Livestock Plaza/Sheep Barn

Addendum Issue Date: 8/8/24

Notice:
The following addendum becomes part of the original Plans and Specifications and takes precedence over the items that may conflict. The Bidder shall acknowledge this addendum on the Bid Form. Failure to acknowledge this addendum may cause rejection of the Bid. Refer to the Instructions to Bidders and the Bid Form.

Additional Documents:
Pre-Bid Meeting Minutes
Plan Holders List

Approved Product:
N/A.

General Clarification Items:
1. Bollards are not galvanized.
2. Alternative metal siding can be supplemented if it meets the performance and material requirements specified.
3. South Dakota State Fair is responsible for trimming trees for the relocation of the existing building.
4. The contractor is responsible for coordinating and moving utility lines for the relocation of the existing building.
5. Davis Bacon wages are not required for this project.
6. ARPA Requirements for the project only apply to Alternate #3.
7. Additional insurance is not required for moving the building.
8. The Livestock Shed/Sheep Barn construction site must be secured during events on April 4-6, June 6-8, and July 24-27.
9. The concrete stem wall finish level is specified in the cast in place concrete section of the specifications.
10. Existing Livestock pens are to be removed by the G.C.
11. Existing red building north of the Dex will be removed by The South Dokota State Fair. Along with any trees and exposed concrete.
12. Solid Surface sills will only bee applied to W1 window type in the classroom and office.
13. Bids due August 14, 2024 at 2:30 PM CT.

Architectural:

Specifications:
See attached specifications.

Drawings:
The following changes, revisions, or clarifications shall be made to the drawing documents.:

Sheet R-A1.1 Existing Shed Relocation:
General notes are revised.

Sheet T1.3 – Wall and Assembly Types:
Roof Type A revised.

Sheet A3.2 - Enlarged Plans:
Keynote 19 revised.

Sheet A4.1 - Building Elevations:
Material tag for trim have been revised.

Sheet A5.3 - Details:
Details have been revised.

Sheet A6.1 - Interior Elevations:
Material tags for the trim have been revised.
Keynote 19 is revised.

Sheet A7.1 – Schedules & Door Elevations:
LVT-1 flooring revised.

Sheet A7.2 – Door and Window Details:
Door detail revised.

Civil:

Specifications:
N/A.

Drawings:

C3.1 - Quantities & Details
- Updated Quantities Tables

C4.1 - Demolition Plan
- Changed Adjust Existing Rim Elevation note to include (Alternate #3)

C5.1 - Site Grading & Utilities
- Changed 1" Domestic Water Service to 2" Domestic Water Service
- Added Alternate #3 Quantity for 1-1/2" Domestic Water Service to Wash Bay
- Added Landscaping (By Others) to Surfacing Legend

R-C1.1 - Building Relocation Site Plan
- Added Notes & Typical Sections for Building Relocation Sites

Structural:

Specifications:

N/A.

General Clarification Items:

1. The sturdy-wall drill set brackets do not offer any moment (cantilever) capacity and the manufacturer would not approve it for this use. This existing building construction requires moment capacity for its lateral system. The wet set bracket could be epoxied into the concrete pier.
2. The backfill requirements after the below grade portion of the poles are remove loose material and backfill with drainage fill.
3. The height of the stems walls at door openings are down 8" to accommodate slab if alternate 1 is not taken,
4. Columns do not get concrete blockouts if concrete floor alternate is not taken.
5. Structural elevation 100 is civil 1286.00, refer to civil drawings for FFE.

Drawings:

N/A.

Mechanical:

Specifications:

N/A.

Drawings:

Sheet M0.0 – Cover Sheet:

Detail revisions

Sheet M1.1 – Under Floor Wastewater Plan:

Revision to floor drain.

Sheet M1.2 – Water Piping Plan:

Revision to water service line.

Sheet M2.1 – HVAC Plan:

Condensate drain updates.

Electrical:

Specifications:

N/A.

General Clarification Items:

1. The receptacle devices need to be of the water-resistant type. The standard covers are acceptable and do not need to be an in-use type of cover.
2. Conduit and boxes in the barn area can be type PVC, but must be schedule 80 below 8' above finished floor. The EC shall coordinate with the AHJ for what they will accept in the barn area.

Drawings:

N/A.

Pre-Bid Meeting Minutes

Project: Sheep Barn Schematic Design and Cost Estimate Proposal

Date: 08/06/2024

Project No. DA22015

# of Pages: 3

OSE#: M2319-10X

Sign-In:

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Todd Ziebart	Muth	tziebart@muthelectric.com

The following were items reviewed/discussed during this meeting:

Bid Invitation:

- Electronic bids will be accepted by the State Engineer on behalf of the South Dakota Department of Agriculture and Natural Resources at https://www.sd.gov/cs?id=sc_cat_item&sys_id=d543ece647174e9022dc4080236d433a until August 14, 2024 at 2:30 PM CT for the Livestock Plaza/Sheep Barn, South Dakota State Fair, Huron, South Dakota, OSE# M2319--10X.
- Copies of the Plans and Specifications may be obtained by bidders at the office of designArc Group LLC, 2301 W Russell St. Sioux Falls, SD 57104. A/E Contact: Nicholas Kummer, 605-696-7579, nicholas@designarcgroup.com.
- Substantial Completion Date is July 16, 2025. Liquidated Damages are set at $700 per calendar day.
- Final Completion Date is August 6, 2025. Liquidated Damages are set at $350 per calendar day.
- Please contact Brandon with the OSE if running into trouble submitting bids.
- Engineers estimate is valued at $5,800,000 with all alternates accepted.

Project Description:

- The project is located next to the national guard building.
- The existing building will need to be relocated.
- The existing building will be split into two halves.
- One half of the existing building will be to the north and south of the Dex building at the South Dakota State Fair Grounds.
- The existing building columns will be cut, and remaining post and footing will be removed from the site.
- One half of the two building portions will be longer. See Addendum #2 for specific location.
- New siding and end walls will be added to each half. See architectural and structural drawings.
- The New Livestock Plaza/Sheep Barn is an open structure in the penning area.
- This Sheep barn will have a classroom building that includes restrooms, mechanical room, office, classroom, and mezzanine.
- The mezzanine flooring will be changing. Please see addendum #2 for clarification.
- This building is a non-sprinkled open wood truss building.
- Wood truss spacings are set at 4’-0”.
- The truss design was split into three pieces. The end two truss have sloped bottom cords.
- We have large fans in the penning area that will pull air towards the peak louvers.
- The peak louvers have fans to help disperse excess heat in the open area.
- The peak also includes a series of alum. windows.
- The interior walls of the penning area are unfinished and non-insulated.

- The interior walls of the penning area will have 4’-0” plywood applied.
- The conditioned classroom will have cooling only and is designed to be weatherized during the winter.
- The interior gyp. In the classroom building will have control joints to prevent cracking.
- The floors will be polished concrete and epoxy inside the classroom building.
- The structure of the penning shed and classroom are designed independently to allow for separate construction schedules for each component.
- The project has three alternates. Please see specifications for the descriptions of these.
- The lighting is split into zones. Please see electrical drawings for clarification.
- The building will have many corde drops for power at the pens.

Site Walkthrough:

- The existing building will only have replacement siding as indicated on the architectural sheet.
- Profile of metal siding doesn’t need to match existing siding.
- Existing posts have varying conditions.
- Existing light is to remain. Lighting will need to be removed while moving the building to prevent damage.
- Power lines will need to be lifted during the move. SDSF scope of work.
- Trees will need to be trimmed before the move. SDSF scope of work.
- The existing building to the North of the Dex will be removed by the SDSF along with any trees and exposed site concrete.
- The fence to the east of the Dex building will need to be removed during the move and reinstalled after.
- Please see addendum #2 for location and grading clarifications.

Respectfully Submitted,

Nicholas Kummer; Project Manager/Architectural Associate
designArc Group, LLC

CC:

Attendees listed above

DOCUMENT 003132
GEOTECHNICAL DATA

PART 1 - GENERAL

1.1 GEOTECHNICAL DATA

A. This Document, with its referenced attachments, is part of the Procurement and Contracting Requirements for the Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information. This Document and its attachments are not part of the Contract Documents.

B. Because subsurface conditions indicated by the soil borings are a sampling in relation to the entire construction area, and for other reasons, Owner, Architect, Architect's consultants, and the firm reporting the subsurface conditions do not warranty the conditions below the depths of the borings or that the strata logged from the borings are necessarily typical of the entire site. Any party using the information described in the soil borings and geotechnical report accepts full responsibility for its use.

C. Soil-Boring Data for Project, obtained by Geotek Engineering & Testing Services, Inc., dated May 24, 2024, is available for viewing as appended to this section.

D. A Geotechnical Investigation Report for Project, prepared by Geotek Engineering & Testing Services, Inc., dated June 27, 2024, is available for viewing as appended to this section.

1. The opinions expressed in this report are those of a geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by a geotechnical engineer. Owner is not responsible for interpretations or conclusions drawn from the data.
2. Any party using information described in the geotechnical report will make additional test borings and conduct other exploratory operations that may be required to determine the character of subsurface materials that may be encountered.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF DOCUMENT 003132

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 East 50th Street North
Sioux Falls, South Dakota 57104
Phone 605-335-5512 Fax 605-335-0773

June 27, 2024

Office of the State Engineer
Joe Foss Building
523 E. Capitol Avenue
Pierre, South Dakota 57501

Attn: Brandon Carda

Subj: Geotechnical Exploration
Proposed Sheep Barn/Shed
South Dakota State Fairgrounds
3rd Street SW
Huron, South Dakota
GeoTek #24-0868

This correspondence presents our written report of the geotechnical exploration program for the referenced project. Our work was performed in accordance with your authorization. We are transmitting an electronic copy of our report for your use.

We thank you for the opportunity of providing our services on this project and look forward to continued participation during the design and construction phases. If you have any questions regarding this report, please contact our office at (605) 335-5512.

Respectfully Submitted,
GeoTek Engineering & Testing Services, Inc.

Jayden Waldner

Jayden Waldner, EIT
Staff Engineer

Daniel R Hanson

Daniel R Hanson, PE
General Manager

TABLE OF CONTENTS

GEOTECHNICAL EXPLORATION
PROPOSED SHEEP BARN/SHED
SOUTH DAKOTA STATE FAIRGROUNDS
HURON, SOUTH DAKOTA
GEOTEK #24-0868

INTRODUCTION

Project Information

This report presents the results of the recent geotechnical exploration program for the proposed Sheep Barn/Shed on the South Dakota State Fairgrounds in Huron, South Dakota.

Scope of Services

We performed our work in accordance with our contractual agreement with the Office of State Engineer. The scope of work as presented in this report is limited to the following:

1. To perform eight (8) standard penetration test (SPT) borings to gather data on the subsurface conditions at the project site.

2. To perform laboratory tests that include moisture content, dry density, sieve analysis (#200 sieve wash) and unconfined compressive strength.

3. To prepare an engineering report that includes the results of the field and laboratory tests as well as our earthwork and foundation recommendations for design and construction.

The scope of our work was intended for geotechnical purposes only. This scope of work did not include determining the presence or extent of environmental contamination at the site or to characterize the site relative to wetlands status.

SITE & SUBSURFACE CONDITIONS

Site Location & Description

The site is located at the South Dakota State Fairgrounds (east of the South Dakota Army National Guard Recruiting Building) in Huron, South Dakota. A site location map (Figure 1) is

attached showing the location of the site. The site currently has a building, gravel surfaced areas and asphalt paving areas.

Ground Surface Elevations & Test Boring Locations

The ground surface elevations at the test boring locations were determined by using the finished floor elevation (FFE) of the South Dakota Army National Guard Recruiting Building as a benchmark. An arbitrary elevation of 100.0 feet was used for the benchmark. Based on the benchmark datum, the ground surface elevations at the test boring locations varied from 99.7 feet at test boring 2 to 97.4 feet at test boring 8. A test boring location map (Figure 2) is attached showing the relative location of the test borings as well as the relative location of the benchmark.

Subsurface Conditions

Eight (8) test borings were performed at the project site on June 18, 2024. Of the eight test borings, 6 test borings (test borings 1 through 6) were performed for the building and 2 test borings (test borings 7 and 8) were performed for the pavement areas. The subsurface conditions encountered at the test boring locations are illustrated by means of the boring logs included in Appendix A.

The subsurface profile at the test boring locations consisted of the following soil types: existing fill materials, fine alluvium soils, mixed alluvium soils, coarse alluvium soils and glacial till soils. The existing fill materials were encountered at all of the test borings and extended to depths of 2 feet and 4 ½ feet. The fine alluvium soils were encountered at the test borings 2, 5, 6 and 8 and extended to depths of 4 ½ feet. The mixed alluvium soils were encountered at the test borings 1 and 2 and extended to depths of 7 feet and 9 ½ feet. The coarse alluvium soils were encountered at the test borings 1, 2, 3, 4, 5 and 8 and extended to depths varying from 6 feet to 11 feet. The glacial till soils were encountered at all of the test borings, excluding boring 8, and extended to the termination depth of the borings.

The consistency/relative density of the soils is indicated by the standard penetration resistance (“N”) values as shown on the boring logs. A description of the soil consistency/relative density

based on the "N" values can be found on the attached Soil Boring Symbols and Descriptive Terminology data sheet.

We wish to point out that the subsurface conditions at other times and locations at the site may differ from those found at our test boring locations. If different conditions are encountered during construction, it is important that you contact us so that our recommendations can be reviewed.

Soil Types

Existing Fill Materials

The existing fill materials consisted of lean clay (CL) and lean clay with sand (CL). "N" values within the existing fill materials ranged from 6 to 21. The moisture condition of the existing fill materials was moist.

Fine Alluvium Soils

Fine alluvium soils consist primarily of silt and clay sized particles that have been deposited by moving water. The fine alluvium soils consisted of sandy lean clay (CL). "N" values within the fine alluvium soils were 6 and 8 (consistency of firm). The moisture condition of the fine alluvium soils was moist.

Mixed Alluvium Soils

Mixed alluvium soils consist of a mixture of silt, clay and sand sized particles that have been deposited by moving water. The mixed alluvium soils consisted of silty sand (SM). "N" values within the mixed alluvium soils ranged from 6 to 9 (relative density of loose and medium dense). The moisture condition of the mixed alluvium soils was moist and wet.

Coarse Alluvium Soils

Coarse alluvium soils consist primarily of sand and gravel sized particles that have been deposited by moving water. The coarse alluvium soils consisted of sand (SP) and sand with silt (SP-SM). "N" values within the coarse alluvium soils ranged from 6 to 12 (relative density of

loose and medium dense). The moisture condition of the coarse alluvium soils was moist and waterbearing.

Glacial Till Soils

Glacial till soils consist of silt and clay sized particles with sand and gravel intermixed that have been deposited and consolidated by a glacier. The glacial till soils consisted of lean clay with sand (CL). "N" values within the glacial till soils ranged from 7 to 14 (consistency of firm and stiff). The moisture condition of the glacial till soils was moist and wet.

Water Levels

Measurements to record the groundwater levels were made at the test boring locations. The time and level of the groundwater readings are recorded on the boring logs. Also, a summary of the groundwater levels is shown in Table 1.

Table 1. Groundwater Levels

Test Boring	Ground Surface Elevation, ft	Groundwater Level, ft	Elevation of Groundwater, ft
1	98.2	7.0	91.2
2	97.7	6.0	91.7
3	99.5	9.5	90.0
4	98.3	8.1	90.2
5	99.3	5.5	93.8
6	98.3	7.3	91.0
7	98.8	Dry to the Cave-In Depth	N/A
8	97.4	Dry to the Cave-In Depth	N/A

The water levels may or may not be an accurate indication of the depth or lack of subsurface groundwater. The limited length of observation restricts the accuracy of the measurements. Long term groundwater monitoring was not included in our scope of work.

ENGINEERING REVIEW AND RECOMMENDATIONS

Project Design Data

We understand that the project will consist of constructing the new Sheep Barn/Shed on the South Dakota State Fairgrounds in Huron, South Dakota. The proposed building will be a wood framed slab-on-grade structure. We assume that the finished floor elevation (FFE) of the building will be near 100.0 feet. Based on the assumed FFE, minimal grade changes (1 foot to 2 feet) are expected. We also assume that foundation support for the proposed building will be provided by perimeter footings resting below frost depth and interior footings resting at or slightly below the floor slab. We anticipate light to moderate foundation loads and light floor slab loads for the proposed building. We understand that the building will not be heated.

The project will also consist of constructing new pavement areas. Minimal grade changes are expected in the pavement areas. We expect that the vehicle traffic will consist of automobiles and large trucks.

The information/assumptions detailed in the project design data section are important factors in our review and recommendations. If there are any corrections or additions to the information detailed in this section, it is important that you contact us so that we can review our recommendations with regards to the revised plans.

Building

Discussion

It is our opinion that a spread footing foundation system can be used for support of the proposed building after the recommended site preparation has been performed.

Test borings 1 through 6 were performed for the building. These test borings encountered existing fill materials, fine alluvium soils, mixed alluvium soils, coarse alluvium soils and glacial till soils. It is our opinion that the existing fill materials are not suitable for support of the footings of the proposed building. Also, in our opinion the fine alluvium soils are suitable for

indirect support of the footings while the mixed alluvium soils, coarse alluvium soils and glacial till soils are suitable for direct support of the footings.

Regarding floor slab support, it is our opinion that the majority of the existing fill materials, fine alluvium soils, mixed alluvium soils, coarse alluvium soils and glacial till soils can be used for indirect support of the floor slab.

Additionally, portions of the existing fill materials consisted of clayey soils. The clayey soils are susceptible to frost heave which could cause both cosmetic and structural damage to the building if not heated during the winter months. If portions of the building will not be heated, we recommend that a layer of non-frost susceptible drainage fill be placed beneath the floor slabs. The thickness of the non-frost susceptible drainage fill will be discussed in further detail in the section entitled "*Frost Protection – Floor Slabs*" on page 15 of this report.

Site Preparation - Footings

The site preparation for the footings (interior and exterior) of the proposed building should consist of removing the asphalt pavement, gravel base/surfacing and existing fill materials in order to expose the fine alluvium soils, mixed alluvium soils, coarse alluvium soils and glacial till soil. Additionally, foundation remnants and construction debris associated with the existing/previous structures should be removed. Following the removals, we recommend that an overexcavation be performed to a minimum depth of 12 inches below the bottom-of-footing elevation. The overexcavation can be discontinued if the mixed alluvium soils, coarse alluvium soils and glacial till soils are encountered. Following the removals, we recommend that observations and shallow hand auger borings be performed at the bottom of the excavations. Unstable areas will likely require further excavation. The overexcavated footing areas should be backfilled with granular structural fill or crushed rock up to the bottom-of-footing elevation.

