-3 SADDLE CLIP
SCALE: 1" = 1'-0"



12 TYPICAL GRATING TOE PLATE CONNECTION
SCALE: 3" = 1'-0"

olsson
2111 South 67th Street
Suite 200
Omaha, NE 68106
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Olsson - Engineering
Nebraska COA #CA-0638

PROFESSIONAL CIVIL ENGINEER
GEORGE B. LITTLE
E-7743
STATE OF NEBRASKA
4/29/2025

REV. NO.	DATE	REVISION DESCRIPTION	BY
0	04/29/2025	ISSUED FOR CONSTRUCTION	PMG

REVISIONS

FRAMING DETAILS

WEC1 FLY ASH SYSTEM FOUNDATION

HASTINGS, NE

2025

drawn by: PMG
checked by: GBL
project no.: 024-07087
date 04-29-2025

SHEET
S401

C:\Revit Local Files\S_Hosting NE WEC1 Fly Ash System Foundation_Central_024-07087_R25_detached_pmg_pgregg79SKX.rvt
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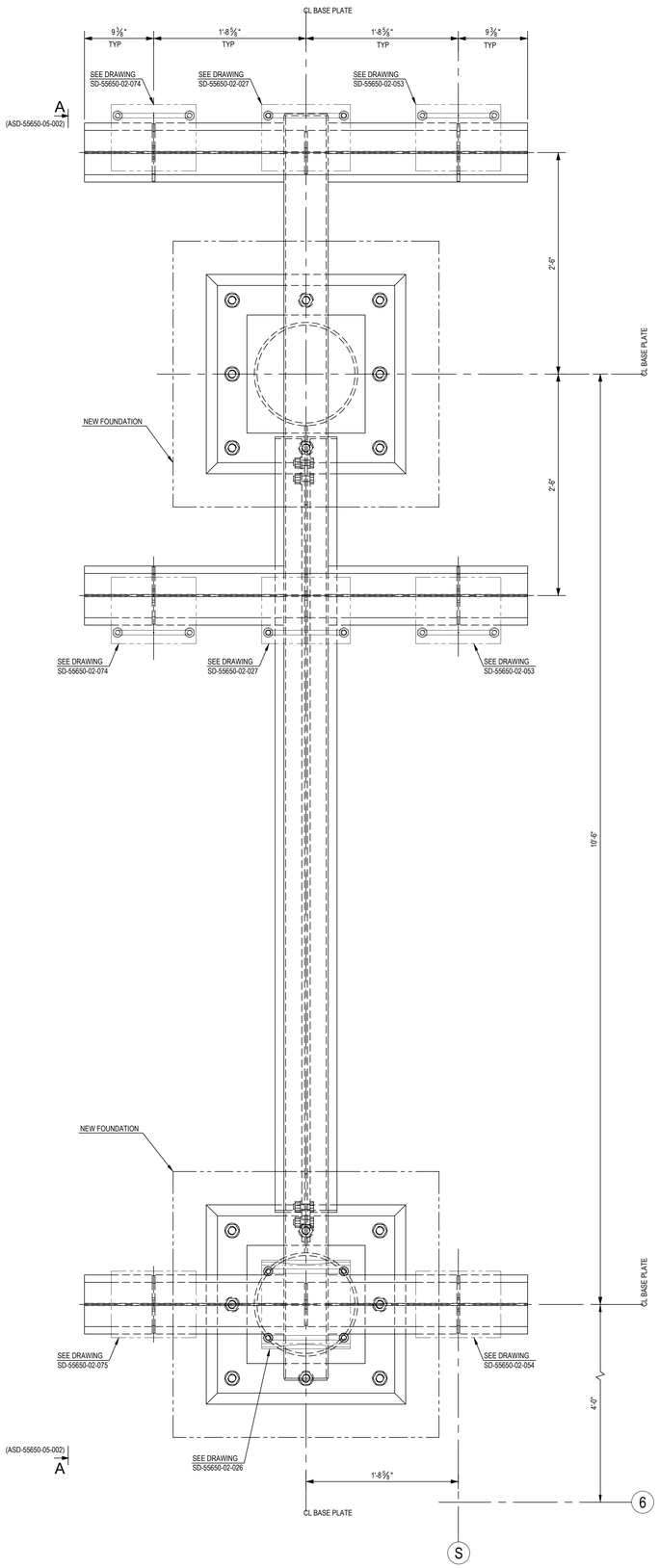
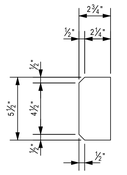


PLAN VIEW



ITEM p1
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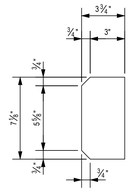
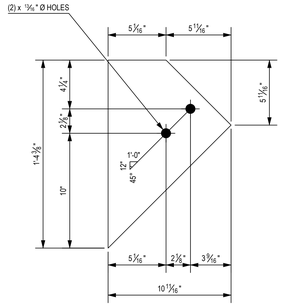


ITEM p2
(SCALE 3/16"=1")



ITEM p13
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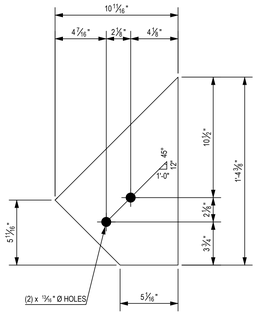

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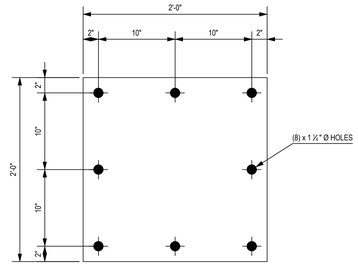
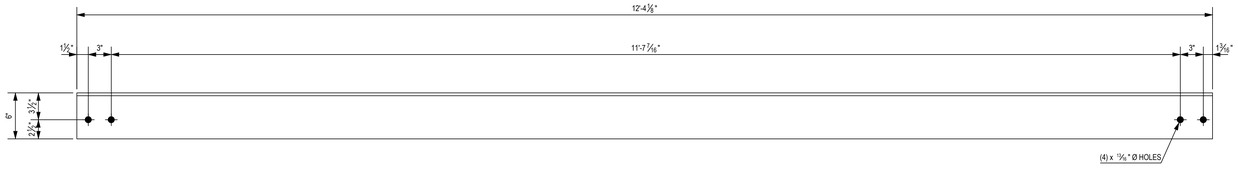
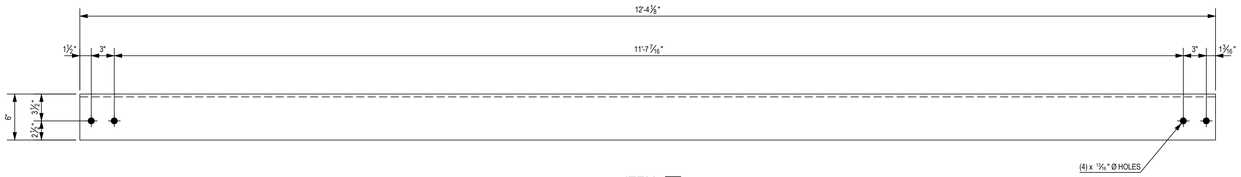


ITEM p4



ITEM b15



ITEM b16

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
a3	A325	4	3/4" Ø bolt w/ nut and washer	0'-2 1/4"	
b1	A992	6	W8X31	2'-3"	
b3	A992	3	W8X15	5'-0"	
b8	A500 GR.C	2	HSS14X0.375	15'-7 7/8"	
b13	A500 GR.C	1	HSS8X6X1/4	14'-3"	
b15	A36	1	L6X4X3/8	12'-4 1/8"	See detail
b16	A36	1	L6X4X3/8	12'-4 1/8"	See detail
p1	A36	18	PL 3/8" x 2-3/4"	0'-5 1/2"	See detail
p2	A36	12	PL 3/8" x 3-3/4"	0'-7 1/8"	See detail
p4	A36	2	PL 1" x 24"	2'-0"	See detail
p5	A36	2	PL 1/2" x 16"	1'-4"	
p7	A36	2	PL 1/4" x 5-3/4"	0'-7 3/4"	
p13	A36	1	PL 3/8" x 10-11/16"	1'-4 3/8"	See detail
p14	A36	1	PL 3/8" x 10-11/16"	1'-4 3/8"	See detail
s1	HILTI HAS-V-36 HDG	16	1" dia rod with HIT-RE500 V3 adhesive	1'-0"	Min 7" embedment

Substitutions allowed per Engineer approval — **Weight (lbs): 3469**

NOTES

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. FOR ADDITIONAL DETAILS SEE DWG ASD-55650-05-002.

ASSY NO	QTY
PSA-1000	1

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
0	ISSUED FOR CONSTRUCTION	03/24/2025	ASB			

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SCALE	1 1/2"=1'-0"	DRAWING SIZE	5

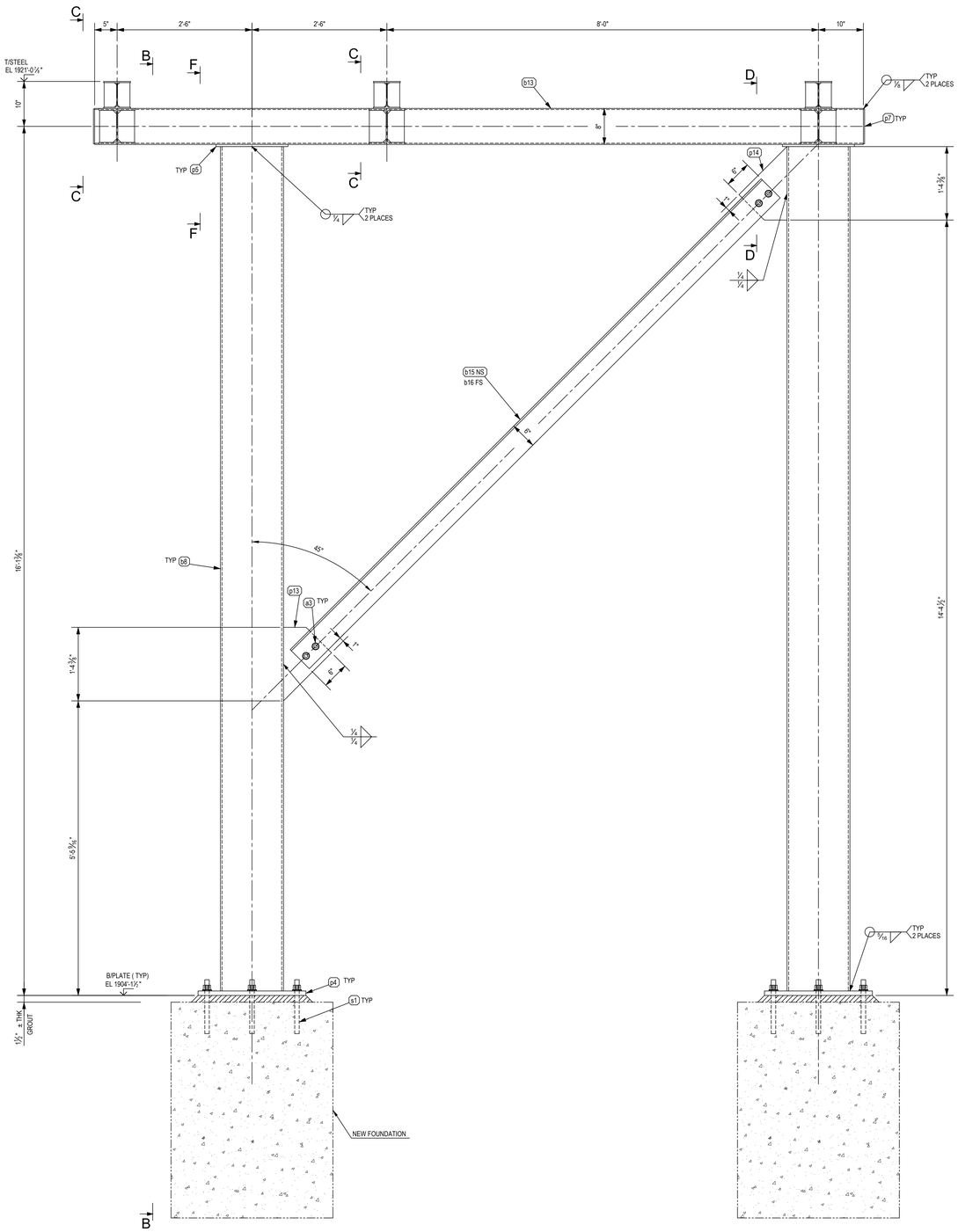
DRAWING TITLE
AUXILIARY STEEL
T-POSTS TO NEW FLY ASH SILO
UNIT 1

PLANT NAME
HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

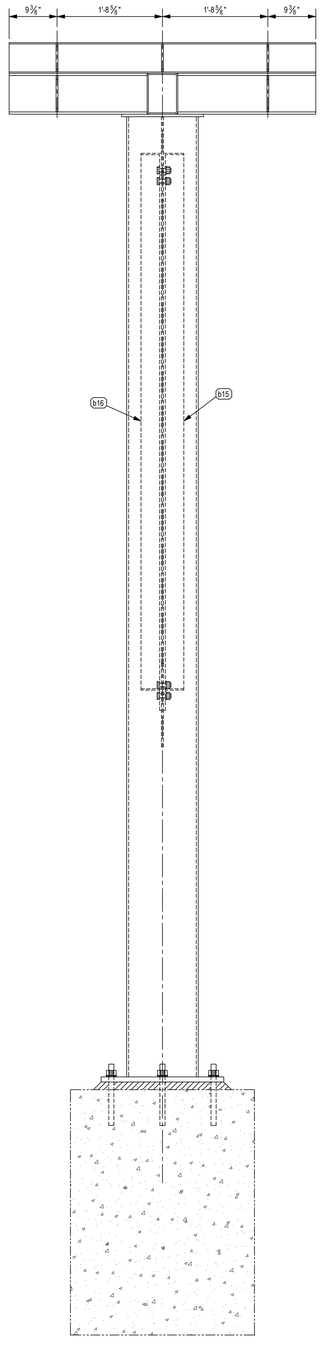
ucc environmental
2100 NORBIAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER
ASD-55650-05-001

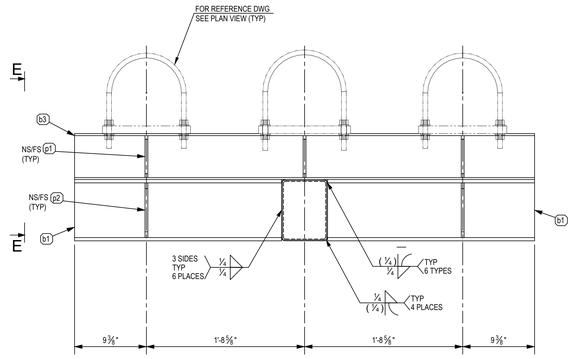
REVISION
0



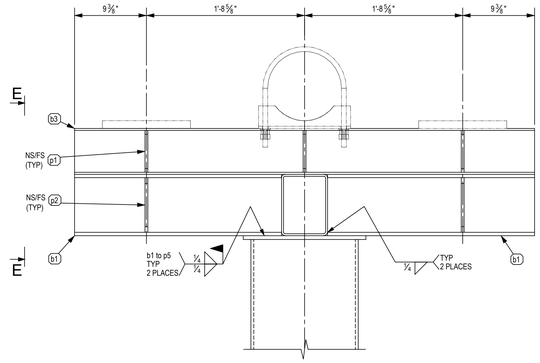
SECTION A - A
(ASD-55650-05-001)
(REFERENCE STEEL NOT SHOWN FOR CLARITY)



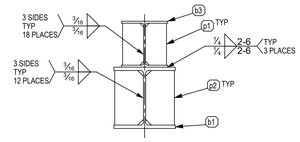
SECTION B - B



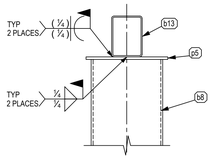
SECTION C - C
(SCALE 1½"=1'-0")
TYPICAL (2) PLACES



SECTION D - D
(SCALE 1½"=1'-0")



SECTION E - E
(SCALE 1½"=1'-0")
TYPICAL (3) PLACES



SECTION F - F
(SCALE 1½"=1'-0")
SIMILAR (2) PLACES

NOTES

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. FOR BILL OF MATERIALS AND ADDITIONAL DETAILS SEE DWG ASD-55650-05-001.

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
0	ISSUED FOR CONSTRUCTION	03/24/2025	ASB			

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SCALE	1"=1'-0"	DRAWING SIZE	5

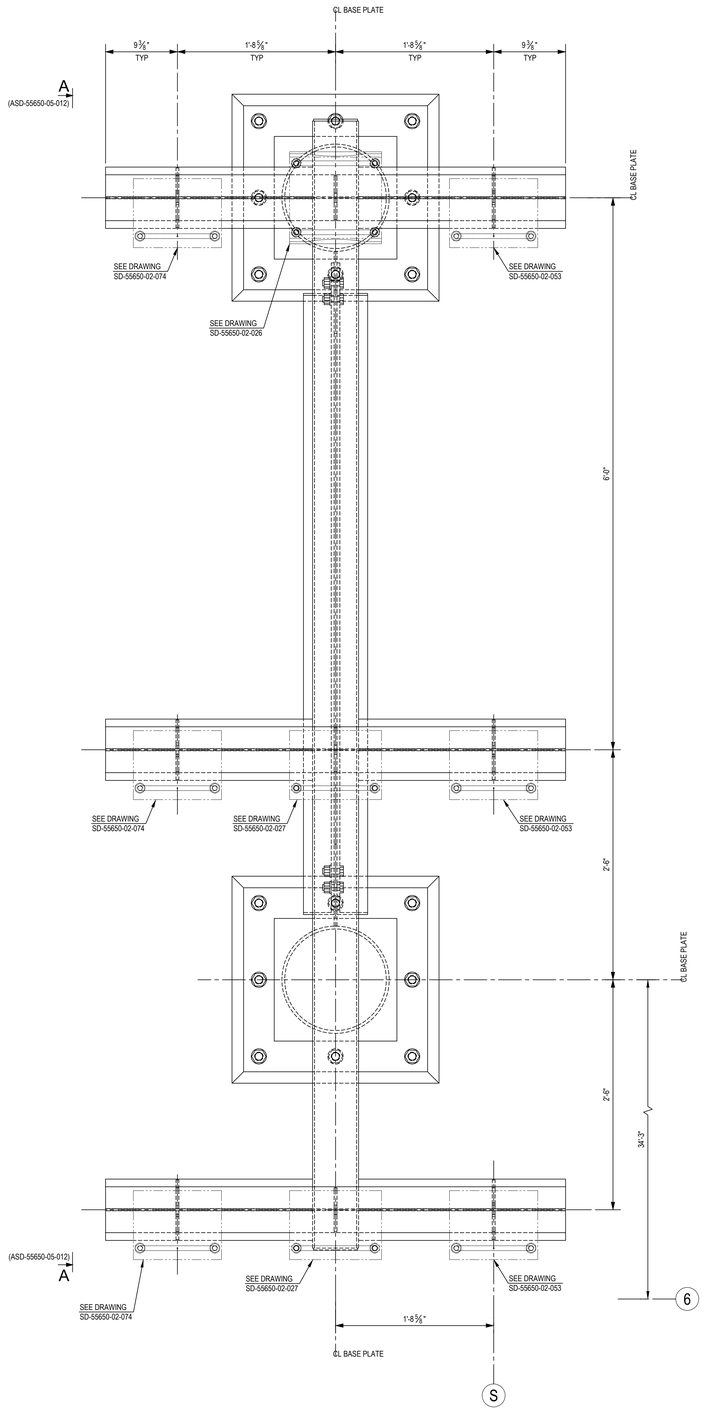
DRAWING TITLE
AUXILIARY STEEL
T-POSTS TO NEW FLY ASH SILO
UNIT 1

PLANT NAME
HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

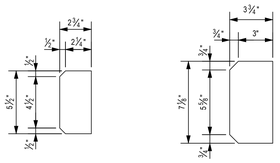
ucc environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER
ASD-55650-05-002

REVISION
0

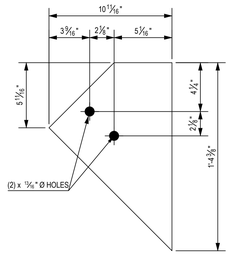


PLAN VIEW



ITEM p1
(SCALE 3/16"=1")

ITEM p2
(SCALE 3/16"=1")



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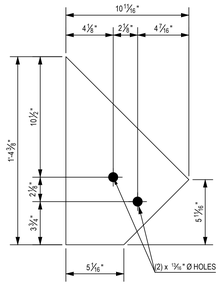

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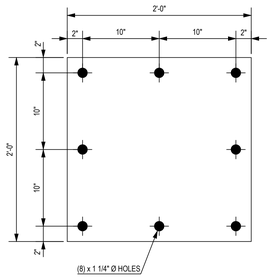

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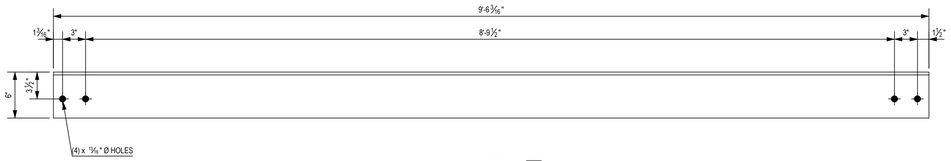
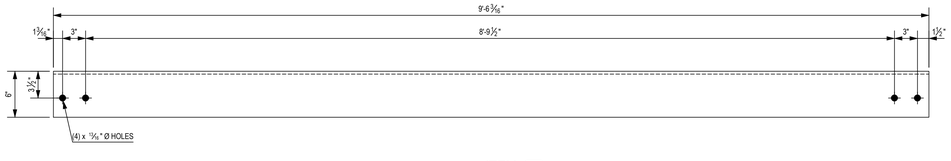


ITEM b17
(SCALE 1½"=1'-0")



ITEM b18
(SCALE 1½"=1'-0")

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
a3	A325	4	3/4" Ø bolt w/ nut and washer	0'-2 1/4"	
b1	A992	6	W8X31	2'-3"	
b3	A992	3	W8X15	5'-0"	
b7	A500 GR.C	2	HSS14X0.375	17'-7 7/8"	
b14	A500 GR.C	1	HSS8X6X1/4	12'-3"	
b17	A36	1	L6X4X3/8	9'-6 3/16"	See detail
b18	A36	1	L6X4X3/8	9'-6 3/16"	See detail
p1	A36	18	PL 3/8" x 2-3/4"	0'-5 1/2"	See detail
p2	A36	12	PL 3/8" x 3-3/4"	0'-7 1/8"	See detail
p4	A36	2	PL 1" x 24"	2'-0"	See detail
p5	A36	2	PL 1/2" x 16"	1'-4"	
p7	A36	2	PL 1/4" x 5-3/4"	0'-7 3/4"	
p13	A36	1	PL 3/8" x 10-11/16"	1'-4 3/8"	See detail
p14	A36	1	PL 3/8" x 10-11/16"	1'-4 3/8"	See detail
s1	HILTI HAS-V-36 HDG	16	1" dia rod with HIT-RE500 V3 adhesive	1'-0"	Min 7" embedment

Substitutions allowed per Engineer approval — **Weight (lbs)** 3574

NOTES

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. FOR ADDITIONAL DETAILS SEE DWG ASD-55650-05-012.

ASSY NO	QTY
PSA-1001	1

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
0	ISSUED FOR CONSTRUCTION	03/24/2025	VNK			

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SCALE	1 1/2"=1'-0"	DRAWING SIZE	5

DRAWING TITLE

AUXILIARY STEEL
T-POSTS TO NEW FLY ASH SILO
UNIT 1

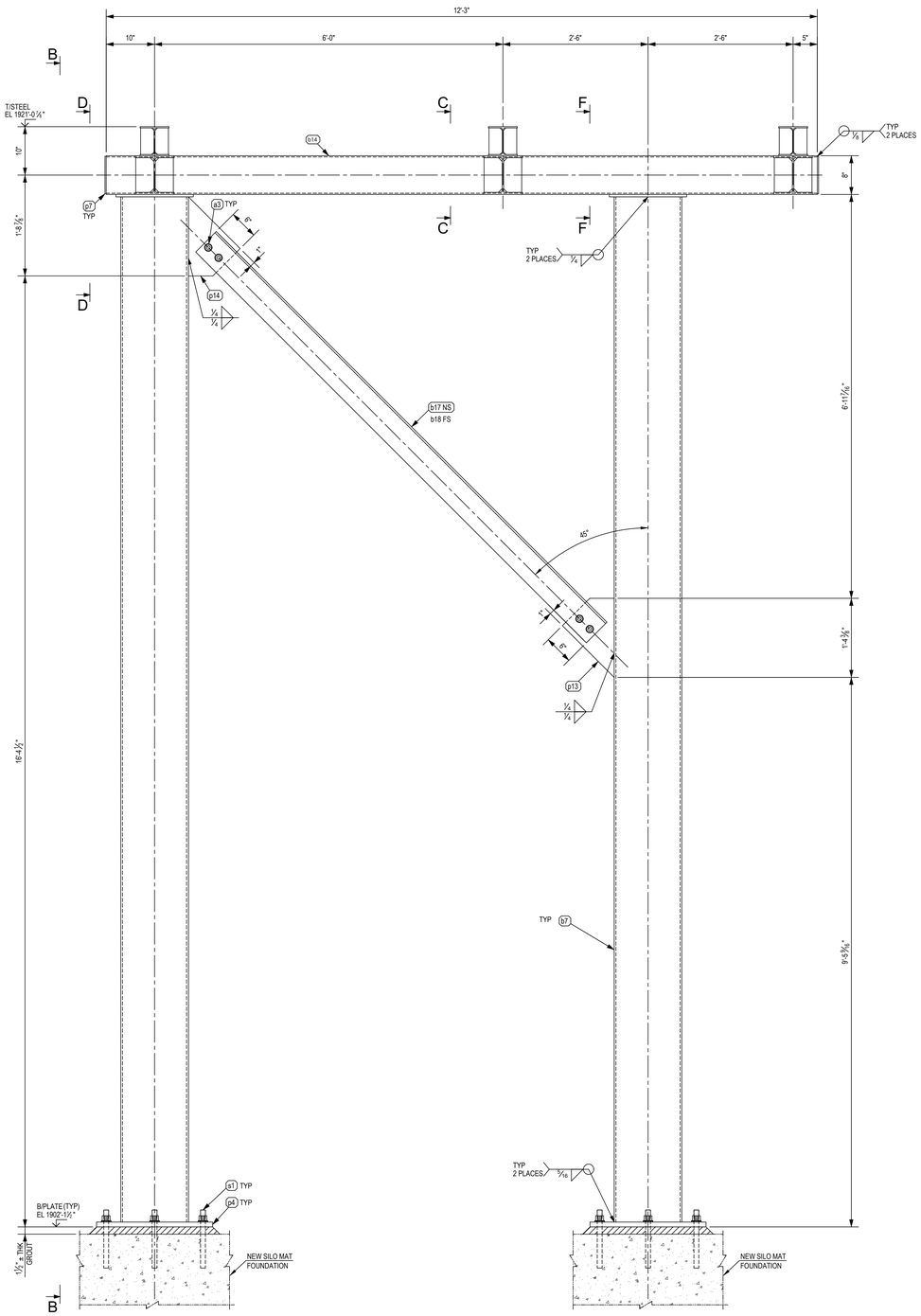
PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

ucc environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: ASD-55650-05-011

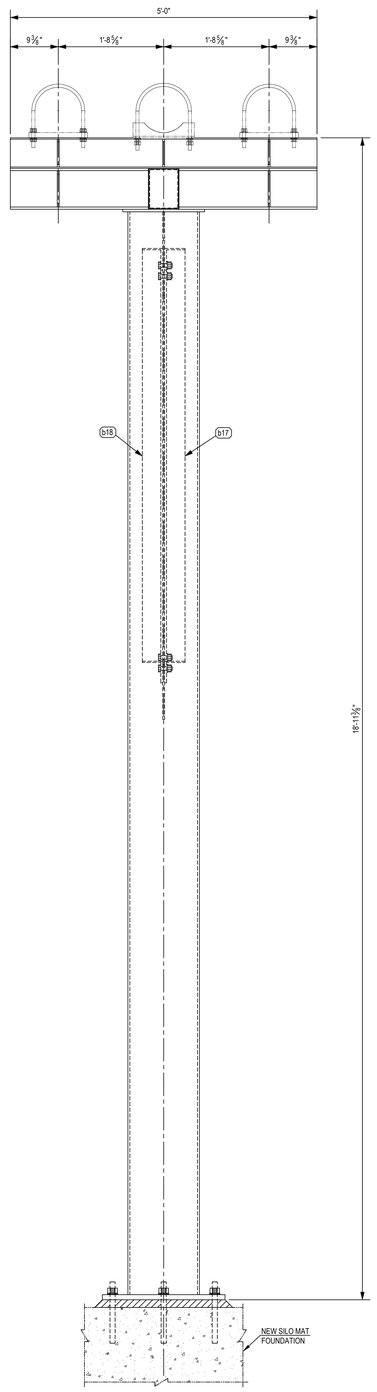
REVISION: 0



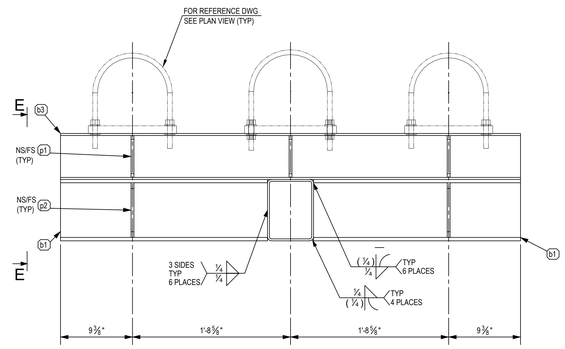
SECTION A - A

(ASD-55650-05-011)

(REFERENCE STEEL NOT SHOWN FOR CLARITY)



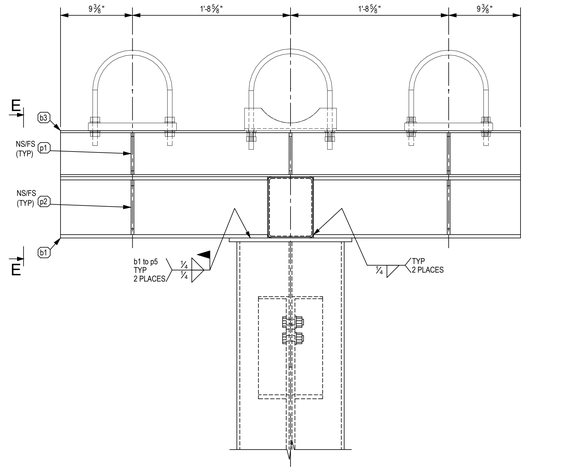
SECTION B - B



SECTION C - C

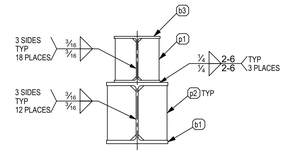
(SCALE 1½"=1'-0")

TYPICAL (2) PLACES



SECTION D - D

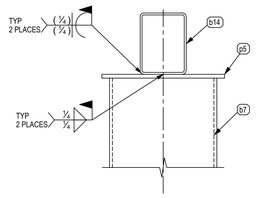
(SCALE 1½"=1'-0")



SECTION E - E

(SCALE 1½"=1'-0")

TYPICAL (3) PLACES



SECTION F - F

(SCALE 1½"=1'-0")

SIMILAR (2) PLACES

NOTES

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. FOR BILL OF MATERIALS AND ADDITIONAL DETAILS SEE DWG ASD-55650-05-011.

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
0	ISSUED FOR CONSTRUCTION	03/24/2025	VNK			

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SCALE	1"=1'-0"	DRAWING SIZE	5

DRAWING TITLE

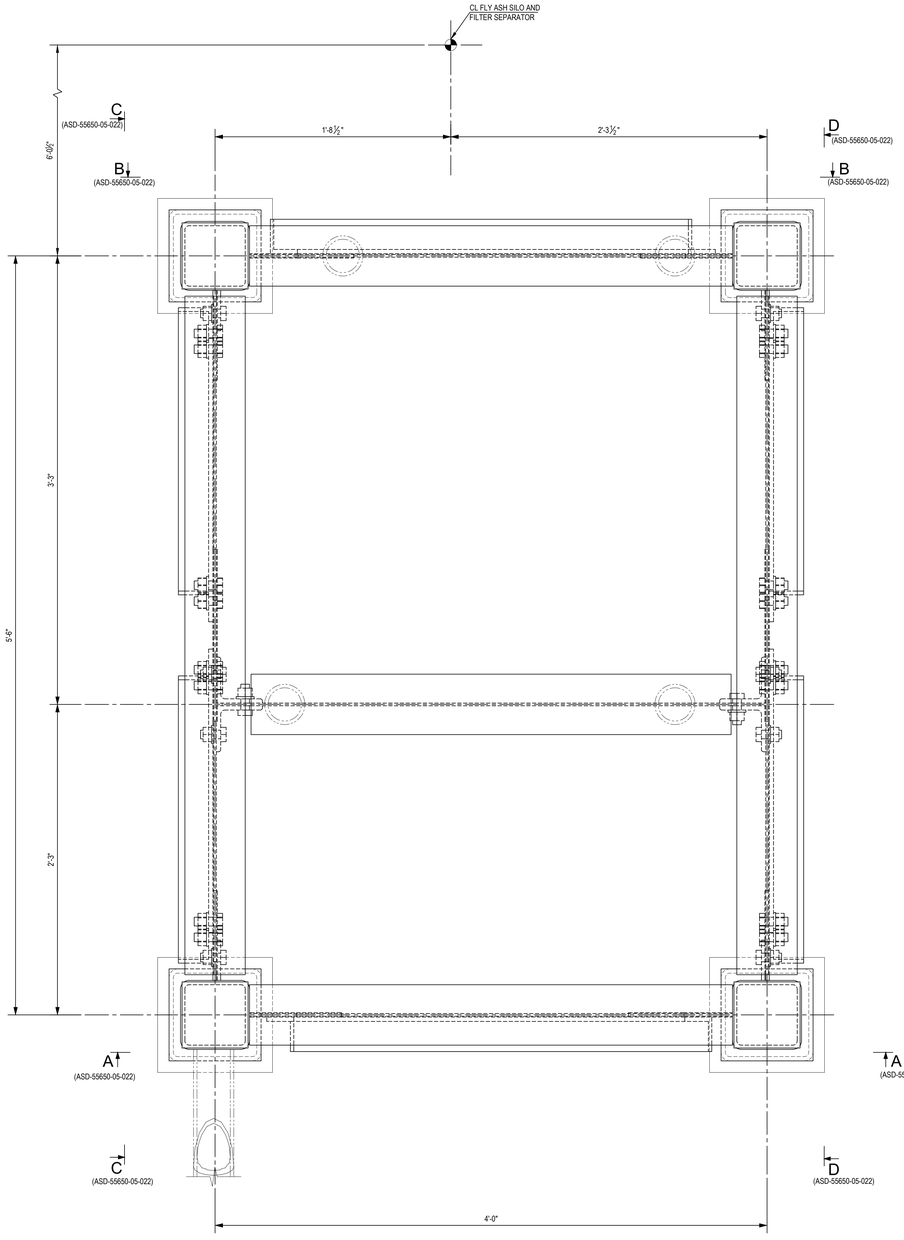
AUXILIARY STEEL
T-POSTS TO NEW FLY ASH SILO
UNIT 1

PLANT NAME

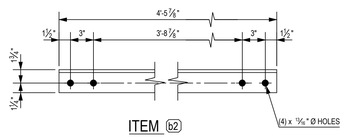
HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

ucc environmental
2100 NORBIAN DRIVE, WAUKEGAN, IL 60085

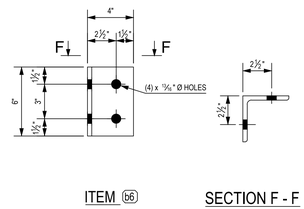
DRAWING NUMBER	REVISION
ASD-55650-05-012	0



PLAN VIEW

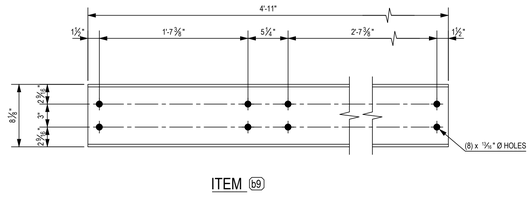


ITEM b2

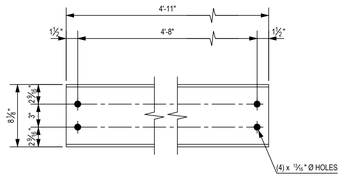


ITEM b6

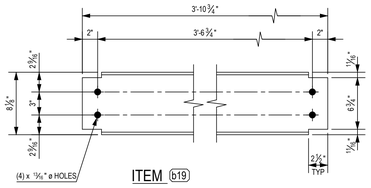
SECTION F - F



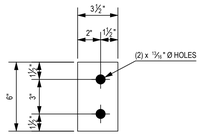
ITEM b9



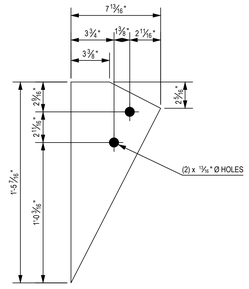
ITEM b10



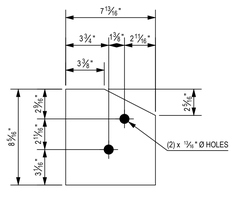
ITEM b19



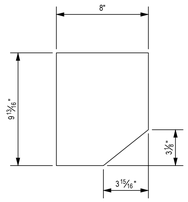
ITEM p3



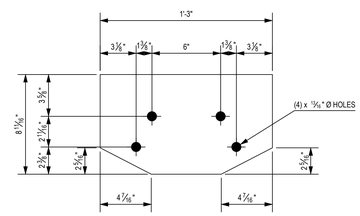
ITEM p9



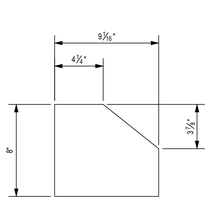
ITEM p10



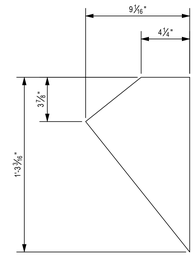
ITEM p11



ITEM p12



ITEM p15



ITEM p16

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
a1	A325	32	3/4" Ø bolt w/ nut and washer	0'-2"	
a2	A325	24	3/4" Ø bolt w/ nut and washer	0'-1 3/4"	
a3	A325	4	3/4" Ø bolt w/ nut and washer	0'-2 1/4"	
b2	A36	8	L3X3X3/8	4'-5 7/8"	See detail
b4	A500 GR.C	4	HSS6X6X3/8	11'-8 3/4"	
b5	A36	4	L3X3X3/8	4'-10 1/4"	
b6	A36	4	L4X4X3/8	0'-6"	See detail
b9	A992	2	W8X18	4'-11"	See detail
b10	A992	2	W8X18	4'-11"	See detail
b12	A992	4	W8X18	3'-6"	
b19	A992	1	W8X18	3'-10 3/4"	See detail
p3	A36	8	PL 3/8" x 3-1/2"	0'-6"	See detail
p6	A36	4	PL 1/4" x 5-3/4"	0'-5 3/4"	
p8	A36	4	PL 3/4" x 8"	0'-8"	
p9	A36	4	PL 3/8" x 7-13/16"	1'-5 7/16"	See detail
p10	A36	4	PL 3/8" x 7-13/16"	0'-8 5/16"	See detail
p11	A36	4	PL 3/8" x 8"	0'-9 13/16"	See detail
p12	A36	4	PL 3/8" x 8-11/16"	1'-3"	See detail
p15	A36	2	PL 3/8" x 8"	0'-9 1/16"	See detail
p16	A36	2	PL 3/8" x 9-1/16"	1'-3 3/16"	See detail
Substitutions allowed per Engineer approval				Weight (lbs)	2682

NOTES

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. FOR ADDITIONAL DETAILS SEE DWG ASD-55650-05-022.
3. PROVIDE 1/2" MIN RADIUS FILLET FOR ALL BEAM COPES.

ASSY NO	QTY
PSA-1002	1

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
0	ISSUED FOR CONSTRUCTION	03/19/2025	ASB			

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SCALE	3/16"=1"	DRAWING SIZE	5

DRAWING TITLE

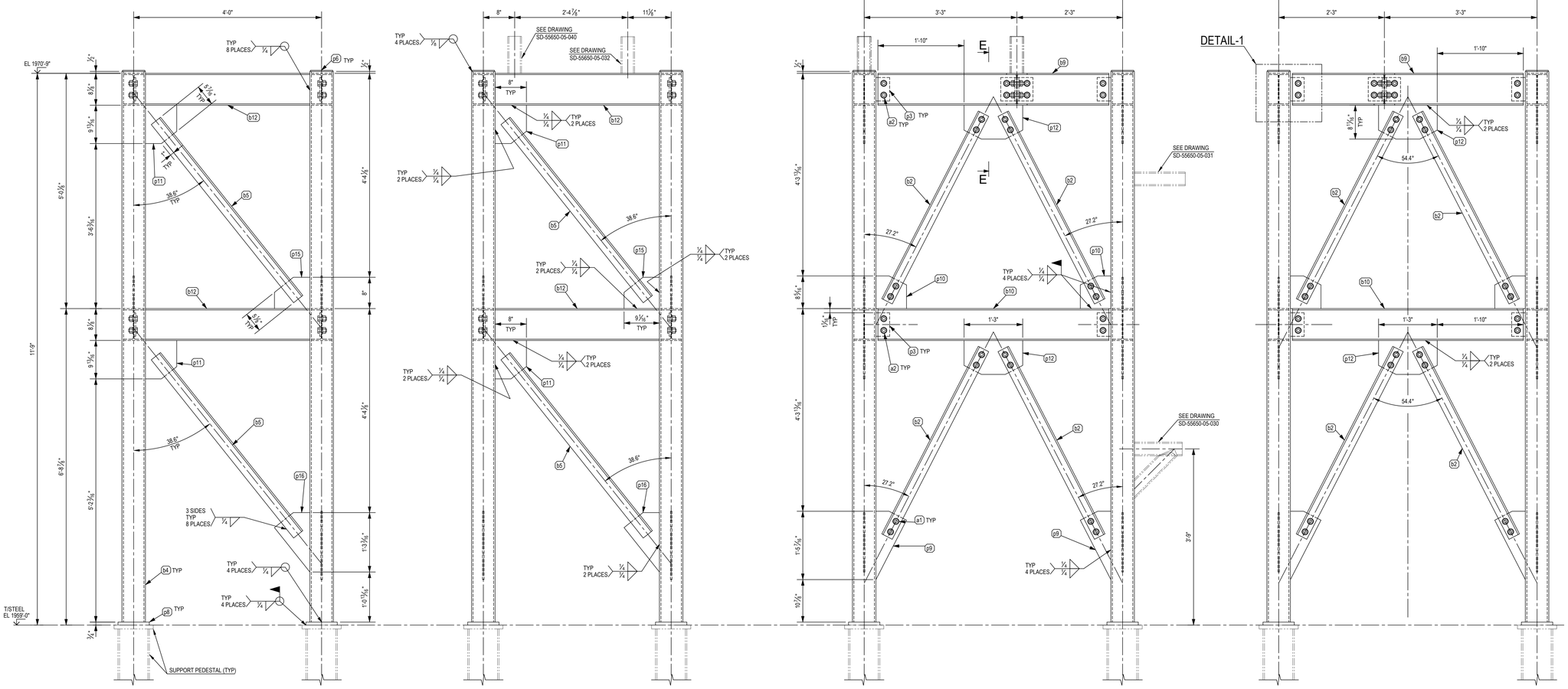
AUXILIARY STEEL
SILO ROOF TOWER
UNIT 1

PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER	REVISION
ASD-55650-05-021	0

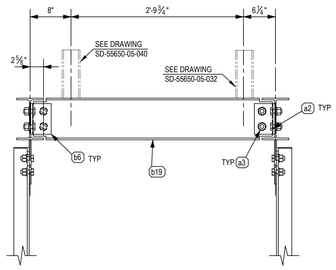


SECTION A - A
(ASD-55650-05-021)

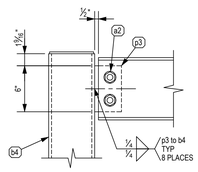
SECTION B - B
(ASD-55650-05-021)

SECTION C - C
(ASD-55650-05-021)

SECTION D - D
(ASD-55650-05-021)



SECTION E - E



DETAIL-1
TYPICAL
(SCALE 1½"=1'-0")

NOTES

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. FOR BILL OF MATERIALS AND ADDITIONAL DETAILS SEE DWG ASD-55650-05-021.
3. PROVIDE 1/2" MIN RADIUS FILLET FOR ALL BEAM COPES.

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
0	ISSUED FOR CONSTRUCTION	03/21/2025	ASB			

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SCALE	1"=1'-0"	DRAWING SIZE	5

DRAWING TITLE
AUXILIARY STEEL
SILO ROOF TOWER
UNIT 1

PLANT NAME
HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER	REVISION
ASD-55650-05-022	0

PIPING ABBREVIATIONS

@	AT
&	AND
AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AL	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASSN	ASSOCIATION
ASSY	ASSEMBLY
API	AMERICAN PETROLEUM INSTITUTE
AR	ABRASIVE RESISTANT
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
AWS	AMERICAN WELDING SOCIETY
B/	BOTTOM OF
B/M	BILL OF MATERIAL
BA	BOTTOM ASH
BC	BOLT CIRCLE
BD	BOARD
BLDG	BUILDING
BLR	BOILER
BOP	BOTTOM OF PIPE
BRKT	BRACKET
°C	DEGREES CENTIGRADE
CAP SCR	CAP SCREW
CI	CAST IRON
℄ OR CL	CENTERLINE
CLR	CLEAR
CO	CLEAN OUT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONV	CONVEYOR
CPLG	COUPLING
CS	CARBON STEEL
CTR	CENTER
CTSK	COUNTERSUNK
CU	CUBIC
CU FT	CUBIC FOOT
CU IN	CUBIC INCH
CU YD	CUBIC YARD
CYL	CYLINDER
CPVC	CHLORINATED POLYVINYL CHLORIDE
D	DURITE® PIPE
DC	DURA-CORE™ PIPE
DC II	DURA-CORE™ II PIPE
DET	DETAIL
DIA	DIAMETER
DR	DUR-ROK™ PIPE
DRG	DRILLING
DWG	DRAWING
E	EAST
EA	EACH
ECC	ECCENTRIC
ECON	ECONOMIZER
EIP	EXISTING IN PLACE
ELEV or EL	ELEVATION
ELL	ELBOW
ENCL	ENCLOSURE
EQL or =	EQUAL
ER	EXISTING RELOCATED
EXP	EXPANSION
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
°F	DEGREES FAHRENHEIT
F/FLG	FACE OF FLANGE
FA	FLY ASH
FAB	FABRICATION
FC	FIELD CUT
FCTS	FIELD CUT TO SUIT
FDN	FOUNDATION
FL	FLOOR
FLG	FLANGE
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FAR SIDE
FT	FOOT (')
FURN	FURNISH
FW	FIELD WELD
GA	GAUGE
GALV	GALVANIZE
GPM	GALLONS PER MINUTE
GR	GRADE
GRTG	GRATING

HEX HD	HEXAGONAL HEAD
HGR	HANGER
HORIZ	HORIZONTAL
HP	HIGH POINT
HP	HORSE POWER
HR	HANDRAIL
HSP	HARDENED STEEL PIPE
HVY	HEAVY
HYD	HYDRAULIC
HDPE	HIGH-DENSITY POLYETHYLENE
ID	INSIDE DIAMETER
IN	INCH (")
INCL	INCLUDE
INS	INSIDE
IR	INSIDE RADIUS
JP PUMP	JETPULSION® PUMP
K	KIPS
KG	KNIFE GATE
L OR ∠	ANGLE
LB OR #	POUND
LAT	LATERAL
LH	LEFT HAND
LG	LENGTH OR LONG
LP	LOW POINT
LS	LONG STROKE
M	METER
MATL	MATERIAL
MAX	MAXIMUM
MIN	MINIMUM
MK	MARK
mm	MILLIMETER
MTG	MOUNTING
N	NUVALOY® PIPE
NA	NOT APPLICABLE
NF	NOT FURNISHED
NO	NUMBER
NPT	NATIONAL PIPE TAPER
NS	NEAR SIDE
NTE	NOT TO EXCEED
NTS	NOT TO SCALE
NUV	NUVALOY
OC	ON CENTER
OD	OUTSIDE DIAMETER
PCF	LBS PER CUBIC FOOT
▱ OR PL	PLATE
PLATF	PLATFORM
PRE HTR	PRE HEATER
PROJ	PROJECTING
PSF	LBS PER SQUARE FOOT
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RAD	RADIUS
REF	REFERENCE
REQ'D	REQUIRED
RH	RIGHT HAND
S	SOUTH
SCH	SCHEDULE
SECT	SECTION
SP	SPACES
SS	STAINLESS STEEL
STA	STATION
STD	STANDARD
STL	STEEL
SYM	SYMMETRICAL
T/	TOP OF
TBE	THREADED BOTH ENDS
TC	TEST CONNECTION
TERS	TOTALLY ENCLOSED ROTARY SIDE
THK	THICK
TL	TRUE LENGTH
TOE	THREADED ONE END
TOS	TOP OF STEEL
TYP	TYPICAL
UCC®	UCC ENVIRONMENTAL
UN	UNLESS NOTED
VERT	VERTICAL
W	WEST
W/	WITH
W/O	WITHOUT
WP	WORK POINT
WS	WEAR SECTION
WT	WEIGHT
XS	EXTRA STRONG

PIPING CONTRACT DESIGN DRAWINGS

1.0 GENERAL NOTES - PIPING

1.1. DO NOT SCALE DESIGN DRAWINGS. USE FIGURE DIMENSIONS ONLY.

1.2. OBTAIN UCC GENERAL AND SUB-ASSEMBLY OPERATION & MAINTENANCE MANUAL INSTRUCTIONS BEFORE ERECTING OR SERVICING.

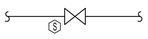
1.3. UCC PIPING DIMENSIONS ARE BASED ON THE NOMINAL DIMENSIONS OF THE COMPONENTS USED. ACTUAL DIMENSIONS OF COMPONENTS CAN VARY FRACTIONALLY. THIS FRACTIONAL DIFFERENCE CAN BE CUMULATIVE AND MAY BE OVERCOME BY GASKETING DURING ERECTION.

1.4. MATERIAL SHOWN ON CONTRACT DRAWINGS WILL NOT BE FURNISHED BY UCC UNLESS MARKED WITH ONE OF THE FOLLOWING SYMBOLS:

- (4)X MATERIAL FURNISHED BY UCC AS COVERED BY THIS DRAWING. NUMBER IN CIRCLE REFERS TO SEQUENCE NUMBER ON THE BILL OF MATERIAL. "X" DENOTES THE QUANTITY UTILIZED AT THE NOTED (E) LOCATION.
- (M) MATERIAL FURNISHED BY UCC AS PART OF AN ELECTRICAL DRAWING (DRAWING SERIES PREFIX E).
- (S) MATERIAL FURNISHED BY UCC AS PART OF A P&ID OR CONTRACT ASSEMBLY DRAWING (DRAWING SERIES PREFIX M).
- MATERIAL FURNISHED BY UCC AS PART OF A STRUCTURAL DRAWING (DRAWING SERIES PREFIX S).

1.5. WHERE REQUIRED, (UL) OR (R) ADJACENT TO A VALVE INDICATES "WEAR LINER" OR "FLOW CONE" TO BE LOCATED ON FLOW INLET SIDE.

1.6. WHERE REQUIRED,(S) ADJACENT TO A VALVE INDICATES "SEAT SIDE" FOR PROPER INSTALLATION ORIENTATION.



1.7. PIPING DESIGN DRAWINGS ARE PROVIDED FOR FIELD ERECTION AND ARE NOT INTENDED TO BE USED AS SHOP FABRICATION DETAIL DRAWINGS.

1.8. ALL PIPING 2-1/2" AND SMALLER IS TO BE FIELD ROUTED BY THE INSTALLING CONTRACTOR.

1.9. PIPE ROUTING DESIGN PROVIDED FOR PIPING LESS THAN 2-1/2" IS FOR REFERENCE ONLY. FIELD INSTALLED OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO: HEATERS, LIGHTING, CONDUITS, CABLE TRAYS, EQUIPMENT ACCESS ZONES, DOORWAYS, WINDOWS, LOUVERS, FANS, OTHER SERVICE PIPING, DRAINS, MISCELLANEOUS STEEL, FIRE PROTECTION, ELECTRICAL PANELS, ETC. HAVE NOT BEEN CONSIDERED. PIPE ROUTING MUST BE FIELD REVIEWED BY INSTALLING CONTRACTOR PRIOR TO SHOP FABRICATING AND/OR INSTALLING PIPING. UCC IS NOT RESPONSIBLE FOR INTERFERENCES WITH EQUIPMENT/AREAS/PIPING NOT PROVIDED FOR CONSIDERA -TION DURING DESIGN.

1.10. PIPE TAPS INTO PIPING TO ACCOMMODATE TEST CONNECTIONS, MONITORING PORTS, INSTRUMENTATION, PURGE CONNECTIONS, ETC. ARE TO BE FIELD LOCATED BY INSTALLING CONTRACTOR. SEE P&ID's FOR RECOMMENDED SIZES, TYPES, LOCATIONS, AND INSTALLATION INSTRUCTIONS.

1.11. TEST CONNECTIONS ARE FURNISHED BY UCC AS 1" THREADOLETS, ¼" REDUCING BUSHINGS, AND ¼" PIPE PLUGS.

1.12. TAPS FOR VENTS, DRAINS, INSTRUMENTATION AND ANY OTHER MONITORING DEVICES ARE PROVIDED AS 1" OR 2" THREADOLET/SOCKOLET UNLESS NOTED OTHERWISE. SIZE REDUCTION TO ACTUAL INSTRUMENT SIZING IS NOT FURNISHED BY UCC.

1.13. TRENCHES MUST BE WELL DRAINED AND KEPT AS DRY AS POSSIBLE. SLOPE BOTTOM OR GUTTER TO DRAIN. TRENCHES AND/OR COVER PLATES ARE BY OTHERS.

1.14. NOT ALL DESIGN DRAWINGS LISTED ON THE DRAWING REFERENCE LIST MAY HAVE MATERIAL INCLUDED AS PART OF THE WORK SCOPE. SEE CONTRACT DOCUMENTS FOR COMPLETE SUMMARY OF MATERIAL THAT IS TO BE INCLUDED. BILLS OF MATERIAL MAY BE PROVIDED FOR THOSE SYSTEMS WHERE DESIGN ONLY HAS BEEN PROVIDED. THESE BILLS OF MATERIAL ARE PROVIDED FOR REFERENCE ONLY AND ARE NOT TO BE USED FOR THE PURCHASING OF MATERIAL. PROCURER OF MATERIAL IS TO VERIFY SCOPE MATERIAL, SUITABILITY, QUANTITIES, AND CONFORMANCE TO PROJECT SPECIFICATIONS.

1.15. USE KNIFEGATE INSTALLATION KIT IF OPERATOR(S) FOR KNIFEGATE(S) CANNOT BE INSTALLED SUCH THAT THE OPERATOR IS 45 DEGREES OR GREATER TO VERTICAL. SEE INSTALLATION INSTRUCTIONS FOR KNIFEGATES AND UCC DRAWING 3-1717-101 FOR DETAILS.

1.16. INSPECT CONVEYOR LINES REGULARLY. IF WEAR IS FOUND ON THE INSIDE OF THE PIPING TO EITHER SIDE, TOP, OR BOTTOM, THE PIPE SECTION SHOULD BE ROTATED IN 90° TO 135° INCREMENTS, DEPENDING ON THE WEAR PATTERN, TO INCREASE SERVICE LIFE.

1.17. CONVEYOR PIPE EXPANSION JOINT SETTING SHOWN ON DESIGN DRAWINGS ASSUME PIPE TEMPERATURE AT INSTALLATION IS 70° F. EXPANSION JOINT SETTINGS SHOULD BE FIELD ADJUSTED IF ACTUAL PIPE INSTALLATION TEMPERATURE VARIES MORE THAN ±10° FROM 70° F.

1.18. CONVEYOR PIPE CONNECTIONS MAY LOOSEN DUE TO TEMPERATURE CHANGES THAT WILL BE EXPERIENCED IN THE CONVEYOR PIPING SYSTEM. CONNECTIONS ARE TO BE PERIODICALLY INSPECTED IN ACCORDANCE WITH CONNECTION INSTALLATION INSTRUCTIONS #91140.

CONVEYOR PIPE DATA

NOMINAL PIPE SIZE	DURITE® D O.D.	DURITE® D LINEAR WEIGHT EMPTY	DURITE® D LINEAR WEIGHT WASH OR SLURRY	NUVALOY® N O.D.	NUVALOY® N LINEAR WEIGHT EMPTY	NUVALOY® N LINEAR WEIGHT WASH OR SLURRY	NOMINAL PIPE SIZE
INCHES	INCHES	lb/ft	lb/ft	INCHES	lb/ft	lb/ft	INCHES
1	NOT AVAILABLE			NOT AVAILABLE			1
1.5	NOT AVAILABLE			NOT AVAILABLE			1.5
2	NOT AVAILABLE			NOT AVAILABLE			2
2.5	NOT AVAILABLE			NOT AVAILABLE			2.5
3	4.5	35	40	NOT AVAILABLE			3
4	5.50	45	54	5.00	21	30	4
5	6.50	50	64	6.00	27	41	5
6	7.75	70	90	7.10	35	55	6
7	8.87	90	117	8.37	52	79	7
8	9.62	100	135	9.05	54	87	8
9	11.00	120	164	10.33	63	107	9
10	11.87	130	185	11.10	63	113	10
11	12.87	130	196	12.20	68	134	11
12	14.00	155	234	13.20	79	155	12
14	15.75	190	297	15.30	100	213	14

NOTE: PIPE WEIGHT PER FT. DOES NOT INCLUDE WEIGHT OF FLANGES OR MECHANICAL CONNECTION.

2.0 PIPING INSTALLATION NOTES

2.1. CUSTOMER TO CHECK CLEARANCE AND ACCESSIBILITY OF UCC EQUIPMENT AND LAYOUT TO AVOID INTERFERENCES WITH EQUIPMENT NOT FURNISHED BY UCC AND NOT SHOWN ON THE CONTRACT DESIGN DRAWINGS.

2.2. VALVE OPERATORS ARE TO BE ORIENTATED IN THE FIELD DURING INSTALLATION TO ACCOMMODATE ACCESS, OPERATION, AND POSSIBLE FIELD OBSTRUCTIONS. FOLLOW UCC - APPLICATION, INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS (SHIPPED WITH ASSEMBLY) FOR DETERMINING SUPPORT REQUIREMENTS FOR THOSE VALVES REQUIRING ADDITIONAL ACTUATOR SUPPORT WHEN THE OPERATORS ARE NOT INSTALLED IN THE VERTICAL POSITION.

2.3. SCHEDULE WALL PIPE (CARBON & STAINLESS STEEL) - ALL SCHEDULE WALL PIPE THAT IS SUPPLIED IS TO BE FIELD CUT AND WELDED AS NECESSARY.

2.4. CONVENTIONAL FABRICATION TECHNIQUE IS TO HAVE BOLT HOLES OF PIPE FLANGES TO STRADDLE CENTERLINES (TWO-HOLED) FLANGES OF FIELD ROUTED PIPING ARE TO BE ORIENTATED AS REQUIRED.

2.5. FIELD FINISHED PAINTING TO BE BY OTHERS.

2.6. DUE TO SITE CONDITIONS AT TIME OF INSTALLATION, INSTALLING CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO FIELD CUTTING AND/OR WELDING FOR FIT UP AND/OR INSTALLATION OF COMPONENTS.

2.7. PIPING INTERNAL SURFACES SHALL BE CLEANED TO REMOVE SCALE, SAND, WELD SPLATTER AND CUTTING CHIPS IN ACCORDANCE WITH THE REQUIREMENTS OF THE PIPING FABRICATION INSTITUTE STANDARD ES-5.

2.8. HDPE PIPING IS TO BE LAID ON FLAT SURFACE WITHOUT ANY PROTUBERANCES.

2.9. HDPE PIPING WILL MOVE SIGNIFICANTLY DUE TO THERMAL HEATING AND COOLING CYCLES. KEEP PIPING A MINIMUM OF 10' AWAY FROM ANY OBSTACLES TO PREVENT DAMAGE TO THE OBSTACLE OR PIPE.

2.10. THERMAL GROWTH/CONTRACTION CYCLE OF HDPE PIPING MUST BE CONSIDERED DURING INSTALLATION. 100'-0" OF PIPE WILL CHANGE 1" IN LENGTH FOR EVERY 10° F CHANGE IN TEMPERATURE.

2.11. RADIUSES SHOWN ON THE HDPE PIPING LAYOUT ARE MINIMUM XX' IN THE YARD AND MINIMUM XX" AT THE ANCHOR POINT LOCATIONS. THESE RADIUSES AND LOCATIONS WHERE SHOWN HAVE BEEN SELECTED TO ACCOMMODATE THE ANTICIPATED PIPE MOVEMENTS.

2.12. ANCHOR AND GUIDE LOCATIONS MUST BE MAINTAINED TO PERMIT HDPE PIPING TO MOVE AS DESIGNED.

2.13. TIME AND THERMAL CYCLES HDPE PIPING MAY SHIFT FROM ORIGINAL INSTALLED POSITION. RELOCATE AS NECESSARY. POSITION SHOWN ON DESIGN DRAWINGS ARE CONSIDERED AT 70° F.

2.14. MATERIAL TO BE BLACK HDPE USED FOR THE MANUFACTURE OF POLYETHYLENE PIPE, TUBE AND FITTINGS SHALL BE HIGH DENSITY POLYETHYLENE MEETING ASTM D3350, DESIGNATION PE4710.

2.15. 4" IPS AND LARGER PIPING TO BE MANUFACTURED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM F714 AND AWWA C906.

2.16. PIPING PRESSURE RATING SHALL BE MARKED IN ACCORDANCE WITH ASTM F714 AND/OR AWWA C906.

2.17. FABRICATED PIPE FITTINGS TO BE FABRICATED TO SAME PRESSURE RATING AS CONNECTED PIPE.

2.18. PIPING JOINTS TO BE MADE USING HEAT FUSION METHOD UNLESS ALTERNATE METHOD IS REQUIRED. BRANCH CONNECTIONS TO BE MADE USING SADDLES, FITTINGS, OR TEES.

2.19. FLANGE CONNECTIONS TO BE MADE USING FLANGE ADAPTERS WITH CARBON STEEL BACKING RINGS.

2.20. REFERENCE THE PLASTIC PIPE INSTITUTE HANDBOOK OF POLYETHYLENE PIPE FOR ADDITIONAL INSTALLATION PARAMETERS.

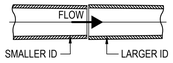
2.21. HDPE PIPE SHALL BE HANDLED AND STORED IN ACCORDANCE WITH MANUFACTURER GUIDELINES AND STANDARD PRACTICES FOR HDPE PIPE.

2.22. HDPE MATERIALS:
PIPE PER: ASTM D3350, CELL CL. PE445574C, PIPE DESIGNATION PE4710, DR-XX WALL, AND PER ASTM F714 AND AWWA C906

2.23. CIRCUMFERENTIAL OFFSET BETWEEN CENTERLINES OF ADJOINING PIPING COMPONENTS IS TO BE 1/16" OR LESS. SEE INSTALLATION INSTRUCTIONS #91140 FOR ASSEMBLY OF COUPLINGS.

2.24. CENTERLINE ALIGNMENT OF ADJACENT PIPE LENGTHS/COMPONENTS BEING CONNECTED MUST BE MAINTAINED. PIPE ENDS MAY BE SHIMMED TO ACCOMPLISH CENTERLINE ALIGNMENT.

2.25. NUVALOY PIPE TOLERANCES FOR MANUFACTURING RESULTS IN ONE END OF THE PIPE LENGTH BEING SLIGHTLY LARGER THAN THE OTHER. THIS IS TO FACILITATE REMOVAL OF PIPE LENGTH FROM THE MOLD WHEN PIPE IS MANUFACTURED. WHEN INSTALLING NUVALOY PIPE THE SMALLER ID END OF A PIPE SECTION IS TO DISCHARGE INTO THE LARGER ID END OF THE DOWNSTREAM PIPE SECTION. PLAN FIELD CUTS OF NUVALOY PIPE TO SUPPORT THIS PRACTICE. SEE SKETCH BELOW.



2.26. ALIGNMENT RING AND OR CLAMP(S) FOR THE PLAIN END PIPE CONNECTION ARE TO BE FITTED ON TO THE PIPE PRIOR TO ALIGNING PIPE ENDS. LOCATE ALIGNMENT RING AND OR CLAMP(S) TO EITHER SIDE OF THE PIPE ENDS, LEAVING THE PIPE ENDS CLEAR FOR VISUAL INSPECTION.

2.27. WHEN INSTALLING CONVEYOR PIPE, DO NOT APPLY THE FINAL TORQUE ON ANY CONNECTIONS UNTIL ALL THE CONNECTIONS IN THE PIPE RUN ARE INSTALLED AND SECURED. SEE INSTALLATION INSTRUCTIONS #91140 FOR ADDITIONAL INFORMATION.

2.28. NUVALOY PIPE IS FURNISHED IN STANDARD 18'-0" LENGTHS UNLESS NOTED OTHERWISE. WHERE NON-STANDARD LENGTHS ARE SHOWN ON CONVEYOR DRAWINGS, IT WILL BE NECESSARY TO FIELD CUT NUVALOY PIPE. FIELD CUT SECTIONS SHALL BE MEASURED AND FIELD ADJUSTED AS FIELD CONDITIONS DICTATE, ESPECIALLY WHERE LONG STRAIGHT RUNS OF PIPE EXIST. FIELD CUT PIPE SHALL BE SELECTED FROM THE SHORTEST AVAILABLE PIECE. FAILURE TO DO SO MAY RESULT IN EXCESS WASTAGE. THIS MAY REQUIRE THE INSTALLING CONTRACTOR TO PROCURE ADDITIONAL PIPING MATERIAL. SEE INSTALLATION INSTRUCTIONS #730703 FOR FIELD CUTTING PROCEDURE FOR NUVALOY PIPE.

2.29. WHEN FIELD CUTTING NUVALOY PIPE, REFER TO PIPE CONNECTION DETAILS FOUND IN THE INSTRUCTION MANUAL TO IDENTIFY GAPS REQUIRED FOR GASKETS AND/OR ALIGNING RINGS.

2.30. SEE INSTALLATION INSTRUCTIONS #91141 FOR FIELD CUTTING PROCEDURE FOR BASALT LINED CONVEYOR PIPE.

PIPING DRAWING INDEX

UCC DRAWING NUMBER	DRAWING TITLE
C-55650-05-001	GENERAL NOTES AND REFERENCE DRAWINGS
C-55650-05-002	GENERAL NOTES AND REFERENCE DRAWINGS
C-55650-05-003	PLAN, SECTION, AND DETAIL FLY ASH NUVEYOR® VACUUM SYSTEM HOPPER AREA UNIT 1
C-55650-05-004	PLAN, SECTION, AND DETAIL FLY ASH NUVEYOR® VACUUM SYSTEM HOPPER AREA UNIT 1
C-55650-05-005	PLAN, SECTION, AND DETAIL FLY ASH AIR VACUUM SYSTEM FILTER SEPARATOR TO EXHAUSTERS UNIT 1
C-55650-05-006	PLAN, SECTION, AND DETAIL FLY ASH AIR VACUUM SYSTEM EXHAUSTERS DISCHARGE TO DUCT UNIT 1
C-55650-05-007	PLAN, SECTION, AND SILO VENT PIPING VENT FAN TO DUCT TIE-IN UNIT 1
C-55650-05-008	PLAN, SECTION, AND SILO VENT PIPING VENT FAN TO DUCT TIE-IN UNIT 1

3.0 WELDING REQUIREMENT

3.1. WELDING OF PIPE TO BE EXECUTED IN ACCORDANCE WITH ASME B31.1, CHAPTER 5.

3.2. MAXIMUM ALLOWABLE ANGULAR DEFLECTION OF INSTALLED PIPE IS 1° OVER 50'-0" OR 0.1 DEGREE.

ALIGNMENT AND GAP FOR BUTT WELDING PIPE

FOR SINGLE WELDED JOINTS, THE EXCESS ROOT PENETRATION SHALL BE LIMITED TO THE LESSER OF 1/8" OR 25% OF THE NOMINAL WALL THICKNESS OF THE THINNER COMPONENT BEING JOINED, DOWN TO 1/4" WALL THICKNESS. FOR ANY NOMINAL WALL THICKNESS LESS THAN 1/4" THE EXCESS PENETRATION SHALL BE LIMITED 1/16".

4.0 LASER SCAN AND PLANT DATUM

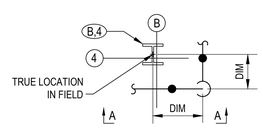
4.1. DIMENSIONS OF EXISTING STRUCTURES, EQUIPMENT, AND PIPING ARE BASED ON LASER SCANS AND MAY DIFFER FROM EARLIER DRAWINGS. IN THE CASE OF CONFLICTING DIMENSIONS, THE LASER SCAN SHALL GOVERN.

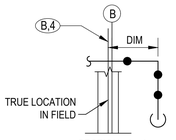
4.2. LASER SCANNING PROVIDES AN ACCURATE REPRESENTATION OF THE SITE CONDITIONS AT THE TIME OF THE SCAN. LOCATIONS OF CRITICAL DESIGN POINTS (HOPPER OUTLETS, DUCT CONNECTIONS, BOILER INTERFACES, ETC.) WHOSE LASER SCANNED LOCATIONS ARE AFFECTED BY TEMPERATURE MAY NEED TO BE FIELD VERIFIED.

4.3. LASER SCAN FOR THIS CONTRACT WAS PERFORMED BY (UCC/OTHERS) ON 10/05/2024.

4.4. ELEVATIONS AND DIMENSIONS (COORDINATES) REFERENCED ON EXISTING STATION DRAWINGS OR OTHER DOCUMENTS MAY DIFFER. CONTRACTOR TO INSTALL PIPING, PER UCC 2D DRAWINGS.

4.5. ELLIPSE DESIGNATES REFERENCE COLUMN FROM WHICH PIPE LOCATION IS TO BE MEASURED FROM AND WHEN COLUMN LOCATION IS BASED UPON THE LASER SCAN.





UCC REGISTRATIONS AND TRADEMARKS	SYMBOL	UCC REGISTRATIONS AND TRADEMARKS	SYMBOL
ACCUFLOC	TM	JETPULSION	®
ACCUFUSE	TM	M-PACT	TM
ACCUpHIX	TM	MAX - LP	TM
CDR	TM	MultiDAC	TM
COBRA	TM	NUMAFLEX	TM
DAC	TM	NUVA FEEDER	®
DAX	TM	NUVALOY	®
DEPAC	®	NUVASEAL	TM
DFC	TM	PAX	TM
DURA-CORE	TM	SFC	TM
DURALOY	TM	SPARTAN	TM
DURITE	®	STRYKER	TM
DUR-ROK	TM	SWITCHBLADE	TM
ecopod	TM	TIGER	TM
EXCEN-CRUSHER	TM	TITAN	TM
HDCC	TM	TRITON	TM
HDSS	TM	UCC	®
HYDROCURE	TM	VAX	TM
HYDROVEYOR	®	VIPER	®
INFINITY	TM		

SAFETY NOTE:
REFER TO UCC DOCUMENT NO. 721005 LOCATED IN THE UCC O&M MANUAL, "SYSTEMS AND EQUIPMENT SAFETY INSTRUCTIONS", FOR IMPORTANT SAFETY CONSIDERATIONS WHEN PERSONNEL ARE NEAR THE SYSTEM EQUIPMENT FOR ANY REASON.

NOTES

GENERAL NOTES INDEX

MECHANICAL DRAWING(S) INDEX M-55650-05-001
STRUCTURAL DRAWING(S) INDEX S-55650-05-001

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
0	ISSUED FOR CONSTRUCTION	02/14/2025	DSK			

THIS DRAWING SHALL NOT BE CONSIDERED A CERTIFIED DOCUMENT UNLESS UCC ENVIRONMENTAL (UCC) APPROVAL SIGNATURES OR INITIALS ARE PRESENT IN THE REVISION BOX.

THIS DRAWING IS AN UNPUBLISHED COPYRIGHTED WORK CONTAINING PROPRIETARY INFORMATION OF UCC, AND IS LOANED FOR USE IN THE CONDUCT OF COMPANY BUSINESS ONLY. THIS COPY HAS BEEN PROVIDED ON THE BASIS OF STRICT CONFIDENTIALITY AND WITH THE EXPRESS UNDERSTANDING THAT EXCEPT IN THE CONDUCT OF UCC BUSINESS, IT MAY NOT BE REPRODUCED, OR REVEALED TO ANY PERSON, IN WHOLE OR IN PART, WITHOUT EXPRESS WRITTEN PERMISSION FROM UCC, WHICH IS THE SOLE OWNER OF COPYRIGHT AND ALL OTHER RIGHTS THEREIN. BY RECEIVING THIS DRAWING, THE RECIPIENT AGREES TO RETURN IT UPON REQUEST.

THE INSTALLATION AND OPERATION OF UCC EQUIPMENT, IN ACCORDANCE WITH APPROVED PLANS AND OPERATING INSTRUCTIONS, SHALL BE THE SOLE RESPONSIBILITY OF THE PURCHASER, UNLESS OTHERWISE SPECIFIED BY CONTRACT.

MODIFICATION TO UCC EQUIPMENT AND STRUCTURES TO AVOID FIELD OBSTRUCTIONS, CORRECTIONS DUE TO MINOR DRAWING DISCREPANCIES WITH FIELD CONDITIONS, AND/OR MINOR FABRICATION MISFITS ARE CONSIDERED NORMAL ERECTION AND INSTALLATION OPERATIONS AND ARE NOT CHARGEABLE TO UCC. WE WILL NOT ACCEPT BACK CHARGES FOR ANY WORK PERFORMED IN THE FIELD UNLESS APPROVED BY UCC'S FIELD SERVICE DEPARTMENT.

SCALE	NONE	DRAWING SIZE	5

DRAWING TITLE

GENERAL NOTES AND REFERENCE DRAWINGS
PIPING

PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER	REVISION
C-55650-05-001	0

PIPE SUPPORT CONTRACT DESIGN DRAWINGS

10.0 GENERAL NOTES - PIPE SUPPORTS

10.1. DO NOT SCALE DESIGN DRAWINGS. USE FIGURE DIMENSIONS ONLY.
10.2. ALL CHANGES IN DIRECTION GENERALLY REQUIRE AN ANCHOR IN A CONVEYING SYSTEM.
10.3. ALL CONVEYOR PIPING SYSTEMS UTILIZE MECHANICAL JOINTS, EACH REQUIRING ONE GUIDE AND ONE SUPPORT ON EACH SIDE OF THE MECHANICAL JOINT, EXCEPT AT FITTING LOCATIONS.
10.4. EACH MECHANICAL JOINT IN A RISER REQUIRES A GUIDE BENEATH THE JOINT.
10.5. PIPE SUPPORTS ARE GENERALLY LOCATED 1'-6" TO 3'-0" FROM THE CENTERLINE OF THE ADJACENT MECHANICAL JOINT.
10.6. EXPANSION JOINTS WILL REQUIRE A GUIDE UPSTREAM AND ANCHOR DOWNSTREAM. EXPANSION JOINTS LOCATED MID-WAY BETWEEN ANCHOR POINTS WILL REQUIRE A GUIDE BOTH UP AND DOWNSTREAM.
10.7. CONVEYOR LINE GATES GENERALLY ARE TO BE ISOLATED FROM CONVEYOR PIPING THERMAL GROWTH.
10.8. PIPE SECTIONS ARE TOGGLED TO ACCOMMODATE THE DIFFERENTIAL LATERAL AND VERTICAL MOVEMENTS THAT MAY BE IMPOSED ON THE PIPING. DEPENDING ON PIPE LENGTH AND MOVEMENT, TOGGLE PIPE SECTIONS MAY REQUIRE SPRING HANGER(S). ANCHORS UPSTREAM AND DOWNSTREAM ARE REQUIRED TO BE SUPPORTED FROM SEPARATE STRUCTURES.
10.9. PIPE SUPPORTS SYSTEMS UNDER COLLECTION HOPPERS USUALLY USE HANGER RODS ATTACHED TO THE COLLECTION HOPPER, ONE ON EITHER SIDE OF THE ASH INTAKE. SPRING HANGERS WILL BE REQUIRED WHEN THE DIFFERENTIAL MOVEMENT BETWEEN THE ATTACHMENT POINT AND THE PIPE EXCEEDS 1/8".
10.10. RUBBER EXPANSION JOINTS LOCATED BY ROTATING EQUIPMENT ARE USED TO ISOLATE PIPING SYSTEM FROM ROTATING EQUIPMENT. NO LOADS ARE TO BE IMPOSED ON ROTATING EQUIPMENT NOZZLES FROM THE PIPING SYSTEM. CONTROL RODS PROVIDED WITH THE EXPANSION JOINT ARE TO BE "LOCKED OUT" SUCH THAT THERE IS NO COMPRESSION, EXTENSION OR LATERAL OFFSET ALLOWED OF THE RUBBER EXPANSION JOINT. PIPING OPPOSITE THE RUBBER EXPANSION JOINT FROM THE ROTATING EQUIPMENT IS TO BE ANCHORED. THE ANCHOR SHOULD BE DESIGNED TO WITHSTAND THE PRESSURE, MOMENTUM, AND THERMAL LOADS ON THE PIPING ISOLATED BY THE RUBBER EXPANSION JOINT. CONTROL RODS MUST BE IN POSITION DURING ROTATING EQUIPMENT OPERATION.
10.11. SUPPORT STRUCTURE/RACK STEEL MOVEMENTS ARE NOT CONSIDERED.
10.12. SUPPORT LOCATIONS INDICATED ON THE PIPING DRAWINGS ARE APPROXIMATE. ACTUAL PIPE SUPPORT LOCATION MAY VARY UP TO +/- 1'-0" FROM LOCATION INDICATED. SEE SUPPORT DETAIL DRAWINGS FOR FINAL LOCATION.
10.13. PIPE SUPPORTS SHALL BE DESIGNED TO PROVIDE ADEQUATE CLEARANCE FOR INSTALLATION AND MAINTENANCE OF CONNECTIONS.
10.14. HANGER RODS AND ATTACHMENT HARDWARE FOR PRESSURE VESSELS ARE FURNISHED AS PART OF PRESSURE VESSEL ASSEMBLY DRAWINGS.
10.15. THE FOLLOWING SERVICES AND STRUCTURES/MATERIALS ARE NOT FURNISHED BY UCC:
- CONCRETE
- CONCRETE REINFORCING STEEL
- EMBEDDED STEEL IN CONCRETE
- FIELD FINISH PAINT
- GROUT
- SMALL BORE SUPPORTS
- CONSTRUCTION CONSUMABLES
- AUXILIARY STEEL BEYOND 3'-0" (BUILDING AREA)

13.0 LOAD ANALYSIS

13.1. ALL CONSTRUCTION SHALL BE PERFORMED IN CONFORMANCE WITH THE BUILDING CODE AND DESIGN CODES REFERENCED BELOW. UNLESS NOTED OTHERWISE, THE PROJECT DOCUMENTS REFER TO THE FOLLOWING CODES AND STANDARDS:
- ASME CODE FOR POWER PIPING ASME B31.1-2022
- 2018 INTERNATIONAL BUILDING CODE (IBC)
- MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES ASCE 7-16
- "MANUAL FOR STEEL CONSTRUCTION", FOURTEENTH EDITION (AISC 360-10)
- BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE ACI 318-14
- "PIPE HANGERS AND SUPPORTS - MATERIAL, DESIGN, MANUFACTURE, SELECTION, APPLICATION & INSTALLATION" (ANSI/MSS SP-58-2018)
- "PIPE HANGERS AND SUPPORTS - SELECTION AND APPLICATION" (ANSI/MSS SP-69-2003)

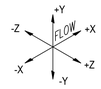
13.2. SUPPORT LOADING IS PROVIDED FOR 2 ½" NOMINAL AND ABOVE PIPING SEGMENTS. PIPING 2" NOMINAL AND SMALLER IS CONSIDERED SMALL BORE PIPING AND IS NOT ANALYZED.
13.3. SUPPORT LOADS INCLUDE PIPE AND CONVEYING MATERIAL WEIGHT, ICE, PRESSURE, THERMAL EXPANSION/COMPRESSION, FRICTION, WIND, AND SEISMIC.
13.4. WORST CASE LOADING IS PROVIDED FOR EACH SUPPORT.
13.5. SUPPORT DEAD LOADS CONSIST OF THE WEIGHT OF PIPE, CONVEYING MATERIAL, INSULATION, AND ALL PIPING COMPONENTS. THE PLUGGED DESIGN ASH LOAD IN THE PIPE IS TAKEN AS 100% FULL. RISERS ARE PLUGGED AT THE BOTTOM 10'-0" ONLY. THE OPERATING DESIGN ASH LOAD IN THE PIPE IS TAKEN AS:
- 10% FULL FOR VACUUM AND PRESSURE SYSTEMS.
- 50% FULL FOR DENSE PHASE SYSTEMS.
- 100% FULL FOR SLUICE SYSTEMS.

13.6. ICE LOADING APPLIES TO OUTDOOR PIPE ONLY. A 1" THICK COATING ALONG THE PIPE CIRCUMFERENCE IS CONSIDERED FOR ANALYSIS.
13.7. SUPPORT THERMAL LOADS CONSIST OF THE FORCES REQUIRED TO CAUSE A DISPLACEMENT IN EXPANSION JOINTS (ACTUATION FORCE) AND STATIC FRICTION. THE COEFFICIENT OF FRICTION IS CONSIDERED TO BE:
- 0.6 FOR CARBON STEEL PIPE ON STEEL.
- 0.4 FOR CAST IRON PIPE ON STEEL.

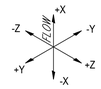
13.8. WIND LOADS:
- WIND SPEED: 120 MPH
- EXPOSURE CATEGORY: C

13.9. SEISMIC LOADS:
- SITE CLASSIFICATION: D
- IMPORTANCE FACTOR: 1.0
- RISK CATEGORY: III
- SEISMIC DESIGN CATEGORY: A
- ANALYSIS METHOD USED: ASCE 7-16 SECTION 1.4

13.10. RESOLUTION OF LOADS TO INTERFACE OF PIPE SUPPORT DESIGNS IS NOT INCLUDED.
13.11. LOADS ARE REPORTED IN LOCAL COORDINATES AT THE CENTERLINE OF PIPE. WHEN PIPE RUNS CHANGE DIRECTION FROM HORIZONTAL TO VERTICAL, THE COORDINATE SYSTEM SHALL ROTATE AROUND THE Z-Z AXIS. COORDINATE SYSTEM IS AS SHOWN:



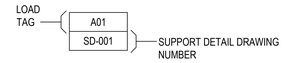
HORIZONTAL



VERTICAL

14.0 PIPE SUPPORT DESIGN

14.1. SUPPORT DESIGNS ARE PROVIDED FOR 2 ½" NOMINAL AND ABOVE PIPING SEGMENTS. PIPING 2" NOMINAL AND SMALL IS CONSIDERED SMALL BORE PIPING AND IS NOT INCLUDED.
14.2. PIPE SUPPORTS ARE DESIGNED FOR AN INTERFACE POINT NOT TO EXCEED 3'-0" FROM THE PIPE CENTER LINE.
14.3. UCC ASSUMES THAT EXISTING STRUCTURES ARE SOUND. IT IS THE OWNER'S OBLIGATION TO PERFORM A THOROUGH REVIEW OF THE EXISTING STRUCTURE (I.E. FIELD SURVEY, STRUCTURAL CALCULATIONS, ETC.) TO ENSURE THAT IT IS ADEQUATE TO SUPPORT THE NEW EQUIPMENT AS SHOWN ON THE CONTRACT DRAWINGS. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER.
14.4. INTERFACE OF PIPE SUPPORTS WITH STEEL UTILIZES FIELD WELDED CONNECTIONS DESIGN FOR ADJUSTABILITY IN THE FIELD.
14.5. PIPING WILL NOT BE HUNG FROM U-BOLTS IN LOCATIONS OF THERMAL GROWTH.
14.6. PIPE SUPPORT DETAIL DRAWINGS ARE NOT CONSIDERED STRUCTURAL DRAWINGS AND ARE NOT REQUIRED TO BE SEALED BY A LICENSED PROFESSIONAL ENGINEER.
14.7. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
14.8. BASE PLATES SHALL BE GROUTED USING 5-STAR DP EPOXY GROUT OR FOX INDUSTRIES FOX PACK 1700 HS EPOXY GROUT OR APPROVED EQUAL IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION.
14.9. DO NOT SCALE DESIGN DRAWINGS. USE FIGURE DIMENSIONS ONLY.
14.10. PIPE SUPPORTS ARE IDENTIFIED ON THE PIPING DRAWINGS AND ARE TAGGED INDICATING THE SUPPORT LOAD TAG AND DETAIL IDENTIFIER (SUPPORT DETAIL DRAWING) AS SHOWN IN THE SUPPORT TAG NUMBER BELOW:



15.0 SUPPORT FABRICATION

15.1. PIPE SUPPORT STEEL AND HARDWARE SHALL BE COATED PER THE PIPING AND PIPE SUPPORT COATING SCHEDULE.
15.2. SURFACES WITHIN 2" OF ANY FIELD WELD AND 6" OF ANY FIELD CUT ARE TO BE LEFT UNPAINTED AND COATED WITH A WELDABLE PRIMER.
15.3. WEEP HOLES WILL NOT BE PROVIDED ON SEALED, HOLLOW PAINTED SECTIONS IN ORDER TO PROTECT THE INTERIOR FROM CORROSION.
15.4. MATERIAL SOURCED FROM THE U.S. IS PREFERRED. FOREIGN SOURCED MATERIAL IS ACCEPTABLE PROVIDED THE MATERIAL MEETS ALL APPLICABLE ASTM STANDARDS.

16.0 SUPPORT INSTALLATION

16.1. ALL BOLTS SHALL BE SNUG-TIGHT UNLESS SPECIFICALLY NOTED OTHERWISE. BOLTING SHALL CONFORM TO THE PROVISIONS OF THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS "SPECIFICATIONS FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS", UNLESS NOTED OTHERWISE ON DETAIL DRAWINGS. U-BOLT NUTS SHALL BE INSTALLED SNUG-TIGHT.
16.2. DUE TO SITE CONDITIONS AT TIME OF INSTALLATION, INSTALLING CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO FIELD CUTTING AND/OR WELDING FOR FIT UP AND/OR INSTALLATION OF COMPONENTS.
16.3. WELDING PER UCC GENERAL WELDING SPECIFICATION 98009 OR OWNER'S SPECIFICATION. USE WHICHEVER IS MORE STRINGENT. WELD PROCEDURES AND WELDER QUALIFICATION TEST REPORTS SHALL BE SUBMITTED TO UCC FOR ALL NON-PREQUALIFIED WELDS PER AWS D1.1.
- WELDING ELECTRODES SHALL BE E70 LOW HYDROGEN AND HAVE A MINIMUM STRENGTH OF 70 KSI.
- WHEN WELDING STAINLESS STEEL TO CARBON STEEL, USE E309 TYPE ELECTRODES.

16.4. TOUCH UP PAINTING FOR FIELD WELDING GALVANIZED MATERIAL IS THE RESPONSIBILITY OF THE FIELD PAINTING CONTRACTOR.
16.5. REPAIR DAMAGED AND UNCOATED AREAS OF GALVANIZED STRUCTURAL STEEL, WELDS, ETC USING ZINC BASED ALLOYS PER ASTM A780 ANNEX A1 OR A3.
16.7. IT SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO COORDINATE THE PIPE SUPPORT DRAWINGS WITH THE STRUCTURAL AND CONVEYOR DRAWINGS, AS WELL AS ANY OTHER APPLICABLE TRADES, AND TO NOTIFY THE OWNER AND RESPONSIBLE ENGINEER OF ANY DISCREPANCIES BETWEEN THE DRAWINGS FOR RESOLUTION PRIOR TO PROCEEDING WITH THE WORK. DO NOT ASSUME THAT EITHER OF THE DRAWINGS OR SPECIFICATIONS TAKE PRECEDENCE.
16.8. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. UNLESS OTHERWISE INDICATED, THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION.
16.9. PERISHABLE CONSTRUCTION MATERIAL TO BE USED BEFORE SHELF LIFE EXPIRES.