Site Preparation – Floor Slab Areas

The site preparation in the floor slab areas of the building should consist of removing the asphalt pavement, gravel base/surfacing and debris or excavating to a minimum depth of 12 inches below the bottom-of-floor elevation, whichever is greater. Additionally, foundation remnants and

construction debris associated with the existing/previous structures should be removed. The exposed surface should be compacted with a large sheepsfoot roller. We recommend that observations and testing be performed on the materials exposed at the bottom of the excavation. Unstable areas will likely require further excavation. Once the subgrade is approved, a minimum of 12 inches of granular structural fill should be placed and compacted up to the bottom-of-floor elevation. We recommend that the final 6 inches of granular structural fill beneath the floor slab consist of select granular fill.

Again, for unheated portions of the building we recommend that a layer of non-frost susceptible drainage fill be placed beneath the shallow footings and floor slabs. The thickness of the non-frost susceptible drainage fill will be discussed in further detail in the section entitled "*Frost Protection – Floor Slabs*" on page 15 of this report.

Foundation Loads & Settlement

If our recommendations are followed during site preparations, then it is our opinion that the spread footing foundation system can be sized for a net allowable soil bearing pressure of up to 2,000 pounds per square foot (psf). We estimate total settlement of the building to be less than 1 inch and differential settlement to be around ½ inch. Unknown soil conditions at the site that are different from those depicted at the test boring locations could increase the amount of expected settlement. It is our opinion that the recommended bearing pressure should provide a minimum safety factor of 3.0 against shear or base failure.

Floor Slab & Soil Modulus of Subgrade Reaction

If our recommendations are followed during site preparations, then it is our opinion that the floor slab can be designed using a soil modulus of subgrade reaction (k value) of 100 psi/inch.

Groundwater & Saturated Soils

If groundwater or saturated soils are encountered at the bottom of an excavation, then we recommend placing a layer (6 to 12 inches) of drainage rock at the bottom of the excavation prior to the placement of the granular structural fill, select granular fill or footings.

Laterally Oversized Footing Excavations

Where granular structural fill or drainage rock is needed below the footings, the bottom of the excavation should be laterally oversized 1 foot beyond the edges of the footings for each vertical foot of granular structural fill or drainage rock required below the footings (1 horizontal : 1 vertical).

Excavation – Building

All excavations within the footprint of the building should be performed with a track backhoe with a smooth edge bucket. The subgrade within the footprint of the building should not be exposed to heavy construction traffic from rubber tire vehicles. The soils are susceptible to disturbance and can experience strength loss caused by construction traffic and/or additional moisture.

Existing Utilities

Existing utilities within the footprint of the building should be removed and rerouted around the building.

Dewatering

Dewatering may be needed during construction. In areas where clay soils are encountered, it will likely be possible to remove and control water entering the excavations using normal sump pumping techniques. If waterbearing sand soils are encountered, then an extensive dewatering system will likely be needed.

Coefficient of Friction

It is our opinion that a friction factor of 0.45 can be used between the granular structural fill or drainage rock and the bottom of the concrete. The friction values are considered ultimate values. We recommend applying a theoretical safety factor of at least 2.0.

Retaining Walls

We recommend backfilling any retaining walls with free-draining sand. The active lateral earth pressures may be employed only if movement of the walls can be tolerated to reach the active state. A horizontal movement of approximately 1/500 of the height of the wall would be required to develop the active state for granular soils. If the movement on the previous page cannot be tolerated, then we recommend using the at-rest lateral earth pressures to design the walls. The zone of the sand backfill should extend a minimum of 2 feet outside the bottom of the foundation and then extend upward and outward at a slope no steeper than 1:1 (horizontal to vertical). Also, we recommend capping the sand backfill section with 1 foot to 2 feet of clayey soil in areas that will not have asphalt or concrete surfacing to minimize infiltration of surface waters. Table 2 shows the equivalent fluid unit weight values for the various soil types anticipated for this project.

Table 2. Equivalent Fluid Unit Weight Values

Soil Type	At-Rest, pcf		Active, pcf		Passive, pcf	
	Drained	Submerged	Drained	Submerged	Drained	Submerged
Clay	-	-	-	-	220*	115*
Free-Draining Sand (SP)	50	90	35	80	460*	230*

*Value below frost depth – 0 pcf above frost depth.

The passive resistance in front of a retaining wall should not be used in an analysis unless the wall extends well below the depth of frost penetration due to loss of strength upon thawing. In addition, development of passive lateral earth pressure in the soil in front of a wall requires a relatively large rotation or outward displacement of the wall. Therefore, we do not recommend using passive resistance in front of the wall for the analysis.

We recommend that a perimeter backfill drainage system be provided for the retaining walls to collect and remove water and to prevent hydrostatic pressure on the walls. The drainage system should consist of slotted or perforated drainage pipes located at the bottom of the backfill trench. The drainage system should be connected to a suitable means of discharge.

During backfill operations, bracing and/or shoring of the walls may be needed. Only hand-operated compaction equipment should be used directly adjacent to the walls.

Drain Tile Recommendations

Since the building will be slab-on-grade, it is our opinion that drain tile is not needed along the perimeter of the building. However, if portions of the building are below grade, then drain tile should be installed.

Seismic Site Classification

Based on the 2021 International Building Code (IBC), it is our opinion that the site, as a whole, corresponds to a Site Class D (stiff soil – based on the underlying glacial till soils). Also, the ground acceleration values are as follows: S_S = 0.145 g, S_1 = 0.033 g, S_{MS} = 0.232 g, S_{M1} = 0.079 g, S_{DS} = 0.155 g, S_{D1} = 0.053 g. Therefore, the seismic design category is "A". The ground acceleration values are based on the ASCE 7-16 (referenced standard for 2021 IBC) with Risk Category II/III. If needed, we can provide ground acceleration values for a different design code.

Pavement Areas

Discussion

Test borings 7 and 8 were performed in the pavement areas. In general, fair subgrade conditions were encountered at the test borings. In our opinion, normal subgrade preparation (scarification and recompaction) could be used in the pavement areas, assuming that the site work is performed during drier periods of the year.

Initial Subgrade Preparation

We recommend that the subgrade preparation in the pavement areas consist of removing the existing asphalt pavement, gravel base/surfacing and debris. Following the removals, the subgrade should be prepared by cutting or placing subgrade fill to the design subgrade elevations. Once the design subgrade elevation is achieved, we recommend that the exposed subgrade be scarified and recompacted. The clay subgrade soils should be scarified (with a disc harrow) to a minimum depth of 8 inches and adjusted to a moisture level that is 1 percent to 4

percent below the optimum moisture content as determined by standard Proctor (ASTM:D698). The moisture-conditioned soils should then be compacted.

Prior to the placement of the aggregate base course materials, we recommend that a proof roll be performed on the exposed subgrade with a truck weighing 20 tons to 30 tons. During the proof roll, unstable areas in the subgrade should be delineated from stable areas. An unstable area would be considered a location with at least 1 inch of rutting or deflection. Unstable areas will need additional corrections to provide a uniform and stable subgrade condition. Additional corrections may include the following: moisture conditioning the soils (e.g. drying the soils by scarification), mixing cement with the subgrade soils, an overexcavation to remove and replace the unstable subgrade soils, the placement of a woven geotextile fabric at the subgrade surface, and/or the placement of granular subbase at the subgrade surface. The type of correction performed should be determined after observing the performance of the subgrade during the proof roll test. We expect that stable conditions will be encountered during drier periods of the year, while some unstable conditions could be encountered during wetter periods of the year (late fall and the spring thaw).

Pavement Section Thicknesses

Table 3 shows the recommended pavement section thicknesses based on the subsurface conditions and anticipated traffic loads. We expect that the vehicle traffic will consist of automobiles (car only) and large trucks (heavy duty).

Table 3. Recommended Pavement Section Thicknesses

Pavement Description	Pavement Surfacing, in	Aggregate Base Course, in
Car Only Areas		
Asphalt:	4	8
PC Concrete:	6	6
Heavy Duty Areas		
Asphalt:	5	9
PC Concrete:	8	6

Notes: The pavement sections are based on the assumption that a stable subgrade condition is achieved during construction. A geotextile fabric could be installed beneath the aggregate base course material to extend the life of the pavement.

The asphalt pavement should meet the requirements of sections 320 and 321 for Class G. We recommend the concrete pavement meet the requirements of Section 380 of the SDDOT Standard Specifications. It should be noted that routine maintenance such as crack filling, localized patching, and seal coating should be expected with all pavements in our recommendations. The design sections could be reduced if the owner is willing to assume additional maintenance costs or potentially shorter pavement life.

Excavation – Pavement Areas

If soils with high moisture content levels are encountered, then low-ground pressure construction equipment should be used.

Frost Protection

Footings

We recommend that all footings be placed at a sufficient depth for frost protection. The perimeter footings for heated buildings should be placed such that the bottom of the footing is a minimum of 4 feet below finished exterior grade. Interior footings in heated buildings can be placed beneath the floor slab. Footings for unheated areas and canopies, or footings that are not protected from frost during freezing temperatures, should be placed such that the bottom of the footing is a minimum of 5 feet below finished exterior grade.

Floor Slabs

As previously stated, we understand that the building will be heated during the winter months. It is our opinion that clayey soils have a moderate frost susceptibility. If clay soils are allowed to freeze beneath the buildings (thickened slabs and floor slabs), then the buildings will potentially be subject to both cosmetic and structural damage caused by frost heaving. The thickened slabs and floor slabs should be designed to accommodate the potential frost movements, or non-frost susceptible drainage fill should be placed beneath the thickened slabs and floor slabs.

If movement of the thickened slabs and/or floor slabs cannot be tolerated, then we recommend placing 5 feet of non-frost susceptible drainage fill beneath the thickened slabs/floor slabs. If it is

desired to reduce (but not eliminate) the amount of potential frost heave, the thickness of the non-frost susceptible drainage fill could be reduced. However, we recommend that a minimum thickness of 2 feet of the non-frost susceptible drainage fill be placed beneath the thickened slabs/floor slabs to help minimize frost heave. The thickness could be further reduced; however, this would increase the risk for frost movement.

Surface Improvements

Surface improvements, such as pavements, patios and sidewalks, are potentially subject to both cosmetic and structural damage caused by frost heaving. The surface improvements should be designed to accommodate the potential frost movements, or non-frost susceptible drainage fill should be placed beneath the surface improvements. If movement cannot be tolerated, then we recommend placing non-frost susceptible drainage fill beneath the surface improvements. The non-frost susceptible drainage fill should extend to a depth of 5 feet below the finished exterior grade. If it is desired to reduce (but not eliminate) the amount of potential frost heave, then we recommend consideration be given to placing 2 feet of non-frost susceptible drainage fill beneath the surface improvements.

Material Types and Compaction Levels

Granular Structural Fill – The granular structural fill should consist of a pit-run or processed sand or gravel having a maximum particle size of 3 inches with less than 15 percent by weight passing the #200 sieve. The granular structural fill should be placed in lifts of up to 1 foot in thickness.

Select Granular Fill – The select granular fill should consist of a medium to coarse grained, free-draining sand or rock having a maximum particle size of 1 inch with less than 5 percent by weight passing the #200 sieve. The select granular fill should be placed in lifts of up to 1 foot in thickness.

Drainage Rock – The drainage rock should be crushed, washed and meet the gradation specifications shown in Table 4.

Table 4. Drainage Rock Gradation Specifications

Sieve Size	Percent Passing
1 1/2-inch	100
1-inch	70 – 90
3/4-inch	25 – 50
3/8-inch	0 – 5

Free-Draining Sand – The free-draining sand should have a maximum particle size of 1 inch with less than 5 percent by weight passing the #200 sieve. The free-draining sand should be placed in lifts of up to 1 foot in thickness.

Exterior Foundation Wall Backfill for Slab-on-Grade Structures – We recommend either clay or granular soils be used. Debris, organic material, or over-sized material should not be used as backfill. If granular soils are used in areas that will not have asphalt or concrete surfacing, we recommend capping the granular soils with at least 1 foot to 2 feet of clay soils to minimize infiltration of surface water. The exterior backfill should be placed in lifts of up to 1 foot in thickness.

Interior Foundation Wall Backfill for Slab-on-Grade Structures – We recommend that granular structural fill be used to backfill the interior side of the foundation walls. The interior backfill should be placed in lifts of up to 1 foot in thickness.

Non-Frost Susceptible Drainage Fill – The non-frost susceptible drainage fill should have a maximum particle size of 1 inch, less than 40 percent by weight passing the #40 sieve and less than 5 percent by weight passing the #200 sieve. The non-frost susceptible drainage fill should be placed in lifts of up to 1 foot in thickness.

Subgrade Fill – The subgrade fill should consist of either a granular or clay material. Debris, organic material, or over-sized material should not be used as subgrade fill. If a granular material is used, then it should consist of a pit-run or processed sand or gravel having a maximum particle size of 3 inches. The granular material can be placed in lifts of up to 1 foot in thickness. If a clay material is selected, then it should consist of a non-organic clay. Scrutiny on the clay material's moisture content should be made prior to the acceptance and use. The clay fill should be placed in lifts of up to 6 inches in thickness. The majority of the on-site soils could be used as subgrade

fill. Some drying should be expected with the on-site soils. Organic materials and construction debris should not be used as subgrade fill.

Aggregate Base Course Material – We recommend that the aggregate base course materials meet the requirements of Sections 260 and 882 of the SDDOT Standard Specifications.

Granular Subbase – The granular subbase should consist of crushed quartzite, recycled concrete or a crushed pit-run material meeting the gradation specifications shown in Table 5.

Table 5. Granular Subbase Gradation Specifications

Sieve Size	Percent Passing
4-inch	100
3-inch	70 – 90
2-inch	60 – 80
1-inch	40 – 70
#4	10 – 50
#40	5 – 20
#200	0 – 8

Recommended Compaction Levels – The recommended compaction levels listed in Table 6 are based on a material's maximum dry density value, as determined by a standard Proctor (ASTM: D698) test.

Table 6. Recommended Compaction Levels

Placement Location	Compaction Specifications
Below Footings	95%
Below Floor Slabs	95%
Exterior Foundation Wall Backfill for Slab-on-Grade Structures	95%
Behind Retaining Walls	95% - 98%
Subgrade Fill in Pavement Areas	95%
Aggregate Base Course in Pavement Areas	97%
Granular Subbase in Pavement Areas	97%
Non-Structural Areas	90%

Notes: Compaction specifications are not applicable with the drainage rock. Compaction testing may not be practical for the granular subbase due to the large aggregate.

Recommended Moisture Levels – The moisture content of the clay backfill materials, when used as backfill around the exterior of a foundation should be maintained within a range of plus or minus 2 percent of the materials' optimum moisture content. When the clay backfill materials are used below a pavement area, or as site grading, the materials' moisture content should be maintained within a range of minus 1 percent to minus 4 percent of the materials' optimum moisture content. The moisture content of the trench backfill soils should be adjusted to a moisture level that is within plus or minus 2 percent of the optimum moisture content. The optimum moisture content should be determined using a standard Proctor (ASTM: D698) test.

The moisture content of the granular backfill materials should be maintained at a level that will be conducive for vibratory compaction.

Drainage

Proper drainage should be maintained during and after construction. The general site grading should direct surface run-off waters away from the excavation. Water which accumulates in the excavation should be removed in a timely manner.

Finished grades around the perimeter of the building should be sloped such that positive drainage away from the building is provided. Also, a system to collect and channel roof run-off waters away from the building is suggested.

CONSTRUCTION CONSIDERATIONS

Groundwater and Surface Water

Water may enter the excavations due to subsurface water, precipitation or surface run off. Any water that accumulates in the bottom of the excavations should be immediately removed and surface drainage away from the excavations should be provided during construction.

Disturbance of Soils

The soils encountered at the test boring locations are susceptible to disturbance and can experience strength loss caused by construction traffic and/or additional moisture. Precautions will be required during earthwork activities in order to reduce the risk of soil disturbance.

Cold Weather Precautions

If site preparation and construction is anticipated during cold weather, then we recommend all foundations, slabs and other improvements that may be affected by frost movements be insulated from frost penetration during freezing temperatures. If filling is performed during freezing temperatures, then all frozen soils, snow and ice should be removed from the areas to be filled prior to placing the new fill. The new fill should not be allowed to freeze during transit, placement and compaction. Concrete should not be placed on frozen subgrades. Frost should not be allowed to penetrate below the footings. If floor slab subgrades freeze, then we recommend the frozen soils be removed and replaced, or completely thawed, prior to placement of the floor slab. The subgrade soils will likely require reworking and recompacting due to the loss of density caused by the freeze/thaw process.

Excavation Sideslopes

The excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, “Excavations and Trenches”. This document states that the excavation safety is the responsibility of the contractor. Reference to this OSHA requirement should be included in the project specifications.

Observations and Testing

This report was prepared using a limited amount of information for the project and a number of assumptions were necessary to help us develop our conclusions and recommendations. It is recommended that our firm be retained to review the geotechnical aspects of the final design plans and specifications to check that our recommendations have been properly incorporated into the design documents.

The recommendations submitted in this report have been made based on the subsurface conditions encountered at the test boring locations. It is possible that there are subsurface conditions at the site that are different from those represented by the test borings. As a result, on-site observation during construction is considered integral to the successful implementation of the recommendations. We believe that qualified field personnel need to be on-site at the following times to observe the site conditions and effectiveness of the construction.

Excavation

We recommend that a geotechnical engineer or geotechnical engineering technician working under the direct supervision of a geotechnical engineer observe all excavations for foundations, slabs and pavements. These observations are recommended to determine if the exposed soils are similar to those encountered at the test boring locations, if unsuitable soils have been adequately removed and if the exposed soils are suitable for support of the proposed construction. These observations should be performed prior to placement of fill or foundations.

Testing

After the subgrade is observed by a geotechnical engineer/technician and approved, we recommend a representative number of compaction tests be taken during the placement of the structural fill and backfill placed below foundations, slabs and pavements, beside foundation walls and behind retaining walls. The tests should be performed to determine if the required compaction has been achieved. As a general guideline, we recommend at least 1 test be taken for every 2,000 square feet of structural fill placed in building and pavement areas, at least 1 test for every 75 feet to 100 feet in trench fill, and for every 2-foot thickness of fill or backfill placed. The actual number of tests should be left to the discretion of the geotechnical engineer. Samples of proposed fill and backfill materials should be submitted to our laboratory for testing to determine their compliance with our recommendations and project specifications.

SUBSURFACE EXPLORATION PROCEDURES

Test Borings

We performed 12 SPT borings on May 24, 2021 with a truck rig equipped with hollow-stem auger. Soil sampling was performed in accordance with the procedures described in ASTM:D1586. Using this procedure, a 2-inch O.D. split barrel sampler is driven into the soil by a 140-pound weight falling 30 inches. After an initial set of 6 inches, the number of blows required to drive the sampler an additional 12 inches is known as the penetration resistance, or "N" value. The "N" value is an index of the relative density of cohesionless soils and the consistency of cohesive soils. In addition, thin walled tube samples were obtained according to ASTM:D1587, where indicated by the appropriate symbol on the boring logs.

The test borings were backfilled with on-site materials and some settlement of these materials can be expected to occur. Final closure of the holes is the responsibility of the client or property owner.

The soil samples collected from the test boring locations will be retained in our office for a period of 1 month after the date of this report and will then be discarded unless we are notified otherwise.

Soil Classification

As the samples were obtained in the field, they were visually and manually classified by the crew chief according to ASTM:D2488. Representative portions of all samples were then sealed and returned to the laboratory for further examination and for verification of the field classification. In addition, select samples were then submitted to a program of laboratory tests. Where laboratory classification tests (sieve analysis and Atterberg limits) have been performed, classifications according to ASTM:D2487 are possible. Logs of the test borings indicating the depth and identification of the various strata, the "N" value, the laboratory test data, water level information and pertinent information regarding the method of maintaining and advancing the drill holes are also attached in Appendix A. Charts illustrating the soil classification procedures,

the descriptive terminology and the symbols used on the boring logs are also attached in Appendix A.

Water Level Measurements

Subsurface groundwater levels should be expected to fluctuate seasonally and yearly from the groundwater readings recorded at the test boring locations. Fluctuations occur due to varying seasonal and yearly rainfall amounts and snowmelt, as well as other factors. It is possible that the subsurface groundwater levels during or after construction could be significantly different than the time the test borings were performed.

Laboratory Tests

Laboratory tests were performed on select samples to aid in determining the index properties of the soils. The index tests consisted of moisture content, dry density, sieve analysis (#200 sieve wash) and unconfined compressive strength. The laboratory tests were performed in accordance with the appropriate ASTM procedures. The results of the laboratory tests are shown on the boring logs opposite the samples upon which the tests were performed or on the data sheets included in the Appendix.

LIMITATIONS

The recommendations and professional opinions submitted in this report were based upon the data obtained through the sampling and testing program at the test boring locations. We wish to point out that because no exploration program can totally reveal the exact subsurface conditions for the entire site, conditions between test borings and between samples and at other times may differ from those described in our report. Our exploration program identified subsurface conditions only at those points where samples were retrieved or where water was observed. It is not standard engineering practice to continuously retrieve samples for the full depth of the test borings. Therefore, strata boundaries and thicknesses must be inferred to some extent. Additionally, some soils layers present in the ground may not be observed between sampling intervals. If the subsurface conditions encountered at the time of construction differ from those represented by our test borings, it is necessary to contact us so that our recommendations can be

reviewed. The variations may result in altering our conclusions or recommendations regarding site preparation or construction procedures, thus, potentially affecting construction costs.

This report is for the exclusive use of the addressee and its representatives for use in design of the proposed project described herein and preparation of construction documents. Without written approval, we assume no responsibility to other parties regarding this report. Our conclusions, opinions and recommendations may not be appropriate for other parties or projects.

STANDARD OF CARE

The recommendations submitted in this report represent our professional opinions. Our services for your project were performed in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering profession currently practicing at this time and area.

This report was prepared by:
GeoTek Engineering & Testing Services, Inc.

Jayden Waldner, EIT
Staff Engineer

Daniel R Hanson, PE
General Manager

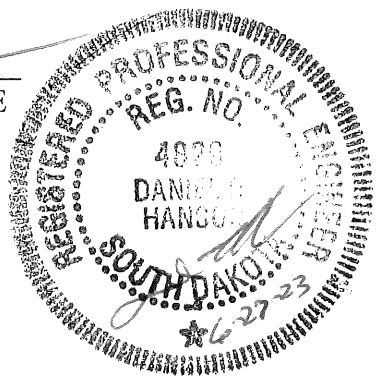

FIGURE 1
SITE LOCATION MAP
PROPOSED SHEEP BARN/SHED
3RD STREET SW
HURON, SD

ACAD/GEOTEK/JAYDEN/24-0868

PROJECT#: 24-0868

DRAWN BY: MW

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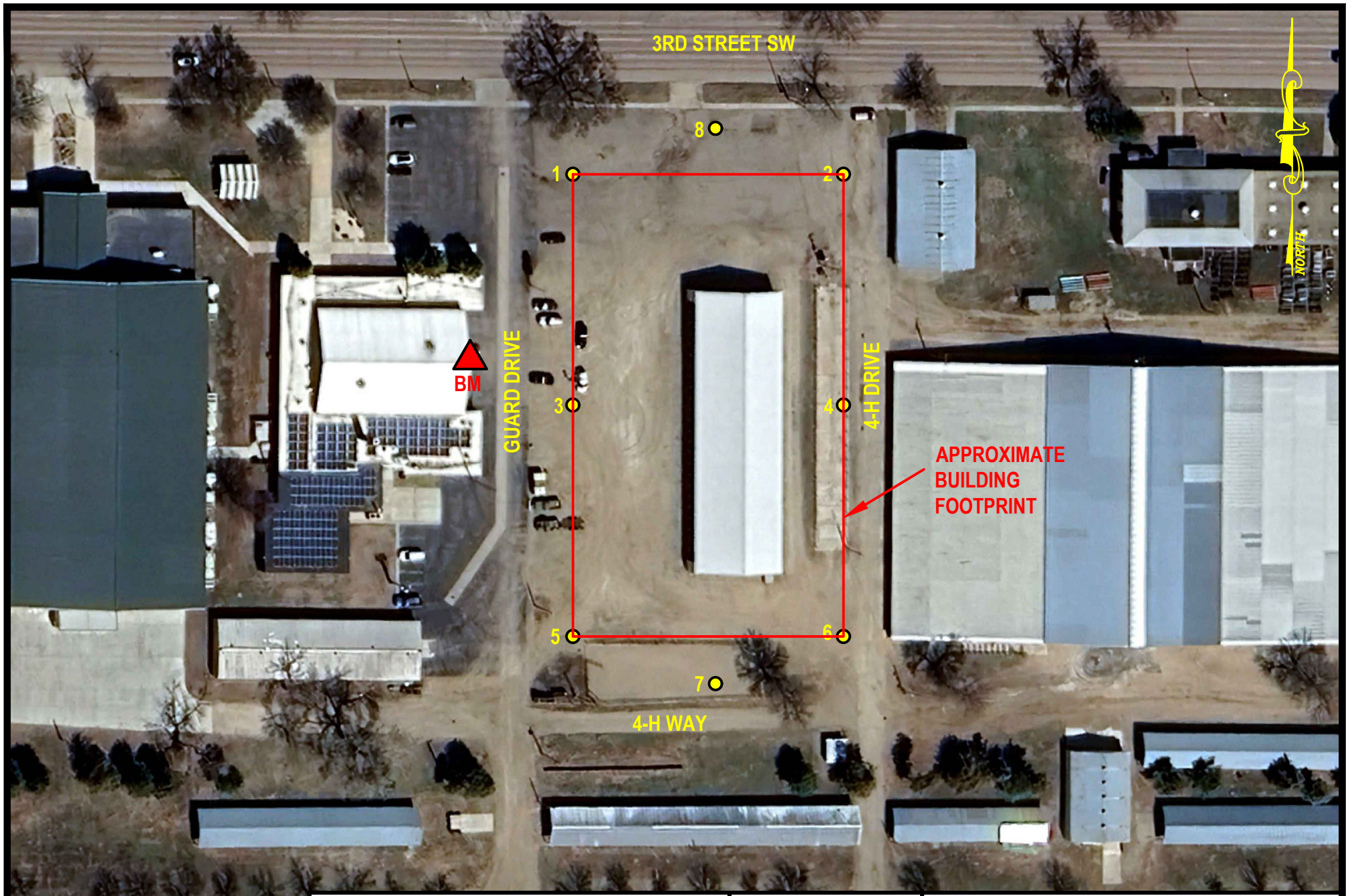

FIGURE 2
TEST BORING LOCATION MAP
PROPOSED SHEEP BARN/SHED
3RD STREET SW
HURON, SD

ACAD/GEOTEK/JAYDEN/24-0868

PROJECT#: 24-0868

DRAWN BY: MW

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GEOTECHNICAL TEST BORING LOG

GEOTEK # **24-0868** BORING NO. **1 (1 of 1)**

PROJECT **Proposed Sheep Barn/SHED, State Fair Grounds, 3rd Street SW, Huron, SD**

DEPTH in FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 98.2 ft)	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LAB WC	LAB D	LAB LL	LAB PL	LAB QU
	FILL, MOSTLY LEAN CLAY WITH SAND: a trace of gravel, brown and black, moist, a 4" layer of asphalt and 3" of gravel at the surface	FILL			1	HSA	12				
			6		2	SPT	11	114			
4½	**SILTY SAND**: fine grained, brown and gray, moist to wet, loose, 13% passing the #200 sieve at 4.5' (SM)	MIXED ALLUVIUM	8		3	SPT	25				
			6	▼	4	SPT	24	103			
9½	**SAND**: a trace of gravel, fine to medium grained, brown, waterbearing, loose, (SP)	COARSE ALLUVIUM	8		5	SPT					
11	**LEAN CLAY WITH SAND**: a little gravel, dark gray, moist, firm to stiff, (CL)	GLACIAL TILL	7		6	SPT					
			8		7	SPT	13				
			9		8	SPT					
21	Bottom of borehole at 21 feet.										

WATER LEVEL MEASUREMENTS

START 6-18-24 COMPLETE 6-18-24 11:10 am

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	WATER LEVEL
6-18-24	11:10 am	21	--	7	▼ 7.0
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--

METHOD
3.25" ID Hollow Stem Auger

CREW CHIEF Roy Hanson

GEOTECHNICAL TEST BORING 24-0868.GPJ GEOTEKENG2019.GDT 6/25/24

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GEOTECHNICAL TEST BORING LOG

GEOTEK # **24-0868** BORING NO. **2 (1 of 1)**

PROJECT **Proposed Sheep Barn/SHED, State Fair Grounds, 3rd Street SW, Huron, SD**

DEPTH in FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 97.7 ft)	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LAB WC	LAB D	LAB LL	LAB PL	LAB QU
2	**FILL, MOSTLY LEAN CLAY WITH SAND**: black, moist, a 4" layer of asphalt and 4.5" of gravel at the surface	FILL			1	HSA	13				
4½	**SANDY LEAN CLAY**: light brown, moist, firm, (CL)	FINE ALLUVIUM	8		2	SPT	8				
7	**SILTY SAND**: fine grained, brown and gray, moist to wet, medium dense, 41% passing the #200 wash sieve at 4.5' (SM)	MIXED ALLUVIUM	9	▼	3	SPT	27				
11	**SAND**: a trace of gravel, fine to medium grained, brown, waterbearing, medium dense, 5% passing the #200 wash sieve at 7' (SP)	COARSE ALLUVIUM	9		4	SPT					
			12		5	SPT					
16	**LEAN CLAY WITH SAND**: a little gravel, dark gray, moist, stiff, a lens of sand above 15.5' (CL)	GLACIAL TILL	13		6	SPT	16	111			
			14		7	SPT	19	110			
	Bottom of borehole at 16 feet.										

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	WATER LEVEL
6-18-24	3:10 pm	16	--	11	▼ 6.0
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--

START 6-18-24 COMPLETE 6-18-24 3:10 pm

METHOD
3.25" ID Hollow Stem Auger

CREW CHIEF Roy Hanson

GEOTECHNICAL TEST BORING 24-0868.GPJ GEOTEKENG2019.GDT 6/25/24

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GEOTECHNICAL TEST BORING LOG

GEOTEK # **24-0868** BORING NO. **3 (1 of 1)**

PROJECT **Proposed Sheep Barn/SHED, State Fair Grounds, 3rd Street SW, Huron, SD**

DEPTH in FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 99.5 ft)	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LAB WC	LAB D	LAB LL	LAB PL	LAB QU
	FILL, MOSTLY LEAN CLAY WITH SAND: a trace of gravel, brown and black, moist, a 7" layer of gravel at the surface	FILL			1	HSA	14				
			13		2	SPT	13	116			
4½	**SAND WITH SILT**: fine to medium grained, brown, moist, loose, 11% passing the #200 wash sieve at 4.5' (SP-SM)	COARSE ALLUVIUM	8		3	SPT	16				
7	**LEAN CLAY WITH SAND**: a little gravel, brown, moist, stiff, (CL)	GLACIAL TILL	9		4	SPT	23	104			2200
9½	**LEAN CLAY WITH SAND**: a little gravel, brown and dark brown, moist, stiff, (CL)	GLACIAL TILL	12	▼	5	SPT	21	106			
			13		6	SPT					
13½	**LEAN CLAY WITH SAND**: a little gravel, dark gray, moist, stiff, (CL)	GLACIAL TILL									
			11		7	SPT					
16	Bottom of borehole at 16 feet.										

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	WATER LEVEL
6-18-24	11:45 am	16	--	14	None
6-18-24	3:30 pm	16	--	11	▼ 9.5
--	--	--	--	--	--
--	--	--	--	--	--

START 6-18-24 COMPLETE 6-18-24 11:45 am

METHOD
3.25" ID Hollow Stem Auger

CREW CHIEF Roy Hanson

GEOTECHNICAL TEST BORING 24-0868.GPJ GEOTEKENG2019.GDT 6/25/24

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GEOTECHNICAL TEST BORING LOG

GEOTEK # **24-0868** BORING NO. **4 (1 of 1)**

PROJECT **Proposed Sheep Barn/SHED, State Fair Grounds, 3rd Street SW, Huron, SD**

DEPTH in FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 98.3 ft)	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LAB WC	LAB D	LAB LL	LAB PL	LAB QU
	FILL, MOSTLY LEAN CLAY WITH SAND: a trace of gravel, brown and black, moist, a 6" layer of gravel at the surface	FILL			1	HSA	12				
			12		2	SPT	12	118			
4½	**SAND**: fine grained, brown, moist, loose, (SP)	COARSE ALLUVIUM	6		3	SPT	20				
6	**LEAN CLAY WITH SAND**: a little gravel, brown and gray, moist, stiff, (CL)	GLACIAL TILL									
			9	▼	4	SPT	22	104			
9½	**LEAN CLAY WITH SAND**: a little gravel, dark brown, moist, stiff, (CL)	GLACIAL TILL	12		5	SPT	22	105			
			12		6	SPT	19	110			
14½	**LEAN CLAY WITH SAND**: a little gravel, dark gray, moist, firm to stiff, a lens of sand above 20.5' (CL)	GLACIAL TILL	7		7	SPT					
					8	SH					
			12		9	SPT					
21	Bottom of borehole at 21 feet.										

WATER LEVEL MEASUREMENTS

START 6-18-24 COMPLETE 6-18-24 2:25 pm

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	WATER LEVEL
6-18-24	2:25 pm	21	--	19	None
6-18-24	3:43 pm	21	--	18	▼ 8.1
--	--	--	--	--	--
--	--	--	--	--	--

METHOD
3.25" ID Hollow Stem Auger

CREW CHIEF Roy Hanson

GEOTECHNICAL TEST BORING 24-0868.GPJ GEOTEKENG2019.GDT 6/25/24

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GEOTECHNICAL TEST BORING LOG

GEOTEK # **24-0868** BORING NO. **5 (1 of 1)**

PROJECT **Proposed Sheep Barn/SHED, State Fair Grounds, 3rd Street SW, Huron, SD**

DEPTH in FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 99.3 ft)	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LAB WC	LAB D	LAB LL	LAB PL	LAB QU
	FILL, MOSTLY LEAN CLAY: brown and black, moist, a 7" layer of gravel at the surface	FILL			1	HSA	14				
2	**SANDY LEAN CLAY**: dark brown, moist, firm, (CL)	FINE ALLUVIUM	6		2	SPT	14	112			
4½	**SAND WITH SILT**: fine grained, brown and gray, moist, loose, a lens of sand above 5' (SP-SM)	COARSE ALLUVIUM	6	▼	3	SPT	26				
6	**LEAN CLAY WITH SAND**: a little gravel, brown, moist to wet, stiff, (CL)	GLACIAL TILL	11		4	SPT	22	103			
			11		5	SPT	24	101			
			11		6	SPT					
14½	**LEAN CLAY WITH SAND**: a little gravel, dark gray, moist to wet, stiff, a lens of sand above 16' (CL)	GLACIAL TILL	12		7	SPT	19				
			11		8	SPT					
21	Bottom of borehole at 21 feet.										

WATER LEVEL MEASUREMENTS

START 6-18-24 COMPLETE 6-18-24 12:40 pm

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	WATER LEVEL
6-18-24	12:40 pm	21	--	18	None
6-18-24	3:35 pm	21	--	11	▼ 5.5
--	--	--	--	--	--
--	--	--	--	--	--

METHOD
3.25" ID Hollow Stem Auger

CREW CHIEF Roy Hanson

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GEOTECHNICAL TEST BORING LOG

GEOTEK # **24-0868** BORING NO. **6 (1 of 1)**

PROJECT **Proposed Sheep Barn/SHED, State Fair Grounds, 3rd Street SW, Huron, SD**

DEPTH in FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 98.3 ft)	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LAB WC	LAB D	LAB LL	LAB PL	LAB QU
	FILL, MOSTLY LEAN CLAY WITH SAND: black, moist, a 7" layer of gravel at the surface	FILL			1	HSA	13				
2	**SANDY LEAN CLAY**: dark brown, moist, firm, (CL)	FINE ALLUVIUM	6		2	SPT	27	102			
4½	**LEAN CLAY WITH SAND**: a little gravel, brown and gray, moist, firm, (CL)	GLACIAL TILL	8		3	SPT	31	98			2000
			8	▼	4	SPT	23	103			
9½	**LEAN CLAY WITH SAND**: a little gravel, dark brown, moist, stiff, a lens of sand above 10.5' (CL)	GLACIAL TILL	14		5	SPT	19	110			
12	**LEAN CLAY WITH SAND**: a little gravel, dark gray, moist, stiff, (CL)	GLACIAL TILL	10		6	SPT	16				
			12		7	SPT	20				
16	Bottom of borehole at 16 feet.										

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	WATER LEVEL
6-18-24	1:40 pm	16	--	14	None
6-18-24	3:40 pm	16	--	10.5	▼ 7.3
--	--	--	--	--	--
--	--	--	--	--	--

START 6-18-24 COMPLETE 6-18-24 1:40 pm

METHOD
3.25" ID Hollow Stem Auger

CREW CHIEF Roy Hanson

GEOTECHNICAL TEST BORING 24-0868.GPJ GEOTEKENG2019.GDT 6/25/24

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 E 50th St. N
Sioux Falls, SD 57104
(605) 335-5512 Fax (605) 335-0773
info@geotekeng.com

GEOTECHNICAL TEST BORING LOG

GEOTEK # **24-0868** BORING NO. **7 (1 of 1)**

PROJECT **Proposed Sheep Barn/SHED, State Fair Grounds, 3rd Street SW, Huron, SD**

DEPTH in FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 98.8 ft)	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LAB WC	LAB D	LAB LL	LAB PL	LAB QU
	FILL, MOSTLY LEAN CLAY: a little gravel, brown and black, moist, a 5" layer of gravel at the surface	FILL	21		1	SPT	14	118			
2	**LEAN CLAY WITH SAND**: a trace of gravel, brown, moist, stiff, (CL)	GLACIAL TILL	11		2	SPT	17	113			
4½	**LEAN CLAY WITH SAND**: a little gravel, gray, moist, stiff, (CL)	GLACIAL TILL	9		3	SPT	22	102			
6	Bottom of borehole at 6 feet.										