PIPING AND PIPE SUPPORT COATING SCHEDULE

EQUIPMENT	FINISH	COMMENTS
CARBON STEEL NUTS AND BOLTS	NONE	LIGHT MACHINING OIL FILM
CAST FLANGE CLAMPS	NONE	DUCTILE IRON, WILL HAVE SURFACE RUST
CAST IRON PIPE	NONE	DUCTILE IRON, WILL HAVE SURFACE RUST
CAST IRON FITTINGS	NONE	DUCTILE IRON, WILL HAVE SURFACE RUST
CARBON STEEL PIPE	NONE	MILL FINISH WILL RUST IF STORED OUTDOORS
FABRICATED PIPE SUPPORT HARDWARE	HOT DIP GALVANIZED	IF ITEM IS NOT AVAILABLE IN HDG ITEM WILL BE ZINC PLATED
CAST PIPE SUPPORT HARDWARE	NONE	DUCTILE IRON, WILL HAVE SURFACE RUST
PIPE SUPPORT STEEL	PRIMER	PER 4505-1, HIGH TEMP
SILO AREA AUX STEEL	PRIMER	PER 4505-1, LOW TEMP

SUPPORT SYMBOLS

2D DRAWINGS (PLAN)	2D DRAWINGS (ELEV)	3D MODEL	ISOMETRIC	SYMBOL LEGEND
				ANCHOR SUPPORT - TO PREVENT MOVEMENT IN ANY DIRECTION.
				GUIDE SUPPORT - TO SUPPORT WEIGHT OF PIPE AND PREVENT LATERAL MOVEMENT (¼" GAP UN)
				PLAIN SUPPORT - TO SUPPORT WEIGHT OF PIPE FROM BELOW.
			SEE PLAIN SUPPORT	ROD HANGER - TO SUPPORT WEIGHT OF PIPE FROM ABOVE.
				ROLLER SUPPORT - TO SUPPORT WEIGHT OF PIPE FROM BELOW AND PREVENT FRICTION ALONG THE LENGTH OF THE PIPE.
				SPRING HANGER - TO SUPPORT WEIGHT OF PIPE FROM ABOVE AND ACCOMMODATE VERTICAL/LATERAL MOVEMENT.
				LINE STOP - TO PREVENT MOVEMENT ALONG THE PIPE AXIS.

SAFETY NOTE:
REFER TO UCC DOCUMENT NO. 721005 LOCATED IN THE UCC O&M MANUAL, "SYSTEMS AND EQUIPMENT SAFETY INSTRUCTIONS", FOR IMPORTANT SAFETY CONSIDERATIONS WHEN PERSONNEL ARE NEAR THE SYSTEM EQUIPMENT FOR ANY REASON.

NOTES

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
0	ISSUED FOR CONSTRUCTION	02/14/2025	DSK			

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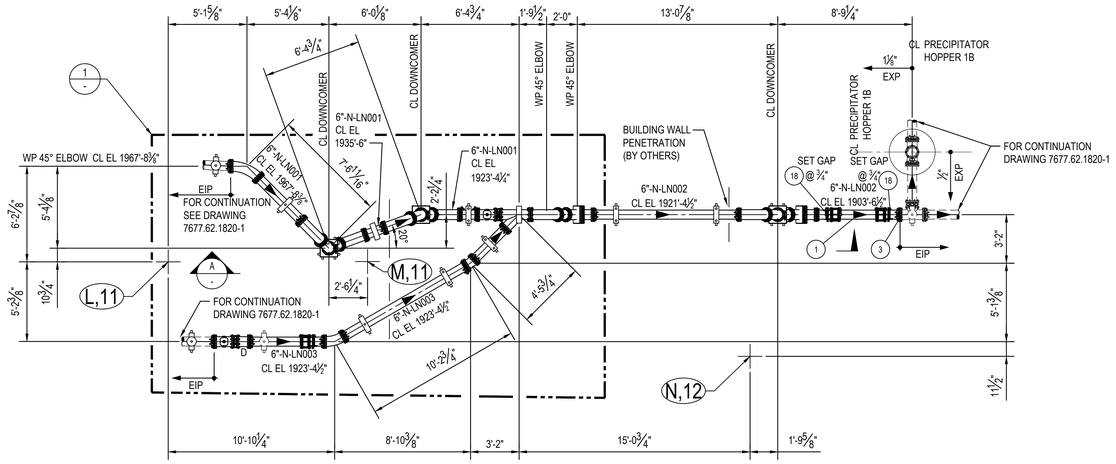
SCALE	NONE	DRAWING SIZE	5

DRAWING TITLE
GENERAL NOTES AND REFERENCE DRAWINGS
PIPE SUPPORTS

PLANT NAME
HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER	REVISION
C-55650-05-002	0



PLAN "A"

BILL OF MATERIALS				
ID	DWG NO	PART NO	QTY	DESCRIPTION
1		174003	90'-0"	6" NUVALOY PIPE PE
2		174005	162'-0"	8" NUVALOY PIPE PE
3	2-1701-4015	1701-4015-3	25	6" B NUV-BEV CONNECTION LT ZP
4	3-1701-4020	1701-4020-3Y	1	6" AA NUV-NUV LOCKING CONNECTION LT ZP
5	2-1701-3117	1701-3117-2-69L	3	6" 69 BEV-KNIFE GATE-BEV CONNECTION
6	2-1701-467, 474	1701-469-19L	10	6" 19 BEV-BEV CONNECTION LT ZP
7	2-1701-467, 474	1701-471-19L	4	8" 19 BEV-BEV CONNECTION LT ZP
8	3-1701-4020	1701-4020-5Y	4	8" AA NUV-NUV LOCKING CONNECTION LT ZP
9	2-1701-291,296	1701-295	1	8" NUV-150#/STL (LOCKING) CONNECTION ZP
10	2-1701-4015	1701-4015-5	14	8" B NUV-BEV CONNECTION LT ZP
11	SK-1710-7	17036	1	6" 15° DURITE ELBOW LONG RADIUS SOLID
12	SK-1710-175	170561	15	6" 45° DURITE ELBOW SLUICE
13	SK-1710-174	170560	1	6" 30° DURITE ELBOW SOLID
14	SK-1938	170130	10	8" 45° DURITE ELBOW SLUICE
15	SK-1711-23	170502	1	6" DURITE LATERAL SOLID
16	SK-1716-19, 40	171643	1	8" X 6" DURITE REDUCER 1'-5 3/4" LONG
17	4-1730-116,123	1730-118-1	2	6" NUVALOY EXPANSION JOINT EXT W/ STOP
18	4-1730-116,123	1730-118	3	6" NUVALOY EXPANSION JOINT SS WITH STOP
19		174106-90	1	6" DURITE PIPE BE 0'-8 3/4" LG
20		174106-100	1	6" DURITE PIPE BE 0'-9 3/4" LG
21	4-1730-116,123	1730-120	6	8" NUVALOY EXPANSION JOINT SS WITH STOP
22	2-170076	170076	1	6" X 6" X 6" OUTLET TEE W/BE
23	SK-1715-57,59	1715-59-1	2	6" DURITE HAND HOLE EXTENDED W/2" NPT PLUG
24		REFERENCE	2	6" 40D KNIFE GATE CYLINDER OPERATOR
25		REFERENCE	1	6" EXISTING RELOCATED KNIFE GATE

NOTES

1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE DRAWING C-55650-05-001 AND C-55650-05-002.
2. BILL OF MATERIAL INCLUDES MATERIAL SHOWN ON DRAWINGS C-55650-05-003 & C-55650-05-004.
3. SUPPORT LOCATIONS SHOWN ARE APPROXIMATE. ACTUAL LOCATIONS MAY VARY UP TO ±1'-0" FROM LOCATIONS INDICATED. SEE SUPPORT DETAIL DRAWINGS FOR FINAL LOCATION.
4. FOR PIPE SUPPORT LOADS, SEE DOCUMENT CL-55650-05-001, CL-55650-05-002, & CL-55650-05-003.
5. DIMENSIONS OF EXISTING STRUCTURES, EQUIPMENT AND PIPING ON THIS DRAWING ARE BASED ON LASER SCANS DATED 10/05/2024 AND MAY DIFFER FROM EARLIER DRAWINGS. IN THE CASE OF CONFLICTING DIMENSIONS, THE LASER SCANS SHALL GOVERN.
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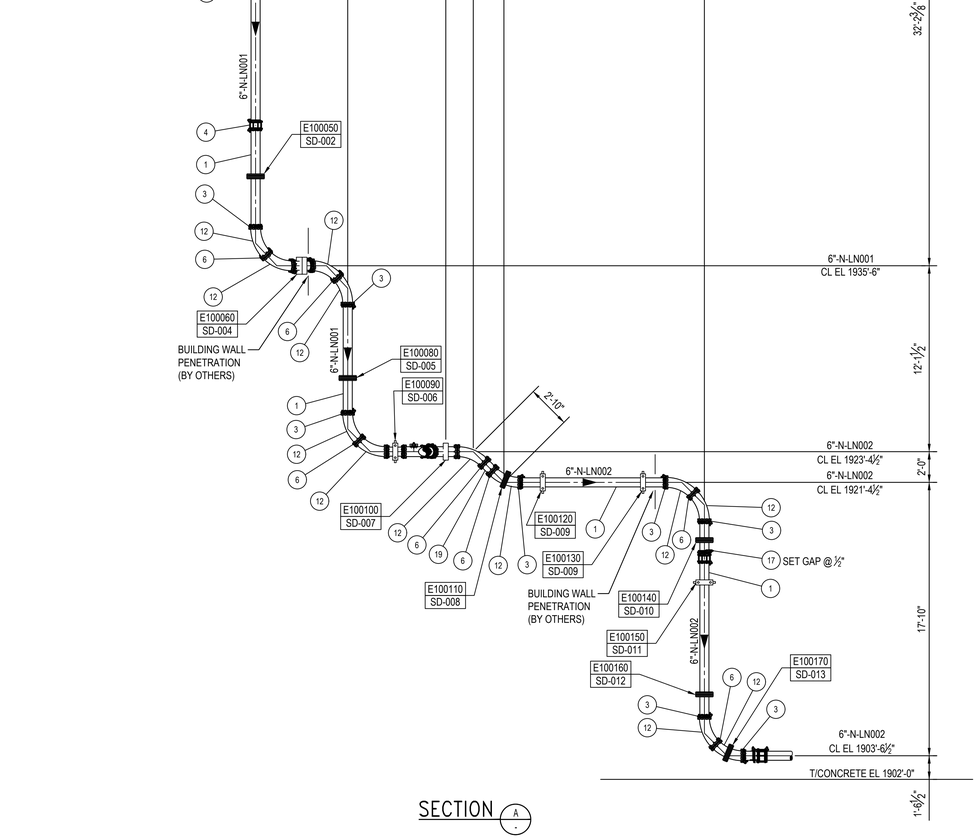
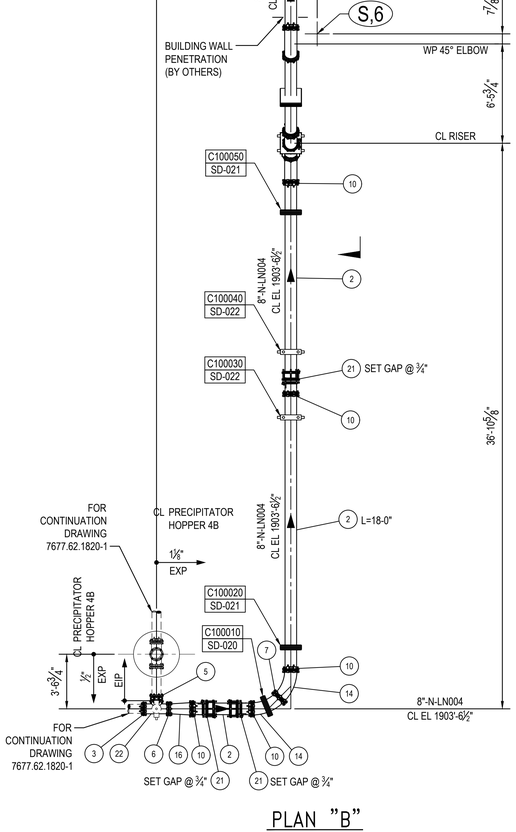
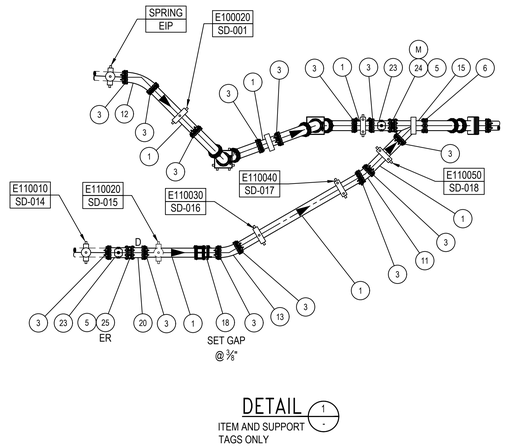


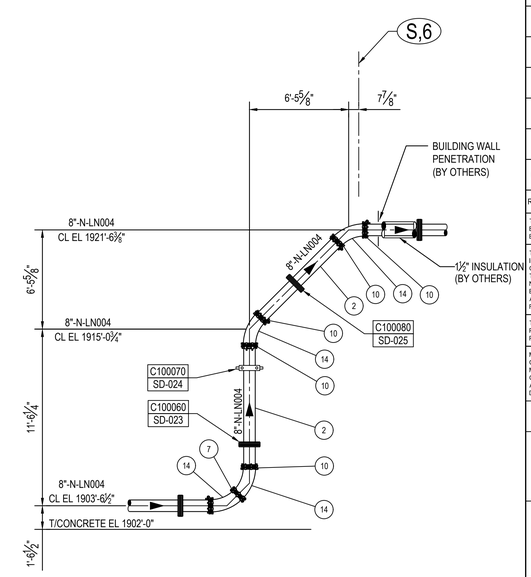
SECTION A



PLAN "B"



DETAIL 1
ITEM AND SUPPORT TAGS ONLY



SECTION B

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
0	ISSUED FOR CONSTRUCTION	02/14/2025	DSK			

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SCALE	1/4"-1'-0"	DRAWING SIZE	5

DRAWING TITLE

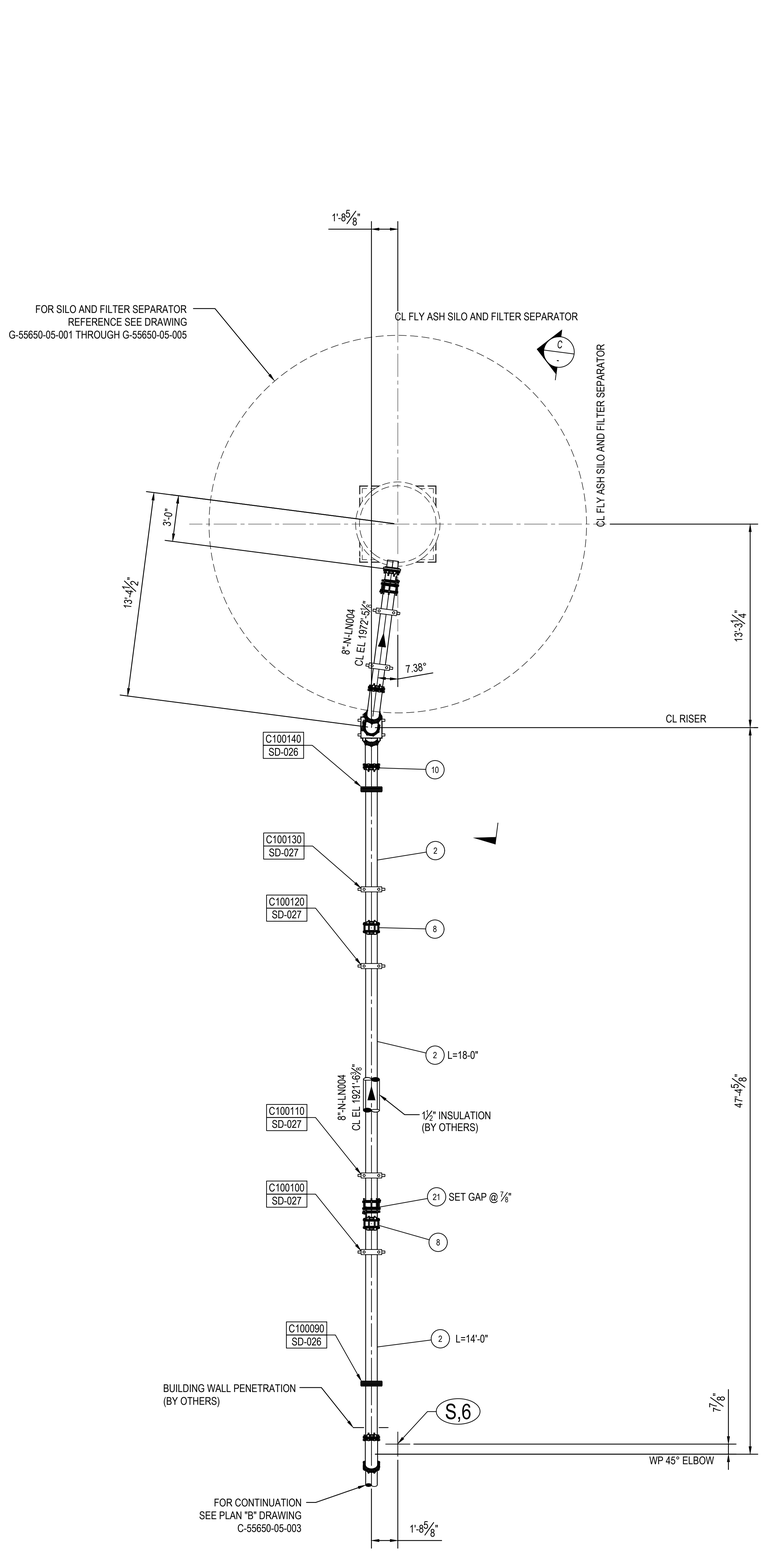
PLAN, SECTION AND DETAIL
FLY ASH NUVEYOR® VACUUM SYSTEM
HOPPER AREA
UNIT 1

PLANT NAME

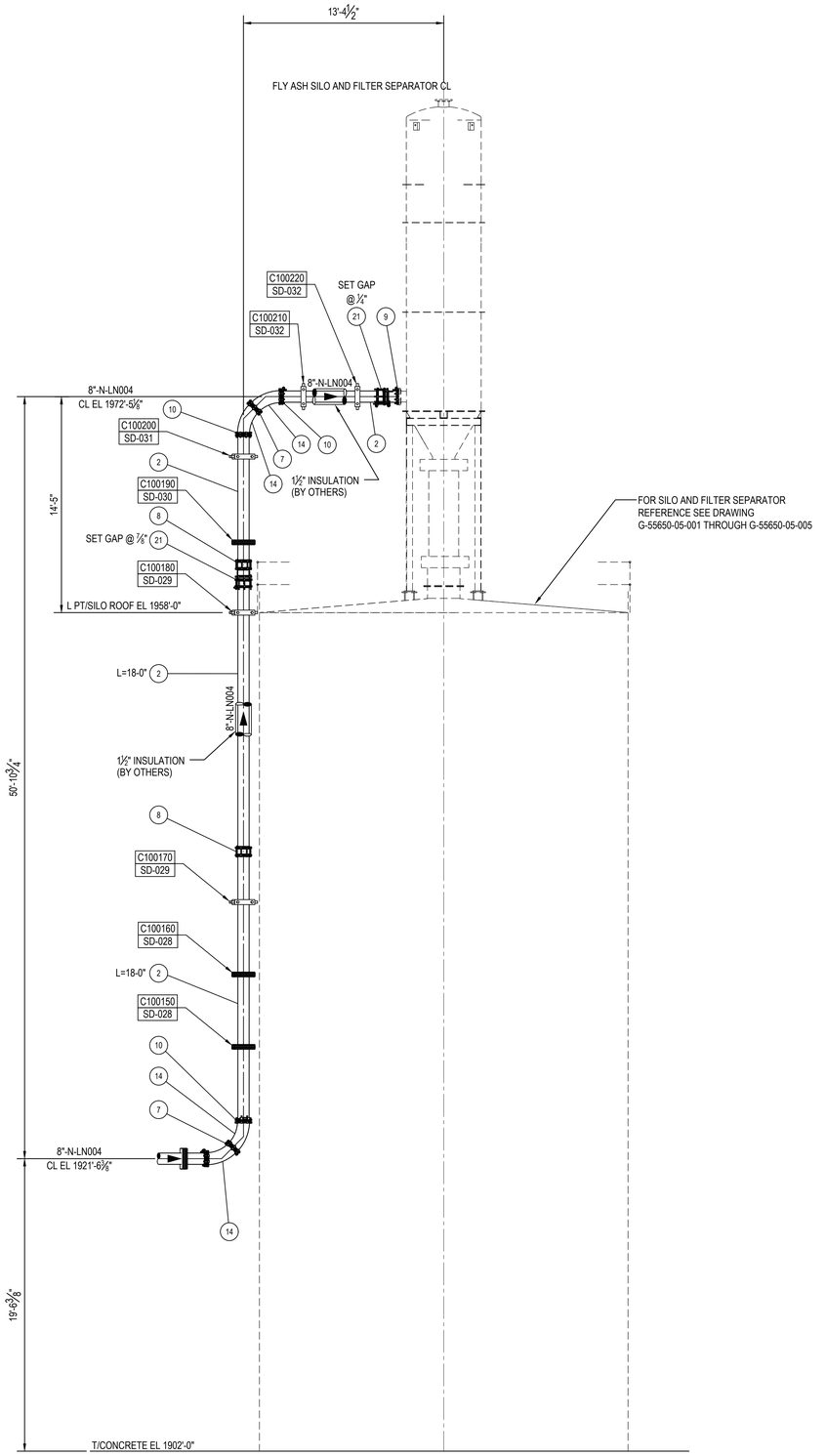
HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER	REVISION
C-55650-05-003	0



PLAN "C"



SECTION C

NOTES

1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE DRAWING C-55650-05-001 AND C-55650-05-002.
2. FOR BILL OF MATERIAL SEE DRAWING C-55650-05-003.
3. SUPPORT LOCATIONS SHOWN ARE APPROXIMATE. ACTUAL LOCATIONS MAY VARY UP TO ±1'-0" FROM LOCATIONS INDICATED. SEE SUPPORT DETAIL DRAWINGS FOR FINAL LOCATION.
4. FOR PIPE SUPPORT LOADS, SEE DOCUMENT CL-55650-05-003.
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REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
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SCALE	1/4"-1'-0"	DRAWING SIZE	5

DRAWING TITLE

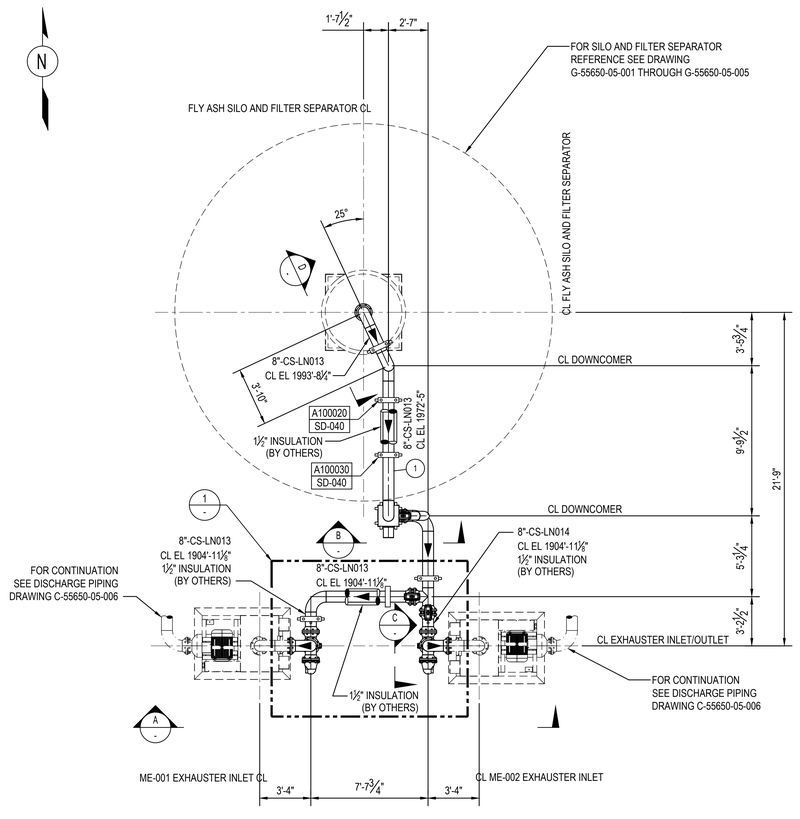
PLAN, SECTION AND DETAIL
FLY ASH NUVEYOR® VACUUM SYSTEM
HOPPER AREA
UNIT 1

PLANT NAME

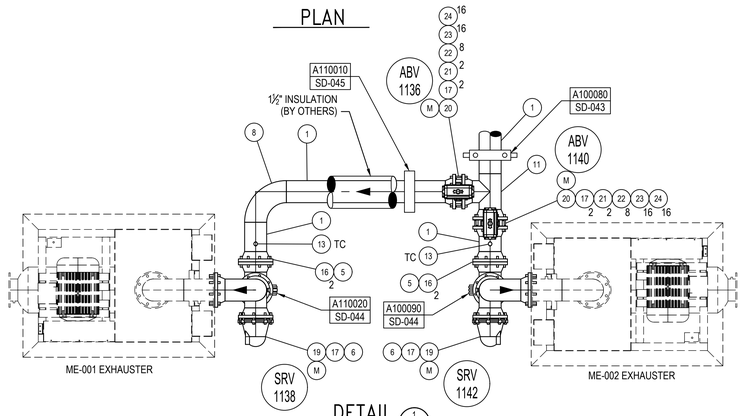
HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER	REVISION
C-55650-05-004	0

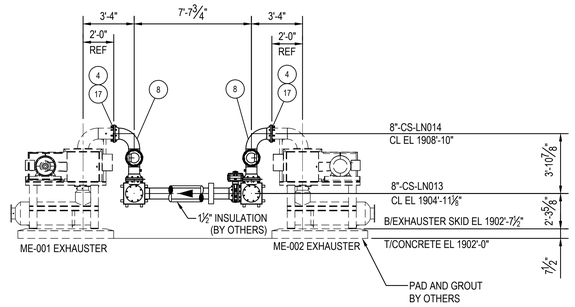


PLAN

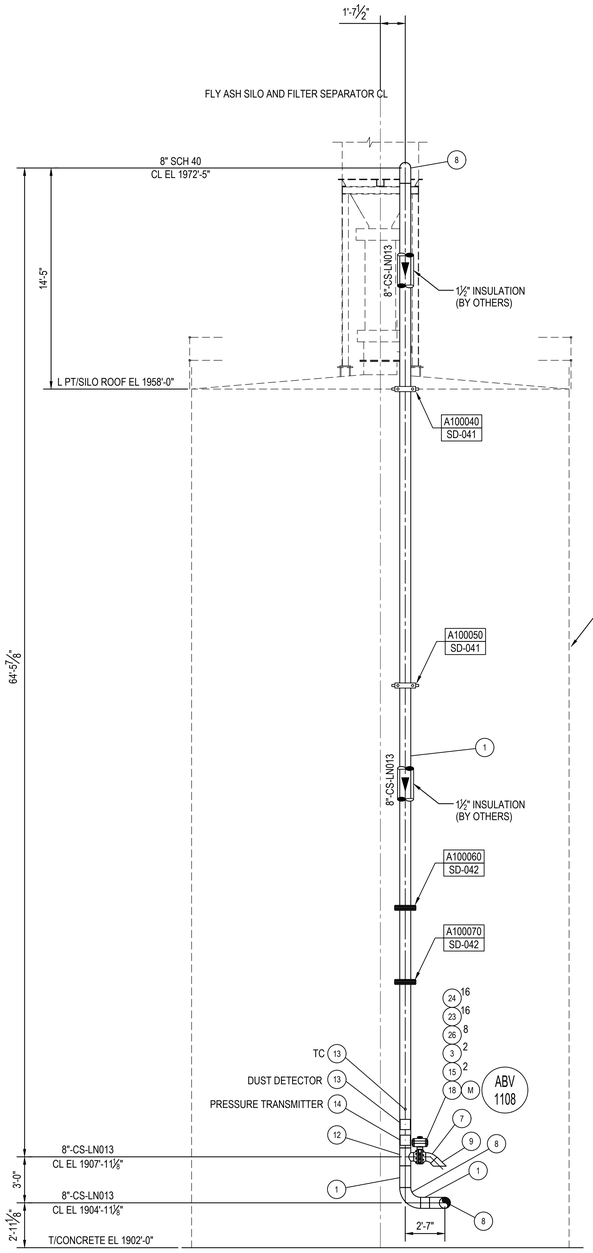


DETAIL 1

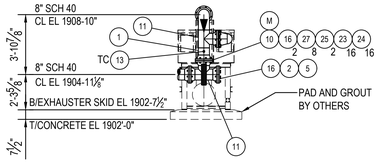
SCALE: ½" = 1'-0"
ITEM AND SUPPORT
TAGS ONLY



SECTION A

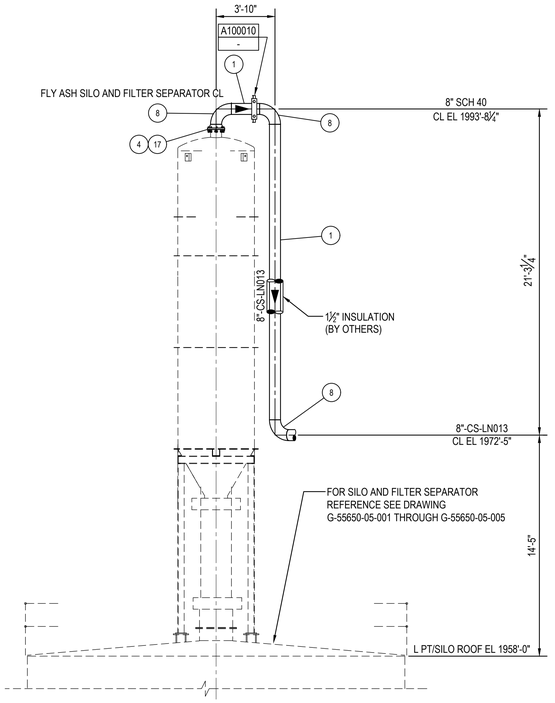


SECTION B



SECTION C

TYP (2) PLACES
ONE AS SHOWN
ONE OPPOSITE HAND



SECTION D

BILL OF MATERIALS

ID	DWG NO	PART NO	QTY	DESCRIPTION
1		179219-080-40	110'-0"	8" SCH 40 PIPE CS A53 GR B DR
2		171897-080	2	8" 150# RF BLIND FLG A105
3		408723-5	2	6" 150# FULL FACE GASKET
4	2-1701-1170	1701-1170-5J	3	8" 150#/STL-150#/STL CONNECTION
5	2-1701-1170	1701-1170-5R	6	8" 150#/STL-150#/STL CONNECTION
6	2-1701-318,327	1701-324-3L	2	8" 3 BEV-150#,STL CONN
7		171049-060-39	1	6" 90° SCH 40 LR ELBOW A234
8		171049-080-39	9	8" 90° SCH 40 LR ELBOW A234
9	2-326216	326216-6	1	6" BIRD SCREEN - SLIP ON PIPE SLEEVE
10		REFERENCE	2	8" WIRE BASKET STRAINER FOR 150# FLANGE
11		171268-08008004	5	8" SCH 40 STR TEE A234
12		171268-08006004	1	8" X 6" SCH 40 RED TEE A234
13		176062-080-010	6	8" x 1" 3000# THREDOLET A105
14		176062-080-020	1	8" x 2" 3000# THREDOLET A105
15		176778-060-40-2-1	2	6" 150# FF WN SCH 40 FLG A105
16		176778-080-40-1-1	10	8" 150# RF WN SCH 40 FLG A105
17		176778-080-40-2-1	9	8" 150# FF WN SCH 40 FLG A105
18		REFERENCE	1	6" BRAY BUTTERFLY VALVE A/C OPERATED
19		REFERENCE	2	8" RELIEF VALVE
20		REFERENCE	2	8" BRAY BUTTERFLY VALVE A/C OPERATED
21		408723-6	4	8" 150# FULL FACE GASKET
22		462026-07-750	16	3/4" X 7 1/2" LG FULL THRD STUD A193
23		460234-750	80	3/4" - 10 HEAVY HEX NUT A194
24		463003-18	80	3/4" - SAE WASHER
25		408888-080	2	8" 150# RING GASKET
26		462026-07-700	8	3/4" X 7" LG FULL THRD STUD A193
27		462026-07-550	16	3/4" X 5 1/2" LG FULL THRD STUD A193

NOTES

1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE DRAWING C-55650-05-001 AND C-55650-05-002.
2. SUPPORT LOCATIONS SHOWN ARE APPROXIMATE. ACTUAL LOCATIONS MAY VARY UP TO ±1'-0" FROM LOCATIONS INDICATED. SEE SUPPORT DETAIL DRAWINGS FOR FINAL LOCATION.
3. FOR PIPE SUPPORT LOADS, SEE DOCUMENT CL-55650-05-004.
4. DIMENSIONS OF EXISTING STRUCTURES, EQUIPMENT AND PIPING ON THIS DRAWING ARE BASED ON LASER SCANS DATED 10/05/2024 AND MAY DIFFER FROM EARLIER DRAWINGS. IN THE CASE OF CONFLICTING DIMENSIONS, THE LASER SCANS SHALL GOVERN.
5. LASER SCANNING PROVIDES AN ACCURATE REPRESENTATION OF THE SITE CONDITIONS AT THE TIME OF THE SCAN. LOCATIONS OF CRITICAL DESIGN POINTS (HOPPER OUTLETS, DUCT CONNECTIONS, BOILER INTERFACES, ETC.) WHOSE LASER SCANNED LOCATIONS ARE AFFECTED BY TEMPERATURE MAY NEED TO BE FIELD VERIFIED.

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
0	ISSUED FOR CONSTRUCTION	02/14/2025	DSK			

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SCALE	1/4"-1'-0"	DRAWING SIZE	5

DRAWING TITLE

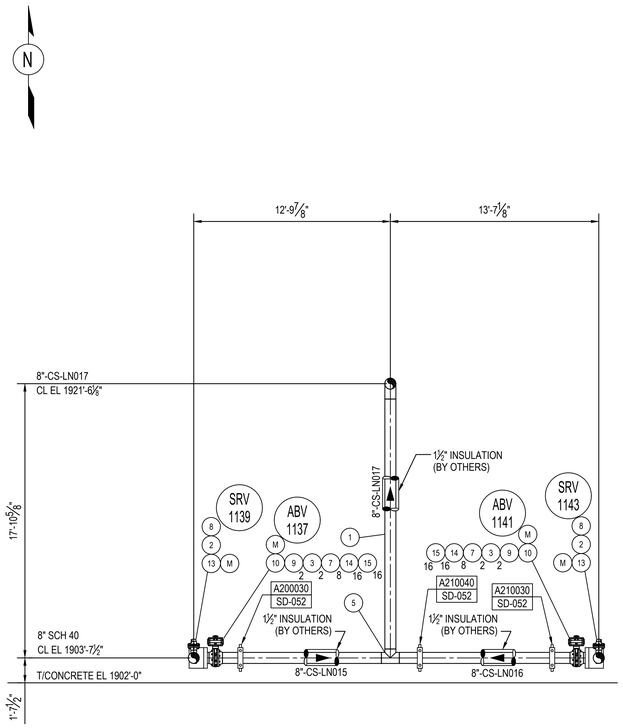
PLAN, SECTION AND DETAIL
FLY ASH AIR VACUUM SYSTEM
FILTER SEPARATOR TO EXHAUSTERS
UNIT 1

PLANT NAME

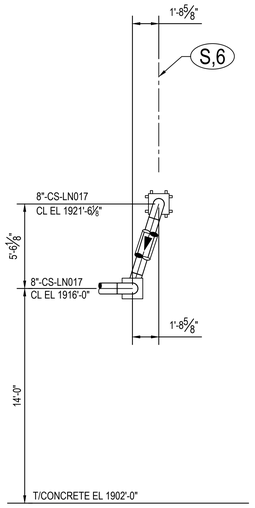
HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

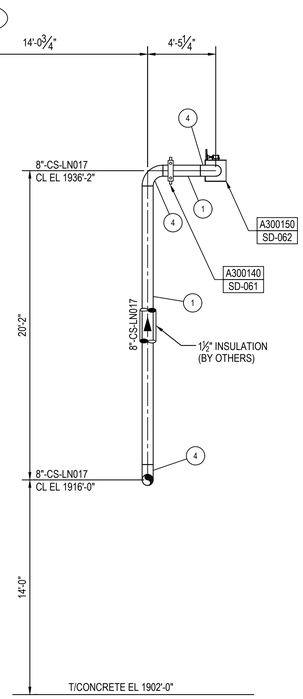
DRAWING NUMBER	REVISION
C-55650-05-005	0



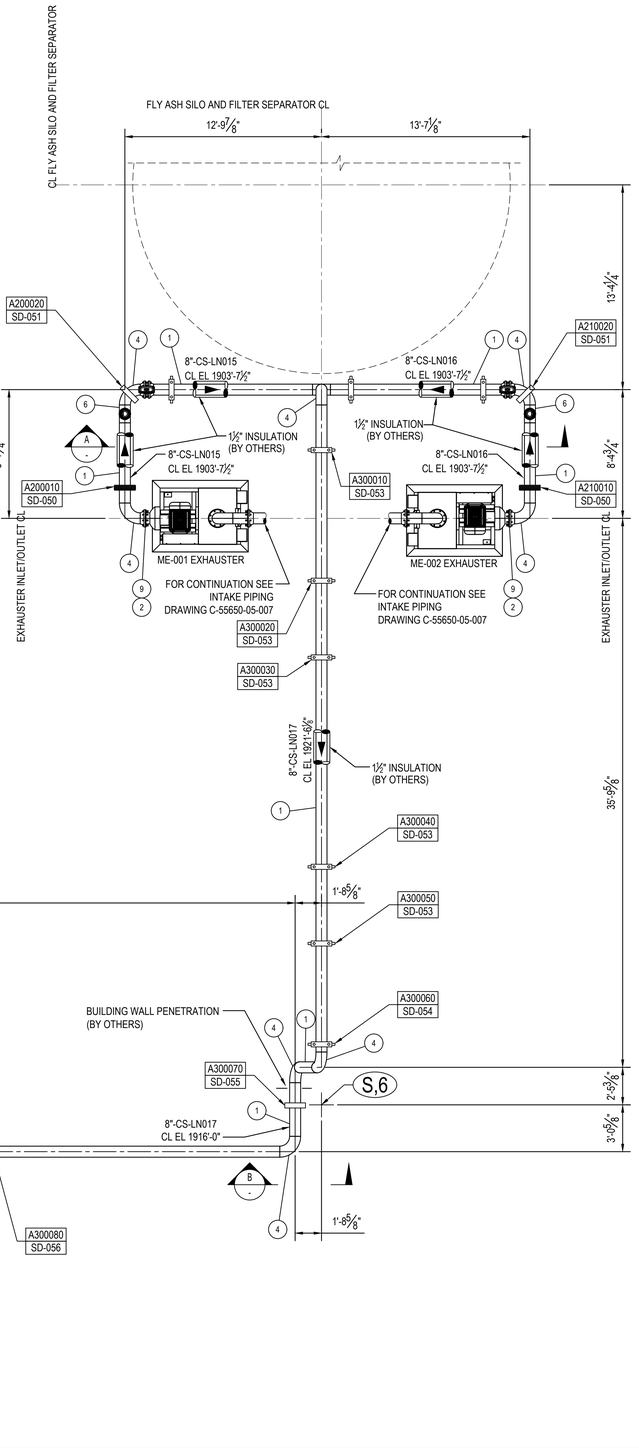
SECTION A

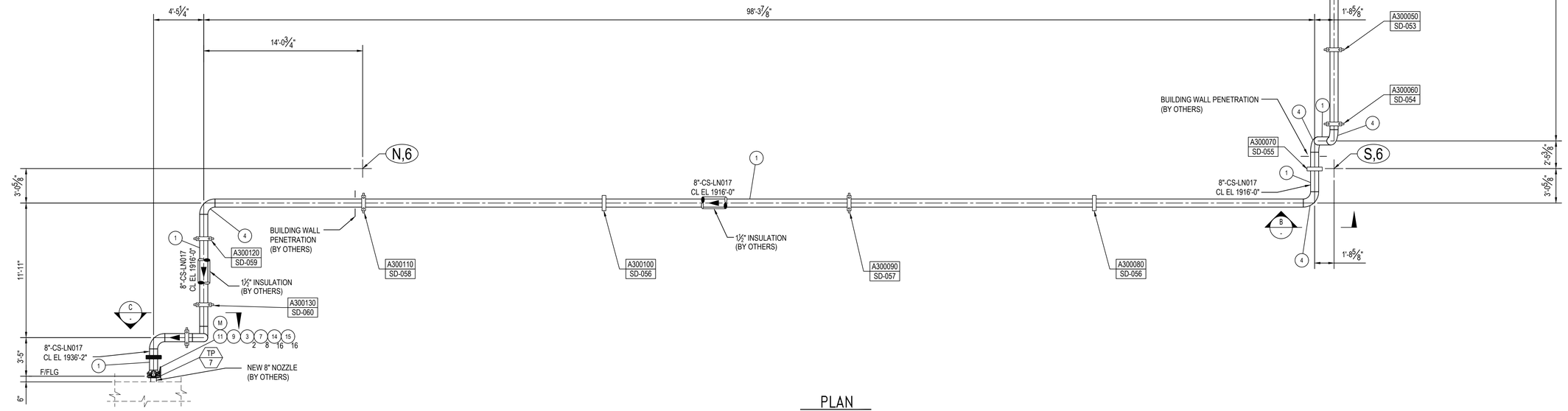


SECTION B



SECTION C





PLAN

BILL OF MATERIALS

ID	DWG NO	PART NO	QTY	DESCRIPTION
1		179219-080-40	240'-0"	8" SCH 40 PIPE CS A53 GR B DR
2		1701-320-3L	2	4" 3 BEV-150#,STL CONN
3		408723-6	6	8" 150# FULL FACE GASKET
4		171049-080-39	12	8" 90° SCH 40 LR ELBOW A234
5		171268-08008004	1	8" SCH 40 STR TEE A234
6		171268-08004004	2	8" X 4" SCH 40 RED TEE A234
7		462026-07-750	24	3/4" X 7 1/2" LG FULL THRD STUD A193
8		176778-040-40-1-1	2	4" 150# RF WN SCH 40 FLG A105
9		176778-080-40-2-1	7	8" 150# FF WN SCH 40 FLG A105
10		REFERENCE	2	8" BRAY SERIES 40 BUTTERFLY VALVE A/C OPERATED
11		REFERENCE	2	8" MANUAL BUTTERFLY VALVE
13		REFERENCE	2	4" RELIEF VALVE
14		460234-750	48	3/4" - 10 HEAVY HEX NUT A194
15		463003-18	48	3/4" - SAE WASHER

NOTES

1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE DRAWING C-55650-05-001 AND C-55650-05-002.
2. SUPPORT LOCATIONS SHOWN ARE APPROXIMATE. ACTUAL LOCATIONS MAY VARY UP TO ±1'-0" FROM LOCATIONS INDICATED. SEE SUPPORT DETAIL DRAWINGS FOR FINAL LOCATION.
3. FOR PIPE SUPPORT LOADS, SEE DOCUMENT CL-55650-05-005.
4. DIMENSIONS OF EXISTING STRUCTURES, EQUIPMENT AND PIPING ON THIS DRAWING ARE BASED ON LASER SCANS DATED 10/05/2024 AND MAY DIFFER FROM EARLIER DRAWINGS. IN THE CASE OF CONFLICTING DIMENSIONS, THE LASER SCANS SHALL GOVERN.
5. LASER SCANNING PROVIDES AN ACCURATE REPRESENTATION OF THE SITE CONDITIONS AT THE TIME OF THE SCAN. LOCATIONS OF CRITICAL DESIGN POINTS (HOPPER OUTLETS, DUCT CONNECTIONS, BOILER INTERFACES, ETC.) WHOSE LASER SCANNED LOCATIONS ARE AFFECTED BY TEMPERATURE MAY NEED TO BE FIELD VERIFIED.

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
0	ISSUED FOR CONSTRUCTION	02/14/2025	DSK			

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SCALE	1/4"-1'-0"	DRAWING SIZE	5

DRAWING TITLE

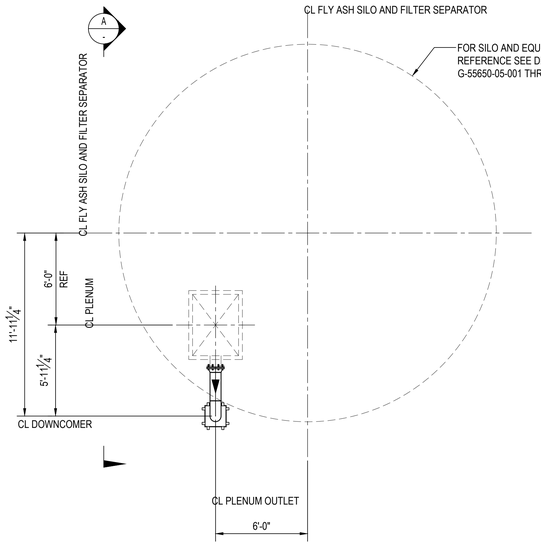
PLAN, SECTION AND DETAIL
FLY ASH AIR VACUUM SYSTEM
EXHAUSTERS DISCHARGE TO DUCT
UNIT 1

PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

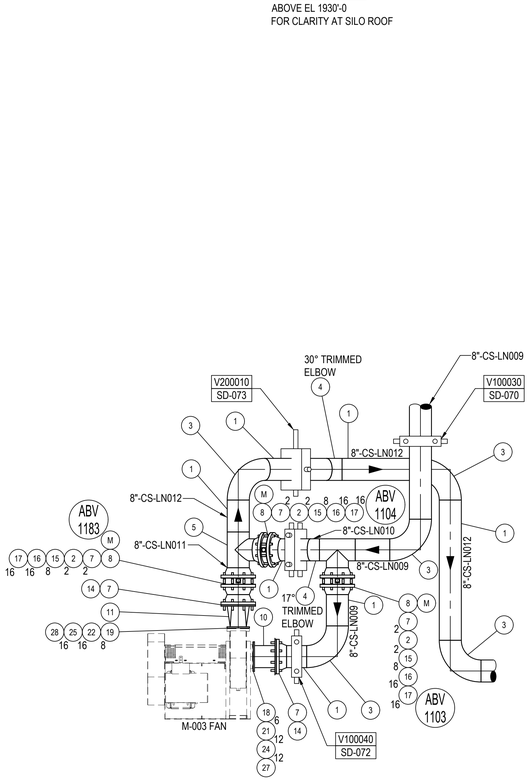
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER	REVISION
C-55650-05-006	0



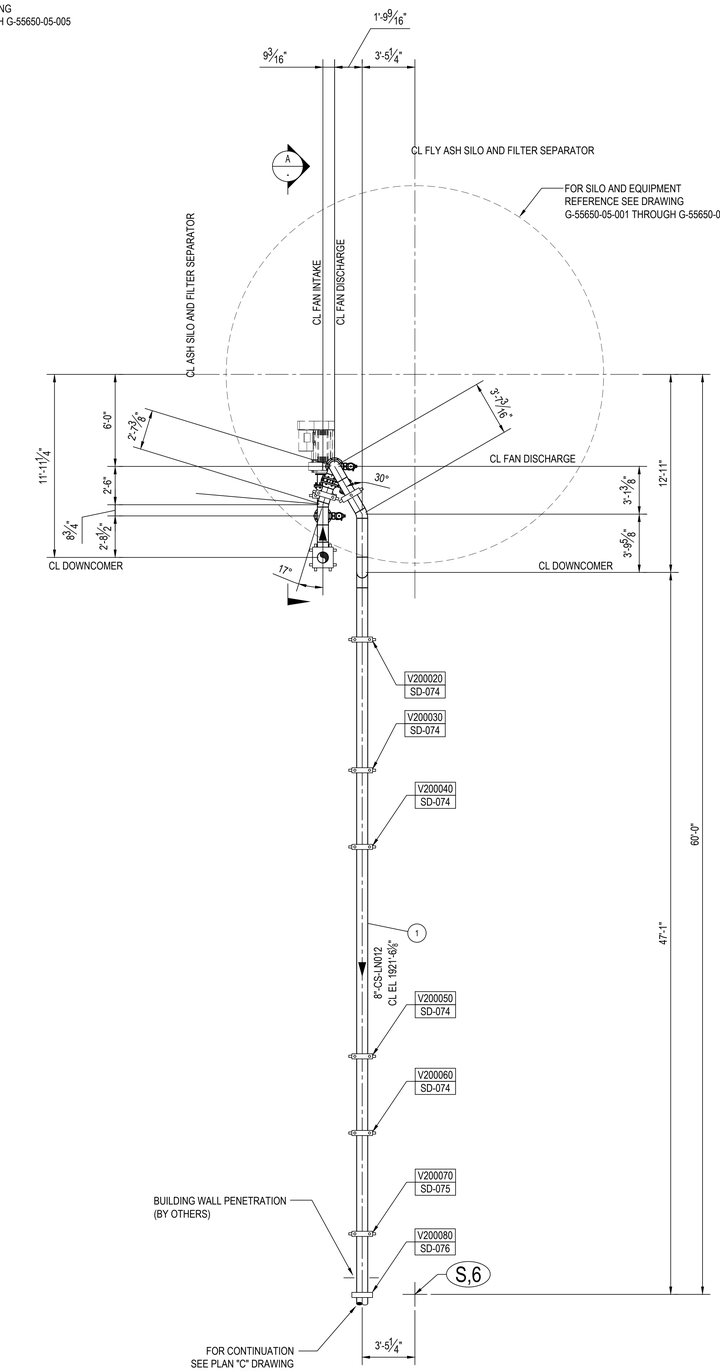
PLAN "A"

ABOVE EL 1930'-0
FOR CLARITY AT SILO ROOF



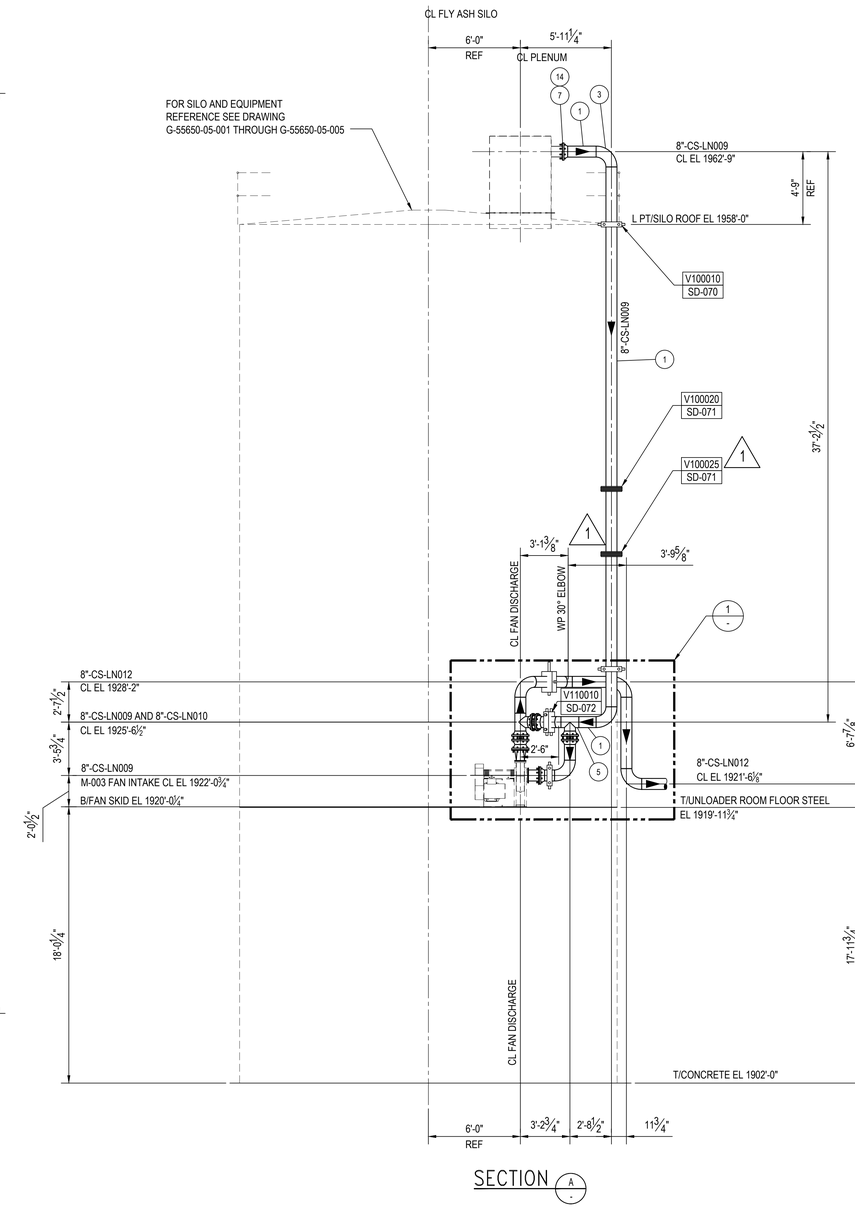
DETAIL 1

SCALE: ½" = 1'-0"
ITEM AND SUPPORT
TAGS ONLY



PLAN "B"

BELOW EL 1930'-0
SILO ROOF PIPING REMOVED FOR CLARITY



SECTION A

BILL OF MATERIALS

ID	DWG NO	PART NO	QTY	DESCRIPTION
1		179219-080-40	240'-0"	8" SCH 40 PIPE CS A53 GR B DR
2		408723-6	6	8" 150# FULL FACE GASKET
3		171049-080-39	13	8" 90° SCH 40 LR ELBOW A234
4		171050-080-40	2	8" 45° STD WT LR ELBOW A234
5		171268-08008004	2	8" SCH 40 STR TEE A234
6		176062-080-010	1	8" x 1" 3000# THREDOLET A105
7		176778-080-40-2-1	12	8" 150# FF WN SCH 40 FLG A105
8		REFERENCE	3	8" BRAY SERIES 40 BUTTERFLY VALVE A/C OPERATED
9		REFERENCE	1	8" MANUAL BUTTERFLY VALVE
10		C-55650-05-D001	1	8" 150# - VENT FAN INLET ADAPTOR
11		C-55650-05-D002	1	8" 150# - VENT FAN RECTANGULAR OUTLET ADAPTOR
12		C-55650-05-D003	2	8" 150# - DAMPER RECTANGULAR INLET/OUTLET ADAPTOR
13		REFERENCE	1	10" RADIAL VANE DAMPER
14	2-1701-1170	1701-1170-5J	5	8" 150#/STL-150#/STL CONNECTION
15		462026-07-750	32	3/4" X 7 1/2" LG FULL THRD STUD A193
16		460234-750	64	3/4" - 10 HEAVY HEX NUT A194
17		463003-18	64	3/4" - SAE WASHER
18		462026-02-300	6	5/16" X 3" LG FULL THRD STUD A193
19		462026-01-300	8	1/4" X 3" LG FULL THRD STUD A193
20		462026-03-300	32	3/8" X 3" LG FULL THRD STUD A193
21		460234-313	12	5/16" - 10 HEAVY HEX NUT A194
22		460234-250	16	1/4" - 10 HEAVY HEX NUT A194
23		460234-375	64	3/8" - 10 HEAVY HEX NUT A194
24		463003-7	12	5/16" - SAE WASHER
25		463003-5	16	1/4" - SAE WASHER
26		463003-9	64	3/8" - SAE WASHER
27		59999-04-002	1	FAN INLET GASKET
28		59999-04-003	1	FAN DISCHARGE GASKET
29		59999-04-004	2	DAMPER GASKET

NOTES

1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE DRAWING C-55650-05-001 AND C-55650-05-002.
2. BILL OF MATERIAL INCLUDES MATERIAL SHOWN ON DRAWINGS C-55650-05-007 & C-55650-05-008.
3. SUPPORT LOCATIONS SHOWN ARE APPROXIMATE. ACTUAL LOCATIONS MAY VARY UP TO ±1'-0" FROM LOCATIONS INDICATED. SEE SUPPORT DETAIL DRAWINGS FOR FINAL LOCATION.
4. FOR PIPE SUPPORT LOADS, SEE DOCUMENT CL-55650-05-006.
5. DIMENSIONS OF EXISTING STRUCTURES, EQUIPMENT AND PIPING ON THIS DRAWING ARE BASED ON LASER SCANS DATED 10/05/2024 AND MAY DIFFER FROM EARLIER DRAWINGS. IN THE CASE OF CONFLICTING DIMENSIONS, THE LASER SCANS SHALL GOVERN.
6. LASER SCANNING PROVIDES AN ACCURATE REPRESENTATION OF THE SITE CONDITIONS AT THE TIME OF THE SCAN. LOCATIONS OF CRITICAL DESIGN POINTS (HOPPER OUTLETS, DUCT CONNECTIONS, BOILER INTERFACES, ETC.) WHOSE LASER SCANNED

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
1	REVISED TO ADD SUPPORT SYMBOL AND TAG	03/20/2025	MWR			
0	ISSUED FOR CONSTRUCTION	02/14/2025	DSK	MWR	MWR	MY

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SCALE	1/4"-1'-0"	DRAWING SIZE	5

DRAWING TITLE

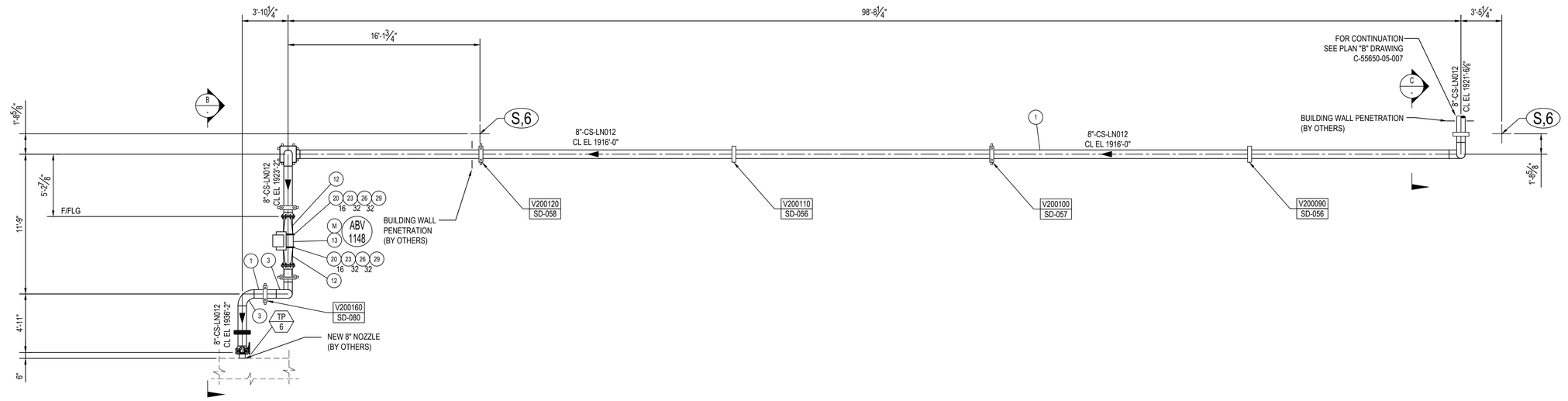
PLAN, SECTION AND DETAIL
SILO VENT PIPING
VENT FAN TO DUCT TIE-IN
UNIT 1

PLANT NAME

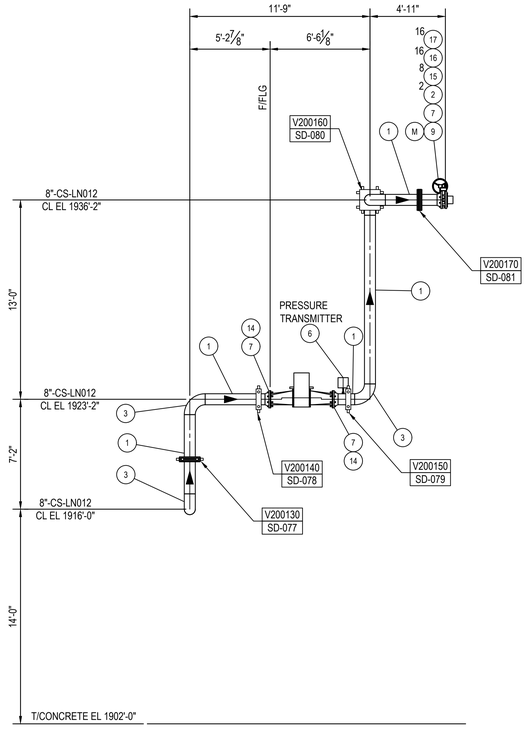
HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

ucc environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

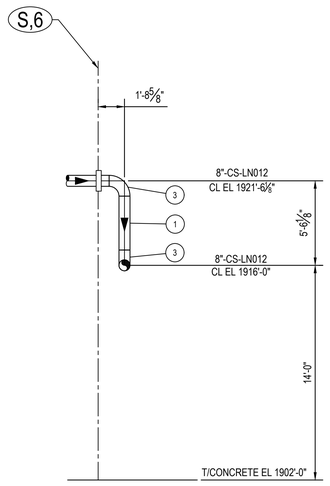
DRAWING NUMBER	REVISION
C-55650-05-007	1



PLAN "C"



SECTION B



SECTION C

NOTES

1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE DRAWING C-55650-05-001 AND C-55650-05-002.
2. FOR BILL OF MATERIAL SEE DRAWING C-55650-05-007.
3. SUPPORT LOCATIONS SHOWN ARE APPROXIMATE. ACTUAL LOCATIONS MAY VARY UP TO ±1'-0" FROM LOCATIONS INDICATED. SEE SUPPORT DETAIL DRAWINGS FOR FINAL LOCATION.
4. FOR PIPE SUPPORT LOADS, SEE DOCUMENT CL-55650-05-006.
5. DIMENSIONS OF EXISTING STRUCTURES, EQUIPMENT AND PIPING ON THIS DRAWING ARE BASED ON LASER SCANS DATED 10/05/2024 AND MAY DIFFER FROM EARLIER DRAWINGS. IN THE CASE OF CONFLICTING DIMENSIONS, THE LASER SCANS SHALL GOVERN.
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REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
0	ISSUED FOR CONSTRUCTION	02/14 2025	DSK			

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SCALE	1/4"-1'-0"	DRAWING SIZE	5

DRAWING TITLE

PLAN, SECTION AND DETAIL
SILO VENT PIPING
VENT FAN TO DUCT TIE-IN
UNIT 1

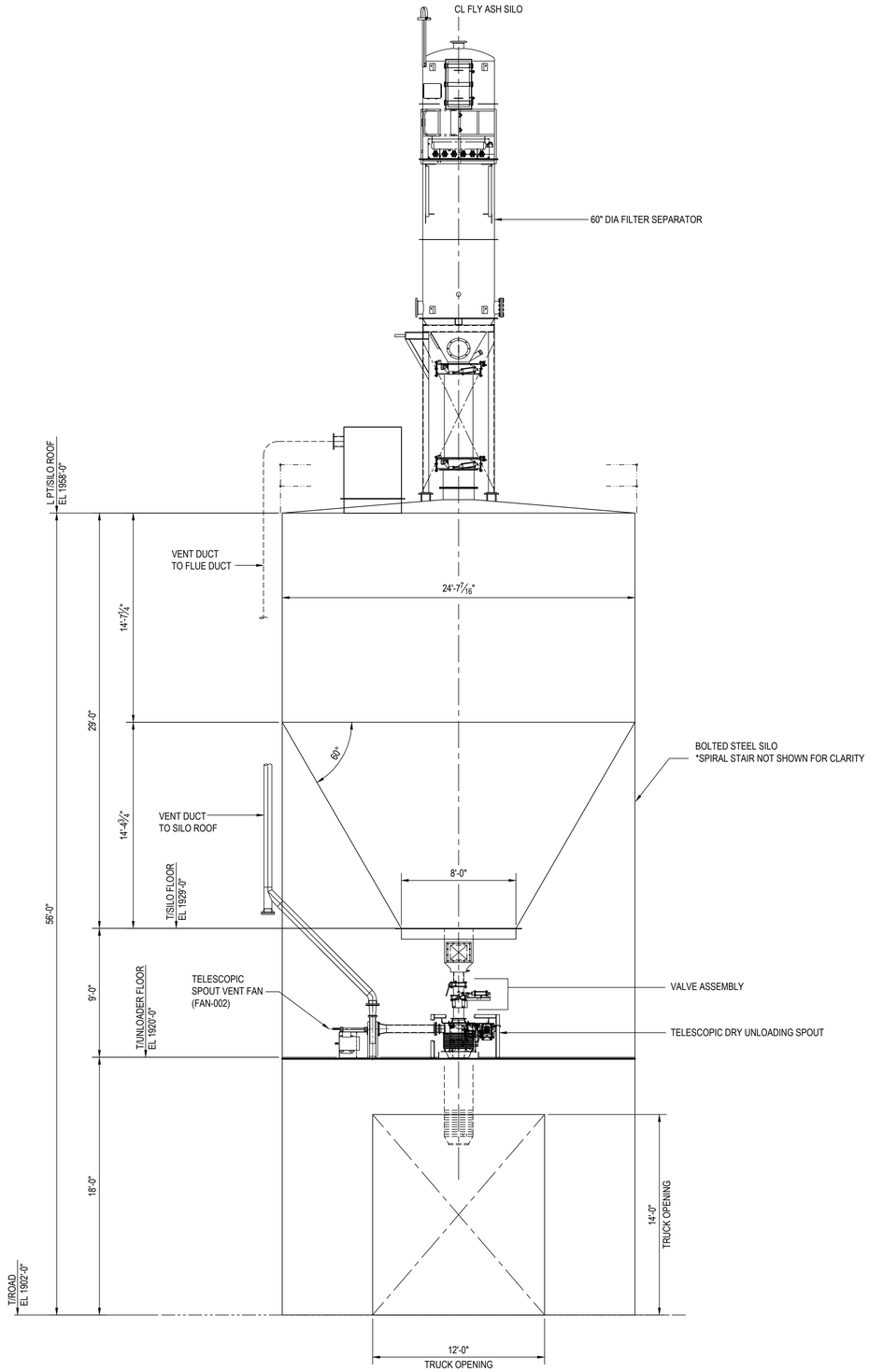
PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

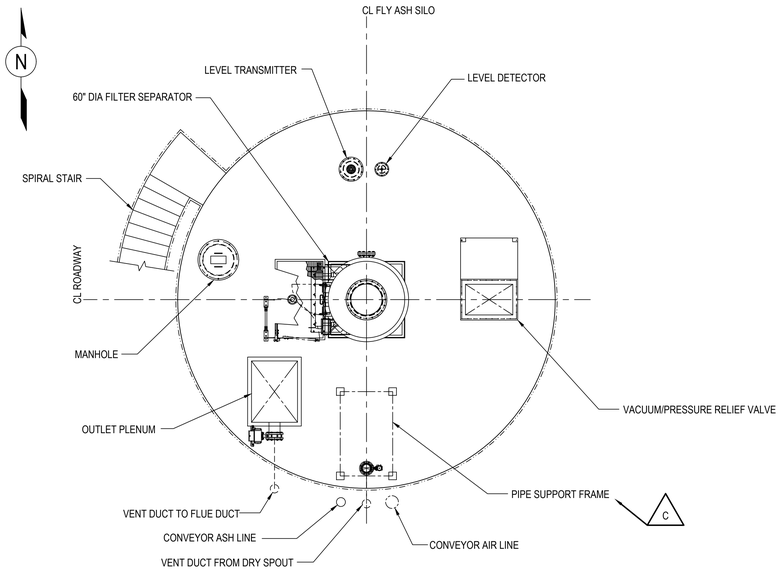
DRAWING NUMBER: C-55650-05-008

REVISION: 0

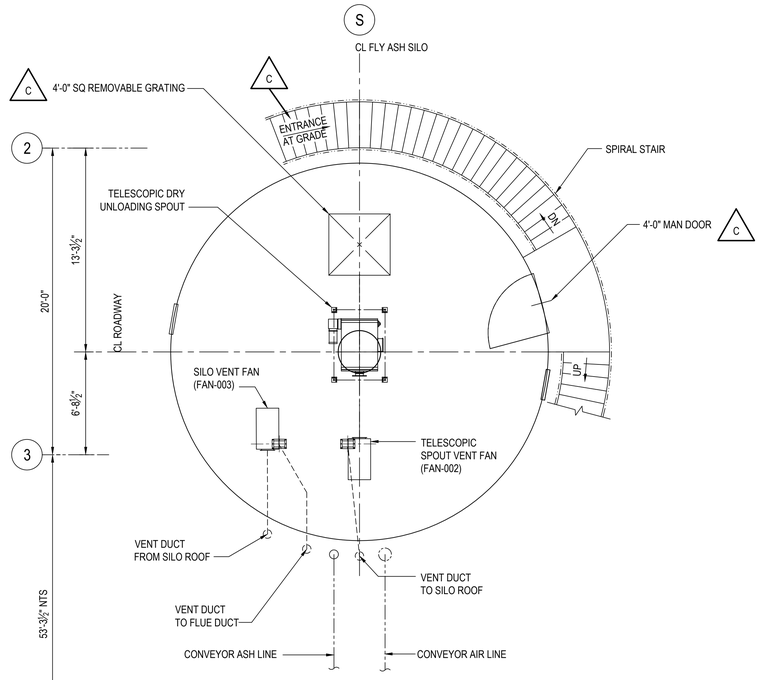


EAST ELEVATION

LOOKING WEST



ROOF PLAN



UNLOADER FLOOR PLAN

SILO FOUNDATION LOADS	
LOAD TYPE	TOTAL
DEAD	285 K
LIVE	73 K
MATERIAL	1555 K
WIND SHEAR	58 K
WIND OVERTURNING MOMENT	2850 K*FT
SEISMIC SHEAR	73 K
SEISMIC OVERTURNING MOMENT	3555 K*FT

NOTES:
1. LOADS ARE PRELIMINARY, NOT TO EXCEED
2. LOADS ARE UNFACTORED, WIND AND SEISMIC LOADS ARE AT STRENGTH LEVEL
3. LOADS ARE APPLIED AT THE BOTTOM OF BASE PLATE
4. VERTICAL LOADS (Y) ARE POSITIVE DOWNWARD
5. SHEAR LOADS (X/Z) ARE APPLIED IN THE DIRECTION OF THE EVENT
6. SILO IS DESIGNED FOR MATERIAL CONTENT DENSITY OF 110 PCF

NOTES

- FOR GENERAL NOTES REF DRAWING S-55650-05-001
- FOR DRAWING INDEX REF DRAWING S-55650-05-002
- FOR EQUIPMENT LOCATIONS & DETAILS REF DRAWINGS G-55650-05-002 THRU -005

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
C	ISSUED FOR USE	12/20/2024	CMB	CA		
B	GENERAL REVISION RE-ISSUED FOR APPROVAL	11/13/2024	CMB	CA	MJP	CDT
A	ISSUED FOR APPROVAL	10/15/2024	CMB	CA	MJP	MY

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SCALE	1/4"=1'-0"	DRAWING SIZE	5

DRAWING TITLE

GENERAL ARRANGEMENT OF FLY ASH SILO
UNIT 1

PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

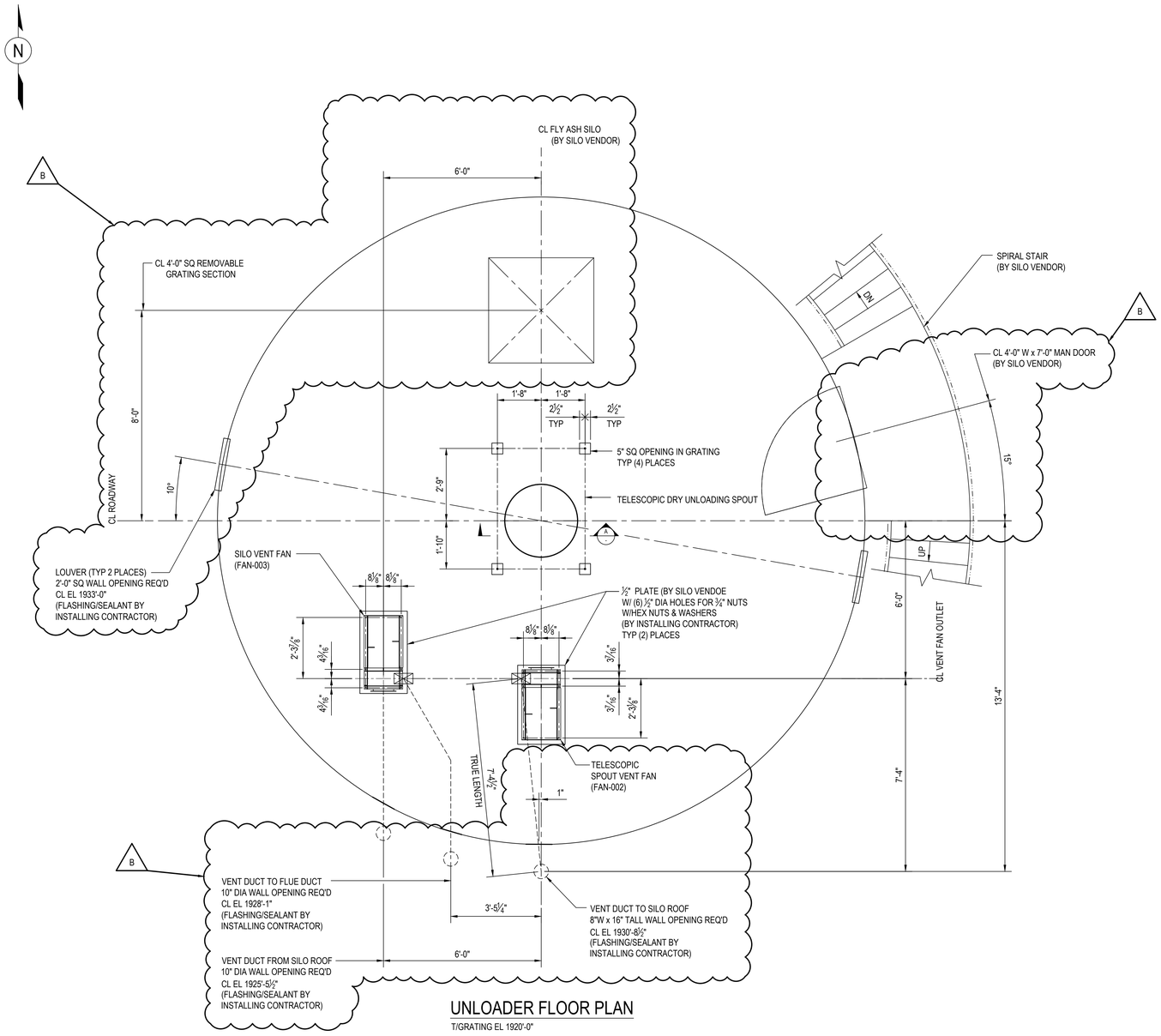
DRAWING NUMBER	REVISION
G-55650-05-001	C

BILL OF MATERIAL

ITEM* A-B-N G-05-002-	DRAWING NUMBER	PART NUMBER	QTY	DESCRIPTION
1	4-3811-10	3811-10-4	4	FLUIDIZING TRAY 12" X 24" (TYPE C)

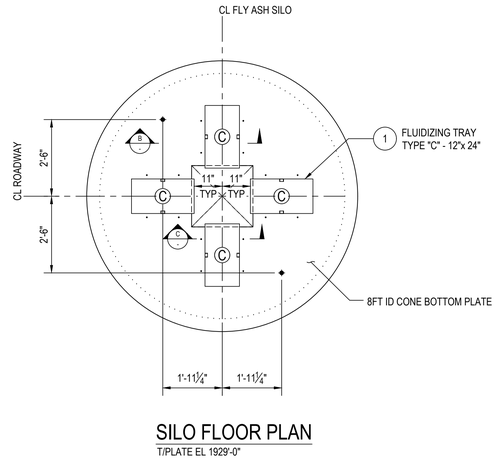
NOTES

- FOR GENERAL NOTES REF DRAWING S-55650-05-001
- FOR DRAWING INDEX REF DRAWING S-55650-05-002
- FOR GENERAL ARRANGEMENT REF DRAWING G-55650-05-001



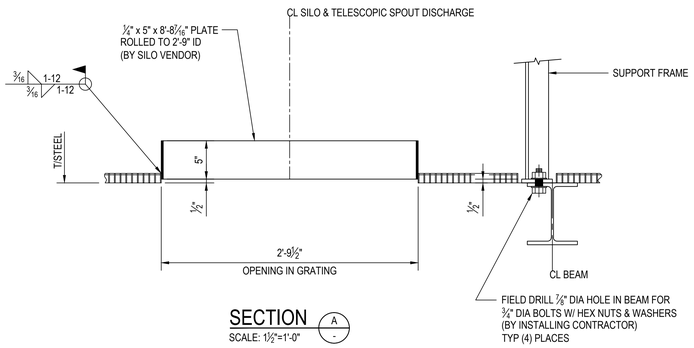
UNLOADER FLOOR PLAN

T/GRATING EL 1920'-0"



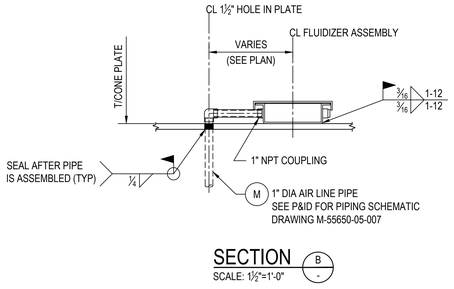
SILO FLOOR PLAN

T/PLATE EL 1929'-0"



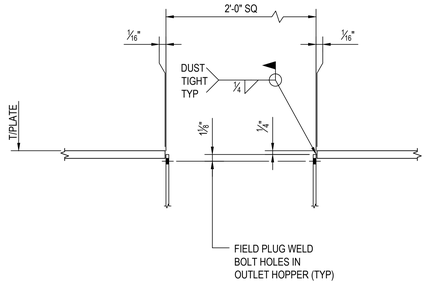
SECTION A

SCALE: 1½"=1'-0"



SECTION B

SCALE: 1½"=1'-0"



SECTION C

SCALE: 3"=1'-0"

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
B	ISSUED FOR USE	12/20 2024	CMB	CA		
A	ISSUED FOR APPROVAL	11/13 2024	CMB	CA	MJP	CDT

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SCALE	1/2"=1'-0"	DRAWING SIZE	5

DRAWING TITLE

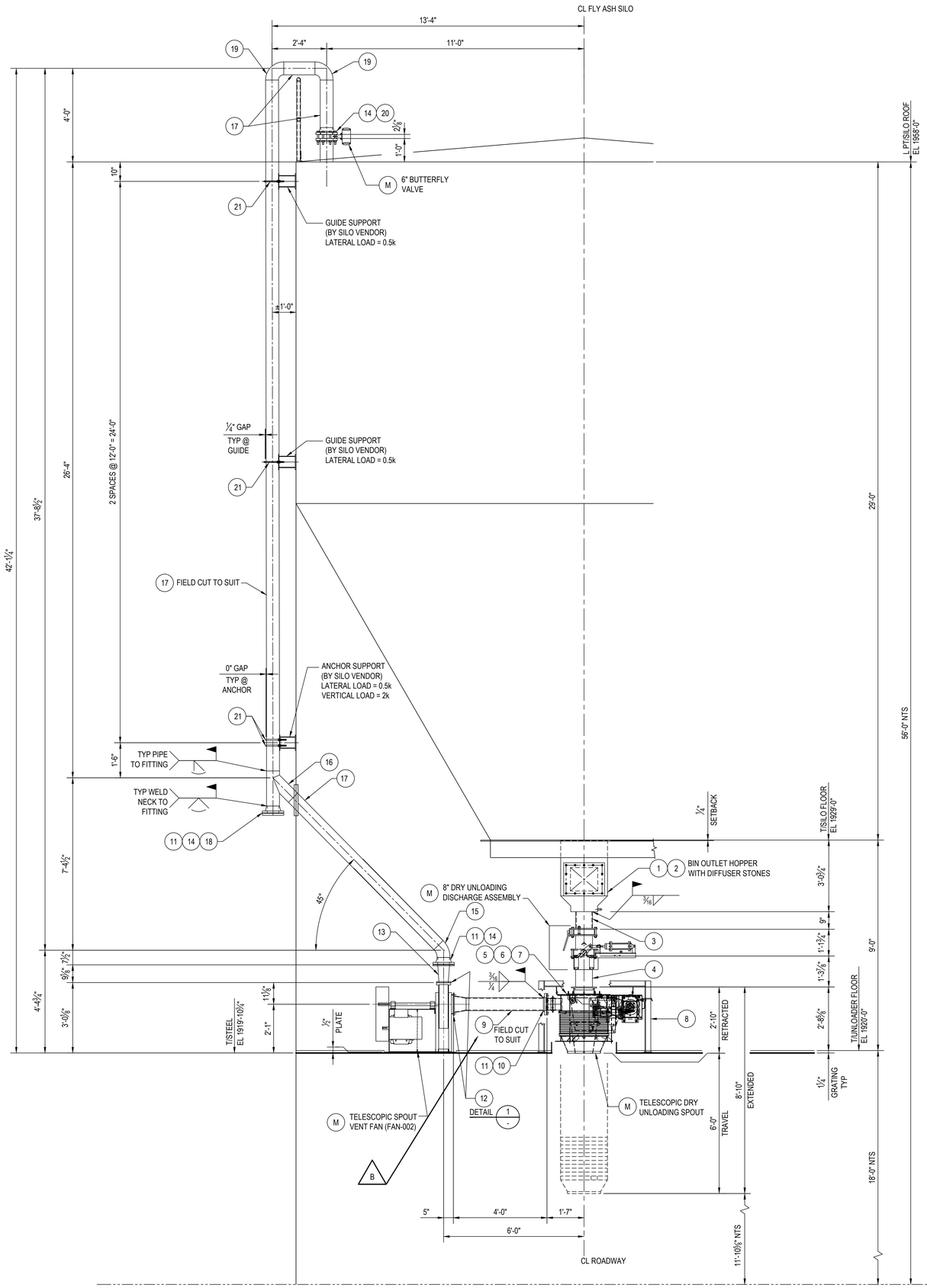
SILO FLOOR & UNLOADING FLOOR
EQUIPMENT PLANS & SECTIONS
UNIT 1

PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

UCC environmental
2100 NORBIAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER	REVISION
G-55650-05-002	B



PARTIAL SILO ELEVATION

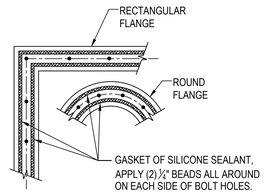
LOOKING WEST

BILL OF MATERIAL

ITEM A-B-N G-05-003-	DRAWING NUMBER	PART NUMBER	QTY	DESCRIPTION
1		23509-3400	1	BIN OUTLET HOPPER; DIM A= 34IN
2	2-2339-150	2339-150	1	DIFUSSER STONE ASSEMBLY
3		27341-00900	1	8" OUTLET ADAPTOR PIPE; DIM A = 9IN
4		27341-01800	1	8" OUTLET ADAPTOR PIPE; DIM A = 18IN
5	2-2414-81	2414-81	1	8" SPOUT INLET W/ EXPANSION JOINT
6		46301-375	8	3/8"-16 HEX NUTS
7		46255-8	8	3/8" PLAIN WASHERS
8		24363-37	1	TELESCOPIC SPOUT FRAME SUPPORT; DIM A = 37"
9	D-55650-05-001	55650-05-001	1	TELESCOPIC SPOUT FAN INLET ADAPTOR
10		171839-060	1	6-150# FLANGE SO, RF
11	2-1701-1170	1701-1170-3L	3	6" CONN 150# ANSI TO 1/2" PL FLANGE
12		45507-7	2	SILICONE SEALANT
13	D-55650-05-002	55650-05-002	1	TELESCOPIC SPOUT FAN OUTLET ADAPTOR
14		176778-060-30-1-1	3	6" ANSI WELD NECK, RF FLANGE
15		171050-060-40	1	6" - 45 DEG ELBOW, ASTM A234, GRADE B
16		171135-060-03	1	6" - 45 DEG LATERAL
17		176002-060-30	55	LN FT 6" STD WT PIPE, ASTM A-38, GRADE B, FIELD CUT
18		171887-060	1	6" ANSI BLINDFLANGE
19		171049-060-40	2	6" - 90 DEG ELBOW, ASTM A234 GR B
20	2-1701-1112,1115	1701-1113	1	6" CONN 150# ANSI FLG - BFLY VALVE - 150# ANSI FLG
21		463206-2-0702-062-37	4	U-BOLT W/NUTS & WASHERS

NOTES

- FOR GENERAL NOTES REF DRAWING S-55650-05-001
- FOR DRAWING INDEX REF DRAWING S-55650-05-002
- FOR GENERAL ARRANGEMENT REF DRAWING G-55650-05-001



DETAIL 1

SCALE: NONE
SILCONE GASKET

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
B	ISSUED FOR USE	12/20/2024	CMB	CA		
A	ISSUED FOR APPROVAL	11/13/2024	CMB	CA	MJP	CDT

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SCALE	1/2"=1'-0"	DRAWING SIZE	5

DRAWING TITLE

SILO UNLOADING EQUIPMENT ELEVATION
UNIT 1

PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

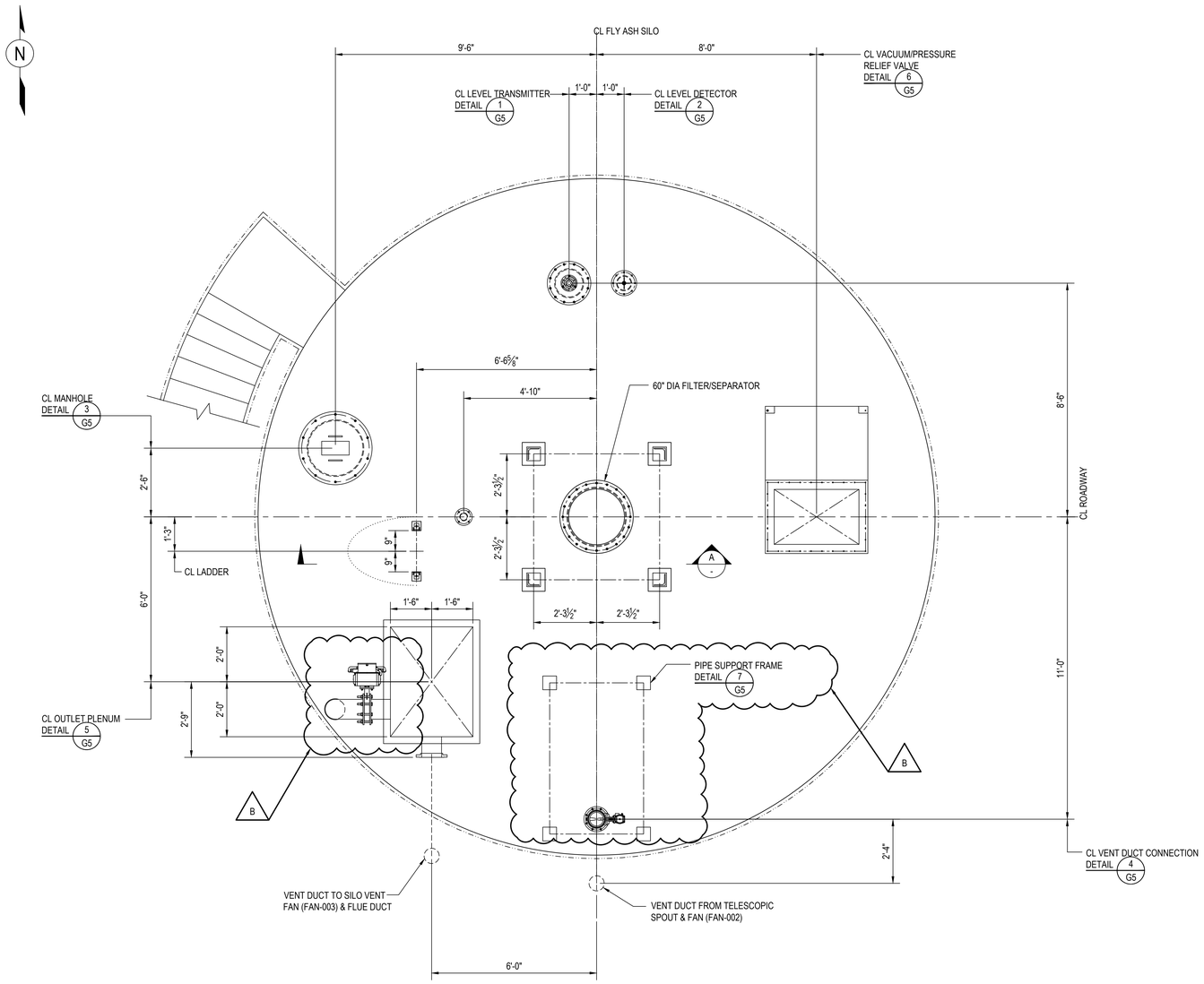
ucc environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER

G-55650-05-003

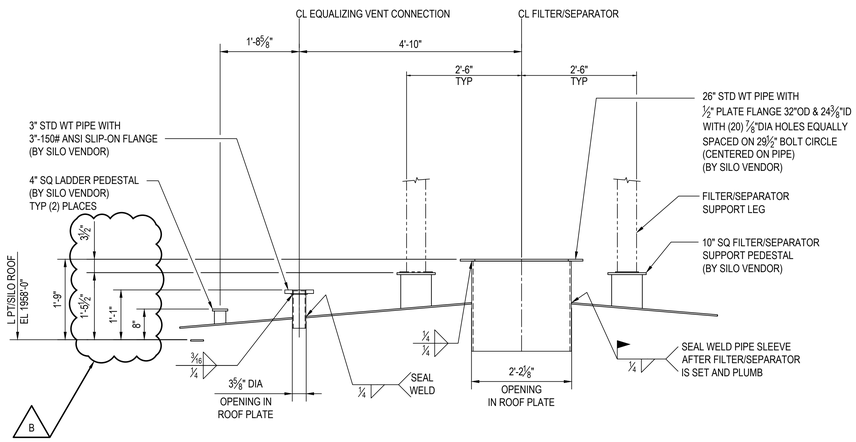
REVISION

B



ROOF PLAN

LP EL 1958'-0"



SECTION A

SCALE: ¾"=1'-0"
60"DIA FILTER/SEPARATOR
(SEE PLAN FOR ORIENTATION)

NOTES

- FOR GENERAL NOTES REF DRAWING S-55650-05-001
- FOR DRAWING INDEX REF DRAWING S-55650-05-002
- FOR GENERAL ARRANGEMENT REF DRAWING G-55650-05-001
- FOR VENT DUCT TO SILO VENT FAN (FAN-003) & FLUE DUCT REF DRAWING C-55650-05-LATER

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
B	ISSUED FOR USE	12/20/2024	CMB	CA		
A	ISSUED FOR APPROVAL	11/13/2024	CMB	CA	MJP	CDT

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SCALE	1/2"=1'-0"	DRAWING SIZE	5

DRAWING TITLE

SILO ROOF EQUIPMENT PLAN & SECTION
UNIT 1

PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

ucc environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

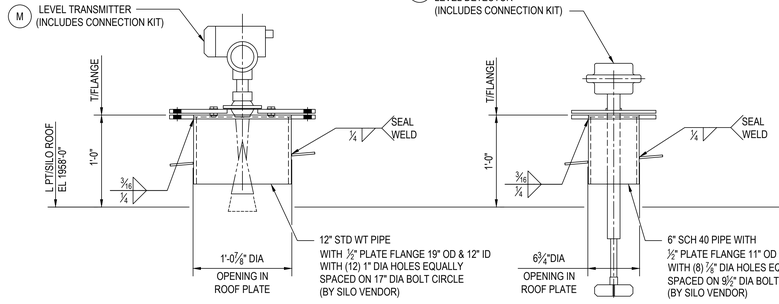
DRAWING NUMBER	REVISION
G-55650-05-004	B

BILL OF MATERIAL

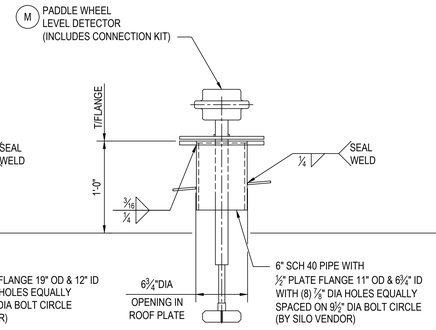
ITEM# A-B-N G-05-005-	DRAWING NUMBER	PART NUMBER	QTY	DESCRIPTION
1	3-2338-24	2338-24	1	24" MANHOLE WITH COVER
2		45507-7	4	SILICONE SEALANT
3	2-1701-1112/1115	1701-1115-1	1	8" CONN 150# ANSI FLG - BFLY VALVE - 150# ANSI FLG
4		174735	1	8" ELBOW WITH BIRD SCREEN

NOTES

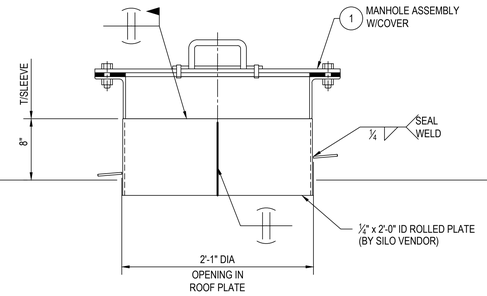
- FOR GENERAL NOTES REF DRAWING S-55650-05-001
- FOR DRAWING INDEX REF DRAWING S-55650-05-002
- FOR GENERAL ARRANGEMENT REF DRAWING G-55650-05-001



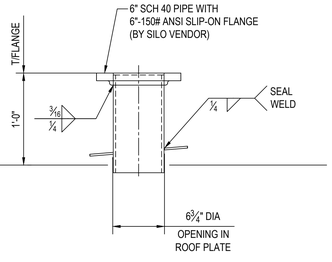
DETAIL 1 G4
SCALE: 1½"=1'-0"
LEVEL TRANSMITTER



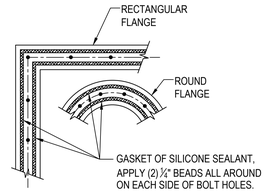
DETAIL 2 G4
SCALE: 1½"=1'-0"
LEVEL DETECTOR



DETAIL 3 G4
SCALE: 1½"=1'-0"
MANHOLE

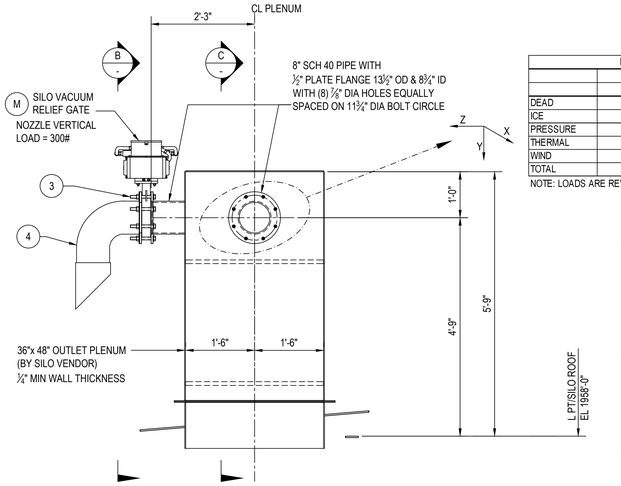


DETAIL 4 G4
SCALE: 1½"=1'-0"
VENT DUCT CONNECTION



DETAIL 8 -
SCALE: NONE
SILCONE GASKET

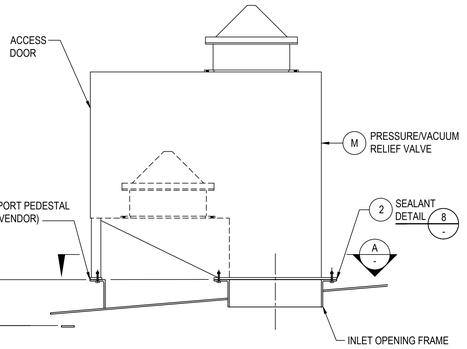
B



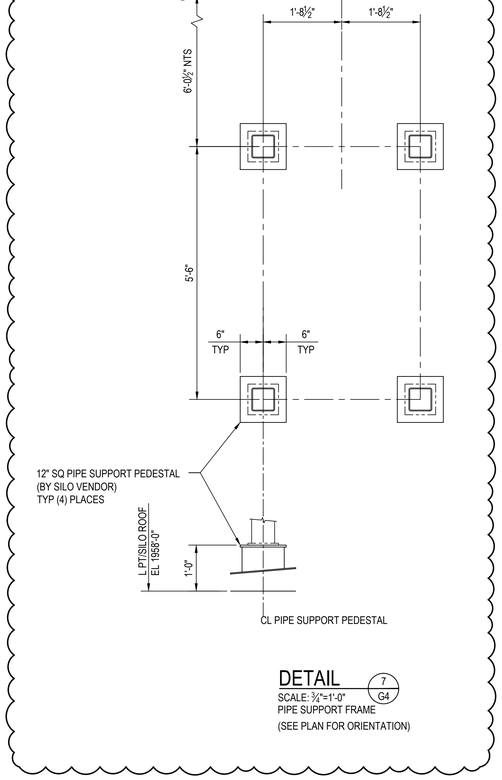
DETAIL 5 G4
SCALE: ¾"=1'-0"
OUTLET PLENUM
(SEE PLAN FOR ORIENTATION)

PLENUM VENT DUCT NOZZLE LOADS						
	Fx	Fy	Fz	Mx	My	Mz
	lbs	lbs	lbs	ft-lbs	ft-lbs	ft-lbs
DEAD	0	150	0	40	0	0
ICE	0	100	0	25	0	0
PRESSURE	0	0	0	0	0	0
THERMAL	150	4300	0	0	0	13650
WIND	50	50	50	0	125	0
TOTAL	200	4600	50	65	125	13650

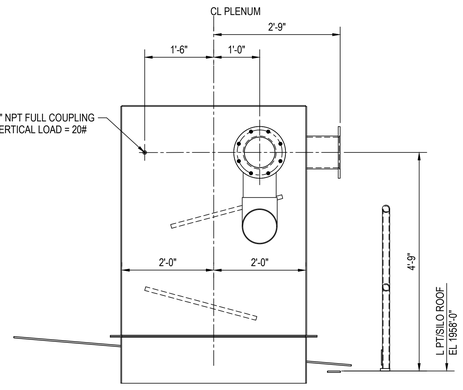
NOTE: LOADS ARE REVERSIBLE



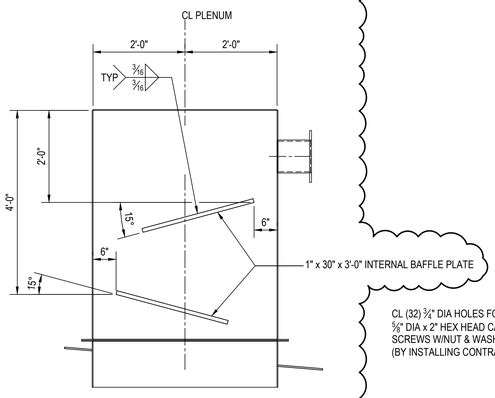
DETAIL 6 G4
SCALE: ¾"=1'-0"



DETAIL 7 G4
SCALE: ¾"=1'-0"
PIPE SUPPORT FRAME
(SEE PLAN FOR ORIENTATION)

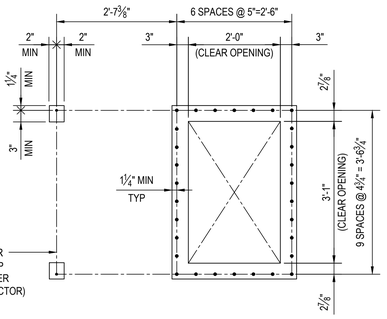


SECTION B -
SCALE: ¾"=1'-0"
OUTLET PLENUM



SECTION C -
SCALE: ¾"=1'-0"
OUTLET PLENUM

CL (32) ¾" DIA HOLES FOR ⅝" DIA x 2" HEX HEAD CAP SCREWS W/NUT & WASHER (BY INSTALLING CONTRACTOR)



SECTION A -
SCALE: ¾"=1'-0"
PRESSURE/VACUUM RELIEF VALVE
(SEE PLAN FOR ORIENTATION)

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
B	ISSUED FOR USE	12/20 2024	CMB	CA		
A	ISSUED FOR APPROVAL	11/13 2024	CMB	CA	MJP	CDT

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SCALE	1 1/2"=1'-0"	DRAWING SIZE	5

DRAWING TITLE

SILO ROOF EQUIPMENT DETAILS
UNIT 1

PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

ucc environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: G-55650-05-005

REVISION: B

CONTRACT PROCESS AND INSTRUMENTATION DIAGRAMS

GENERAL NOTES

THESE ARE SCHEMATIC DIAGRAMS ONLY AND ARE NOT MEANT TO BE PHYSICAL INSTALLATION DRAWINGS. FOR ACTUAL EQUIPMENT ARRANGEMENT AND LOCATION OF CONNECTIONS, SEE DESIGN DRAWINGS IN THE REFERENCE LIST.