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	WATER LEVEL
6-18-24	12:55 pm	6	--	4	None
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--

START 6-18-24 COMPLETE 6-18-24 12:55 pm

METHOD
3.25" ID Hollow Stem Auger

CREW CHIEF Roy Hanson

GEOTECHNICAL TEST BORING 24-0868.GPJ GEOTEKENG2019.GDT 6/25/24

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
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GEOTECHNICAL TEST BORING LOG

GEOTEK # **24-0868** BORING NO. **8 (1 of 1)**

PROJECT **Proposed Sheep Barn/SHED, State Fair Grounds, 3rd Street SW, Huron, SD**

DEPTH in FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 97.4 ft)	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LAB WC	LAB D	LAB LL	LAB PL	LAB QU
	FILL, MOSTLY LEAN CLAY WITH SAND: dark brown, moist, a 4" layer of asphalt and 4" of gravel at the surface	FILL	6		1	SPT	13	117			
2	**SANDY LEAN CLAY**: light brown, moist, firm, (CL)	FINE ALLUVIUM	6		2	SPT	15	111			
4½	**SAND WITH SILT**: fine grained, brown, moist to wet, loose, (SP-SM)	COARSE ALLUVIUM	6		3	SPT	22				
6	Bottom of borehole at 6 feet.										

WATER LEVEL MEASUREMENTS

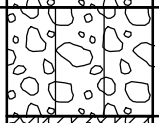
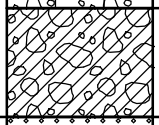
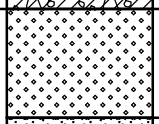
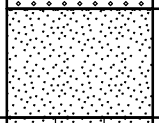
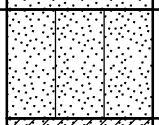
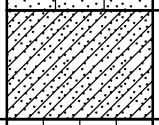
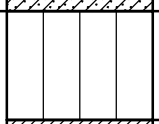
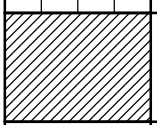
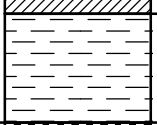
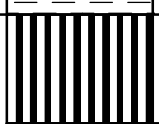
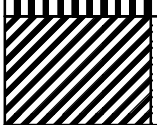
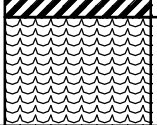
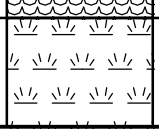
START 6-18-24 COMPLETE 6-18-24 3:25 pm

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	WATER LEVEL
6-18-24	3:25 pm	6	--	4	None
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--

METHOD
6" Flight Auger

CREW CHIEF Roy Hanson

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

BORING LOG SYMBOLS AND DESCRIPTIVE TERMINOLOGY

SYMBOLS FOR DRILLING AND SAMPLING

Symbol	Definition
Bag	Bag sample
CS	Continuous split-spoon sampling
DM	Drilling mud
FA	Flight auger; number indicates outside diameter in inches
HA	Hand auger; number indicates outside diameter in inches
HSA	Hollow stem auger; number indicates inside diameter in inches
LS	Liner sample; number indicates outside diameter of liner sample
N	Standard penetration resistance (N-value) in blows per foot
NMR	No water level measurement recorded, primarily due to presence of drilling fluid
NSR	No sample retrieved; classification is based on action of drilling equipment and/or material noted in drilling fluid or on sampling bit
SH	Shelby tube sample; 3-inch outside diameter
SPT	Standard penetration test (N-value) using standard split-spoon sampler
SS	Split-spoon sample; 2-inch outside diameter unless otherwise noted
WL	Water level directly measured in boring
▼	Water level symbol

SYMBOLS FOR LABORATORY TESTS

Symbol	Definition
WC	Water content, percent of dry weight; ASTM:D2216
D	Dry density, pounds per cubic foot
LL	Liquid limit; ASTM:D4318
PL	Plastic limit; ASTM:D4318
QU	Unconfined compressive strength, pounds per square foot; ASTM:D2166

DENSITY/CONSISTENCY TERMINOLOGY

Density		Consistency
Term	N-Value	Term
Very Loose	0-4	Soft
Loose	5-8	Firm
Medium Dense	9-15	Stiff
Dense	16-30	Very Stiff
Very Dense	Over 30	Hard

PARTICLE SIZES

Term	Particle Size
Boulder	Over 12”
Cobble	3” – 12”
Gravel	#4 – 3”
Coarse Sand	#10 – #4
Medium Sand	#40 – #10
Fine Sand	#200 – #40
Silt and Clay	passes #200 sieve

DESCRIPTIVE TERMINOLOGY

Term	Definition
Dry	Absence of moisture, powdery
Frozen	Frozen soil
Moist	Damp, below saturation
Waterbearing	Pervious soil below water
Wet	Saturated, above liquid limit
Lamination	Up to ½” thick stratum
Layer	½” to 6” thick stratum
Lens	½” to 6” discontinuous stratum

GRAVEL PERCENTAGES

Term	Range
A trace of gravel	2-4%
A little gravel	5-15%
With gravel	16-50%

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SEE DRAWINGS FOR HVAC SPECIFICATIONS

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DOCUMENT 009113
ADDENDA

PART 1 - GENERAL

1.1 ADDENDUM

A. Addendum No. 2.

1.2 REVISIONS TO DIVISION 00 PROCUREMENT REQUIREMENTS AND CONTRACTING REQUIREMENTS

A. Document 000110 “Table of Contents,” (reissued).

1. Updated to include added sections.

B. Document 003132 “Geotechnical Data,” (new).

1. Includes geotechnical report and soil boring data appended to section.

1.3 REVISIONS TO DIVISION 01 GENERAL REQUIREMENTS

A. Specification Section 012300 “Alternates,” (not reissued).

1. Paragraph 3.1 Schedule of Alternates: Bid Alternate No. 3 (Wash Bay Reduction) is the only portion of the project where DARPA funding is applied and subject to the additional requirements.

1.4 REVISIONS TO DIVISIONS 02 - 49 SPECIFICATION SECTIONS

A. Specification Section 062013 “Exterior Finish Carpentry,” (not reissued).

1. Paragraph 2.1 Exterior Trim (TR-2): Replace Fiber-Cement Trim with Lumber for Opaque Finish (Painted Finish).

a. Species and Grade: Any hardwood species suitable for exterior exposure.
b. Finger Jointing: Not allowed.
c. Face Surface: Surfaced (smooth).
d. Priming: Factory- or site-primed with primer compatible with paint in Section 099113 “Exterior Painting.”

B. Specification Section 066113 “Simulated Stone Fabrications,” (new).

1. New section added for solid surface window stools.

C. Specification Section 096519 “Resilient Tile Flooring,” (not reissued).

1. Paragraph 2.2 Vinyl Composition Floor Tile (LVT-1): Add clarification to use interlocking floating LVT.
2. Paragraph 2.3 Installation Materials: Remove “adhesives” subparagraph.

D. Specification Section 101423.16 “Room-Identification Panel Signage,” (new).

1. New section added for signage.

E. Specification Section 102600 “Wall and Door Protection,” (not reissued).

1. Paragraph 2.4 Abuse-Resistant Wall Coverings: Add basis-of-design Crane Composites; Sequentia Fiberglass Reinforced Wall Panels (FRP).

F. Specification Section 102800 “Toilet, Bath, and Laundry Accessories,” (not reissued).

1. Paragraph 1.6 Warranty:

a. Manufacturer’s Special Warranty for Mirrors: 15-year warranty period.
b. Manufacturer’s Special Warranty for Hand Dryers: 5-year warranty period.

2. Paragraph 2.2 Public-Use Washroom Accessories: Addition of Toilet Tissue (Jumbo-Roll) Dispenser.

a. Description: Two-roll unit with sliding panel to expose other roll.
b. Mounting: Surface mounted.
c. Capacity: 9- or 10-inch-diameter rolls.
d. Material and Finish: ABS plastic, gray, with translucent front cover.
e. Lockset: Tumbler type.
f. Refill Indicator: Pierced slots at front.

G. Specification Section 323300 “Site Furnishings,” (new).

1. New section added for concrete-filled steel pipe bollards (section provided by the Architect).

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF DOCUMENT 009113

SECTION 066116
SIMULATED STONE FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid surface material window stools.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of solid surface material.

B. Shop Drawings:

1. Plans, sections, details, and attachment to other work.
2. Direction of directional pattern, if any.

C. Samples for Initial Selection: For each type of material exposed to view.

1.3 CLOSEOUT SUBMITTALS

A. Maintenance Data: For solid surface material fabrications to include in maintenance manuals. Include product data for care products used or recommended by Installer and names, addresses, and telephone numbers of local sources for products.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver fabrications only after casework and supports on which they will be installed have been completed in installation areas.

B. Store fabrications in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

C. Keep surfaces of fabrications covered with protective covering during handling and installation.

1.5 FIELD CONDITIONS

A. Field Measurements: Where fabrications are indicated to fit to other construction, verify dimensions of fabrications by field measurements before countertop fabrication is complete and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work..

PART 2 - PRODUCTS

2.1 SOLID SURFACE MATERIALS

A. Solid Surface Material: Homogeneous fabrication of mineral fillers and pigments bound together with a matrix of polymers and resins, complying with ISFA 2-01.

B. Window Stools: Fabricate window stools equal to the width of the window opening and depth allowing a ½-inch overhang. Pre-fabricated window stools are allowed.

1. Colors and Patterns: As selected by Architect from manufacturer's full range.
2. Type: Standard.
3. Thickness: 1/2-inch- thick, solid surface material.
4. Exposed Edge Treatment: Radius.

2.2 FABRICATION

A. Fabricate in sizes and shapes required to comply with requirements indicated.

B. Fabricate with shop-applied edges unless otherwise indicated. Comply with solid surface material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.

C. Joints: Fabricate without joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates to receive fabrications and conditions under which fabrications will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of fabrications.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Before installation, condition fabrications to average prevailing humidity conditions in installation areas.

B. Examine shop-fabricated work for completion and complete work as required, including removal of packing.

3.3 INSTALLATION OF SIMULATED STONE FABRICATIONS

A. Grade: Install fabrications to comply with specified grade.

B. Assemble fabrications and complete fabrication at Project site to the extent that it was not completed in the shop.

C. Window Stools Installation:

1. Scribe and cut window stools to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
2. Install window stools level to a tolerance of 1/8 inch maximum.
3. Secure window stools with adhesive according to manufacturer's written instructions.
4. Seal joints where window stools abut walls and window frames. Comply with Section 079200 "Joint Sealants."

3.4 ADJUSTING AND CLEANING

A. Repair damaged and defective fabrications, where possible, to eliminate functional and visual defects. Where not possible to repair, replace fabrications. Adjust joinery for uniform appearance.

B. Clean fabrications on exposed and semi-exposed surfaces.

C. Protection: Provide Kraft paper or other suitable covering over simulated stone surfaces, taped to underside of fabrications. Remove protection at Substantial Completion.

END OF SECTION 123661

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SECTION 101423.16
ROOM-IDENTIFICATION PANEL SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes room-identification signs that are directly attached to the building.

1.2 DEFINITIONS

A. Accessible: In accordance with the accessibility standard.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For room-identification signs.

1. Include fabrication and installation details and attachments to other work.
2. Show sign mounting heights, locations of supplementary supports to be provided by other installers, and accessories.
3. Show message list, typestyles, graphic elements, including raised characters and Braille, and layout for each sign at least half size.

C. Samples for Initial Selection: For each type of sign assembly, exposed component, and exposed finish.

1. Include representative Samples of available typestyles and graphic symbols.

D. Product Schedule: For room-identification signs. Use same designations indicated on Drawings or specified.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For signs to include in maintenance manuals.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Variable Component Materials: 3 replaceable text inserts and interchangeable characters (letters, numbers, and graphic elements) of each type.
2. Tools: One set(s) of specialty tools for assembling signs and replacing variable

sign components.

1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Deterioration of finishes beyond normal weathering.
b. Deterioration of embedded graphic image.
c. Separation or delamination of sheet materials and components.

2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Accessibility Standard: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design" and ICC A117.1.

2.2 ROOM-IDENTIFICATION SIGNS

A. Room-Identification Sign: Sign with smooth, uniform surfaces; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; and as follows:

1. Laminated-Sheet Sign: Photopolymer face sheet with raised graphics laminated to acrylic or phenolic backing sheet to produce composite sheet.

a. Composite-Sheet Thickness: Manufacturer's standard for size of sign.
b. Surface-Applied Graphics: Applied vinyl film.
c. Color(s): As selected by Architect from manufacturer's full range.

2. Sign-Panel Perimeter: Finish edges smooth.

a. Edge Condition: Beveled.
b. Corner Condition in Elevation: Rounded to manufacturer’s standard radius.

3. Mounting: Manufacturer's standard method for substrates indicated with adhesive or two-face tape.
4. Text and Typeface: Accessible raised characters and Braille. Finish raised characters to contrast with background color, and finish Braille to match background color.

2.3 SIGN MATERIALS

A. Acrylic Sheet: ASTM D4802, category as standard with manufacturer for each sign, Type UVF (UV filtering).

B. Vinyl Film: UV-resistant vinyl film with pressure-sensitive, permanent adhesive; die cut to form characters or images as indicated on Drawings and suitable for exterior applications.

C. Paints and Coatings for Sheet Materials: Inks, dyes, and paints that are recommended by manufacturer for optimum adherence to surface and are UV and water resistant for colors and exposure indicated.

2.4 ACCESSORIES

A. Adhesive: As recommended by sign manufacturer.

B. Two-Face Tape: Manufacturer's standard high-bond, foam-core tape, 0.045 inch thick, with adhesive on both sides.

2.5 FABRICATION

A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.

1. Preassemble signs and assemblies in the shop to greatest extent possible. Disassemble signs and assemblies only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation; apply markings in locations concealed from view after final assembly.
2. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
3. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
4. Provide rabbets, lugs, and tabs necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.

B. Subsurface-Etched Graphics: Reverse etch back face of clear face-sheet material. Fill resulting copy with manufacturer's standard enamel. Apply opaque manufacturer's standard background color coating over enamel-filled copy.

2.6 GENERAL FINISH REQUIREMENTS

A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.

1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
2. Install signs so they do not protrude or obstruct according to the accessibility standard.
3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.

B. Accessibility: Install signs in locations on walls according to the accessibility standard.

C. Mounting Methods:

1. Adhesive: Clean bond-breaking materials from substrate surface and remove loose debris. Apply linear beads or spots of adhesive symmetrically to back of sign and of suitable quantity to support weight of sign after cure without slippage. Keep adhesive away from edges to prevent adhesive extrusion as sign is applied and to prevent visibility of cured adhesive at sign edges. Place sign in position, and push to engage adhesive. Temporarily support sign in position until adhesive fully sets.
2. Two-Face Tape: Clean bond-breaking materials from substrate surface and remove loose debris. Apply tape strips symmetrically to back of sign and of suitable quantity to support weight of sign without slippage. Keep strips away from edges to prevent visibility at sign edges. Place sign in position, and push to engage tape adhesive.

3.2 ADJUSTING AND CLEANING

A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.

B. Remove temporary protective coverings and strippable films as signs are installed.

C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION 101423.16

SECTION 323300
SITE FURNISHINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Bollards.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

A. Maintenance Data: For site furnishings to include in maintenance manuals.

PART 2 - PRODUCTS

2.1 BOLLARDS

A. Bollard Construction:

1. Pipe OD: Not less than 4-1/2 inches.

    a. Steel: Schedule 40 pipe.

2. Style: Dome top.
3. Overall Height: As indicated.
4. Installation Method: As indicated.

B. Steel Finish: Factory primed with manufacturer’s standard zinc-rich, inorganic primer.

1. Color: Safety Yellow.
2. Topcoats: Manufacturer recommended zinc-rich, organic finish as needed.

2.2 MATERIALS

A. Steel and Iron: Free of surface blemishes and complying with the following:

1. Steel Pipe: Standard-weight steel pipe complying with ASTM A53/A53M, or electric-resistance-welded pipe complying with ASTM A135/A135M.

2.3 FABRICATION

A. Metal Components: Form to required shapes and sizes with true, consistent curves, lines, and angles. Separate metals from dissimilar materials to prevent electrolytic action.

B. Pipes and Tubes: Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.

C. Exposed Surfaces: Polished, sanded, or otherwise finished; all surfaces smooth, free of burrs, barbs, splinters, and sharpness; all edges and ends rolled, rounded, or capped.

2.4 GENERAL FINISH REQUIREMENTS

A. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.

B. Post Setting: Set cast-in support posts in concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.

END OF SECTION 323300

ESTIMATE OF QUANTITIES (BASE BID)

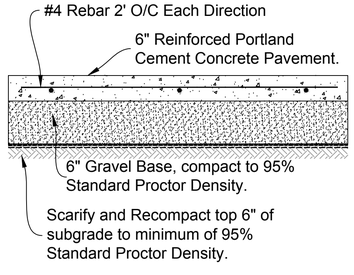
ITEM	DESCRIPTION	QTY	UNIT
General Items			
1	Mobilization	1	LS
Removals			
2	Remove Gravel Surfacing	52,000	SF
3	Remove Asphalt Surfacing	19,050	SF
4	Sawcut Asphalt	125	LF
5	Remove Concrete Surfacing	455	SF
6	Remove Curb & Gutter	30	LF
Erosion Control			
7	F&I Temporary Vehicle Tracking Control	1	EA
8	F&I Concrete Washout Area	1	EA
9	F&I Sediment Control at Inlets w/Frames & Grates	10	EA
Water Main			
10	F&I 2" Domestic Water Service	112	LF
11	F&I 2" Curb Stop in Traffic Rated Collar	1	EA
12	Connect to Existing Water Main	1	EA
Sanitary Sewer			
13	F&I 6" Sanitary Sewer Service	156	LF
14	Connect to Existing Sanitary Sewer	1	EA
15	F&I 6" Sanitary Sewer Cleanout	1	EA
Surfacing			
16	F&I 10' Gravel Apron	7,180	SF
17	F&I Concrete Sidewalk	820	SF
18	F&I Gravel Surfacing	42,905	SF
19	F&I Concrete Curb & Gutter	30	LF
20	F&I Detectable Warning Panel	10	SF
Building Relocation			
21	Incidental Work - Grading	1	LS
22	F&I Contractor Furnished Borrow	30	CY
23	F&I Gravel Base Course	150	TON
24	Remove & Reset Chain Link Fence	150	LF

ESTIMATE OF QUANTITIES (ALTERNATE #2)

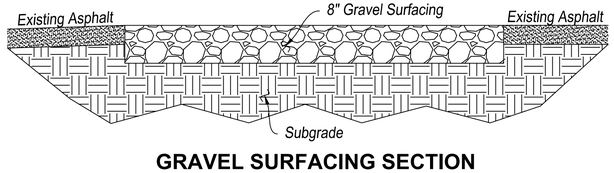
ITEM	DESCRIPTION	QTY	UNIT
Surfacing			
1	F&I 10' Concrete Apron	7,180	SF

ESTIMATE OF QUANTITIES (ALTERNATE #3)

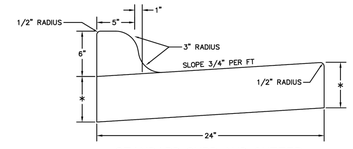
ITEM	DESCRIPTION	QTY	UNIT
Removals			
1	Remove Railing w/Water	355	LF
2	Remove Concrete Wash Bay	3,865	SF
Utilities			
3	Adjust Storm Sewer Inlet Elevation	1	EA
4	F&I 1-1/2" Domestic Water Service	193	LF
Surfacing			
5	F&I Concrete Wash Bay	1,500	SF



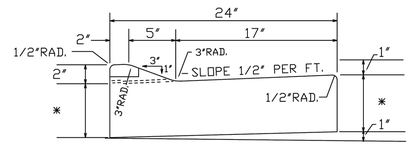
PCC PAVEMENT DETAIL
(CONCRETE APRON & WASH BAY)



GRAVEL SURFACING SECTION



STANDARD CURB AND GUTTER



DRIVE OVER TYPE CURB AND GUTTER
(REQUIRED IN NEW DEVELOPMENTS)

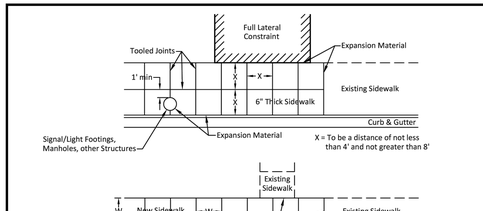
* THICKNESS SHALL BE EQUAL TO THE DEPTH OF THE ADJOINING PAVEMENT BUT NOT LESS THAN 6".

GENERAL NOTES:

1) On PCC pavement a keyway longitudinal joint with tie bars shall be used when curb and gutter is poured separately.
2) Curb and gutter shall be constructed using M-6 concrete unless monolithically constructed with the adjacent pavement. In monolithic paving, concrete mix for the curb and gutter may be the same as the adjacent concrete pavement.
3) The curb transition length at ADA curb ramps will be dependent on the type of curb ramp being installed. Refer to plate 651.06 for additional curb transition information.

Revised: February 2018

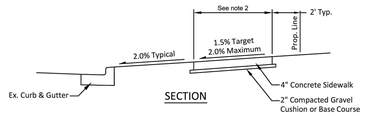
SPECIFICATION REFERENCE NO.	CITY OF HURON ENGINEERING CONCRETE CURB AND GUTTER SECTION	PLATE NUMBER
650		650.01



W = The width of the sidewalk joint spacing should be equal to the width of the sidewalk. (See note 2 below)

Expansion joints shall be placed at 50 foot intervals, or to the nearest tooled joint.

PLAN



SECTION

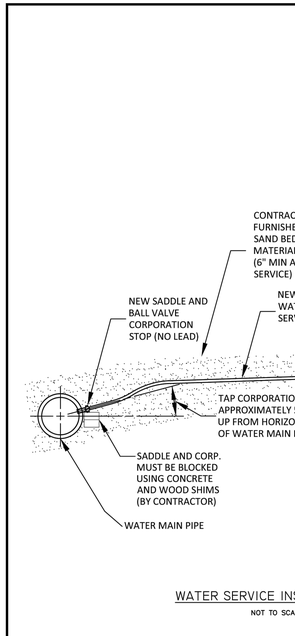
GENERAL NOTES:

1. The concrete for sidewalk shall be class M-6 concrete.
2. Sidewalk width shall be 4 feet minimum on local streets and cul-de-sacs with residential housing. On collector and arterial streets and areas abutted by commercial, industrial, and multi family lots, the minimum sidewalk width shall be 5 feet. When sidewalk is located back of curb, the minimum width shall be 6 feet.

   For new construction on local streets and cul-de-sacs with residential housing a 5 foot wide by 5 foot long passing space is required every 200 feet. To accommodate this requirement the sidewalk must be a minimum of 5 foot wide through the driveway approach. This additional width should be located on the house side of the approach unless there are right of way restrictions making it necessary to place the additional width on the street side of the approach.
3. Location of sidewalk from curb line will vary, however, in most instances the sidewalk will be located 2' off the property line. Verify sidewalk locations with the City Engineers office before proceeding.
4. All sidewalks shall have a 4' minimum wide path which will serve as the pedestrian access route. This pedestrian access route shall be clear of all obstructions such as light poles, signal poles, meter posts, etc. Additionally, the maximum cross slope on the pedestrian access route is 2%. Positive drainage must be maintained on all sidewalks.
5. Sidewalk placed directly behind the curb and gutter shall be a minimum of 4" in depth.
6. Isolation joints shall either intersect structures or be a minimum 1 foot clear of structure.

Revised: February 2018

SPECIFICATION REFERENCE	CITY OF HURON ENGINEERING **SIDEWALK LAYOUT DETAILS**	PLATE NUMBER
NO. 651		651.01

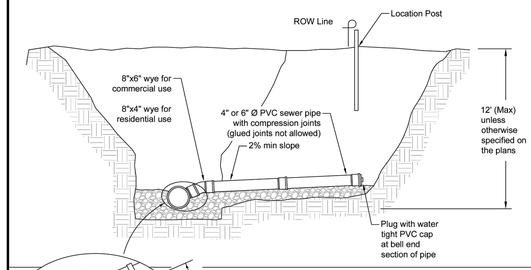


WATER SERVICE INSTALLATION
NOT TO SCALE

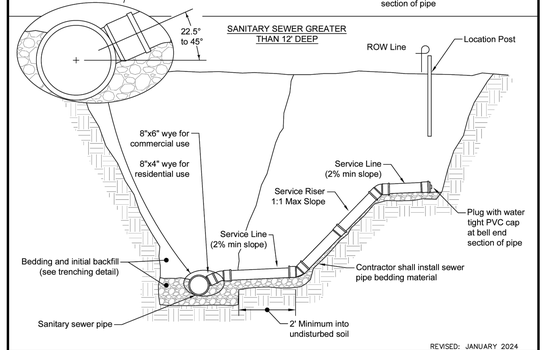
REVISED: MARCH 2018

SPECIFICATION REFERENCE NO.	CITY OF HURON ENGINEERING WATER SERVICE INSTALLATION	PLATE NUMBER
900		900.16

TYPICAL SANITARY SEWER LESS THAN 12' DEEP



SANITARY SEWER GREATER THAN 12' DEEP



REVISED: JANUARY 2024

SPECIFICATION REFERENCE NO.	CITY OF HURON ENGINEERING TYPICAL SANITARY SEWER SERVICE & RISER	PLATE NUMBER
950		950.13A

FOR CONSTRUCTION

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IMEG
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PH: 605.225.3494
www.imegcorp.com

STAMP:

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 13858
TRENT M. BAUMEISTER
SOUTH DAKOTA
8/7/2024

REVISIONS:
1 Addendum #2

SHEET NAME: **QUANTITIES & DETAILS**

FULL SCALE: 22x34
HALF SCALE: 11x17
DRAWING MAY NOT BE PRINTED TO SCALE

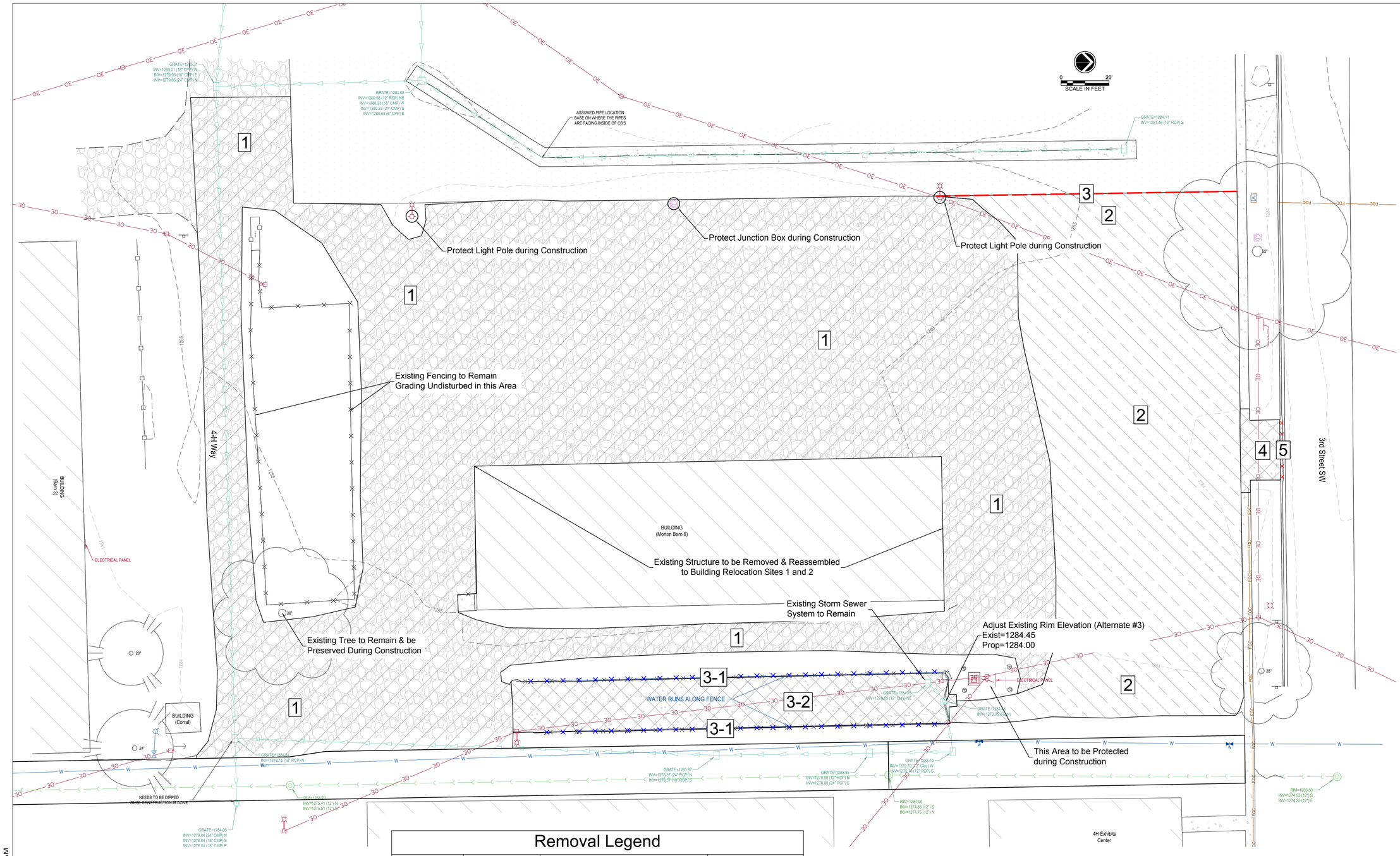
PROJECT NO.
OSE#: M2319-10X

LIVESTOCK PLAZA/SHEEP BARN
HURON, SD

PROJECT MANAGER:
NICK KUMMER

DATE:
07.17.2024

SHEET:
C3.1



Removal Legend

Keynote		Description	Quantity
1		Remove Gravel Surfacing	52,000 SF
2		Remove Asphalt Surfacing	19,050 SF
3		Sawcut Asphalt	125 LF
4		Remove Concrete Surfacing	455 SF
5		Remove Curb & Gutter	30 LF

Removal Legend (Alternate #3)

Keynote		Description	Quantity
3-1		Remove Railing w/Water	355 LF
3-2		Remove Concrete Wash Bay	3,865 SF

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13858
TRENT M.
BAUMEISTER
SOUTH DAKOTA
7-17-24

REVISIONS:
1 Addendum #2 8/7/2024

SHEET NAME: **DEMOLITION PLAN**

FULL SCALE: 22x34
HALF SCALE: 11x17
DRAWING MAY NOT BE
PRINTED TO SCALE

PROJECT NO.
OSE#: M2319-10X

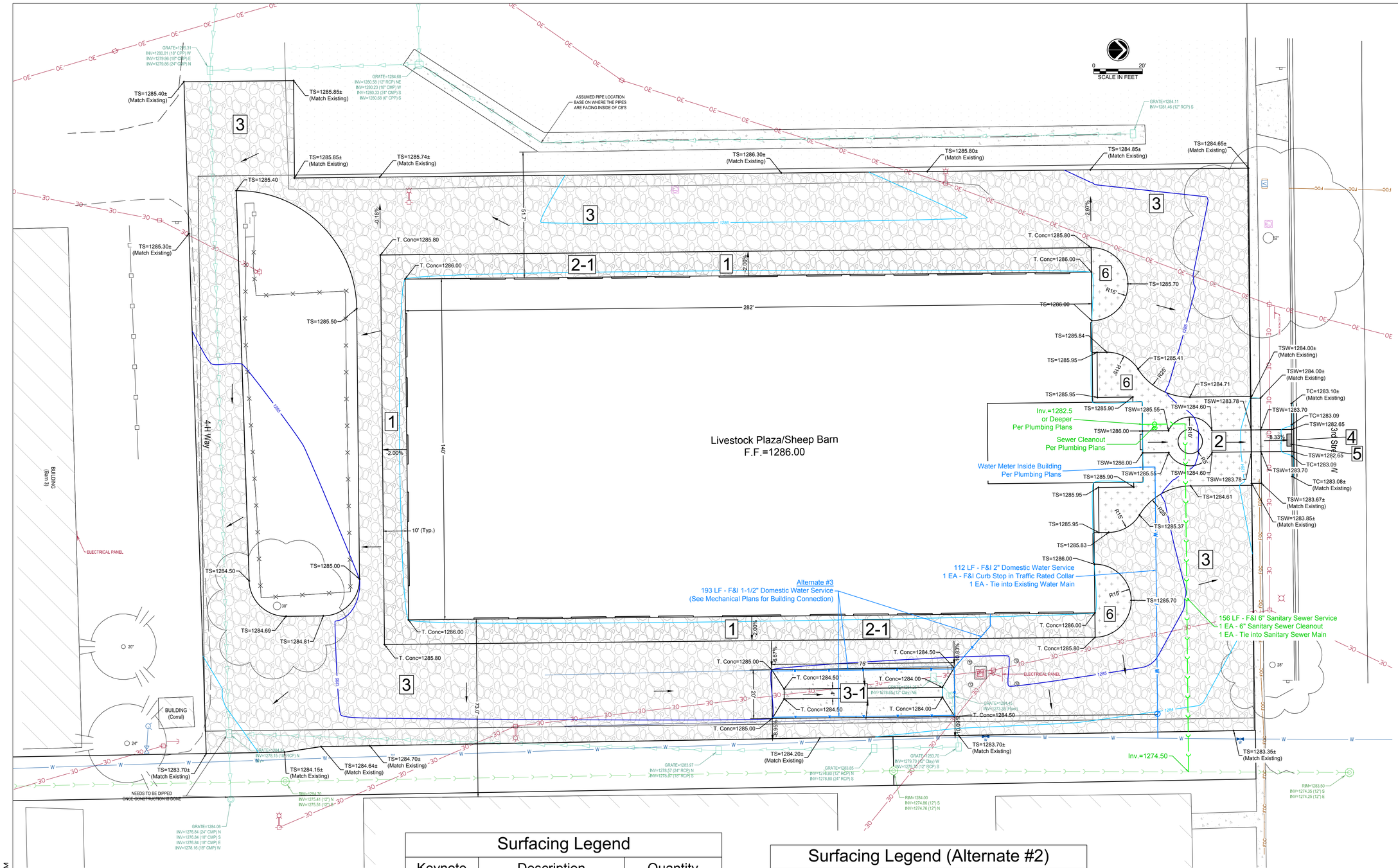
LIVESTOCK PLAZA/SHEEP BARN

HURON, SD

PROJECT MANAGER:
NICK KUMMER

DATE:
07.17.2024

SHEET:
C4.1



Surfacing Legend

Keynote	Description	Quantity
1	F&I 10' Gravel Apron	7,180 SF
2	F&I Concrete Sidewalk	820 SF
3	F&I Gravel Surfacing	42,905 SF
4	F&I Concrete Curb & Gutter	30 LF
5	F&I Detectable Warning Panel	10 SF
6	Landscaping (By Others)	2,435 SF

Surfacing Legend (Alternate #2)

Keynote	Description	Quantity
2-1	F&I 10' Concrete Apron	7,180 SF

Surfacing Legend (Alternate #3)

Keynote	Description	Quantity
3-1	F&I Concrete Wash Bay	1,500 SF

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TRENT M. BAUMEISTER
SOUTH DAKOTA
7-17-24

REVISIONS:
1 Addendum #2 8/7/2024

SHEET NAME: SITE GRADING & UTILITIES

FULL SCALE: 22x34
HALF SCALE: 11x17
DRAWING MAY NOT BE PRINTED TO SCALE

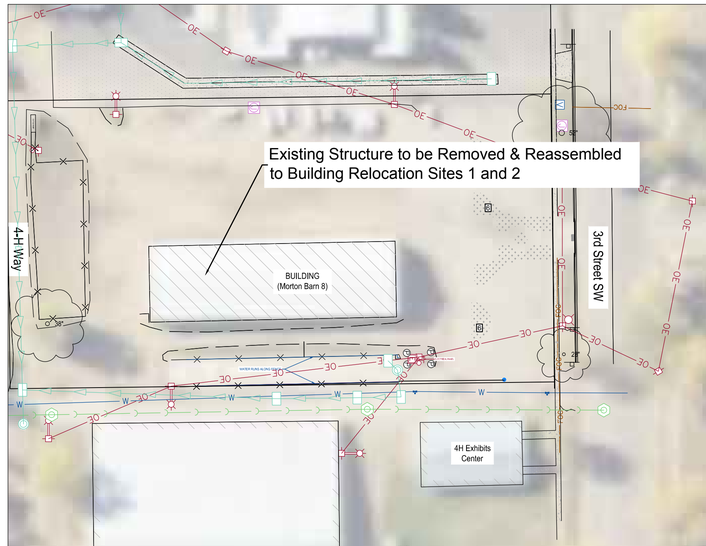
PROJECT NO.
OSE#: M2319-10X

LIVESTOCK PLAZA/SHEEP BARN
HURON, SD

PROJECT MANAGER:
NICK KUMMER

DATE:
07.17.2024

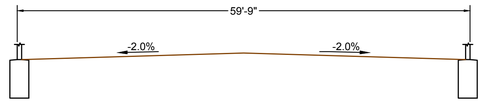
SHEET:
C5.1



0 60'
SCALE IN FEET

Building Relocation Site 1 (South Half)

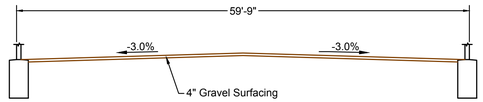
1. Relocated building must be a minimum of 60' from Existing DEX Building.
2. Grading for Site 1 will include fill from Pier Excavation and Contractor Furnished Borrow
   - 2.1. 60 CY - Grading
   - 2.2. 30 CY - Contractor Furnished Borrow



South Half Building
Typical Section

Building Relocation Site 2 (North Half)

1. Existing Building, Trees and Concrete will be removed by the State Fair.
2. Existing Chainlink Fencing will need to be removed & reset. (150 LF)
3. Relocated building must be a minimum of 60' from Existing DEX Building.
4. Grading for Site 2 will include fill from Pier Excavation and 4" Gravel Surfacing.
   - 4.1. 100 CY - Grading
   - 4.2. 150 Tons - Gravel Base Course



North Half Building
Typical Section

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TRENT M. BAUMEISTER
SOUTH DAKOTA
7-17-24

REVISIONS:
1 Addendum #2 8/7/2024

SHEET NAME:
BUILDING RELOCATION SITE PLAN

FULL SCALE: 22x34
HALF SCALE: 11x17
DRAWING MAY NOT BE PRINTED TO SCALE

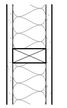
PROJECT NO.
OSE#: M2319-10X

LIVESTOCK PLAZA/SHEEP BARN
HURON, SD

PROJECT MANAGER:
NICK KUMMER

DATE:
07.17.2024

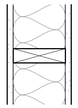
SHEET:
R-C1.1



A1. PARTITION WALL

NO RATING REQ'D.