MATERIAL SUPPLY

ONLY MATERIAL MARKED WITH ONE OF THE FOLLOWING SYMBOLS IS FURNISHED BY UCC:

- (4) MATERIAL FURNISHED BY UCC AS COVERED BY THIS DRAWING. NUMBER IN CIRCLE REFERS TO SEQUENCE NUMBER ON THE BILL OF MATERIAL.
- (C) MATERIAL FURNISHED BY UCC AS PART OF A CONVEYOR AND SERVICE PIPING DRAWING (DRAWING SERIES PREFIX C)
- (E) MATERIAL FURNISHED BY UCC AS PART OF AN ELECTRICAL DRAWING (DRAWING SERIES PREFIX E)
- (M) MATERIAL FURNISHED BY UCC AS PART OF A P & ID OR CONTRACT ASSEMBLY DRAWING (DRAWING SERIES PREFIX M)
- (S) MATERIAL FURNISHED BY UCC AS PART OF A STRUCTURAL DRAWING (DRAWING SERIES PREFIX S AND G)
- (X) MATERIAL FURNISHED BY UCC THAT IS TYPICALLY NOT SHOWN ON A DRAWING, i.e. SPARE PARTS

NOT BY UCC: (GC) MATERIAL FURNISHED BY GENERAL INSTALLING CONTRACTOR

MATERIAL FURNISHED ON THE CONTRACT DRAWINGS WILL BE IDENTIFIED BY A UNIQUE ALPHANUMERIC IDENTIFICATION NUMBER MADE UP FROM THE DRAWING CLASSIFIER, DRAWING SEQUENTIAL NUMBER, AND SEQUENTIAL ITEM NUMBER AS LISTED ON THE BILL OF MATERIAL OR EQUIPMENT LIST, i.e.

M - 10 - 001 - 4

- M: DRAWING CLASSIFIER
- 10: UCC CONTRACT NUMBER
- 001: DRAWING SEQUENTIAL NUMBER
- 4: SEQUENCE NUMBER ON BILL OF MATERIAL

EXISTING EQUIPMENT

"EIP" DENOTES EXISTING IN PLACE
"ER" DENOTES EXISTING EQUIPMENT RELOCATED

TP 1 DENOTES CUSTOMER TIE POINT OR INTERFACE POINT CONNECTION

OPERATING NOTES

ALL INSTRUMENTS MUST BE CALIBRATED BY PLANT PERSONNEL BEFORE SYSTEM OPERATION.

BEFORE ATTEMPTING TO OPERATE ANY OF THE EQUIPMENT OR SYSTEMS, REVIEW ALL DRAWINGS, READ AND UNDERSTAND THE OPERATING INSTRUCTIONS, INDIVIDUAL EQUIPMENT INSTRUCTIONS AND THE SAFETY INSTRUCTIONS CONTAINED IN THE INSTRUCTION MANUAL TO BECOME FAMILIAR WITH THE OPERATION OF THE SYSTEM(S) AND EQUIPMENT.

ALL RELIEF VALVES, REGULATORS, PRESSURE, FLOW, AND TEMPERATURE SWITCHES, ETC., MUST BE SET FOR THE VALUES CALLED FOR ON THE P&ID'S AND SHOULD ONLY BE CHANGED BY QUALIFIED PERSONNEL. ALL INSTRUMENTATION SETTINGS, INCLUDING ITEMS THAT HAVE BEEN FACTORY SET, MUST BE VERIFIED IN THE FIELD BEFORE THE EQUIPMENT IS PLACED INTO SERVICE.

ALL MANUALLY OPERATED GATES MUST BE POSITIONED, AS CALLED FOR ON THE DESIGN DRAWINGS OR IN THE OPERATING INSTRUCTIONS, BEFORE PLACING THE SYSTEM IN OPERATION.

ADEQUATE COMPRESSED AND INSTRUMENT AIR PRESSURE AND FLOW, AS CALLED FOR ON THE DESIGN DRAWINGS, MUST BE AVAILABLE BEFORE PLACING THE SYSTEM IN OPERATION.

ADEQUATE WATER PRESSURE AND FLOW, AS CALLED FOR ON THE DESIGN DRAWINGS, MUST BE AVAILABLE BEFORE PLACING THE SYSTEM IN OPERATION.

THE SOUND PRESSURE LEVEL OF EQUIPMENT SUPPLIED BY UCC WAS DETERMINED ON A TEST STAND OR AT AN ACTUAL INSTALLATION AND CORRECTED FOR BACKGROUND NOISE. INSTALLED EQUIPMENT SOUND PRESSURE LEVEL MAY BE HIGHER DUE TO MANY VARIABLES OF WHICH UCC HAS NO KNOWLEDGE AND OVER WHICH UCC HAS NO CONTROL. SOUND PRESSURE LEVELS ARE DEPENDENT ON THE AMBIENT CONDITIONS SUCH AS THE DISTANCE OF THE EQUIPMENT FROM ADJACENT WALLS, NOISE REFLECTIVE PROPERTIES OF MATERIAL IN THE VICINITY OF THE EQUIPMENT, BACKGROUND NOISE, ETC.

PACKAGED EQUIPMENT

INSTRUMENTATION, VALVING AND PIPING INTERNAL TO PACKAGED/SKIDDED EQUIPMENT IS NOT TAGGED OR SHOWN IN ITS ENTIRETY UNLESS IT IS DIRECTLY CONTROLLED AND/OR MONITORED BY THE FURNISHED CONTROL SYSTEM. FOR COMPLETE DETAILS, REFERENCE THE UCC OPERATION & MAINTENANCE INSTRUCTION MANUAL.

ELECTRICAL NOTES

CONTROL INPUTS AND OUTPUTS SHOWN ON THESE DRAWINGS (FOR PANELS, VARIABLE FREQUENCY DRIVE'S, AND INSTRUMENTS/DEVICES) MAY OR MAY NOT REPRESENT THE EXACT QUANTITIES OF INPUTS AND OUTPUTS ON EACH DEVICE. INPUT AND OUTPUT DETAILS ARE SHOWN ON OTHER CONTRACT DOCUMENTS.

MOTORS THAT ARE REQUIRED TO REVERSE IN THE PROCESS ARE INDICATED ON THE DRAWINGS. THE EXCEPTION TO THIS ARE MOTORS DRIVEN BY A VARIABLE FREQUENCY DRIVE (VFD); THEY ARE NOT INDICATED AS REVERSING, BUT THE PROCESS MAY REQUIRE THAT VFD OPERATE THEM IN REVERSE.

INSULATION, HEAT TRACING, AND PERSONNEL PROTECTION

UCC HEAT TRACING AND INSULATION RECOMMENDATIONS ARE FOR GUIDANCE ONLY. ACTUAL FIELD CONDITIONS, ASH CHARACTERISTICS, AND PLANT PERSONNEL PROTECTION POLICIES MAY REQUIRE ADDITIONAL EQUIPMENT. UCC IS NOT RESPONSIBLE FOR COSTS ASSOCIATED WITH ADDITIONAL EQUIPMENT.

PORTIONS OF UCC PIPE AND EQUIPMENT MAY EXCEED 140°F DURING OPERATION. APPROPRIATE PRECAUTIONS SHOULD BE TAKEN. PERSONNEL PROTECTION REQUIREMENTS SHOULD BE REVIEWED PER PLANT POLICY. ANY NECESSARY PERSONNEL PROTECTION IS NOT DESIGNED OR FURNISHED BY UCC.

WHERE WATER PIPING, EQUIPMENT CONTAINING WATER, OR PIPING WITH CONDENSATION IS EXPOSED TO FREEZING WEATHER, INSULATE AND HEAT TRACE AS NECESSARY. INSULATION AND HEAT TRACING DESIGN AND SUPPLY IS NOT BY UCC.

WHERE SOLENOID VALVES ARE FREQUENTLY EXPOSED TO TEMPERATURES BELOW ZERO, INSULATE AND HEAT TRACE AS NECESSARY. INSULATION AND HEAT TRACING IS NOT BY UCC.

WATER SUPPLY NOTES

PARTICLE SIZE OF ANY SEDIMENT IN THE WATER SUPPLY MUST NOT EXCEED 1/32".
USE A STRAINER IN THE SUPPLY LINE(S) IF NECESSARY TO LIMIT PARTICLE SIZE.

COMPRESSED AIR NOTES

THE QUALITY REQUIREMENTS FOR COMPRESSED AIR ARE DEPENDENT ON ITS USAGE, INDIVIDUAL EQUIPMENT REQUIREMENTS, AND THE EQUIPMENT'S LOCATION.

CLEAN, DRY COMPRESSED INSTRUMENT QUALITY AIR

THE REQUIREMENTS FOR CLEAN, DRY COMPRESSED INSTRUMENT AIR ARE AS FOLLOWS:

- 0-1 PPM OIL OR HYDROCARBON BY WEIGHT OR VOLUME.
- 3 MICRON MAXIMUM PARTICLE SIZE.
- DEW POINT AT LINE PRESSURE AT LEAST 18°F BELOW MINIMUM AMBIENT TEMPERATURE TO WHICH ANY PART OF THE COMPRESSED AIR SYSTEM IS EXPOSED. UNDER NO CIRCUMSTANCES SHOULD THE DEW POINT EXCEED 35°F.
- THE AIR IS TO BE FREE OF ALL CORROSIVE CONTAMINANTS AND FLAMMABLE OR TOXIC GASES.
- NOTE: IF INSTRUMENT AIR IS USED TO OPERATE THE AIR CYLINDER OPERATORS, AN OIL MIST LUBRICATOR MAY NEED TO BE INSTALLED UPSTREAM OF THE AIR CYLINDERS THAT OPERATE SEVERAL TIMES A MINUTE. THE OIL MIST LUBRICATOR PROVIDES A MEANS OF LUBRICATING THE SOLENOID AIR VALVES AND AIR CYLINDERS TO EXTEND SERVICE INTERVALS.
- OIL MIST LUBRICATORS, IF DESIRED, ARE NOT PROVIDED BY UCC. IF THERE ARE ANY QUESTIONS, CONSULT UCC FOR ASSISTANCE.

CLEAN, DRY COMPRESSED AIR

THE REQUIREMENTS FOR CLEAN, DRY COMPRESSED AIR ARE AS FOLLOWS:

- CLEAN, DRY COMPRESSED REFERS TO PLANT AIR (SERVICE AIR). PLANT AIR IS TYPICALLY USED FOR AIR TOOLS, AIR CYLINDER OPERATORS, SOOT BLOWING, AND OTHER PLANT USES. PLANT AIR MAY CONTAIN OIL AND MOISTURE, MOST OF WHICH IS REMOVED BY INSTALLING A 50 MICRON AIR FILTER WITH DRAIN IN THE COMPRESSED AIR BRANCH LINE/S UPSTREAM OF THE AIR CYLINDER OPERATORS. THE SMALL QUANTITY OF MOISTURE AND OIL THAT IS NOT REMOVED BY THE AIR FILTER PROVIDES LUBRICATION FOR THE SOLENOIDS AND AIR CYLINDERS.
- THE MAXIMUM SOLID PARTICLE SIZE SHOULD NOT EXCEED 100 MICRONS AT THE COMPRESSOR DISCHARGE.
- THE AIR IS TO BE FREE OF ALL CORROSIVE CONTAMINANTS AND FLAMMABLE OR TOXIC GASES.
- HEAT TRACING AND INSULATION, IF REQUIRED TO PREVENT MOISTURE FROM FREEZING IN THE AIRLINES IS NOT BY UCC.
- SEE NOTE UNDER "CLEAN, DRY COMPRESSED INSTRUMENT AIR" ABOVE, IF INSTRUMENT AIR IS USED TO OPERATE THE AIR CYLINDERS.

SIZING OF ALL COMPRESSED AIR MAIN AND BRANCH SUPPLY LINES TO PROVIDE THE AIR FLOW QUANTITY AND PRESSURE REQUIREMENTS SHOWN ON THE DRAWING AT THE VARIOUS EQUIPMENT LOCATIONS IS NOT BY UCC.

AIR USAGE FOR ACTUATOR SIZING PURPOSES IS BASED ON THE MAXIMUM PRESSURE SHOWN ON THE P&ID'S FOR THE ACTUATOR. COMPRESSED AIR SUPPLY PRESSURE EXCEEDING 100 PSIG MAY DAMAGE SOME EQUIPMENT FURNISHED BY UCC. UCC SUGGESTS A PRESSURE REGULATING DEVICE, NOT FURNISHED BY UCC, IF REQUIRED, BE INSTALLED UPSTREAM OF UCC EQUIPMENT.

FILTER/SEPARATOR IS DESIGNED FOR 80 PSIG MINIMUM. OPERATION OF PULSE CLEANED FILTERS USING COMPRESSED AIR BELOW 80 PSIG SERIOUSLY AFFECTS THE FILTER CLEANING EFFICIENCY. CLEANING EFFICIENCY CANNOT BE GUARANTEED AT PRESSURE BELOW 80 PSIG.

PIPING NOTES

LOCATE TEST OR MONITORING CONNECTIONS IN APPROXIMATE LOCATION SHOWN ON THE DRAWINGS. THEY SHOULD BE AT LEAST 10 PIPE DIAMETERS DOWNSTREAM AND AT LEAST 2 PIPE DIAMETERS UPSTREAM OF ANY PIPE FITTINGS, ORIFICE OR VALVE IF POSSIBLE. THESE CONNECTION LOCATIONS ARE ONLY SHOWN FOR REPRESENTATION AND ARE NOT FURNISHED BY UCC UNLESS SHOWN ON THE BILLS OF MATERIAL.

ALTHOUGH GRAPHICALLY SHOWN AS TC, A RECOMMENDED TEST CONNECTION WOULD INCORPORATE A 1/4" BALL VALVE WITH PIPE PLUG (UNLESS NOTED).

ALL PIPING MUST BE DESIGNED AND INSTALLED IN ACCORDANCE WITH GENERALLY ACCEPTED PIPING PRACTICES, STANDARDS AND APPLICABLE CODES.

ALL PIPING MUST BE BLOWN CLEAN OF ALL RUST, SCALE, DEBRIS, ETC. BEFORE CONTROL COMPONENTS ARE OPERATED.

ACTUAL PIPING LENGTH, NUMBER OF FITTINGS AND ELEVATION LIFTS MUST BE CHECKED AND SIZES INCREASED WHERE NECESSARY TO GIVE THE FLOW AND PRESSURE REQUIRED AT THE END USE EQUIPMENT.

UNIONS OR FLANGES MUST BE USED, AS REQUIRED BY FIELD CONDITIONS, TO ALLOW REMOVAL OF ALL VALVES, NOZZLES AND DEVICES FOR INSPECTION, MAINTENANCE OR REPLACEMENT.

COMPRESSED AIR, WATER SUPPLY AND DRAIN PIPE SIZES SHOWN ARE BASED ON U.S. STANDARD STEEL PIPE UNLESS OTHERWISE NOTED AND ARE MINIMUM SIZES RECOMMENDED. IF HEAVIER PIPE OR TUBING IS USED, IT SHOULD HAVE EQUAL OR GREATER ID.

AIR LINES THAT RUN TO END USE EQUIPMENT ARE TO BE TAKEN FROM THE TOP OF THE SUPPLY HEADERS. HEADERS AND BRANCHES ARE TO BE PITCHED DOWNWARD IN THE DIRECTION OF FLOW AND ARE TO BE PROVIDED WITH A DRIP LEG AT THE END, ALONG WITH A TRAP OR DRAIN VALVE.

HIGH PRESSURE AIR PIPING FROM PRESSURE RELIEF VALVES MUST BE VENTED TO ATMOSPHERE AWAY FROM PERSONNEL. FOR PIPE RUNS LESS THAN 25 FEET, THE PIPE DIAMETER MUST BE INCREASED 1" OVER THE RELIEF VALVE OUTLET DIAMETER. FOR LONGER RUNS, CALCULATIONS MUST BE MADE TO DETERMINE THE PIPE DIAMETER TO BE USED.

VALVE NOTES

"S" SHOWN NEAR THE KNIFE GATE INDICATES SEAT SIDE OF THE VALVE
"FLC" SHOWN NEAR THE KNIFE GATE INDICATES FLOW CONE
"WL" SHOWN NEAR THE KNIFE GATE INDICATES WEAR LINER

ALL CONTROL EQUIPMENT SHOULD BE LOCATED IN A CONVENIENT AND ACCESSIBLE LOCATION FOR OPERATION, ADJUSTMENT AND MAINTENANCE.

VALVE OPERATORS ARE TO BE ORIENTATED IN THE FIELD DURING INSTALLATION TO ACCOMMODATE ACCESS, OPERATION, AND POSSIBLE FIELD OBSTRUCTIONS. FOLLOW MANUFACTURER'S APPLICATION, INSTALLATION, OPERATION, & MAINTENANCE INSTRUCTIONS FOR DETERMINING SUPPORT REQUIREMENTS FOR THOSE VALVES REQUIRING ADDITIONAL ACTUATOR SUPPORT WHEN THE OPERATORS ARE NOT INSTALLED IN THE VERTICAL POSITION.

WHEN VALVES OR EQUIPMENT ARE NOT FULLY ASSEMBLED, ALL SOLENOID VALVES MUST BE MOUNTED AS CLOSE TO THE CONTROLLED EQUIPMENT AS POSSIBLE (WITHIN 24 INCHES) TO MINIMIZE PRESSURE LOSSES.

WHEN VALVES ARE NOT FULLY ASSEMBLED, FLEXIBLE HOSES MUST BE INSTALLED TO ALLOW FOR CYLINDER MOVEMENT DURING VALVE ACTUATION, WHERE REQUIRED.

WHEN VALVES ARE USED FOR "ON-OFF" SERVICE THAT ARE NOT FULLY ASSEMBLED, SPEED CONTROL VALVES MUST BE INSTALLED IN THE AIR LINES CONNECTED TO THE PNEUMATIC OPERATORS, UNLESS NOTED OTHERWISE ON THE DRAWINGS. SPEED CONTROL VALVES ARE USED TO MINIMIZE EXCESSIVE VALVE SHOCK AND WATER HAMMER. INSTALL SPEED CONTROL VALVES SO FLOW ARROWS POINT AWAY FROM CYLINDERS.

ADJUST SPEED CONTROL VALVES TO GIVE THE FASTEST OPERATION OF THE VALVE/GATES POSSIBLE (UNLESS NOTED) WITHOUT CAUSING UNDUE SHOCK.

LOW POINT DRAIN AND HIGH POINT VENT VALVE AND PIPING NOTES

PIPING SYSTEM LOW POINT DRAIN AND HIGH POINT VENT VALVES AND PIPING, LOCAL OR GLOBAL, ARE NOT LOCATED OR FURNISHED BY UCC UNLESS SHOWN ON THE BILLS OF MATERIAL.
ADDITIONAL DRAIN AND VENT COMPONENTS MAY BE NECESSARY DEPENDENT ON THE ACTUAL PIPE ROUTING TO FULLY DRAIN THE PIPE LINES FOR MAINTENANCE, FREEZE PROTECTION, ETC. AND TO FULLY VENT THE PIPE LINES WHEN REFILLING. EVALUATION OF THE PIPING SYSTEM TO QUANTIFY, LOCATE AND SUPPLY THE DRAIN AND VENT COMPONENTS IS NOT BY UCC.

IF UCC HAS SUPPLIED THE DRAIN AND VENT PIPING MATERIAL, FIELD DRILLING AND WELDING WILL BE NECESSARY FOR ADDED DRAIN AND VENT CONNECTIONS.

ABBREVIATIONS LIST

ACI	ACTIVATED CARBON INJECTION
ACFM	ACTUAL CUBIC FEET PER MINUTE @ PRESS. & TEMP.
AL	AIR LINE PIPE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
ASSY	ASSEMBLY
B	BASALT
BC	BOLT CIRCLE
B/M	BILL OF MATERIAL
°C	DEGREES CELSIUS
CFM	CUBIC FOOT PER MINUTE
CI	CAST IRON
CL	CENTERLINE
CO	CLEANOUT
CONN	CONNECTION
CPVC	CHLORINATED POLYVINYL CHLORIDE
CS	CARBON STEEL
CU	CUBIC
CU FT	CUBIC FEET
CU IN	CUBIC INCH
D	DURITE® PIPE
DC	DURA-CORE™
DL	DURALOY™ PIPE
DI	DUCTILE IRON
DIA	DIAMETER
DN	DIAMETER NOMINAL
DR	DUR-ROK® PIPE
DSI	DRY SORBENT INJECTION
DWG	DRAWING
EIP	EXISTING IN PLACE
EL	ELEVATION
ER	EXISTING RELOCATED
°F	DEGREES FAHRENHEIT
FGD	FLUE GAS DESULFURIZATION
FL	FLOOR LEVEL
FLG	FLANGE
FF	FLAT FACE
FO	FAIL OPEN
FPT	FEMALE PIPE THREAD
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FOOT
GL	GRADE LEVEL
GPM	GALLONS PER MINUTE
h	HOUR
HDPE	HIGH-DENSITY POLYETHYLENE
Hz	HERTZ
HP	HORSEPOWER
HPU	HYDRAULIC POWER UNIT
HYDR	HYDRAULIC
ICFM	INLET CUBIC FEET PER MINUTE @ PRESS. & TEMP.
ID	INSIDE DIAMETER
IN	INCH
in Hg	INCHES OF MERCURY
IN LB	INCH-POUND
kPa	KILOPASCAL
kW	KILOWATT
lbs	POUNDS
LS	LIMIT SWITCH
m	METER
MATL	MATERIAL
MAX	MAXIMUM
MIN	MINIMUM
min	MINUTE
mm	MILLIMETER
MSL	MEAN SEA LEVEL
MT	METRIC TON
N	NUVALOY® PIPE
N/A	NOT APPLICABLE
Nm^3/h	NORMAL CUBIC METERS PER HOUR
N/C	NORMALLY CLOSED
NF	NOT FURNISHED
NO.	NUMBER
N/O	NORMALLY OPEN
NPT	NATIONAL PIPE TAPER (THREADED)
NTE	NOT TO EXCEED
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
ODP	OPEN DRIP PROOF
PAC	POWDER ACTIVATION CARBON
Ph	PHASE
pH	HYDROGEN-ION CONCENTRATION
PLC	PROGRAMMABLE LOGIC CONTROLLER
PN	PART NUMBER
PPM	PARTS PER MILLION
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
PSIG	POUNDS PER SQUARE INCH GAUGE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
REF	REFERENCE
REQD	REQUIRED
RF	RAISED FACE
RPM	REVOLUTIONS PER MINUTE
s	SECONDS
SCFM	STANDARD CUBIC FOOT PER MINUTE @ 14.7 PSIG & 68°F
SCH	SCHEDULE
SI	INTERNATIONAL SYSTEM OF UNITS
sp	STATIC PRESSURE
SP	STEEL PIPE
SS	STAINLESS STEEL
SSPC	STEEL STRUCTURES PAINTING COUNCIL
STD	STANDARD
STL	STEEL
T	U.S. SHORT TON (2000 LB)
TC	TEST CONNECTION
TDH	TOTAL DYNAMIC HEAD
TEFC	TOTALLY ENCLOSED FAN COOLED
3Ph	THREE PHASE
TYP	TYPICAL
V	VOLTS
W/	WITH
WC	WATER COLUMN
WG	WATER GAUGE
W/O	WITHOUT
WP	WEATHERPROOF

STANDARD SYMBOLS

&	AND
	SQUARE
=	EQUAL
"	INCH
'	FOOT
Ø	DIAMETER
#	POUND OR NUMBER

MECHANICAL DRAWING INDEX	
DRAWING	TITLE
M-55650-05-001	P&I DIAGRAM , GENERAL NOTES , UNIT 1
M-55650-05-002	P&I DIAGRAM , STANDARD SYMBOLS , UNIT 1
M-55650-05-003	KEY PROCESS DIAGRAM , FLY ASH NUVEYOR® VACUUM SYSTEM, UNIT 1
M-55650-05-004	P&I DIAGRAM , FLY ASH NUVEYOR® VACUUM SYSTEM, HOPPER AREA , UNIT 1
M-55650-05-005	P&I DIAGRAM , FLY ASH NUVEYOR® VACUUM AND UNLOADING SYSTEM, SILO AREA , UNIT 1
M-55650-05-006	P&I DIAGRAM , FILTER/SEPARATOR - CONTINUOUS OPERATION , UNIT 1
M-55650-05-007	P&I DIAGRAM , BIN FLUIDIZING SYSTEM , UNIT 1
M-55650-05-008	P&I DIAGRAM , MECHANICAL EXHAUSTERS , UNIT 1
M-55650-05-009	P&I DIAGRAM , COMPRESSED AIR, FLY ASH NUVEYOR® VACUUM SYSTEM, UNIT 1
MI-55650-05-001	OPERATING INSTRUCTIONS FOR FLY ASH NUVEYOR® VACUUM SYSTEM, UNIT 1

DRAWING REFERENCE LIST:

STRUCTURAL DRAWING S-55650-05-001, G-55650-05-001
CONVEYOR AND SERVICE PIPING DRAWING C-55650-05-001
LOGIC DRAWING L-55650-05-001 (C)

UCC ENVIRONMENTAL (UCC) REGISTRATIONS AND TRADEMARKS

DEPAC® DENSE PHASE ASH CONVEYING SYSTEM
DURITE® (PIPE / FITTINGS)
EXCEN-CRUSHER™ CLINKER GRINDER
HYDROVEYOR® ASSEMBLY
JETPULSION® PUMP ASSEMBLY
NUVA FEEDER® ASSEMBLY (POSITIVE PRESSURE PNEUMATIC SYSTEM)
NUVALOY® (ABRASION RESISTANT PIPE)
NUVASEAL®
NUVEYOR® VACUUM SYSTEM
UCC®
VIPER® MILL
ACCUFLOC™
ACCUFUSE™
ACCUpHIX™
CDR™ (CONTINUOUS DEWATERING & RECIRCULATION)
COBRA™ II LANCE
DAC™ (DRY ASH CONVEYOR)
DAX™ (DRY ASH EXTRACTOR)
DFC™ (DRY FLIGHT CONVEYOR)
DURA-CORE™ II (CERAMIC-TILE PIPE / FITTINGS)
DURALOY™ (PIPE / FITTINGS/CUSTOM FABRICATIONS)
DUR-ROK™ (BASALT-LINED PIPE / FITTINGS)
ecopod™ (MODULAR DSI SYSTEM)
HDCC™ (HIGH DENSITY CONDITIONED CONVEYANCE SYSTEM)
HDSS™
HYDROCURE™
INFINITY™ SWING HAMMER
INFINITY™ COAL CRUSHER SCREENS
MAX-LP™ (MECHANICAL ASH EXTRACTOR LOW-PROFILE)
Mobile-MAX™ BOTTOM ASH AND TRANSPORT WATER TREATMENT SYSTEM
M-PACT™ II (MODULAR ACTIVATED CARBON INJECTION SYSTEM)
MultiDAC™ DENSE PHASE POSITIVE PRESSURE SYSTEM
NUMAFLEX™ (FITTINGS / BOTTOM ASH HOSE)
PAX™ (PNEUMATIC ASH EXTRACTOR DRY BOTTOM ASH VACUUM SYSTEM)
SFC™ (SUBMERGED FLIGHT CONVEYOR)
SPARTAN™ FITTINGS (DURITE H)
STRYKER™ PRECIPITATOR HAMMERS
SWITCHBLADE™ FGD AGITATOR
TIGER™ VALVE
TITAN™ EQ SWING DISC VENT VALVE
TITAN™ HP VALVE (HIGH PRESSURE)
TITAN™ LP VALVE (LOW PRESSURE)
TRITON™ FGD AGITATOR
VAX™ (VIBRATORY ASH EXTRACTOR)

SAFETY NOTE:
REFER TO UCC DOCUMENT NO. 721005, "SYSTEMS AND EQUIPMENT SAFETY INSTRUCTIONS", LOCATED IN THE UCC O&M MANUAL, FOR IMPORTANT SAFETY CONSIDERATIONS WHEN PERSONNEL ARE NEAR THE SYSTEM EQUIPMENT FOR ANY REASON.

NOTES

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
C	REVISED PER UCC REVIEW	03/13/2025	MY	CDT		
B	REVISED AS PER CUSTOMER COMMENTS	12/03/2024	MM	MY	CDT	MY
A	INITIAL ISSUE	10/15/2024	MY	CDT	CDT	MY

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MODIFICATION TO UCC EQUIPMENT AND STRUCTURES TO AVOID FIELD OBSTRUCTIONS, CORRECTIONS DUE TO MINOR DRAWING DISCREPANCIES WITH FIELD CONDITIONS, AND/OR MINOR FABRICATION MISFITS ARE CONSIDERED NORMAL ERECTION AND INSTALLATION OPERATIONS AND ARE NOT CHARGEABLE TO UCC. WE WILL NOT ACCEPT BACK CHARGES FOR ANY WORK PERFORMED IN THE FIELD UNLESS APPROVED BY UCC'S FIELD SERVICE DEPARTMENT.

SCALE	NONE	DRAWING SIZE	5

DRAWING TITLE
P & I DIAGRAM
GENERAL NOTES
UNIT 1

PLANT NAME
HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

ucc environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: M-55650-05-001
REVISION: C

PIPING
CONVEYING
SERVICE
SIGNALS
PNEUMATIC
ELECTRICAL
HYDRAULIC
HEAT TRACING
THERMAL INSULATION
CLEAN-OUT TEE
TEST CONNECTION 1/4" UNLESS NOTED
REDUCER
PIPE CAP
PIPE PLUG
UNION
FLOW LIMITER
ORIFICE
ORIFICE UNION
FLEXIBLE HOSE
EXPANSION JOINT
DUST CHECK ASSEMBLY
COMPRESSED AIR MUFFLER
SILENCER
TELLTALE DRAIN
NOZZLE
GATE OR OTHER IN-LINE TYPE VALVE NOT OTHERWISE IDENTIFIED
PLUG VALVE
BUTTERFLY VALVE OR DAMPER
GLOBE VALVE
BALANCE VALVE
N/O
N/C

BALL VALVE
PINCH VALVE
ECCENTRIC PLUG VALVE
CHECK VALVE
FLOW DIRECTION
SPEED CONTROL VALVE (RESTRICTED FLOW AWAY FROM CYLINDER)
SCV
RF
PRESSURE RELIEF VALVE
RIGHT ANGLE
STRAIGHT-THROUGH
VACUUM RELIEF VALVE
BIN VACUUM/ PRESSURE RELIEF
AIR OR WATER PRESSURE REDUCING REGULATOR WITH EXTERNAL PRESSURE TAP
AIR OR WATER PRESSURE REDUCING REGULATOR, EXTERNAL TAP AND REMOTE SIGNAL
PRESSURE REDUCING REGULATOR SELF CONTAINED
PRESSURE-REDUCING REGULATOR WITH INTERNAL OUTLET PRESSURE RELIEF VALVE, AND OPTIONAL PRESSURE INDICATOR
PG
QUICK EXHAUST
IN
OUT
EXH
FO
OPERATOR SIDE
3-WAY VALVE
4-WAY VALVE 2 POSITION, FAIL OPEN TO PATHS P-A AND B-E
A
B
P
E
LINE SWITCH
SOLENOID OPERATOR
SOLENOID WITH MANUAL OPERATOR
S

MANUAL OPERATOR
FAIL OPEN
FO
EXTERNAL PILOT SUPPLY
VALVE WITH MULTIPLE OPERATORS STACKED (BOTH OPERATORS MUST GIVE SIGNAL TO ACTUATE VALVE)
MOTOR OPERATOR
M
DIAPHRAGM ACTUATOR
POSITIONER
CYLINDER OPERATOR
DOUBLE-ACTING
SINGLE-ACTING
RACK & PINION ROTARY TYPE
ROTARY VANE ACTUATOR
POWER CHAMBER OPERATOR
RUPTURE DISK OR SAFETY HEAD FOR PRESSURE RELIEF
RUPTURE DISK OR SAFETY HEAD FOR VACUUM RELIEF
DIAPHRAGM SEAL
PANEL MOUNTED INSTRUMENT
FLOW SWITCH
FLOW METER OR ROTAMETER
LIMIT SWITCH OPEN POSITION
LIMIT SWITCH CLOSED POSITION
DUST DETECTOR

PRESSURE SWITCH
SINGLE SWITCH
DUAL SWITCH
PRESSURE TRANSMITTER
OR
* WITH INDICATOR
PRESSURE INDICATOR
DIFFERENTIAL PRESSURE SWITCH
TEMPERATURE SWITCH
TEMPERATURE INDICATOR
LEVEL SWITCH CAPACITANCE, RADIO FREQUENCY (RF), FLOAT, VIBRATING TYPE
LEVEL SWITCH PADDLE WHEEL TYPE
LEVEL TRANSMITTER
RADIOACTIVE OR SONIC TYPE LEVEL TRANSMITTER
ULTRASONIC/RADAR LEVEL INDICATOR
RADIOACTIVE DENSITY METER
SONIC-TYPE VELOCITY METER CONTROLLER
HYDROVEYOR EXHAUSTER
JETPULSION PUMP

CENTRIFUGAL PUMP
FAN
BLOWER, MECHANICAL EXHAUSTER OR COMPRESSOR
SUMP PUMP
DRY SORBENT MILL
ROTARY FEEDER
CRUSHER
AIR INTAKE
DIFFUSER FEEDER (UPPER OR LOWER)
NUVA FEEDER ASSEMBLY (PRESSURE SYSTEM)
WITH HOPPER LEVEL PROBE AND VIBRATOR
HOPPER PROBE
HOPPER VIBRATOR
WITHOUT HOPPER LEVEL PROBE OR VIBRATOR
FLY ASH INTAKE (VACUUM SYSTEM)
FLY ASH INTAKE WITH HOPPER VIBRATOR AND LEVEL PROBE
HYDRAULIC RESERVOIR
PNEUMATIC RESERVOIR
INPUT TO PLC OR DCS DISCRETE OR ANALOG
OUTPUT FROM PLC OR DCS DISCRETE OR ANALOG
MOTOR
VARIABLE SPEED MOTOR
AIR FILTER OR STRAINER
FILTER - SEPARATOR WITH MANUAL DRAIN
FILTER - SEPARATOR WITH AUTOMATIC DRAIN
DRAIN
AIR LUBRICATOR
DEBRIS SCREEN
FLOW
BIRD SCREEN

AGITATOR
EMERGENCY EYE WASH AND SHOWER
EMERGENCY EYE WASH
EMERGENCY SHOWER
CHEMICAL DRUM
CHEMICAL TOTE
CHEMICAL METERING DIAPHRAGM PUMP
METERING PUMP
PISTON PUMP
PROGRESSIVE CAVITY PUMP
STATIC MIXER

** SEE NOTE 2 (TYP)

NOTES

1. FOR GENERAL NOTES AND REFERENCE SEE DRAWING M-55650-05-001.
2. SYMBOLS ARE IN ACCORDANCE WITH ISA STANDARD S5.1, ASA 732.11, OR USAS Y32.10 UNLESS MARKED WITH **.
3. THE "RF" USED IN THE SPEED CONTROL VALVES SIGNIFIES RESTRICTED FLOW.
4. THE STANDARD TAGGING PREFIXES USED ARE:
   - DD - DUST DETECTOR
   - DE - DENSITY ELEMENT - RECEIVER
   - DX - DENSITY - RADIOACTIVE SOURCE
   - FG - FLOW INDICATOR
   - FCV - FLOW CONTROL VALVE
   - FO - FLOW ORIFICE
   - FICV - FLOW INDICATOR WITH CONTROL VALVE
   - FS - FLOW SWITCH
   - FSCV - FLOW SWITCH WITH CONTROL VALVE
   - FV - AUTOMATIC VALVE
   - FY - SOLENOID AIR VALVE
   - LE - LEVEL ELEMENT
   - LS - LEVEL SWITCH
   - LT - LEVEL TRANSMITTER
   - LX - LEVEL - RADIOACTIVE SOURCE
   - M - MOTOR ACTUATOR
   - PCV - PRESSURE CONTROL VALVE
   - PDS - PRESSURE DIFFERENTIAL SWITCH
   - PG - PRESSURE INDICATOR
   - PS - PRESSURE SWITCH
   - PSE - PRESSURE RELIEF RUPTURE DISK
   - PSV - PRESSURE SAFETY VALVE
   - PIT - PRESSURE INDICATING TRANSMITTER
   - PT - PRESSURE TRANSMITTER
   - SCV - SPEED CONTROL VALVE
   - SIC - SPEED INDICATING CONTROLLER
   - SJ - SPEED SCANNER
   - ST - SPEED TRANSMITTER
   - TG - TEMPERATURE INDICATOR
   - TS - TEMPERATURE SWITCH
   - ZSO - LIMIT SWITCH - OPEN
   - ZSC - LIMIT SWITCH - CLOSED

   FOR ADDITIONAL SUFFIXES REFER TO TABLE 1.

TABLE 1
MEANINGS OF IDENTIFICATION LETTERS
THIS TABLE APPLIES ONLY TO THE FUNCTIONAL IDENTIFICATION OF INSTRUMENTS.

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED/INITIATING VARIABLE	VARIABLE MODIFIER	READOUT/PASSIVE FUNCTION	OUTPUT/ACTIVE FUNCTION	FUNCTION MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CONTROL	CLOSE
D	USER'S CHOICE	DIFFERENCE, DIFFERENTIAL			DEVIATION
E	VOLTAGE		SENSOR, PRIMARY ELEMENT		
F	FLOW, FLOW RATE	RATIO			
G	USER'S CHOICE		GLASS, GAUGE, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT		INDICATE		
J	POWER		SCAN		
K	TIME, SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	USER'S CHOICE				MIDDLE, INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE, TOTALIZE	INTEGRATE, TOTALIZE		
R	RADIATION		RECORD		RUN
S	SPEED, FREQUENCY	SAFETY		SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL, PROBE		
X	UNCLASSIFIED	X-AXIS	ACCESSORY DEVICES, UNCLASSFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, PRESENCE	Y-AXIS		AUXILIARY DEVICES	
Z	POSITION, DIMENSION	Z-AXIS, SAFETY INSTRUMENTED SYSTEM		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

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REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
A	INITIAL ISSUE	10/15 2024	MY	CDT		

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SCALE	NONE	DRAWING SIZE	5

DRAWING TITLE
P & I DIAGRAM
STANDARD SYMBOLS
UNIT 1

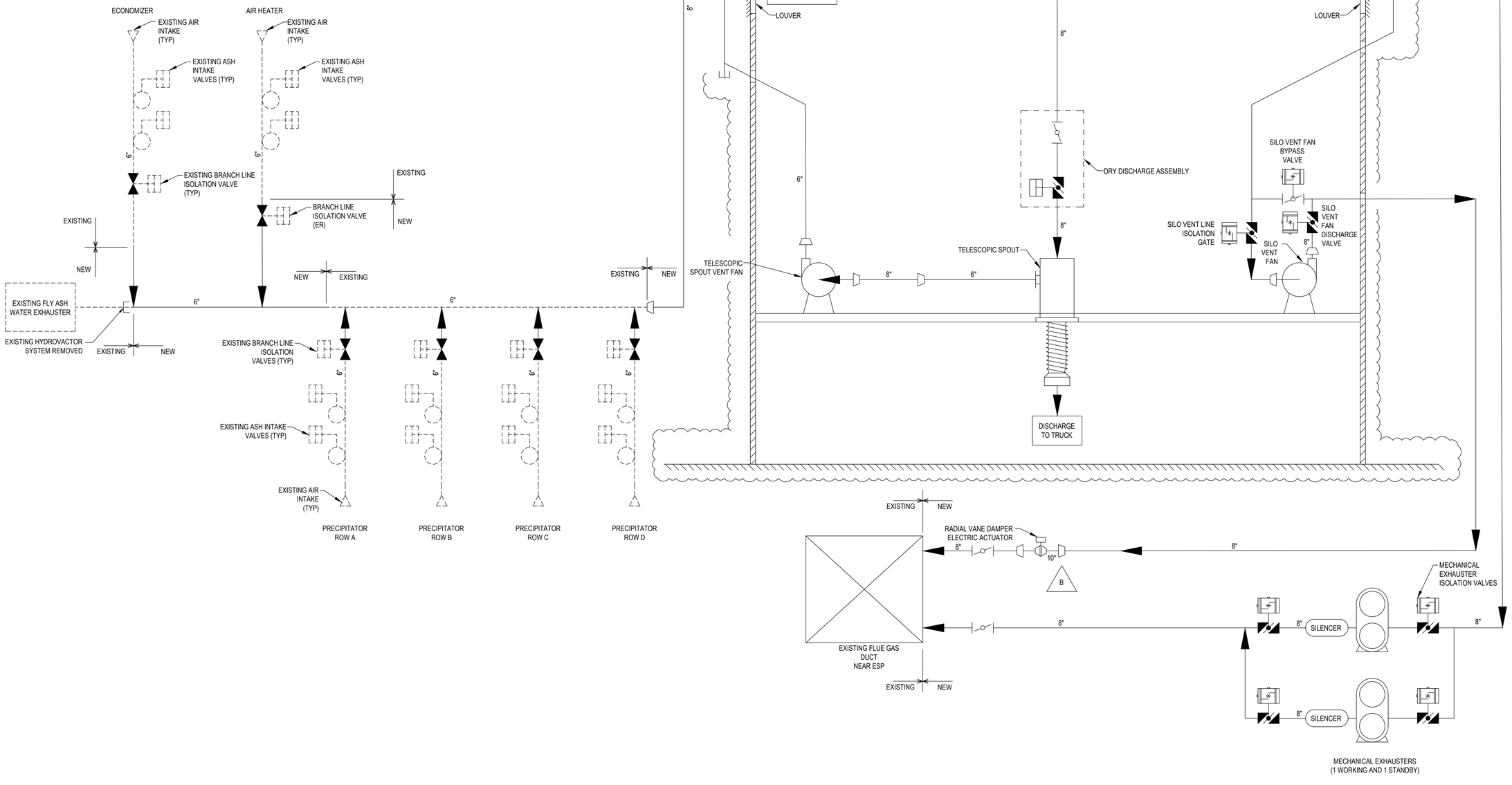
PLANT NAME
HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

ucc environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER
M-55650-05-002

REVISION
A

X:\55650\55650-05\13 - PLANT 3D\P&ID\M-55650-05-002_A_.DWG



NOTES

1. FOR GENERAL NOTES AND REFERENCES SEE DRAWING M-55650-05-001.

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
B	REVISED AS PER CUSTOMER COMMENTS	12/03 2024	MM	MY		
A	INITIAL ISSUE	10/15 2024	MY	CDT	CDT	MY

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SCALE	NONE	DRAWING SIZE	5

DRAWING TITLE

KEY PROCESS DIAGRAM
FLY ASH NUVEYOR® VACUUM SYSTEM
UNIT 1

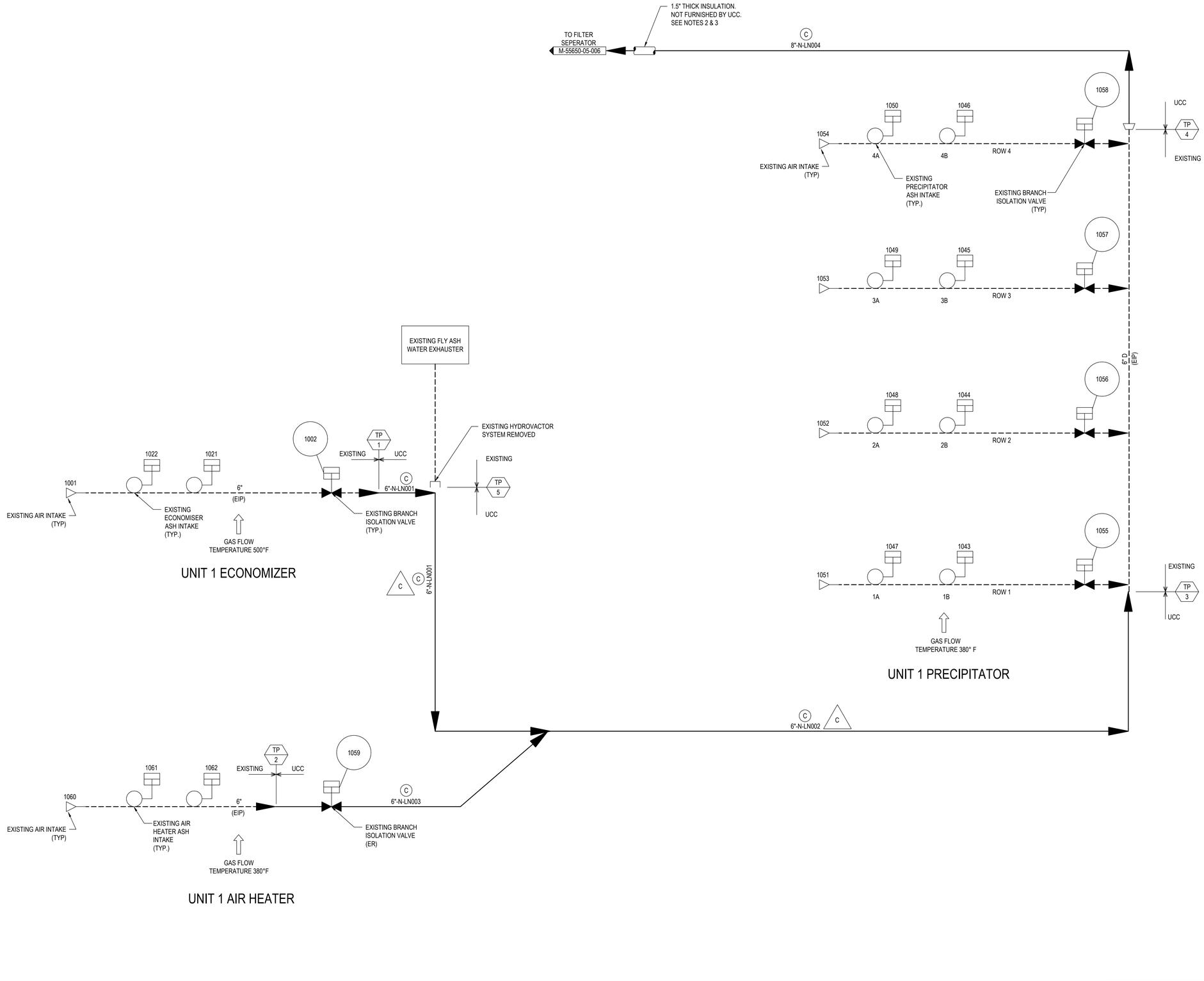
PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: M-55650-05-003

REVISION: B



NOTES

1. FOR GENERAL NOTES AND REFERENCES SEE DRAWING M-55650-05-001.
2. DESIGN OF INSULATION WAS BASED ON MINERAL FIBER THERMAL CONDUCTIVITY OF 0.27 (BTU*IN/FT2*HR*F), ALUMINUM CLADDING TO BE PROVIDED FOR WEATHER PROTECTION AND PERSONNEL AS NECESSARY. SUPPLY OF INSULATION WRAPPED AROUND EXPANSION JOINT MUST ALLOW EXPANSION JOINTS TO MOVE FREELY. MECHANICAL JOINTS AND PIPE SUPPORTS ON PIPING DO NOT REQUIRE INSULATION.
3. INSULATION REQUIREMENT FOR THE LINE BEGINS AFTER LEAVING THE BUILDING

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
C	REVISED PER UCC REVIEW	02/24 2025	MY	CDT		
B	REVISED AS PER CUSTOMER COMMENTS	12/03 2024	MM	MY	CDT	MY
A	INITIAL ISSUE	10/15 2024	MY	CDT	CDT	MY

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SCALE	NONE	DRAWING SIZE	5

DRAWING TITLE

P & I DIAGRAM
FLY ASH NUVEYOR® VACUUM SYSTEM
HOPPER AREA
UNIT 1

PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: M-55650-05-004

REVISION: C

ITEM* A-B-N M-05-005-	DRAWING NUMBER	PART NUMBER	QTY	DESCRIPTION
1	3-2326-31	2326-31-3-3-1-0-0-0-00	1	DISCHARGE-ASSY,8"DRY UNLD
2		55650-05-M201	1	SPOUT,TELESCOPIC
3		55650-05-M202	1	FAN-VENT, TELESCOPIC SPOUT W/MOTOR
4		197052-10-6-12	2	VALVE - BUTTERFLY, 8", AC, SAV, LS, N/O
5		197052-2-6-12	1	VALVE - BUTTERFLY, 6", AC, SAV, LS, N/C
6	SK-2346-25	2346-25-1	1	VENT-PRESSURE & VACUUM RELIEF
7		34635-0-0-0-1-1-1-003-030	1	INDICATOR-LEVEL,RADAR,2-WIRE
8	3-3403-41	3403-41	1	INDICATOR-LVL,120V,60HZ,A=48"
9		340487-2113-000-0051	1	TRANSMITTER-GP,0"-5",H2O
10	SK-3401-99	3401-99	1	ADAPTER-SILO ASH LEVEL INDICATOR
11		197052-3-6-12	2	VALVE - BUTTERFLY, 8", AC, SAV, LS, N/C
12	5-2417-8	2417-8	1	PANEL-CONTROL,TELE SPT & FAN
13		55650-05-M203	1	FAN-VENT, SILO W/MOTOR
14		55650-05-M206	2	LOUVER-PARALLEL, VENTILATION

NOTES

1. FOR GENERAL NOTES AND REFERENCES SEE DRAWING M-55650-05-001.
2. TELESCOPIC SPOUT LOCAL CONTROL PANEL TO BE LOCATED AT GRADE LEVEL.
3. VALVES, MOTORS, AND LIMIT SWITCHES ASSOCIATED WITH THE TELESCOPIC SPOUT AND TELESCOPIC SPOUT VENT FAN ARE WIRED DIRECTLY TO THE TELESCOPIC LOCAL CONTROL PANEL.
4. THROTTLE VALVE TO PROVIDE A MAXIMUM FLOW RATE OF 200 CU FT/MIN
5. INSPECT RELIEF VALVE MONTHLY TO ENSURE DISC MOVES FREELY
6. RTV BOLT SLOTS TO ENSURE WATER TIGHT INSTALLATION. THE FOLLOWING PARAMETERS FOR THE SILO LEVEL TRANSMITTER HAVE BEEN PRE-PROGRAMMED AT THE FACTORY:
   LANGUAGE LOCAL = ENGLISH
   APPLICATION TYPE = STEEL
   PARAMETER LENGTH UNIT = FEET
   OPERATION = LEVEL
   CONN HEIGHT ABOVE BOTTOM OF SILO ROOF = 0.33 FT
   HIGH CALIBRATION POINT = 3 FT
   LOW CALIBRATION POINT = 30 FT
   RATE = SLOW (0.1 M/MIN)
7. OVERFILLING TRUCK WILL CAUSE EXCESSIVE CARRYOVER AND PREMATURE WEAR OF THE VENT SYSTEM COMPONENTS.
8. FOR PRESSURE TRANSMITTER SETTINGS SEE OPERATING INSTRUCTIONS MI-55650-05-001.

TELESCOPIC SPOUT VENT LINE ISOLATION GATE 6" BUTTERFLY VALVE, AIR CYLINDER OPERATED FULLY ASSEMBLED WITH SOLENOID AND LIMIT SWITCHES. FOR COMPRESSED AIR SEE DRAWING M-55650-05-009

ABV 1101 · ZS 1255

TO FILTER SEPARATOR M-55650-05-006 · FROM FILTER SEPARATOR M-55650-05-006

RADAR LEVEL TRANSMITTER SEE NOTE 6 — LT 1250 — AI

PADDLE WHEEL LEVEL DETECTOR 120VAC/1PH/60HZ — LS 1251

12" FLANGED CONNECTION · 6" FLANGED CONNECTION

PRESSURE / VACUUM RELIEF VALVE SET AT -2"WC +8"WC SEE NOTE 5 — SRV 1105

ZS 1256 · ZS 1257 · ABV 1102

SILO VACUUM RELIEF GATE 8" BUTTERFLY VALVE, AIR CYLINDER OPERATED FULLY ASSEMBLED WITH SOLENOID AND LIMIT SWITCHES. FOR COMPRESSED AIR SEE DRAWING M-55650-05-009

8"-CS-LN009

PRESSURE TRANSMITTER WITH READOUT SEE NOTE 8 — PT 1252 — AI — -BV-1107 — GC — GC 1/2"

MANHOLE · OUTLET PLENUM

6"-CS-LN008

FLY ASH STORAGE SILO
5200 CU FT
VSL-001

SEE DRAWING M-55650-05-007 FOR FLUIDIZING SYSTEM

-VNT-001 · 14 MANUAL LOUVER · -VNT-002 · 14 MANUAL LOUVER

CLEANOUT CONNECTION

S 8"-CS-LN005 · 1/2" NPT CONN. WITH PIPE PLUG

DRY DISCHARGE ASSEMBLY, INCLUDES 8" MANUAL ROTARY DISC GATE AND 8" TELESCOPIC SPOUT ASH FEED VALVE AIR CYLINDER OPERATED ROTARY DISC WITH SOLENOID FOR COMPRESSED AIR SEE DRAWING M-55650-05-009

-BV-1106 · 1 SEE NOTES 3 & 4 · ABV 1100

S 8"-CS-LN005

FULL UP LIMIT SWITCH · SLACK CABLE LIMIT SWITCH · ZS 1253 · ZS 1254

3 TELESCOPIC SPOUT VENT FAN MOTOR 7.5 HP, 460 V/3Ph/ 60 Hz, TEFC, 3600 RPM, 213T FRAME, WITH 1.15 S.F.

TELESCOPIC SPOUT 3 VENT FAN SIZED FOR 1000 CFM AT 18" S.P. 9" CONN.

S 8"-CS-LN007 · S 6"-CS-LN006

-M-002 · -FAN-002

UNLOADER ROOM FLOOR
DRIVE THROUGH TRUCK BAY

2 HOIST MOTOR, REVERSING 1 HP, 460 V/3Ph/60 Hz, TEFC,1800 RPM, WITH 1.15 S.F. — -M-001 — 120VAC/1PH/60HZ

-TCH-001 · 2 TELESCOPIC SPOUT

12 -PNL-001 — 120VAC/1PH/60HZ
TELESCOPIC SPOUT LOCAL CONTROL PANEL SEE NOTE 2

ZS 1258 · ZS 1259 · ABV 1103

SILO VENT LINE ISOLATION GATE 8" BUTTERFLY VALVE, AIR CYLINDER OPERATED FULLY ASSEMBLED WITH SOLENOID AND LIMIT SWITCHES FOR COMPRESSED AIR SEE DRAWING M-55650-05-009

ABV 1104 · ZS 1260 · ZS 1261

SILO VENT FAN BYPASS VALVE 8" BUTTERFLY VALVE, AIR CYLINDER OPERATED FULLY ASSEMBLED WITH SOLENOID AND LIMIT SWITCHES FOR COMPRESSED AIR SEE DRAWING M-55650-05-009

8"-CS-LN010 · 8"-CS-LN012

ABV 1183 · ZS 1292 · ZS 1293

SILO VENT FAN DISCHARGE VALVE 8" BUTTERFLY VALVE, AIR CYLINDER OPERATED FULLY ASSEMBLED WITH SOLENOID AND LIMIT SWITCHES FOR COMPRESSED AIR SEE DRAWING M-55650-05-009

13 SILO VENT FAN SIZED FOR 1405 CFM AT 12" S.P. 9" CONN. — 8"-CS-LN011 — 8"-CS-LN009 — -FAN-003 — -M-003

SILO VENT FAN MOTOR 7.5 HP, 460 V/3Ph/60 Hz, TEFC, 3600 RPM, 213T FRAME, WITH 1.15 S.F.

TO FLUE GAS DUCT M-55650-05-008

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
C	REVISED AS PER CUSTOMER COMMENTS	02/24/2025	MY	CDT		
B	GENERAL REVISION	12/03/2024	FST	MY	CDT	MY
A	INITIAL ISSUE	10/15/2024	MY	CDT	CDT	MY

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SCALE	NONE	DRAWING SIZE	5

DRAWING TITLE
P & I DIAGRAM
FLY ASH NUVEYOR® VACUUM AND UNLOADING SYSTEM
SILO AREA
UNIT 1

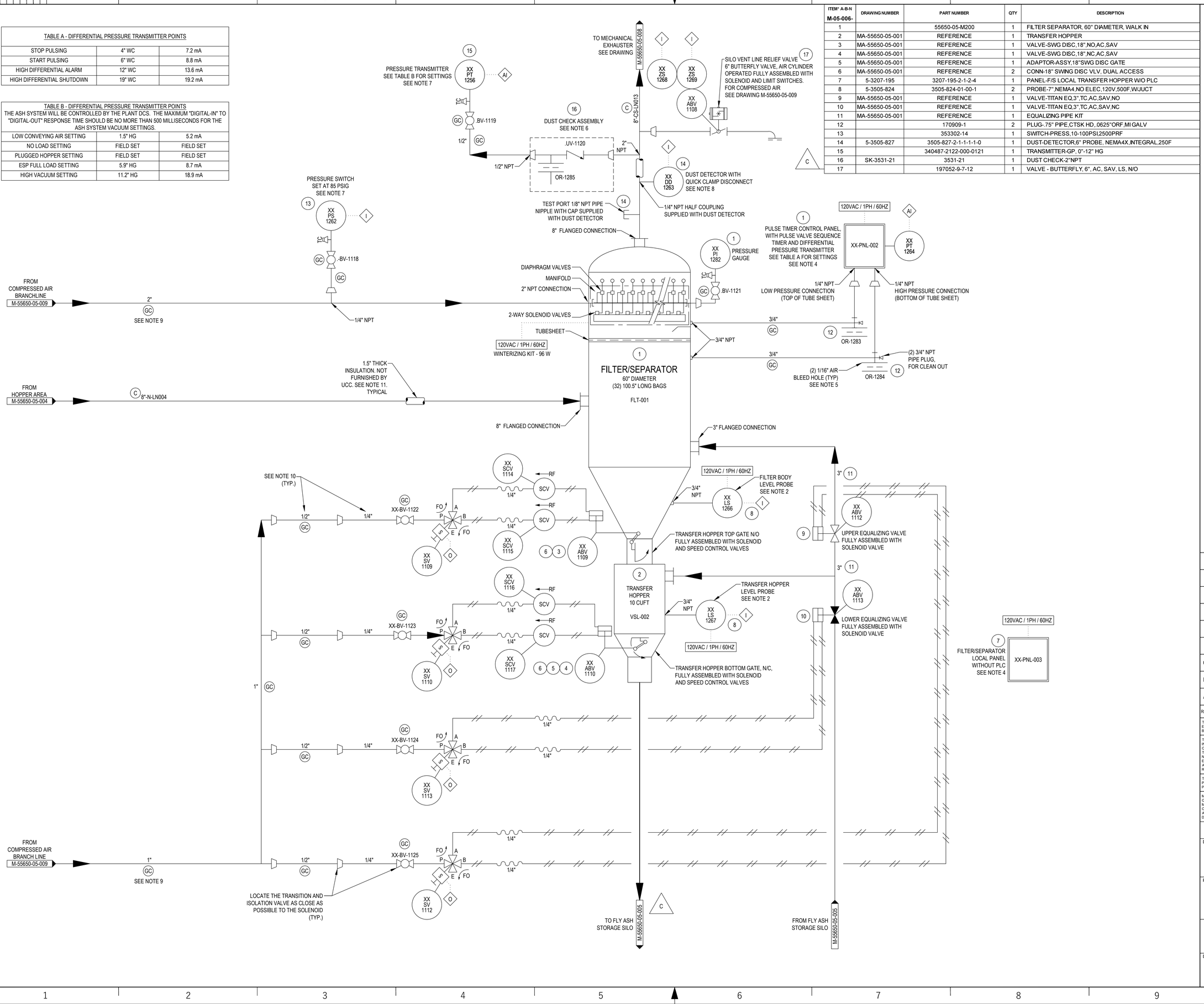
PLANT NAME
HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

ucc environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER M-55650-05-005 · REVISION C

TABLE A - DIFFERENTIAL PRESSURE TRANSMITTER POINTS		
STOP PULSING	4" WC	7.2 mA
START PULSING	6" WC	8.8 mA
HIGH DIFFERENTIAL ALARM	12" WC	13.6 mA
HIGH DIFFERENTIAL SHUTDOWN	19" WC	19.2 mA

TABLE B - DIFFERENTIAL PRESSURE TRANSMITTER POINTS THE ASH SYSTEM WILL BE CONTROLLED BY THE PLANT DCS. THE MAXIMUM "DIGITAL-IN" TO "DIGITAL-OUT" RESPONSE TIME SHOULD BE NO MORE THAN 500 MILLISECONDS FOR THE ASH SYSTEM VACUUM SETTINGS.		
LOW CONVEYING AIR SETTING	1.5" HG	5.2 mA
NO LOAD SETTING	FIELD SET	FIELD SET
PLUGGED HOPPER SETTING	FIELD SET	FIELD SET
ESP FULL LOAD SETTING	5.9" HG	8.7 mA
HIGH VACUUM SETTING	11.2" HG	18.9 mA



ITEM* A-B-N M-05-006-	DRAWING NUMBER	PART NUMBER	QTY	DESCRIPTION
1		55650-05-M200	1	FILTER SEPARATOR, 60" DIAMETER, WALK IN
2	MA-55650-05-001	REFERENCE	1	TRANSFER HOPPER
3	MA-55650-05-001	REFERENCE	1	VALVE-SWG DISC,18",NO,AC,SAV
4	MA-55650-05-001	REFERENCE	1	VALVE-SWG DISC,18",NC,AC,SAV
5	MA-55650-05-001	REFERENCE	1	ADAPTOR-ASSY,18"SWG DISC GATE
6	MA-55650-05-001	REFERENCE	2	CONN-18" SWING DISC VLV, DUAL ACCESS
7	5-3207-195	3207-195-2-1-2-4	1	PANEL-F/S LOCAL TRANSFER HOPPER W/O PLC
8	5-3505-824	3505-824-01-00-1	2	PROBE-7",NEMA4,NO ELEC,120V,500F,W/JUCT
9	MA-55650-05-001	REFERENCE	1	VALVE-TITAN EQ,3",TC,AC,SAV,NO
10	MA-55650-05-001	REFERENCE	1	VALVE-TITAN EQ,3",TC,AC,SAV,NC
11	MA-55650-05-001	REFERENCE	1	EQUALIZING PIPE KIT
12		170909-1	2	PLUG-.75" PIPE,CTSK HD,.0625"ORF,MI GALV
13		353302-14	1	SWITCH-PRESS,10-100PSI,2500PRF
14	5-3505-827	3505-827-2-1-1-1-1-0	1	DUST-DETECTOR,6" PROBE, NEMA4X,INTEGRAL,250F
15		340487-2122-000-0121	1	TRANSMITTER-GP, 0"-12" HG
16	SK-3531-21	3531-21	1	DUST CHECK-2"NPT
17		197052-9-7-12	1	VALVE - BUTTERFLY, 6", AC, SAV, LS, N/O

NOTES

1. FOR GENERAL NOTES AND REFERENCES SEE DRAWING M-55650-05-001.
2. IF INSULATION IS REQUIRED, DISH OUT THE INSULATION AROUND THE TWO LEVEL PROBES. THIS IS TO AVOID OVERHEATING THE ELECTRONICS OF THESE LEVEL PROBES.
3. CONDENSATION MAY OCCUR IN THE FILTER/SEPARATOR, EQUALIZING VALVES/PIPING, THE AIRLINE PIPING, AND EVEN IN THE MECHANICAL EXHAUSTER, WHEN TEMPERATURES DROP BELOW 50°F. THERE ARE MANY FACTORS THAT LEAD TO THE FORMATION OF CONDENSATION, SUCH AS: LOW AMBIENT TEMPERATURES, HIGH BOILER FLUE GAS DEW POINT TEMPERATURE, LOW ASH TEMPERATURES, AND LOW CONVEYING TEMPERATURES TO NAME A FEW. FOR CONDENSATION TO OCCUR, MOISTURE IN THE CONVEYING AIR AND ONE OR MORE OF THESE FACTORS MUST BE PRESENT. MOST SYSTEMS WILL NOT HAVE A PROBLEM WITH CONDENSATION, EVEN IF THE AMBIENT TEMPERATURE DROPS WELL BELOW FREEZING. THE MOST COMMON CAUSE FOR THE FORMATION OF CONDENSATION IN THE FILTER/SEPARATOR, AIRLINE, OR MECHANICAL EXHAUSTER IS OPERATING THE SYSTEM CONTINUOUSLY OR PERMITTING IT TO PULL A SIGNIFICANT QUANTITY OF BOILER FLUE GAS IN THE PRESENCE OF LOW AMBIENT TEMPERATURES.
   HEAT TRACING AND/OR INSULATION OF THE FILTER/SEPARATOR, EQUALIZING VALVES/PIPING, OR AIRLINE PIPING MAY BE REQUIRED TO PROTECT THE FILTER/SEPARATOR, EQUALIZING PIPING, AIRLINE, AND MECHANICAL EXHAUSTER FROM CORROSIVE CONDENSATION. THE NEED FOR HEAT TRACING AND INSULATION CAN NOT BE DETERMINED AHEAD OF TIME IN THE DESIGN STAGE. THE NEED IS BEST DETERMINED FROM EXPERIENCE AFTER THE SYSTEM HAS OPERATED FOR SOME PERIOD OF TIME. SHOULD PROBLEMS OCCUR WITH CONDENSATION, CONTACT UCC FOR ASSISTANCE. IF HEAT TRACING OR INSULATION IS INSTALLED, THE AIR TEMPERATURE AT THE MECHANICAL EXHAUSTER MUST BE MONITORED TO ENSURE THAT THE DIFFERENTIAL TEMPERATURE ACROSS THE EXHAUSTER AND THE EXHAUSTER DISCHARGE TEMPERATURE DO NOT EXCEED THE OPERATING LIMITATIONS AS SPECIFIED BY THE EXHAUSTER MANUFACTURER. THIS IS PARTICULARLY IMPORTANT DURING THE WARMER MONTHS. DESIGN, SUPPLY, AND INSTALLATION OF HEAT TRACING AND INSULATION IS NOT BY UCC.
4. LOCATE THE LOCAL CONTROL PANEL IN AN ACCESSIBLE AREA NEAR THE FILTER/SEPARATOR.
5. INSTALL ORIFICE IN CROSS IN HORIZONTAL RUN OF PIPE. INSTALL POINTING DOWN.
6. LOCATE AND MOUNT THE DUST CHECK ASSEMBLY NEXT TO THE AIRLINE NEAR THE VACUUM PRODUCING EQUIPMENT IN ACCORDANCE WITH THE NOTES SHOWN ON DRAWING SK-3531-21. BE SURE TO INSTALL THE CHECK VALVE HORIZONTALLY WITH THE ORIFICE FACING DOWN.
7. THE MOUNTING LOCATION CHOSEN MUST BE READILY ACCESSIBLE FOR MOUNTING AND ADJUSTING THE PRESSURE TRANSMITTER AND SWITCH. THE PRESSURE TRANSMITTER AND SWITCH (INSTRUMENTS) ARE TO BE INDEPENDENTLY SUPPORTED SO NO VIBRATION IS TRANSMITTED TO THE INSTRUMENTS. MOUNT THE PRESSURE TRANSMITTER AS CLOSE AS POSSIBLE TO THE DUST CHECK ASSEMBLY; WITHIN 10 FEET.
8. LOCATE DUST DETECTOR IN AN ACCESSIBLE LOCATION NEAR THE TRANSMITTER IN A STRAIGHT RUN OF PIPE, 10 PIPE DIAMETERS DOWNSTREAM OF ANY CHANGE IN DIRECTION.
9. ALL COMPRESSED AIR PIPING IS DESIGNED AND FIELD ROUTED BY OTHERS.
10. ALL LINE SIZES UP TO THE SOLENOID VALVES ARE BASED ON STANDARD STEEL PIPE INNER DIAMETERS. IF TUBING IS USED IN LIEU OF STEEL PIPE, THE TUBE INNER DIAMETER MUST BE GREATER THAN OR EQUAL TO THE EQUIVALENT STANDARD STEEL PIPE INNER DIAMETER.
11. DESIGN OF INSULATION WAS BASED ON MINERAL FIBER THERMAL CONDUCTIVITY OF 0.27 (BTU*IN/FT2*HR*F). ALUMINUM CLADDING TO BE PROVIDED FOR WEATHER PROTECTION AND PERSONNEL AS NECESSARY. SUPPLY OF INSULATION WRAPPED AROUND EXPANSION JOINT MUST ALLOW EXPANSION JOINTS TO MOVE FREELY. MECHANICAL JOINTS AND PIPE SUPPORTS ON PIPING DO NOT REQUIRE INSULATION.

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
C	REVISED PER UCC REVIEW	02/24/2025	MY	CDT		
B	REVISED PER CUSTOMER COMMENTS	12/03/2024	FST	MY	CDT	MY
A	INITIAL ISSUE	10/15/2024	HH	MY	CDT	MY

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SCALE	NONE	DRAWING SIZE	5

DRAWING TITLE

P & I DIAGRAM
FILTER/SEPARATOR - CONTINUOUS OPERATION
UNIT 1

PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

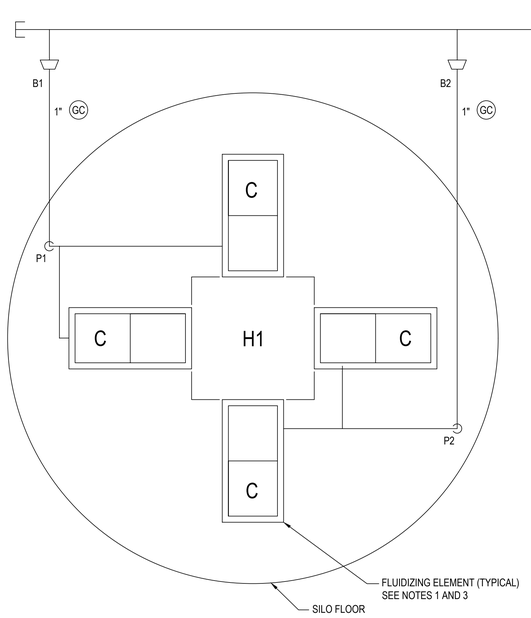
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER	REVISION
M-55650-05-006	C

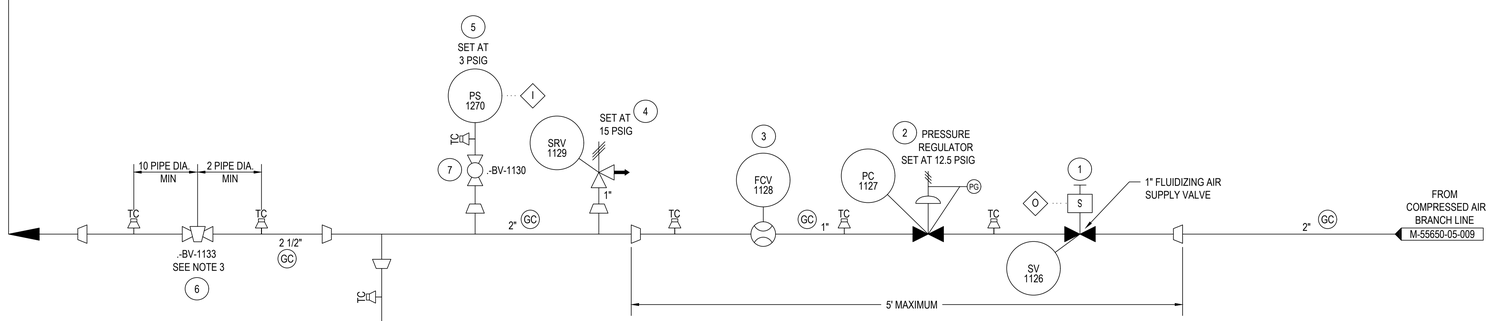
ITEM* A-B-N M-05-007-	DRAWING NUMBER	PART NUMBER	QTY	DESCRIPTION
1		196025-8	1	VALVE - SAV, 1.00" NPT, 2-WAY, N/C, H, 120/60
2		44325-12	1	REGULATOR - AIR PRESSURE, 1.0" NPT, 5-50PSIG
3		34295-104	1	FLOW LIMITER-7.3GPM,1"NPTF
4		195750-2	1	VALVE - RELIEF, 1", 15 PSIG,BRZ,ASME
5		340913-1	1	SWITCH-PRESS,30"HG-20 PSI,1 SWITCH
6		197098-4	1	VALVE - PLUG, FLANGED, 2.5", W/O OPERATOR
7		196831-1-2	1	VALVE - BALL, 0.25",MAN,BRZ
8		196831-4-2	1	VALVE - BALL, 0.75",MAN,BRZ
9		196831-5-2	2	VALVE - BALL, 1.00",MAN,BRZ
10		190002-4	1	VALVE - SWING CHECK, 0.75" NPT
11		190002-5	2	VALVE - SWING CHECK, 1.0" NPT
12	SK-4003-31	40392-0219	1	PIPE-3/4",BEV,7/32"ORIFICE
13	SK-4003-31	40393-0219	2	UNION-ORF (1")NPT, .219 DIA
14	2-1727-4	1727-4-075-4	1	PIPING KIT-BIN OLT HPPR
15	2-1727-2	1727-2-10-4	2	PIPING KIT-FLUIDIZER,(2) TRAY

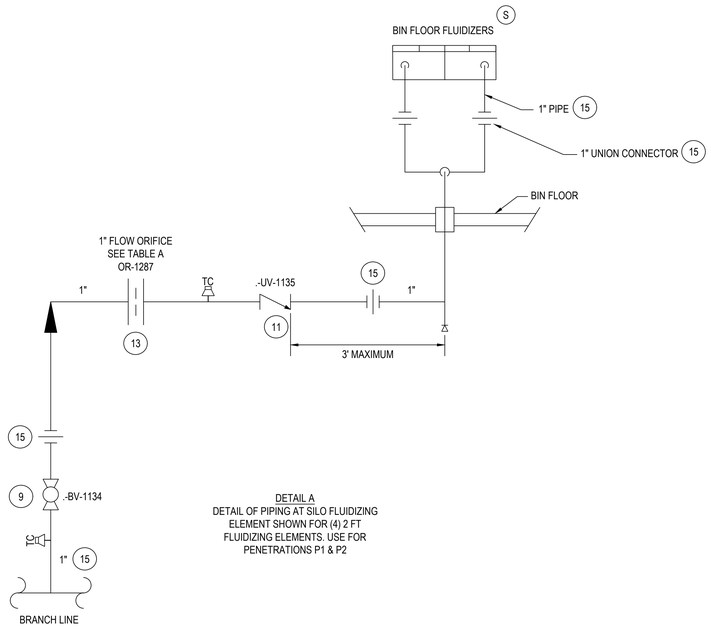
NOTES

1. FOR GENERAL NOTES AND REFERENCES SEE DRAWING M-55650-05-001.
2. THE FLUIDIZING ELEMENTS MUST BE CONNECTED TO EACH OF THE BRANCH LINES AS SHOWN. ALTHOUGH THE ACTUAL PIPE ROUTING MAY DIFFER FROM THIS DRAWING, THE FLUIDIZING ELEMENTS MUST BE CONNECTED TO THE CORRECT BRANCH LINE. SEE DETAIL A.
3. INSTALL PLUG VALVE WITH THE STEM POINTED UP. ADJUST PLUG VALVE TO PROVIDE A 1.5 PSIG DIFFERENTIAL PRESSURE ACROSS THE SILO OUTLET HOPPER FLUIDIZER FLOW LIMITER WHEN THE ASH SILO IS EMPTY. THIS PROVIDES APPROXIMATELY 1 PSIG MORE PRESSURE AT BIN OUTLET HOPPER DIFFUSING STONES WHEN THERE IS ASH IN THE SILO.
4. FLUIDIZING ELEMENTS MARKED WITH A "C" ARE 2 FT ASSEMBLIES.