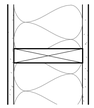
- 5/8" MOISTURE RESISTANT GYP.
- 2x4 WOOD STUDS @ 16" O.C.
  - SOUND ATTENUATION BATT INSUL
- 5/8" MOISTURE RESISTANT GYP.



A2. PARTITION WALL

NO RATING REQ'D.
STC **

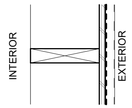
- 5/8" MOISTURE RESISTANT GYP.
- 2x6 WOOD STUDS @ 16" O.C.
  - SOUND ATTENUATION BATT INSUL.
- 5/8" MOISTURE RESISTANT GYP.



A3. CHASE WALL

NO RATING REQ'D.
STC **

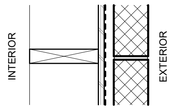
- 5/8" MOISTURE RESISTANT GYP.
- 2x8 WOOD STUDS @ 16" O.C.
  - SOUND ATTENUATION BATT INSUL.
- 5/8" MOISTURE RESISTANT GYP.



E1. EXTERIOR WALL

NO RATING REQ'D.

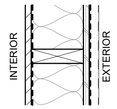
- 2x8 WOOD STUDS (SEE STRUCT.)
- EXTERIOR SHEATHING (SEE STRUCT.)
- CONT. INFILTRATION BARRIER
- METAL PANEL. (SEE ELEV.)



E2. EXTERIOR WALL

NO RATING REQ'D.

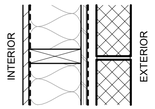
- 2x8 WOOD STUDS (SEE STRUCT.)
- EXTERIOR SHEATHING (SEE STRUCT.)
- CONT. INFILTRATION BARRIER
- 1" AIR SPACE
- 4" SPLIT-FACE CMU



E3. EXTERIOR WALL

NO RATING REQ'D.

- 5/8" MOISTURE RESISTANT GYP.
- 6 MIL. CONTINUOUS VAPOR BARRIER
- FABRIC/NETTING FOR BLOWN-IN INSUL.
- 2x6 WOOD STUDS @ 16" O.C.
  - MIN R-21 BLOWN-IN INSUL. SYSTEM.
- EXTERIOR SHEATHING (SEE STRUCT.)
- CONT. INFILTRATION BARRIER
- METAL LINER PANEL. (SEE ELEV.)



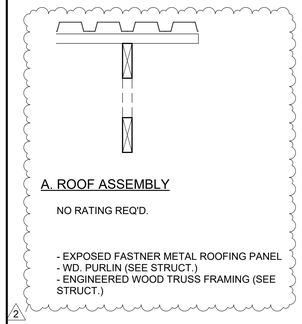
E4. EXTERIOR WALL

NO RATING REQ'D.

- 5/8" MOISTURE RESISTANT GYP.
- 6 MIL. CONTINUOUS VAPOR BARRIER
- FABRIC/NETTING FOR BLOWN-IN INSUL.
- 2x6 WOOD STUDS @ 16" O.C.
  - MIN R-21 BLOWN-IN INSUL. SYSTEM.
- EXTERIOR SHEATHING (SEE STRUCT.)
- CONT. INFILTRATION BARRIER
- 1" AIR SPACE
- 4" SPLIT-FACE CMU

1 WALL TYPES

1 1/2" = 1'-0"

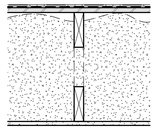


A. ROOF ASSEMBLY

NO RATING REQ'D.

- EXPOSED FASTNER METAL ROOFING PANEL
- WD. PURLIN (SEE STRUCT.)
- ENGINEERED WOOD TRUSS FRAMING (SEE STRUCT.)

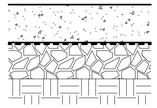
2



B. FLOOR ASSEMBLY

NO RATING REQ'D.

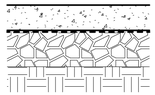
- LUXURY VINYL TILE
- 6 MIL. FLOOR UNDERLAYMENT
- PLYWOOD (SEE STRUCT.)
- ENGINEERED WOOD TRUSS FRAMING (SEE STRUCT.)
  - MIN R-30 BLOWN-IN INSUL. SYSTEM.
  - FILL CAVITY ENTIRELY
- FABRIC/NETTING FOR BLOWN-IN INSUL.
- 5/8" MOISTURE RESISTANT GYP.



C. FLOOR SLAB ASSEMBLY

NO RATING REQ'D.

- 6" CONC. SLAB (SEE STRUCT.)
- 10 MIL CONT. POLYVAPOR BARRIER
- 24" ENGINEERED FILL (SEE STRUCT.)
- UNDISTURBED EARTH



D. FLOOR SLAB ASSEMBLY

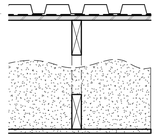
NO RATING REQ'D.

- 4" CONC. SLAB (SEE STRUCT.)
- 10 MIL CONT. POLYVAPOR BARRIER
- 24" ENGINEERED FILL (SEE STRUCT.)
- UNDISTURBED EARTH

E. ACT CEILING ASSEMBLY

NO RATING REQ'D.

- FULLY SUSP. ACOUSTICAL CEILING SYSTEM



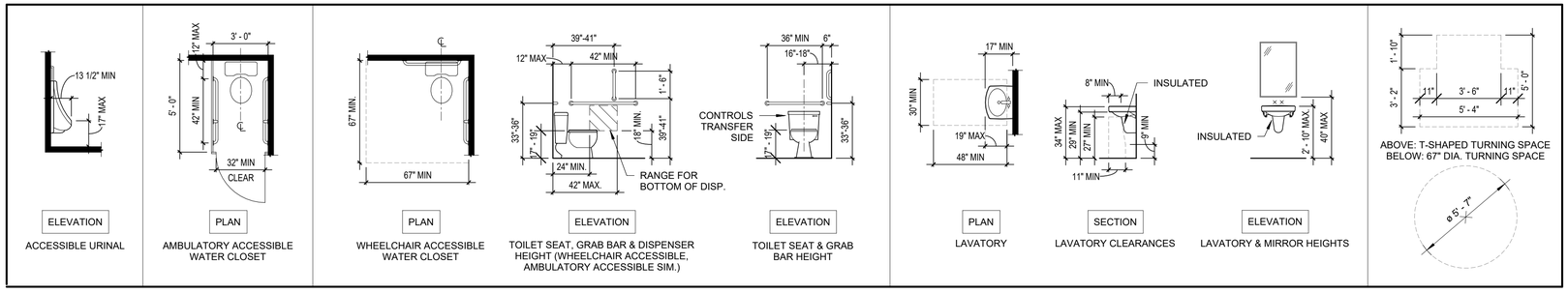
F. GYP. CEILING ASSEMBLY

NO RATING REQ'D.

- EXPOSED FASTNER METAL ROOFING PANEL
- FELT UNDERLAYMENT (SEE ROOF PLAN)
- PLYWOOD (SEE STRUCT.)
- WOOD ROOF FRAMING (SEE STRUCT.)
  - MIN R-30 BLOWN-IN INSUL. SYSTEM.
  - FOR 2x RAFTERS, FILL CAVITY ENTIRELY
- FABRIC/NETTING FOR BLOWN-IN INSUL.
- 5/8" MOISTURE RESISTANT GYP.

2 ASSEMBLY TYPES

1" = 1'-0"



3 ADA REQUIREMENTS

1/4" = 1'-0"

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REG. NO. 14101
MATTHEW J. WEISS
SOUTH DAKOTA
07.17.24

REVISIONS:

NO.	DESCRIPTION:	DATE:

SHEET NAME: **WALL & ASSEMBLY TYPES**

FULL-SCALE: 22x34
HALF-SCALE: 11x17
DRAWING MAY NOT BE PRINTED TO SCALE

PROJECT NO.
OSE#: M2319-10X
SD STATE FAIR

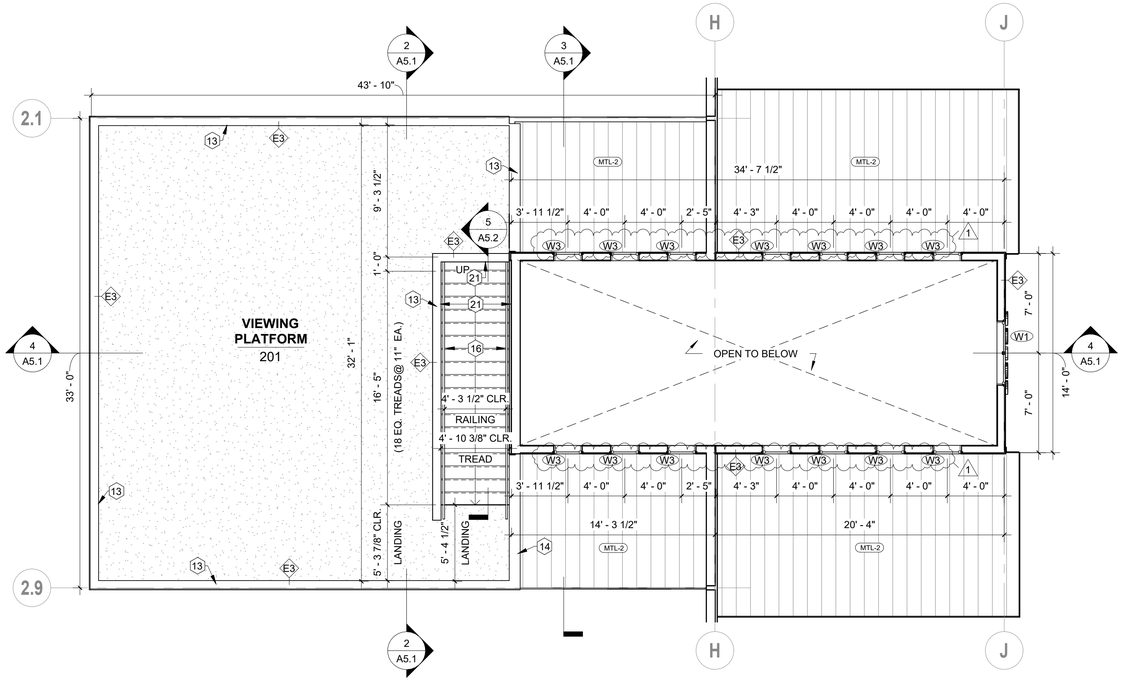
LIVESTOCK PLAZA/SHEEP BARN

HURON, SD

PROJECT MANAGER:
NICK KUMMER

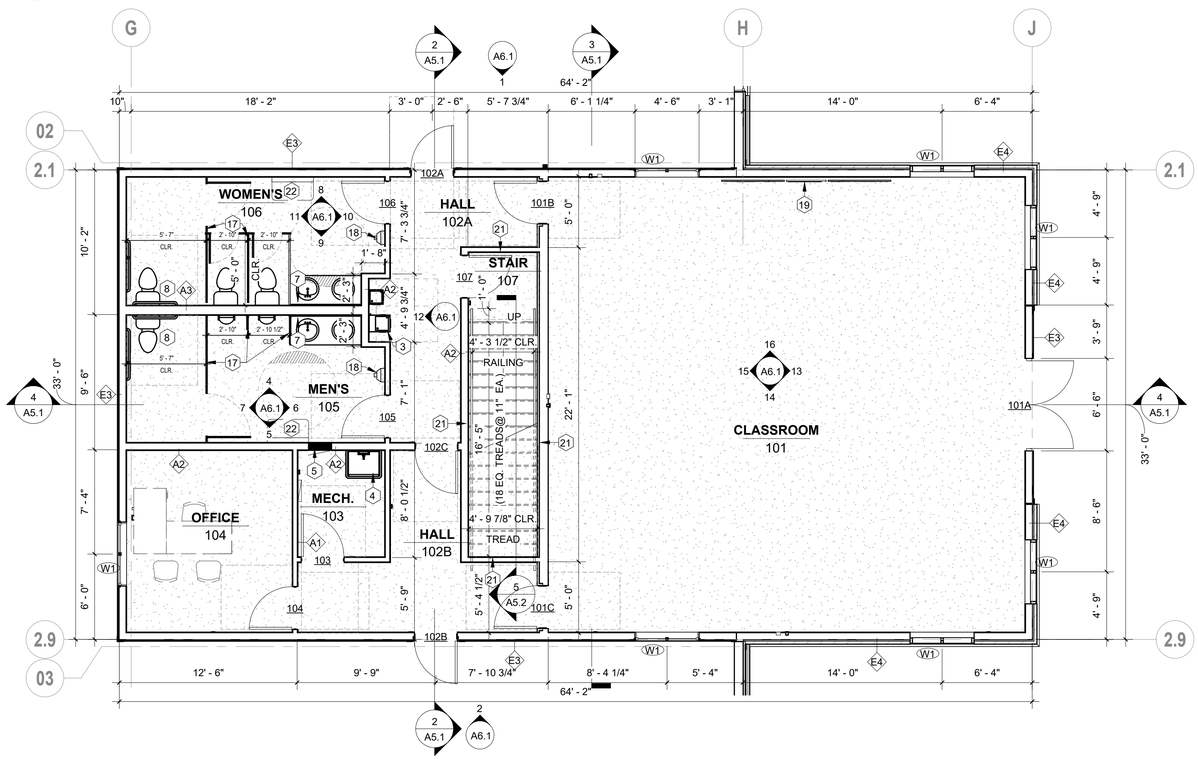
DATE:
07.17.2024

SHEET:
T1.3



2 ATRIUM / EDUCATION CENTER - MEZZANINE PLAN

3/16" = 1'-0"



1 ATRIUM / EDUCATION CENTER - FIRST FLOOR PLAN

3/16" = 1'-0"

DATE PRINTED: 8/8/2024 9:21:03 AM

GENERAL NOTES - FLOOR PLANS

A. ALL DIMENSIONS FROM FACE OF STUD UNLESS CLEARLY NOTED OTHERWISE.
B. WALL TYPES LISTED ON SHEET T1.3.
C. FLOOR FINISH TRANSITIONS TO BE 1/4" MAX. BETWEEN FINISH HEIGHTS.
D. PROVIDE WATER-RESISTANT GYP. BD. AT ALL BATHROOM WALL SURFACES UNLESS CLEARLY NOTED OTHERWISE. MAINTAIN FIRE-RESISTANCE RATING, WHERE REQ'D.
E. CAULK PERIMETER OF ALL BACKSPLASHES. CAULK JOINT TO BE CLEAR OR MATCH COLOR OF ADJ. WALL FINISH.
F. SEE SHEET A7.1 FOR DOOR/WINDOW/FRAME ELEVATIONS, DOOR SCHEDULE AND WINDOW SCHEDULE.
G. SEE ROOM FINISH SCHEDULE ON SHEET A7.1 FOR ALL INTERIOR FINISHES TO BE PROVIDED.
H. MOVABLE FURNITURE SHOWN AS REFERENCE ONLY (NOT IN CONTRACT).
I. PROVIDE CORNER GUARDS AT ALL INTERIOR OUTSIDE-CORNER APPLICATIONS EQUAL TO OR GREATER THAN 90 DEGREES.

⬡ KEYNOTES - FLOOR PLANS

1. ANIMAL PENS, PROVIDED AND INSTALLED BY OWNER.
2. CABLE CROSS BRACING, (SEE STRUCT.)
3. WATER FOUNTAIN, (SEE MECH.)
4. WASH BASIN, (SEE MECH.)
5. ELECTRICAL SUB PANEL, (SEE ELECT.)
6. HOSE BIB, (SEE MECH.)
7. 24" X 36" MIRROR, SEE ADA REQUIREMENTS FOR MOUNTING HEIGHTS.
8. ACCESSIBLE GRAB BARS, SEE ADA REQUIREMENTS FOR MOUNTING HEIGHTS.
9. PIPE BOLLARD. (SEE DETAIL 2/AC1.1)
10. BLEACHERS, PROVIDED AND INSTALLED BY OWNER.
11. STEEL COLUMN, (SEE STRUCT.)
12. ARENA AREA, GATES PROVIDED AND INSTALLED BY OWNER.
13. 42" H GUARD WALL WITH PAINTED WD. CAP. PAINT WHITE.
14. PRE-FINISHED METAL FASCIA.
15. WALL MOUNTED HEAT PUMP. MOUNT 8'-0" FROM F.F. (SEE MECH.)
16. MTL. PIPE HANDRAIL. PAINT BLACK
17. SCRANTON OVERHEAD BRACED PLASTIC TOILET PARTITIONS IN SANDCASTLE ORANGE PEEL. SEE ELEVATIONS.
18. ELECTRIC HAND DRYER. (SEE ELECT.)
19. DONOR WALL. PROVIDED AND INSTALLED BY OWNER.
20. BID ALTERNATE #1 CONCRETE THROUGHOUT SHOW AREA. (SEE STRUCT.) FOR REQUIREMENTS. SEE SPECIFICATION FOR BID ALTERNATE EXPLANATION.
21. STAIR ENCLOSURE TO HAVE VAPOR BARRIER TOWARDS STAIR SIDE.
22. BABY CHANGING STATION.
23. INSULATED PIPE SLEEVE
24. V-SHAPED GYPSUM EXPANSION JOINT TRIM.
25. GYPSUM DEFLECTION BEAD WITH INTEGRAL GASKETING.

FLOOR PLAN LEGEND:

- INDICATES ACCESSIBLE ROOM
- INDICATES HEARING IMPAIRED ROOM, SEE ELECTRICAL.
- WALL TYPE, SEE SHEET T1.3.
- W3 — WINDOW / STOREFRONT TYPE, SEE SHEET A7.1.
- 1i — DOOR #, SEE SHEET A7.1.
- DOOR APPROACH FOR ADA CLEARANCES
- SHEAR WALL, SEE STRUCT.
- FD — FLOOR DRAIN, SEE MECH.
- FS — FLOOR SINK, SEE MECH.
- DS — DOWNSPOUT

NOTE: NOT ALL DESIGNATIONS WILL APPEAR.