UNIT 1 FLY ASH SILO 14' DIAMETER
WITH TRUNCATED CONE 8' DIAMETER





DETAIL A
DETAIL OF PIPING AT SILO FLUIDIZING ELEMENT SHOWN FOR (4) 2 FT FLUIDIZING ELEMENTS. USE FOR PENETRATIONS P1 & P2

TABLE A

PENETRATION LOCATION	BALL VALVE TAG	ORIFICE BOM ITEM NUMBER	ORIFICE TAG	CHECK VALVE TAG
H1	BV-1131	12	OR-1286	UV-1132
P1	BV-1134	13	OR-1287	UV-1135
P2	BV-1187	13	OR-1289	UV-1188

C

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SCALE	DRAWING SIZE
NONE	5

DRAWING TITLE
P & I DIAGRAM
BIN FLUIDIZING SYSTEM
UNIT 1

PLANT NAME
HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER	REVISION
M-55650-05-007	C

ITEM* A-B-N M-05-008-	DRAWING NUMBER	PART NUMBER	QTY	DESCRIPTION
1		55650-05-M204	2	EXHAUSTER-MECHANICAL, ROTARY, PD
2		55650-05-M205	2	MOTOR-ELECTRIC, 40HP
3	3-1957-22	1957-22-2	2	VALVE-RLF,VAC,8",316L,SS
4		326150-080	2	SCREEN-START UP,8",304SS
5		340916-2	2	SWITCH-TEMP,100-400 F
6		197051-3-7-12	4	VALVE - BUTTERFLY, 8", AC, SAV, LS, N/C
7		195741-4-030	2	VALVE-PRESS RLF,4",3.0 PSIG
8	SK-3531-21	3531-21	1	DUST CHECK-2"NPT
9		340487-2113-000-0251	1	TRANSMITTER-GP,0"-25",H2O
10	5-1949-56,63	1949-56	1	DAMPER ASSY-2BLD,AWV,A=9-1/2"
11		197054-3	2	VALVE - BUTTERFLY, 8", MANUAL

NOTES

1. FOR GENERAL NOTES AND REFERENCES SEE DRAWING M-55650-05-001.
2. DO NOT MOUNT INSTRUMENTS ON THE BLOWER, BASE OR PIPING.
3. RELIEF VALVE AIR INLET TO BE LOCATED AWAY FROM PERSONNEL, OR A USE PROTECTIVE BARRIER, SUCH AS A COARSE SCREEN OR GRID, THAT IS TO BE PROVIDED NOT BY UCC. VALVE TO BE POSITIONED WITH SPRING AND STEM HORIZONTAL. CHECK RELIEF VALVE MONTHLY TO ENSURE THAT DISC MOVES FREELY.
4. THE DEBRIS SCREEN SHOULD BE PERIODICALLY CLEANED DURING THE FIRST FEW HOURS OF OPERATION. THE SCREEN SHOULD BE REMOVED AFTER DANGER FROM DEBRIS IS OVER, TYPICALLY ONE WEEK OF REGULAR SERVICE.
5. ALL BLOWER ACCESSORIES AND AIR PIPELINES UPSTREAM OF THE INLET EXPANSION JOINT AND DOWNSTREAM OF THE DISCHARGE EXPANSION JOINT MUST BE INDEPENDENTLY SUPPORTED, ALIGNED AND SECURED SO THAT NO FORCES ARE TRANSMITTED TO THE BLOWER. ALL PIPING AND ACCESSORIES MUST BE SECURED FIRMLY SO THAT EXCESS VIBRATION DOES NOT DAMAGE THE INLET OR DISCHARGE EXPANSION JOINTS.
6. THE SOUND PRESSURE LEVEL OF EQUIPMENT SUPPLIED BY UCC WAS DETERMINED ON A TEST STAND OR AT AN ACTUAL INSTALLATION AND CORRECTED FOR BACKGROUND NOISE. VALUES QUOTED AS MEETING CONTRACT SPECIFICATIONS IN NO WAY IMPLY A GUARANTEED INSTALLED SOUND PRESSURE LEVEL DUE TO MANY VARIABLES OF WHICH UCC HAS NO KNOWLEDGE AND OVER WHICH UCC HAS NO CONTROL. SOUND PRESSURE LEVELS ARE DEPENDENT ON THE AMBIENT CONDITIONS SUCH AS THE DISTANCE OF THE EQUIPMENT FROM ADJACENT WALLS, NOISE REFLECTIVE PROPERTIES OF EQUIPMENT IN THE VICINITY OF THE BLOWER, BACKGROUND NOISE, ETC.
7. THE MOUNTING LOCATION CHOSEN MUST BE READILY ACCESSIBLE FOR MOUNTING AND ADJUSTING THE PRESSURE TRANSMITTER. THE PRESSURE TRANSMITTER (INSTRUMENTS) ARE TO BE INDEPENDENTLY SUPPORTED SO NO VIBRATION IS TRANSMITTED TO THE INSTRUMENTS. MOUNT THE PRESSURE TRANSMITTER AS CLOSE AS POSSIBLE TO THE DUST CHECK ASSEMBLY; WITHIN 10 FEET.
8. DEBRIS SCREEN AND CLEAN OUT TEE TO BE LOCATED NEXT TO EACH OTHER TO FACILITATE SCREEN CLEANING. IF POSSIBLE MOUNT DEBRIS SCREEN IN A VERTICAL SECTION OF PIPE, HOWEVER, CONSIDER ACCESS TO CLEAN OUT WHEN LOCATING. DEBRIS SCREEN TO BE LOCATED AS CLOSE TO EXHAUSTER WITHIN THE CONSTRAINTS IMPOSED BY THE PHYSICAL PIPING SYSTEM. WITHIN 24" IS CONSIDERED IDEAL.
9. THE SOUND ENCLOSURE VENT FAN SHOULD BE OPERATED AS FOLLOWS:
   THE SOUND ENCLOSURE VENT FAN WILL AUTOMATICALLY TURN ON WHEN THE EXHAUSTER IS STARTED. ONCE THE EXHAUSTER IS SHUT DOWN, THE SOUND ENCLOSURE VENT FAN WILL AUTOMATICALLY TURN OFF AFTER A TIME DELAY SET AT MIN.
10. DESIGN OF INSULATION WAS BASED ON MINERAL FIBER THERMAL CONDUCTIVITY OF 0.27 (BTU*IN/FT2*HR*F). ALUMINUM CLADDING TO BE PROVIDED FOR WEATHER PROTECTION AND PERSONNEL AS NECESSARY. SUPPY OF INSULATION AND CLADDING IS BY OTHERS. INSULATION WRAPPED AROUND EXPANSION JOINTS MUST ALLOW EXPANSION JOINTS TO MOVE FREELY. MECHANICAL JOINTS AND PIPE SUPPORTS ON PIPING DO NOT REQUIRE INSULATION.
11. FOR PRESSURE TRANSMITTER SETTINGS SEE OPERATING INSTRUCTIONS MI-55650-05-001.

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
C	REVISED PER UCC REVIEW	02/24 2025	MY	CDT		
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SCALE	NONE	DRAWING SIZE	5

DRAWING TITLE

P & I DIAGRAM
MECHANICAL EXHAUSTERS
UNIT 1

PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

ucc environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: M-55650-05-008

REVISION: C

ITEM* A-B-N M-05-009-	DRAWING NUMBER	PART NUMBER	QTY	DESCRIPTION
1		44324-12	4	FILTER-AIR,1"NPT, W/SIGHT GLASS

NOTES

1. FOR GENERAL NOTES AND REFERENCES SEE DRAWING M-55650-05-001
2. ALL COMPRESSED AIR PIPING IS DESIGNED AND FIELD ROUTED BY OTHERS.
3. LOCATE THE AIR FILTER NEAR THE EQUIPMENT TO BE OPERATED FOR EACH AREA.
4. ALL LINE SIZES UP TO THE SOLENOID VALVES ARE BASED ON STANDARD STEEL PIPE ID'S. IF TUBING IS USED IN LIEU OF STEEL PIPE, THE TUBE ID MUST BE GREATER THAN OR EQUAL TO THE EQUIVALENT STANDARD STEEL PIPE ID.
5. INSULATION SHALL BE INSTALLED ON ALL COMPRESSED AIR PIPING EXPOSED TO EXTERIOR AMBIENT TEMPERATURES.

ALL INSTRUMENT AIR PIPING AND VALVING NOT DESIGNED OR FURNISHED BY UCC

INSTRUMENT AIR PIPING WITHIN 200 FT OF THE EQUIPMENT SIZED BY UCC AS SHOWN, BUT NOT FURNISHED BY UCC

TO FILTER/SEPARATOR
36 SCFM
CONTINUOUS DEMAND
M-55650-05-006

CLEAN, DRY COMPRESSED INSTRUMENT AIR
90 TO 100 PSIG
36 SCFM CONTINUOUS DEMAND

GC 2" GC GC 1" TC 1 TC 2" GC
.BV-1149
.FLT-002
SEE NOTE 3
SILO ROOF AREA

(1) 6" TELESCOPIC SPOUT VENT LINE ISOLATION GATE, BUTTERFLY VALVE, N/C AIR CYLINDER OPERATED
SEE DRAWING M-55650-05-005
VALVE TAG(S): ABV-1101
SOLENOID TAG(S): SV-1101

1/4" 1/4" RF RF SCV SCV SCV 1163 SV 1101 SCV 1164 A B FO E O FO 1/4"P S GC .BV-1153

TO FILTER/SEPARATOR
TRANSFER VALVE SET 35 SCFM
MAX INTERMITTENT DEMAND
FOR 2 SECONDS
M-55650-05-006
1" GC

(1) 8" SILO VACUUM RELIEF GATE BUTTERFLY VALVE, N/O AIR CYLINDER OPERATED
SEE DRAWING M-55650-05-005
VALVE TAG(S): ABV-1102
SOLENOID TAG(S): SV-1102

C

1/4" 1/4" RF RF SCV SCV SCV 1165 SV 1102 SCV 1166 A B FO E O FO 1/4"P S GC .BV-1154

(1) 6" SILO VENT LINE RELIEF GATE, BUTTERFLY VALVE, N/O AIR CYLINDER OPERATED
SEE DRAWING M-55650-05-006
VALVE TAG(S): ABV-1108
SOLENOID TAG(S): SV-1108

1/4" 1/4" RF RF SCV SCV SCV 1167 SV 1108 SCV 1168 A B FO E O FO 1/4"P S GC .BV-1155

CLEAN, DRY COMPRESSED INSTRUMENT AIR
80 TO 100 PSIG
35 SCFM CONTINUOUS DEMAND
130 SCFM MAXIMUM INTERMITTENT DEMAND
FOR 2 SECONDS

GC 2" GC GC 1" TC 1 TC 2" GC
.BV-1150
.FLT-003
SEE NOTE 3
SILO ROOF AREA

(1) 8" TELESCOPIC ASH FEED VALVE, BUTTERFLY VALVE, N/C AIR CYLINDER OPERATED
SEE DRAWING M-55650-05-005
VALVE TAG(S): ABV-1100
SOLENOID TAG(S): SV-1100

RF RF SCV SCV SCV 1169 SV 1100 SCV 1170 1/4" 1/4" A B FO E O FO 1/4"P S GC .BV-1156

(1) 8" SILO VENT LINE ISOLATION GATE, BUTTERFLY VALVE, N/C AIR CYLINDER OPERATED
SEE DRAWING M-55650-05-005
VALVE TAG(S): ABV-1103
SOLENOID TAG(S): SV-1103

1/4" 1/4" RF RF SCV SCV SCV 1171 SV 1103 SCV 1172 A B FO E O FO 1/4"P S GC .BV-1157

(1) 8" SILO VENT FAN BYPASS VALVE, BUTTERFLY VALVE, N/O AIR CYLINDER OPERATED
SEE DRAWING M-55650-05-005
VALVE TAG(S): ABV-1104
SOLENOID TAG(S): SV-1104

1/4" 1/4" RF RF SCV SCV SCV 1173 SV 1104 SCV 1174 A B FO E O FO 1/4"P S GC .BV-1158

(1) 8" SILO VENT FAN DISCHARGE VALVE, BUTTERFLY VALVE, N/C AIR CYLINDER OPERATED
SEE DRAWING M-55650-05-005
VALVE TAG(S): ABV-1183
SOLENOID TAG(S): SV-1183

1/4" 1/4" RF RF SCV SCV SCV 1185 SV 1183 SCV 1184 A B FO E O FO 1/4"P S GC .BV-1166

C

TO BIN
FLUIDIZING SYSTEM
35 SCFM
CONTINUOUS DEMAND
M-55650-05-007
2" GC

GC 2" GC GC 1" TC 1 TC 2" GC
.BV-1151
.FLT-004
SEE NOTE 3
SILO UNLOADING FLOOR AREA

(1) 8" EXHAUSTER SUCTION VALVES, BUTTERFLY VALVE, N/C AIR CYLINDER OPERATED
SEE DRAWING M-55650-05-008
VALVE TAG(S): ABV-1136
SOLENOID TAG(S): SV-1136

1/4" 1/4" RF RF SCV SCV SCV 1175 SV 1136 SCV 1176 A B FO E O FO 1/4"P S GC .BV-1161

(1) 8" EXHAUSTER SUCTION VALVES, BUTTERFLY VALVE, N/C AIR CYLINDER OPERATED
SEE DRAWING M-55650-05-008
VALVE TAG(S): ABV-1140
SOLENOID TAG(S): SV-1140

C C 1/4" 1/4" RF RF SCV SCV SCV 1179 SV 1140 SCV 1180 A B FO E O FO 1/4"P S GC .BV-1159

(1) 8" EXHAUSTER DISCHARGE VALVES, BUTTERFLY VALVE, N/C AIR CYLINDER OPERATED
SEE DRAWING M-55650-05-008
VALVE TAG(S): ABV-1137
SOLENOID TAG(S): SV-1137

1/4" 1/4" RF RF SCV SCV SCV 1177 SV 1137 SCV 1178 A B FO E O FO 1/4"P S GC .BV-1162

(1) 8" EXHAUSTER DISCHARGE VALVES, BUTTERFLY VALVE, N/C AIR CYLINDER OPERATED
SEE DRAWING M-55650-05-008
VALVE TAG(S): ABV-1141
SOLENOID TAG(S): SV-1141

1/4" 1/4" RF RF SCV SCV SCV 1181 SV 1141 SCV 1182 A B FO E O FO 1/4"P S GC .BV-1160

GC 2" GC GC 1" TC 1 TC 2" GC
.BV-1152
.FLT-005
SEE NOTE 3
MECHANICAL EXHAUSTER AREA

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A	INITIAL ISSUE	10/15/2024	MY	CDT	MY	CDT

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SCALE	NONE	DRAWING SIZE	5

DRAWING TITLE

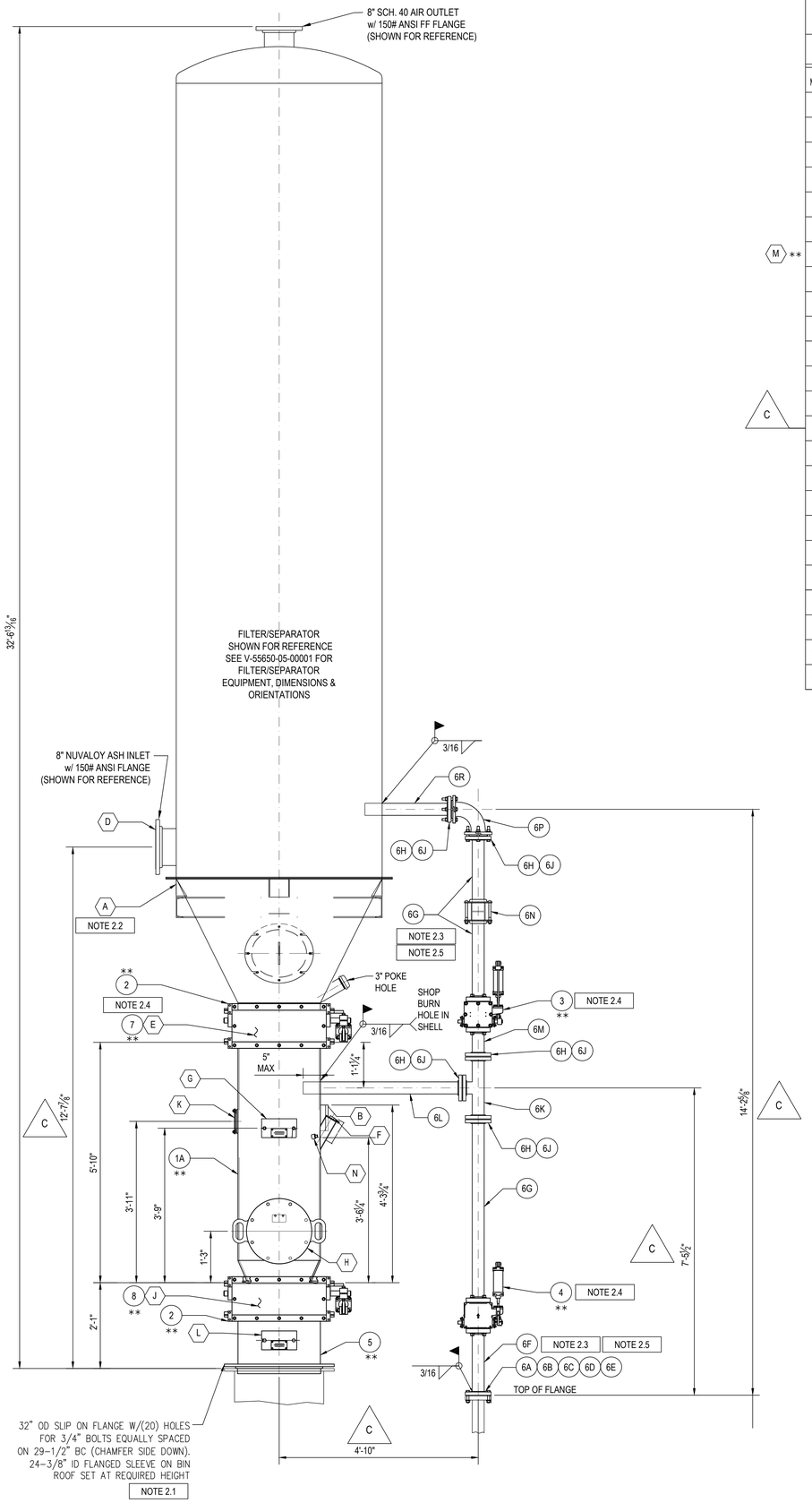
P & I DIAGRAM
COMPRESSED AIR
FLY ASH NUVEYOR® VACUUM SYSTEM
UNIT 1

PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER	REVISION
M-55650-05-009	C



ELEVATION

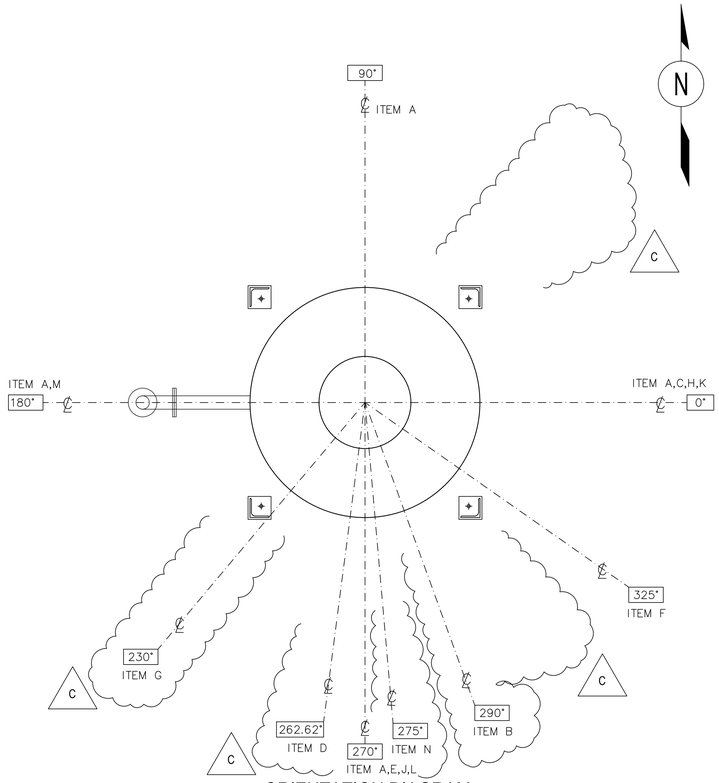
FOR PARTS IDENTIFICATION AND DIMENSIONS ONLY
FOR TRUE COMPONENT ORIENTATION
SEE ORIENTATION DIAGRAM

BILL OF MATERIAL

X ITEM	SUB-ITEM	DRAWING NUMBER	PART NUMBER	QTY	DESCRIPTION
MA-001					
1		MA-55650-05-001	MA-55650-05-001-100	1	HOPPER-TRANSFER, 10 CU FT, ASSEMBLY (CONSISTS OF 1A)
	1A	5-3206-398	3206-398-1	1	HOPPER-TRANSFER, 10 CU FT, SUB-ASSEMBLY
2		SK-1701-4033	1701-4033-1	2	KIT-CONNECTION, 18" SWING DISC VALVE
3		5-1952-97	1952-97-21-2015-11-000000	1	VALVE-TITAN EQ,3",TC,AC,SAV,NO
4		5-1952-97	1952-97-21-2015-12-000000	1	VALVE-TITAN EQ,3",TC,AC,SAV,NC
5		1-3206-37	3206-37	1	ADAPTOR-ASSEMBLY,18" SWING DISC VALVE
M **	6	MA-55650-05-001	MA-55650-05-001-200	1	HEADER - EQUALIZING VENT PIPING (HEADER CONSISTS OF 6A THRU 6R)
	6A	N/A	171842-030	1	FLANGE-SLIP-ON, 150#, 3", FLAT FACE, CS
	6B	N/A	408565-3	1	GASKET-FULL FACE, 3"
	6C	N/A	46295-325	4	SCREW-HHC, ⅝"-11 X 3-1/4"
	6D	N/A	46255-13	4	WASHER-PLAIN, ⅝", SAE
	6E	N/A	46301-625	4	NUT-HEX, ⅝"-11
	6F	N/A	176064-301-300	1	PIPE-3", SCH40 X 30" LONG, THREADED ONE END
	6G	N/A	176063-301-520	2	PIPE-3", SCH40 X 52" LONG, THREADED BOTH ENDS
	6H	N/A	171844-030	5	FLANGE-3", FF, 150#, SCREW-ON
	6J	2-1701-318, 327	1701-319-3N	5	CONN-3", BEV/150# SILICONE GASKET
	6K	N/A	170986	1	TEE-3", BEV, DURITE
	6L	N/A	176064-301-460	1	PIPE-3", SCH40 X 46" LONG, THREADED ONE END
	6M	N/A	176063-301-080	1	PIPE-3", SCH40 X 8" LONG, THREADED BOTH ENDS
	6N	N/A	175300-24-3	1	COUPLING-FULL, 3", DRESSER TYPE
	6P	SK-1710-361	1710-361	1	ELBOW-3" X 90 DEG, BEVEL ENDS, DC
	6R	N/A	176064-301-250	1	PIPE-3", SCH40 X 30" LONG, THREADED ONE END
● 7		5-1221-102	1221-102-10017A-000	1	VALVE-SWING DISC, 18", NO, AC, SAV (UPPER)
● 8		5-1221-102	1221-102-10018A-000	1	VALVE-SWING DISC, 18", NC, AC, SAV, (LOWER)

ITEM IDENTIFICATION AND ORIENTATION

ITEM	QTY	DESCRIPTION	ORIENTATION
A	4	F/S SUPPORT GUSSET ASSEMBLY (REFERENCE)	0°, 90°, 180°, 270°
B	1	LEVEL PROBE JUNCTION BOX MOUNTING BRACKET	290°
C	1	16" ACCESS PORT - FILTER/SEPARATOR (REFERENCE)	0°
D	1	INLET (REFERENCE)	262.62°
E	1	18" SWING DISC VALVE ACCESS PORT (UPPER)	270°
F	1	LEVEL PROBE COUPLING-TRANSFER HOPPER, 3/4" NPT	325°
G	1	4"x6" INSPECTION PORT-TRANSFER HOPPER	230°
H	1	12" ACCESS PORT - TRANSFER HOPPER	0°
J	1	18" SWING DISC VALVE ACCESS PORT (LOWER)	270°
K	1	TRANSFER HOPPER OBSERVATION WINDOW, 4" DIA.	0°
L	1	4"X6" INSPECTION PORT-ADAPTOR	270°
M	1	2-WAY VENT VALVES & EQUALIZING PIPING	180°
N	1	BACKUP LEVEL PROBE COUPLING, TRANSFER HOPPER	275°



ORIENTATION DIAGRAM

NOTES

MANUFACTURING NOTES (APPLIES ONLY TO ITEM 1A)

1.1 – PRESSURE TEST UNIT FOR LEAKS PER PROCEDURE UCC-800.

1.2 – APPLY PRIMER PER UCC SPEC 4505-1

INSTALLATION NOTES

2.1 – DO NOT WELD FLANGE TO ADAPTOR. LOOSE FLANGE AND GASKET RING SERVE AS AN EXPANSION JOINT.

2.2 – FILTER/SEPARATOR SUPPORT LEGS ARE SHOWN ON DRAWING V-55650-05-00001 & G-55650-05-001.

2.3 – EQUALIZING VENT PIPING TO BE FIELD CUT TO SUIT.

2.4 – ACCESS TO THESE ITEMS IS NOT BY UCC AND IS TO BE PROVIDED BY THE CUSTOMER.

2.5 – DEBURR CUT ENDS OF PIPE.

OPERATION NOTES

3.1 – REFER TO VENDOR DOCUMENT V-55650-05-00002 FOR INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS.

3.2 – MAXIMUM OPERATING TEMPERATURE: 200°F DESIGN PRESSURE: 15" HG VACUUM

3.3 – SEE P&I DIAGRAM M-55650-05-009 FOR COMPRESSED AIR PIPING REQUIREMENTS

MAINTENANCE NOTE

4.1 – ● INDICATES ITEMS RECOMMENDED FOR SPARE PARTS. FOR ACTUAL QUANTITIES, SEE UCC CONTRACT OPERATION AND MAINTENANCE MANUAL.

SHIPPING NOTE

5.1 – ITEMS MARKED WITH (*) TO BE SHIPPED AS A SUB-ASSEMBLY. ITEMS MARKED WITH (**) TO BE KITTED AND SHIPPED TOGETHER. ALL OTHER ITEMS TO BE ASSEMBLED BY THE SHOP FOR SHIPPING. ALL BODY OPENINGS MUST BE COVERED.

REFERENCES

6.1 – FOR GENERAL NOTES AND REFERENCES SEE DRAWING M-55650-05-001.

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
C	REVISED PER UCC REVIEW	02/24/2025	MY	CDT		
B	REVISED PER CUSTOMER COMMENTS	12/03/2024	FST	MY	CDT	MY
A	INITIAL ISSUE	10/15/2024	MY	CDT	CDT	MY

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SCALE	3/4" = 1'-0"	DRAWING SIZE	5

DRAWING TITLE

TRANSFER HOPPER STACKUP
24" DIAMETER, 10 CUBIC FEET
UNIT 1

PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

ucc environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

EST EMPTY WEIGHT INCLUDING F/S	EST EMPTY WEIGHT FOR MATERIAL SHOWN IN BOM
11,350 lbs	3,000 lbs

DRAWING NUMBER	REVISION
MA-55650-05-001	C

Customer: HASTINGS UTILITIES
Plant Site: WHELAN ENERGY CENTER
Location: HASTINGS, NEBRASKA
UCC Contract Number: 55650-05
Customer PO Number: -

Issue Date: 2/24/2025
Revision: B
By: MY
UCC Drawing Number: ML-55650-05-001
Customer Drawing Number: -

UCC Valve List

	Tag Number	UCC Part Number	Description	P&ID Number	Pipeline Number	Manufacturer	Model	Valve Size	Valve Class	Connection Type	Body Material	Min Pressure	Max Pressure	Min Temperature	Max Temperature	Electrical Connection	Revision
1	1ASB-BV-1106	1956-239	ASH FEED VALVE	M-55650-05-005	8"-CS-LN005	UCC	1956-239	8"	N/A	FLANGE	CAST IRON	N/A	N/A	-50 °F	750 °F	N/A	A
2	1ASB-ABV-1100	1941-190-3-3-1-0-0-0-00	ASH FEED VALVE	M-55650-05-005	8"-CS-LN005	UCC	1941-190	8"	N/A	LUGGED	DUCTILE IRON	0 PSI	150 PSI	0° F	450° F	N/A	A
3	1ASB-SV-1100	1955-66	ASH FEED VALVE SOLENOID VALVE	M-55650-05-005	N/A	ASCO	JKB8342G001MS	1/4"	F	NPT	BRASS	0 PSI	125 PSI	32° F	125° F	1/2" NPT	A
4	1ASB-SCV-1169	19826-2	ASH FEED VALVE SPEED CONTROL VALVE	M-55650-05-005	N/A	DELTROL	F20B	1/4"	N/A	NPT	BRASS	0 PSI	2000 PSIG	-15° F	400° F	N/A	A
5	1ASB-SCV-1170	19826-2	ASH FEED VALVE SPEED CONTROL VALVE	M-55650-05-005	N/A	DELTROL	F20B	1/4"	N/A	NPT	BRASS	0 PSI	2000 PSIG	-15° F	400° F	N/A	A
6	1ASB-ABV-1101	197052-2-6-12	TELESCOPIC SPOUT VENT LINE ISOLATION VALVE	M-55650-05-005	6"-CS-LN008	BRAY	30-169	6"	150	Flange	CAST IRON	80 PSIG	100 PSIG	20 °F	250 °F	N/A	A
7	1ASB-SV-1101	197105-3	TELESCOPIC SPOUT VENT LINE ISOLATION VALVE SOLENOID VALVE	M-55650-05-005	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
8	1ASB-SCV-1163	197105-3	TELESCOPIC SPOUT VENT LINE ISOLATION VALVE SPEED CONTROL VALVE	M-55650-05-005	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
9	1ASB-SCV-1164	197105-3	TELESCOPIC SPOUT VENT LINE ISOLATION VALVE SPEED CONTROL VALVE	M-55650-05-005	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
10	1ASB-ABV-1102	197052-10-6-12	SILO VACUUM RELIEF GATE	M-55650-05-005	N/A	BRAY	30-169	8"	150	Flange	CAST IRON	80 PSIG	100 PSIG	20 °F	250 °F	N/A	A
11	1ASB-SV-1102	197105-3	SILO VACUUM RELIEF GATE SOLENOID VALVE	M-55650-05-005	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
12	1ASB-SCV-1165	197105-3	SILO VACUUM RELIEF GATE SPEED CONTROL VALVE	M-55650-05-005	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
13	1ASB-SCV-1166	197105-3	SILO VACUUM RELIEF GATE SPEED CONTROL VALVE	M-55650-05-005	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
14	1ASB-ABV-1103	197052-3-6-12	SILO VENT LINE ISOLATION GATE	M-55650-05-005	8"-CS-LN009	BRAY	30-169	8"	150	Flange	CAST IRON	80 PSIG	100 PSIG	20 °F	250 °F	N/A	A
15	1ASB-SV-1103	197105-3	SILO VENT LINE ISOLATION GATE SOLENOID VALVE	M-55650-05-005	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
16	1ASB-SCV-1171	197105-3	SILO VENT LINE ISOLATION GATE SPEED CONTROL VALVE	M-55650-05-005	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
17	1ASB-SCV-1172	197105-3	SILO VENT LINE ISOLATION GATE SPEED CONTROL VALVE	M-55650-05-005	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
18	1ASB-ABV-1104	197052-10-6-12	SILO VENT FAN BYPASS VALVE	M-55650-05-005	8"-CS-LN010	BRAY	30-169	8"	150	Flange	CAST IRON	80 PSIG	100 PSIG	20 °F	250 °F	N/A	A
19	1ASB-SV-1104	197105-3	SILO VENT FAN BYPASS VALVE SOLENOID VALVE	M-55650-05-005	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
20	1ASB-SCV-1173	197105-3	SILO VENT FAN BYPASS VALVE SPEED CONTROL VALVE	M-55650-05-005	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
21	1ASB-SCV-1174	197105-3	SILO VENT FAN BYPASS VALVE SPEED CONTROL VALVE	M-55650-05-005	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
22	1ASB-ABV-1183	197052-3-6-12	SILO VENT LINE ISOLATION GATE	M-55650-05-005	8"-CS-LN011	BRAY	30-169	8"	150	Flange	CAST IRON	80 PSIG	100 PSIG	20 °F	250 °F	N/A	A
23	1ASB-SV-1183	197105-3	SILO VENT LINE ISOLATION GATE SOLENOID VALVE	M-55650-05-005	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
24	1ASB-SCV-1184	197105-3	SILO VENT LINE ISOLATION GATE SPEED CONTROL VALVE	M-55650-05-005	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
25	1ASB-SCV-1185	197105-3	SILO VENT LINE ISOLATION GATE SPEED CONTROL VALVE	M-55650-05-005	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
26	1ASB-SRV-1105	2346-21-1	SILO PRESSURE/VACUUM RELIEF VALVE	M-55650-05-005	N/A	UCC	2346-21	16"/12"	N/A	FLANGE	CARBON STEEL	5 INWC	8.5 INWC	-35° F	250 °F	N/A	A
27	1ASB-ABV-1108	197051-9-7-12	SILO VENT LINE RELIEF VALVE	M-55650-05-006	N/A	BRAY	30-656	6"	150#	NPT	CAST IRON	-14.2 PSI	150 PSI	-40° F	400° F	N/A	A
28	1ASB-SV-1108	197105-3	SILO VENT LINE RELIEF VALVE SOLENOID VALVE	M-55650-05-006	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
29	1ASB-SCV-1167	197105-3	SILO VENT LINE RELIEF VALVE SPEED CONTROL VALVE	M-55650-05-006	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
30	1ASB-SCV-1168	197105-3	SILO VENT LINE RELIEF VALVE SPEED CONTROL VALVE	M-55650-05-006	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
31	1ASB-ABV-1109	1221-102-10017A-000	TRANSFER HOPPER TOP GATE	M-55650-05-006	N/A	UCC	1221-102	18"	N/A	FLANGE	ASTM A36	-16 IN HG	20 PSIG	N/A	N/A	N/A	A
32	1ASB-SV-1109	196075-9	TRANSFER HOPPER TOP GATE SOLENOID VALVE	M-55650-05-006	N/A	ASCO	JKHX8344G074MFMO-27248	1/2"	H	NPT	BRASS	10 PSIG	150 PSIG	-40° F	180° F	1/2" NPT	A
33	1ASB-SCV-1114	19286-2	TRANSFER HOPPER TOP GATE SPEED CONTROL VALVE	M-55650-05-006	N/A	DELTROL	F20B	1/4"	N/A	NPT	BRASS	0 PSIG	2000 PSIG	-15° F	400° F	N/A	A
34	1ASB-SCV-1115	19286-2	TRANSFER HOPPER TOP GATE SPEED CONTROL VALVE	M-55650-05-006	N/A	DELTROL	F20B	1/4"	N/A	NPT	BRASS	0 PSIG	2000 PSIG	-15° F	400° F	N/A	A
35	1ASB-ABV-1110	1221-102-10018A-000	TRANSFER HOPPER BOTTOM GATE	M-55650-05-006	N/A	UCC	1221-102	18"	N/A	FLANGE	ASTM A36	-16 IN HG	20 PSIG	N/A	N/A	N/A	A
36	1ASB-SV-1110	196075-9	TRANSFER HOPPER BOTTOM GATE SOLENOID VALVE	M-55650-05-006	N/A	ASCO	JKHX8344G074MFMO-27248	1/2"	H	NPT	BRASS	10 PSIG	150 PSIG	-40° F	180° F	1/2" NPT	A
37	1ASB-SCV-1116	19286-2	TRANSFER HOPPER BOTTOM GATE SPEED CONTROL VALVE	M-55650-05-006	N/A	DELTROL	F20B	1/4"	N/A	NPT	BRASS	0 PSIG	2000 PSIG	-15° F	400° F	N/A	A
38	1ASB-SCV-1117	19286-2	TRANSFER HOPPER BOTTOM GATE SPEED CONTROL VALVE	M-55650-05-006	N/A	DELTROL	F20B	1/4"	N/A	NPT	BRASS	0 PSIG	2000 PSIG	-15° F	400° F	N/A	A
39	1ASB-ABV-1112	1952-97-21-2015-11-000000	FILTER/SEPARATOR UPPER EQUALIZING VALVE	M-55650-05-006	N/A	UCC	TITAN ®	3"	N/A	NPTF	DUCTILE IRON	-16 IN HG	50 PSIG	N/A	N/A	N/A	A
40	1ASB-SV-1112	196075-4	FILTER/SEPARATOR UPPER EQUALIZING VALVE SOLENOID VALVE	M-55650-05-006	N/A	ASCO	SUX8344G070MFM0-27248	1/4"	H	NPT	BRASS	10 PSIG	150 PSIG	-40° F	180° F	1/2" NPT	A
41	1ASB-ABV-1113	1952-97-21-2015-12-000000	FILTER/SEPARATOR LOWER EQUALIZING VALVE	M-55650-05-006	N/A	UCC	TITAN ®	3"	N/A	NPTF	DUCTILE IRON	-16 IN HG	50 PSIG	N/A	N/A	N/A	A
42	1ASB-SV-1113	196075-4	FILTER/SEPARATOR LOWER EQUALIZING VALVE SOLENOID VALVE	M-55650-05-006	N/A	ASCO	SUX8344G070MFM0-27248	1/4"	H	NPT	BRASS	10 PSIG	150 PSIG	-40° F	180° F	1/2" NPT	A
43	1ASB-UV-1120	190002-12	FILTER/SEPARATOR DUST CHECK VALVE	M-55650-05-006	N/A	NIBCO	T-413-B	3/4"	125#	NPT	BRONZE	0 PSI	200 PSI	0° F	400° F	N/A	A
44	1ASB-SV-1126	196025-8	FLUIDIZING SYSTEM INSTRUMENT AIR SOLENOID VALVE	M-55650-05-007	N/A	ASCO	JKHX8210G054AMO-15448	1"	H	NPTF	BRASS	0 PSI	150 PSI	32° F	125° F	1" NPT	A
45	1ASB-PC-1127	44325-12	FLUIDIZING SYSTEM INSTRUMENT AIR PRESSURE REGULATOR	M-55650-05-007	N/A	NORGREN	R17-801-RGEA-8M	1"	N/A	NPT	ALUMINUM	5 PSIG	50 PSIG	-30° F	175° F	N/A	A
46	1ASB-SRV-1129	195750-2	FLUIDIZING SYSTEM INSTRUMENT AIR PRESSURE RELIEF VALVE	M-55650-05-007	N/A	KUNKLE	6186FE	1"	N/A	NPT	BRONZE	0 PSI	150 PSI	-20° F	300° F	N/A	A
47	1ASB-BV-1133	197098-4	FLUIDIZING SYSTEM PLUG VALVE	M-55650-05-007	N/A	DeZURIK	PEC SERIES	2-1/2"	N/A	FLANGE	CAST IRON	-14.2 PSI	175 PSIG	-20° F	450° F	N/A	A
48	1ASB-BV-1130	196831-1-2	FLUIDIZING SYSTEM PRESSURE SWITCH ISOLATION VALVE	M-55650-05-007	N/A	APOLLO	77-141-01	1/4"	N/A	NPTF	BRONZE	-14.2 PSI	600 PSIG	-50° F	400° F	N/A	A
49	1ASB-BV-1131	196831-4-2	FLUIDIZING SYSTEM BIN OUTLET HOPPER H1 ISOLATION VALVE	M-55650-05-007	N/A	APOLLO	77-144-01	3/4"	N/A	NPTF	BRONZE	-14.2 PSI	600 PSIG	-50° F	400° F	N/A	A
50	1ASB-BV-1134	196831-5-2	FLUIDIZING SYSTEM PENETRATON P1 ISOLATION VALVE	M-55650-05-007	N/A	APOLLO	77-145-01	1"	N/A	NPTF	BRONZE	-14.2 PSI	600 PSIG	-50° F	400° F	N/A	A
51	1ASB-BV-1187	196831-5-2	FLUIDIZING SYSTEM PENETRATON P2 ISOLATION VALVE	M-55650-05-007	N/A	APOLLO	77-145-01	1"	N/A	NPTF	BRONZE	-14.2 PSI	600 PSIG	-50° F	400° F	N/A	B
52	1ASB-UV-1132	190002-4	FLUIDIZING SYSTEM BIN OUTLET HOPPER H1 CHECK VALVE	M-55650-05-007	N/A	STOCKHAM	B-345	3/4"	200#	NPT	BRONZE	0 PSI	400 PSI	0° F	150° F	N/A	A
53	1ASB-UV-1135	190002-5	FLUIDIZING SYSTEM PENETRATON P1 CHECK VALVE	M-55650-05-007	N/A	STOCKHAM	B-345	1"	200#	NPT	BRONZE	0 PSI	400 PSI	0° F	150° F	N/A	A
54	1ASB-UV-1188	190002-5	FLUIDIZING SYSTEM PENETRATON P2 CHECK VALVE	M-55650-05-007	N/A	STOCKHAM	B-345	1"	200#	NPT	BRONZE	0 PSI	400 PSI	0° F	150° F	N/A	B
55	1ASB-SRV-1138	1957-22	MECHANICAL EXHAUSTER A INLET VACUUM RELIEF VALVE	M-55650-05-008	8"-CS-LN013	UCC	1957-22	8"	150#	N/A	GRAY IRON	0 PSI	-9.8 PSI	-50° F	500° F	N/A	A
56	1ASB-SRV-1142	1957-22	MECHANICAL EXHAUSTER B INLET VACUUM RELIEF VALVE	M-55650-05-008	8"-CS-LN014	UCC	1957-22	8"	150#	N/A	GRAY IRON	0 PSI	-9.8 PSI	-50° F	500° F	N/A	A
57	1ASB-ABV-1136	197051-3-7-12	EXHAUSTER A SUCTION ISOLATION VALVE ISOLATION GATE	M-55650-05-008	8"-CS-LN013	BRAY	30-656	8"	150#	NPT	CAST IRON	-14.2 PSI	150 PSI	-40° F	400° F	N/A	A
58	1ASB-SV-1136	197105-3	EXHAUSTER A SUCTION ISOLATION VALVE ISOLATION GATE SOLENOID VALVE	M-55650-05-008	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
59	1ASB-SCV-1175	197105-3	EXHAUSTER A SUCTION ISOLATION VALVE ISOLATION GATE SPEED CONTROL VALVE	M-55650-05-008	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
60	1ASB-SCV-1176	197105-3	EXHAUSTER A SUCTION ISOLATION VALVE ISOLATION GATE SPEED CONTROL VALVE	M-55650-05-008	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
61	1ASB-ABV-1137	197051-3-7-12	EXHAUSTER A DISCHARGE ISOLATION VALVE ISOLATION GATE	M-55650-05-008	8"-CS-LN015	BRAY	30-656	8"	150#	NPT	CAST IRON	-14.2 PSI	150 PSI	-40° F	400° F	N/A	A
62	1ASB-SV-1137	197105-3	EXHAUSTER A DISCHARGE ISOLATION VALVE ISOLATION GATE SOLENOID VALVE	M-55650-05-008	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A

Customer: HASTINGS UTILITIES
Plant Site: WHELAN ENERGY CENTER
Location: HASTINGS, NEBRASKA
UCC Contract Number: 55650-05
Customer PO Number: -

Issue Date: 2/24/2025
Revision: B
By: MY
UCC Drawing Number: ML-55650-05-001
Customer Drawing Number: -

UCC Valve List

	Tag Number	UCC Part Number	Description	P&ID Number	Pipeline Number	Manufacturer	Model	Valve Size	Valve Class	Connection Type	Body Material	Min Pressure	Max Pressure	Min Temperature	Max Temperature	Electrical Connection	Revision
63	1ASB-SCV-1177	197105-3	EXHAUSTER A DISCHARGE ISOLATION VALVE ISOLATION GATE SPEED CONTROL VALVE	M-55650-05-008	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
64	1ASB-SCV-1178	197105-3	EXHAUSTER A DISCHARGE ISOLATION VALVE ISOLATION GATE SPEED CONTROL VALVE	M-55650-05-008	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
65	1ASB-ABV-1140	197051-3-7-12	EXHAUSTER B SUCTION ISOLATION VALVE ISOLATION GATE	M-55650-05-008	8"-CS-LN014	BRAY	30-656	8"	150#	NPT	CAST IRON	-14.2 PSI	150 PSI	-40° F	400° F	N/A	A
66	1ASB-SV-1140	197105-3	EXHAUSTER B SUCTION ISOLATION VALVE ISOLATION GATE SOLENOID VALVE	M-55650-05-008	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
67	1ASB-SCV-1179	197105-3	EXHAUSTER B SUCTION ISOLATION VALVE ISOLATION GATE SPEED CONTROL VALVE	M-55650-05-008	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
68	1ASB-SCV-1180	197105-3	EXHAUSTER B SUCTION ISOLATION VALVE ISOLATION GATE SPEED CONTROL VALVE	M-55650-05-008	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
69	1ASB-ABV-1141	197051-3-7-12	EXHAUSTER B DISCHARGE ISOLATION VALVE ISOLATION GATE	M-55650-05-008	8"-CS-LN016	BRAY	30-656	8"	150#	NPT	CAST IRON	-14.2 PSI	150 PSI	-40° F	400° F	N/A	A
70	1ASB-SV-1141	197105-3	EXHAUSTER B DISCHARGE ISOLATION VALVE ISOLATION GATE SOLENOID VALVE	M-55650-05-008	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
71	1ASB-SCV-1181	197105-3	EXHAUSTER B DISCHARGE ISOLATION VALVE ISOLATION GATE SPEED CONTROL VALVE	M-55650-05-008	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
72	1ASB-SCV-1182	197105-3	EXHAUSTER B DISCHARGE ISOLATION VALVE ISOLATION GATE SPEED CONTROL VALVE	M-55650-05-008	N/A	ASCO	JKH8551G403MMS	1/4"	H	NPT	BRASS	30 PSIG	150 PSIG	-40° F	140°F	1/2"NPT	A
73	1ASB-SRV-1139	195741-4-030	EXHAUSTER A PRESSURE RELIEF VALVE	M-55650-05-008	8"-CS-LN015	SUTORBILT	Weight Loaded 4"	4"	N/A	NPT	CAST IRON	N/A	N/A	N/A	N/A	N/A	A
74	1ASB-SRV-1143	195741-4-030	EXHAUSTER B PRESSURE RELIEF VALVE	M-55650-05-008	8"-CS-LN016	SUTORBILT	Weight Loaded 4"	4"	N/A	NPT	CAST IRON	N/A	N/A	N/A	N/A	N/A	A
75	1ASB-UV-1144	197054-3	EXHASUTER TO DUCT ISOLATION VALVE	M-55650-05-008	8"-CS-LN017	BRAY	30-656	8"	150#	NPT	CAST IRON	-14.2 PSI	150 PSI	-40° F	400° F	N/A	A
76	1ASB-UV-1145	197054-3	VENT LINE TO DUCT ISOLATION VALVE	M-55650-05-008	8"-CS-LN012	BRAY	30-656	8"	150#	NPT	CAST IRON	-14.2 PSI	150 PSI	-40° F	400° F	N/A	A
77	1ASB-UV-1146	190002-12	FLUE GAS DUCT PRESSURE TRANSMITTER DUST CHECK VALVE	M-55650-05-008	N/A	NIBCO	T-413-B	3/4"	125#	NPT	BRONZE	0 PSI	200 PSI	0° F	400° F	N/A	A
78	1ASB-ABV-1148	1949-48	DAMPER VALVE	M-55650-05-008	8"-CS-LN012	AWV	VC-51	10"	N/A	N/A	CARBON STEEL	0 INWC	24 INWC	N/A	300° F	N/A	A

Customer Name HASTINGS UTILITIES
Plant Site WHELAN ENERGY CENTER
Plant Location HASTINGS, NEBRASKA
UCC Contract Number 55650-05
Customer PO Number HU-2024-50

Issue Date 2/24/2025
Revision B
By KJL/MY
UCC Drawing Number ML-55650-05-002
Cust Drawing Number -

UCC Instrument List

	Instrument Tag Number	P&ID Number	UCC Part Number	Operating Description	Instrument Type	Manufacturer	Model Number	Service	Range	Setpoint	Calibration	Electrical Conn. Size	Process Conn. Size	Voltage	Contact Rating (VA)	Revision
1	1ASB-ZS-1253	M-55650-05-005	PART OF 55650-05-M201	TELESCOPIC SPOUT FULL UP LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSPA	N/A	N/A	N/A	N/A	1/2" NPT	N/A	120 VAC	10 A	A
2	1ASB-ZS-1254	M-55650-05-005	PART OF 55650-05-M201	TELESCOPIC SPOUT SLACK CABLE LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSPA	N/A	N/A	N/A	N/A	1/2" NPT	N/A	120 VAC	10 A	A
3	1ASB-ZS-1256	M-55650-05-005	35502-15	SILO VACUUM RELIEF GATE VALVE OPEN LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	OPEN	N/A	1/2" NPT	N/A	120 VAC	10 A	A
4	1ASB-ZS-1257	M-55650-05-005	35502-15	SILO VACUUM RELIEF GATE VALVE CLOSED LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	CLOSED	N/A	1/2" NPT	N/A	120 VAC	10 A	A
5	1ASB-ZS-1260	M-55650-05-005	35502-15	SILO VENT FAN BYPASS VALVE OPEN LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	OPEN	N/A	1/2" NPT	N/A	120 VAC	10 A	A
6	1ASB-ZS-1261	M-55650-05-005	35502-15	SILO VENT FAN BYPASS VALVE CLOSED LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	CLOSED	N/A	1/2" NPT	N/A	120 VAC	10 A	A
7	1ASB-ZS-1255	M-55650-05-005	35502-15	TELESCOPIC SPOUT VENT LINE ISOLATION GATE OPEN LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	OPEN	N/A	1/2" NPT	N/A	120 VAC	10 A	A
8	1ASB-LT-1250	M-55650-05-005	34635-0-0-0-1-1-1-003-030	FLY ASH STORAGE SILO LEVEL TRANSMITTER	LEVEL TRANSMITTER	SIEMENS	SITRANS LR 580	AIR/ASH	3' - 30'	3 - 30 FT	FACTORY	1/2" NPT	12" 150# FLANGE	24 VDC	N/A	A
9	1ASB-LS-1251	M-55650-05-005	3403-41	FLY ASH STORAGE SILO LEVEL SWITCH	LEVEL SWITCH	BINDICATOR	LAR101050	AIR/ASH	N/A	3 FT	N/A	3/4" NPT	6" 150# FLANGE	120 VAC	N/A	A
10	1ASB-PT-1252	M-55650-05-005	340487-2113-000-0051	VACUUM SYSTEM SILO PRESSURE TRANSMITTER	PRESSURE TRANSMITTER	ROSEMOUNT	3051	AIR	0.5" - 5" H2O	SEE P&ID	FACTORY	1/2" NPT	1/2" NPT	10 - 55 VDC	N/A	B
11	1ASB-ZS-1258	M-55650-05-005	35502-15	SILO VENT LINE ISOLATION GATE VALVE OPEN LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	OPEN	N/A	1/2" NPT	N/A	120 VAC	10 A	A
12	1ASB-ZS-1259	M-55650-05-005	35502-15	SILO VENT LINE ISOLATION GATE VALVE CLOSED LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	CLOSED	N/A	1/2" NPT	N/A	120 VAC	10 A	A
13	1ASB-ZS-1292	M-55650-05-005	35502-15	SILO VENT FAN DISCHARGE VALVE CLOSED LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	CLOSED	N/A	1/2" NPT	N/A	120 VAC	10 A	A
14	1ASB-ZS-1293	M-55650-05-005	35502-15	SILO VENT FAN DISCHARGE VALVE OPEN LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	OPEN	N/A	1/2" NPT	N/A	120 VAC	10 A	A
15	1ASB-PI-1282	M-55650-05-006	PART OF 55650-05-M200	FILTER/SEPARATOR COMPRESSED AIR PRESSURE GAUGE	PRESSURE GAUGE	DAUGHTRIDGE	993 SERIES	AIR	0 - 160 PSIG	N/A	N/A	N/A	1/2" NPT	N/A	N/A	A
16	1ASB-PT-1264	M-55650-05-006	PART OF 55650-05-M200	FILTER/SEPARATOR DIFFERENTIAL PRESSURE TRANSMITTER	DIFFERENTIAL PRESSURE TRANSMITTER	DWYER	DCP200A	AIR	0" - 20" H2O	SEE P&ID	FACTORY	N/A	1/4" NPT	120 VAC	N/A	A
17	1ASB-LS-1266	M-55650-05-006	3505-824-01-00-1	FILTER/SEPARATOR LEVEL SWITCH	LEVEL SWITCH	DYNATROL	CL-10DJT-7	ASH	N/A	CONTACT	N/A	1/2" NPT	1/2" NPTF	120 VAC	2 A	A
18	1ASB-LS-1267	M-55650-05-006	3505-824-01-00-1	TRANSFER HOPPER LEVEL SWITCH	LEVEL SWITCH	DYNATROL	CL-10DJT-7	ASH	N/A	CONTACT	N/A	1/2" NPT	1/2" NPTF	120 VAC	2 A	A
19	1ASB-PS-1262	M-55650-05-006	353302-14	FILTER/SEPARATOR COMPRESSED AIR PRESSURE SWITCH	PRESSURE SWITCH	UNITED ELECTRIC	H100-702	AIR	N/A	85 PSIG	FACTORY	1/2" NPT	1/2" NPT	120 VAC	10 A	A
20	1ASB-DD-1263	M-55650-05-006	3505-827-2-1-1-1-1-0	FILTER/SEPARATOR DUST DETECTOR	DUST DETECTOR	FILTERSENSE	PM1 PRO	AIR/ASH	0 - 10,000 pA	N/A	FIELD	1/2" NPT	1" NPT	120 VAC	N/A	A
21	1ASB-PT-1256	M-55650-05-006	340487-2122-000-0121	VACUUM SYSTEM PRESSURE TRANSMITTER	PRESSURE TRANSMITTER	ROSEMOUNT	3051	AIR	0.5" - 12" HG	SEE P&ID	FACTORY	1/2" NPT	1/2" NPT	10 - 55 VDC	N/A	A
22	1ASB-ZS-1268	M-55650-05-006	35502-15	SILO VENT LINE RELIEF VALVE OPEN LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	OPEN	N/A	1/2" NPT	N/A	120 VAC	10 A	A
23	1ASB-ZS-1269	M-55650-05-006	35502-15	SILO VENT LINE RELIEF VALVE CLOSED LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	CLOSED	N/A	1/2" NPT	N/A	120 VAC	10 A	A
24	1ASB-PS-1270	M-55650-05-007	340913-1	FLUIDIZING SYSTEM PRESSURE SWITCH	PRESSURE SWITCH	UNITED ELECTRIC	J400-134	AIR	N/A	3 PSIG	FACTORY	3/4" NPT	1/4" NPT	125 VAC	1 A	A
25	1ASB-FCV-1128	M-55650-05-007	34295-104	FLUIDIZING SYSTEM FLOW LIMITER	FLOW LIMITER	GRISWOLD	3531H	AIR	1 - 14 PSI	N/A	N/A	1" NPTF	1" NPTF	N/A	N/A	A
26	1ASB-TS-1272	M-55650-05-008	340916-2	EXHAUSTER TEMPERATURE SWITCH	TEMPERATURE SWITCH	UNITED ELECTRIC	E400-3BS	AIR	N/A	260° F	FACTORY	3/4" NPT	1/2" NPT	125 VAC	1 A	A
27	1ASB-TS-1277	M-55650-05-008	340916-2	EXHAUSTER TEMPERATURE SWITCH	TEMPERATURE SWITCH	UNITED ELECTRIC	E400-3BS	AIR	N/A	260° F	FACTORY	3/4" NPT	1/2" NPT	125 VAC	1 A	A
28	1ASB-ZS-1273	M-55650-05-008	35502-15	EXHAUSTER ISOLATION VALVE OPEN LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	OPEN	N/A	1/2" NPT	N/A	120 VAC	10 A	A
29	1ASB-ZS-1274	M-55650-05-008	35502-15	EXHAUSTER ISOLATION VALVE CLOSED LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	CLOSED	N/A	1/2" NPT	N/A	120 VAC	10 A	A
30	1ASB-ZS-1275	M-55650-05-008	35502-15	EXHAUSTER DISCHARGE VALVE OPEN LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	OPEN	N/A	1/2" NPT	N/A	120 VAC	10 A	A
31	1ASB-ZS-1276	M-55650-05-008	35502-15	EXHAUSTER DISCHARGE VALVE CLOSED LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	CLOSED	N/A	1/2" NPT	N/A	120 VAC	10 A	A
32	1ASB-ZS-1278	M-55650-05-008	35502-15	EXHAUSTER ISOLATION VALVE OPEN LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	OPEN	N/A	1/2" NPT	N/A	120 VAC	10 A	A
33	1ASB-ZS-1279	M-55650-05-008	35502-15	EXHAUSTER ISOLATION VALVE CLOSED LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	CLOSED	N/A	1/2" NPT	N/A	120 VAC	10 A	A
34	1ASB-ZS-1280	M-55650-05-008	35502-15	EXHAUSTER DISCHARGE VALVE OPEN LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	OPEN	N/A	1/2" NPT	N/A	120 VAC	10 A	A
35	1ASB-ZS-1281	M-55650-05-008	35502-15	EXHAUSTER DISCHARGE VALVE CLOSED LIMIT SWITCH	LIMIT SWITCH	MICROSWITCH	LSQA6B134	N/A	N/A	CLOSED	N/A	1/2" NPT	N/A	120 VAC	10 A	A
36	1ASB-PT-1271	M-55650-05-008	340487-2113-000-0251	SILO TO FLUE GAS DUCT PRESSURE TRANSMITTER	PRESSURE TRANSMITTER	ROSEMOUNT	3051	AIR	0.5" - 25" H2O	SEE P&ID	FACTORY	1/2" NPT	1/2" NPT	10 - 55 VDC	N/A	B

Customer: HASTINGS UTILITIES
Plant Site: WHELAN ENERGY CENTER
Location: HASTINGS, NEBRASKA
UCC Contract Number: 55650-05
Customer PO Number: HU-2024-50

Issue Date: 1/20/2025
Revision: A
By: KJL
UCC Drawing Number: ML-55650-05-003
Customer Drawing Number: -

UCC Equipment List

	Tag Number	UCC Part Number	Description	P&ID Number	Manufacturer	Model	Flow Rate	Service	Operating Pressure	Operating Temperature	Voltage	Revision
1	TCH-001	55650-05-M201	TELESCOPIC SPOUT	M-55650-05-005	DCL	X24EV-06	200TPH	FLY ASH	0 PSIG	100 °F	460 VAC	A
2	FAN-002	55650-05-M202	TELESCOPIC SPOUT VENT FAN	M-55650-05-005	TCF	9B	1000 CFM	AIR	18" H2O	100 °F	460 VAC	A
3	FAN-003	55650-05-M203	SILO VENT FAN	M-55650-05-005	TCF	9B	1405 CFM	AIR	12" H2O	100 °F	460 VAC	A
4	VNT-001	55650-05-M206	VENTILATION LOUVER	M-55650-05-005	AWV	LE65C	596 - 1143 CFM	AIR	1" H2O	90 °F	N/A	A
5	VNT-002	55650-05-M206	VENTILATION LOUVER	M-55650-05-005	AWV	LE65C	596 - 1143 CFM	AIR	1" H2O	90 °F	N/A	A
6	FLT-001	55650-05-M200	FILTER/SEPARATOR	M-55650-05-006	IAC	100TB-FRWT-32:S6	4.29 TPH	FLY ASH	-5.8" HG	200 °F	N/A	A
7	VSL-002	3206-398-1	TRANSFER HOPPER	M-55650-05-006	UCC	10 CUFT	4.29 TPH	FLY ASH	-5.8" HG	200 °F	N/A	A
8	ME-001	55650-05-M204	MECHANICAL EXHAUSTER A	M-55650-05-008	UNIVERSAL BLOWER PAC	7L	1251 RPM	AIR	-5.8" HG	165 °F	460 VAC	A
9	ME-002	55650-05-M204	MECHANICAL EXHAUSTER B	M-55650-05-008	UNIVERSAL BLOWER PAC	7L	1251 RPM	AIR	-5.8" HG	165 °F	460 VAC	A
10	FAN-004	55650-05-M204	EXHAUSTER ENCLOSURE VENT FAN A	M-55650-05-008	ORION FANS	OA254AN-11-1	2700 RPM	AIR	1.14" H2O	165 °F	120 VAC	A
11	FAN-005	55650-05-M204	EXHAUSTER ENCLOSURE VENT FAN B	M-55650-05-008	ORION FANS	OA254AN-11-1	2700 RPM	AIR	1.14" H2O	165 °F	120 VAC	A

Customer: HASTINGS UTILITIES
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Location: HASTINGS, NEBRASKA
UCC Contract Number: 55650-05
Customer PO Number: HU-2024-50

Issue Date: 1/20/2025
Revision: A
By: MY
UCC Drawing Number: ML-55650-05-004
Customer Drawing Number: -

UCC Terminal Point List

	Terminal Point Number	Line Number	Description	P&ID Number	Connection Type	Size	Revision
1	TP-1	6"-N-LN001	UNIT 1 ECONOMZIER CONVEY	M-55650-05-004	BEVELED	6"	A
2	TP-2	6"-N-LN003	UNIT 1 AIR HEATER CONVEY	M-55650-05-004	BEVELED	6"	A
3	TP-3	6"-N-LN002	UNIT 1 PERCIPITATOR CONVEY	M-55650-05-004	BEVELED	6"	A
4	TP-4	8"-N-LN004	UNIT 1 MAIN CONVEYING LINE TO F/S	M-55650-05-004	BEVELED	6"	A
5	TP-5	6"-N-LN002	EXISTING FLY ASH WATER EXHAUSTER TIE-IN	M-55650-05-004	BEVELED	6"	A
6	TP-6	8"-N-LN012	VENTING LINE TO DUCT	M-55650-05-008	BEVELED	8"	A
7	TP-7	8"-N-LN017	EXHAUSTER TO DUCT	M-55650-05-008	BEVELED	8"	A

STRUCTURAL
CONTRACT DESIGN DRAWINGS

1.0 SCOPE & GENERAL NOTES

1.1 THE FOLLOWING STRUCTURES/MATERIALS ARE FURNISHED BY UCC:
- FLY ASH BOLTED STEEL SKIRTED SILO

1.2 THE FOLLOWING STRUCTURES/MATERIALS ARE NOT FURNISHED BY UCC:
- ANCHOR BOLTS & POST-INSTALLED CONCRETE ANCHORS
- CONCRETE
- CONCRETE REINFORCING STEEL
- EMBEDDED STEEL IN CONCRETE
- ERECTION CLIPS & ⅝" DIA ERECTION BOLTS
- GROUT

1.3 "NF" DENOTES ITEMS NOT FURNISHED BY UCC.

1.4 DO NOT SCALE DESIGN DRAWINGS. USE FIGURE DIMENSIONS ONLY.

1.8 CUSTOMER TO CHECK CLEARANCE AND ACCESSIBILITY OF UCC EQUIPMENT AND LAYOUT TO AVOID INTERFERENCES WITH EQUIPMENT NOT FURNISHED BY UCC AND NOT SHOWN ON THE CONTRACT DESIGN DRAWINGS.

1.9 FIXED LADDERS
- UCC DESIGN DRAWINGS SHALL IDENTIFY FIXED LADDERS WHICH REQUIRE FALL PROTECTION PER OSHA REGULATION 1910.29 CFR SUBPART D
- FALL PROTECTION WHEN REQUIRED SHALL BE SUPPLIED AND SELECTED BY THE OWNER
- FOR FIXED LADDERS THAT REQUIRE FALL PROTECTION, CONSULTATION BETWEEN OWNER'S SAFETY REPRESENTATIVE, FACILITY OPERATION, MAINTENANCE PERSONNEL, PROJECT ENGINEERING AND MANAGEMENT TEAMS IS NECESSARY TO DETERMINE THE BEST OPTION TO MEET OSHA REGULATION FOR SPECIFIC APPLICATION.
- FIXED LADDERS EQUIPPED WITH A FALL PROTECTION SYSTEM ARE DESIGNED FOR 1800 LBS, WHICH IS THE OSHA MAXIMUM LIMIT FOR ARRESTING FORCE ON A PERSON.

2.0 DESIGN NOTES

2.1 ALL DESIGN, FABRICATION, ERECTION & CONSTRUCTION SHALL CONFORM TO THE FOLLOWING CODES AND STANDARDS:
- IBC 2018, INTERNATIONAL BUILDING CODE.
- ASCE 7-16 (ASD - ALLOWABLE STRENGTH DESIGN), AMERICAN SOCIETY OF CIVIL ENGINEERS.
- AISC 15TH ED (ASD - ALLOWABLE STRENGTH DESIGN), AMERICAN INSTITUTE OF STEEL CONSTRUCTION.
- AWS D1.1 - LATEST, AMERICAN WELDING SOCIETY.

2.2 STRUCTURAL DESIGN DENSITIES:
- STORAGE SILO - FLY ASH - 110 PCF

2.3 PRESSURE & TEMPERATURE
- OPERATING PRESSURE: 1" WC VACUUM
- EXCURSION PRESSURE: 3" WC VACUUM
- OPERATING TEMPERATURE: 175F

2.4 LIVE LOADING - WHICHEVER PRODUCES THE GREATER LOAD EFFECTS:
- 100 PSF UNIFORM LOAD
- 2000 LB CONCENTRATED LOAD

2.5 SILO ROOF LIVE LOADING - WHICHEVER PRODUCES THE GREATER LOAD EFFECTS:
- 60 PSF UNIFORM LOAD
- 300 LB CONCENTRATED LOAD

2.6 SNOW LOADING
- GROUND SNOW LOAD, P_g = 25 PSF
- SNOW IMPORTANCE FACTOR, I_S = 1.10
- EXPOSURE CATEGORY C

2.7 ICE LOADING
- NOMINAL ICE THICKNESS, T = 1"
- ICE IMPORTANCE FACTOR, I_I = 1.15
- ICE DENSITY = 56 PCF
- CONCURRENT WIND SPEED, V_C = 50 MPH
- ICE IMPORTANCE FACTOR - WIND, I_W = 1.00

2.8 SEISMIC LOADING:
- RISK CATEGORY III
- SEISMIC IMPORTANCE FACTOR, Ie=1.25
- MAPPED SPECTRAL ACCELERATION:
  - S_s = 0.078
  - S_1 = 0.041
- SITE CLASS D
- SPECTRAL RESPONSE COEFFICIENTS:
  - S_{DS}= 0.082
  - S_{D1}= 0.065
- SEISMIC DESIGN CATEGORY: A
- ANALYSIS METHOD USED: ELFA- EQUIVALENT LATERAL FORCE ANALYSIS

STRUCTURE / ITEM	SEISMIC RESPONSE COEFFICIENT, Cs	RESPONSE MODIFICATION COEFFICIENT, Rf
STORAGE SILO	0.034	3

2.9 WIND LOADING:
- BASIC WIND SPEED: 120 MPH
- EXPOSURE CATEGORY: C

3.0 MATERIAL NOTES

3.1 CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.

3.2 BASE PLATES SHALL BE GROUTED USING 5-STAR DP EPOXY GROUT OR FOX INDUSTRIES FOX PACK 1700 HS EPOXY GROUT OR APPROVED EQUAL IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION.

3.4 ANCHOR BOLTS (CAST IN PLACE) SHALL CONFORM TO ASTM F1554 GR 36 MIN, UNLESS NOTED.

3.6 BASE PLATES SHALL CONFORM TO ASTM A572 GR 50, UNLESS NOTED.

3.7 SHEAR BARS SHALL CONFORM TO ASTM A572 GR 50, UNLESS NOTED.

3.8 CONNECTION PLATES (GUSSET PLATES FOR BRACING, STIFFENER PLATES, SHEAR PLATES, ETC.) SHALL CONFORM TO ASTM A572 GR 50, UNLESS NOTED.

3.9 PLATE WORK SHALL CONFORM TO ASTM A36, UNLESS NOTED.

3.10 W SHAPES SHALL CONFORM TO ASTM A992 GR 50, UNLESS NOTED.

3.11 C SHAPES SHALL CONFORM TO ASTM A36, UNLESS NOTED.

3.12 L SHAPES SHALL CONFORM TO ASTM A36, UNLESS NOTED.

3.13 HSS SQUARE/RECTANGLE SHAPES SHALL CONFORM TO ASTM A500 GR C, UNLESS NOTED.

3.14 HSS ROUND SHAPES SHALL CONFORM TO ASTM A500 GR C, UNLESS NOTED.

3.15 STRUCTURAL PIPES SHALL CONFORM TO ASTM A53 GR B, UNLESS NOTED.

3.16 WELDING ELECTRODES SHALL CONFORM TO E7018, UNLESS NOTED.

3.17 WELDS USED IN MEMBERS AND CONNECTIONS OF STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D OR HIGHER SHALL BE MADE WITH A FILLER METAL THAT CAN PRODUCE WELDS THAT HAVE A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 ft-lbf (27 J) AT MINUS 20 DEG. F (MINUS 29 DEG C), AS DETERMINED BY AWS CLASSIFICATION OR MANUFACTURER CERTIFICATION.

3.18 STRUCTURAL BOLTS SHALL CONFORM TO ASTM F3125 GRADE A325, UNLESS NOTED.

3.19 HEAVY HEX NUTS SHALL CONFORM TO ASTM A563, UNLESS NOTED.

3.20 HARDENED WASHERS SHALL CONFORM TO ASTM F436, UNLESS NOTED.

3.22 STANDARD RAILING, STAIR RAILING, POSTS AND HANDRAIL SHALL CONFORM TO ASTM A500 GR C, UNLESS NOTED.

3.23 GRATING AND STAIR TREADS SHALL CONFORM TO THE NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (NAAMM) SPECIFICATIONS.

3.24 INTERIOR GRATING TO BE CARBON STEEL TYPE W-19-4 1¼" x ⅜" PLAIN BEARING BARS. BAND ALL ENDS AND OPENINGS. GRATING SHALL BE REMOVABLE AND FASTENED WITH SADDLE CLIP TYPE FASTENERS, UNLESS NOTED. (4) FASTENERS PER PANEL UNDER 10'-0" LONG, AND (6) FASTENERS PER PANEL OVER 10'-0" LONG TO BE SUPPLIED BY FABRICATOR. SEE COATING TABLE FOR REQUIRED FINISHES.

3.25 EXTERIOR GRATING TO BE CARBON STEEL TYPE W-19-4 1¼" x ⅜" SERRATED BEARING BARS. BAND ALL ENDS AND OPENINGS. GRATING SHALL BE REMOVABLE AND FASTENED WITH SADDLE CLIP TYPE FASTENERS, UNLESS NOTED. (4) FASTENERS PER PANEL UNDER 10'-0" LONG AND (6) FASTENERS PER PANEL OVER 10'-0" LONG TO BE SUPPLIED BY FABRICATOR. SEE COATING TABLE FOR REQUIRED FINISHES.

3.26 STAIR TREADS AND PLATFORMS AT HEAD OF STAIRS TO HAVE CHECKERED PLATE NOSINGS, GALVANIZED

3.27 EXTERIOR STAIR TREADS TO BE CARBON STEEL TYPE W-19-4 1¼" x ⅜" SERRATED BEARING BARS. STAIR TREADS TO BE SHOP ASSEMBLED TO STRINGERS USING (2) ⅜" DIAMETER A307 GR A BOLTS, NUTS, HARDENED WASHERS AND LOCK WASHERS. SEE COATING TABLE FOR REQUIRED FINISHES.

4.0 COATING NOTES

4.1 FOR CLEANING & PAINTING SCHEDULE, SEE COATING TABLE.

4.4 SURFACES EMBEDDED IN CONCRETE SHALL NOT BE PAINTED.

4.6 GALVANIZED MATERIAL SHALL NOT BE PAINTED, UNLESS NOTED.

4.7 SHOP TO REMOVE ALL GALVANIZING WITHIN 2" OF FIELD WELDING.

4.8 ALL UNPAINTED SURFACES FOR FIELD WELDING SHALL BE PROTECTED BY A COATING OF WELDABLE PRIMER

COATING TABLE

ITEM/SURFACE		CLEANING & PREPARATION	FIRST COAT	SECOND COAT	FINISH COLOR
FLY ASH BOLTED STEEL SKIRTED SILO	EXTERIOR PLATEWORK	MANUFACTURER STANDARD	MANUFACTURER STANDARD		BUCKSKIN TAN PCT T29634
	INTERIOR PLATEWORK	MANUFACTURER STANDARD	MANUFACTURER STANDARD		MANUFACTURER STANDARD
	SUPPORT STEEL/STIFFENERS	MANUFACTURER STANDARD	MANUFACTURER STANDARD		BUCKSKIN TAN PCT T29634
GRATING & STAIR TREADS	EXTERIOR	-	HOT-DIP GALVANIZED PER ASTM A123	-	-
	INTERIOR	-	HOT-DIP GALVANIZED PER ASTM A123	-	-
FASTENING HARDWARE (BOLTS, NUTS, WASHERS, ETC.)		-	HOT-DIP GALVANIZED PER ASTM A153	-	-
HANDRAIL, LADDERS, TOE PLATES & GUARDS		MANUFACTURER STANDARD	MANUFACTURER STANDARD		SAFETY YELLOW
STACK-UP ITEMS, VENT DUCT LINES, ETC.		MANUFACTURER STANDARD	MANUFACTURER STANDARD		MANUFACTURER STANDARD

5.0 SHOP DETAILING & FABRICATION NOTES

5.1 STRUCTURAL STEEL SHOP DETAILING AND FABRICATION SHALL COMPLY WITH UCC SPECIFICATION 55650-05-S001 - FLY ASH BOLTED STEEL SKIRTED SILO

5.3 SHOP DRAWINGS SUBMITTED BY THE FABRICATOR FOR APPROVAL SHALL CONFORM TO UCC CONTRACT SPECIFICATION 01340,1.8.1.9 (d) WHICH IN PART STATES:
"THE ENGINEERS REVIEW OF SHOP DRAWINGS SHALL BE FOR CONFORMANCE TO THE DESIGN INTENT OF THE CONTRACT DRAWINGS AND SHALL NOT BE CONSTRUED AS A COMPLETE DIMENSIONAL CHECK, AND SHALL NOT RELIEVE THE FABRICATOR/DETAILER FROM HIS RESPONSIBILITY FOR THE ACCURACY OF DETAIL DIMENSIONS AND COMPLETENESS OF THESE SHOP DRAWINGS, NOR THE GENERAL FIT-UP OF PARTS TO BE ASSEMBLED IN THE FIELD."

5.4 WELDING PER UCC GENERAL WELDING SPECIFICATION 98009 OR OWNER'S SPECIFICATION. USE WHICHEVER IS MORE STRINGENT. WELD PROCEDURES AND WELDER QUALIFICATION TEST REPORTS SHALL BE SUBMITTED TO UCC FOR ALL NON-PREQUALIFIED WELDS PER AWS D1.1. WELDING ELECTRODES SHALL BE E70 LOW HYDROGEN. WHEN WELDING STAINLESS STEEL TO CARBON STEEL, USE E309 TYPE ELECTRODES.

5.5 PROVIDE WELD ACCESS HOLES PER THE LATEST EDITION OF AISC MANUAL OF STEEL CONSTRUCTION, CHAPTER J, PARAGRAPH 6 (FIGURE C-J1.2).

5.6 ALL WELDS SHALL BE CONTINUOUS. STITCH WELDING IS NOT PERMITTED, UNLESS NOTED.

5.7 FILLET WELD SIZE SHALL CONFORM TO AISC 360-10 TABLE J2.4, MINIMUM FILLET WELD IS ¾".

5.8 TYPICAL FIELD WELDS ARE SHOWN ON UCC DESIGN DRAWINGS. FIELD SPLICES ON PLATE STRUCTURES ARE TO BE SHOWN ON UCC ERECTION PIECE MARK DRAWINGS.

5.9 WELDING OF HIGH STRENGTH BOLTS AND NUTS IS NOT PERMITTED.

5.10 SHOP BUTT SPLICES IN PLATES SHALL BE COMPLETE PENETRATION WELDS.

5.11 ALL MITERED STAIR CHANNEL STRINGER SPLICES SHALL BE WELDED FULL PENETRATION MOMENT CONNECTIONS.

5.12 ALL GALVANIZED CONNECTION CONTACT SURFACES SUCH AS THE FAYING SURFACES BETWEEN CONNECTION ANGLES AND BEAM WEBS SHALL BE CONTINUOUSLY SEAL WELDED AROUND THE PERIPHERY OF THE CONTACT AREA.

5.13 STRUCTURAL STEEL CONNECTIONS TO BE SHOP WELDED/FIELD BOLTED, UNLESS NOTED.

5.14 ALL BOLTED CONNECTIONS SHALL BE ⅞" DIA TYPE 'N' PRETENSIONED BEARING CONNECTIONS, UNLESS NOTED. BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 8.2 OF THE RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS. ALL BOLTED CONNECTIONS SHALL HAVE A MINIMUM OF 2 BOLTS. ONE HARDENED WASHER TO BE INSTALLED UNDER TURNED ELEMENT FOR EACH BOLT.

5.15 FOR DOUBLE BEAM CONNECTIONS AT COLUMN WEBS, THE FABRICATOR MUST SUPPLY A BEAM SEAT OR EQUAL WITH A MEANS OF POSITIVE ATTACHMENT TO SUPPORT THE FIRST BEAM WHILE THE SECOND BEAM IS BEING ERECTED.

5.16 ONE SIDED OR OTHER TYPES OF ECCENTRIC CONNECTIONS WILL NOT BE PERMITTED, UNLESS NOTED.

5.19 ALL STRUCTURAL SHAPES, PLATES AND BARS ATTACHED TO BASE PLATES, STUB COLUMN OR CAP PLATES SHALL BE MILLED TO PROVIDE FULL BEARING.

5.20 BEAMS, GIRDERS AND TRUSSES SHALL BE CAMBERED WHERE NOTED ON THE CONTRACT DESIGN DRAWINGS.

5.21 BOLT HOLES ON PIPE FLANGES TO STRADDLE CENTERLINES. PIPE TO BE SET BACK ⅛" FROM FACE OF FLANGE.

5.22 STANDARD RAILING AND STAIR RAILING TO BE 1½" DIAMETER HSS SCHEDULE 40. POSTS TO BE 1½" DIAMETER HSS SCHEDULE 80. MAXIMUM POST SPACING IS 6'-0". HANDRAIL TO BE 1½" DIAMETER HSS SCHEDULE 40. THE SPACING OF BRACKETS SHALL NOT EXCEED 6'-0".

5.30 SHOP TRIAL ERECTION AIDS SHALL BE FURNISHED AND INSTALLED BY THE FABRICATOR. AFTER TRIAL ERECTION, ALL ERECTION AIDS SHALL BE REMOVED BY THE FABRICATOR.

5.31 FABRICATOR TO LOCATE FIELD SPLICES FOR ALL PLATE WORK ON BINS AND TANKS TO CONFORM TO TRANSPORTATION REQUIREMENTS, TO ASSURE ECONOMY OF FABRICATION AND TO COMPLY WITH CONTRACT DRAWING INFORMATION.

5.32 PROVIDE TEMPORARY SHIPPING TIES TO FABRICATED COMPONENT PIECES WHERE NECESSARY TO PREVENT DAMAGE DURING SHIPMENT. TIES TO BE IDENTIFIED WITH A CONTRASTING PAINT COLOR.

6.0 FIELD ERECTION NOTES

6.2 FIELD ERECTION IS NOT BY UCC.

6.3 FIELD ERECTION AIDS, IF REQUIRED, SHALL BE FURNISHED AND INSTALLED BY THE ERECTOR. AFTER ERECTION, ALL ERECTION AIDS SHALL BE REMOVED BY THE ERECTOR.

6.4 MARKED END OF PIECES TO CORRESPOND WITH LOCATION OF PIECE MARKS AS SHOWN ON CONTRACT AND/OR ERECTION PIECE MARK DRAWINGS. MARKS ARE GENERALLY ON THE LEFT END OF THE PIECE.

6.9 TOUCH UP PAINTING FOR FIELD WELDING GALVANIZED MATERIAL IS THE RESPONSIBILITY OF THE FIELD PAINTING CONTRACTOR.

6.10 REPAIR DAMAGED AND UNCOATED AREAS OF GALVANIZED STRUCTURAL STEEL, WELDS, ETC USING ZINC BASED ALLOYS PER ASTM A780 ANNEX A1 OR A3.

6.11 OPENINGS IN GRATING (6" DIAMETER AND SMALLER) TO BE FIELD LOCATED AND FIELD CUT. BANDING IS NOT REQUIRED.

6.12 OPENINGS IN GRATING (LARGER THAN 6" DIAMETER) TO BE FIELD LOCATED AND FIELD CUT. 4" HIGH TOE PLATE IS REQUIRED TO BE FURNISHED BY INSTALLING CONTRACTOR.

6.14 BOLT HOLES ON PIPE FLANGES TO STRADDLE CENTERLINES. PIPE TO BE SETBACK ½" FROM FACE OF FLANGE.

6.15 WALL AND ROOF PENETRATIONS REQUIRED BY OTHER TRADES SHALL BE FIELD CUT AND FLASHING PROVIDED AT THE EXPENSE OF THOSE TRADES.

6.19 ALL RIGGING EQUIPMENT SHALL MEET CURRENT (OSHA) 29 CFR 1910 REQUIREMENTS, CURRENT ANSI/ASME B30 STANDARDS, AND CURRENT U.S. DEPARTMENT OF ENERGY STANDARDS FOR HOISTING AND RIGGING (DOE-STD-1090-2011). ALL RIGGING SHALL BE PERFORMED BY EXPERIENCED AND QUALIFIED RIGGING PERSONNEL.

6.21 PNEUMATIC AND HYDROSTATIC TESTING PER API 620 SECTION 7.18 IS NOT APPLICABLE TO THE DESIGN OF SILOS STORING GRANULAR MATERIALS.

6.23 ERECTOR TO REMOVE TEMPORARY SHIPMENT TIES AND WELDS. FIELD TOUCH UP OF SHOP PAINT COATING AS REQUIRED. TOUCH UP PAINT NOT BY UCC.

NOTES

GENERAL NOTES MAY NOT BE IN SEQUENTIAL ORDER OMITTED NUMBERS ARE INTENTIONAL.

FOR INDEX OF STRUCTURAL DRAWINGS REF DRAWING S-55650-05-002

MATERIAL SUPPLY
- MATERIAL SHOWN ON UCC CONTRACT DRAWINGS MAY BE CROSS-REFERENCED WITH ONE OF THE FOLLOWING SYMBOLS:

(#) MATERIAL FURNISHED BY UCC AS COVERED BY THIS DRAWING. NUMBER IN CIRCLE REFERS TO ITEM NUMBER ON THE BILL OF MATERIAL.

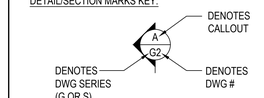
(C) MATERIAL FURNISHED BY UCC AS PART OF A CONVEYOR OR SERVICE PIPING DRAWING (SERIES C)

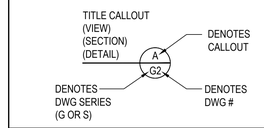
(E) MATERIAL FURNISHED BY UCC AS PART OF AN ELECTRICAL DRAWING (SERIES E)

(M) MATERIAL FURNISHED BY UCC AS PART OF A FLOW OR P&ID DRAWING (SERIES M)

(S) MATERIAL FURNISHED BY UCC AS PART OF STRUCTURAL DRAWING (SERIES S)

DETAIL/SECTION MARKS KEY:





SAFETY NOTE:
REFER TO UCC DOCUMENT NO. 721005 LOCATED IN THE UCC UCCO&M MANUAL, "SYSTEMS AND EQUIPMENT SAFETY INSTRUCTIONS", FOR IMPORTANT SAFETY CONSIDERATIONS WHEN PERSONNEL ARE NEAR THE SYSTEM EQUIPMENT FOR ANY REASON

REFERENCE:
- OSHA GENERAL CONSTRUCTION INDUSTRY REGULATIONS 29 CFR PART 1926
- OSHA GENERAL INDUSTRY REGULATIONS 29 CFR PART 1910.269

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
A	ISSUED FOR USE	12/20/2024	CMB	CA		

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MODIFICATION TO UCC EQUIPMENT AND STRUCTURES TO AVOID FIELD OBSTRUCTIONS, CORRECTIONS DUE TO MINOR DRAWING DISCREPANCIES WITH FIELD CONDITIONS, AND/OR MINOR FABRICATION MISFITS ARE CONSIDERED NORMAL ERECTION AND INSTALLATION OPERATIONS AND ARE NOT CHARGEABLE TO UCC. WE WILL NOT ACCEPT BACK CHARGES FOR ANY WORK PERFORMED IN THE FIELD UNLESS APPROVED BY UCC'S FIELD SERVICE DEPARTMENT.

SCALE	1:1	DRAWING SIZE	5

DRAWING TITLE
GENERAL NOTES FOR STRUCTURAL DRAWINGS
UNIT 1

PLANT NAME
HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER	REVISION
S-55650-05-001	A

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STRUCTURAL
CONTRACT DESIGN DRAWINGS

STRUCTURAL CONTRACT DESIGN DRAWINGS	
DRAWING TITLE	**DRAWING NUMBER**
GENERAL NOTES FOR STRUCTURAL DRAWINGS UNIT 1	S-55650-05-001
DRAWING INDEX & ABBREVIATIONS LIST FOR STRUCTURAL DRAWINGS UNIT 1	S-55650-05-002
GENERAL ARRANGEMENT OF FLY ASH SILO UNIT 1	G-55650-05-001
SILO FLOOR & UNLOADING FLOOR EQUIPMENT PLANS & SECTIONS UNIT 1	G-55650-05-002
SILO UNLOADING EQUIPMENT ELEVATION UNIT 1	G-55650-05-003
SILO ROOF EQUIPMENT PLAN & SECTION UNIT 1	G-55650-05-004
SILO ROOF EQUIPMENT DETAILS UNIT 1	G-55650-05-005

STRUCTURAL ABBREVIATIONS & SYMBOLS LIST

AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
API	AMERICAN PETROLEUM INSTITUTE
APPROX	APPROXIMATE
AR	ABRASIVE-RESISTANT
ASSN	ASSOCIATION
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
AWS	AMERICAN WELDING SOCIETY
B/	BOTTOM OF
BC	BOLT CIRCLE
BL	BEND LINE
BLDG	BUILDING
BM	BEAM
B/M	BILL OF MATERIAL
BOT	BOTTOM
BRKT	BRACKET
BT	BENT
°C	DEGREE CELSIUS
CCW	COUNTERCLOCKWISE
CHKD	CHECKERED
CL	CENTERLINE
CLR	CLEARANCE
CO.	COMPANY
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONV	CONVEYOR
CS	CARBON STEEL
C TO C	CENTER TO CENTER
CTR	CENTER
CU	CUBIC
CU FT	CUBIC FOOT
CU IN	CUBIC INCH
CU YD	CUBIC YARD
CW	CLOCKWISE
CYL	CYLINDER
D	DURITE PIPE
DET	DETAIL
DEW	DEWATERING
DIA	DIAMETER
DIM	DIMENSION
DL	DEAD LOAD
DR	DUR-ROK PIPE
DWG	DRAWING
EA	EACH
EL	ELEVATION
EXP	EXPANSION
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
°F	FAHRENHEIT
F/	FACE OF
FAB	FABRICATION
FDN	FOUNDATION
FL	FLOOR
FLG	FLANGE
FS	FAR SIDE
F/S	FILTER/SEPARATOR
FT	FOOT (')
GA	GAUGE
GALV	GALVANIZED
GL	GIRT LINE
GOL	GAUGE OUTSTANDING LEG
GRTG	GRATING
HEX HD	HEXAGONAL HEAD
HORIZ	HORIZONTAL
HP	HORSE POWER
H PT	HIGH POINT
HSB	HIGH STRENGTH BOLT
HVY	HEAVY
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IN	INCH (")
INC.	INCORPORATED
INS	INSIDE
INT	INTERIOR
IR	INSIDE RADIUS
K	KIP (1000 POUNDS)
KB	KNEE BRACE
KN	KILO-NEWTON
KSI	KIPS PER SQUARE INCH
L	ANGLE
LB	POUND (#)
LG	LENGTH
LH	LEFT HAND
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
L PT	LOW POINT
MATL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MC	MOMENT CONNECTION
MIL	0.001 INCH
MIN	MINIMUM
MK	MARK
M	METER
mm	MILLIMETER
MTG	MOUNTING
N	NUVALOY
NF	NOT FURNISHED BY UCC
NO	NUMBER
NPT	NATIONAL TAPER PIPE THREAD
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPNG	OPENING
OPP	OPPOSITE
PL	PLATE
PLATF	PLATFORM
PSF	LBS PER SQUARE FOOT
QTY	QUANTITY
R OR RAD	RADIUS
REF	REFERENCE
REQD	REQUIRED
RH	RIGHT HAND
SCH	SCHEDULE
SP	SPACES
SSPC	THE SOCIETY FOR PROTECTIVE COATINGS
SS	STAINLESS STEEL
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STRL	STRUCTURAL
ST TWR	STAIRTOWER
SYM	SYMMETRICAL
T	TON (2,000 LBS)
T/	TOP OF
THK	THICK
T/STL	TOP OF STEEL
TR	TREAD
TYP	TYPICAL
UCC	UNITED CONVEYOR CORPORATION
UN	UNLESS NOTED
W/	WITH
W/O	WITHOUT
WL	WORK LINE
WP	WORK POINT
WT	WEIGHT
@	AT
&	AND
Ø	DIAMETER
=	EQUAL
◿	SLOPE

NOTES

REFERENCE DRAWINGS:

- STRUCTURAL GENERAL NOTES REF DRAWING S-55650-05-001
- CONVEYOR GENERAL NOTES & DRAWING INDEX C-55650-05-001
- P&ID GENERAL NOTES & DRAWING INDEX M-55650-05-001

REV	DESCRIPTION	DATE	DSGN	CHKD	APPD (ENGR)	APPD (PROJ)
A	ISSUED FOR USE	12/20/2024	CMB	CA		

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SCALE	1:1	DRAWING SIZE	5

DRAWING TITLE

DRAWING INDEX & ABBREVIATION LIST
FOR STRUCTURAL DRAWINGS
UNIT 1

PLANT NAME

HASTINGS UTILITIES
WHELAN ENERGY CENTER
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

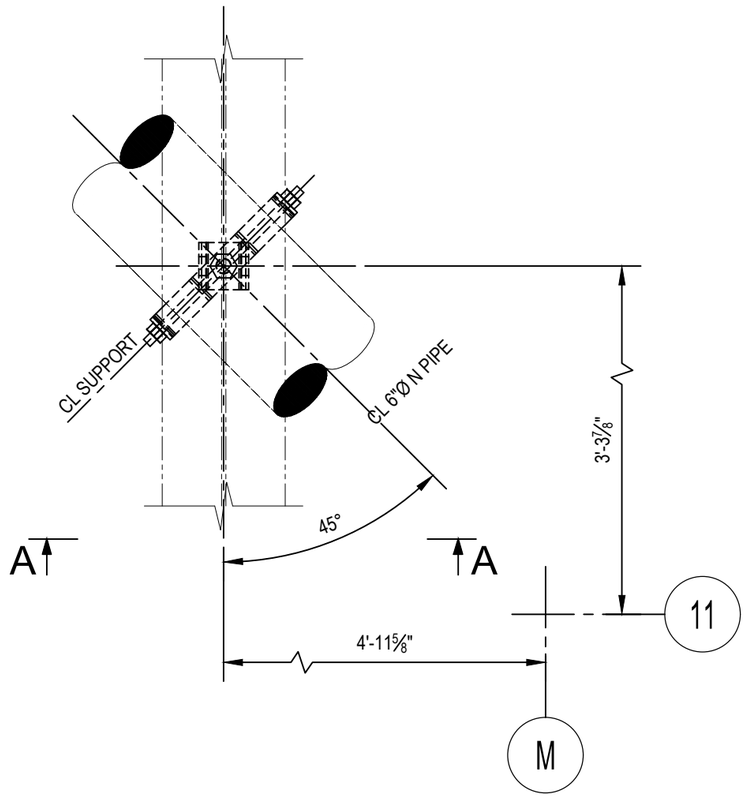
DRAWING NUMBER: S-55650-05-002

REVISION: A

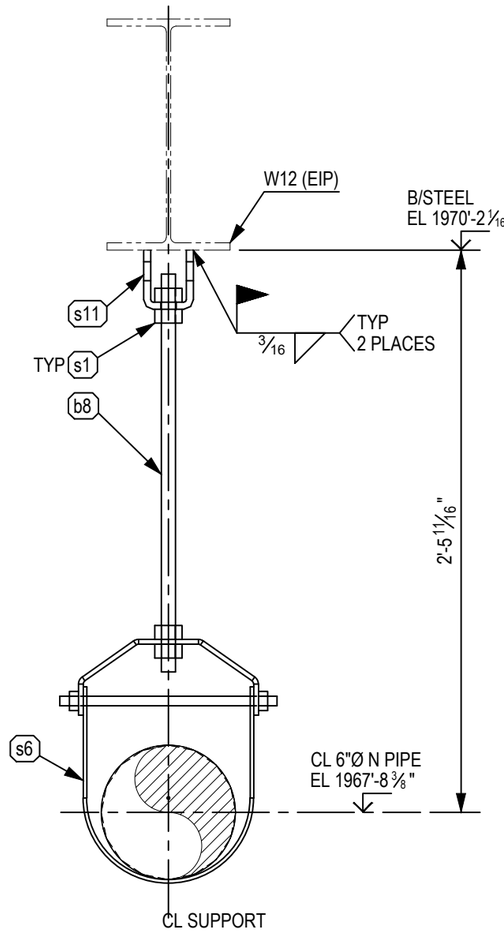
C:\USERS\CASBOU\DC\ACCDOCS\UCC\55650-05\PROJECT FILES\07 - STRUCTURAL\10 DWG\S-55650-05-001 - 002.DWG

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b8	Anvil Fig 146	1	3/4" continuous threaded rod	1'-9"	Ship 2'-0" LG, field cut to suit
s1	A563	4	3/4" dia right hand threaded hex nut		
s6	Anvil Fig 260	1	Adjustable clevis hanger for 8" CS pipe		w/ spacer
s11	Anvil Fig 66	1	Welded beam attachment for 3/4" dia rod		
Substitutions allowed per Engineer approval				Weight (lbs)	0



PLAN VIEW



SECTION A - A

(PIPE AND ITEM s6
ROTATED FOR CLARITY)

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
E100020	PSA-0001	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-001

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: ROD HANGER, ELEVATED, 6", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

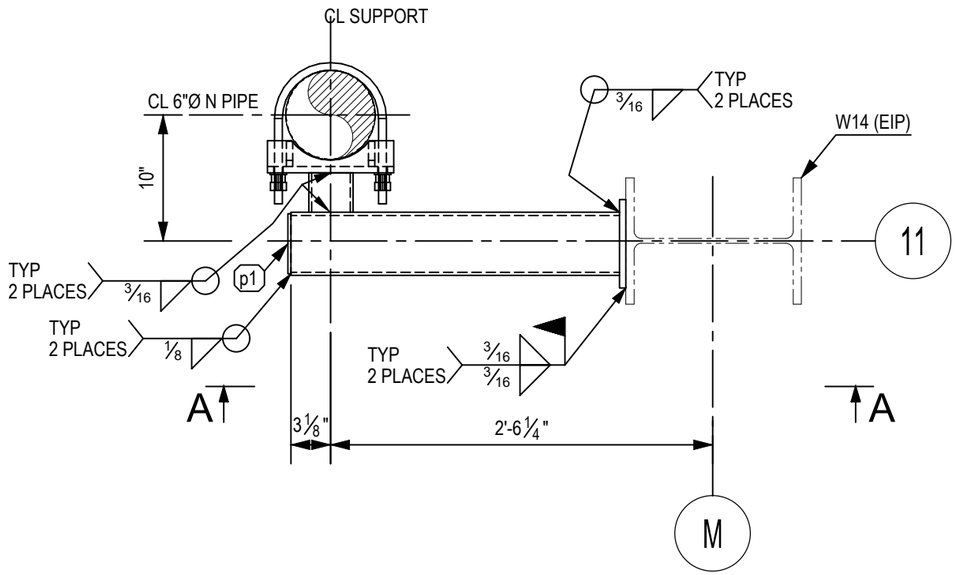
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-001

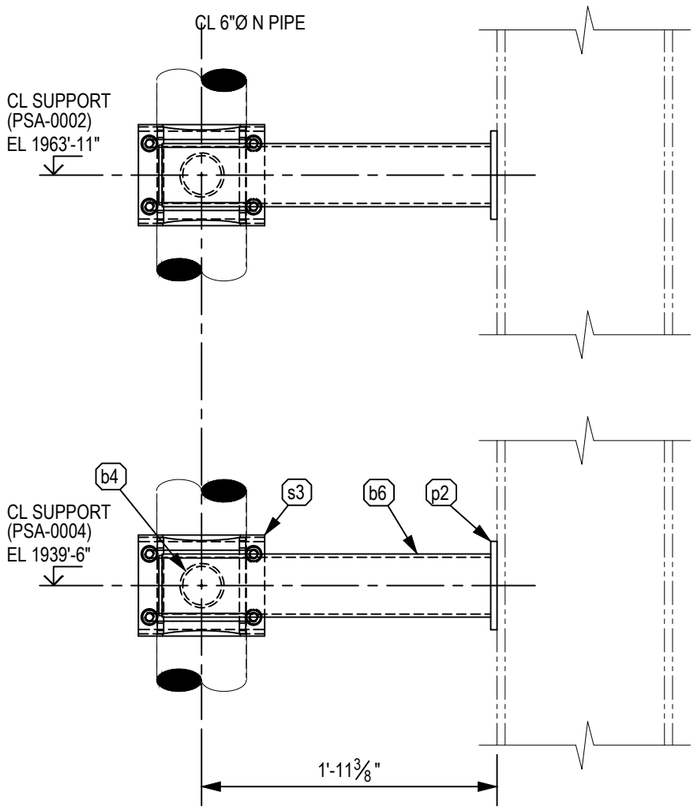
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b4	A500 GR.C	1	HSS3.5X0.216	0'-3 1/8"	
b6	A500 GR.C	1	HSS5X5X1/4	2'-2"	
p1	A36	1	PL 1/4" x 4-3/4"	0'-4 3/4"	
p2	A36	1	PL 1/2" x 7"	0'-7"	
s3	1717-96-15	1	Elevated anchor attachment for 6" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	64



PLAN VIEW



SECTION A - A

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 40 FT-LBS.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
E100030	PSA-0002	1
E100050	PSA-0004	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-001

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, RISER, 6", VACUUM, NUVALOY®, STEEL

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

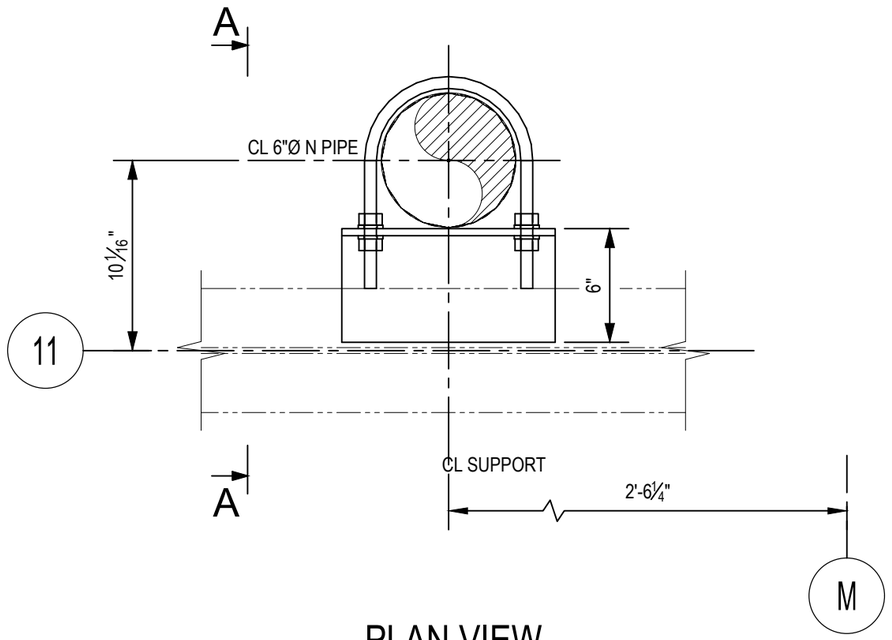
PLANT NAME: HASTINGS UTILITIES, WHELAN ENERGY CENTER UNIT 1, HASTINGS, NEBRASKA

DRAWING NUMBER: SD-55650-05-002

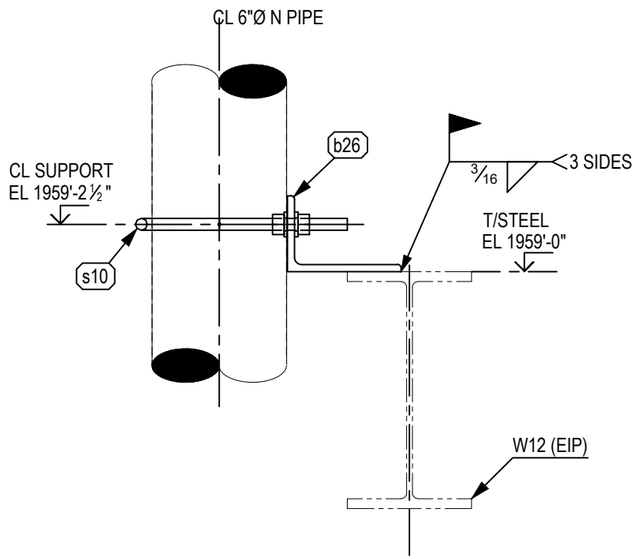
REVISION: 0

Bill of Materials

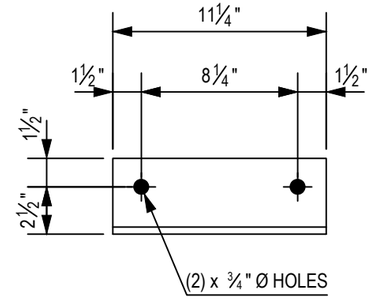
ID	Material / P/N	QTY	Description	Length	Notes
b26	A36	1	L6X4X3/8	0'-11 1/4"	See detail
s10	463206-2-0710-066-44	1	5/8" dia U-bolt for 6" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	12



PLAN VIEW



SECTION A - A



ITEM b26

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" HORIZONTAL GAP.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
E100040	PSA-0003	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-001

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, RISER, 6", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES, WHELAN ENERGY CENTER UNIT 1, HASTINGS, NEBRASKA

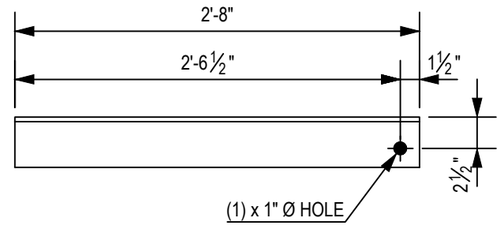
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-003

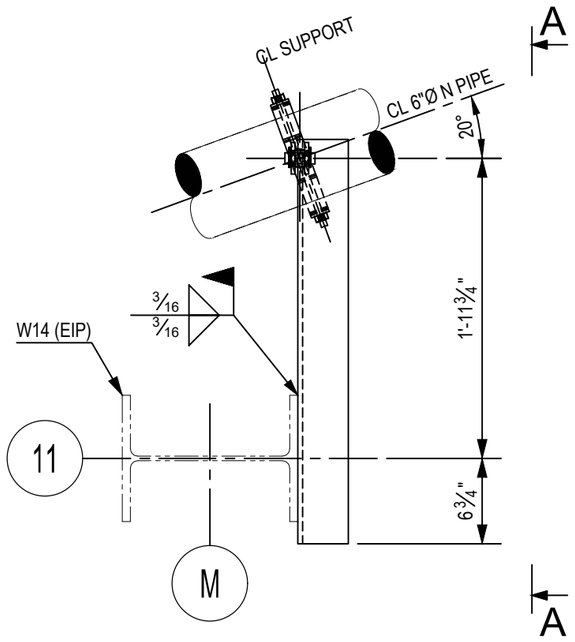
REVISION: 0

Bill of Materials

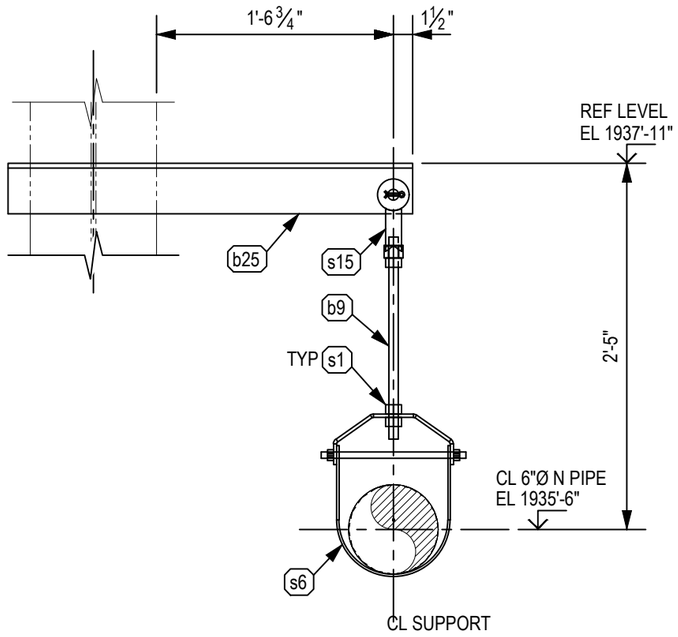
ID	Material / P/N	QTY	Description	Length	Notes
b9	Anvil Fig 146	1	3/4" continuous threaded rod	1'-4"	Ship 1'-7" LG, field cut to suit
b25	A36	1	L4X4X3/8	2'-8"	See detail
s1	A563	3	3/4" dia right hand threaded hex nut		
s6	Anvil Fig 260	1	Adjustable clevis hanger for 8" CS pipe		w/ spacer
s15	Anvil Fig 299	1	Forged steel clevis for 3/4" dia rod		With pin and cotters
Substitutions allowed per Engineer approval				**Weight (lbs)**	**26**



ITEM b25



PLAN VIEW



SECTION A - A

(PIPE AND ITEM s6
ROTATED FOR CLARITY)

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
E100060	PSA-0005	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-001

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: ROD HANGER, ELEVATED, 6", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

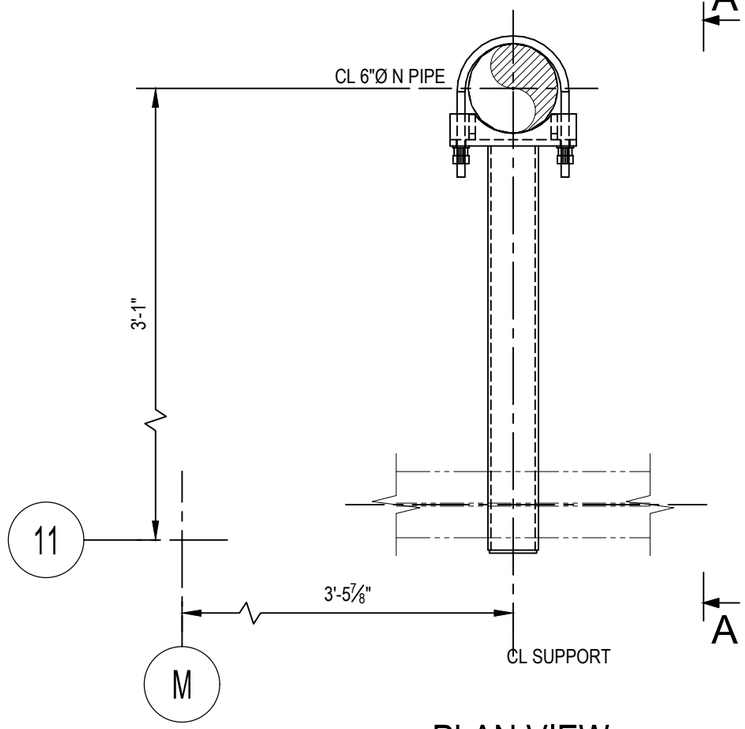
UCC environmental
2160 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-004

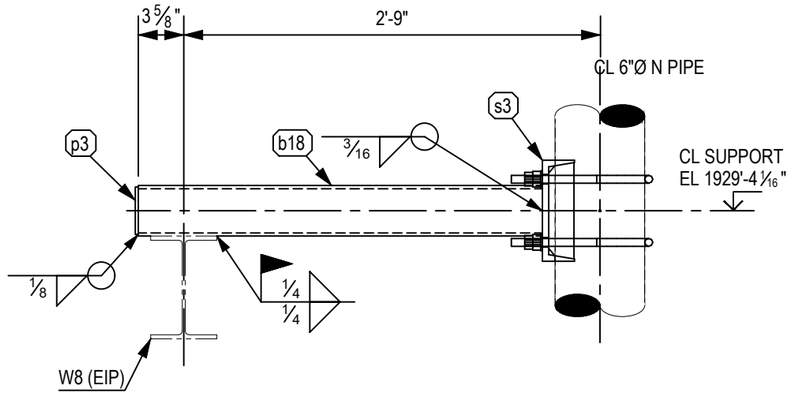
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b18	A500 GR.C	1	HSS4X4X1/4	2'-8"	
p3	A36	1	PL 1/4" x 3-3/4"		
s3	1717-96-15	1	Elevated anchor attachment for 6" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	54



PLAN VIEW



SECTION A - A

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 10 FT-LBS.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

REF DRAWINGS:	REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
CONVEYOR DRAWING: C-55650-05-003						
OTHER DRAWINGS: CL-55650-05-001						
	0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		
UCC-W						

LOAD TAG	ASSY NO	QTY
E100080	PSA-0006	1

DESIGNED BY:

DRAWING TITLE: ANCHOR, RISER, 6", VACUUM, NUVALOY®, STEEL

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

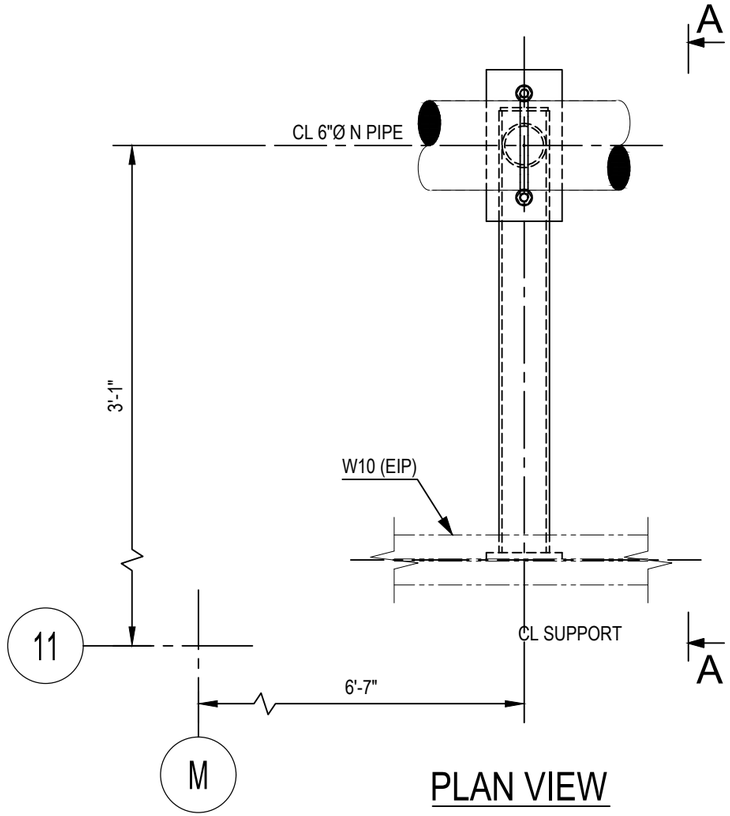
PLANT NAME: HASTINGS UTILITIES, WHELAN ENERGY CENTER UNIT 1, HASTINGS, NEBRASKA

DRAWING NUMBER: SD-55650-05-005

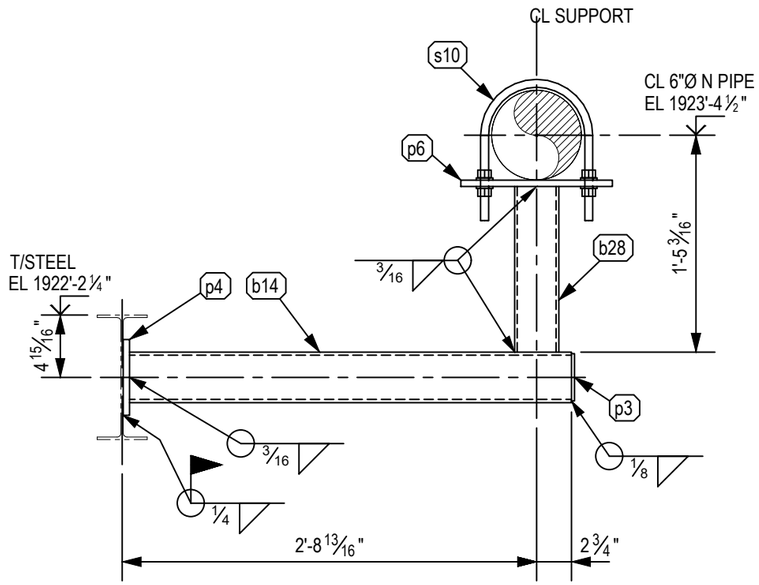
REVISION: 0

Bill of Materials

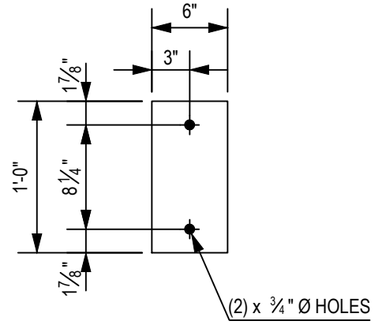
ID	Material / P/N	QTY	Description	Length	Notes
b14	A500 GR.C	1	HSS4X4X1/4	2'-11"	
b28	A500 GR.C	1	HSS3.5X0.216	1'-1 1/8"	
p3	A36	1	PL 1/4" x 3-3/4"	0'-3 3/4"	
p4	A36	1	PL 1/2" x 6"	0'-6"	
p6	A36	1	PL 1/2" x 6"	1'-0"	See detail
s10	463206-2-0710-066-44	1	5/8" dia U-bolt for 6" N pipe		
Substitutions allowed per Engineer approval				**Weight (lbs)**	**60**



PLAN VIEW



SECTION A - A



ITEM p6

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
E100090	PSA-0007	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-001

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, ELEVATED, 6", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

UCC environmental
2100 NORTHAN DRIVE, WAUKEGAN, IL 60085

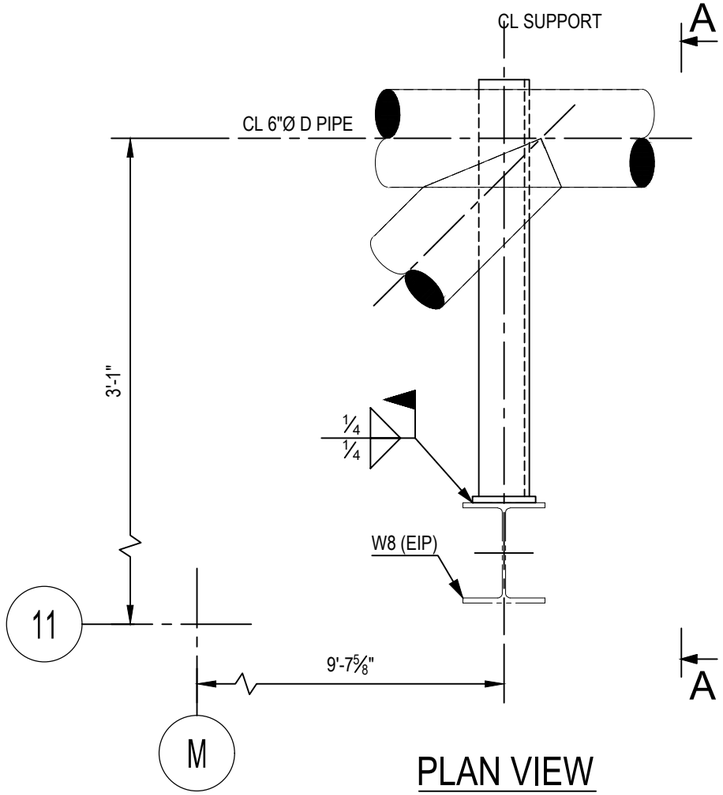
PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

DRAWING NUMBER: SD-55650-05-006

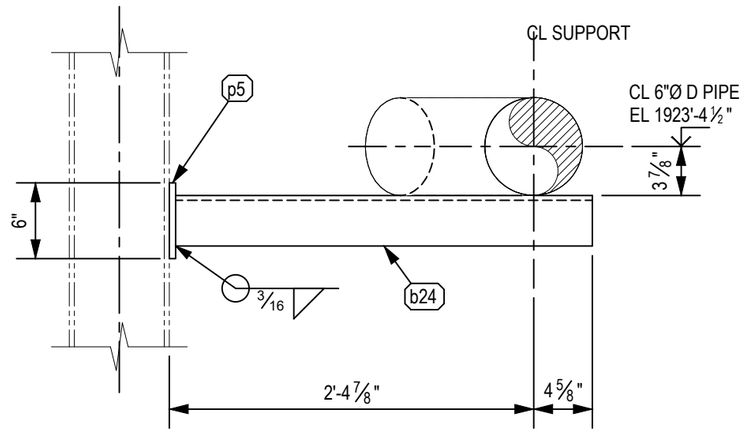
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b24	A36	1	L4X4X3/8	2'-9"	
p5	A36	1	PL 1/2" x 5"	0'-6"	
Substitutions allowed per Engineer approval				Weight (lbs)	31



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
E100100	PSA-0008	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-001

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: SUPPORT, ELEVATED, 6", VACUUM, DURITE®, STEEL

UCC environmental
2160 NORMAN DRIVE, WAUKEGAN, IL 60085

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

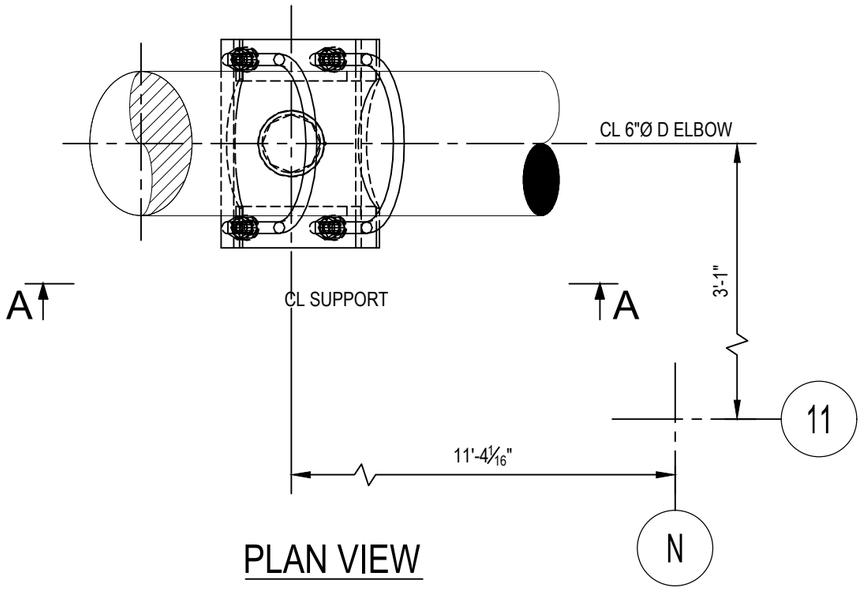
PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

DRAWING NUMBER: SD-55650-05-007

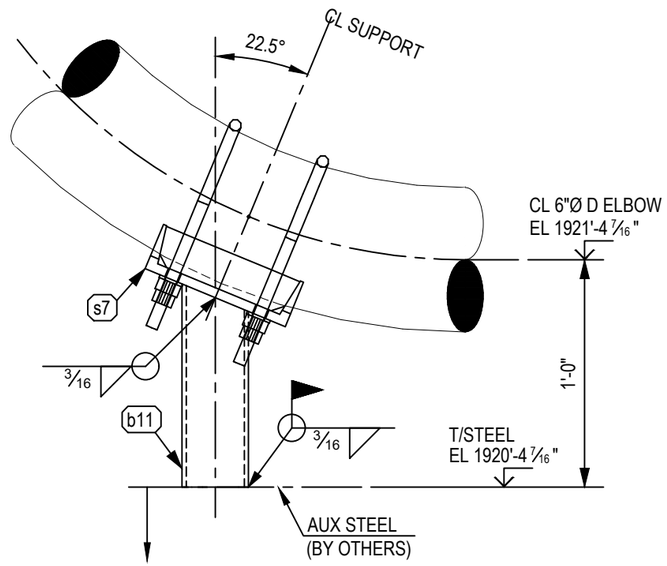
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b11	A500 GR.C	1	HSS3.5X0.216	0'-10 3/4"	Ship 1'-6" LG, field cut to suit
s7	1717-94-27	1	Elevated anchor attachment for 6" D pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	29



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 10 FT-LBS.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
E100110	PSA-0009	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-001

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, ELEVATED, 6", VACUUM, DURITE®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

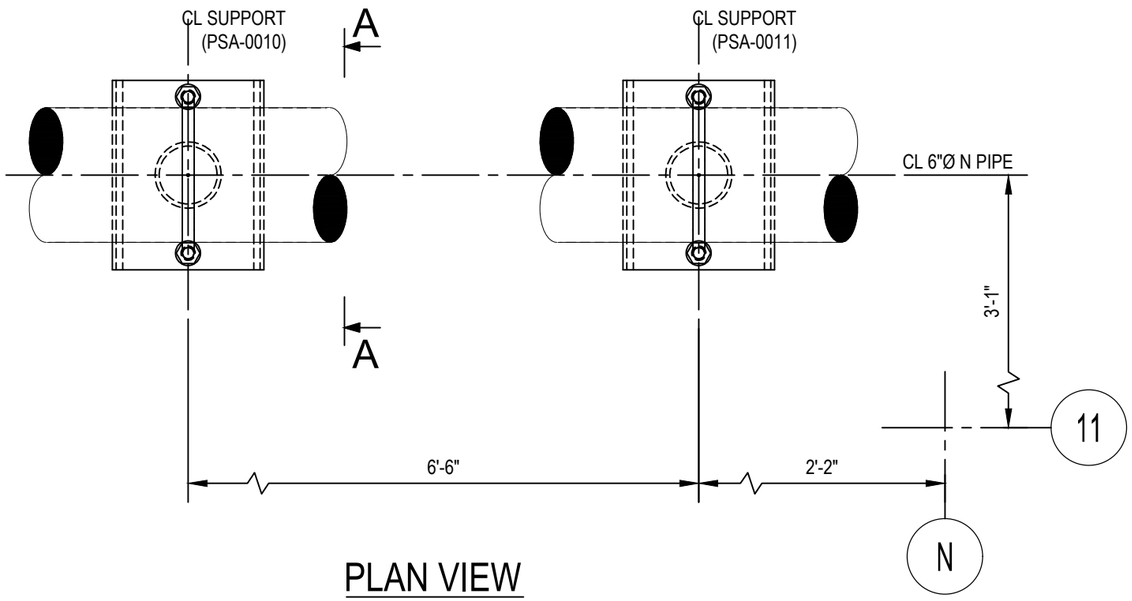
UCC environmental
2160 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-008

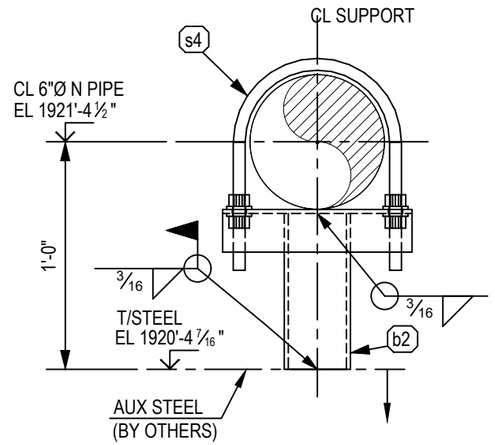
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b2	A500 GR.C	1	HSS3.5X0.216	0'-8 1/4"	Ship 1'-6" LG, field cut to suit
s4	1717-88-08	1	Elevated guide attachment for 6" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	15



PLAN VIEW



SECTION A - A
(TYPICAL 2 PLACES)

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
E100120	PSA-0010	1
E100130	PSA-0011	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-001
UCC-W

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

DESIGNED BY:

DRAWING TITLE: GUIDE, ELEVATED, 6", VACUUM, NUVALOY®, STEEL

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

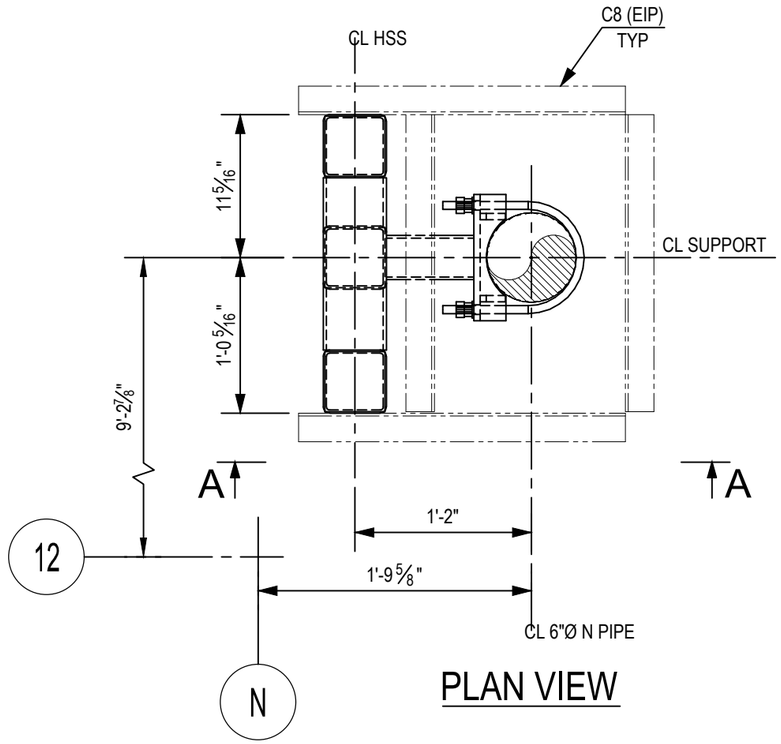
PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

DRAWING NUMBER: SD-55650-05-009

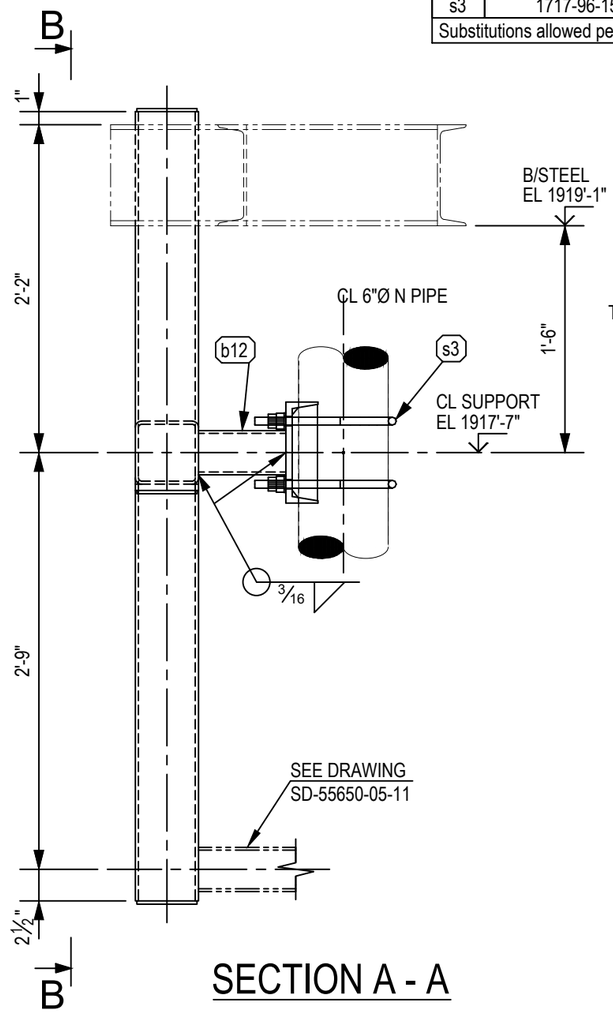
REVISION: 0

Bill of Materials

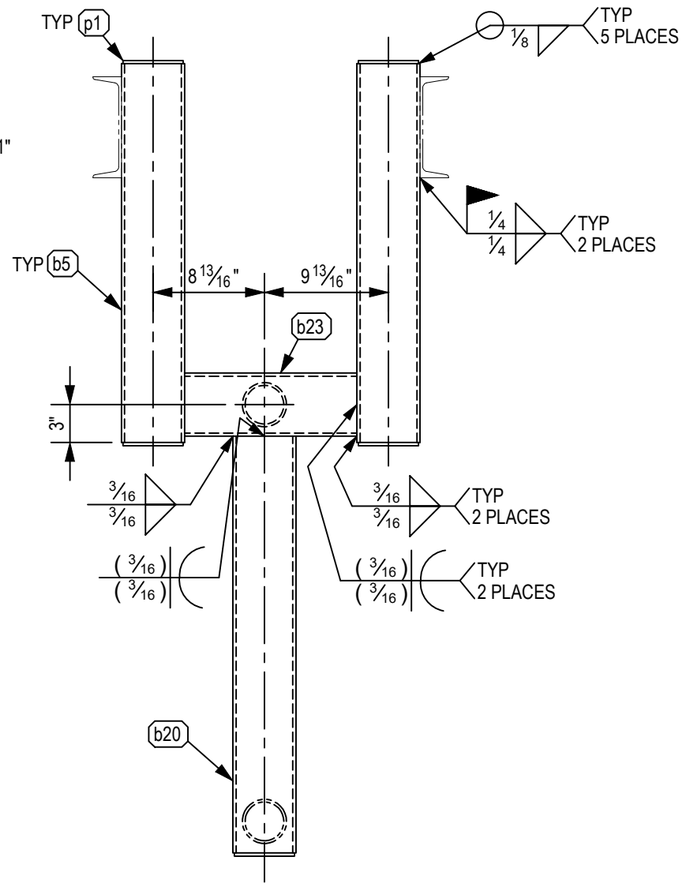
ID	Material / P/N	QTY	Description	Length	Notes
b5	A500 GR.C	2	HSS5X5X1/4	2'-6"	
b12	A500 GR.C	1	HSS3.5X0.216	0'-6 15/16"	
b20	A500 GR.C	1	HSS5X5X1/4	2'-9"	
b23	A500 GR.C	1	HSS5X5X1/4	1'-1 5/8"	
p1	A36	5	PL 1/4" x 4-3/4"	0'-4 3/4"	
s3	1717-96-15	1	Elevated anchor attachment for 6" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	171



PLAN VIEW



SECTION A - A



SECTION B - B

(PIPE AND ITEM s3
NOT SHOWN FOR CLARITY)

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 30 FT-LBS.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
E100140	PSA-0012	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-001

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, RISER, 6", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

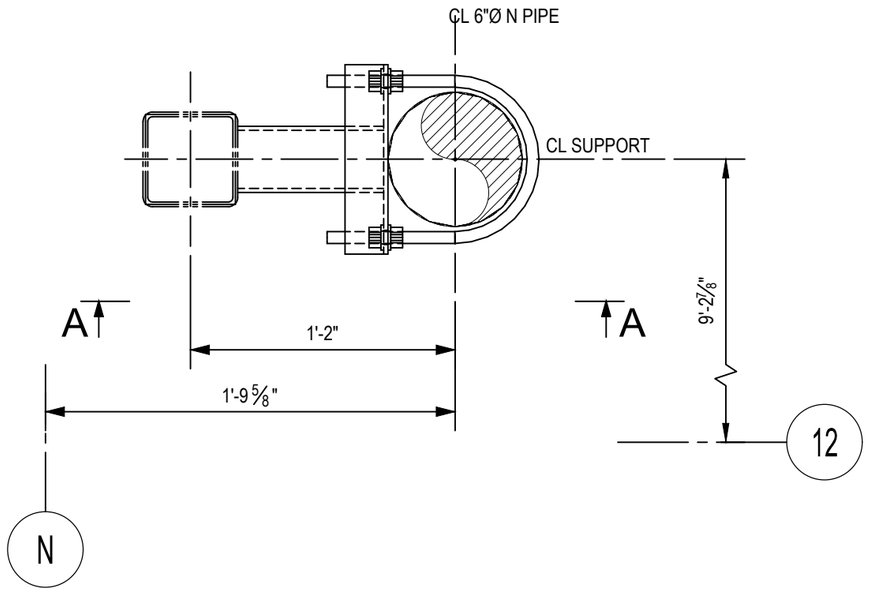
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-010

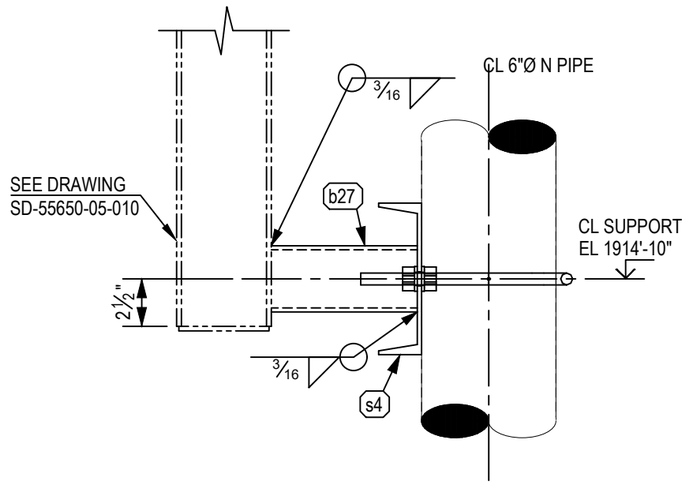
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b27	A500 GR.C	1	HSS3.5X0.216	0'-7 11/16"	
s4	1717-88-08	1	Elevated guide attachment for 6" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	15



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH 1/4" HORIZONTAL GAP.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
E100150	PSA-0013	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-001

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, RISER, 6", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

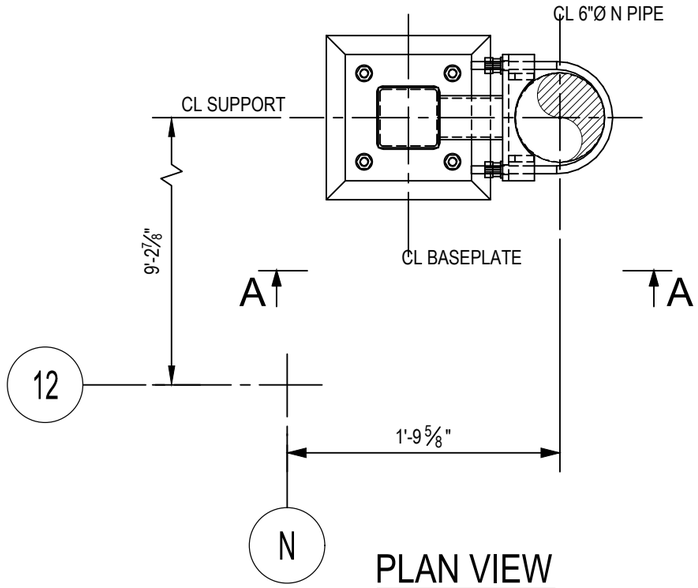
UCC environmental
2189 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-011

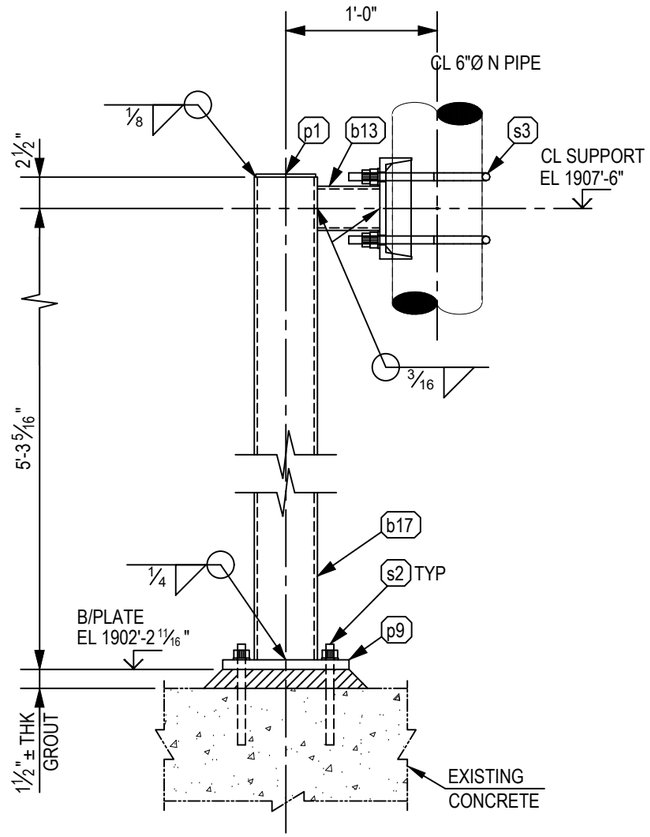
REVISION: 0

Bill of Materials

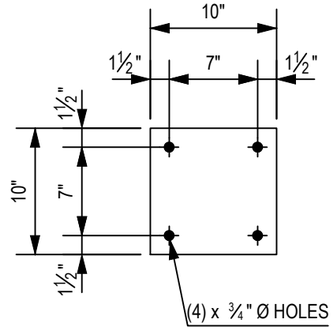
ID	Material / P/N	QTY	Description	Length	Notes
b13	A500 GR.C	1	HSS3.5X0.216	0'-4 15/16"	
b17	A500 GR.C	1	HSS5X5X1/4	5'-5"	
p1	A36	1	PL 1/4" x 4-3/4"	0'-4 3/4"	
p9	A36	1	PL 3/4" x 10"	0'-10"	See detail
s2	HILTI HAS-V-36 HDG	4	5/8" dia rod with HIT-RE500 V3 adhesive	0'-8"	Min 4 1/2" embedment
s3	1717-96-15	1	Elevated anchor attachment for 6" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	131



PLAN VIEW



SECTION A - A



ITEM p9

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 30 FT-LBS.

LOAD TAG	ASSY NO	QTY
E100160	PSA-0014	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-001

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, FLOOR, 6", VACUUM, NUVALOY®, CONCRETE

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

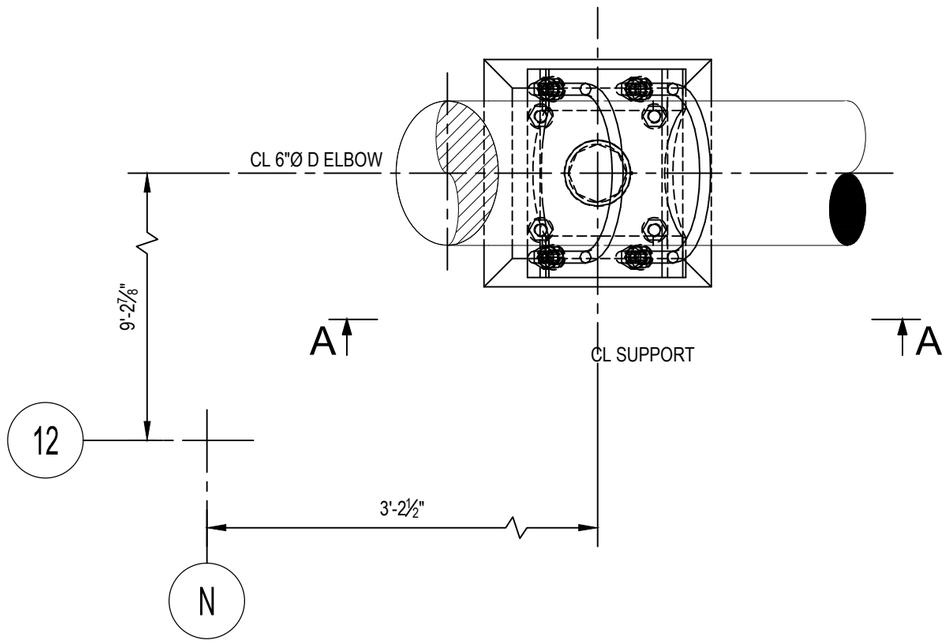
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-012

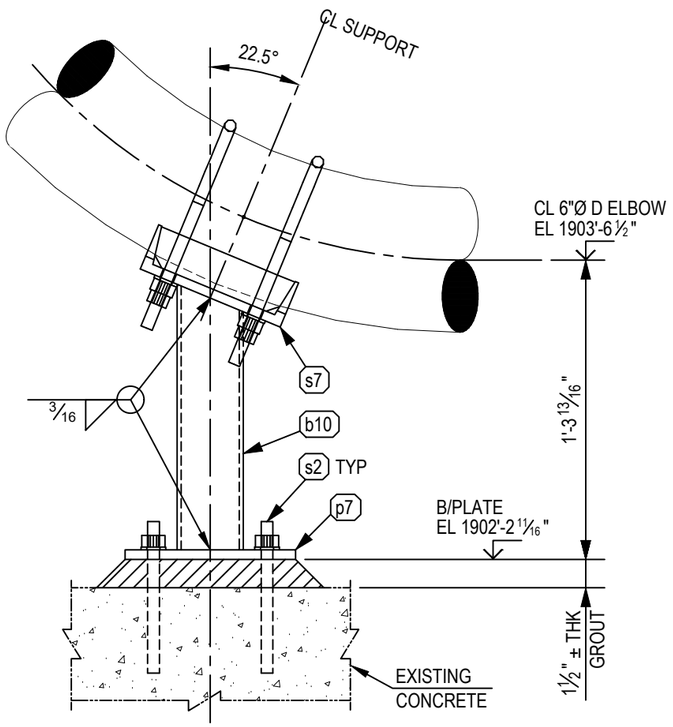
REVISION: 0

Bill of Materials

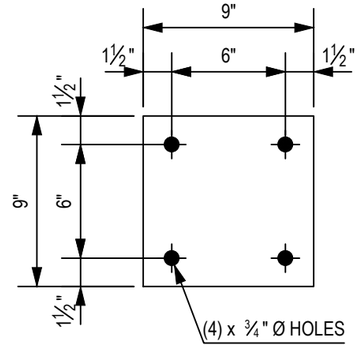
ID	Material / P/N	QTY	Description	Length	Notes
b10	A500 GR.C	1	HSS3.5X0.216	1'-2"	
p7	A36	1	PL 1/2" x 9"	0'-9"	See detail
s2	HILTI HAS-V-36 HDG	4	5/8" dia rod with HIT-RE500 V3 adhesive	0'-8"	Min 4 1/2" embedment
s7	1717-94-27	1	Elevated anchor attachment for 6" D pipe		
Substitutions allowed per Engineer approval				**Weight (lbs)**	**42**



PLAN VIEW



SECTION A - A



ITEM p7

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 30 FT-LBS.

LOAD TAG	ASSY NO	QTY
E100170	PSA-0015	1

REF DRAWINGS:							
CONVEYOR DRAWING: C-55650-05-003							
OTHER DRAWINGS: CL-55650-05-001							
	0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		
UCC-W	REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)

DESIGNED BY:

DRAWING TITLE: ANCHOR, FLOOR, 6", VACUUM, DURITE®, CONCRETE

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES, WHELAN ENERGY CENTER UNIT 1, HASTINGS, NEBRASKA

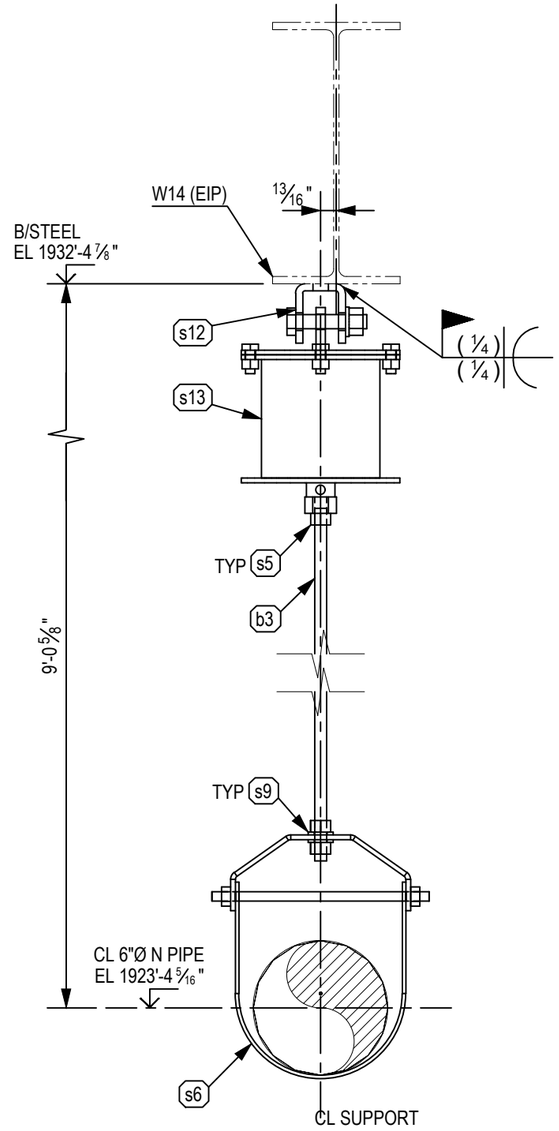
UCC environmental, 2160 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-013

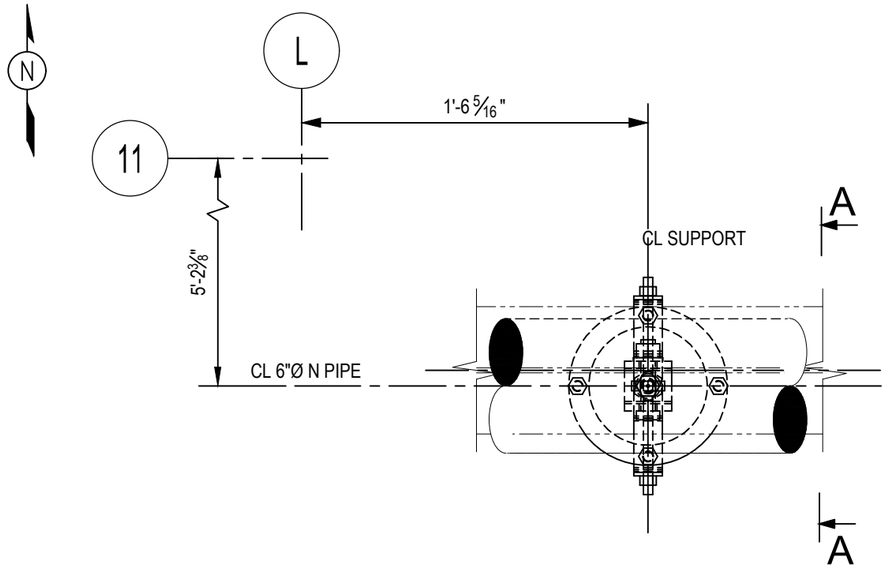
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b3	Anvil Fig 146	1	5/8" continuous threaded rod	7'-5"	Ship 8'-0" LG, field cut to suit
s5	A563	3	5/8" dia right hand threaded hex nut		
s6	Anvil Fig 260	1	Adjustable clevis hanger for 8" CS pipe		w/ spacer
s9	F436	2	5/8" dia circular washer		
s12	Anvil Fig 66	1	Welded beam attachment for 3/4" dia rod		w/ bolt and nut
s13	Anvil Fig 82	1	Type B, size 6 spring hanger		C=458#, H=401#, 0.34" DN
Substitutions allowed per Engineer approval				**Weight (lbs)**	**0**



SECTION A - A



PLAN VIEW

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
E110010	PSA-0021	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-002

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: SPRING HANGER, ELEVATED, 6", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES, WHELAN ENERGY CENTER UNIT 1, HASTINGS, NEBRASKA

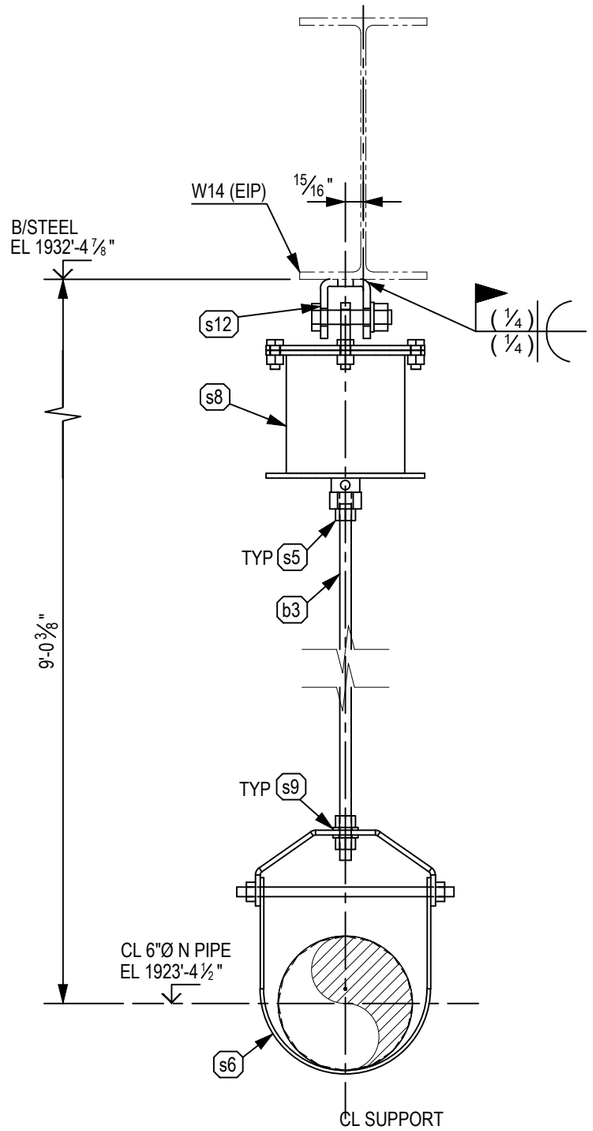
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-014

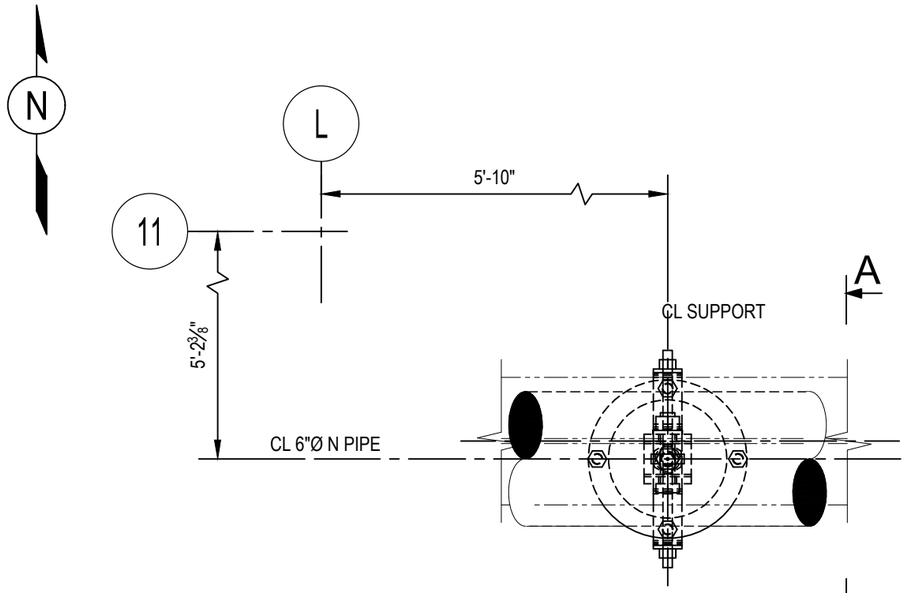
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b3	Anvil Fig 146	1	5/8" continuous threaded rod	7'-5"	Ship 8'-0" LG, field cut to suit
s5	A563	3	5/8" dia right hand threaded hex nut		
s6	Anvil Fig 260	1	Adjustable clevis hanger for 8" CS pipe		w/ spacer
s8	Anvil Fig 82	1	Type B, size 8 spring hanger		C=690#, H=650#, 0.14" DN
s9	F436	2	5/8" dia circular washer		
s12	Anvil Fig 66	1	Welded beam attachment for 3/4" dia rod		w/ bolt and nut
Substitutions allowed per Engineer approval				**Weight (lbs)**	**0**



SECTION A - A



PLAN VIEW

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.
3. REMOVAL OF EXISTING SUPPORT IS REQUIRED FOR NEW SUPPORT.

LOAD TAG	ASSY NO	QTY
E110020	PSA-0022	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-002

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: SPRING HANGER, ELEVATED, 6", VACUUM, NUVALOY®, STEEL

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

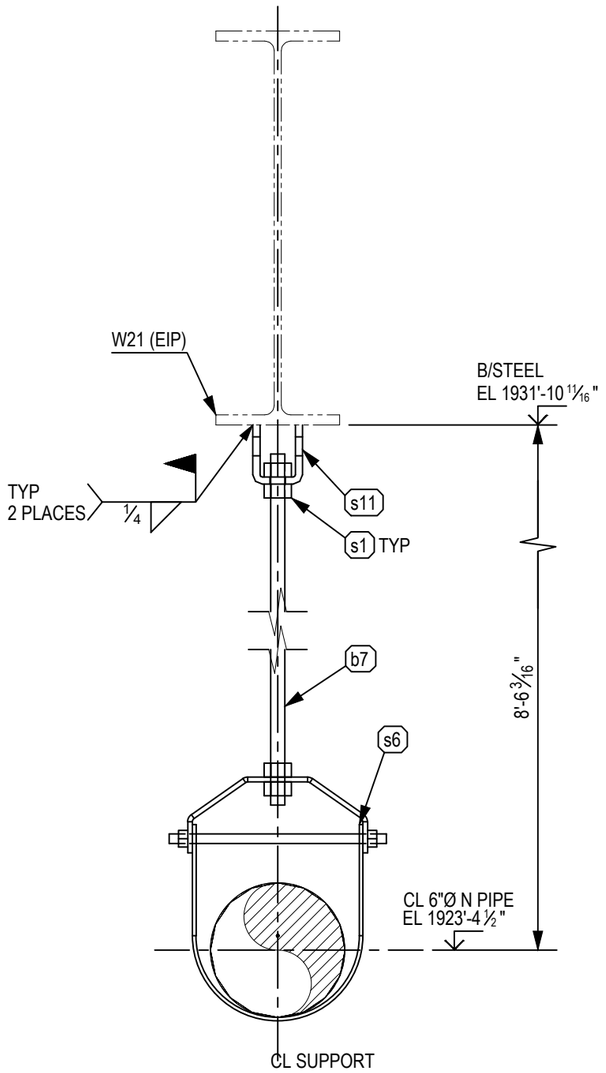
PLANT NAME: HASTINGS UTILITIES, WHELAN ENERGY CENTER UNIT 1, HASTINGS, NEBRASKA

DRAWING NUMBER: SD-55650-05-015

REVISION: 0

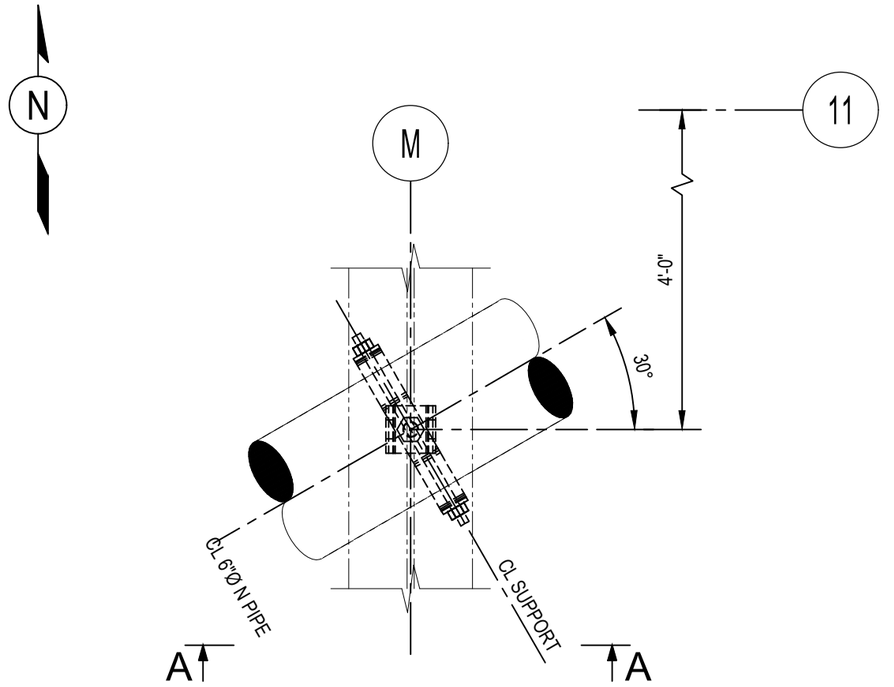
Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b7	Anvil Fig 146	1	3/4" continuous threaded rod	7'-9"	Ship 8'-0" LG, field cut to suit
s1	A563	4	3/4" dia right hand threaded hex nut		
s6	Anvil Fig 260	1	Adjustable clevis hanger for 8" CS pipe		w/ spacer
s11	Anvil Fig 66	1	Welded beam attachment for 3/4" dia rod		
Substitutions allowed per Engineer approval				**Weight (lbs)**	**0**



SECTION A - A

(PIPE AND ITEM s6
ROTATED FOR CLARITY)



PLAN VIEW

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
E110030	PSA-0023	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-002

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: ROD HANGER, ELEVATED, 6", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

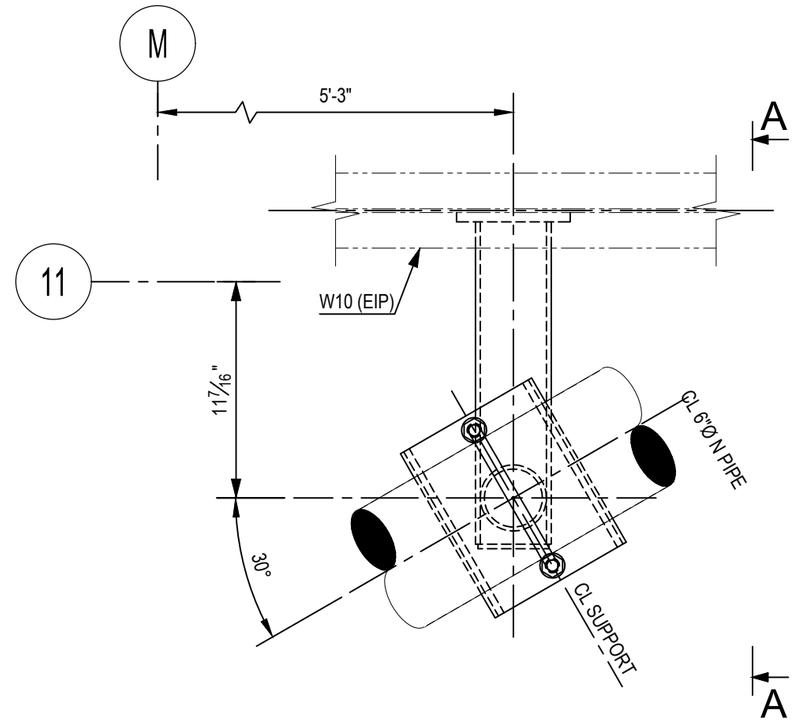
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-016

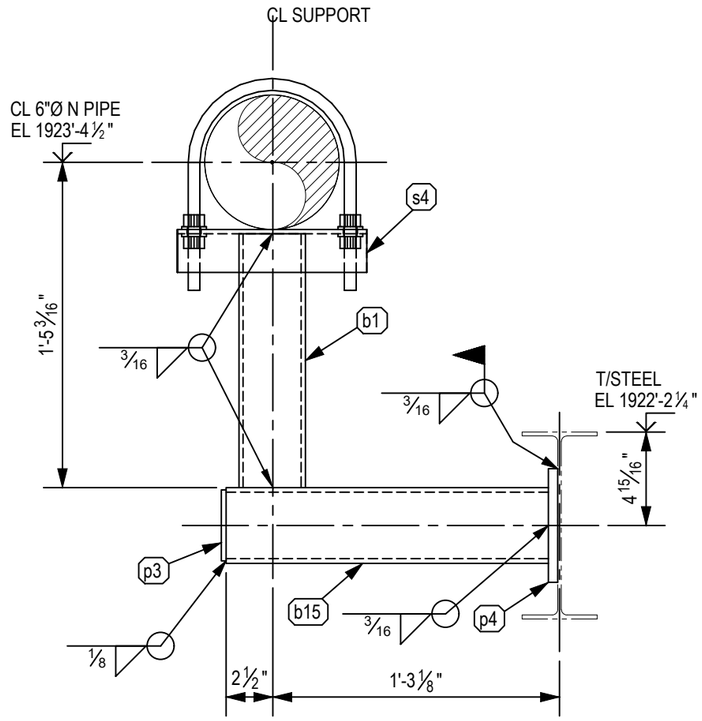
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b1	A500 GR.C	1	HSS3.5X0.216	1'-1 3/8"	
b15	A500 GR.C	1	HSS4X4X1/4	1'-5"	
p3	A36	1	PL 1/4" x 3-3/4"	0'-3 3/4"	
p4	A36	1	PL 1/2" x 6"	0'-6"	
s4	1717-88-08	1	Elevated guide attachment for 6" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	42



PLAN VIEW



SECTION A - A

(PIPE AND ITEM s4
ROTATED FOR CLARITY)

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.
3. CUT GRATING AS REQUIRED TO INSTALL SUPPORT.
4. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
E110040	PSA-0024	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-002

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, ELEVATED, 6", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

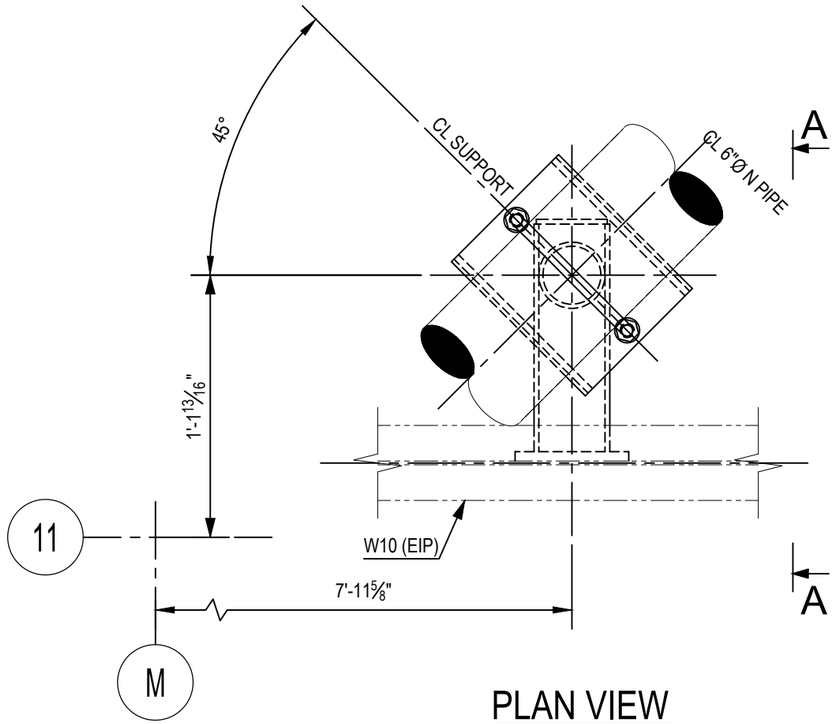
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-017

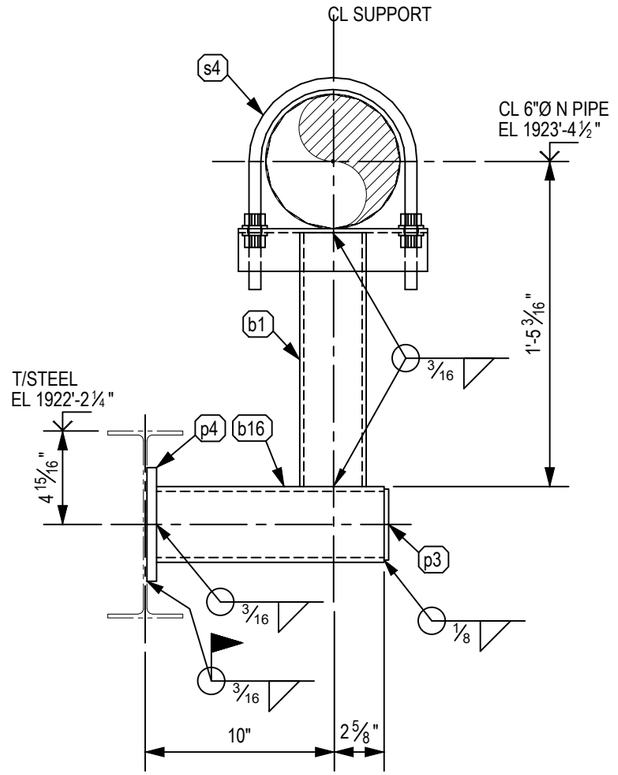
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b1	A500 GR.C	1	HSS3.5X0.216	1'-1 3/8"	
b16	A500 GR.C	1	HSS4X4X1/4	1'-0"	
p3	A36	1	PL 1/4" x 3-3/4"	0'-3 3/4"	
p4	A36	1	PL 1/2" x 6"	0'-6"	
s4	1717-88-08	1	Elevated guide attachment for 6" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	37



PLAN VIEW



SECTION A - A

(PIPE AND ITEM s4
ROTATED FOR CLARITY)

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH 1/4" VERTICAL GAP.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
E110050	PSA-0025	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-002

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, ELEVATED, 6", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

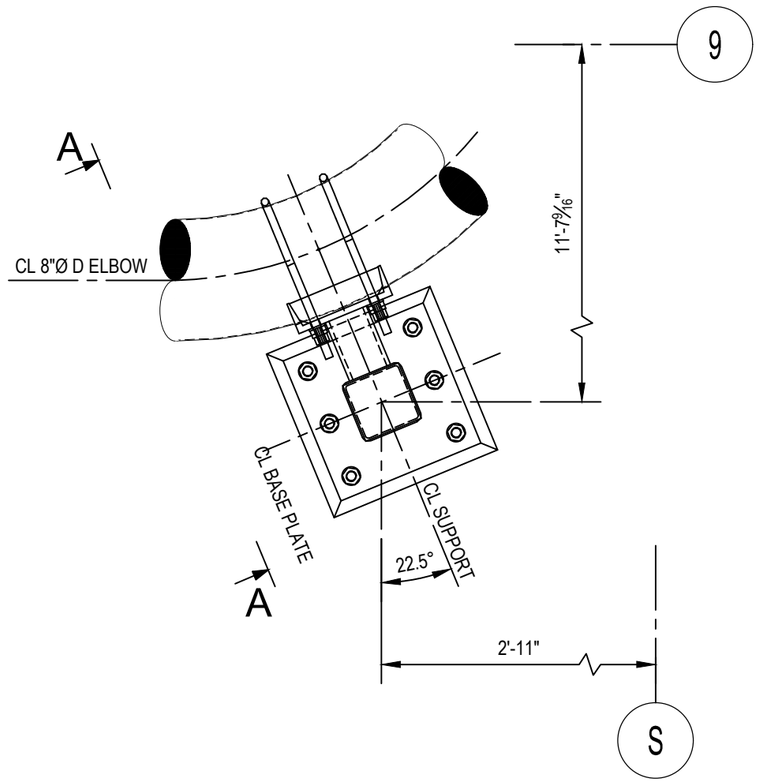
UCC environmental
2160 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-018

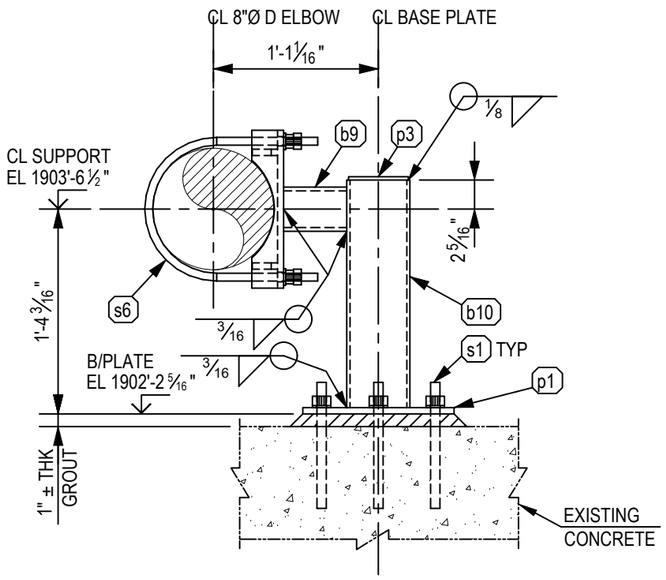
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b9	A500 GR.C	1	HSS3.5X0.300	0'-5"	
b10	A500 GR.C	1	HSS5X5X1/4	1'-6"	
p1	A36	1	PL 1/2" x 12"	1'-0"	See detail
p3	A36	1	PL 1/4" x 4-3/4"	0'-4 3/4"	
s1	HILTI HAS-V-36 HDG	6	3/4" dia rod with HIT-RE500 V3 adhesive	0'-10"	Min 6 1/2" embedment
s6	1717-94-29	1	Elevated anchor attachment for 8" D pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	74

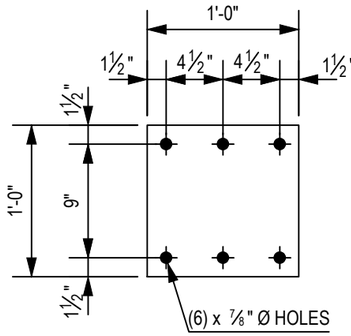


PLAN VIEW



SECTION A - A

(ELBOW ROTATED FOR CLARITY)



ITEM p1

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 30 FT-LBS.

LOAD TAG	ASSY NO	QTY
C100010	PSA-0031	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-003

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, FLOOR, 8", VACUUM, DURITE®, CONCRETE

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

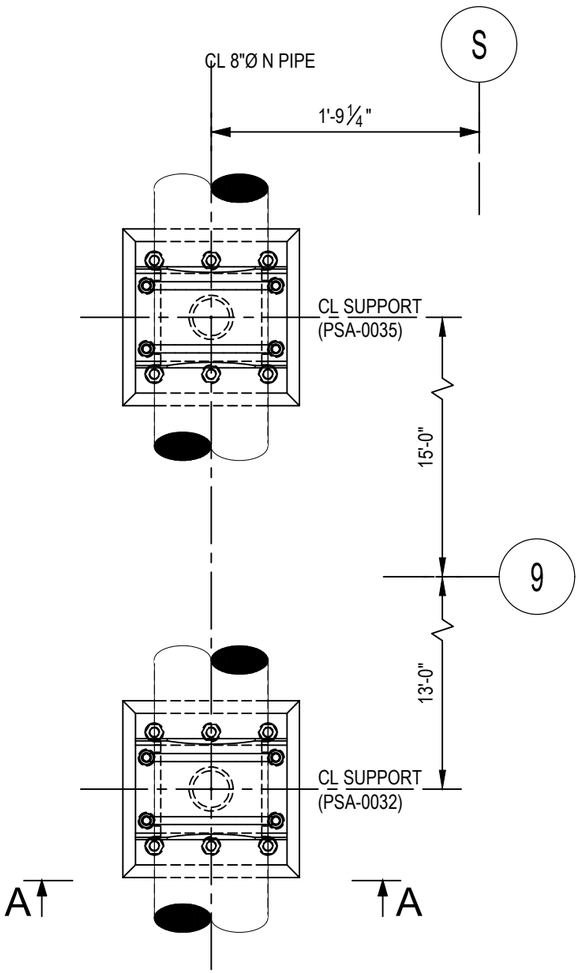
UCC environmental
2160 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-020

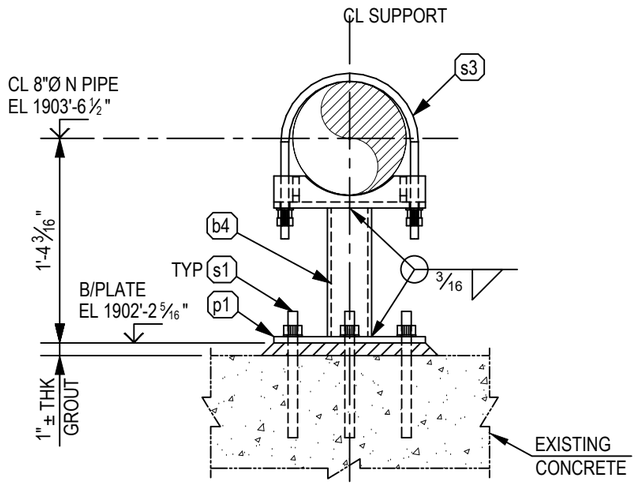
REVISION: 0

Bill of Materials

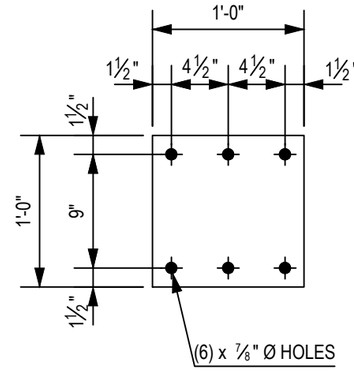
ID	Material / P/N	QTY	Description	Length	Notes
b4	A500 GR.C	1	HSS3.5X0.300	0'-10 3/16"	
p1	A36	1	PL 1/2" x 12"	1'-0"	See detail
s1	HILTI HAS-V-36 HDG	6	3/4" dia rod with HIT-RE500 V3 adhesive	0'-10"	Min 6 1/2" embedment
s3	1717-96-17	1	Elevated anchor attachment for 8" N pipe		
Substitutions allowed per Engineer approval				**Weight (lbs)**	**52**



PLAN VIEW



SECTION A - A
(TYPICAL 2 PLACES)



ITEM p1

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 30 FT-LBS.

LOAD TAG	ASSY NO	QTY
C100020	PSA-0032	1
C100050	PSA-0035	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-003

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, FLOOR, 8", VACUUM, NUVALOY®, CONCRETE

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

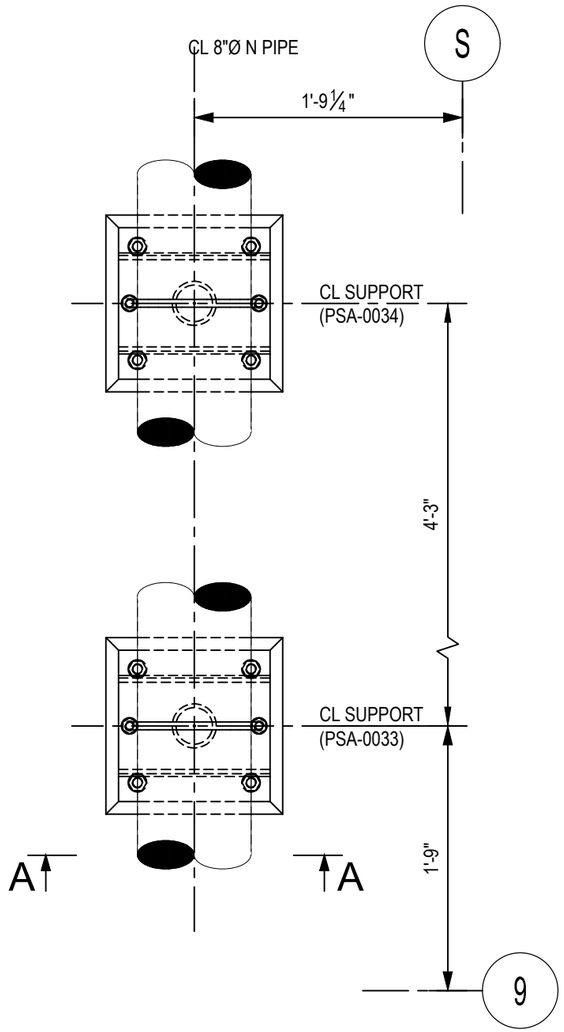
PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

DRAWING NUMBER: SD-55650-05-021

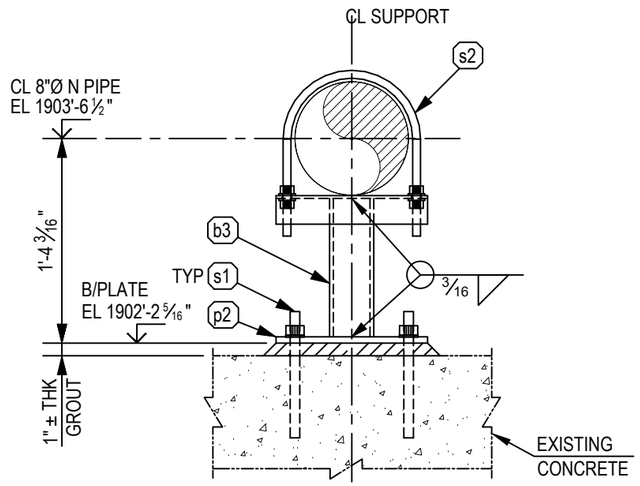
REVISION: 0

Bill of Materials

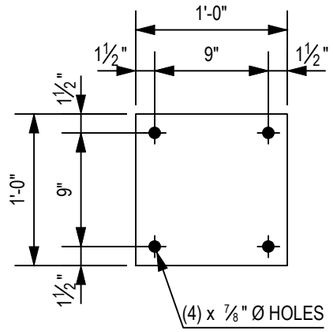
ID	Material / P/N	QTY	Description	Length	Notes
b3	A500 GR.C	1	HSS3.5X0.300	0'-10 15/16"	
p2	A36	1	PL 1/2" x 12"	1'-0"	See detail
s1	HILTI HAS-V-36 HDG	4	3/4" dia rod with HIT-RE500 V3 adhesive	0'-10"	Min 6 1/2" embedment
s2	1717-88-14	1	Elevated guide attachment for 8" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	42



PLAN VIEW



SECTION A - A
(TYPICAL 2 PLACES)



ITEM p2

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.