NORTH

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SOUTH DAKOTA
07.17.24

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1	Addendum #1	8/6/24
2	Addendum #2	8/7/24

SHEET NAME: **ENLARGED PLANS**

FULL-SCALE: 22x34
HALF-SCALE: 11x17
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PROJECT NO.
OSE#: M2319-10X
SD STATE FAIR

LIVESTOCK PLAZA/SHEEP BARN

HURON, SD

PROJECT MANAGER:
NICK KUMMER

DATE:
07.17.2024

SHEET:
A3.2

EXTERIOR MATERIALS SCHEDULE

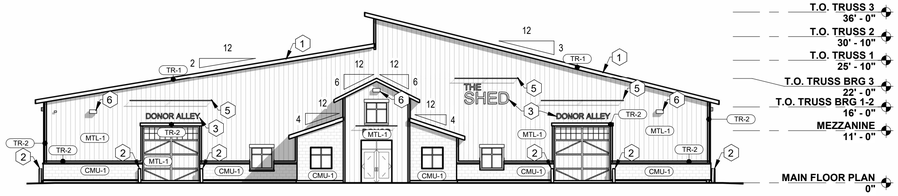
MARK	MATERIAL DESCRIPTION
CMU-1	SPLIT FACE CMU VENEER
MTL-1	METAL LINER PANEL
TR-1	WD. TRIM
TR-2	METAL TRIM

GENERAL NOTES - BUILDING ELEVATIONS

A. EXTERIOR LIGHTING INDICATED FOR PLACEMENT ONLY. SEE ELEC. FOR LIGHTING SPECIFICATIONS.
B. SEE SPECIFICATIONS FOR FULL REQUIREMENTS FOR EXTERIOR BUILDING MATERIALS. MATERIALS INDICATED GENERICALLY ON PLANS FOR CLARITY.

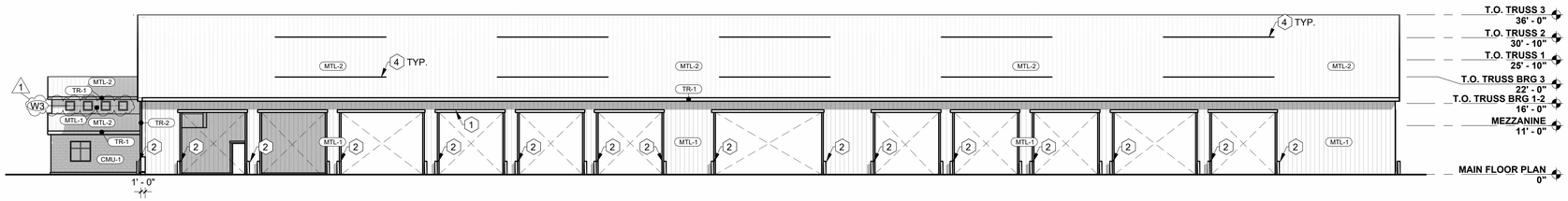
KEYNOTES - BUILDING ELEVATIONS

1. WOOD TRIM, PAINT TO MATCH METAL TRIM.
2. PIPE BOLLARD, PAINT HIGH VISIBILITY YELLOW.
3. SIGNAGE, (SEE ELECT.) FOR LIGHTING REQUIREMENTS. SIGNAGE PROVIDED AND INSTALLED BY OWNER.
4. SNOW GUARDS, (SEE SPEC'S)
5. METAL LOUVER, (SEE MECH.)
6. LIGHTING, (SEE ELECT.)



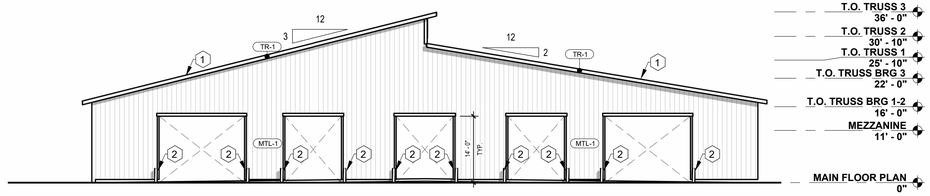
1 BUILDING ELEVATION - NORTH

1/16" = 1'-0"



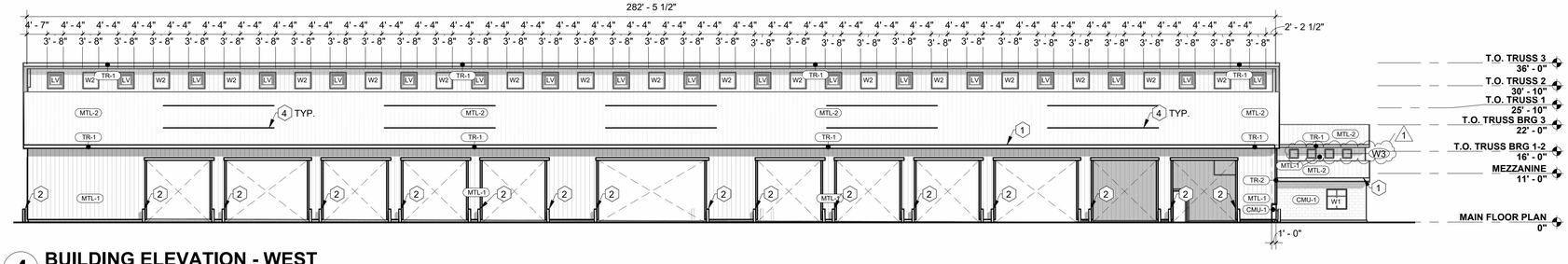
2 BUILDING ELEVATION - EAST

1/16" = 1'-0"



3 BUILDING ELEVATION - SOUTH

1/16" = 1'-0"



4 BUILDING ELEVATION - WEST

1/16" = 1'-0"

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2	Addendum #2	8/7/24

SHEET NAME: BUILDING ELEVATIONS

FULL-SCALE: 22x34
HALF-SCALE: 11x17
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PROJECT NO.
OSE#: M2319-10X
SD STATE FAIR

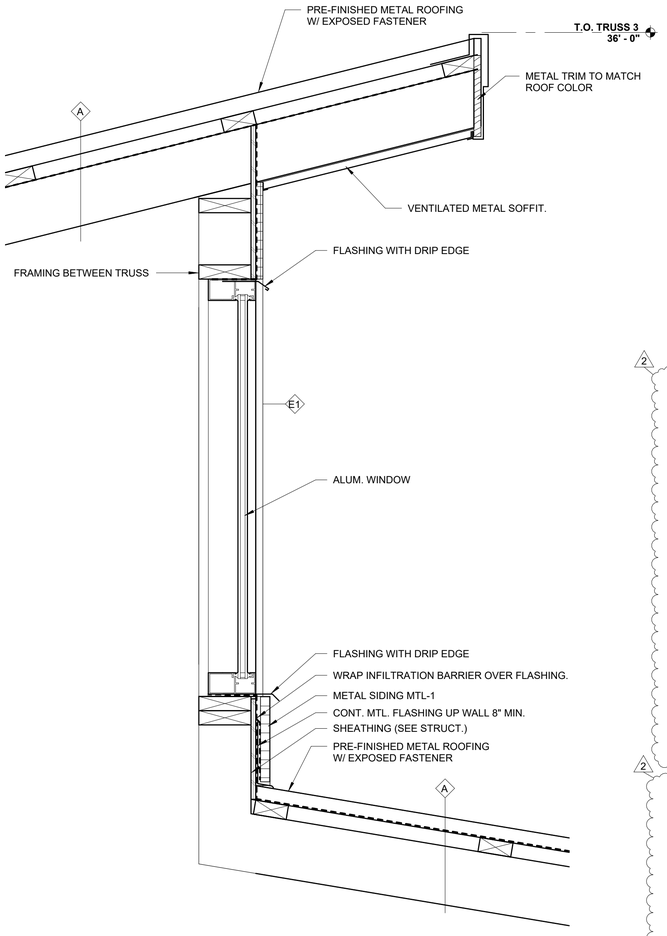
LIVESTOCK PLAZA/SHEEP BARN

HURON, SD

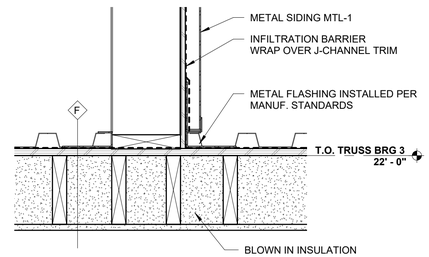
PROJECT MANAGER:
NICK KUMMER

DATE:
07.17.2024

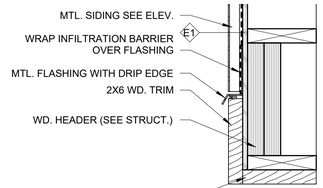
SHEET:
A4.1



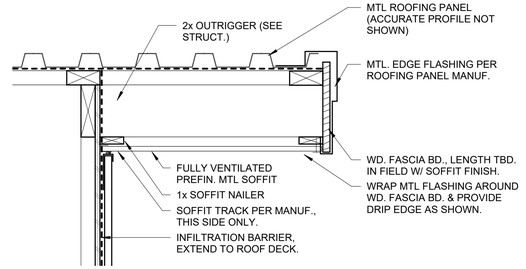
1 CLERESTORY - WINDOW/LOUVER DETAIL
1 1/2" = 1'-0"



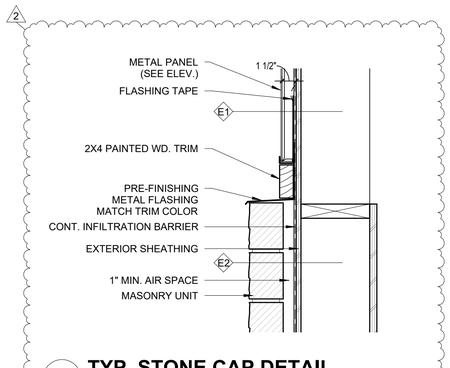
2 WALL @ ROOF DETAIL
1 1/2" = 1'-0"



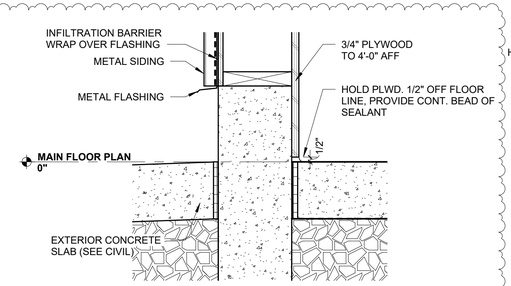
3 TYP. CASED OPENING DETAIL @ HEAD
1 1/2" = 1'-0"



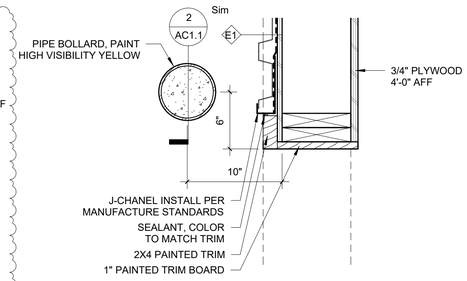
4 TYP. EAVE DETAIL @ ARENA
1 1/2" = 1'-0"



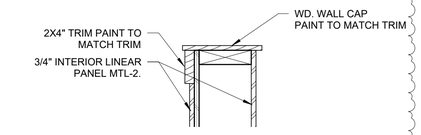
5 TYP. STONE CAP DETAIL
1 1/2" = 1'-0"



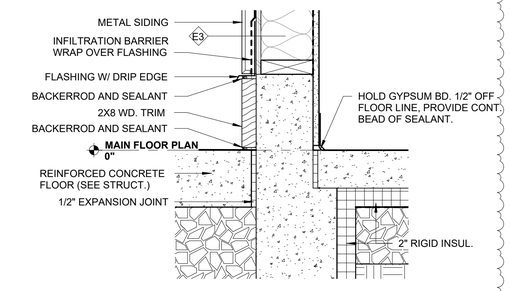
6 FOUNDATION DETAIL - TYP. ARENA
1 1/2" = 1'-0"



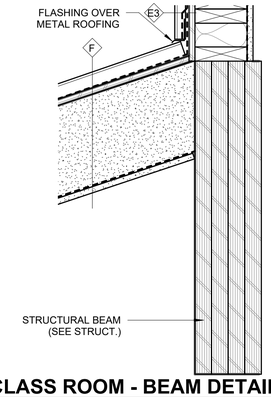
7 WALL OPENING & BOLLARD DETAIL
1 1/2" = 1'-0"



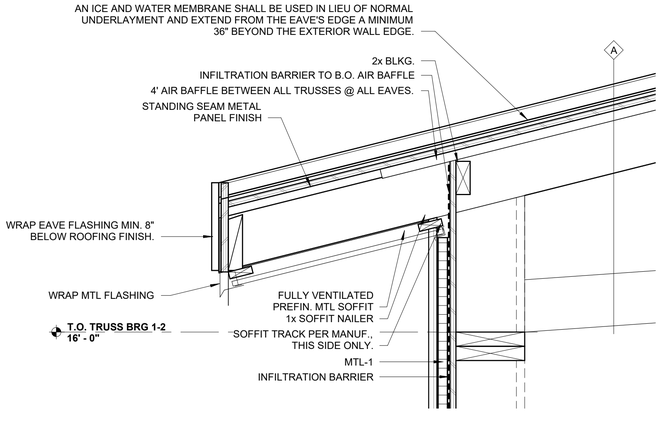
8 TYP. WALL CAP DETAIL
1 1/2" = 1'-0"



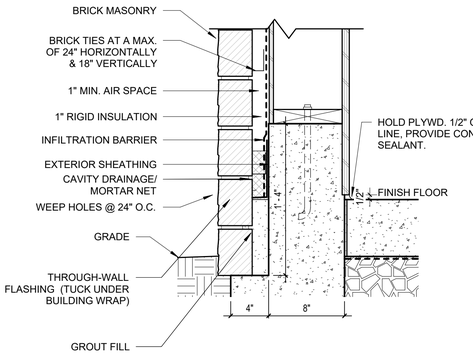
9 FOUNDATION DETAIL - TYP.
1 1/2" = 1'-0"



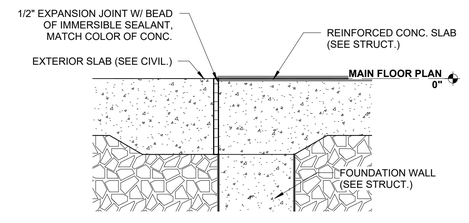
10 CLASS ROOM - BEAM DETAIL
1 1/2" = 1'-0"



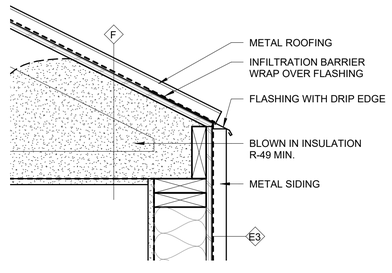
11 TYP. EAVE DETAIL
1 1/2" = 1'-0"



12 FOUNDATION DETAIL @ STONE
1 1/2" = 1'-0"



13 TYP. THRESHOLD DETAIL @ EXTERIOR SLAB
1 1/2" = 1'-0"



14 CLASSROOM EAVE DETAIL
1 1/2" = 1'-0"

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07.17.24

REVISIONS:		
NO.	DESCRIPTION:	DATE:
2	Addendum #2	8/7/24

SHEET NAME: DETAILS

FULL-SCALE: 22x34
HALF-SCALE: 11x17
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PROJECT NO.
OSE#: M2319-10X
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LIVESTOCK PLAZA/SHEEP BARN
HURON, SD

PROJECT MANAGER:
NICK KUMMER

DATE:
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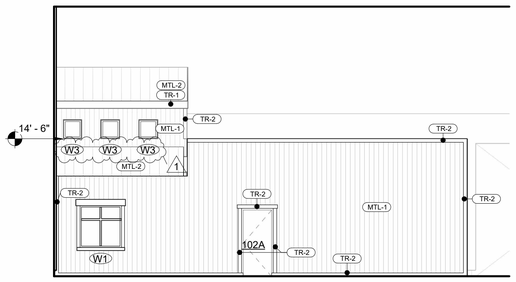
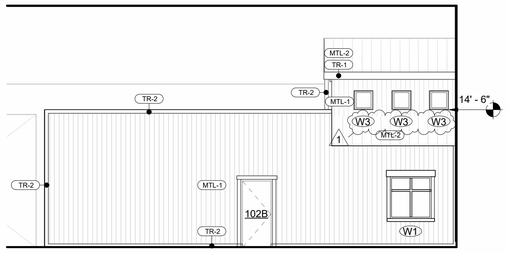
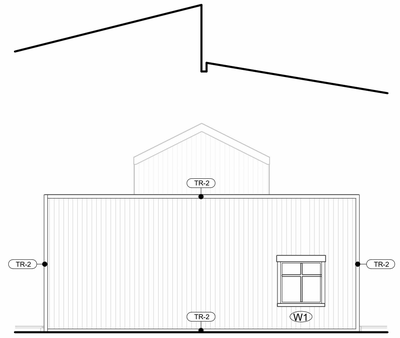
SHEET:
A5.3



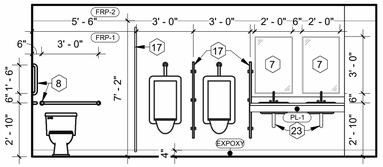
1 CLASS ROOM EXTERIOR ELEVATION - NORTH
1/8" = 1'-0"



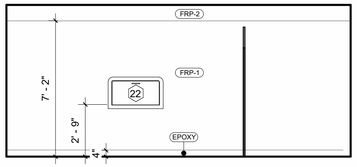
2 CLASS ROOM EXTERIOR ELEVATION - SOUTH
1/8" = 1'-0"



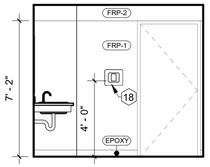
3 CLASS ROOM EXTERIOR ELEVATION - WEST
1/8" = 1'-0"



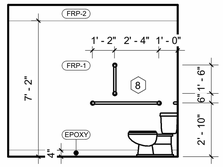
4 MEN'S R.R.
1/4" = 1'-0"



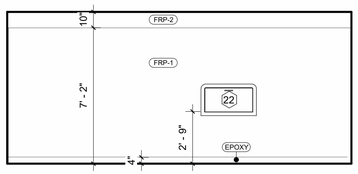
5 MEN'S R.R.
1/4" = 1'-0"



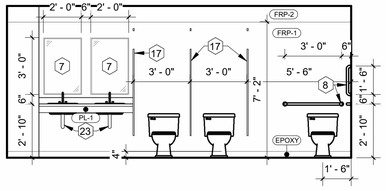
6 MEN'S R.R.
1/4" = 1'-0"