LOAD TAG	ASSY NO	QTY
C100030	PSA-0033	1
C100040	PSA-0034	1

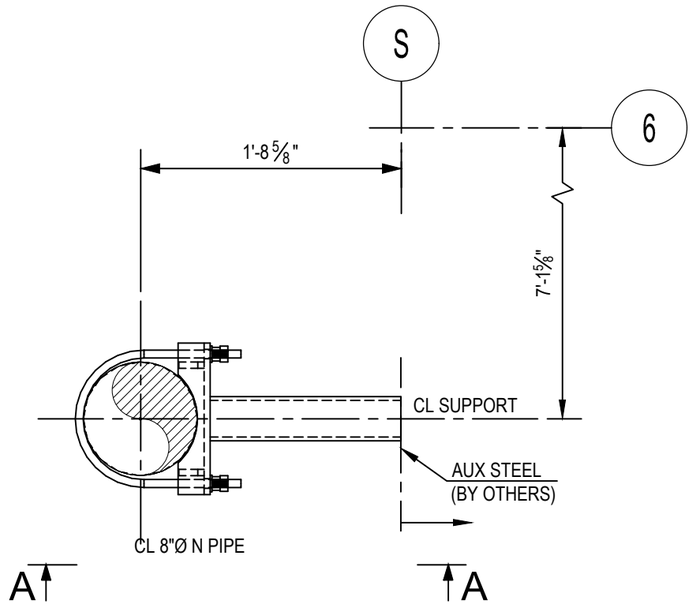
REF DRAWINGS:								
CONVEYOR DRAWING: C-55650-05-003								
OTHER DRAWINGS: CL-55650-05-003								
	0	ISSUED FOR CONSTRUCTION	03/20/25	VNK				
UCC-W	REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)		

DESIGNED BY:	DRAWING TITLE	
	GUIDE, FLOOR, 8", VACUUM, NUVALOY®, CONCRETE	
SCALE: 1"=1'-0"	DRAWING SIZE: 1	CONTRACT NUMBER: 55650-05
PLANT NAME: HASTINGS UTILITIES WHELAN ENERGY CENTER UNIT 1 HASTINGS, NEBRASKA	DRAWING NUMBER: SD-55650-05-022	REVISION: 0

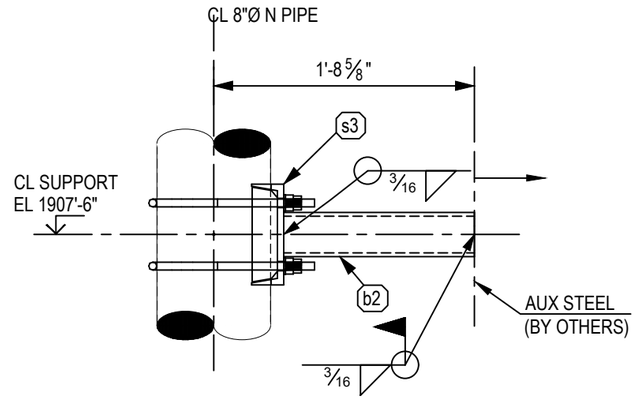
UCC environmental
2160 NORTMAN DRIVE, WAUKEGAN, IL 60085

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b2	A500 GR.C	1	HSS3.5X0.300	1'-3 1/8"	Ship 1'-6" LG, field cut to suit
s3	1717-96-17	1	Elevated anchor attachment for 8" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	36



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 20 FT-LBS.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
C100060	PSA-0036	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-003

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, RISER, 8", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES, WHELAN ENERGY CENTER UNIT 1, HASTINGS, NEBRASKA

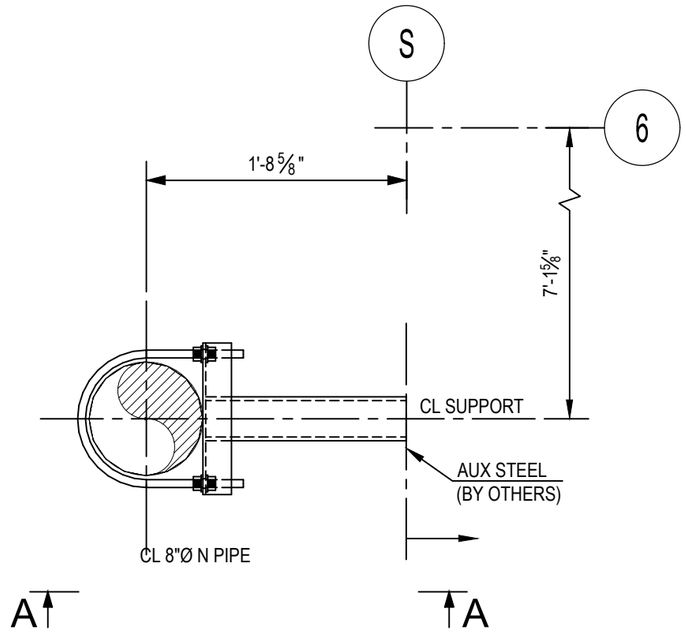
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-023

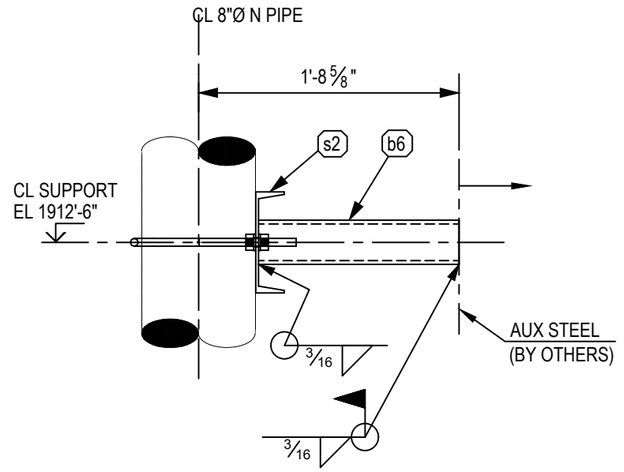
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b6	A500 GR.C	1	HSS3.5X0.300	1'-3 7/8"	Ship 1'-6" LG, field cut to suit
s2	1717-88-14	1	Elevated guide attachment for 8" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	26



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" HORIZONTAL GAP.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

REF DRAWINGS:							
CONVEYOR DRAWING: C-55650-05-003							
OTHER DRAWINGS: CL-55650-05-003							
	0	ISSUED FOR CONSTRUCTION	03/20/25	VNK			
UCC-W	REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)	

LOAD TAG	ASSY NO	QTY
C100070	PSA-0037	1

DESIGNED BY:

DRAWING TITLE: GUIDE, RISER, 8", VACUUM, NUVALOY®, STEEL

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

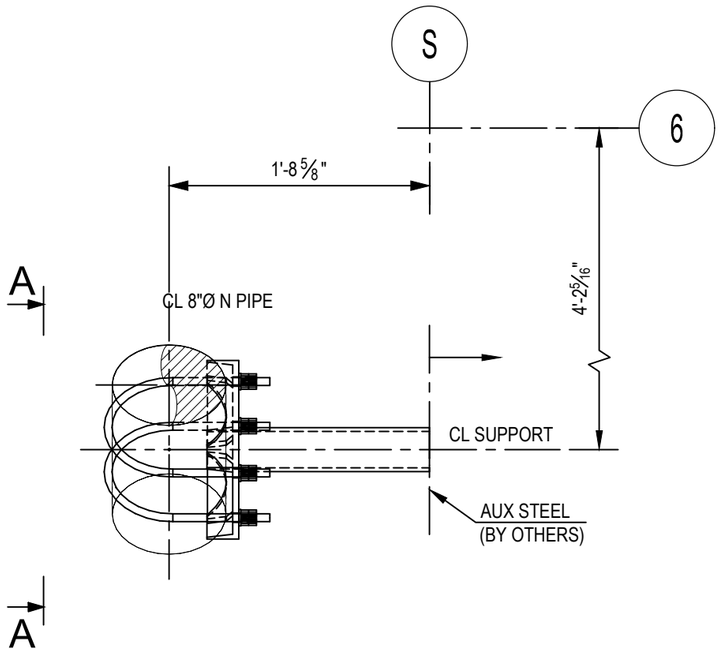
PLANT NAME: HASTINGS UTILITIES, WHELAN ENERGY CENTER UNIT 1, HASTINGS, NEBRASKA

DRAWING NUMBER: SD-55650-05-024

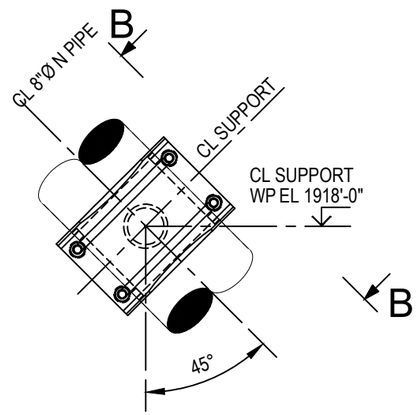
REVISION: 0

Bill of Materials

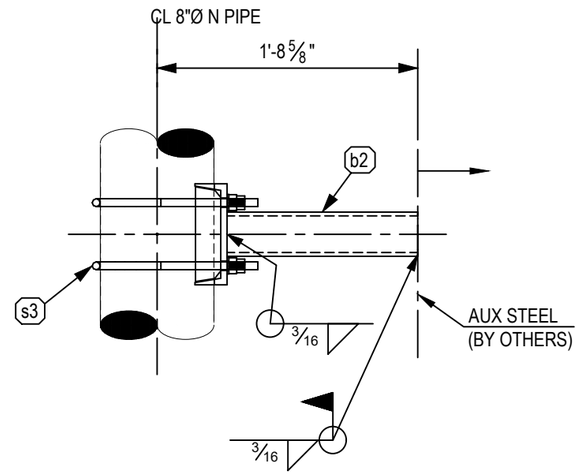
ID	Material / P/N	QTY	Description	Length	Notes
b2	A500 GR.C	1	HSS3.5X0.300	1'-3 1/8"	Ship 1'-6" LG, field cut to suit
s3	1717-96-17	1	Elevated anchor attachment for 8" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	36



PLAN VIEW



SECTION A - A



SECTION B - B

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 15 FT-LBS.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
C100080	PSA-0038	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-003
OTHER DRAWINGS: CL-55650-05-003
UCC-W

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	VNK		

DESIGNED BY:

DRAWING TITLE: ANCHOR, RISER, 8", VACUUM, NUVALOY®, STEEL

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

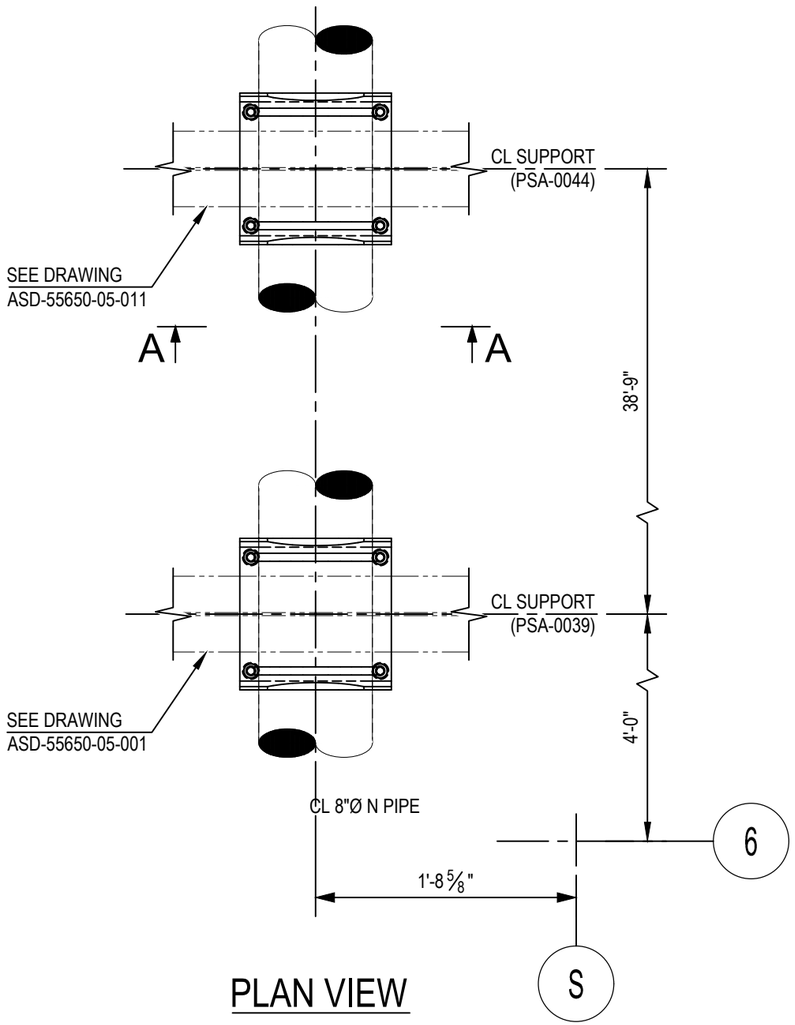
PLANT NAME: HASTINGS UTILITIES, WHELAN ENERGY CENTER UNIT 1, HASTINGS, NEBRASKA

DRAWING NUMBER: SD-55650-05-025

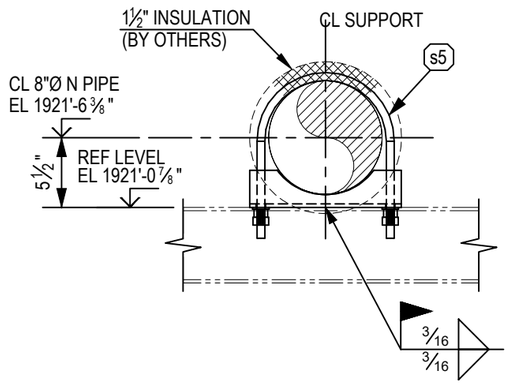
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
s5	1717-100-17	1	Non-elevated anchor attachment for 8" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	21



PLAN VIEW



SECTION A - A
(TYPICAL 2 PLACES)

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 35 FT-LBS.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
C100090	PSA-0039	1
C100140	PSA-0044	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-004
OTHER DRAWINGS: CL-55650-05-003

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, RACK, 8", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

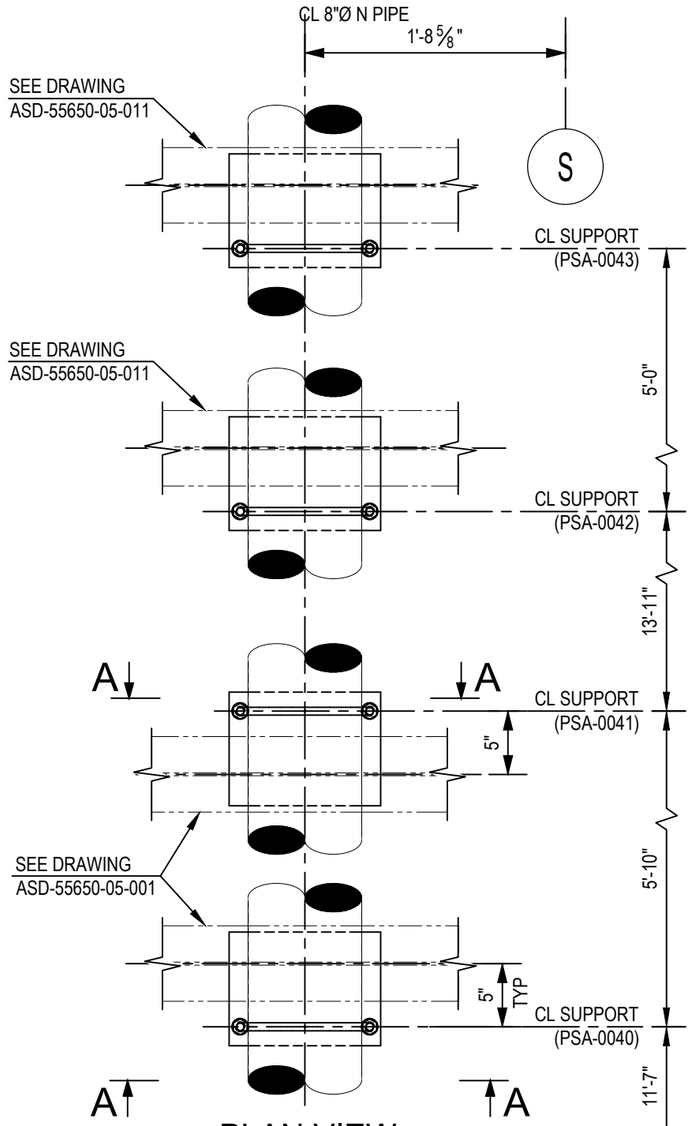
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-026

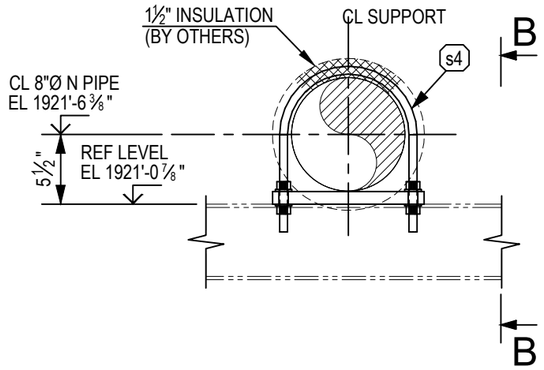
REVISION: 0

Bill of Materials

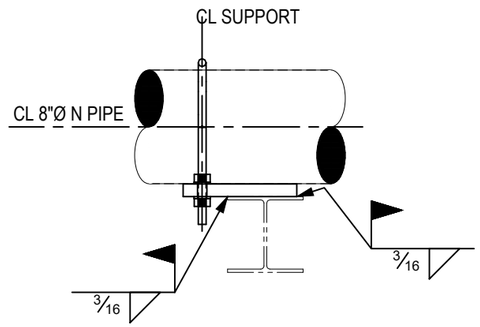
ID	Material / P/N	QTY	Description	Length	Notes
s4	1717-92-14	1	Non-elevated guide attachment for 8" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	31



PLAN VIEW



SECTION A - A
(TYPICAL 4 PLACES)



SECTION B - B

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
C100100	PSA-0040	1
C100110	PSA-0041	1
C100120	PSA-0042	1
C100130	PSA-0043	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-004
OTHER DRAWINGS: CL-55650-05-003

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE
GUIDE, RACK, 8", VACUUM, NUVALOY®, STEEL

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

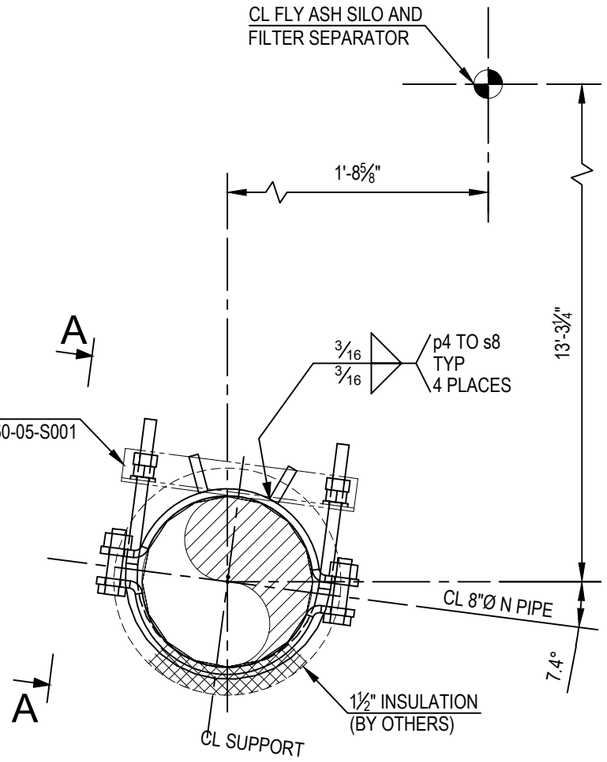
PLANT NAME
HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

DRAWING NUMBER
SD-55650-05-027

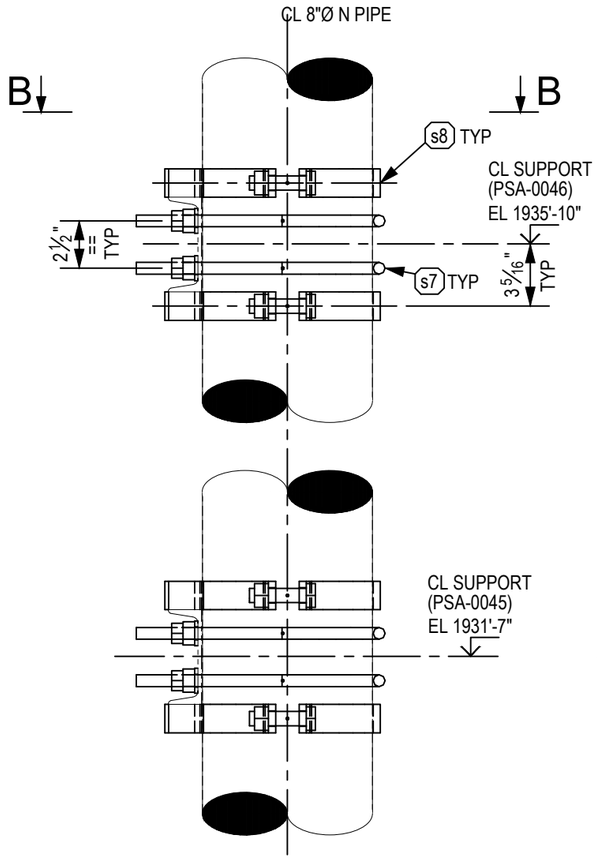
REVISION
0

Bill of Materials

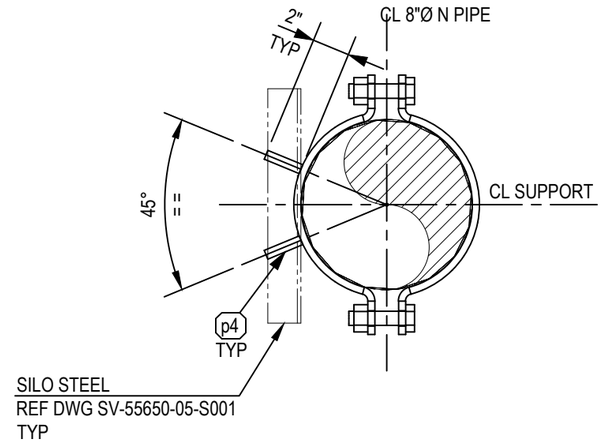
ID	Material / P/N	QTY	Description	Length	Notes
p4	A36	4	PL 1/2" x 1-1/2"	0'-2"	
s7	463206-2-0910-076-44	2	5/8" dia U-bolt for 8" N pipe		
s8	Anvil Fig 42SD	2	Two bolt pipe clamp for 8" N pipe		Pipe diameter = 9.05"
Substitutions allowed per Engineer approval				Weight (lbs)	2



PLAN VIEW



SECTION A - A



SECTION B - B

(TYPICAL 2 PLACES)
(U-BOLT NOT SHOWN FOR CLARITY)

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 50 FT-LBS.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
C100150	PSA-0045	1
C100160	PSA-0046	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-004
OTHER DRAWINGS: CL-55650-05-003

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/25/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, SILO, 8", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

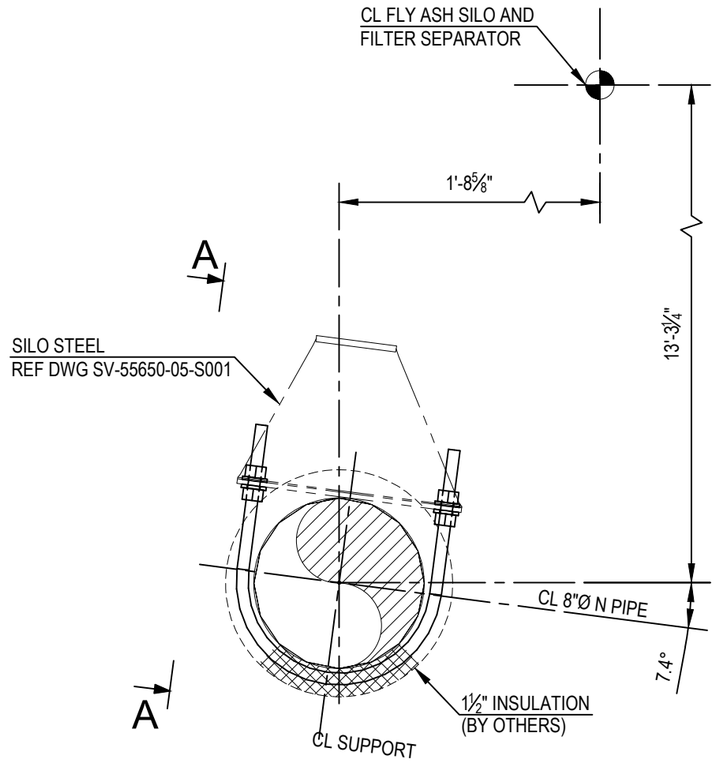
PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

DRAWING NUMBER: SD-55650-05-028

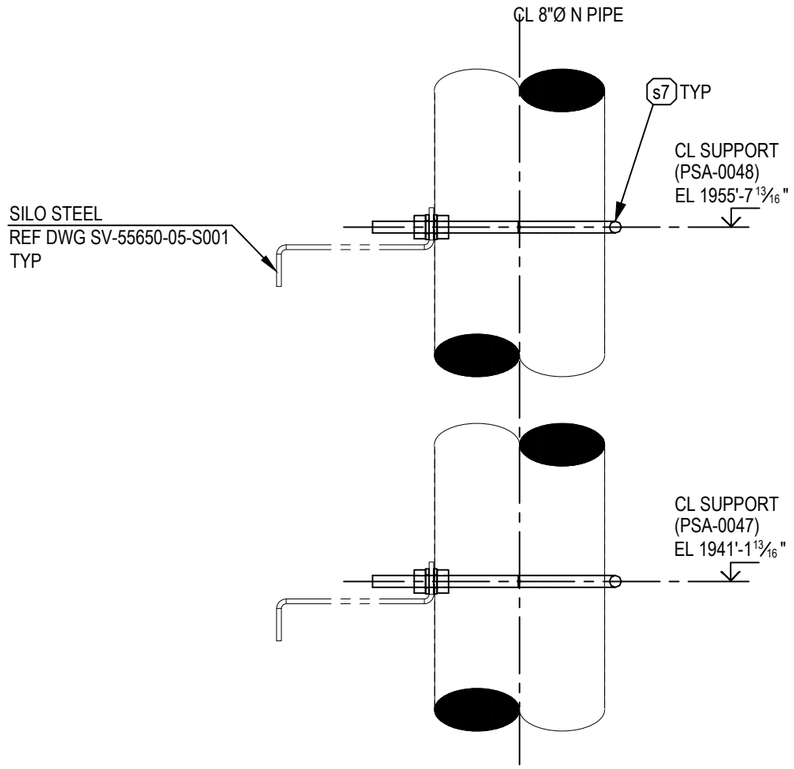
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
s7	463206-2-0910-076-44	1	5/8" dia U-bolt for 8" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	0



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" HORIZONTAL GAP.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
C100170	PSA-0047	1
C100180	PSA-0048	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-004
OTHER DRAWINGS: CL-55650-05-003

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, SILO, 8", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

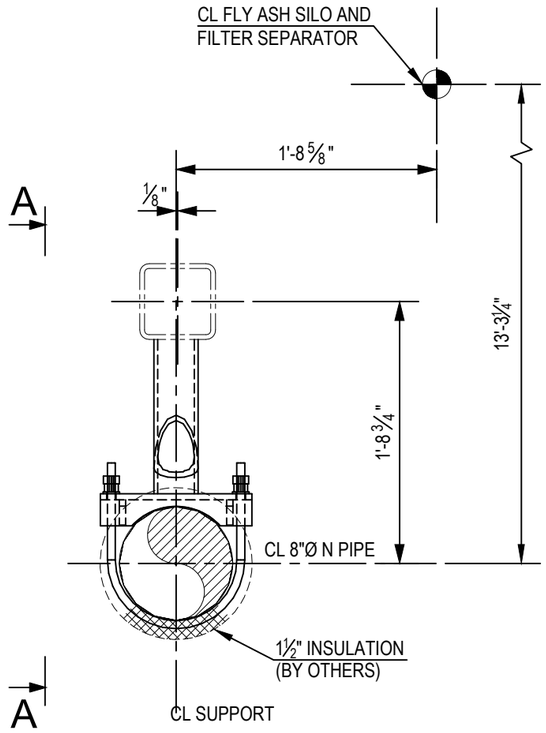
UCC environmental
2160 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-029

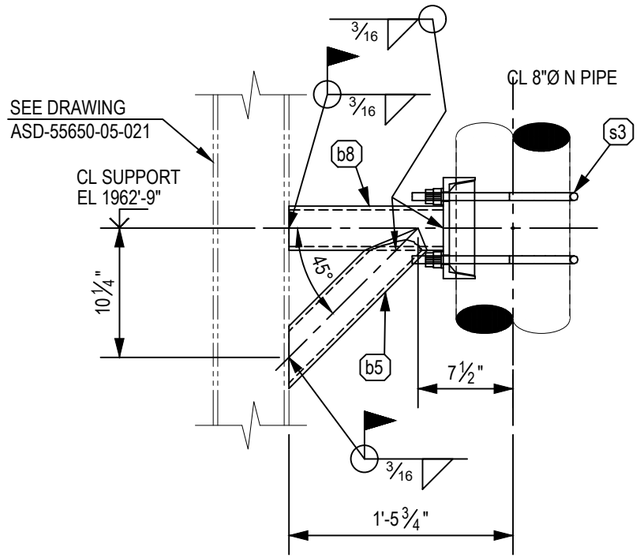
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b5	A500 GR.C	1	HSS3.5X0.300	1'-4 3/16"	
b8	A500 GR.C	1	HSS3.5X0.300	1'-0 1/4"	
s3	1717-96-17	1	Elevated anchor attachment for 8" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	47



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 60 FT-LBS.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
C100190	PSA-0049	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-004
OTHER DRAWINGS: CL-55650-05-003

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/19/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, RISER, 8", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

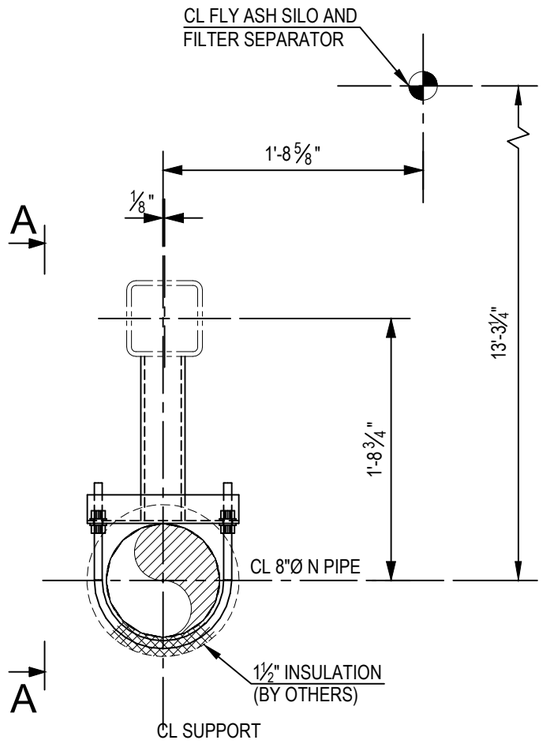
UCC environmental
2189 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-030

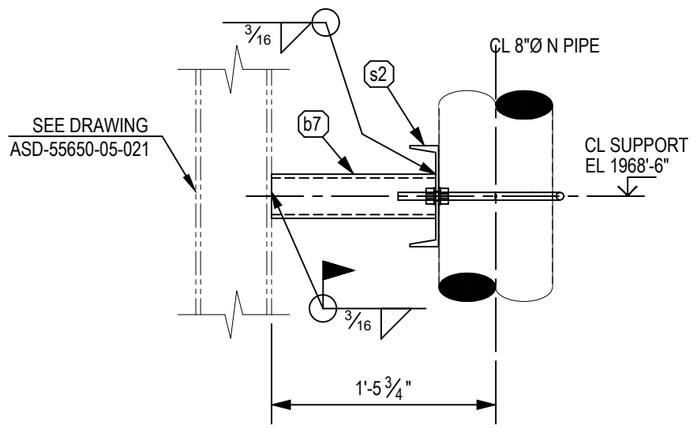
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b7	A500 GR.C	1	HSS3.5X0.300	1'-1"	
s2	1717-88-14	1	Elevated guide attachment for 8" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	23



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH 1/4" HORIZONTAL GAP.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
C100200	PSA-0050	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-004
OTHER DRAWINGS: CL-55650-05-003

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/19/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, RISER, 8", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

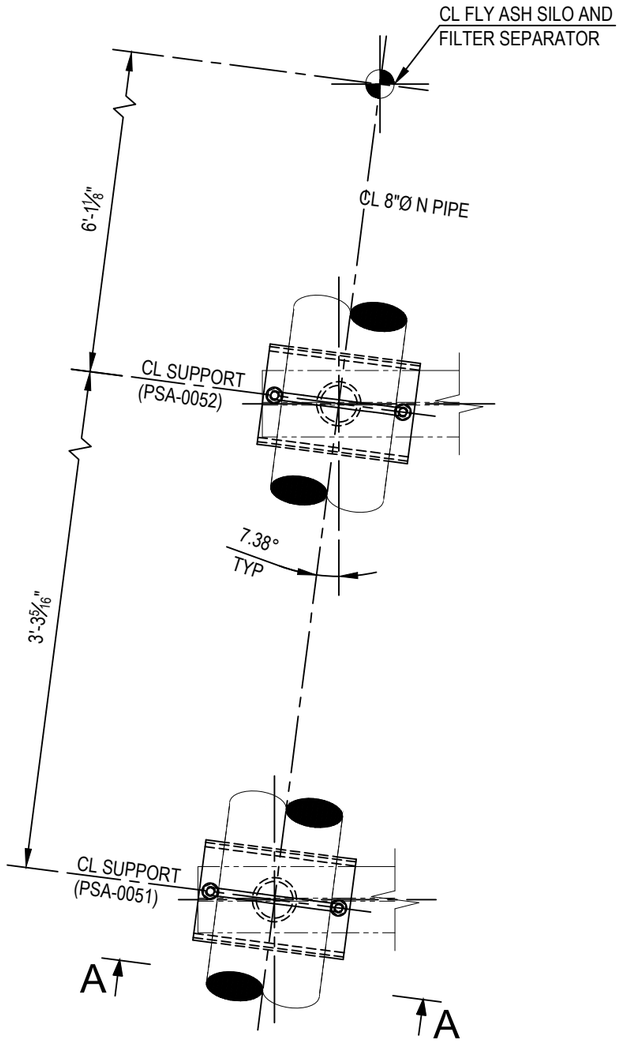
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-031

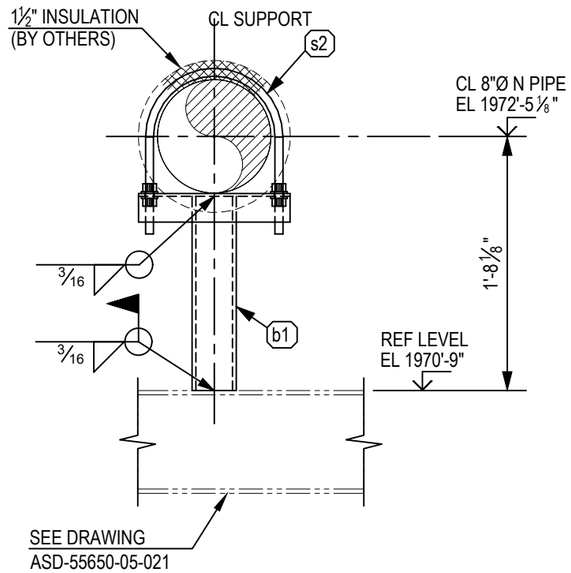
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b1	A500 GR.C	1	HSS3.5X0.300	1'-3 3/8"	
s2	1717-88-14	1	Elevated guide attachment for 8" N pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	25



PLAN VIEW



SECTION A - A

(AUX STEEL ROTATED FOR CLARITY)
(TYPICAL 2 PLACES)

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
C100210	PSA-0051	1
C100220	PSA-0052	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-004
OTHER DRAWINGS: CL-55650-05-003

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/19/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, RACK, 8", VACUUM, NUVALOY®, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

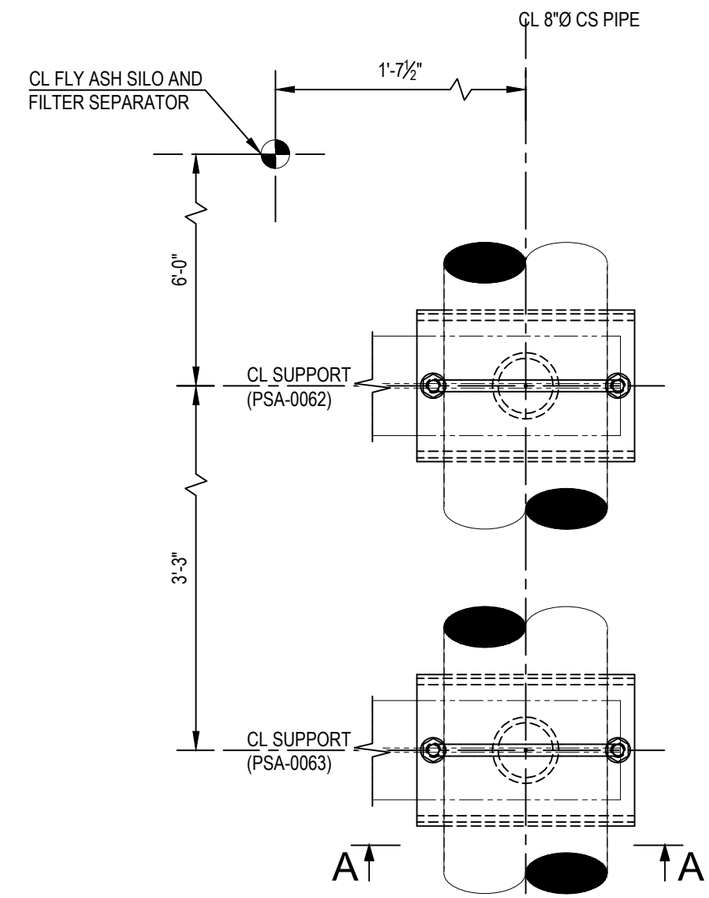
UCC environmental
2160 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-032

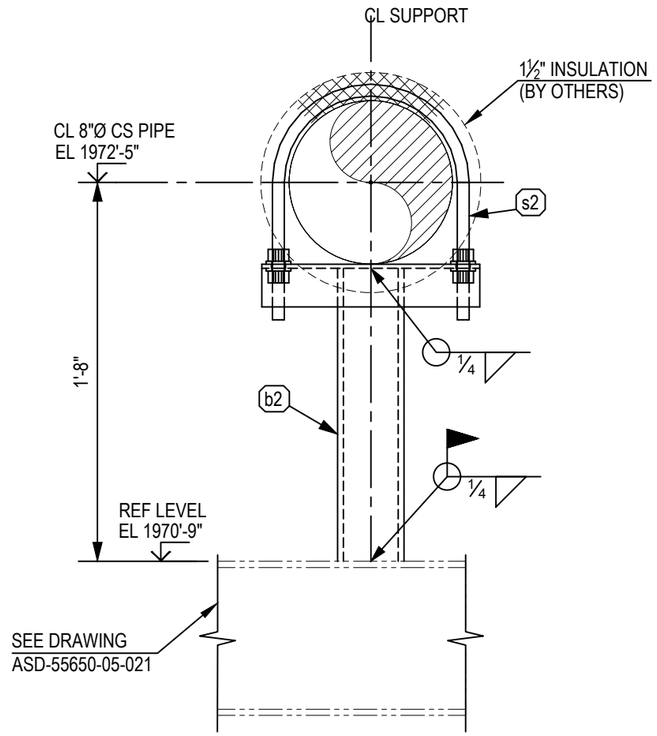
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b2	A500 GR.C	1	HSS3.5X0.300	1'-3 1/2"	
s2	1717-87-17	1	Elevated guide attachment for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	25



PLAN VIEW



SECTION A - A
(TYPICAL 2 PLACES)

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
A100020	PSA-0062	1
A100030	PSA-0063	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-005
OTHER DRAWINGS: CL-55650-05-004

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/19/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, RACK, 8", VACUUM, CARBON STEEL, STEEL

SCALE: 1 1/2"=1'-0" | DRAWING SIZE: 1 | CONTRACT NUMBER: 55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

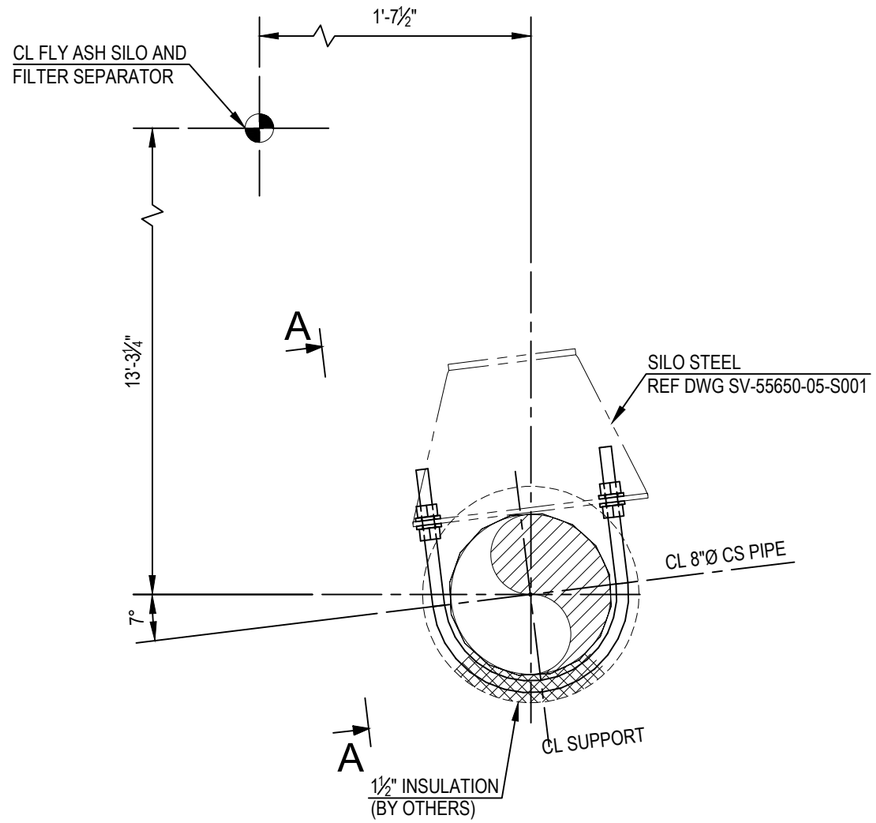
UCC environmental
2189 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-040

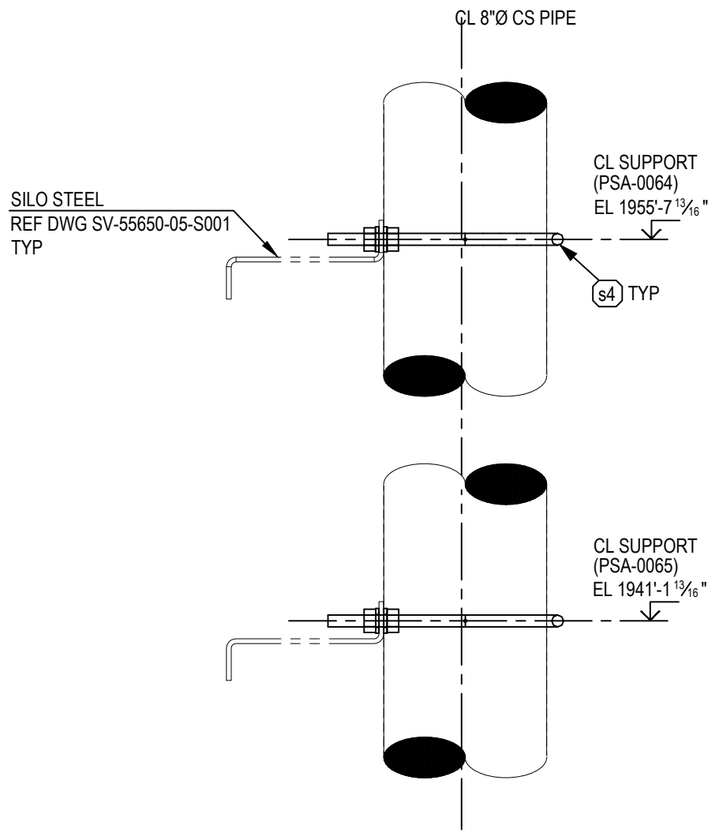
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
s4	463206-2-0902-072-37	1	5/8" dia U-bolt for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	0



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" HORIZONTAL GAP.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
A100040	PSA-0064	1
A100050	PSA-0065	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-005
OTHER DRAWINGS: CL-55650-05-004

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, SILO, 8", VACUUM, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

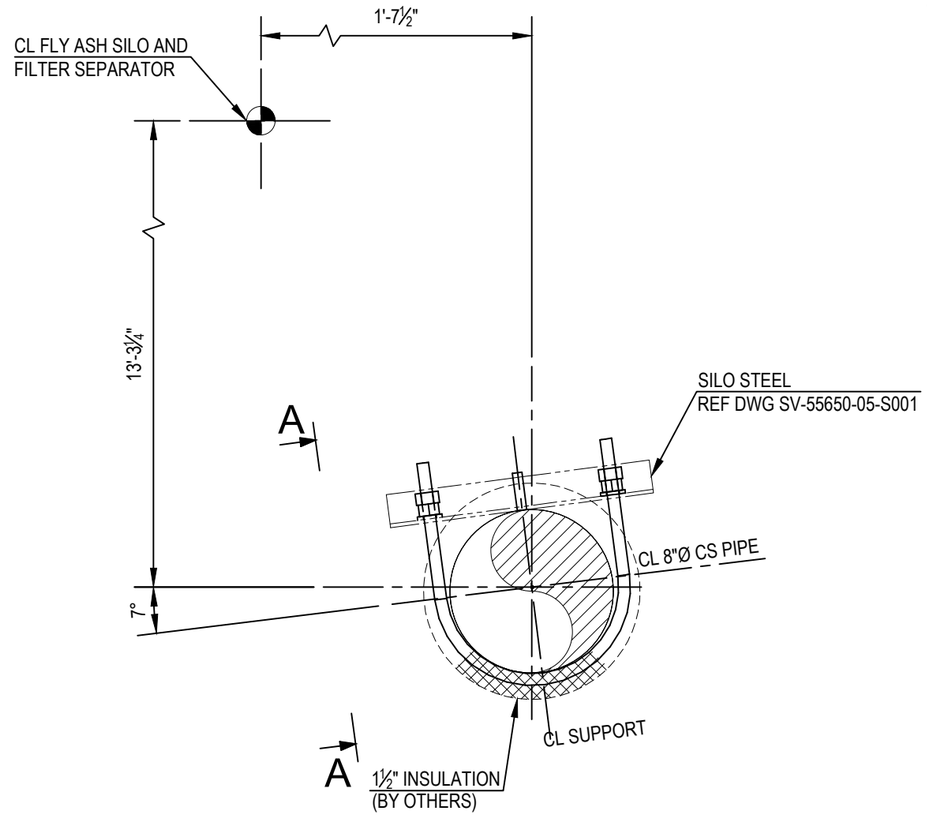
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-041

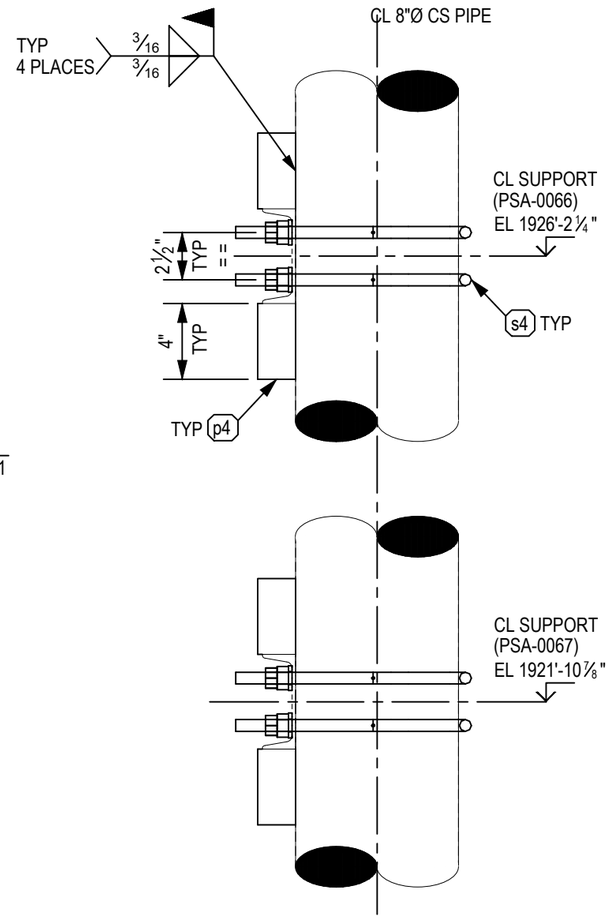
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
p4	A36	2	PL 1/2" x 2"	0'-4"	
s4	463206-2-0902-072-37	2	5/8" dia U-bolt for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	2



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 30 FT-LBS.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
A100060	PSA-0066	1
A100070	PSA-0067	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-005
OTHER DRAWINGS: CL-55650-05-004

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, SILO, 8", VACUUM, CARBON STEEL, STEEL

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

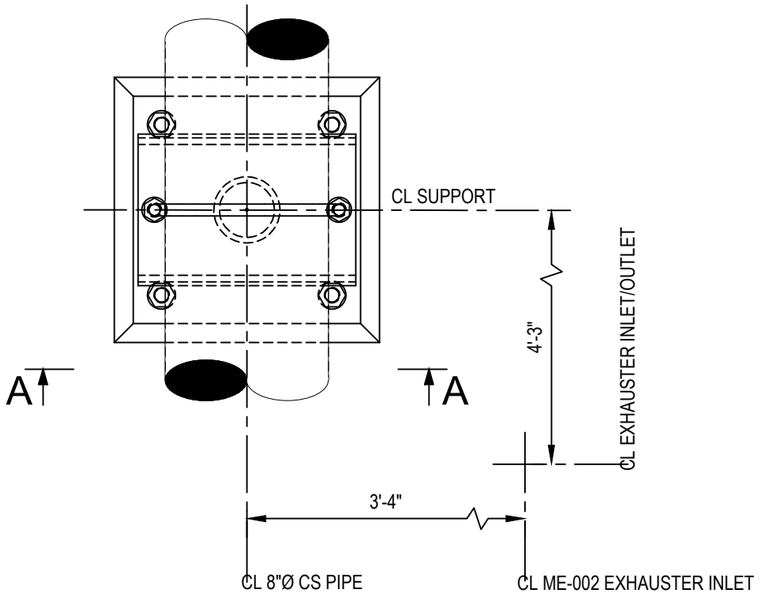
PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

DRAWING NUMBER: SD-55650-05-042

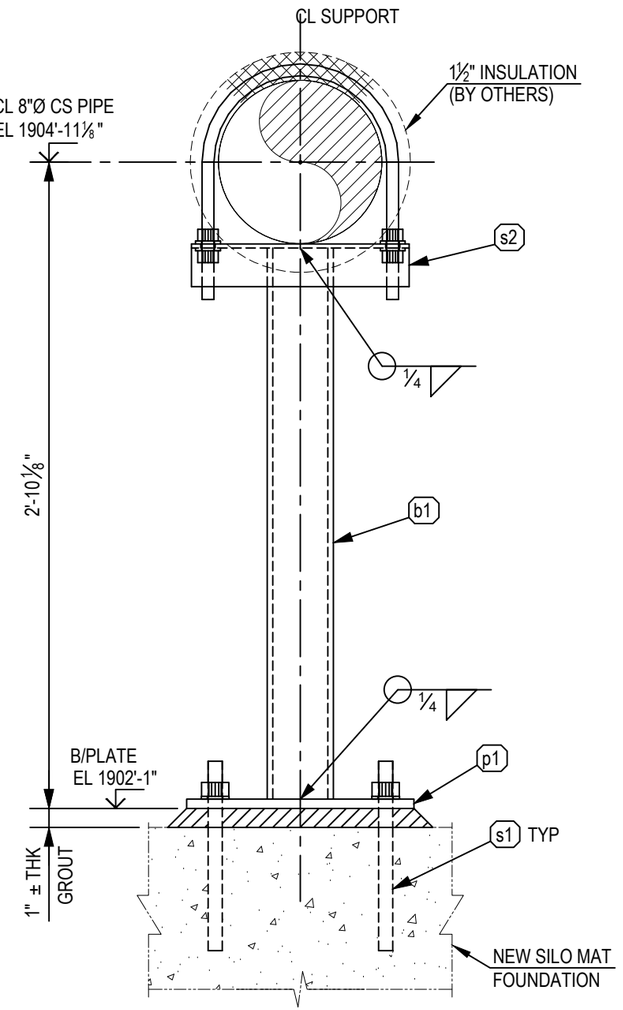
REVISION: 0

Bill of Materials

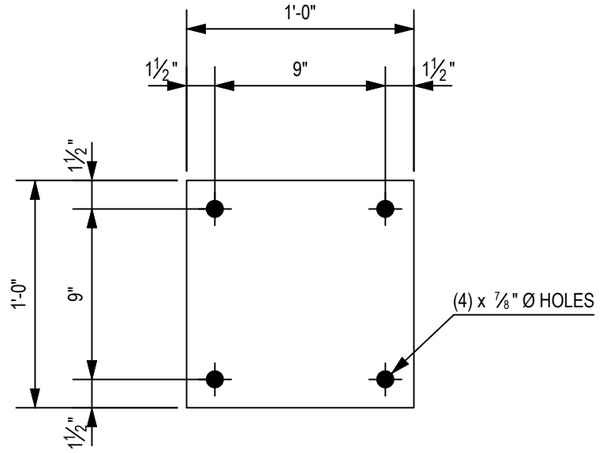
ID	Material / P/N	QTY	Description	Length	Notes
b1	A500 GR.C	1	HSS3.5X0.300	2'-5 1/16"	
p1	A36	1	PL 1/2" x 12"	1'-0"	See detail
s1	HILTI HAS-V-36 HDG	4	3/4" dia rod with HIT-RE500 V3 adhesive	0'-10"	Min 6 1/2" embedment
s2	1717-87-17	1	Elevated guide attachment for 8" CS pipe		
Substitutions allowed per Engineer approval				**Weight (lbs)**	**57**



PLAN VIEW



SECTION A - A



ITEM p1

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
A100080	PSA-0068	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-005
OTHER DRAWINGS: CL-55650-05-004

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, FLOOR, 8", VACUUM, CARBON STEEL, CONCRETE

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

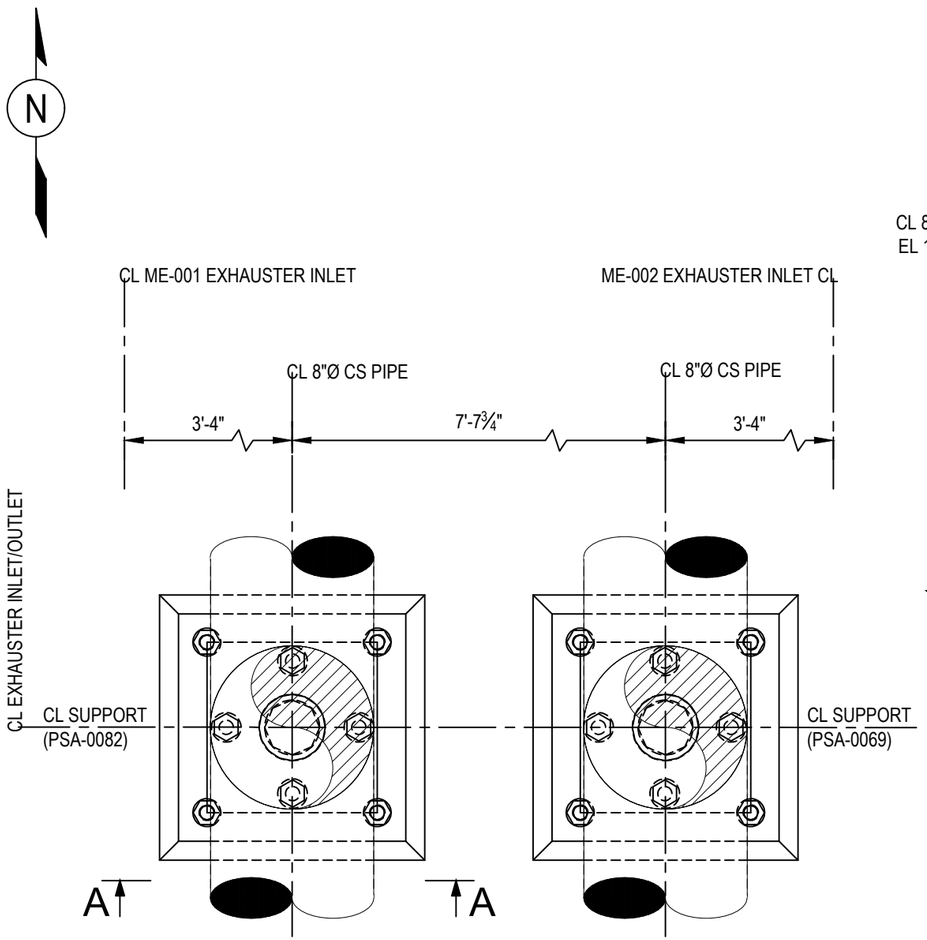
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-043

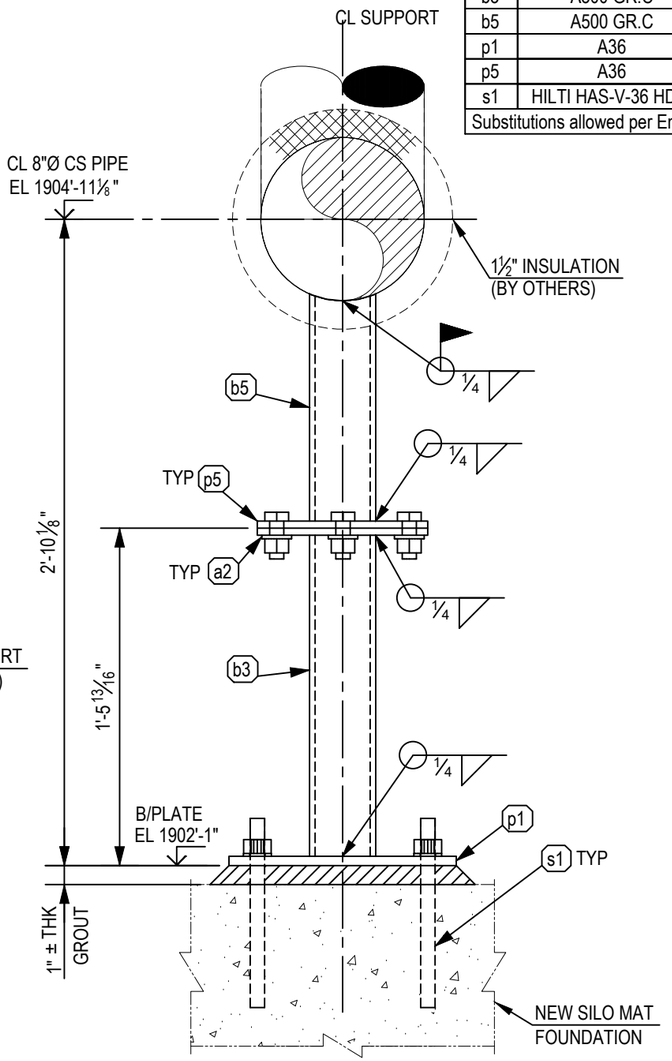
REVISION: 0

Bill of Materials

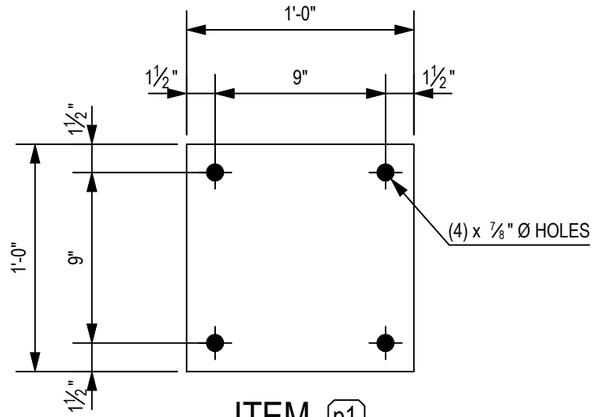
ID	Material / P/N	QTY	Description	Length	Notes
a2	A325	4	3/4" Ø bolt w/ nut and washer	0'-2"	
b3	A500 GR.C	1	HSS3.5X0.300	1'-4 15/16"	
b5	A500 GR.C	1	HSS3.5X0.300	1'-0"	
p1	A36	1	PL 1/2" x 12"	1'-0"	See detail
p5	A36	2	PL 3/8" x 9"	0'-9"	See detail
s1	HILTI HAS-V-36 HDG	4	3/4" dia rod with HIT-RE500 V3 adhesive	0'-10"	Min 6 1/2" embedment
Substitutions allowed per Engineer approval				Weight (lbs)	66



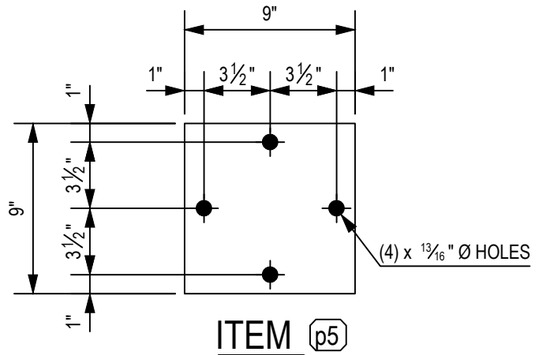
PLAN VIEW



SECTION A - A
(TYPICAL 2 PLACES)



ITEM p1



ITEM p5

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
A100090	PSA-0069	1
A110020	PSA-0082	1

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	ASB		

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-005
OTHER DRAWINGS: CL-55650-05-004
UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, FLOOR, 8", VACUUM, CARBON STEEL, CONCRETE

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

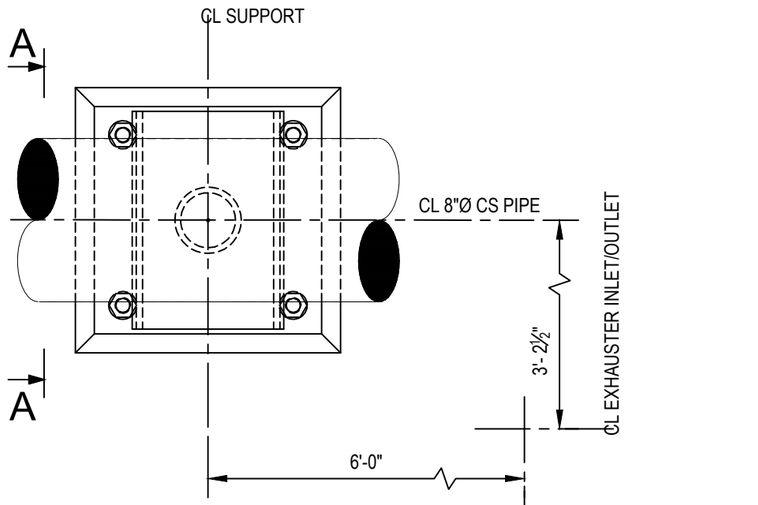
PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

DRAWING NUMBER: SD-55650-05-044

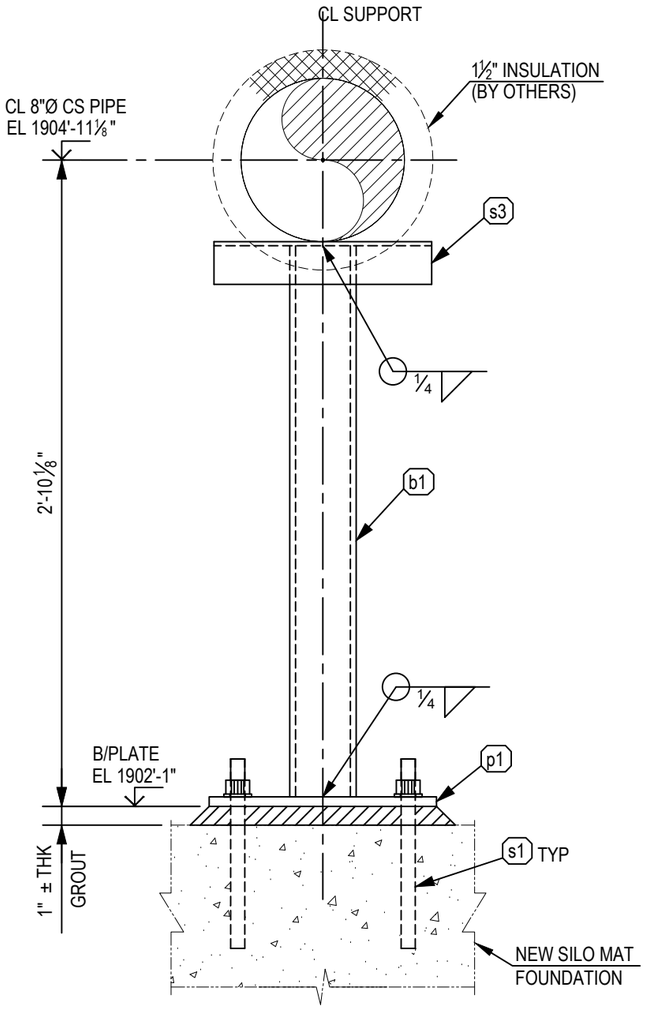
REVISION: 0

Bill of Materials

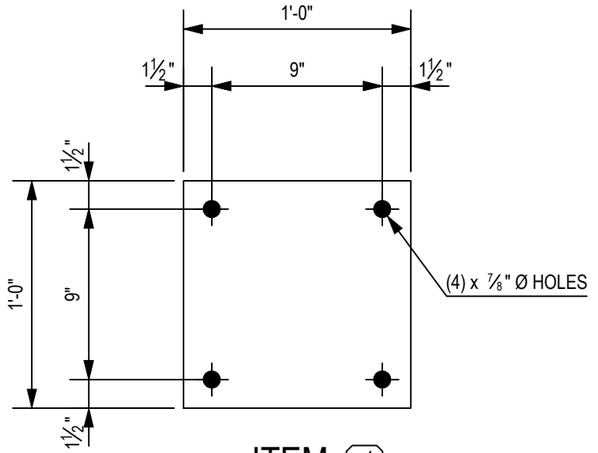
ID	Material / P/N	QTY	Description	Length	Notes
b1	A500 GR.C	1	HSS3.5X0.300	2'-5 1/16"	
p1	A36	1	PL 1/2" x 12"	1'-0"	See detail
s1	HILTI HAS-V-36 HDG	4	3/4" dia rod with HIT-RE500 V3 adhesive	0'-10"	Min 6 1/2" embedment
s3	1717-87-18	1	Elevated support attachment for 8" CS pipe		
Substitutions allowed per Engineer approval				**Weight (lbs)**	**57**



PLAN VIEW



SECTION A - A



ITEM p1

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
A110010	PSA-0081	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-005
OTHER DRAWINGS: CL-55650-05-004

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: SUPPORT, FLOOR, 8", VACUUM, CARBON STEEL, CONCRETE

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

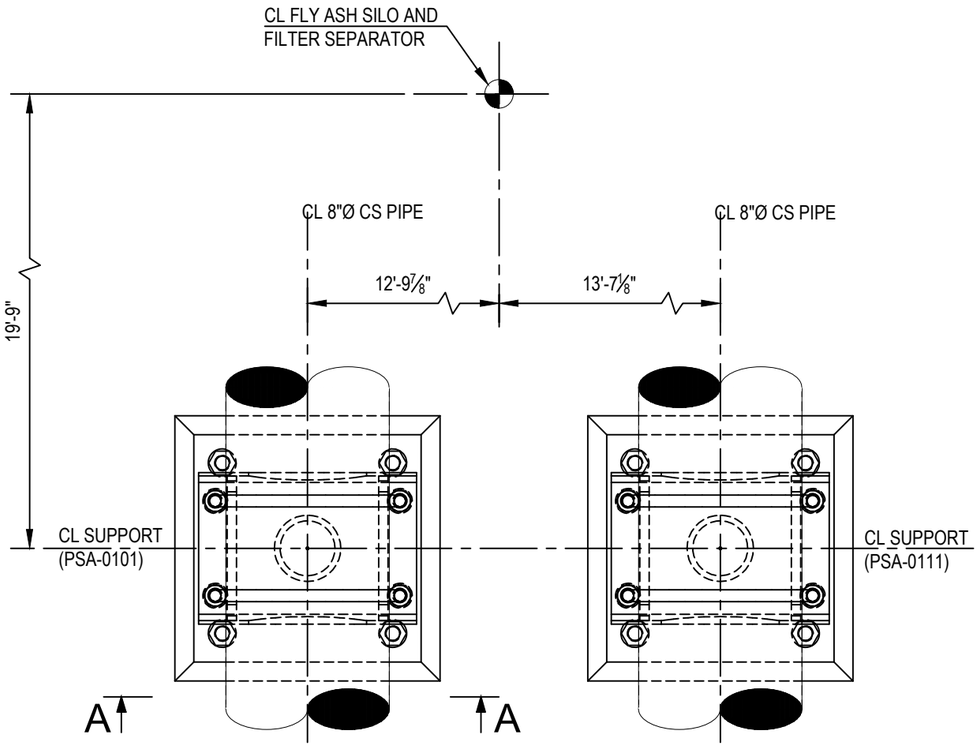
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-045

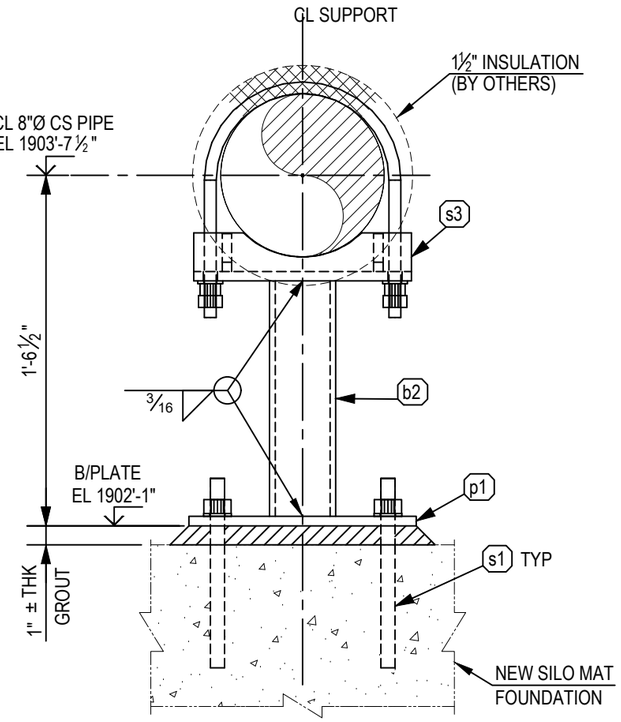
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b2	A500 GR.C	1	HSS3.5X0.300	1'-0 7/16"	
p1	A36	1	PL 1/2" x 12"	1'-0"	See detail
s1	HILTI HAS-V-36 HDG	4	3/4" dia rod with HIT-RE500 V3 adhesive	0'-10"	Min 6 1/2" embedment
s3	1717-95-06	1	Elevated anchor attachment for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	53

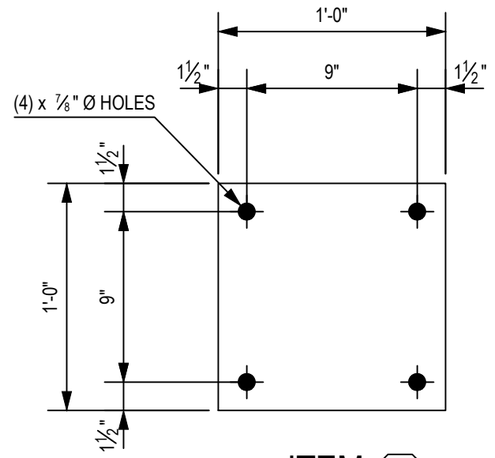


PLAN VIEW



SECTION A - A

(TYPICAL 2 PLACES)



ITEM p1

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 10 FT-LBS.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
A200010	PSA-0101	1
A210010	PSA-0111	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-006
OTHER DRAWINGS: CL-55650-05-005

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, FLOOR, 8", VENT, CARBON STEEL, CONCRETE

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

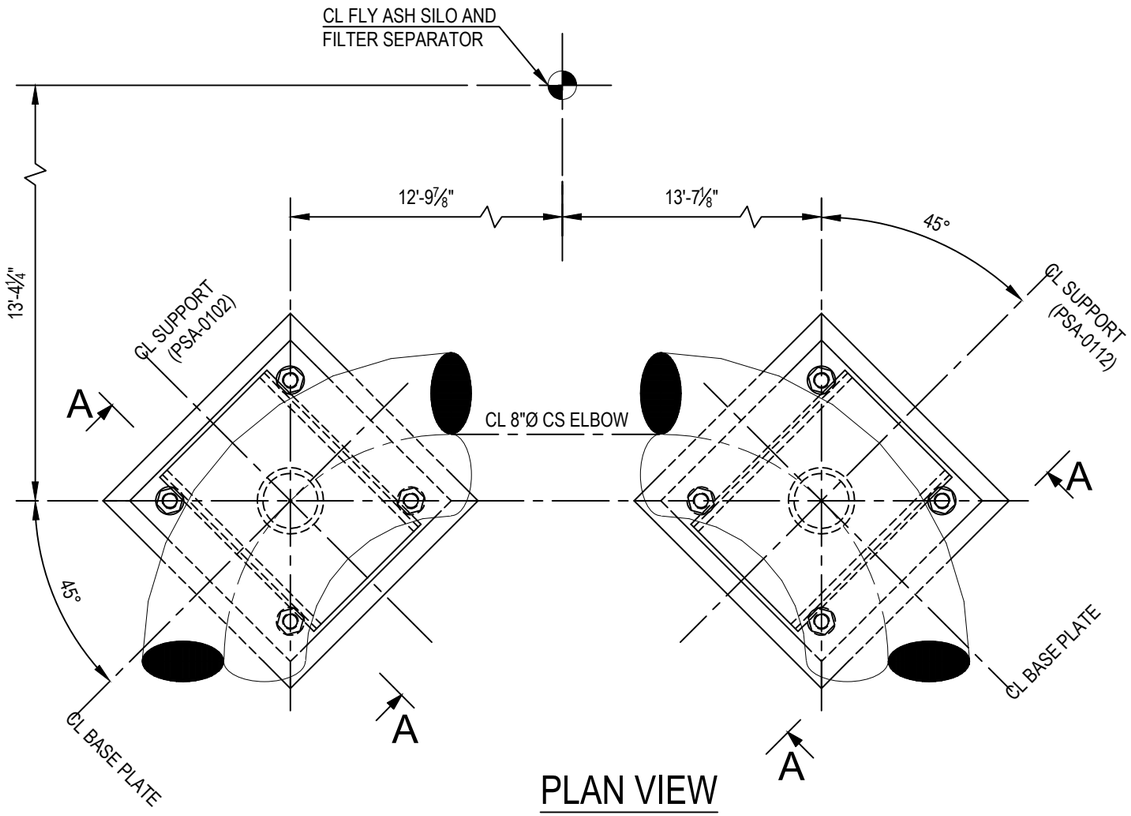
UCC environmental
2160 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-050

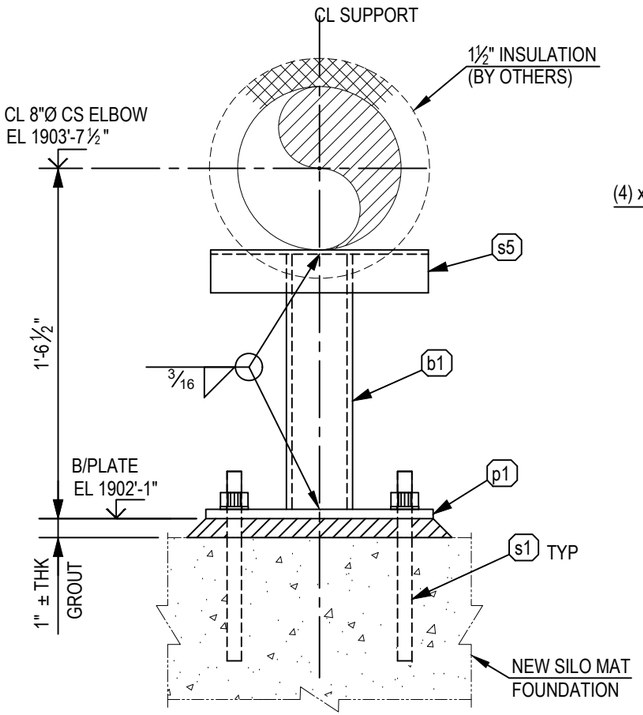
REVISION: 0

Bill of Materials

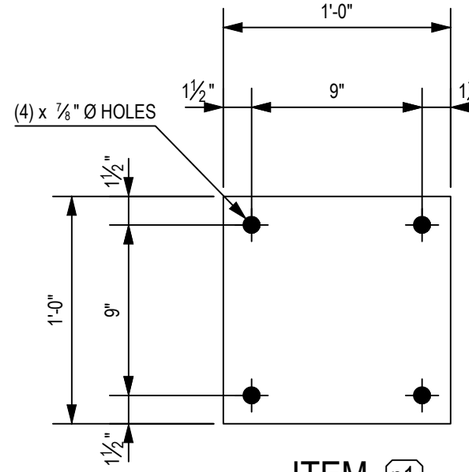
ID	Material / P/N	QTY	Description	Length	Notes
b1	A500 GR.C	1	HSS3.5X0.300	1'-1 7/16"	
p1	A36	1	PL 1/2" x 12"	1'-0"	See detail
s1	HILTI HAS-V-36 HDG	4	3/4" dia rod with HIT-RE500 V3 adhesive	0'-10"	Min 6 1/2" embedment
s5	1717-87-18	1	Elevated support attachment for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	44



PLAN VIEW



SECTION A - A
(ELBOW ROTATED FOR CLARITY)



ITEM p1

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
A200020	PSA-0102	1
A210020	PSA-0112	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-006
OTHER DRAWINGS: CL-55650-05-005

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: SUPPORT, FLOOR, 8", VENT, CARBON STEEL, CONCRETE

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

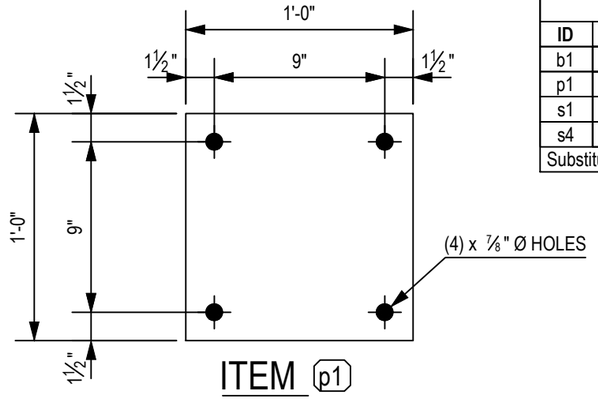
UCC environmental
2160 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-051

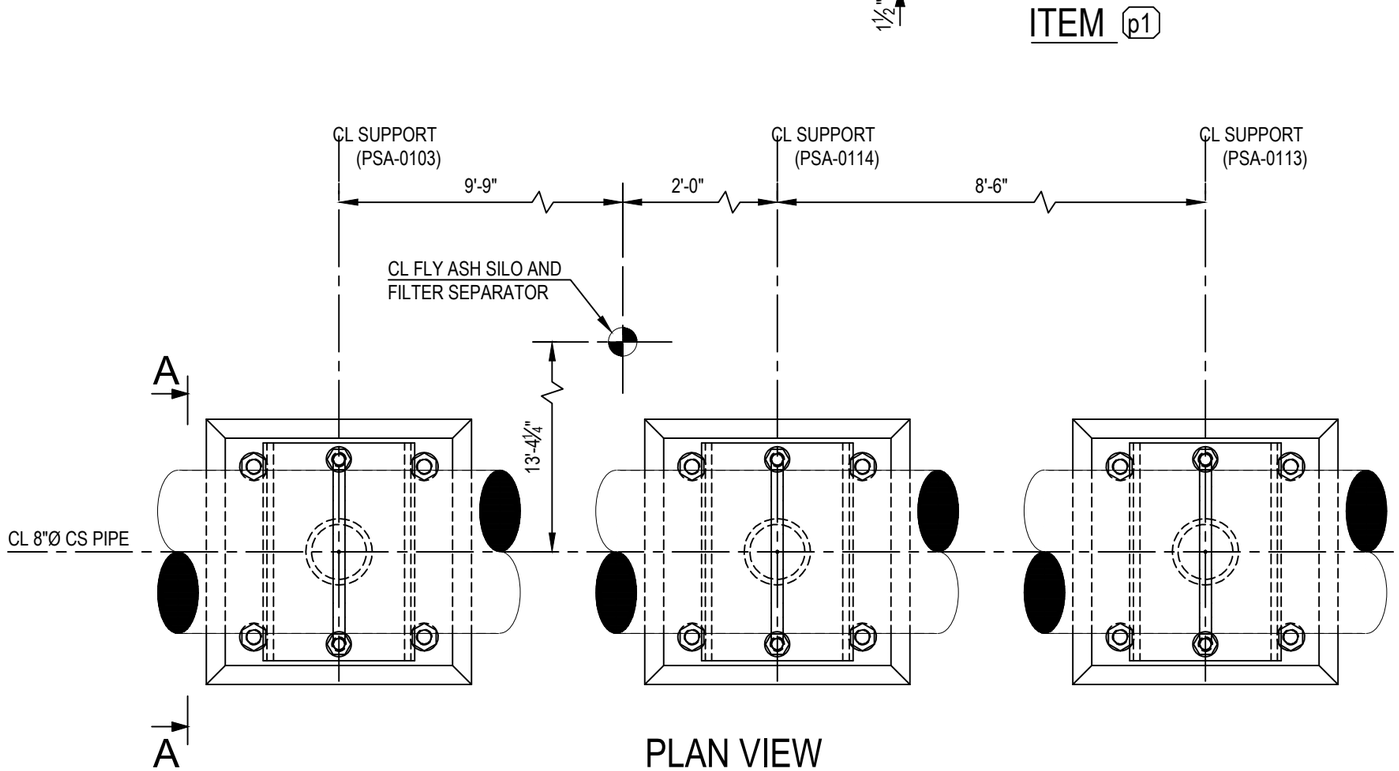
REVISION: 0

Bill of Materials

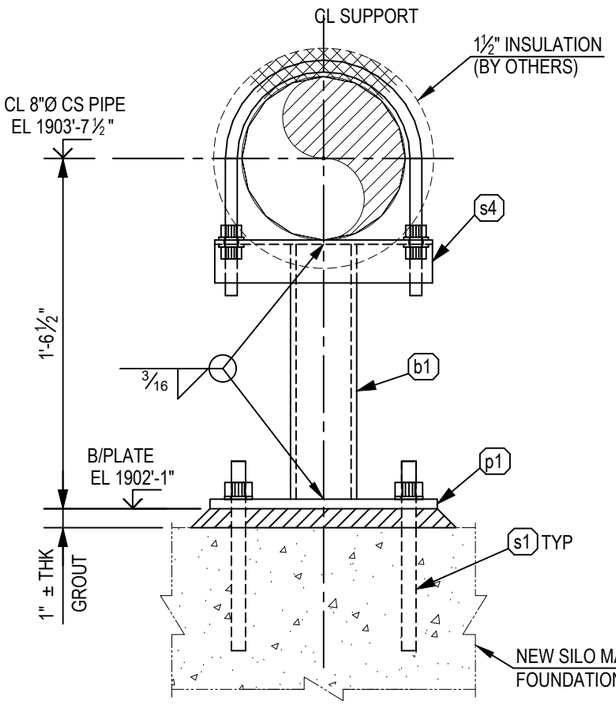
ID	Material / P/N	QTY	Description	Length	Notes
b1	A500 GR.C	1	HSS3.5X0.300	1'-1 7/16"	
p1	A36	1	PL 1/2" x 12"	1'-0"	See detail
s1	HILTI HAS-V-36 HDG	4	3/4" dia rod with HIT-RE500 V3 adhesive	0'-10"	Min 6 1/2" embedment
s4	1717-87-17	1	Elevated guide attachment for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	44



ITEM p1



PLAN VIEW



SECTION A - A

(TYPICAL 3 PLACES)

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
A200030	PSA-0103	1
A210030	PSA-0113	1
A210040	PSA-0114	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-006
OTHER DRAWINGS: CL-55650-05-005

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, FLOOR, 8", VENT, CARBON STEEL, CONCRETE

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES, WHELAN ENERGY CENTER UNIT 1, HASTINGS, NEBRASKA

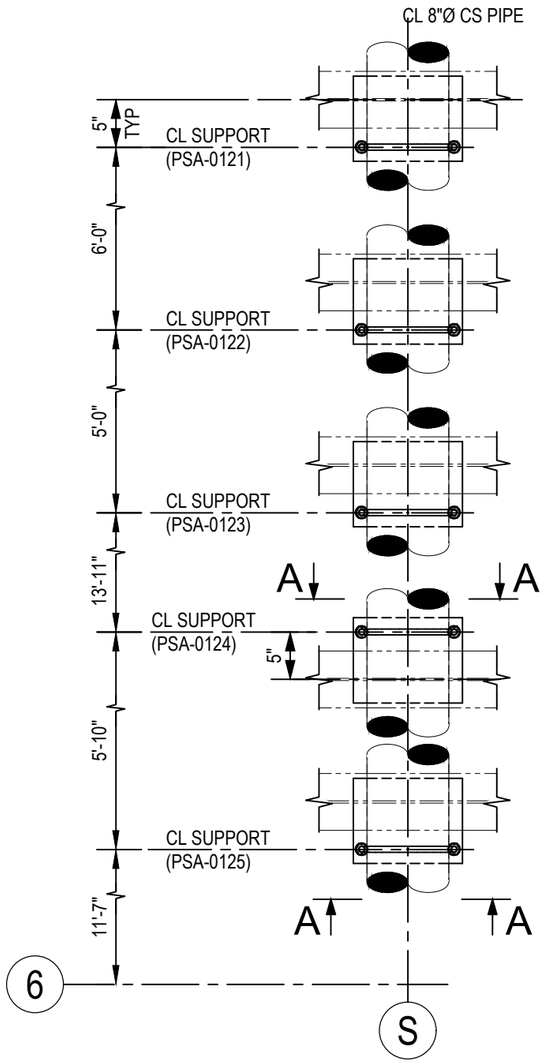
UCC environmental
2160 NORTMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-052

REVISION: 0

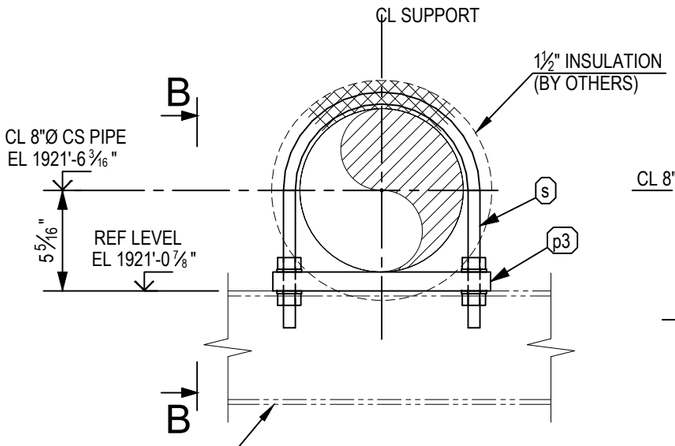
Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
p3	A36	1	PL 1" x 9"	0'-11 1/2"	See detail
s2	463206-2-0902-072-37	1	5/8" dia U-bolt for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	29



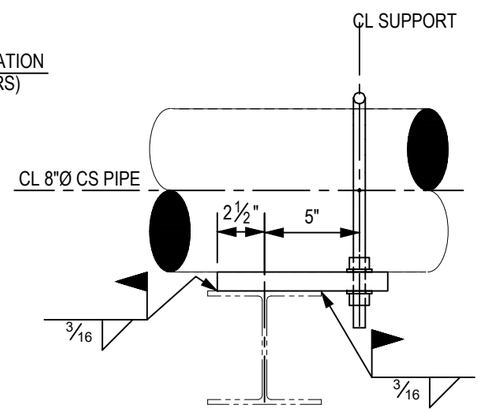
PLAN VIEW

(SCALE ¾"=1'-0")

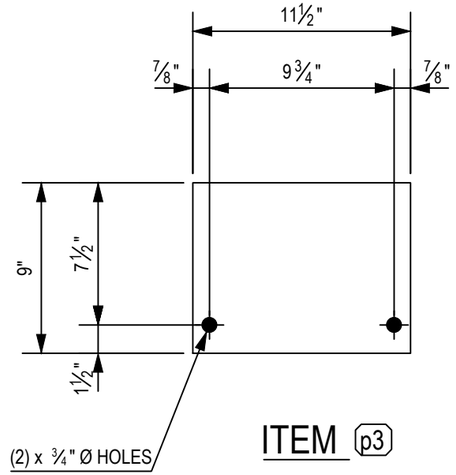


SECTION A - A

(TYPICAL 5 PLACES)



SECTION B - B



ITEM p3

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
A300010	PSA-0121	1
A300020	PSA-0122	1
A300030	PSA-0123	1
A300040	PSA-0124	1
A300050	PSA-0125	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-006
OTHER DRAWINGS: CL-55650-05-005

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, RACK, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES, WHELAN ENERGY CENTER UNIT 1, HASTINGS, NEBRASKA

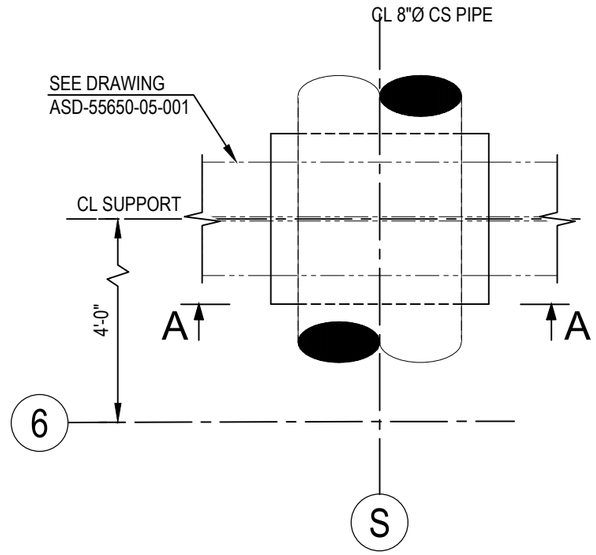
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-053

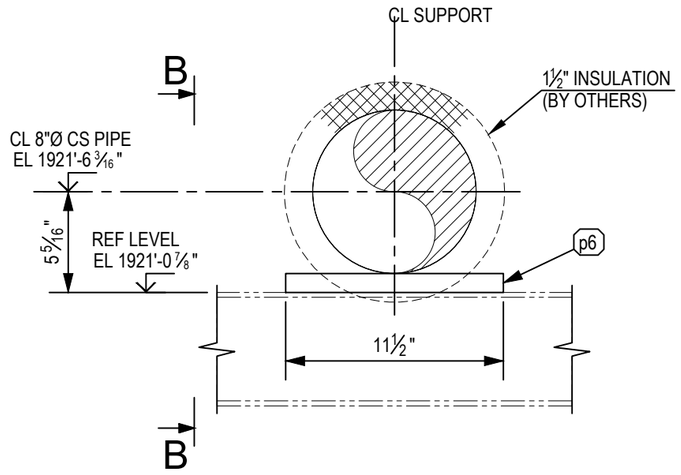
REVISION: 0

Bill of Materials

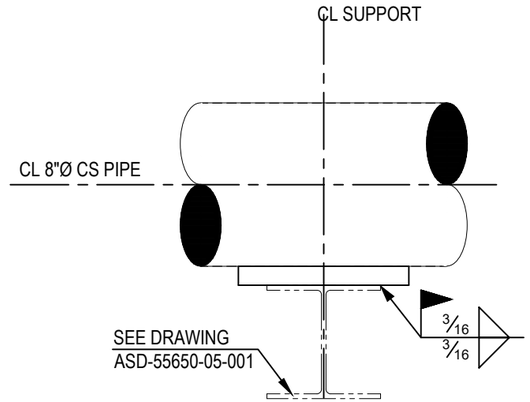
ID	Material / P/N	QTY	Description	Length	Notes
p6	A36	1	PL 1" x 9"	0'-11 1/2"	
Substitutions allowed per Engineer approval				Weight (lbs)	29



PLAN VIEW



SECTION A - A



SECTION B - B

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".

LOAD TAG	ASSY NO	QTY
A300060	PSA-0126	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-006
OTHER DRAWINGS: CL-55650-05-005

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: SUPPORT, RACK, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

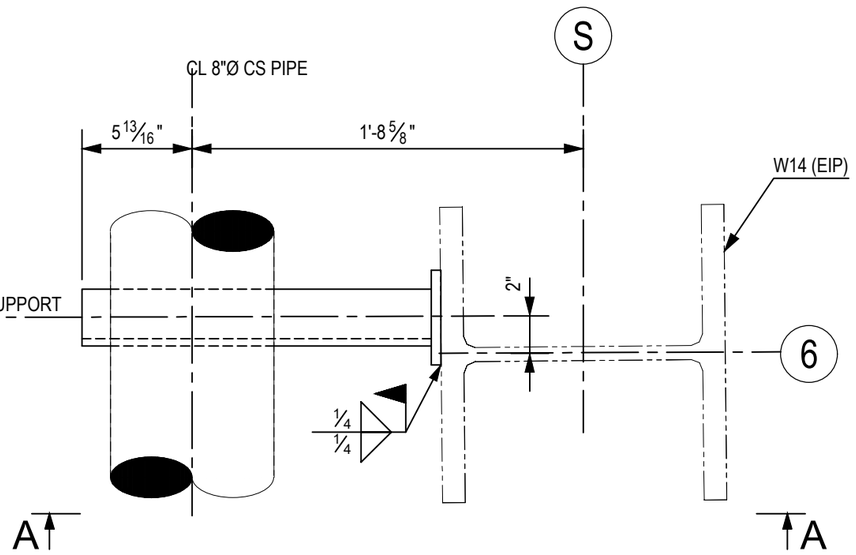
UCC environmental
2160 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-054

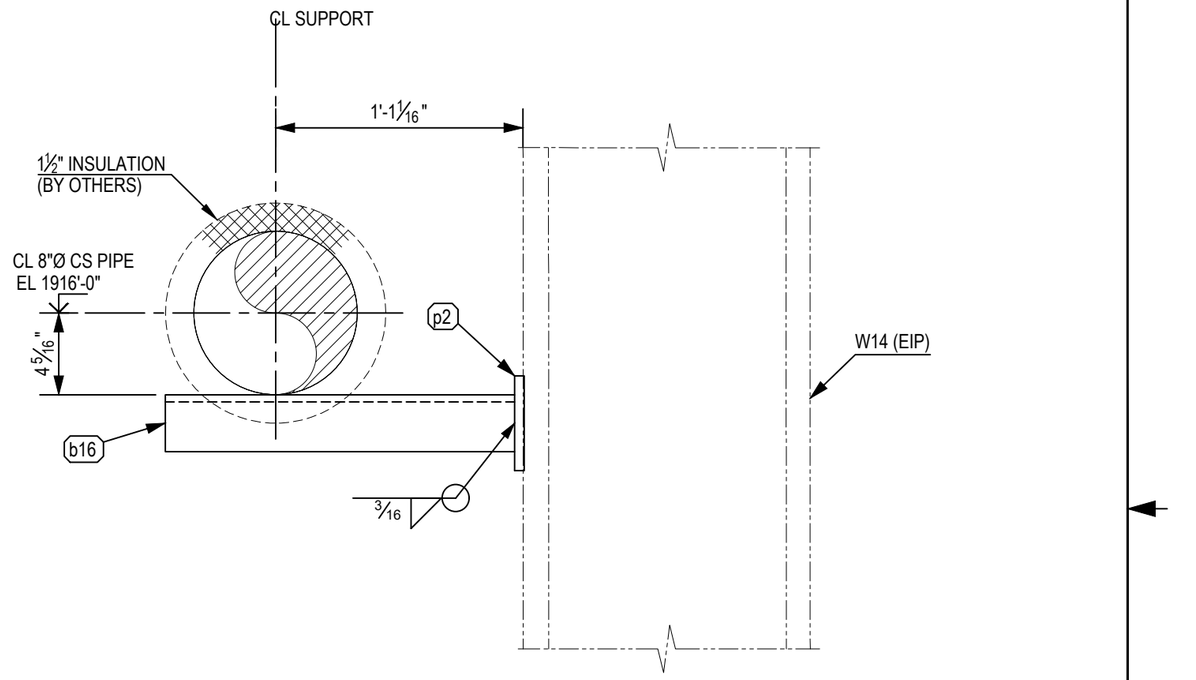
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b16	A36	1	L3X3X3/8	1'-6 7/16"	
p2	A36	1	PL 1/2" x 5"	0'-5"	
Substitutions allowed per Engineer approval				Weight (lbs)	15



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
A300070	PSA-0127	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-006
OTHER DRAWINGS: CL-55650-05-005

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: SUPPORT, ELEVATED, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

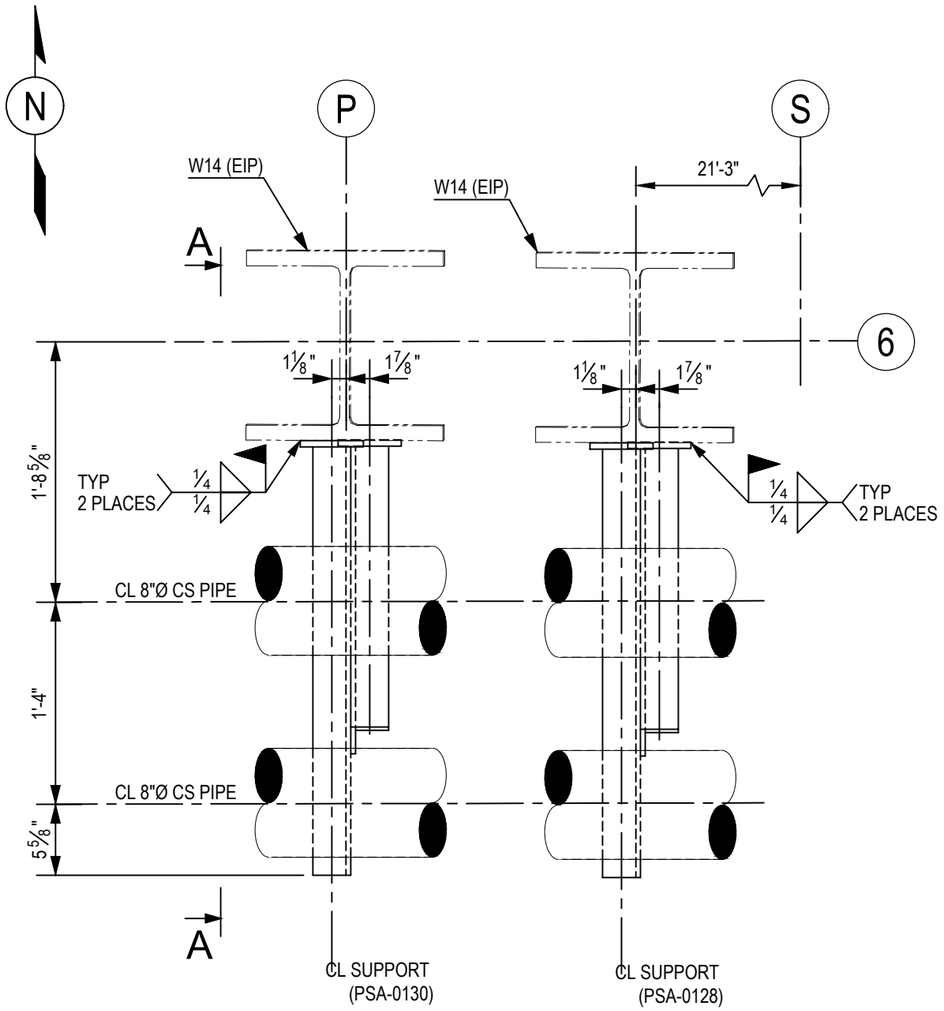
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-055

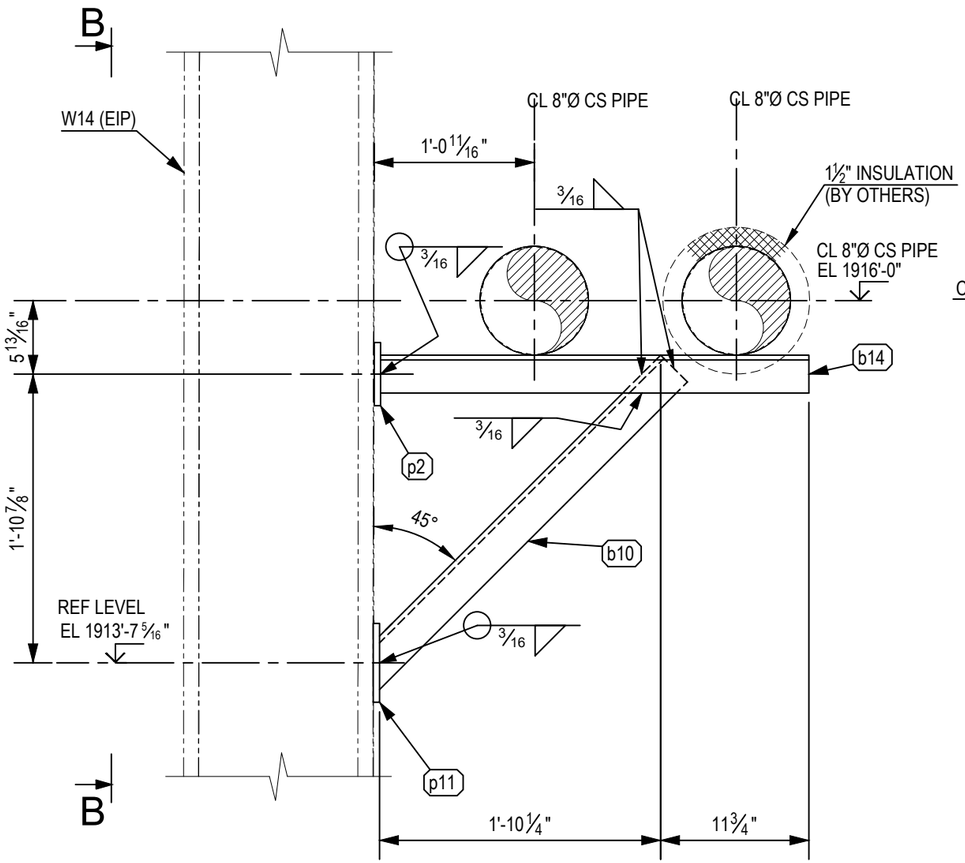
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b10	A36	1	L3X3X3/8	2'-10 7/16"	
b14	A36	1	L3X3X3/8	2'-9 15/16"	
p2	A36	1	PL 1/2" x 5"	0'-5"	
p11	A36	1	PL 1/2" x 5"	0'-6 1/4"	
Substitutions allowed per Engineer approval				Weight (lbs)	49

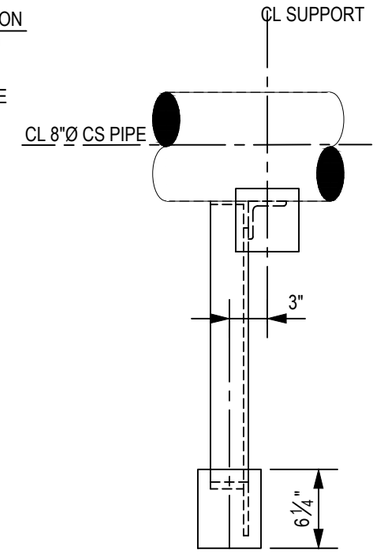


PLAN VIEW



SECTION A - A

(TYPICAL 2 PLACES)



SECTION B - B

(EXISTING STEEL NOT SHOWN FOR CLARITY)

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
A300080	PSA-0128	1
V200090		
A300100	PSA-0130	1
V200110		

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-006 & -008
OTHER DRAWINGS: CL-55650-05-005 & -006

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: SUPPORT, ELEVATED, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

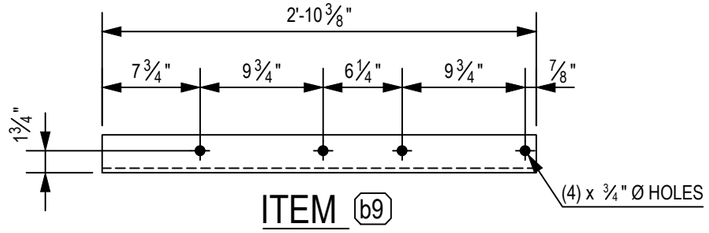
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-056

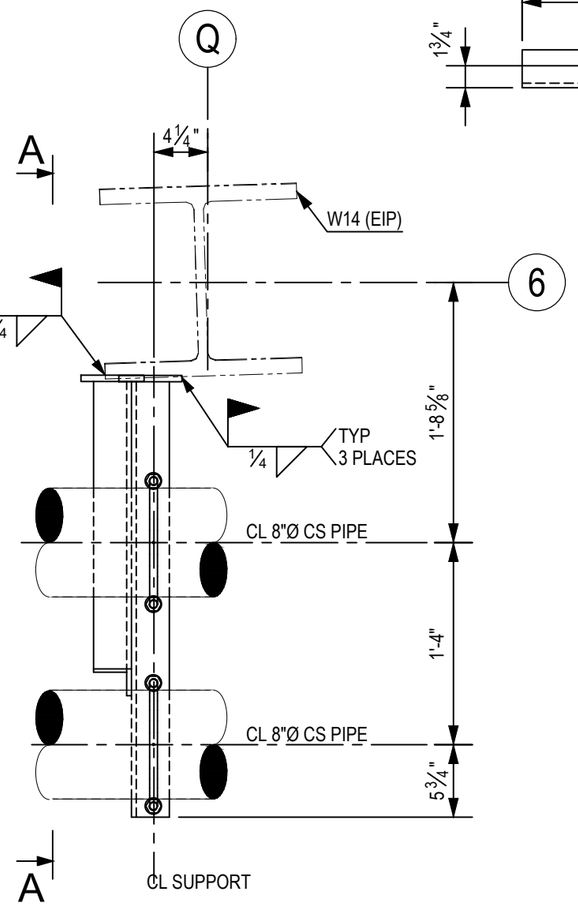
REVISION: 0

Bill of Materials

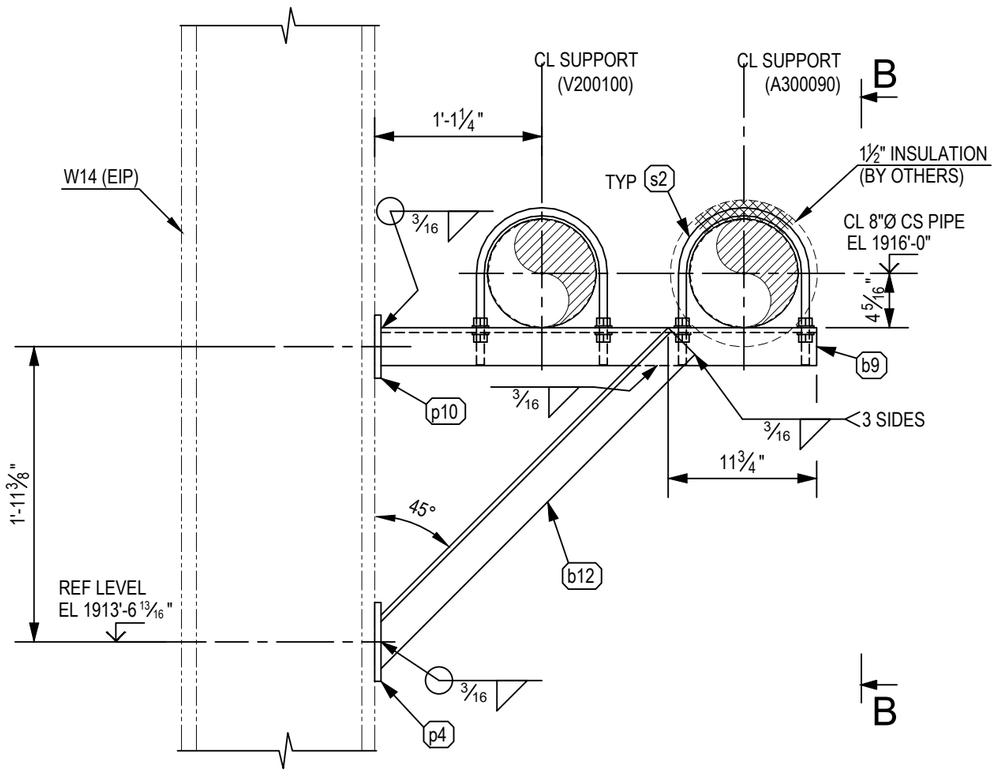
ID	Material / P/N	QTY	Description	Length	Notes
b9	A36	1	L3X3X3/8	2'-10 1/2"	See detail
b12	A36	1	L3X3X3/8	2'-11 3/16"	
p4	A36	1	PL 1/2" x 5"	0'-6 1/4"	
p10	A36	1	PL 1/2" x 5"	0'-5"	
s2	463206-2-0902-072-37	2	5/8" dia U-bolt for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	50



ITEM b9

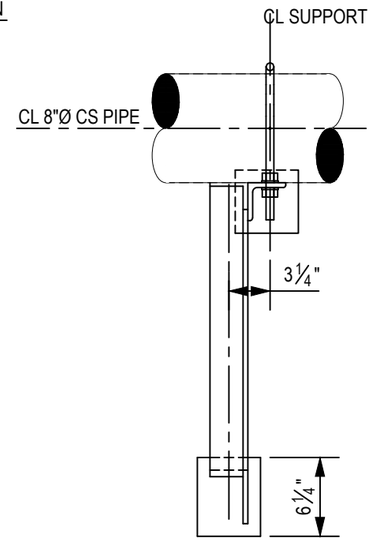


PLAN VIEW



SECTION A - A

(EXISTING STEEL ROTATED FOR CLARITY)



SECTION B - B

(EXISTING STEEL NOT SHOWN FOR CLARITY)

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH 1/4" VERTICAL GAP.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".
4. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
A300090	PSA-0129	1
V200100		

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-006 & -008
OTHER DRAWINGS: CL-55650-05-005 & -006

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL

UCC environmental
2160 NORMAN DRIVE, WAUKEGAN, IL 60085

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

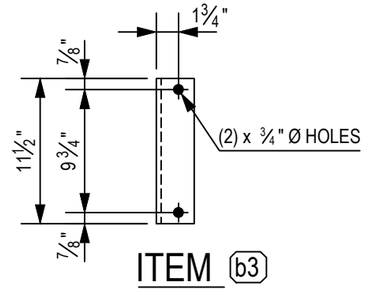
PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

DRAWING NUMBER: SD-55650-05-057

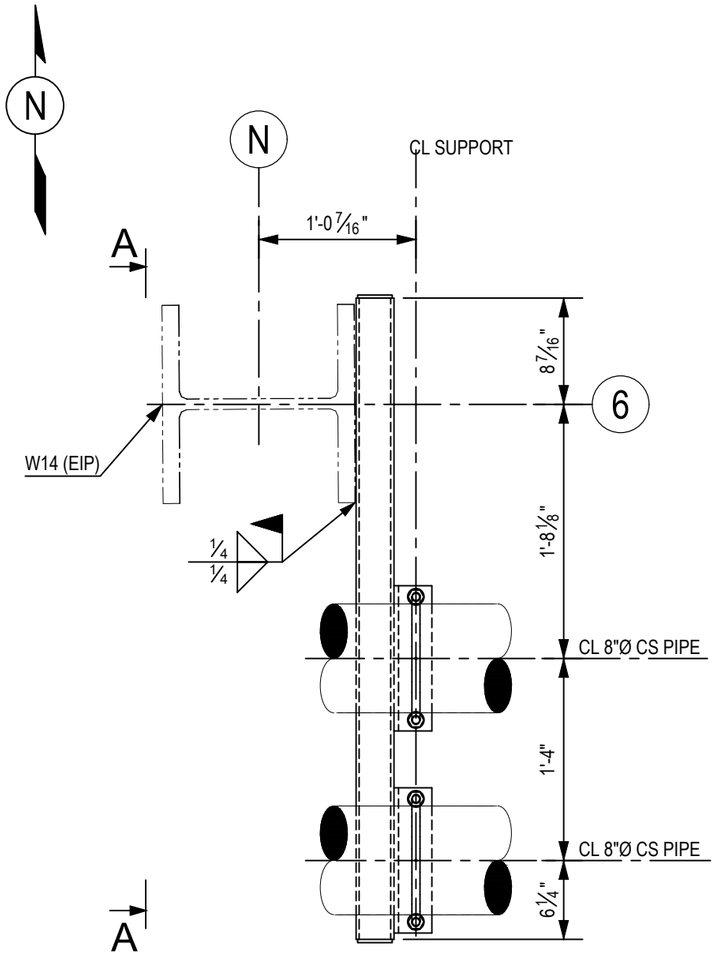
REVISION: 0

Bill of Materials

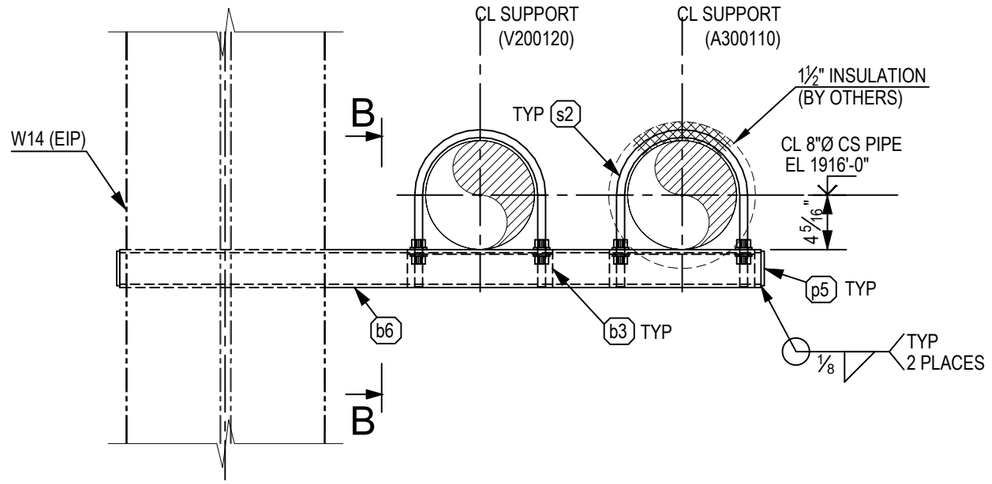
ID	Material / P/N	QTY	Description	Length	Notes
b3	A36	2	L3X3X3/8	0'-11 1/2"	See detail
b6	A500 GR.C	1	HSS3X3X1/4	4'-2 13/16"	
p5	A36	2	PL 1/4" x 2-3/4"	0'-2 3/4"	
s	463206-2-0902-072-37	2	5/8" dia U-bolt for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	52



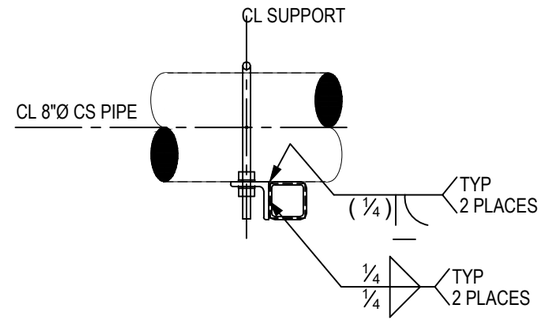
ITEM b3



PLAN VIEW



SECTION A - A



SECTION B - B

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".
4. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
A300110	PSA-0131	1
V200120		

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-006 & -008
OTHER DRAWINGS: CL-55650-05-005 & -006

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

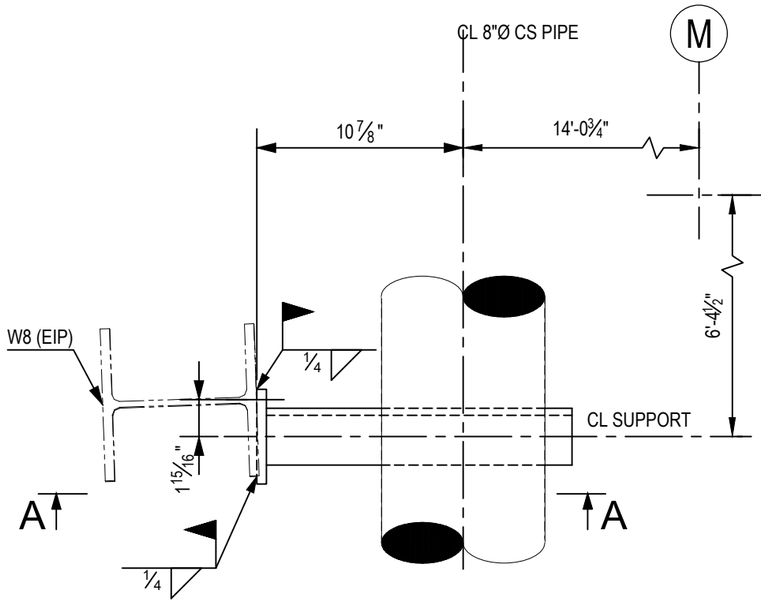
UCC environmental
2160 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-058

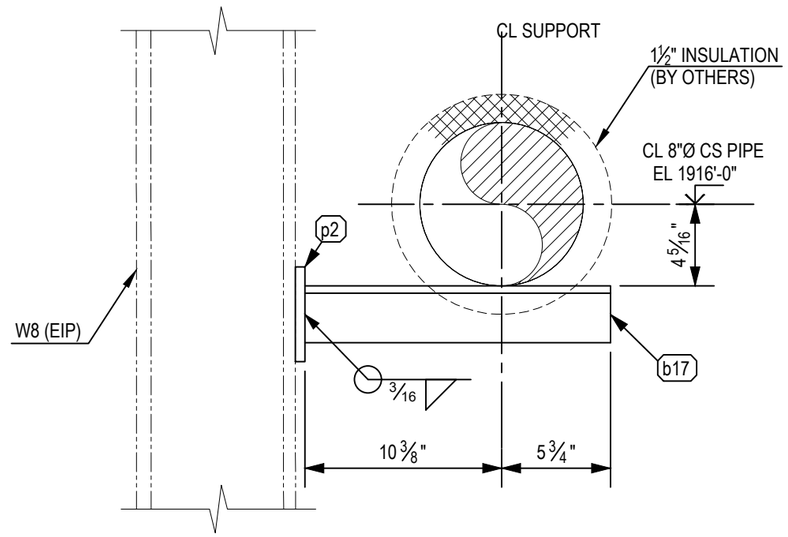
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b17	A36	1	L3X3X3/8	1'-4 1/8"	
p2	A36	1	PL 1/2" x 5"	0'-5"	
Substitutions allowed per Engineer approval				Weight (lbs)	13



PLAN VIEW



SECTION A - A

(EXISTING STEEL ROTATED FOR CLARITY)

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
A300120	PSA-0132	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-006
OTHER DRAWINGS: CL-55650-05-005

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: SUPPORT, ELEVATED, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

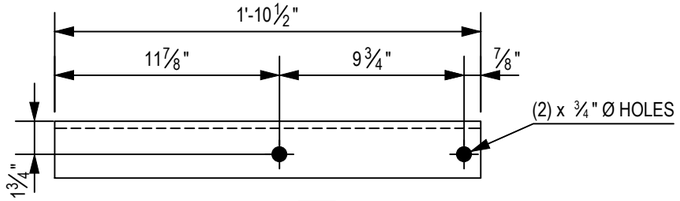
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-059

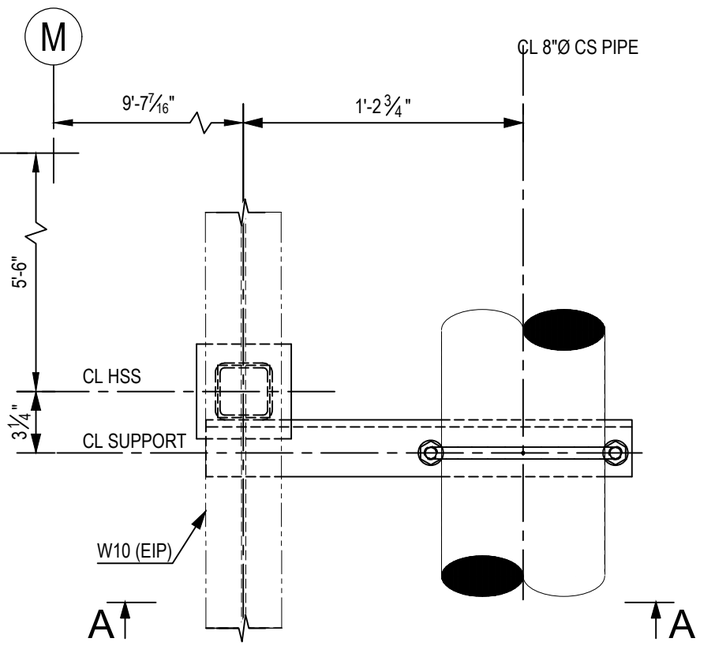
REVISION: 0

Bill of Materials

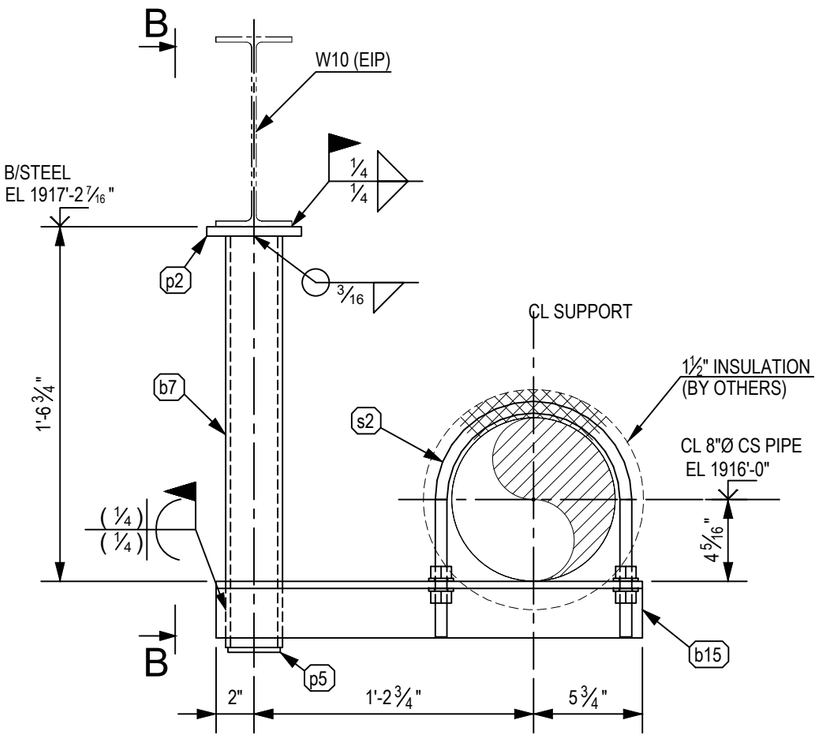
ID	Material / P/N	QTY	Description	Length	Notes
b7	A500 GR.C	1	HSS3X3X1/4	1'-9 3/4"	
b15	A36	1	L3X3X3/8	1'-10 1/2"	See detail
p2	A36	1	PL 1/2" x 5"	0'-5"	
p5	A36	1	PL 1/4" x 2-3/4"	0'-2 3/4"	
s	463206-2-0902-072-37	1	5/8" dia U-bolt for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	34



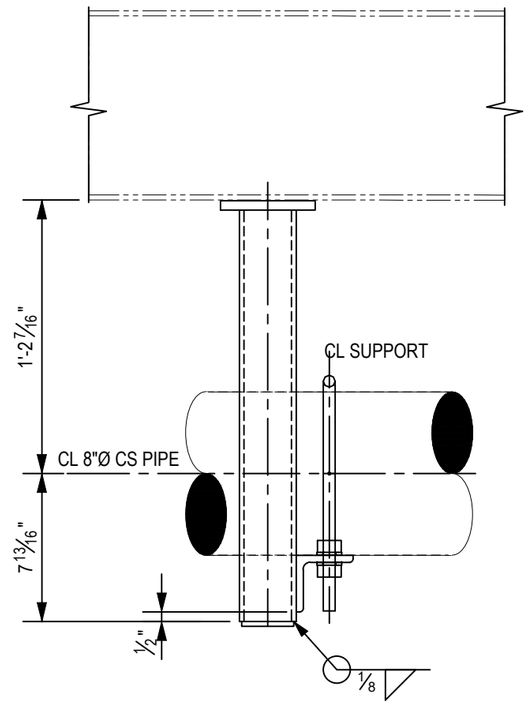
ITEM b15



PLAN VIEW



SECTION A - A



SECTION B - B

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".
4. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
A300130	PSA-0133	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-006
OTHER DRAWINGS: CL-55650-05-005

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL

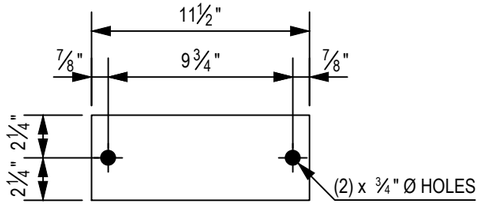
SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-060

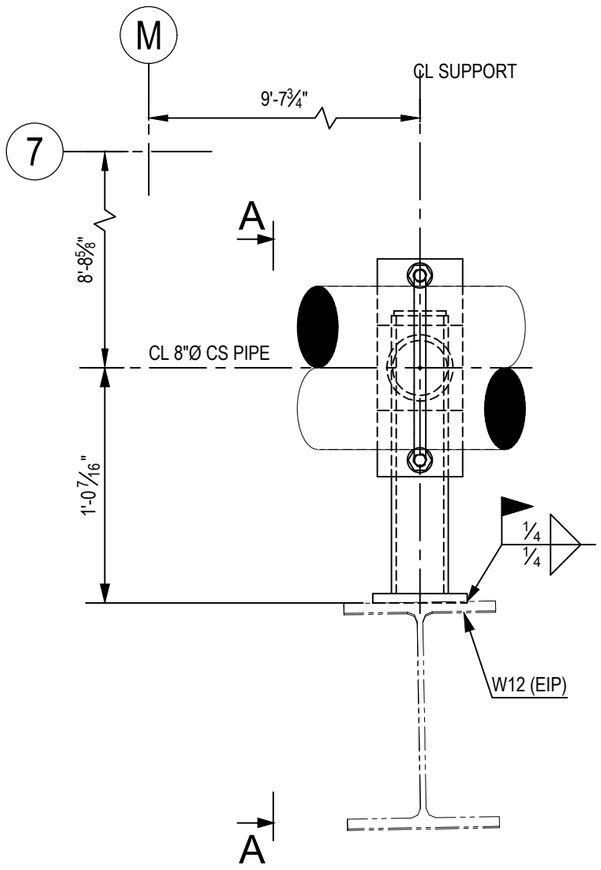
REVISION: 0



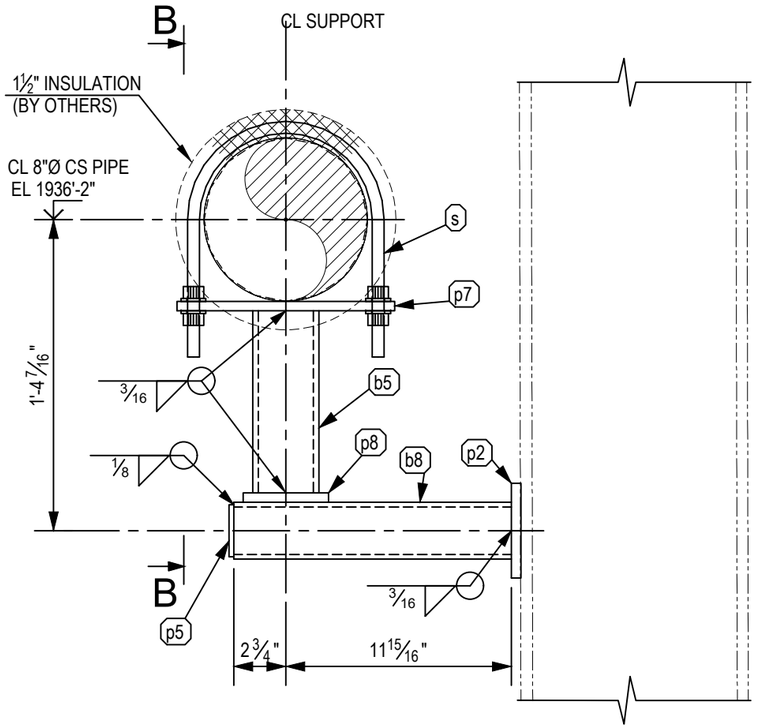
ITEM p7

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b5	A500 GR.C	1	HSS3.5X0.300	0'-9 5/8"	
b8	A500 GR.C	1	HSS3X3X1/4	1'-2 11/16"	
p2	A36	1	PL 1/2" x 5"	0'-5"	
p5	A36	1	PL 1/4" x 2-3/4"	0'-2 3/4"	
p7	A36	1	PL 1/2" x 4-1/2"	0'-11 1/2"	See detail
p8	A36	1	PL 1/2" x 4-1/2"	0'-4 1/2"	
s2	463206-2-0902-072-37	1	5/8" dia U-bolt for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	33

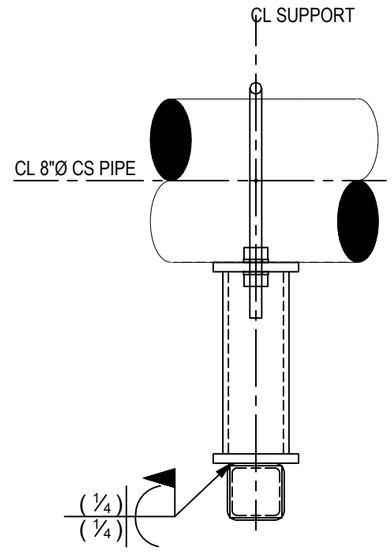


PLAN VIEW



SECTION A - A

(EXISTING STEEL ROTATED FOR CLARITY)



SECTION B - B

(ITEM p2 AND EXISTING STEEL
NOT SHOWN FOR CLARITY)

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".
4. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
A300140	PSA-0134	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-006
OTHER DRAWINGS: CL-55650-05-005

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

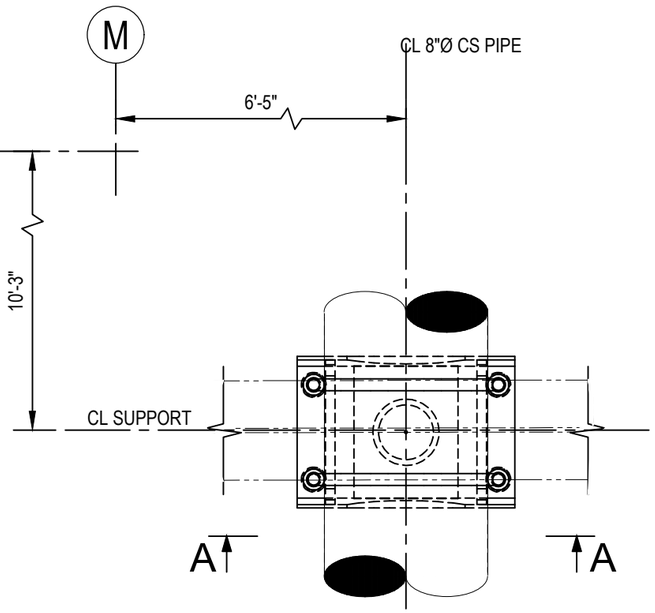
UCC environmental
2160 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-061

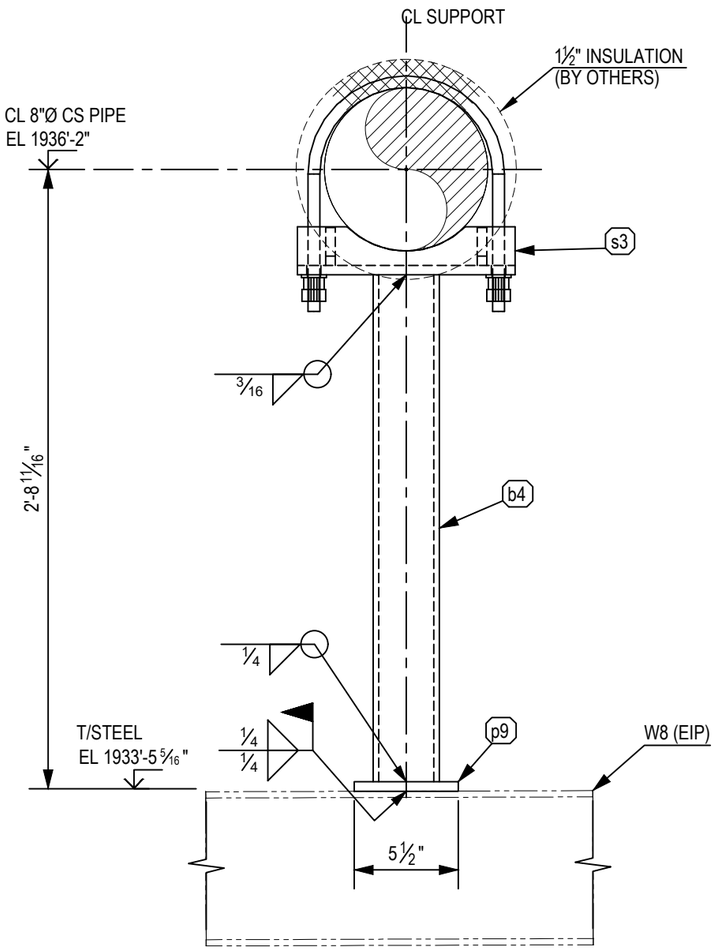
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b4	A500 GR.C	1	HSS3.5X0.300	2'-3 1/4"	
p9	A36	1	PL 1/2" x 5-1/2"	0'-7"	
s3	1717-95-06	1	Elevated anchor attachment for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	51



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 10 FT-LBS.
3. CUT INSULATION AROUND SUPPORT AS REQUIRED. SET CUTBACK DISTANCE AT 1".
4. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
A300150	PSA-0135	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-006
OTHER DRAWINGS: CL-55650-05-005

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, ELEVATED, 8", VENT, CARBON STEEL, STEEL

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

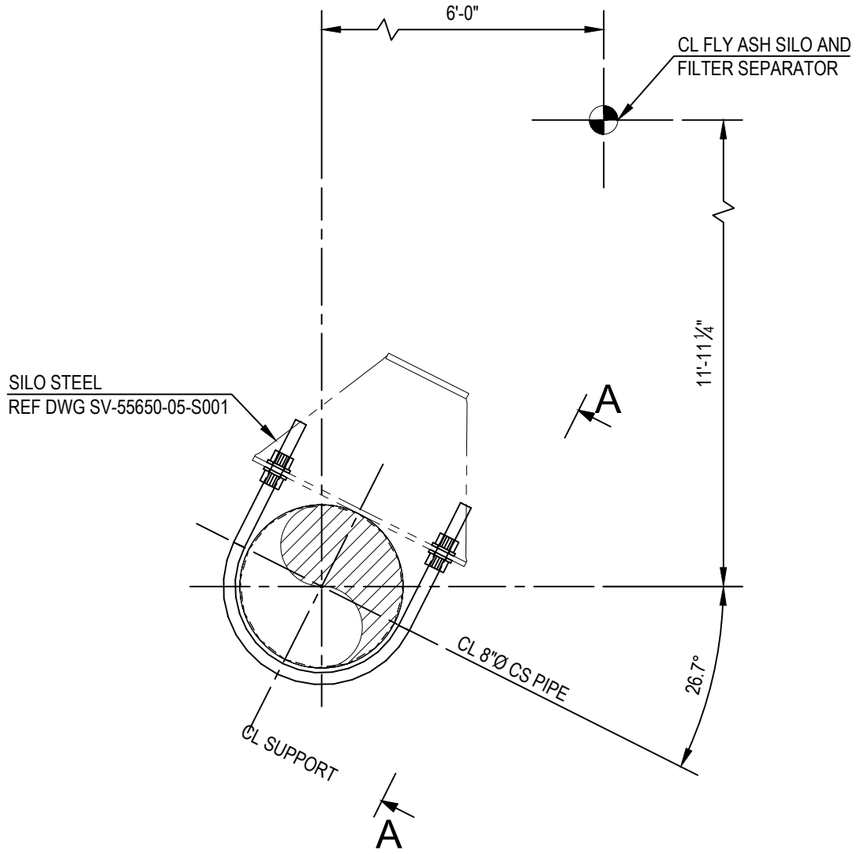
PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

DRAWING NUMBER: SD-55650-05-062

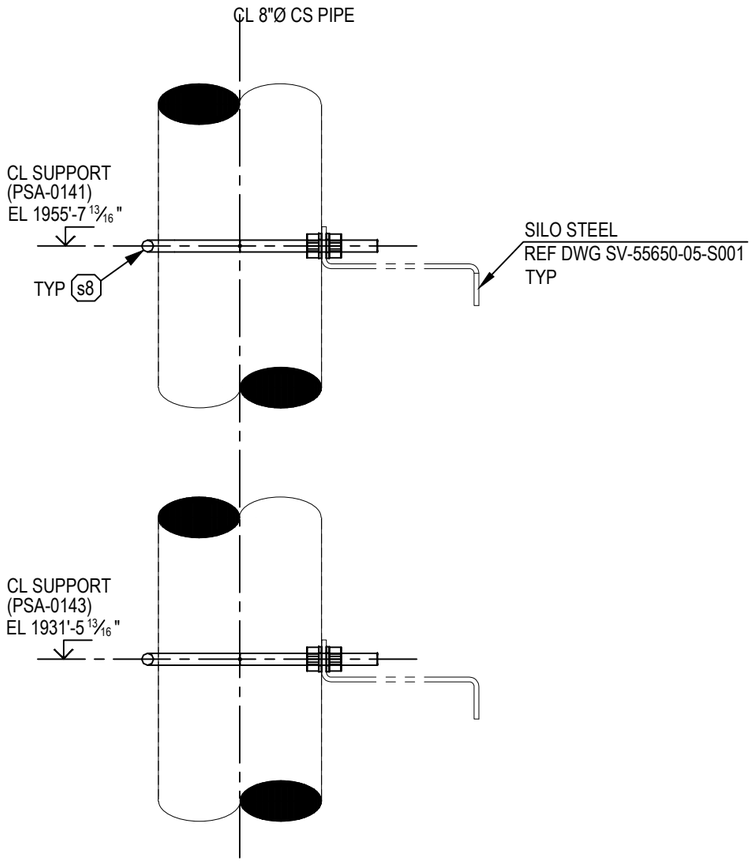
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
s8	463206-2-0902-072-37	1	5/8" dia U-bolt for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	0



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" HORIZONTAL GAP.

LOAD TAG	ASSY NO	QTY
V100010	PSA-0141	1
V100030	PSA-0143	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-007
OTHER DRAWINGS: CL-55650-05-006

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, SILO, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

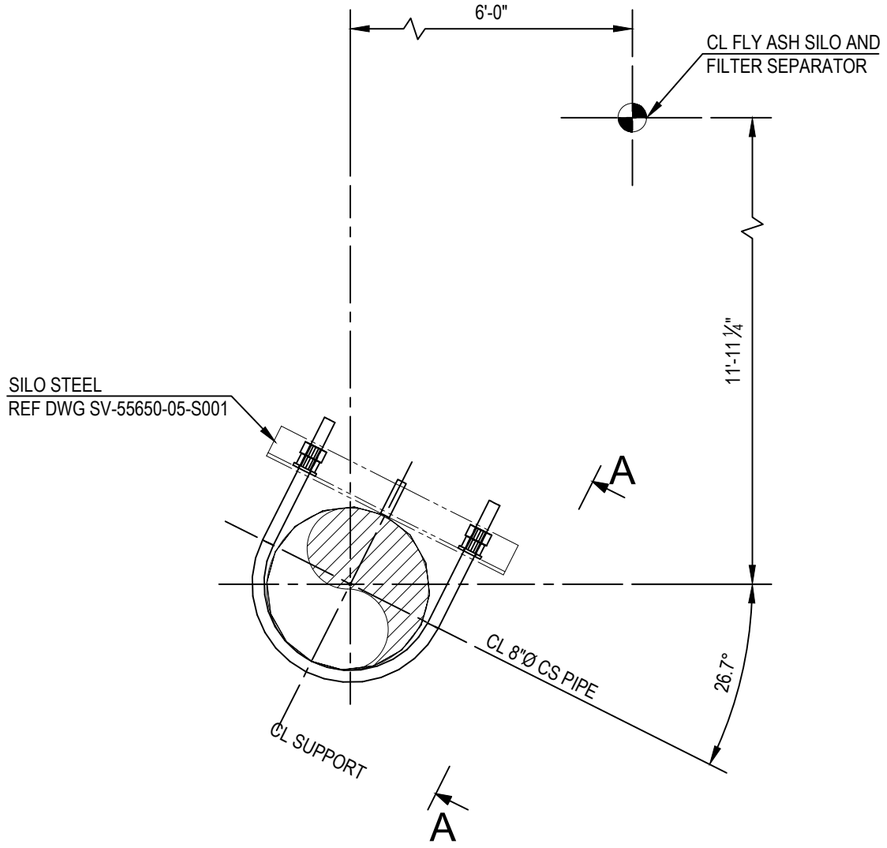
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-070

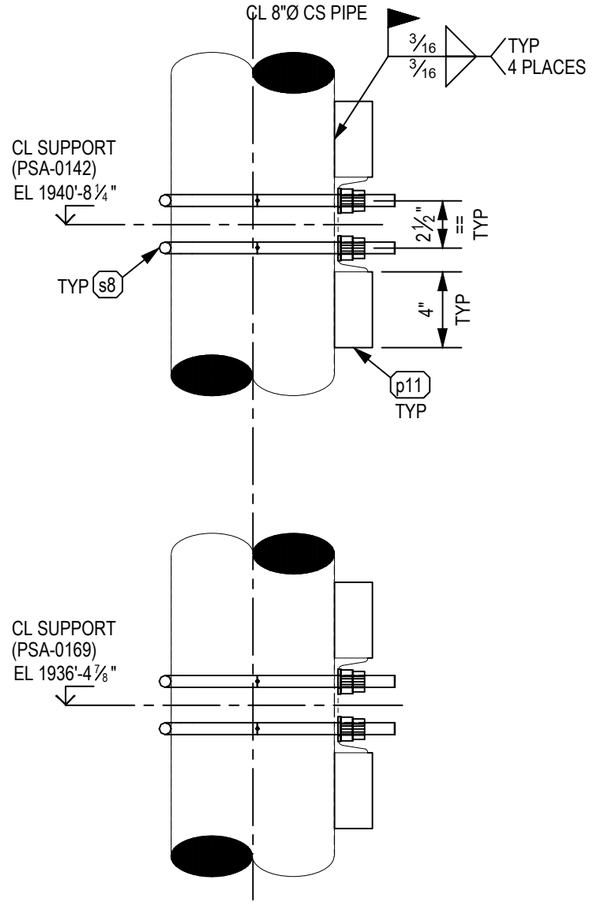
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
p11	A36	2	PL 1/2" x 2"	0'-4"	
s8	463206-2-0902-072-37	2	5/8" dia U-bolt for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	2



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 35 FT-LBS FOR V100020 AND 25 FT-LBS FOR V100025.

LOAD TAG	ASSY NO	QTY
V100020	PSA-0142	1
V100025	PSA-0169	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-007
OTHER DRAWINGS: CL-55650-05-006

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	VNK		

UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, SILO, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

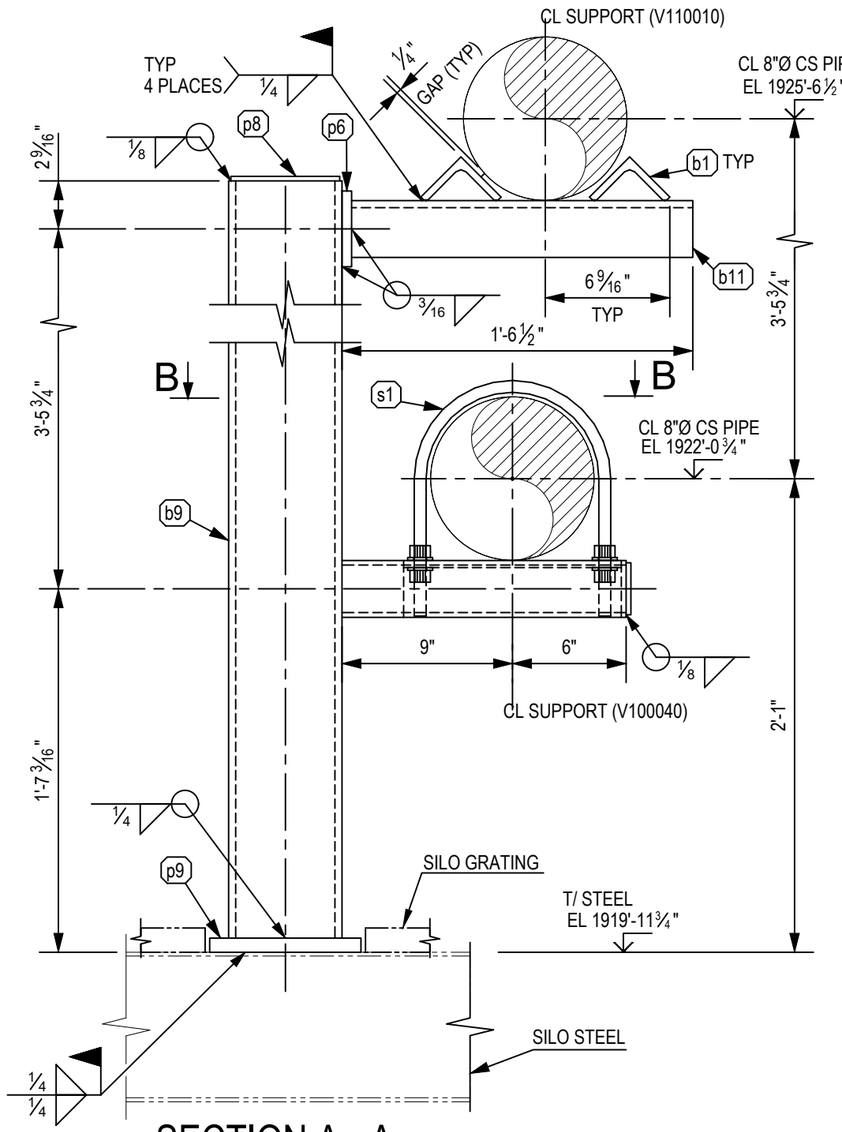
PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

DRAWING NUMBER: SD-55650-05-071

REVISION: 0

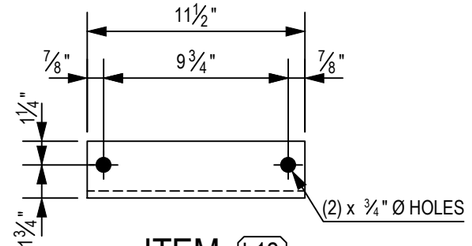
Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b1	A36	2	L3X3X3/8	0'-3 3/8"	
b8	A500 GR.C	1	HSS3X3X1/4	1'-3"	
b9	A500 GR.C	1	HSS6X6X3/8	5'-2 3/4"	
b11	A36	1	L3X3X3/8	1'-6"	
b12	A36	1	L3X3X3/8	0'-11 1/2"	See detail
p6	A36	1	PL 1/2" x 4"	0'-4"	
p7	A36	1	PL 1/4" x 2-3/4"	0'-2 3/4"	
p8	A36	1	PL 1/4" x 5-3/4"	0'-5 3/4"	
p9	A36	1	PL 3/4" x 8"	0'-8"	
s1	463206-2-0902-072-37	1	5/8" dia U-bolt for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	195

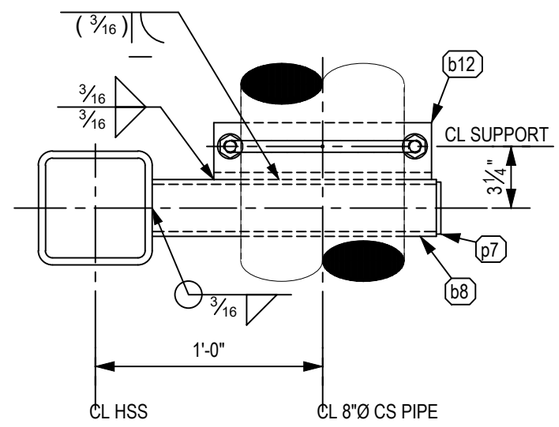


SECTION A - A

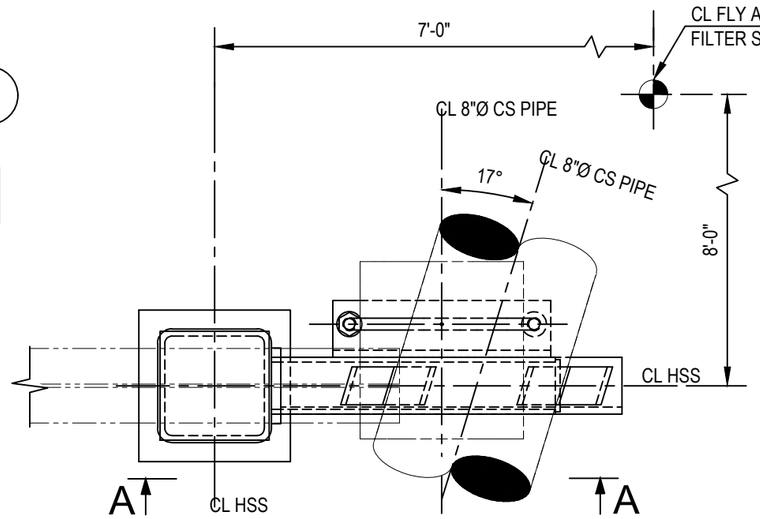
(ITEM b1 & TOP PIPE ROTATED FOR CLARITY)



ITEM b12



SECTION B - B



PLAN VIEW

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH 1/4" VERTICAL GAP.
3. CUT GRATING AS REQUIRED TO INSTALL SUPPORT.

LOAD TAG	ASSY NO	QTY
V100040	PSA-0144	1
V110010		

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-007
OTHER DRAWINGS: CL-55650-05-006

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/19/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

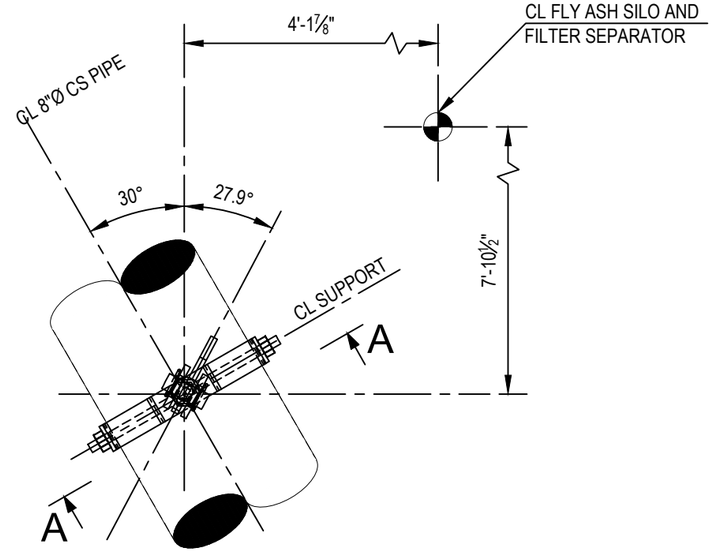
UCC environmental
2160 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-072

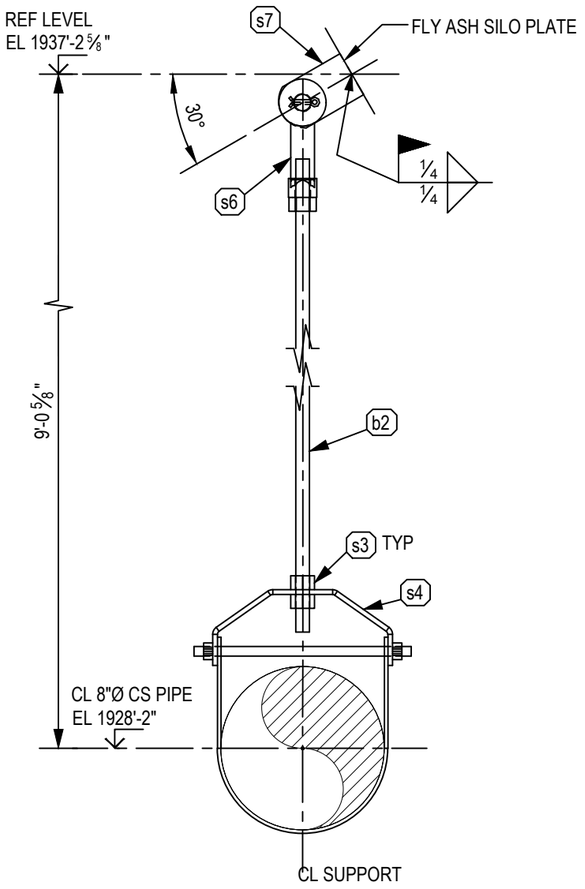
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b2	Anvil Fig 146	1	3/4" continuous threaded rod	8'-2"	Ship 8'-6" LG, field cut to suit
s3	A563	3	3/4" dia right hand threaded hex nut		
s4	Anvil Fig 260	1	Adjustable clevis hanger for 8" CS pipe		
s6	Anvil Fig 299	1	Forged steel clevis for 3/4" dia rod		With pin and cotters
s7	Anvil Fig 55L	1	Structural welding lug for 3/4" dia rod		
Substitutions allowed per Engineer approval				Weight (lbs)	0



PLAN VIEW



SECTION A - A

(ITEM s6 AND s7 ROTATED FOR CLARITY)

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.

LOAD TAG	ASSY NO	QTY
V200010	PSA-0161	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-007
OTHER DRAWINGS: CL-55650-05-006

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/19/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: ROD HANGER, SILO, 8", VENT, CARBON STEEL, STEEL

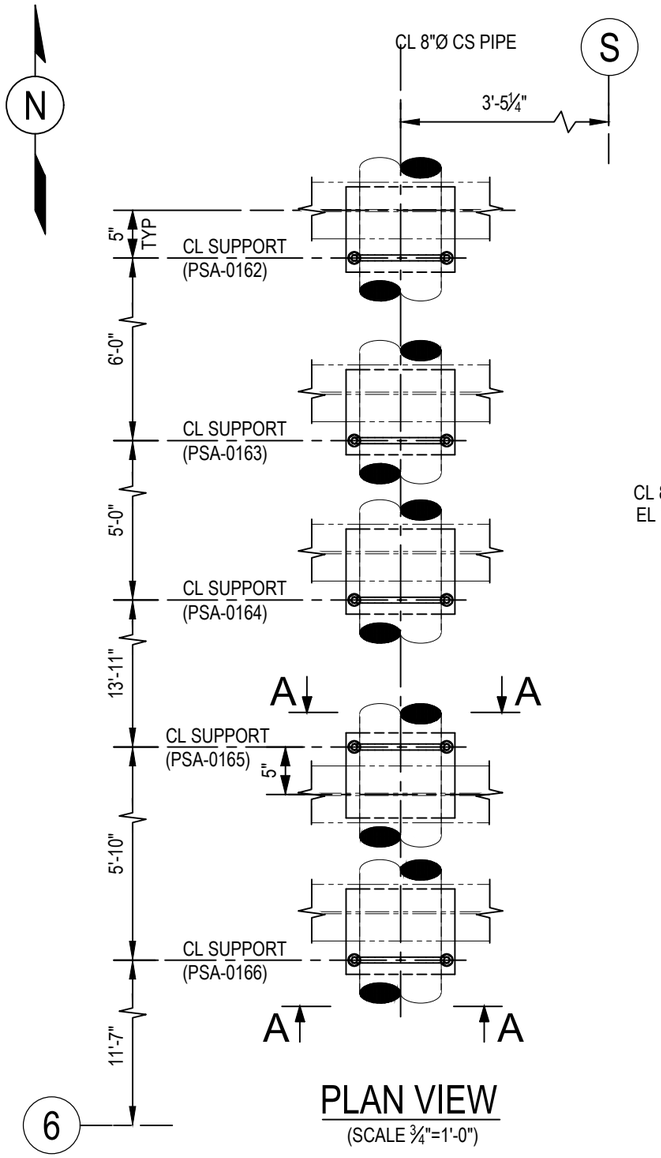
SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

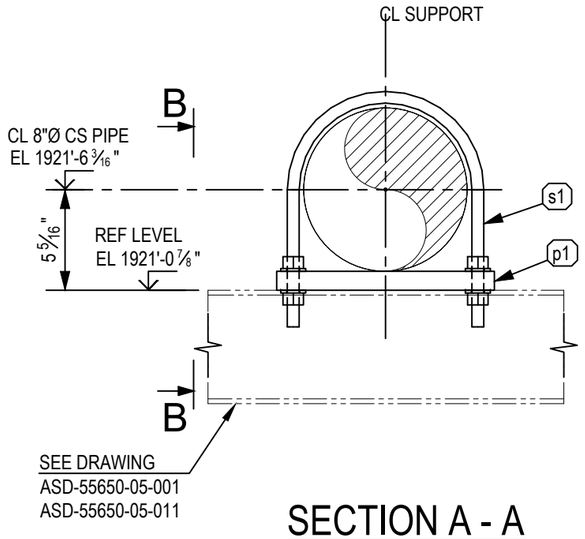
DRAWING NUMBER: SD-55650-05-073

REVISION: 0



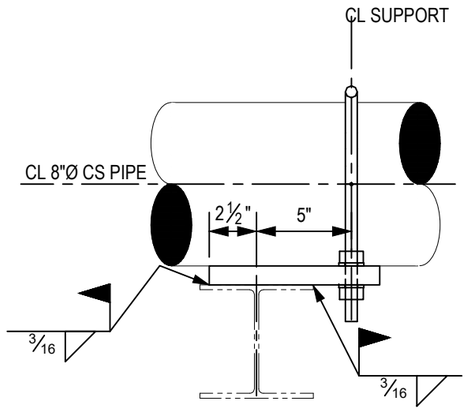
PLAN VIEW

(SCALE ¾"=1'-0")

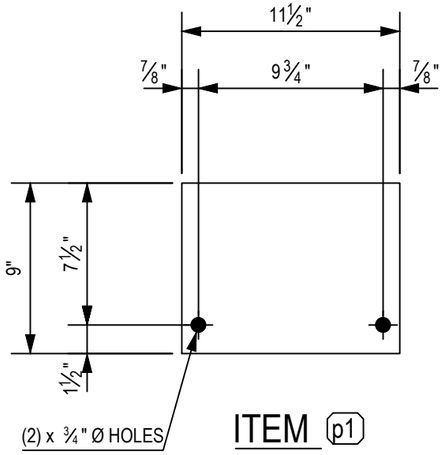


SECTION A - A

(TYPICAL 5 PLACES)



SECTION B - B



ITEM p1

Bill of Materials					
ID	Material / P/N	QTY	Description	Length	Notes
p1	A36	1	PL 1" x 9"	0'-11 1/2"	See detail
s1	463206-2-0902-072-37	1	5/8" dia U-bolt for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	29

LOAD TAG	ASSY NO	QTY
V200020	PSA-0162	1
V200030	PSA-0163	1
V200040	PSA-0164	1
V200050	PSA-0165	1
V200060	PSA-0166	1

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-007
OTHER DRAWINGS: CL-55650-05-006

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/24/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, RACK, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES, WHELAN ENERGY CENTER UNIT 1, HASTINGS, NEBRASKA

UCC environmental
2160 NORMAN DRIVE, WAUKEGAN, IL 60085

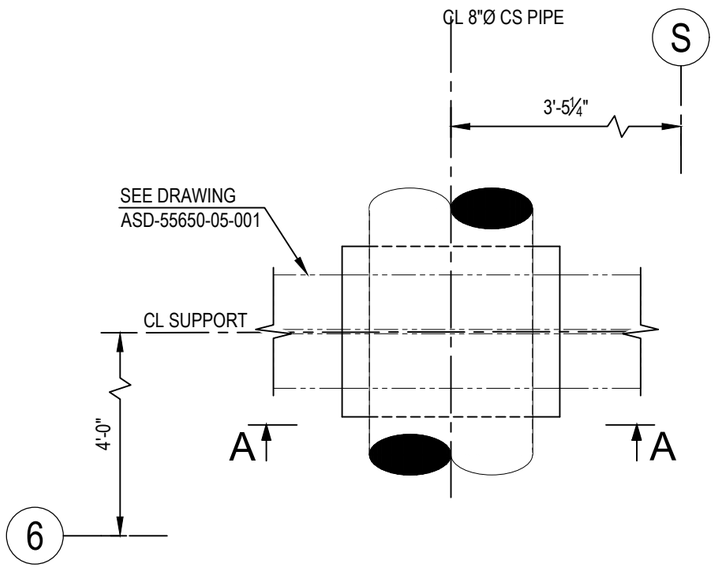
DRAWING NUMBER: SD-55650-05-074

REVISION: 0

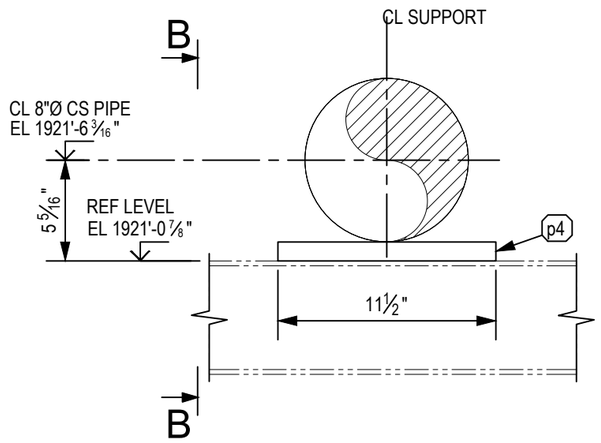
6

Bill of Materials

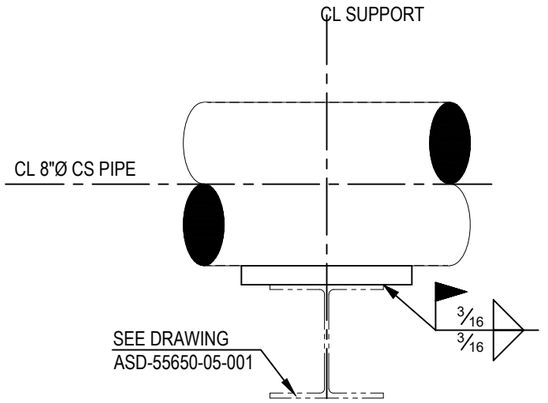
ID	Material / P/N	QTY	Description	Length	Notes
p4	A36	1	PL 1" x 9"	0'-11 1/2"	
Substitutions allowed per Engineer approval				Weight (lbs)	29



PLAN VIEW



SECTION A - A



SECTION B - B

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.

LOAD TAG	ASSY NO	QTY
V200070	PSA-0167	1

REF DRAWINGS:								
CONVEYOR DRAWING: C-55650-05-007								
OTHER DRAWINGS: CL-55650-05-006								
	0	ISSUED FOR CONSTRUCTION	03/24/25	ASB		
UCC-W	REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)

DESIGNED BY:

DRAWING TITLE: SUPPORT, RACK, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

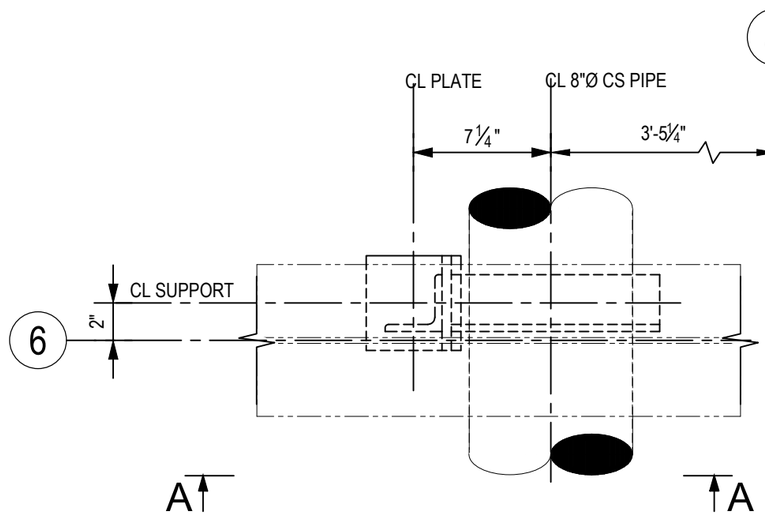
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-075

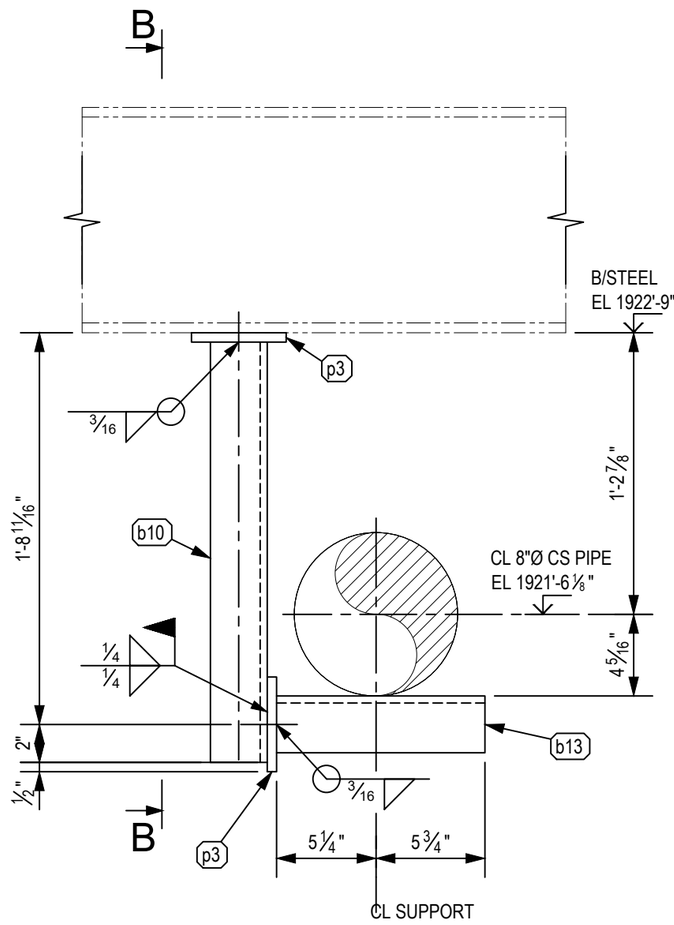
REVISION: 0

Bill of Materials

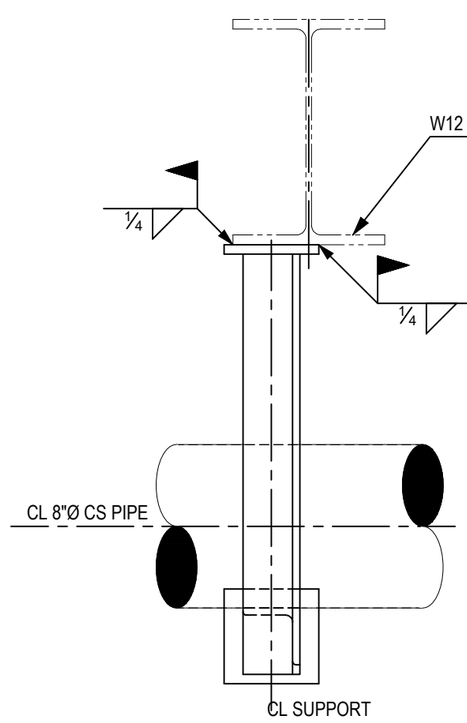
ID	Material / P/N	QTY	Description	Length	Notes
b10	A36	1	L3X3X3/8	1'-10 3/16"	
b13	A36	1	L3X3X3/8	0'-11"	
p3	A36	2	PL 1/2" x 5"	0'-5"	
Substitutions allowed per Engineer approval				Weight (lbs)	27



PLAN VIEW



SECTION A - A



SECTION B - B

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
V200080	PSA-0168	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-007
OTHER DRAWINGS: CL-55650-05-006

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: SUPPORT, ELEVATED, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES, WHELAN ENERGY CENTER UNIT 1, HASTINGS, NEBRASKA

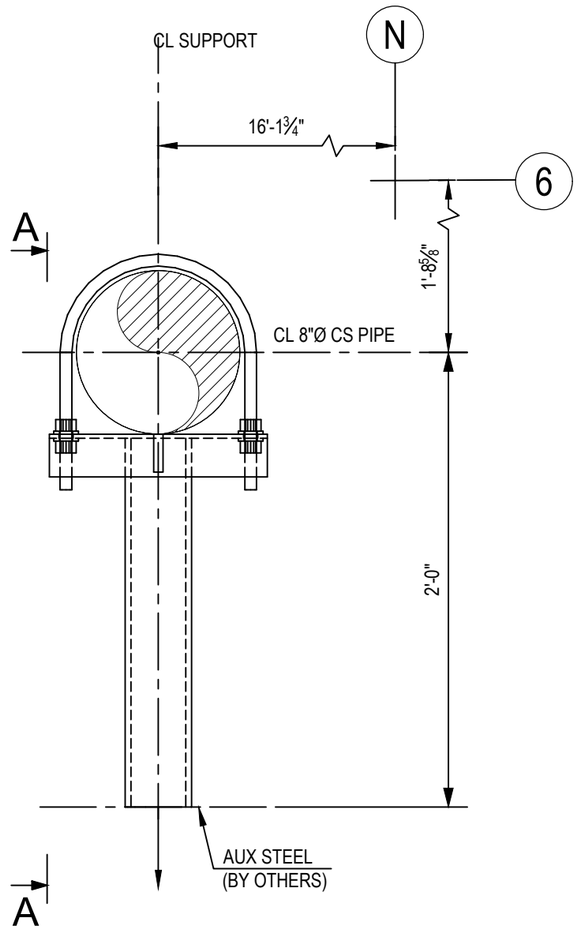
UCC environmental, 2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-076

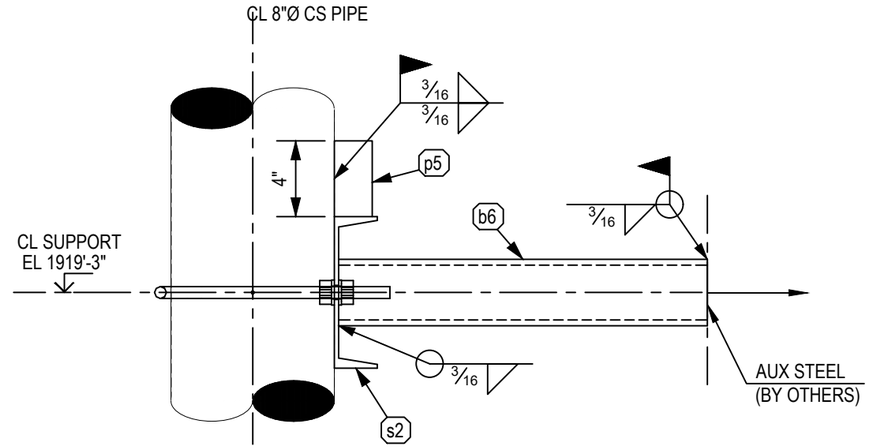
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b6	A500 GR.C	1	HSS3.5X0.300	1'-7 7/16"	
p5	A36	1	PL 1/2" x 2"	0'-4"	
s2	1717-87-17	1	Elevated guide attachment for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	30



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" HORIZONTAL GAP.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
V200130	PSA-0173	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-008
OTHER DRAWINGS: CL-55650-05-006

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: LINE STOP, RISER, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

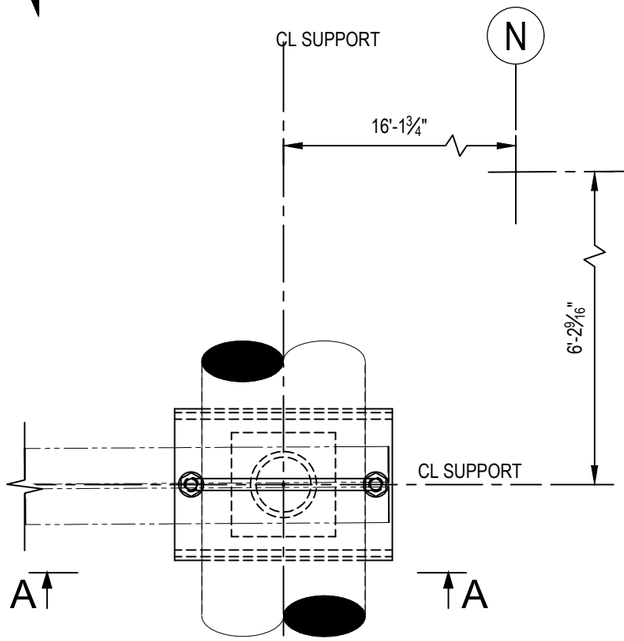
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-077

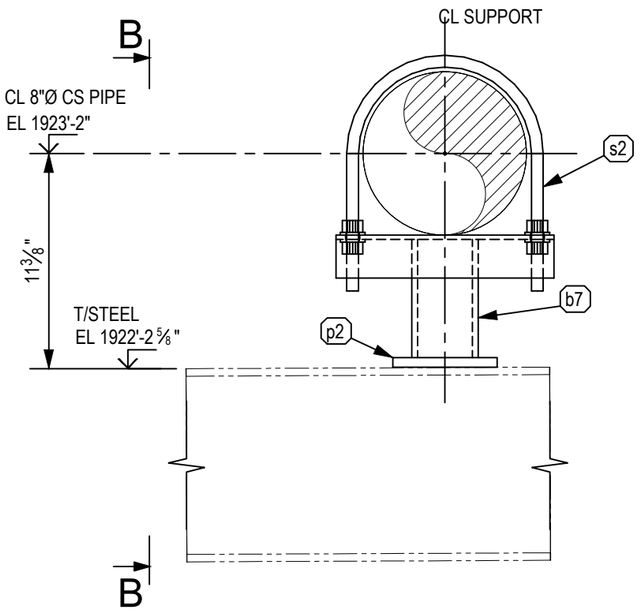
REVISION: 0

Bill of Materials

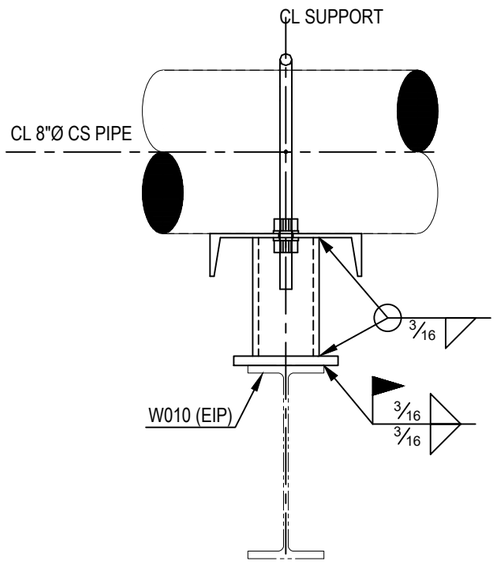
ID	Material / P/N	QTY	Description	Length	Notes
b7	A500 GR.C	1	HSS3.5X0.300	0'-6 1/4"	
p2	A36	1	PL 1/2" x 5-1/2"	0'-5 1/2"	
s2	1717-87-17	1	Elevated guide attachment for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	22



PLAN VIEW



SECTION A - A



SECTION B - B

(EXISTING STEEL ROTATED FOR CLARITY)

NOTES:

1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
V200140	PSA-0174	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-008
OTHER DRAWINGS: CL-55650-05-006

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

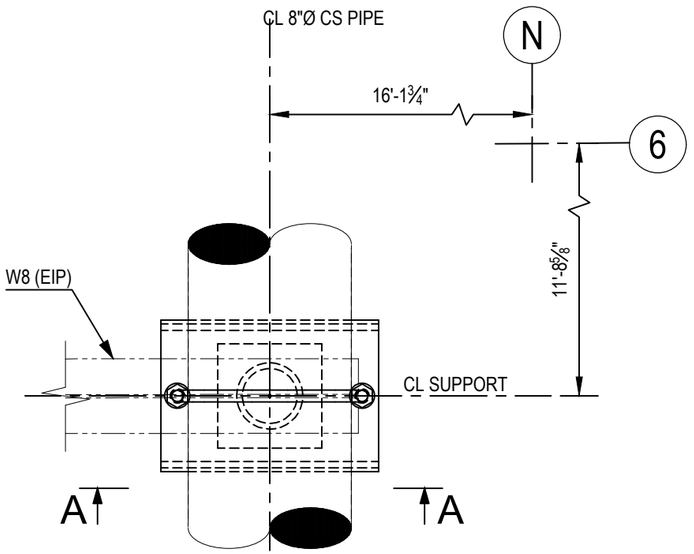
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-078

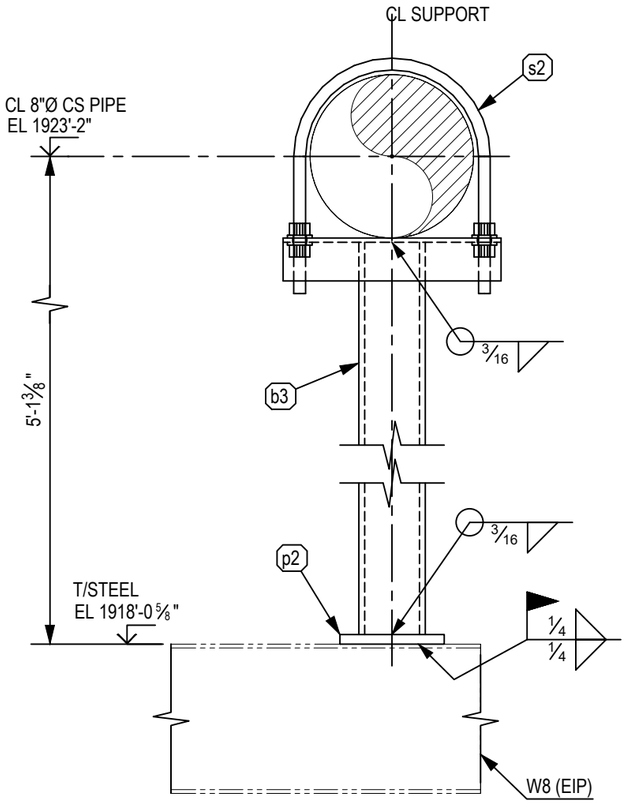
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b3	A500 GR.C	1	HSS3.5X0.300	4'-8 5/16"	
p2	A36	1	PL 1/2" x 5-1/2"	0'-5 1/2"	
s2	1717-87-17	1	Elevated guide attachment for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	64



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.
4. CUT GRATING AS REQUIRED TO INSTALL SUPPORT.

LOAD TAG	ASSY NO	QTY
V200150	PSA-0175	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-008
OTHER DRAWINGS: CL-55650-05-006

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, FLOOR, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

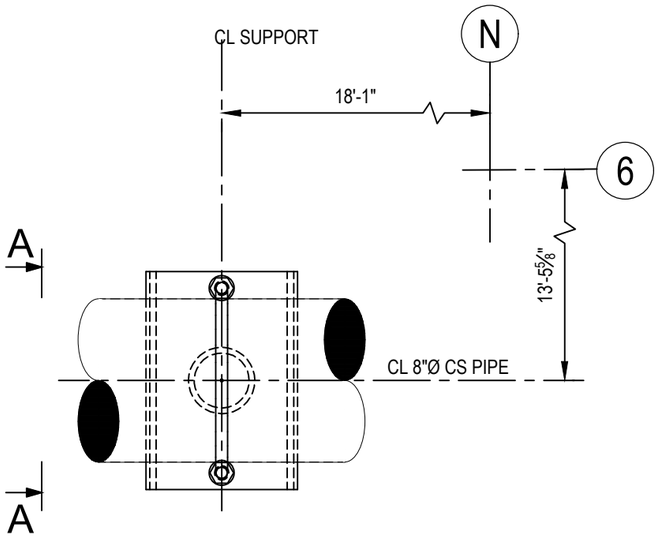
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-079

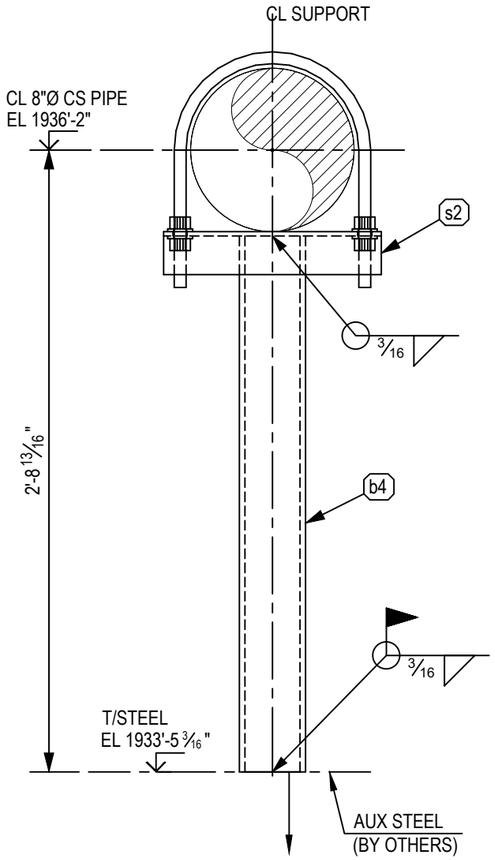
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b4	A500 GR.C	1	HSS3.5X0.300	2'-4 5/16"	
s2	1717-87-17	1	Elevated guide attachment for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	36



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. INSTALL U-BOLT WITH ¼" VERTICAL GAP.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
V200160	PSA-0176	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-008
OTHER DRAWINGS: CL-55650-05-006

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: GUIDE, ELEVATED, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES
WHELAN ENERGY CENTER UNIT 1
HASTINGS, NEBRASKA

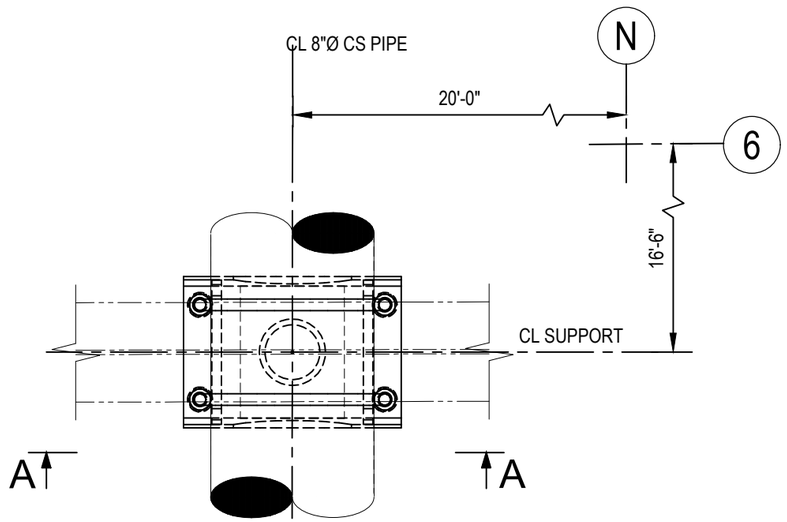
UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-080

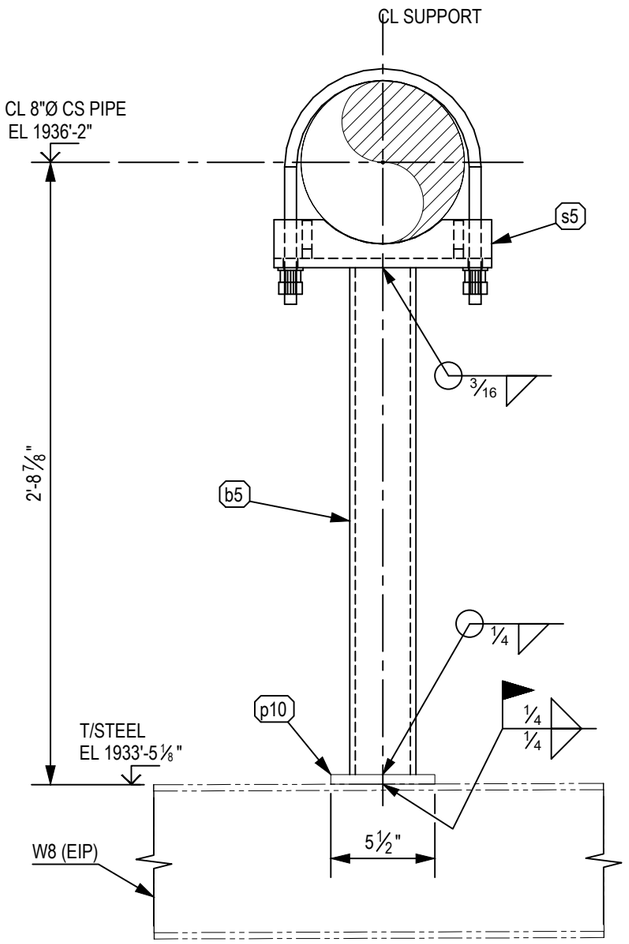
REVISION: 0

Bill of Materials

ID	Material / P/N	QTY	Description	Length	Notes
b5	A500 GR.C	1	HSS3.5X0.300	2'-2 3/4"	
p10	A36	1	PL 1/2" x 5-1/2"	0'-7"	
s5	1717-95-06	1	Elevated anchor attachment for 8" CS pipe		
Substitutions allowed per Engineer approval				Weight (lbs)	50



PLAN VIEW



SECTION A - A

NOTES:
1. FOR GENERAL NOTES SEE DWG C-55650-05-001 AND C-55650-05-002.
2. TORQUE U-BOLTS TO 10 FT-LBS.
3. REINFORCEMENT OF EXISTING STRUCTURES IS THE RESPONSIBILITY OF THE OWNER'S ENGINEER.

LOAD TAG	ASSY NO	QTY
V200170	PSA-0177	1

REF DRAWINGS:
CONVEYOR DRAWING: C-55650-05-008
OTHER DRAWINGS: CL-55650-05-006

REV	DESCRIPTION	DATE	DWN	DWN CHK	APVD (ENGR)
0	ISSUED FOR CONSTRUCTION	03/20/25	ASB		

UCC-W

DESIGNED BY:

DRAWING TITLE: ANCHOR, ELEVATED, 8", VENT, CARBON STEEL, STEEL

SCALE	DRAWING SIZE	CONTRACT NUMBER
1 1/2"=1'-0"	1	55650-05

PLANT NAME: HASTINGS UTILITIES, WHELAN ENERGY CENTER UNIT 1, HASTINGS, NEBRASKA

UCC environmental
2100 NORMAN DRIVE, WAUKEGAN, IL 60085

DRAWING NUMBER: SD-55650-05-081

REVISION: 0

DESIGN NOTES:

1. JOB SITE LOCATION: Hastings, NE
   - 1.1 SITE COORD:

2. REFERENCES:
   - 2.1 TANK DIA. 24.62 ft HOPPER ANGLE = 60 Degrees HOPPER OUTLET = 96 in.
   - 2.2 STRUC CALCS: 2412006 Design By: CDC 3/10/2025
   - 2.3 GEOTECH: NONE
   - 2.4 IBC 2018 (ASCE 7-16) Occupancy Category III

3. WIND LOADS:
   - 3.1 WIND SPEED = 120 mph
   - 3.2 EXPOSURE C

4. SEISMIC VALUES:
   - 4.1 SEISMIC IMPORTANCE FACTOR: Ie = 1.25 SITE CLASS D
   - 4.2 Ss = 0.078
   - 4.3 S1 = 0.041
   - 4.4 Fa = 1.600
   - 4.5 Fv = 2.400
   - 4.6 TL = 12
   - 4.7 SDS = 0.083
   - 4.8 SD1 = 0.066
   - 4.9 Cs = 0.0347

5. DESIGN LOADS:
   - 5.1 ROOF LIVE/SNOW LOAD = 60 psf
   - 5.2 FLOOR LIVE LOAD = 100 psf
   - 5.3 ROOF EQUIPMENT LOAD = 15100 lbs
   - 5.4 HOPPER EQUIPMENT LOAD = 5000 lbs
   - 5.5 DESIGN PRESSURE: 12.12 in. WC VACUUM: 3.03 in. WC
   - 5.6 PRESSURE = 7oz
   - 5.7 VACUUM= 1.75oz
   - 5.8 MAXIMUM TEMPERATURE = 180F

1

6. TANK REACTIONS @ BASE OF TANK:

LOAD CASE	VERT. (k)	HORZ. (k)	MOMENT (k-ft)	LOAD/ft Shell (klf)
DL	134.7	-	-	1.74
DL + LL	210.8	-	-	2.73
DL + LL + Prod	1081.9	-	-	13.99
DL + 1WL	123.0	25.8	772.6	3.37
DL+LL+Prod+1WL	1081.9	25.8	772.6	15.61
DL+LL+Prod+S+0.7E	1081.9	30.4	1344.8	4.57
0.6DL + 0.7Prod + 0.7E	845.5	29.7	1299.1	4.47
DL + Seismic	1222.6	42.4	1855.9	5.64
1DL + 1WL	123.0	25.8	772.6	3.37

7. MATERIAL STORED: Fly Ash

   PRODUCT WT. 110 pcf
   ANGLE OF REPOSE 30°
   MASS FLOW

8. USABLE CAPACITY: 7919 cu.ft.

MATERIALS OF CONSTRUCTION:

DRAWING

1. SHEETS/PLATE ASTM 1011, A572, A656 FOR GRADE OF STEEL SEE SIDEWALL SHEETS ON TANK ELEVATIONS DRAWING
2. WBEAMS = ASTM A992
3. C CHANNEL = ASTM A572
4. ANGLE = ASTM A572
5. BOLTS = GR8.2 JS1000 COATING Fy = 120000 psi Fu = 150000 psi
6. GASKETS = EPDM
7. SEALANT = SIKAFLEX 201
8. TOP EAVE ANGLE TO BE L5x5x3/8 LLV (50000 psi)
9. BOTTOM ANGLE TO BE L3.5x2.5x0.375 (50 ksi)
10. ROOF RAFTERS TO BE C8X11.5 (50000 psi)
11. ROOF SHEETS TO BE 0.1875 in. (50 ksi)
12. HOPPER SHEETS TO BE 0.3125 in. (50 ksi) UPPER
    0.3125 in. (50 ksi) INT.

1

GENERAL NOTES:

1. SHELL BOLT TIGHTENING SPEC. = AISC SNUG TIGHT
   HORIZONTAL SHELL BOLT SPACING = 2.32 in.
2. VERTICAL SHELL BOLT SPACING = 2.32 in.
3. ALL FLANGES TO BE FACTORY LOCATED
4. THE FOLLOWING TESTS NEED TO BE APPLIED PER CUSTOMER INSTRUCTIONS:
   NONE

APPROVAL DRAWINGS

☐ APPROVED
☐ NOT APPROVED, REVISE AND RESUBMIT

SIGNATURE DATE

PLEASE MARK AND RETURN TO TARSCO BOLTED TANK

STANDARD TANK COLORS

1

- ☒ BUCKSKIN TAN (RAL 1014)
- ☐ COBALT BLUE (RAL 5011)
- ☐ CARIBBEAN BLUE (RAL 0000)
- ☐ ENVIRONMENTAL GREEN (RAL 7034)
- ☐ FOREST GREEN (RAL 6002)
- ☐ WHITE (RAL 9016)
- ☐ NON STANDARD COLOR BELOW:

UCC environmental

DOCUMENT REVIEW STATUS ENGINEERING RETURNS

- ☐ 7. FOR INFORMATION ONLY.
- ☑ 8. APPROVED.
- ☐ 9. CORRECT AS NOTED AND RESUBMIT.

UCC has reviewed this document for general compliance. The (Sub)Contractor or Supplier is still responsible for ensuring its accuracy and adherence to the Purchase Order, contract specifications, and relevant codes and standards.

BY MatPru DATE 3/17/2025

UCC Document No.: SV-55650-05-S001-00001
Rev.: B

UCC Contract: 55650-05
Hastings Utilities - Whelan Energy Center

UCC P/N: 55650-05-S001
FLY ASH BOLTED STEEL SILO

REVISION TABLE			
NO:	DATE:	BY:	REVISION:
1	3/4/2025	NA	UPDATED PER REDLINES

1

UCC Contract: 55650-05
Hastings Utilities - Whelan Energy Center
UCC P/N: 55650-05-S001
FLY ASH BOLTED STEEL SILO

Tarsco Bolted Tank
a TF Warren Company
5897 Hwy. 59, Goodman, MO 64843
www.tfwarren.com
866.700.2500

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UNLESS OTHERWISE SPECIFIED TOLERANCES:
FRACTIONAL ± 1/16
ONE PLACE DECIMAL ±0.060
TWO PLACE DECIMAL ±0.030
THREE PLACE DECIMAL ±0.010

B

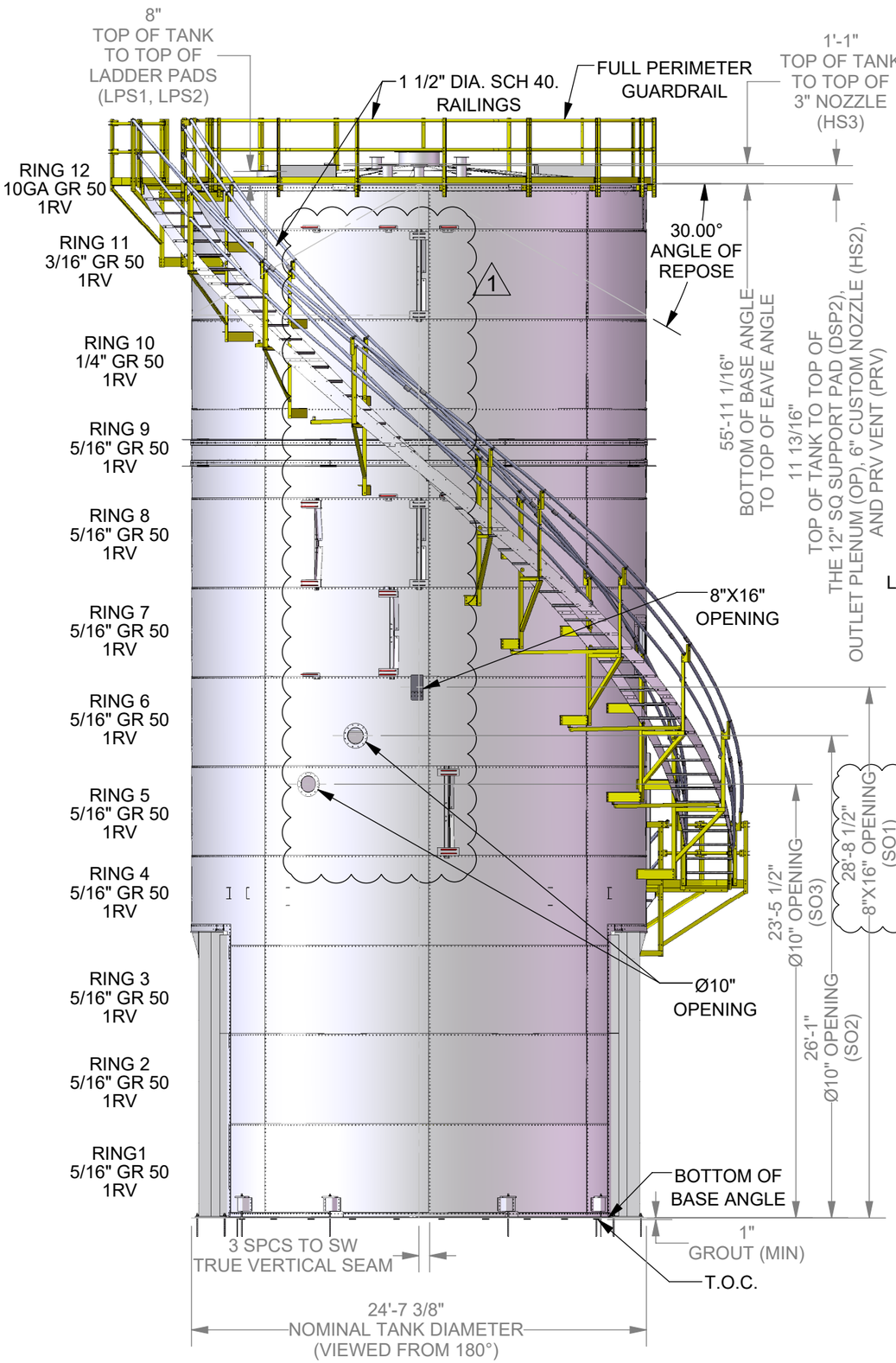
GENERAL NOTES

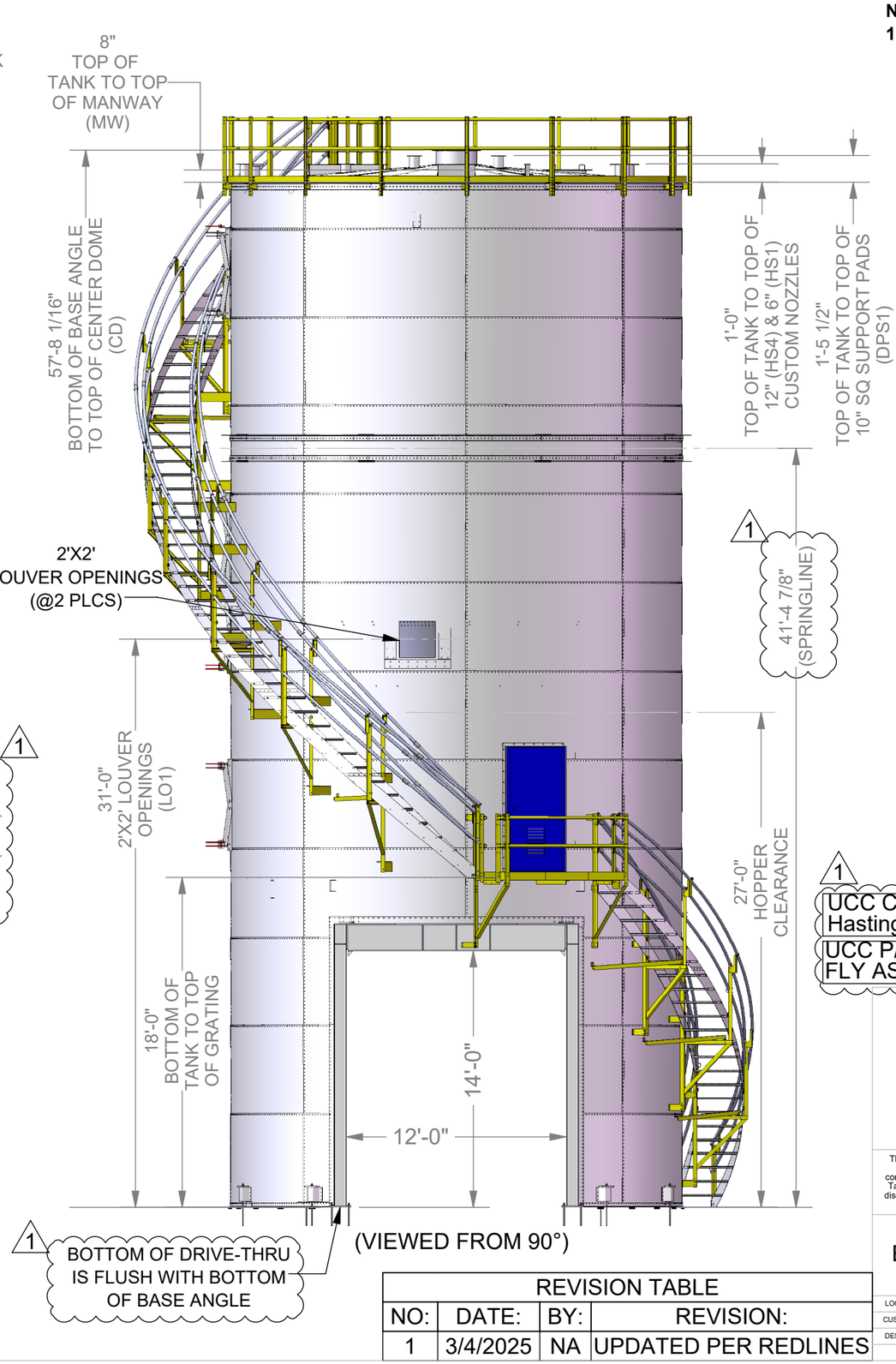
JOB #:	2412006-01CT
COVERAGE:	8 @ 116
TANK SIZE:	24.62' x 55.92'
INSULATION:	None
WEIGHT:	84,310 LBS.
COLOR:	RAL 1014
LOCATION:	Hastings, NE
CUSTOMER:	UCC Environmental
DESIGNER:	JQ 01/30/2025
PM:	JA

DO NOT SCALE DRAWING

S-00

REV. 1

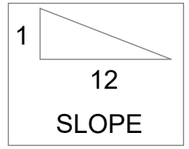




NOTE:

1. **ALL DIMENSIONS ARE MEASURED FROM BOTTOM OF BASE ANGLE, UNLESS SPECIFIED OTHERWISE**

NOT FOR CONSTRUCTION



1

UCC Contract: 55650-05
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B

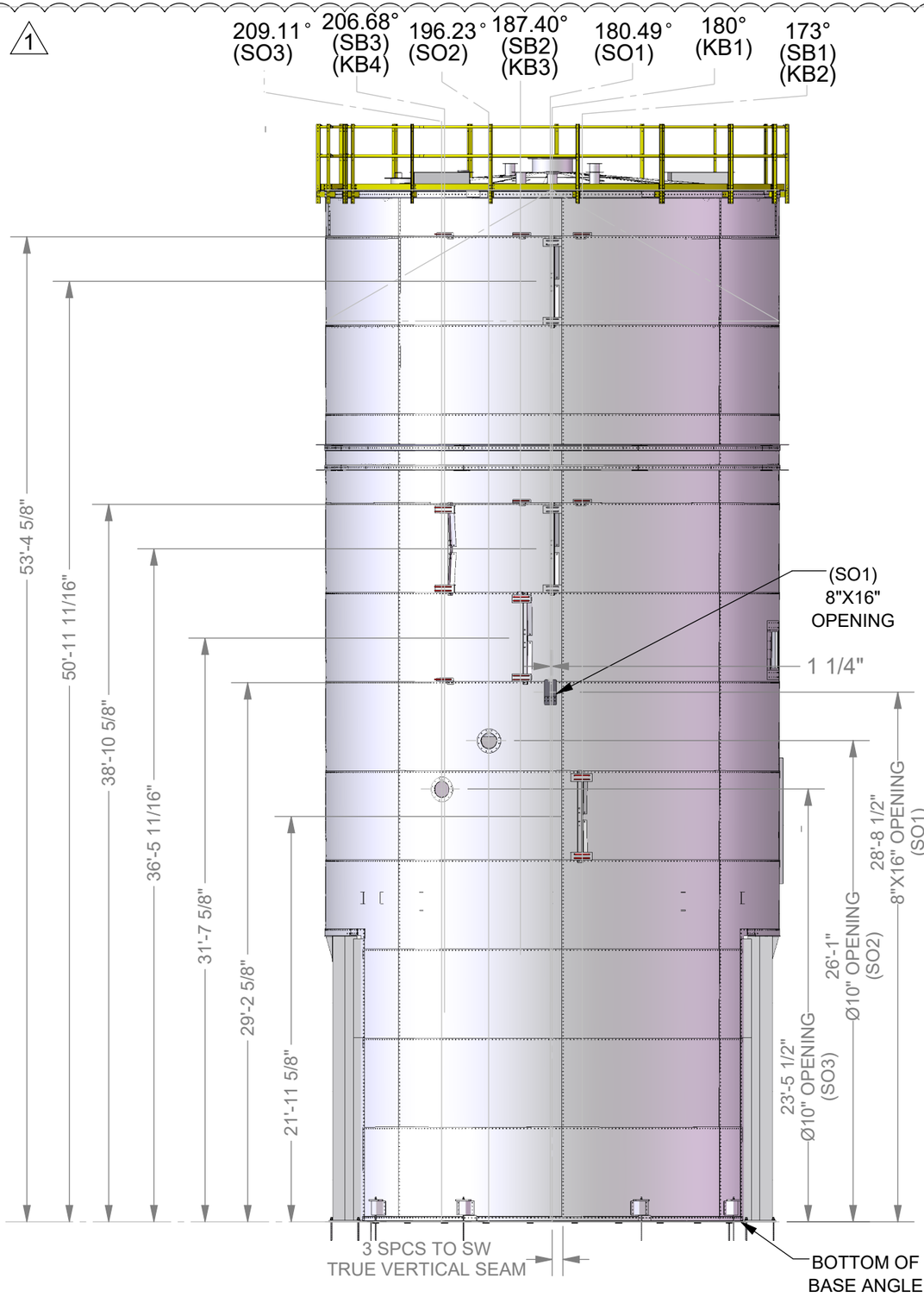
ELEVATION VIEW

JOB #:	2412006-01CT
COVERAGE:	8 @ 116
TANK SIZE:	24.62' x 55.92'
INSULATION:	None
WEIGHT:	84,310 LBS.
LOCATION:	Hastings, NE
CUSTOMER:	UCC Environmental
DESIGNER:	JQ 01/30/2025
PM:	JA
COLOR:	RAL 1014
	DO NOT SCALE DRAWING

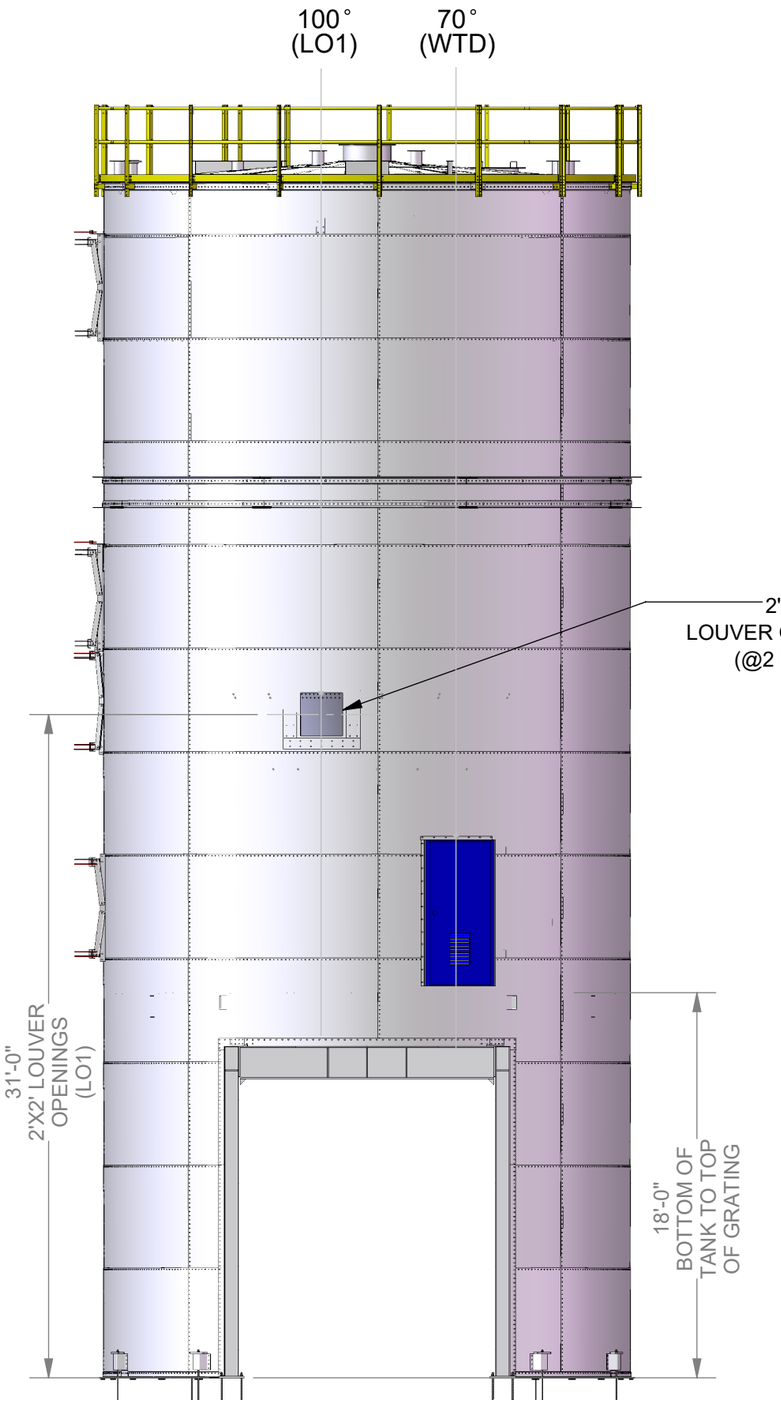
S-01A

REV. 1

1



(VIEWED FROM 180°)



(VIEWED FROM 90°)

NOTE:

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THREE PLACE DECIMAL ±0.010

B

ELEVATION VIEW

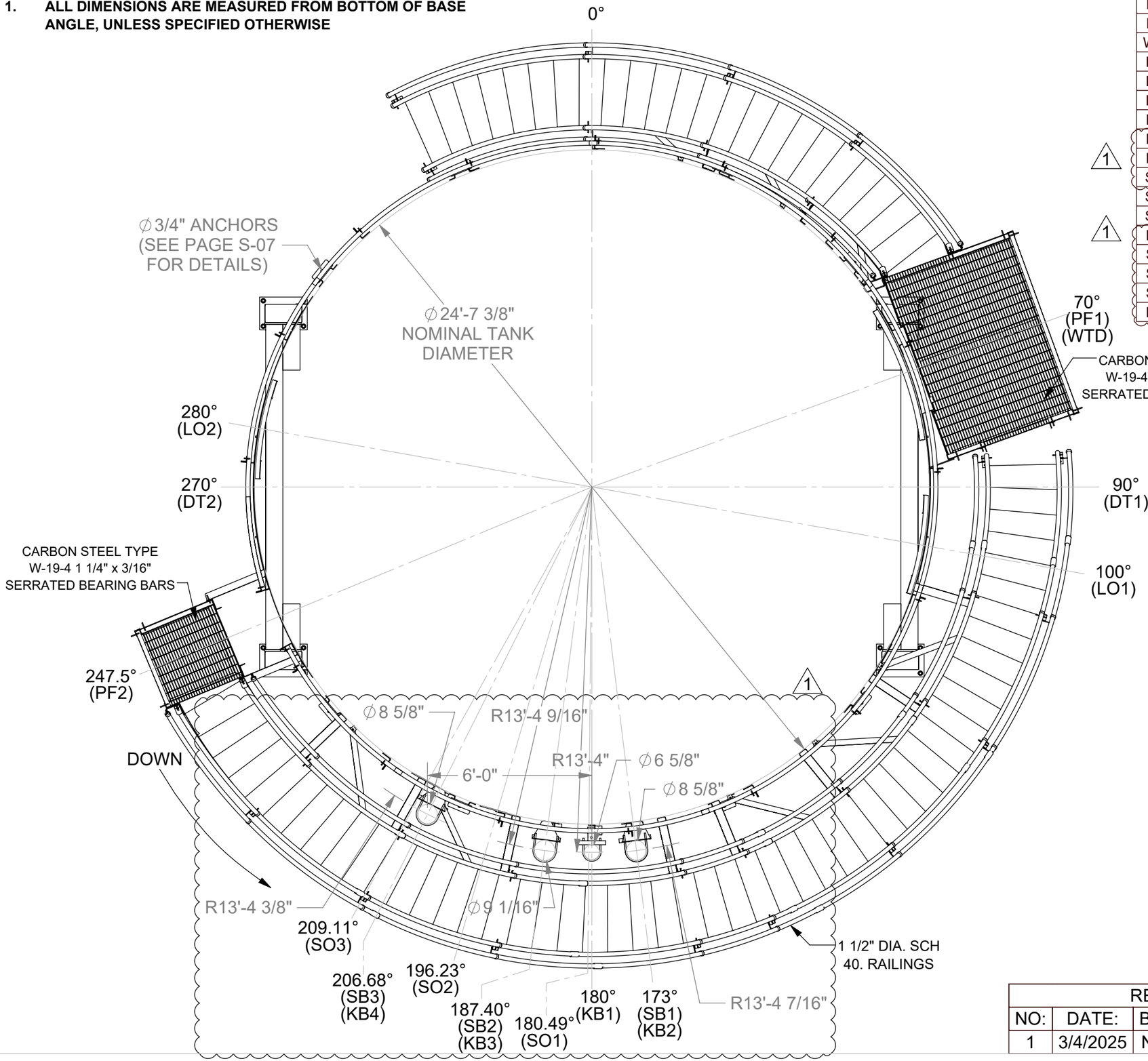
JOB #:	2412006-01CT
COVERAGE:	8 @ 116
TANK SIZE:	24.62' x 55.92'
INSULATION:	None
WEIGHT:	84,310 LBS.
COLOR:	RAL 1014

LOCATION:	Hastings, NE		
CUSTOMER:	UCC Environmental		DO NOT SCALE DRAWING
DESIGNER:	JQ	01/30/2025	S-01B
PM:	JA		

REV. 1

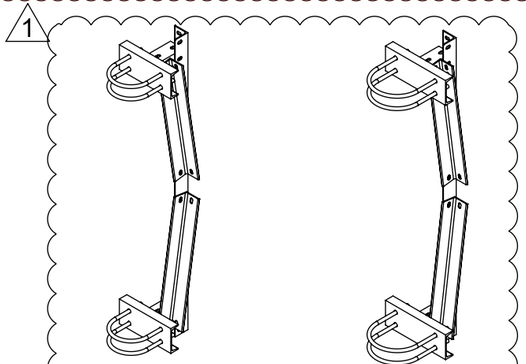
NOTE:

1. **ALL DIMENSIONS ARE MEASURED FROM BOTTOM OF BASE ANGLE, UNLESS SPECIFIED OTHERWISE**



MARK	SIZE	DECRIPTION	ORIENTATION	ELEVATION
PF1	5'x7'	PLATFORM #1	70°	18'-0"
PF2	3'x3'	PLATFORM #2	247.5°	55'-11 1/16"
WTD	4'x7'	WALK THRU DOOR - RIGHT HAND	70°	18'-0"
DT1	12'x14'	DRIVE THRU #1	90°	---
DT2	12'x14'	DRIVE THRU #2	270°	---
LO1	2'x2'	LOUVER OPENING #1	100°	31'-0"
LO2	2'x2'	LOUVER OPENING #2	280°	31'-0"
KB1	Ø6"	Ø 6" K-BRACE	180°	RINGS 8 & 11
KB2	Ø8"	Ø 8" K-BRACE	173°	RING 5
SO1	8"x16"	SIDEWALL OPEING #1	180.49°	28'-5 1/2"
SO2	Ø10"	SIDEWALL OPEING #2	196.23°	26'-1"
SO3	Ø10"	SIDEWALL OPEING #3	209.11°	23'-5 1/12"
KB3	Ø8"	Ø 8" K-BRACE	187.40°	RING 7
SB1	Ø8"	Ø 8" STANDOFF BRACKET #1	173°	TOP RING 8 & 11
SB2	Ø8"	Ø 8" STANDOFF BRACKET #2	187.40°	TOP RING 8 & 11
SB3	Ø8"	Ø 8" STANDOFF BRACKET #3	206.68°	TOP RING 6 & 11
KB4	Ø8"	Ø 8" K-BRACE	206.68°	RING 8

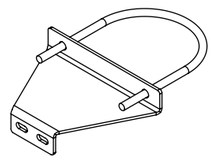
1



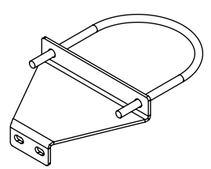
KB2 - KB3 - KB4
Ø8" K-BRACE

KB1
Ø6" K-BRACE

1



SB1 - SB3
Ø8" STANDOFF BRACKET



SB2
Ø8" STANDOFF BRACKET

UCC Contract: 55650-05
Hastings Utilities - Whelan Energy Center

UCC P/N: 55650-05-S001
FLY ASH BOLTED STEEL SILO

REVISION TABLE			
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a TF Warren Company
5897 Hwy. 59, Goodman, MO 64843
www.tfwarren.com
866.700.2500

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TWO PLACE DECIMAL ±0.030
THREE PLACE DECIMAL ±0.010

B

TANK ORIENTATION

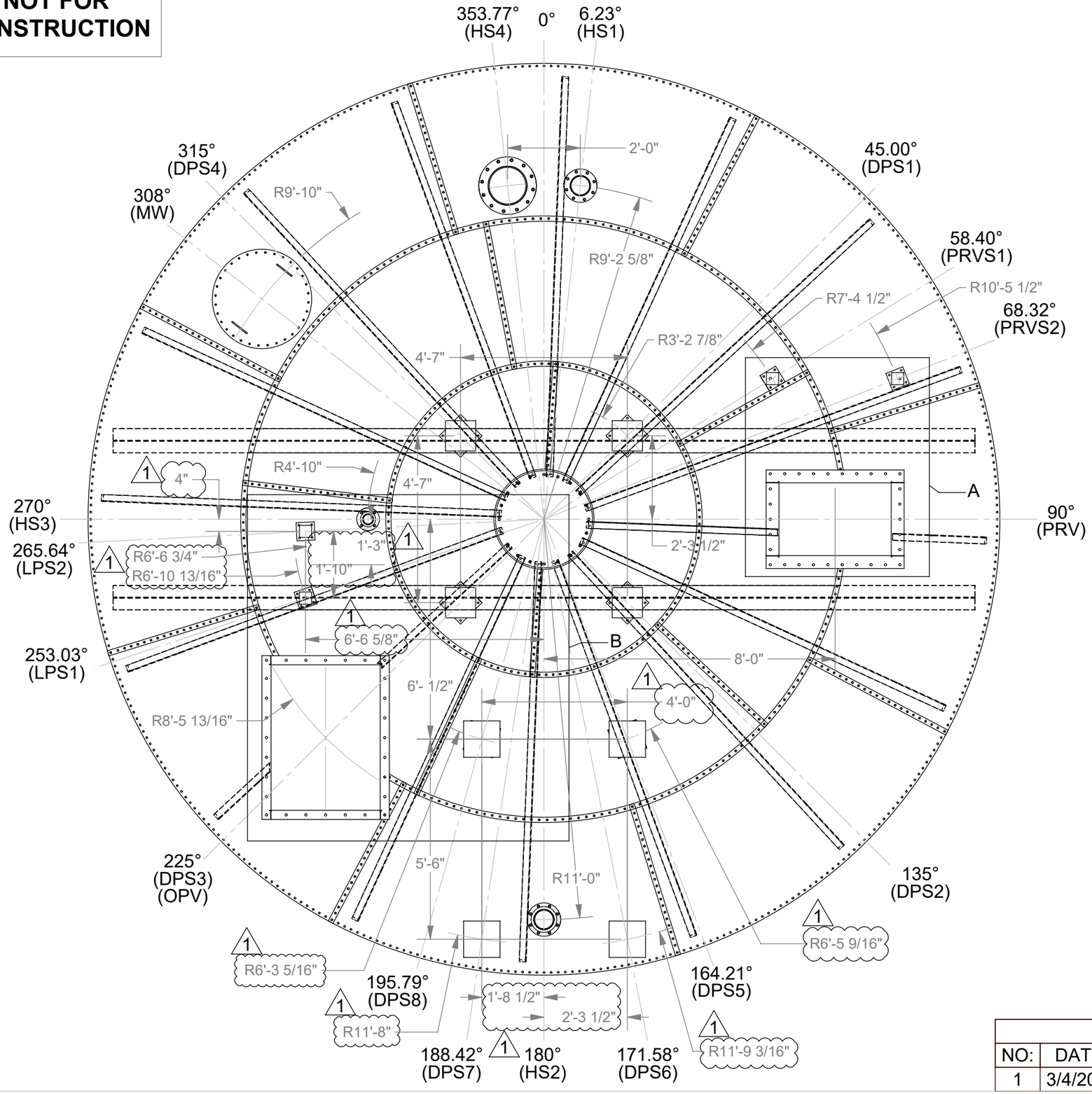
JOB #:	2412006-01CT
COVERAGE:	8 @ 116
TANK SIZE:	24.62' x 55.92'
INSULATION:	None
WEIGHT:	84,310 LBS.
COLOR:	RAL 1014
LOCATION:	Hastings, NE
CUSTOMER:	UCC Environmental
DESIGNER:	JQ 01/30/2025
PM:	JA

DO NOT SCALE DRAWING

S-02

REV. 1

NOT FOR CONSTRUCTION



MARK	SIZE	DECRIPTION	ORIENTATION	RADIUS
HS1	Ø6"	Ø6 HILLSIDE PIPEPOOL	6.23°	R9'-2 5/8"
HS2	Ø6"	Ø6 HILLSIDE PIPEPOOL	180°	R11'-0"
HS3	Ø3"	Ø3 HILLSIDE PIPEPOOL	270°	R4'-10"
HS4	Ø12"	Ø12 HILLSIDE PIPEPOOL	353.77°	R9'-2 5/8"
DPS1	10" SQ	DECK PAD SUPPORT	45.00°	R3'-2 7/8"
DPS2	10" SQ	DECK PAD SUPPORT	135°	R3'-2 7/8"
DPS3	10" SQ	DECK PAD SUPPORT	225°	R3'-2 7/8"
DPS4	10" SQ	DECK PAD SUPPORT	315°	R3'-2 7/8"
1 DPS5	12" SQ	DECK PAD SUPPORT	164.21°	R6'-5 9/16"
DPS6	12" SQ	DECK PAD SUPPORT	171.58°	R11'-9 3/16"
DPS7	12" SQ	DECK PAD SUPPORT	188.42°	R11'-8"
1 DPS8	12" SQ	DECK PAD SUPPORT	195.79°	R6'-3 5/16"
PRV	24"x37"	PRV VENT	90°	R 8'-0"
PRVS1	4"x4"	PRV SUPPORT PAD	58.40°	R7'-4 1/2"
PRVS2	4"x4"	PRV SUPPORT PAD	68.32°	R10'-5 1/2"
OPV	36"x48"	OUTLET PLENUM VENT	225°	R8'-5 13/16"
1 LPS1	4"x4"	LADDER PAD SUPPORT	253.03°	R6'-10 13/16"
LPS2	4"x4"	LADDER PAD SUPPORT	265.64°	R6'-6 3/4"
MW	Ø24"	MANWAY W/ LID	308°	R9'-10"

NOTE:

1. **ALL DIMENSIONS ARE MEASURED FROM BOTTOM OF BASE ANGLE, UNLESS SPECIFIED OTHERWISE**

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THREE PLACE DECIMAL ±0.010

B

DECK ORIENTATION

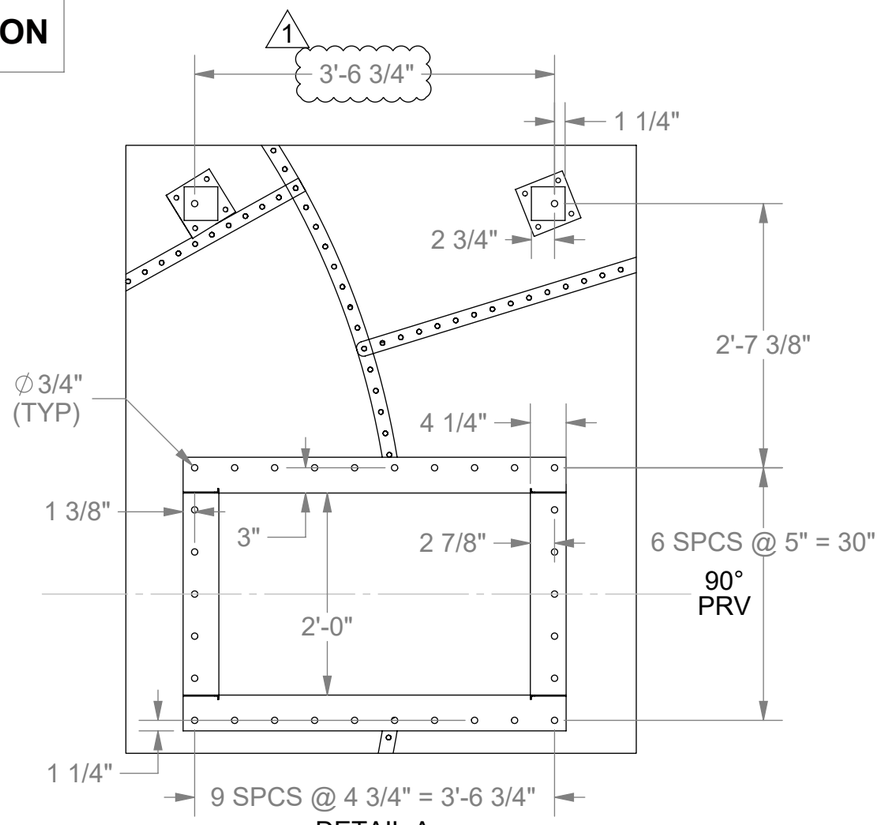
JOB #:	2412006-01CT
COVERAGE:	8 @ 116
TANK SIZE:	24.62' x 55.92'
INSULATION:	None
WEIGHT:	84,310 LBS.
COLOR:	RAL 1014
LOCATION:	Hastings, NE
CUSTOMER:	UCC Environmental
DESIGNER:	JQ 01/30/2025
PM:	JA

DO NOT SCALE DRAWING

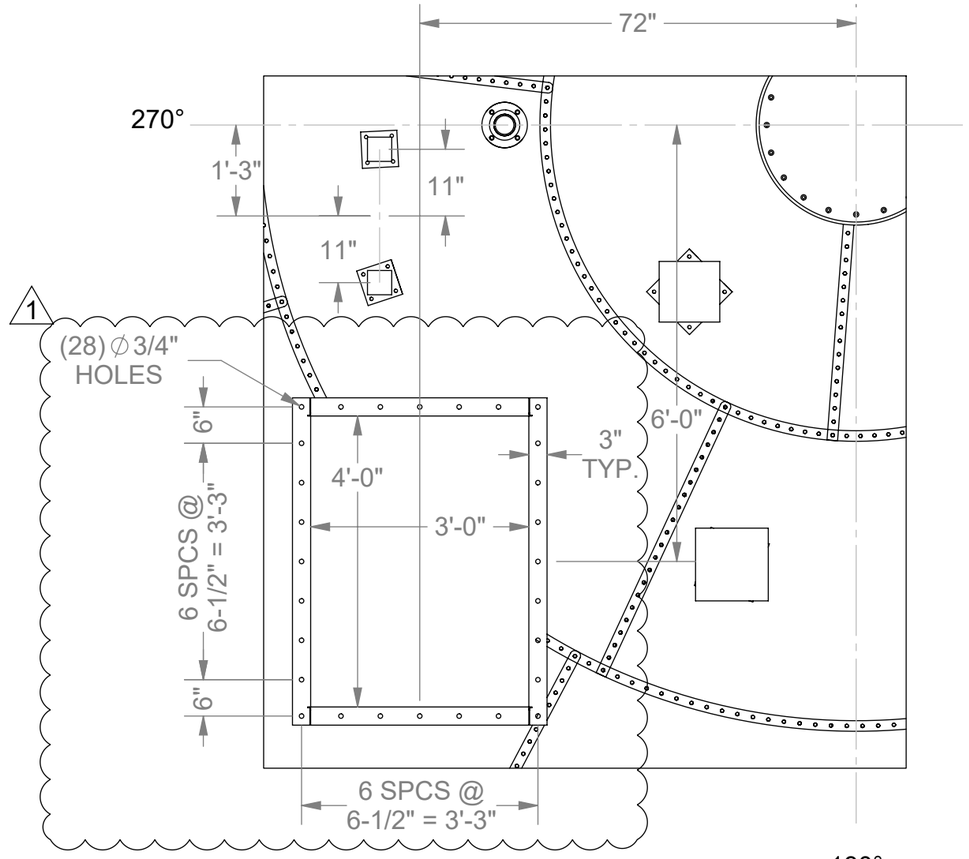
S-03

REV. 1

NOT FOR CONSTRUCTION

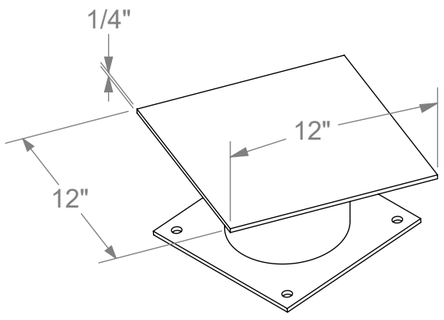


DETAIL A

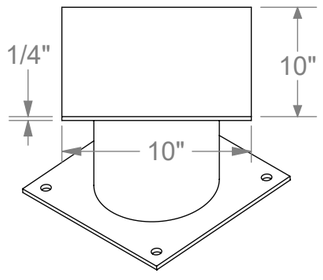


DETAIL B

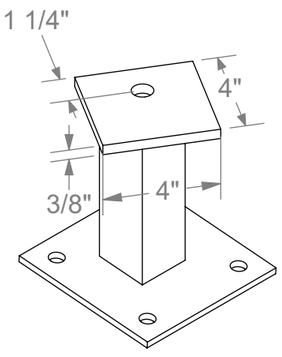
180°



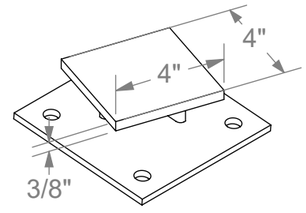
DPS5



DPS1



PRVS1



LPS1

1 UCC Contract: 55650-05
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THREE PLACE DECIMAL ±0.010

B

DECK APPURTENANCES

JOB #:	2412006-01CT
COVERAGE:	8 @ 116
TANK SIZE:	24.62' x 55.92'
INSULATION:	None
WEIGHT:	84,310 LBS.
LOCATION:	Hastings, NE
COLOR:	RAL 1014
CUSTOMER:	UCC Environmental
	DO NOT SCALE DRAWING
DESIGNER:	JQ 01/30/2025
PM:	JA

S-04

REV. 1

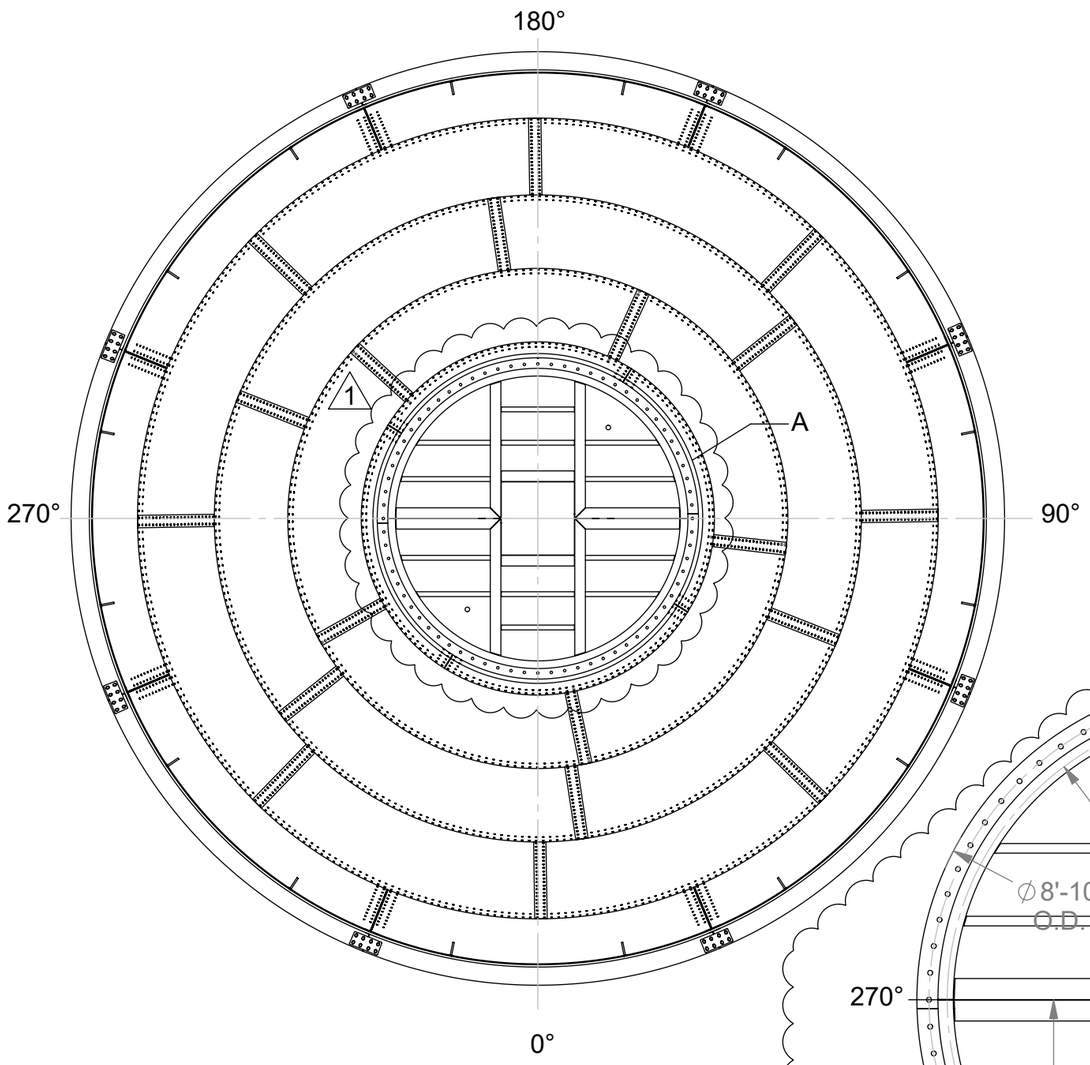
NOTE:

1. **ALL DIMENSIONS ARE MEASURED FROM BOTTOM OF BASE ANGLE, UNLESS SPECIFIED OTHERWISE**

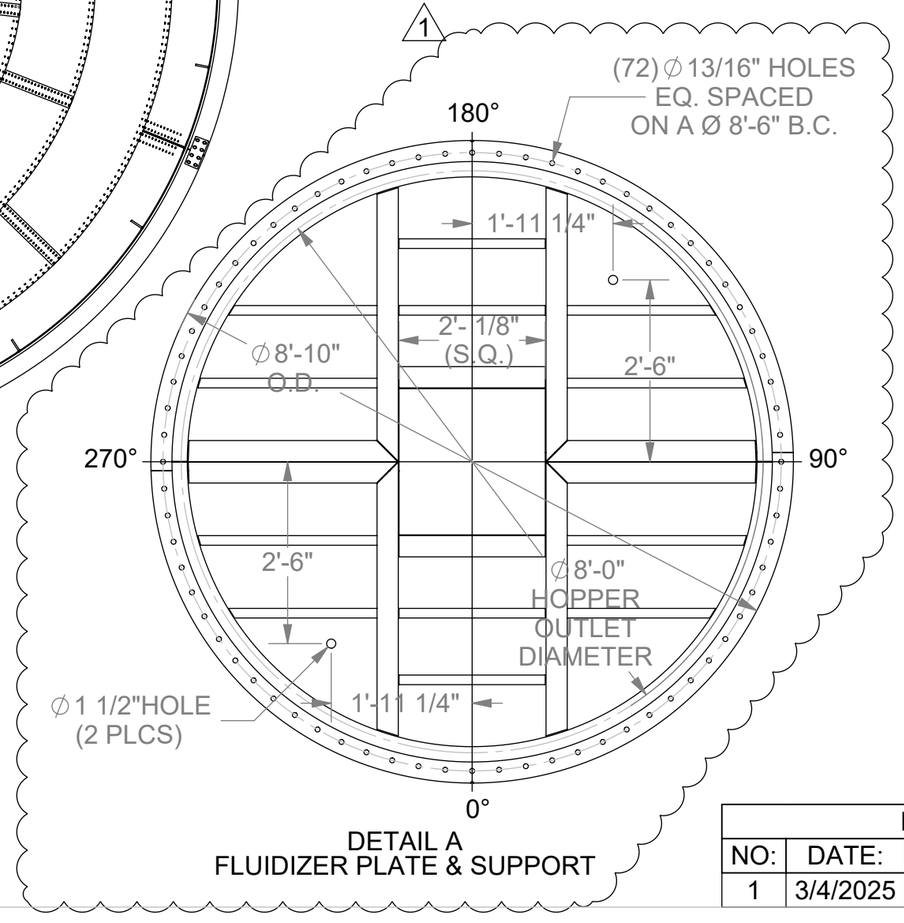
REVISION TABLE

NO:	DATE:	BY:	REVISION:
1	3/4/2025	NA	UPDATED PER REDLINES

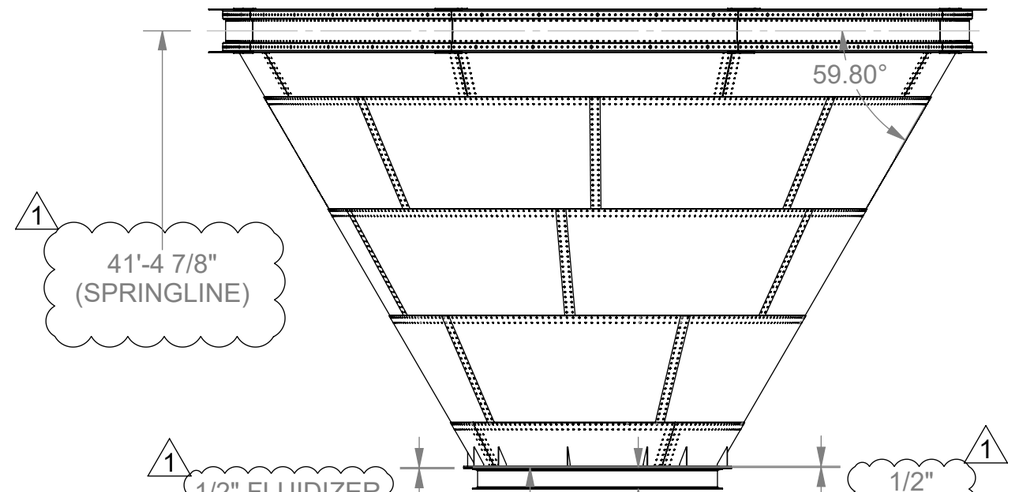
NOTES:
1. ALL DIMENSIONS ARE MEASURED FROM BOTTOM OF BASE ANGLE, UNLESS SPECIFIED OTHERWISE.
2. THE FLUIDIZER SUPPORT WILL BE MADE IN 2 PIECES WITH A SPLICE PLATE DOWN THE MIDDLE.

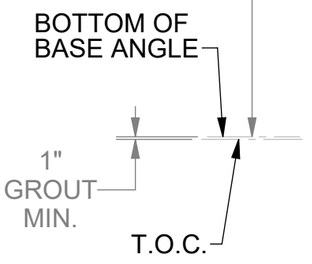


(AS VIEWED FROM THE BOTTOM LOOKING UP)



DETAIL A
FLUIDIZER PLATE & SUPPORT





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THREE PLACE DECIMAL ±0.010

B

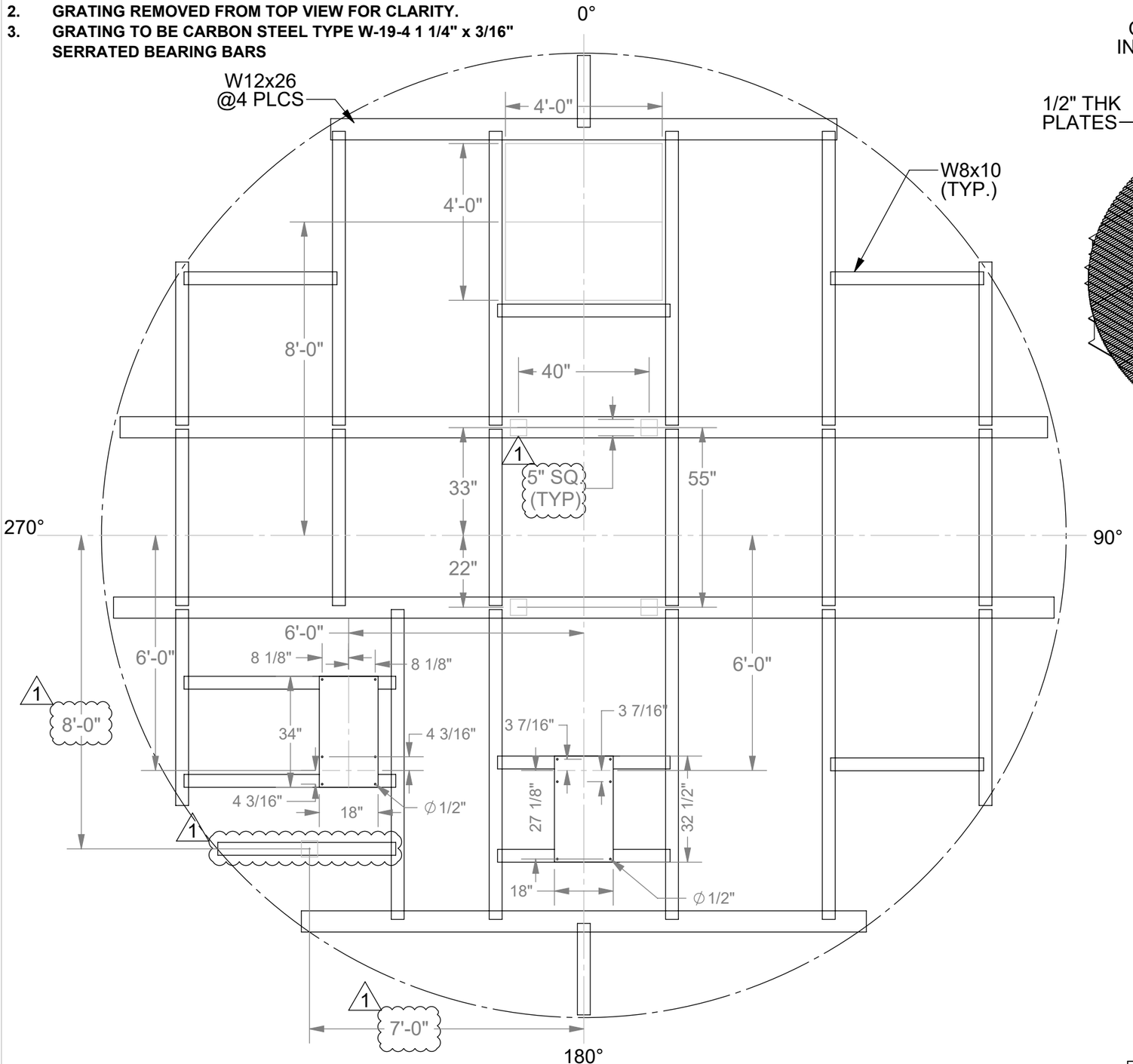
HOPPER LAYOUT

JOB #:	2412006-01CT
COVERAGE:	8 @ 116
TANK SIZE:	24.62' x 55.92'
INSULATION:	None
WEIGHT:	84,310 LBS.
COLOR:	RAL 1014

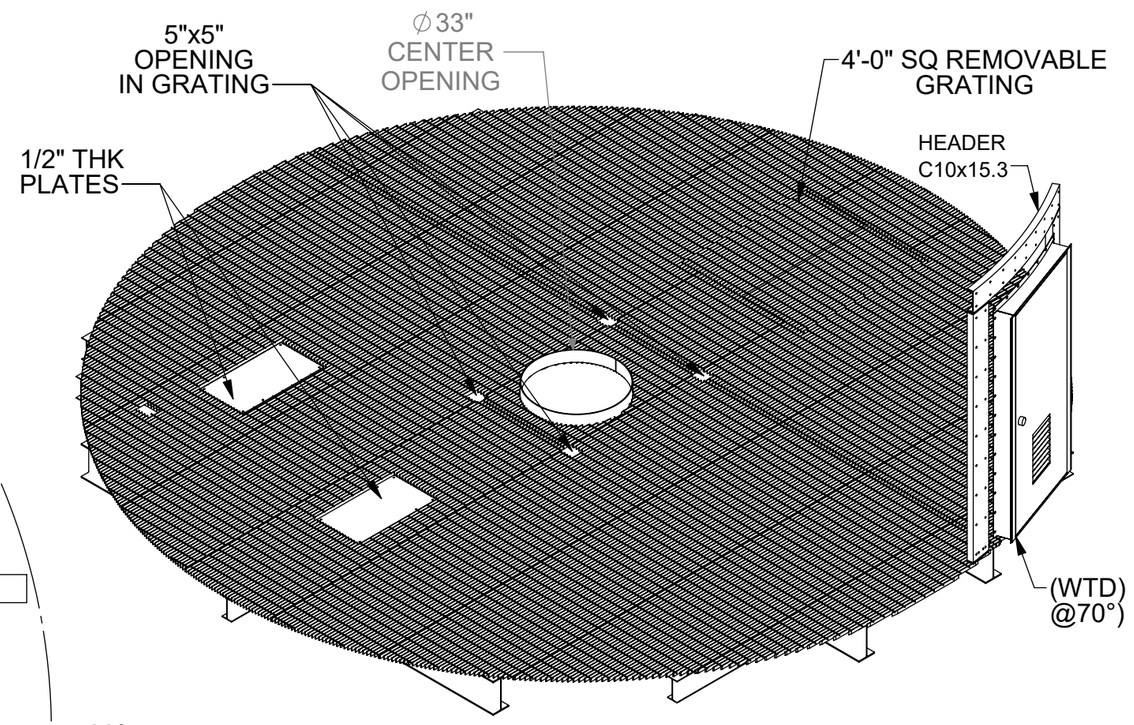
LOCATION:	Hastings, NE		
CUSTOMER:	UCC Environmental		DO NOT SCALE DRAWING
DESIGNER:	JQ	01/30/2025	S-05
PM:	JA		REV. 1

NOTE:

1. **ALL DIMENSIONS ARE MEASURED FROM BOTTOM OF BASE ANGLE, UNLESS SPECIFIED**
2. **GRATING REMOVED FROM TOP VIEW FOR CLARITY.**
3. **GRATING TO BE CARBON STEEL TYPE W-19-4 1 1/4" x 3/16" SERRATED BEARING BARS**



TOP VIEW
T/STL. EL: 17'- 10 3/4"



ISOMETRIC VIEW
T/GRT. EL: 18'-0"
T/STL. EL: 17'- 10 3/4"

REVISION TABLE			
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B

INTERIOR PLATFORM

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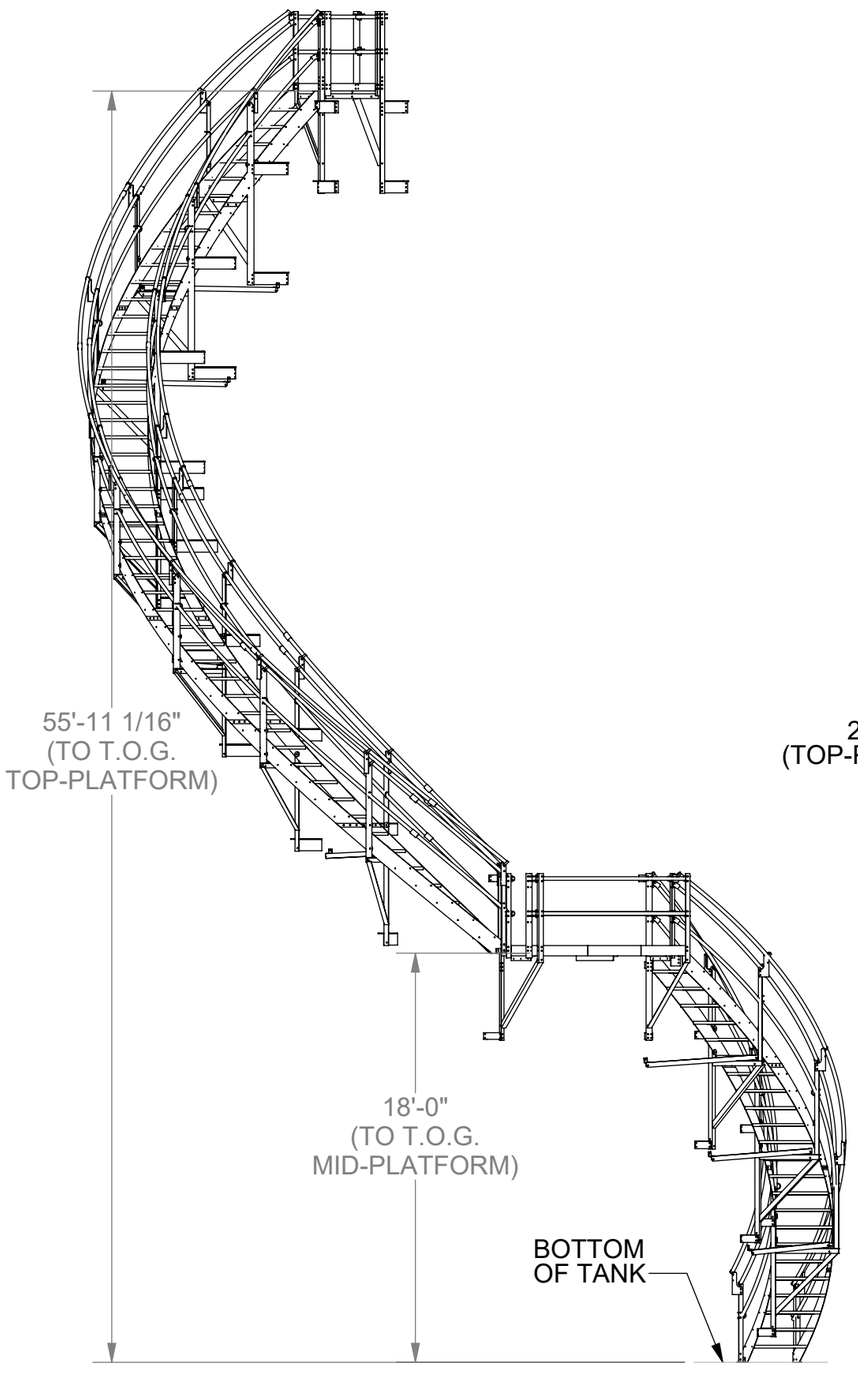
COVERAGE:	8 @ 116
TANK SIZE:	24.62' x 55.92'
INSULATION:	None
WEIGHT:	84,310 LBS.
COLOR:	RAL 1014

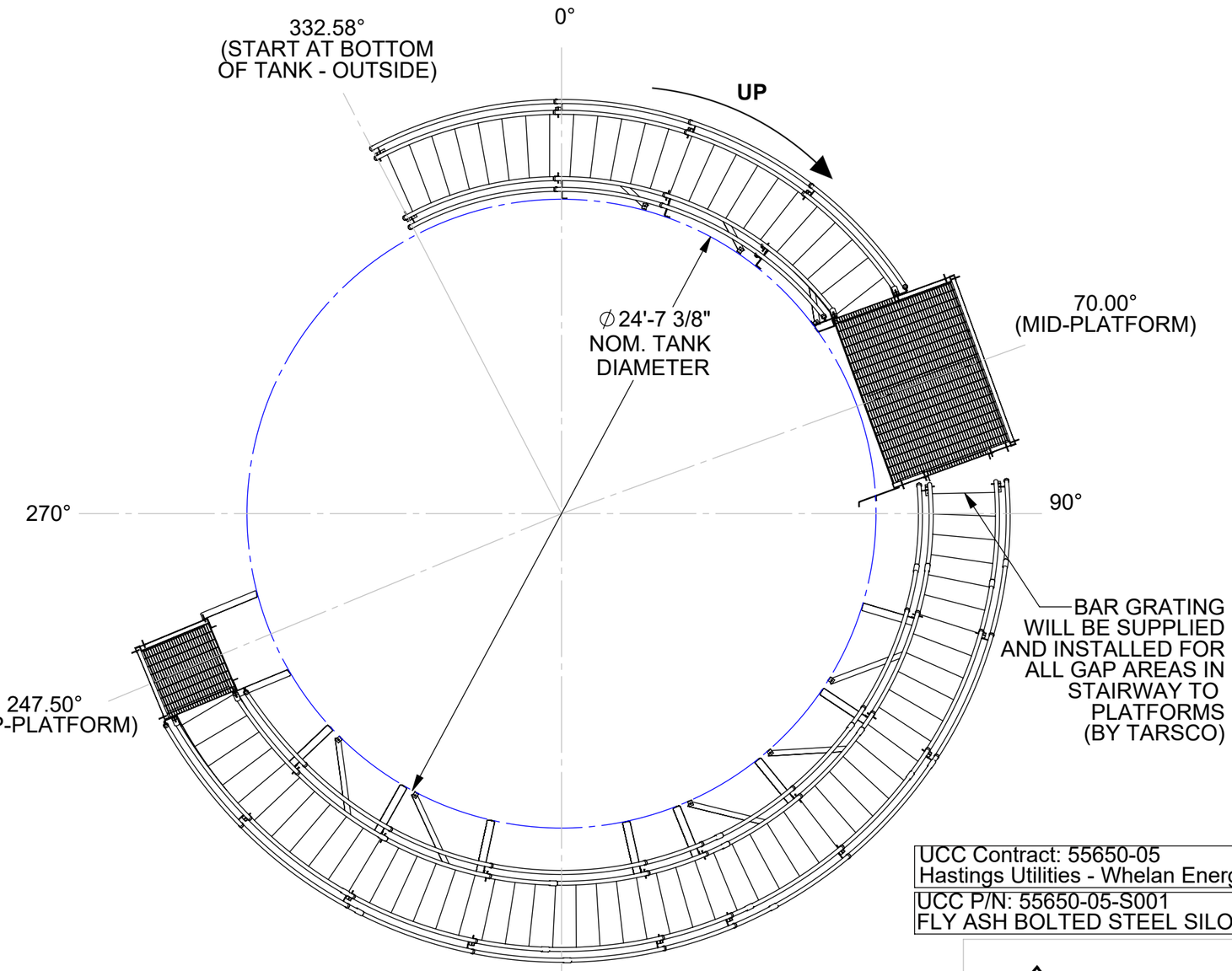
LOCATION:	Hastings, NE		
CUSTOMER:	UCC Environmental		DO NOT SCALE DRAWING
DESIGNER:	JQ	01/30/2025	S-06 REV. 1
PM:	JA		

1

NOTES:
1. ALL DIMENSIONS ARE FROM BOTTOM OF TANK.
2. PLATFORM ORENTATIONS AND ELEVATIONS MAY VARY AFTER FINAL DESIGN



SIDE VIEW



TOP VIEW

UCC Contract: 55650-05
Hastings Utilities - Whelan Energy Center

UCC P/N: 55650-05-S001
FLY ASH BOLTED STEEL SILO

REVISION TABLE			
NO:	DATE:	BY:	REVISION:
1	3/4/2025	NA	UPDATED PER REDLINES

Tarsco Bolted Tank
a TF Warren Company
5897 Hwy. 59, Goodman, MO 64843
www.tfwarren.com
866.700.2500

This drawing and the information contained herein is submitted confidentially and is the property of Tarsco. It may not be duplicated, disclosed, or utilized without written consent from Tarsco.

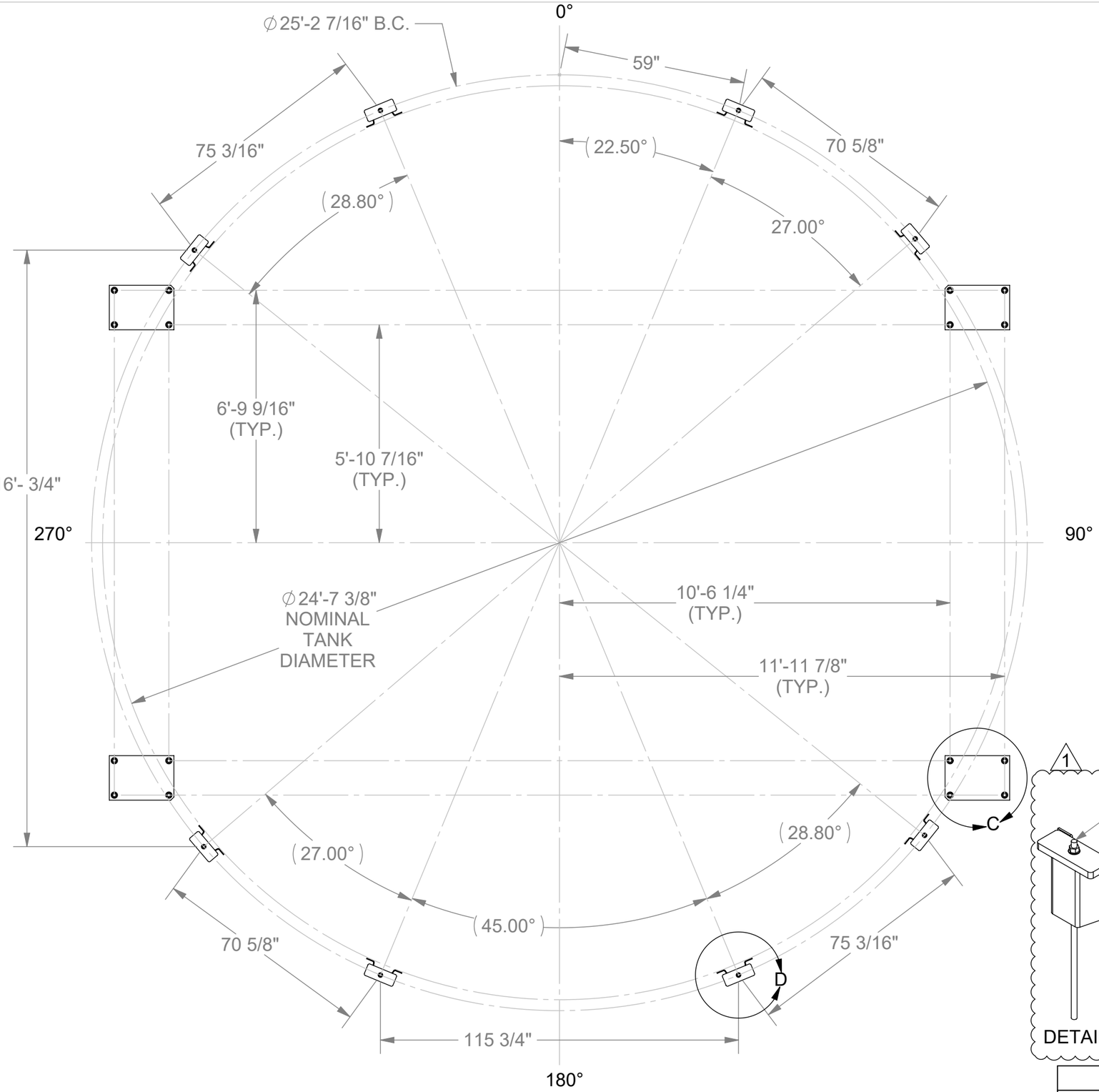
UNLESS OTHERWISE SPECIFIED TOLERANCES:
FRACTIONAL ± 1/16
ONE PLACE DECIMAL ±0.060
TWO PLACE DECIMAL ±0.030
THREE PLACE DECIMAL ±0.010

B

SPIRAL STAIRS LAYOUT

JOB #:	2412006-01CT
COVERAGE:	8 @ 116
TANK SIZE:	24.62' x 55.92'
INSULATION:	None
WEIGHT:	84,310 LBS.
COLOR:	RAL 1014

LOCATION:	Hastings, NE		
CUSTOMER:	UCC Environmental		DO NOT SCALE DRAWING
DESIGNER:	JQ	01/30/2025	S-07
PM:	JA		REV. 1



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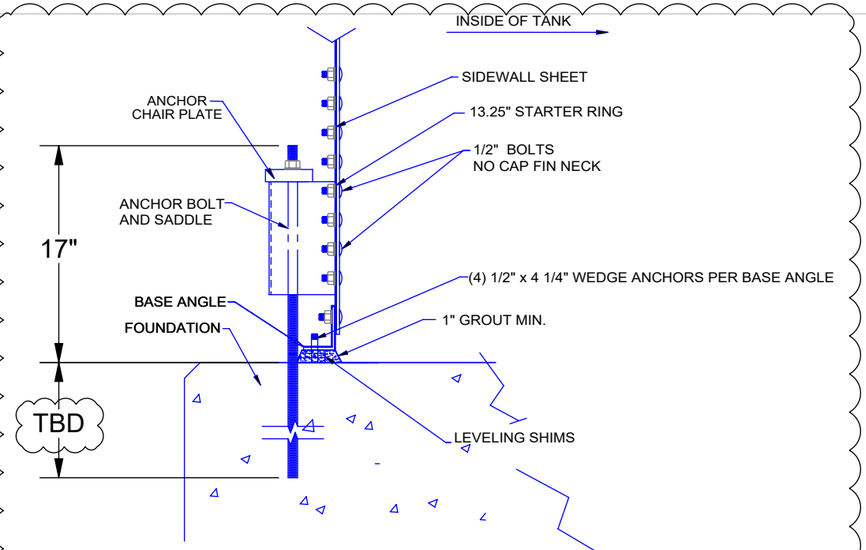


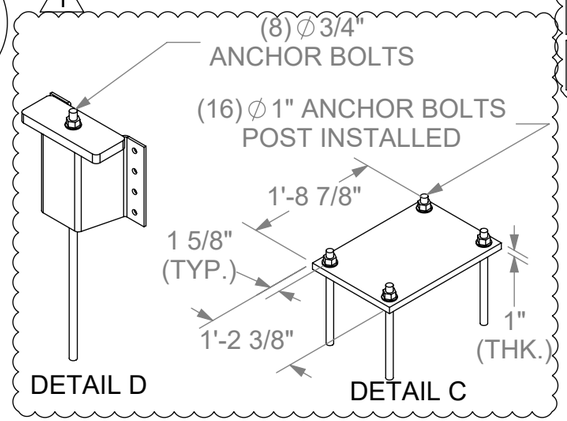
BOTTOM OF TANK WITH ANCHOR DETAIL

NOTE:
1" MIN. NON-SHRINKING NON-METALLIC GROUT BY OTHERS
ANCHOR BOLT EMBEDMENT TO BE DETERMINED BY THE FOUNDATION ENGINEER
HILTI STYLE ANCHOR BOLTS

ANCHOR BOLT LAYOUT

(8) 3/4" ANCHOR BOLTS POST INSTALLED
EQUALLY SPACED UNLESS OTHERWISE NOTED
SPACED ON A 25'-2 7/16" B.C. BOLT GRADE IS F1554-36
NOTE: VERIFY ANCHOR BOLT LAYOUT W/ LATEST
ISSUE OF TARSCO CONSTRUCTION DRAWINGS.

1



REVISION TABLE			
NO:	DATE:	BY:	REVISION:
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UCC Contract: 55650-05
Hastings Utilities - Whelan Energy Center

UCC P/N: 55650-05-S001
FLY ASH BOLTED STEEL SILO

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ANCHOR LAYOUT

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PM:	JA		

REV. 1