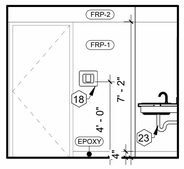
7 MEN'S R.R.
1/4" = 1'-0"



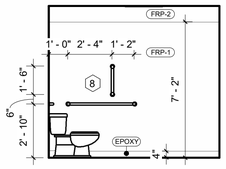
8 WOMEN'S R.R.
1/4" = 1'-0"



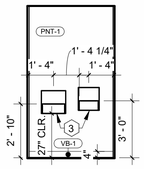
9 WOMEN'S R.R.
1/4" = 1'-0"



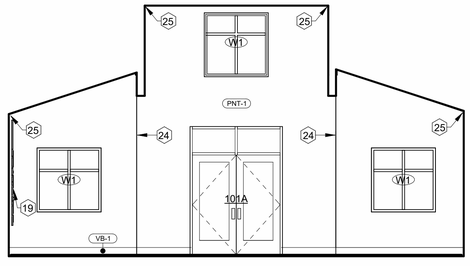
10 WOMEN'S R.R.
1/4" = 1'-0"



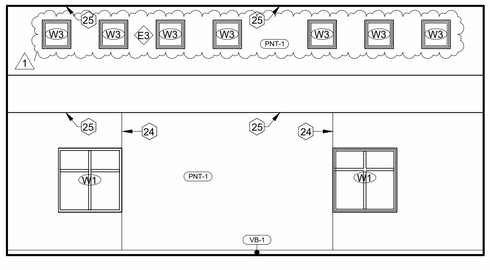
11 WOMEN'S R.R.
1/4" = 1'-0"



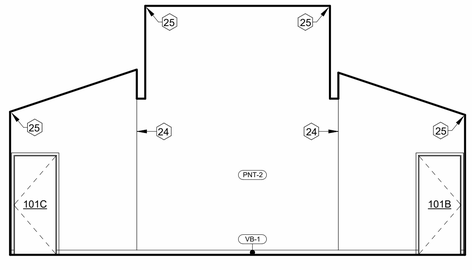
12 DRINKING FOUNTAIN
1/4" = 1'-0"



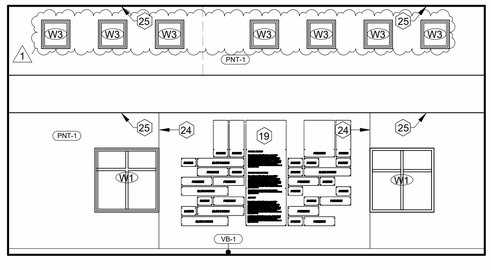
13 CLASS ROOM - NORTH ELEVATION
3/16" = 1'-0"



14 CLASS ROOM - EAST ELEVATION
3/16" = 1'-0"



15 CLASS ROOM - SOUTH ELEVATION
3/16" = 1'-0"



16 CLASS ROOM - WEST ELEVATION
3/16" = 1'-0"

GENERAL NOTES - FLOOR PLANS

A. ALL DIMENSIONS FROM FACE OF STUD UNLESS CLEARLY NOTED OTHERWISE.
B. WALL TYPES LISTED ON SHEET T1.3.
C. FLOOR FINISH TRANSITIONS TO BE 1/4" MAX. BETWEEN FINISH HEIGHTS.
D. PROVIDE WATER-RESISTANT GYP. BD. AT ALL BATHROOM WALL SURFACES UNLESS CLEARLY NOTED OTHERWISE. MAINTAIN FIRE-RESISTANCE RATING, WHERE REQ'D.
E. CAULK PERIMETER OF ALL BACKSPLASHES. CAULK JOINT TO BE CLEAR OR MATCH COLOR OF ADJ. WALL FINISH.
F. SEE SHEET A7.1 FOR DOOR/WINDOW/FRAME ELEVATIONS, DOOR SCHEDULE AND WINDOW SCHEDULE.
G. SEE ROOM FINISH SCHEDULE ON SHEET A7.1 FOR ALL INTERIOR FINISHES TO BE PROVIDED.
H. MOVABLE FURNITURE SHOWN AS REFERENCE ONLY (NOT IN CONTRACT).
I. PROVIDE CORNER GUARDS AT ALL INTERIOR OUTSIDE-CORNER APPLICATIONS EQUAL TO OR GREATER THAN 90 DEGREES.

KEYNOTES - FLOOR PLANS

1. ANIMAL PENS, PROVIDED AND INSTALLED BY OWNER.
2. CABLE CROSS BRACING, (SEE STRUCT.)
3. WATER FOUNTAIN, (SEE MECH.)
4. WASH BASIN, (SEE MECH.)
5. ELECTRICAL SUB PANEL, (SEE ELECT.)
6. HOSE BIB, (SEE MECH.)
7. 24" X 36" MIRROR, SEE ADA REQUIREMENTS FOR MOUNTING HEIGHTS.
8. ACCESSIBLE GRAB BARS, SEE ADA REQUIREMENTS FOR MOUNTING HEIGHTS.
9. PIPE BOLLARD. (SEE DETAIL 2/AC1.1)
10. BLEACHERS, PROVIDED AND INSTALLED BY OWNER.
11. STEEL COLUMN, (SEE STRUCT.)
12. ARENA AREA, GATES PROVIDED AND INSTALLED BY OWNER.
13. 42" H GUARD WALL WITH PAINTED WD. CAP. PAINT WHITE.
14. PRE-FINISHED METAL FASCIA.
15. WALL MOUNTED HEAT PUMP. MOUNT 8'-0" FROM F.F. (SEE MECH.)
16. MTL. PIPE HANDRAIL. PAINT BLACK
17. SCRANTON OVERHEAD BRACED PLASTIC TOILET PARTITIONS IN SANDCASTLE ORANGE PEEL. SEE ELEVATIONS.
18. ELECTRIC HAND DRYER, (SEE ELECT.)
19. DONOR WALL. PROVIDED AND INSTALLED BY OWNER.
20. BID ALTERNATE #1 CONCRETE THROUGHOUT SHOW AREA. (SEE STRUCT.) FOR REQUIREMENTS. SEE SPECIFICATION FOR BID ALTERNATE EXPLANATION.
21. STAIR ENCLOSURE TO HAVE VAPOR BARRIER TOWARDS STAIR SIDE.
22. BABY CHANGING STATION.
23. INSULATED PIPE SLEEVE
24. V-SHAPED GYPSUM EXPANSION JOINT TRIM.
25. GYPSUM DEFLECTION BEAD WITH INTEGRAL GASKETING.

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REG. NO. 14101
MATTHEW J. WEISS
SOUTH DAKOTA
07.17.24

REVISIONS:

NO.	DESCRIPTION:	DATE:
1	Addendum #1	8/6/24
2	Addendum #2	8/7/24

SHEET NAME: INTERIOR ELEVATIONS

FULL-SCALE: 22x34
HALF-SCALE: 11x17
DRAWING MAY NOT BE PRINTED TO SCALE

PROJECT NO.
OSE#: M2319-10X
SD STATE FAIR

LIVESTOCK PLAZA/SHEEP BARN

HURON, SD

PROJECT MANAGER:
NICK KUMMER

DATE:
07.17.2024

SHEET:
A6.1

DATE PRINTED: 8/8/2024 9:21:16 AM

DOOR SCHEDULE

MARK	ROOM	PANEL TYPE	PANEL WIDTH	PANEL HEIGHT	Frame Type	Frame Material	Fire Rating	HARDWARE SET	COMMENTS
MAIN FLOOR PLAN									
101A	CLASSROOM	D2	6' - 2"	7' - 0"	S1	ALUM	NONE	1	
101B	CLASSROOM	D1	3' - 0"	7' - 0"	F1	HM	NONE	3	
101C	CLASSROOM	D1	3' - 0"	7' - 0"	F1	HM	NONE	3	
102A	HALL	D1	3' - 0"	7' - 0"	F1	HM	NONE	2	INSULATED
102B	HALL	D1	3' - 0"	7' - 0"	F1	HM	NONE	2	INSULATED
102C	HALL	D1	3' - 0"	7' - 0"	F1	HM	NONE	3	
103	HALL	D1	3' - 0"	7' - 0"	F1	HM	NONE	5	
104	OFFICE	D1	3' - 0"	7' - 0"	F1	HM	NONE	4	
105	MEN'S	D1	3' - 0"	7' - 0"	F1	HM	NONE	6	
106	WOMEN'S	D1	3' - 0"	7' - 0"	F1	HM	NONE	6	
107	STAIR	D1	3' - 0"	7' - 0"	F1	HM	NONE	5	
O1	SHOW AREA	D3	12' - 0"	12' - 0"	- - -	WD	NONE		
O31	SHOW AREA	D3	12' - 0"	12' - 0"	- - -	WD	NONE		

GEN. NOTES - WINDOW & DOOR SCHEDULES

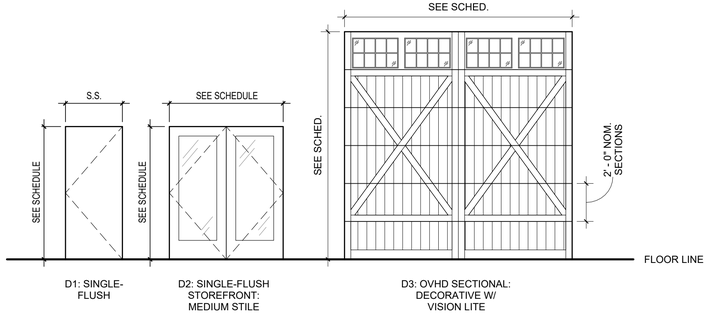
A. ALL OPAQUE EXTERIOR MAN-DOORS ARE TO HAVE U-0.700 MAX. ASSEMBLY RATING.
B. ALL OPAQUE EXTERIOR NON-SWINGING DOORS (OVHD, ETC.) ARE TO HAVE U-0.500 MAX. ASSEMBLY RATING.
C. ALLL ALUMINUM WINDOWS TO HAVE U-0.55 MAX. AND SHGC-0.40 MAX. ASSEMBLY RATINGS.
D. ALL ALUMINUM ENTRANCE DOORS TO HAVE U-0.80 MAX. AND SHGC-0.40 MAX. ASSEMBLY RATINGS.
E. ALL ALUMINUM CURTAINWALL/STOREFRONT GLAZING TO HAVE U-0.45 MAX. AND SHGC-0.40 MAX. ASSEMBLY RATINGS.
F. SEE SPECIFICATIONS FOR DOOR HARDWARE SCHEDULE.

ROOM FINISH SCHEDULE

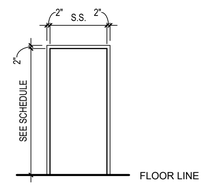
ROOM NUMBER	ROOM NAME	FLOOR FIN	FLOOR BASE	WALL NORTH	WALL EAST	WALL SOUTH	WALL WEST	CEILING FIN	CEILING HEIGHT
Not Placed									
103	MECH.								
110	Room								
MAIN FLOOR PLAN									
101	CLASSROOM	CONC-2	VB-1	PNT-1	PNT-1	PNT-2	PNT-1	GYP	VARRIES
102A	HALL	CONC-2	VB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	9'-0"
102B	HALL	CONC-2	VB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	9'-0"
103	MECH./ELEC.	CONC-2	VB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	9'-0"
103	MECH.	CONC-2	VB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	9'-0"
104	OFFICE	LVT-1	VB-1	PNT-1	PNT-1	PNT-1	PNT-1	ACT-1	9'-0"
105	MEN'S	EPOXY	EPOXY	FRP-1/FRP-2	FRP-1/FRP-2	FRP-1/FRP-2	FRP-1/FRP-2	ACT-1	9'-0"
106	WOMEN'S	EPOXY	EPOXY	FRP-1/FRP-2	FRP-1/FRP-2	FRP-1/FRP-2	FRP-1/FRP-2	ACT-1	9'-0"
107	STAIR	LVT-1	- - -	MTL-1	- - -	MTL-1	MTL-1	GYP	9'-0"
108	SHOW AREA	CONC-1	- - -	MTL-1/PLY-1	PLY-1	PLY-1	PLY1	OPEN	VARRIES
MEZZANINE									
201	VIEWING PLATFORM	LVT-1	- - -	MTL-1	MTL-1	MTL-1	MTL-1	OPEN	VARRIES

INTERIOR FINISH SCHEDULE

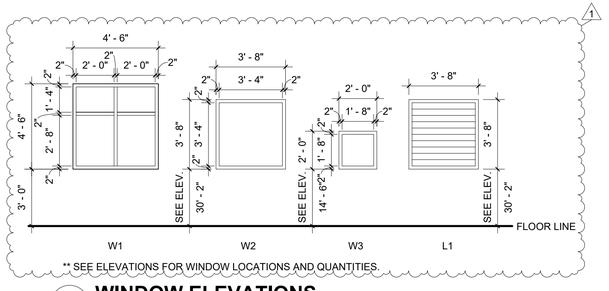
CODE	DESCRIPTION	COLOR & MATERIAL SPECIFICATIONS	MANUFACTURER/SUPPLIER
ACT-1	2X2 ACOUSTICAL CEILING TILE	2X2, ASTRO CLIMAPLUS, EDGE DETAIL: SLT; DONN DX/DXL	USG
CONC-1	CONCRETE	BRUSHED FINISH	---
CONC-2	CONCRETE	POLISHED CONCRETE, LEVEL 3	---
EPOXY	EPOXY FLOOR COVERING W/ 6" COVE BASE	FOGGY MORNING - DECRORATIVE RESINOUS FLOORING	SHERWIN WILLIAMS
FRP-1	FIBER-REINFORCED PLASTIC PANEL	FEATHER 0238	INPRO
FRP-2	FIBER-REINFORCED PLASTIC PANEL	PEBBLE GRAY 0387	INPRO
LVT-1	LUXURY VINYL TILE	CHAMPAGNE BEACH WOOD, 30 MIL, CLICK LOCK, WATERPROOF	LIFEPROOF
PL-1	HIGH-PRESSURE LAMINATE	FENIX J0754 BLU FES	FORMICA
PLY-1	SMOOTH FINISH PLYWOOD	3/4" THICK, 4'-0" FROM AFF	
PNT-1	PAINT	SATIN FINISH, ORANGE PEAL TEXTURE, WILLOW SPRINGS PPG 1007-1	PPG PAINTS
PNT-2	PAINT	SATIN FINISH, ORANGE PEAL TEXTURE, BARK PPG1007-7	PPG PAINTS
PNT-3	PAINT, ALKYD FOR METAL SUBSTRATES	SATIN FINISH, SOLITARY STATE, PPG1009-4	PPG PAINTS
SS-1	SOLID SURFACE WINDOW SILLS	EVERFORM TAR COLLECTION, LUNA CONCRETE	FORMICA
VB-1	VINYL BASE	63 BURNT UMBER B	JOHNSONITE



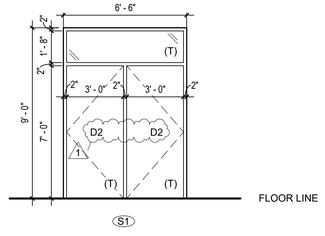
1 DOOR ELEVATIONS
1/4" = 1'-0"



2 FRAME ELEVATIONS
1/4" = 1'-0"



3 WINDOW ELEVATIONS
1/4" = 1'-0"



4 STOREFRONT ELEVATIONS
1/4" = 1'-0"

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1	Addendum #1	8/6/24
2	Addendum #2	8/7/24

SHEET NAME: SCHEDULES & DOOR ELEVATIONS

FULL-SCALE: 22x34
HALF-SCALE: 11x17
DRAWING MAY NOT BE PRINTED TO SCALE

PROJECT NO.
OSE#: M2319-10X
SD STATE FAIR

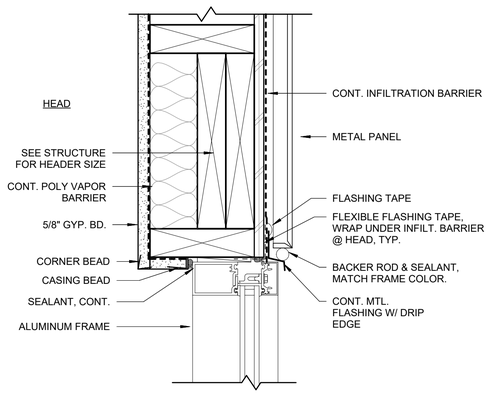
LIVESTOCK PLAZA/SHEEP BARN

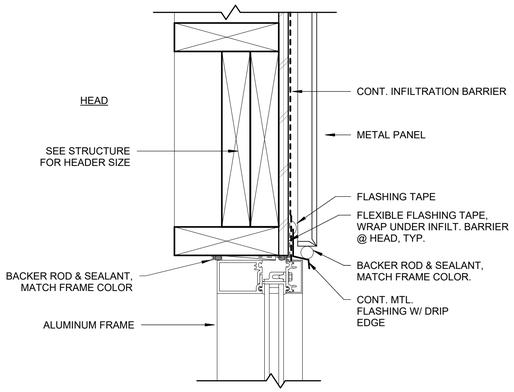
HURON, SD

PROJECT MANAGER:
NICK KUMMER

DATE:
07.17.2024

SHEET:
A7.1





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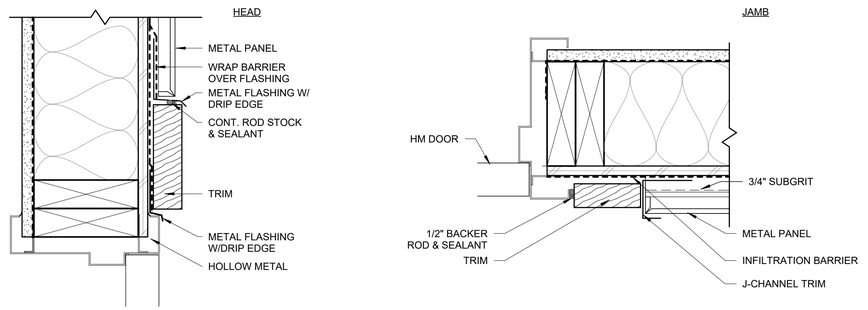
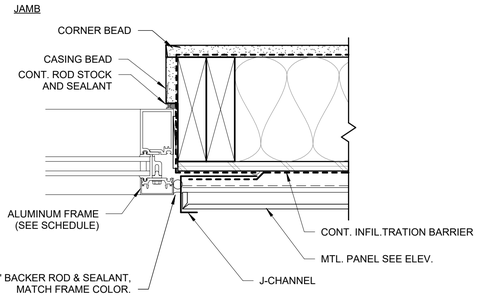
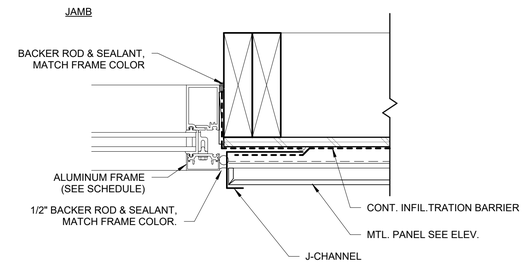
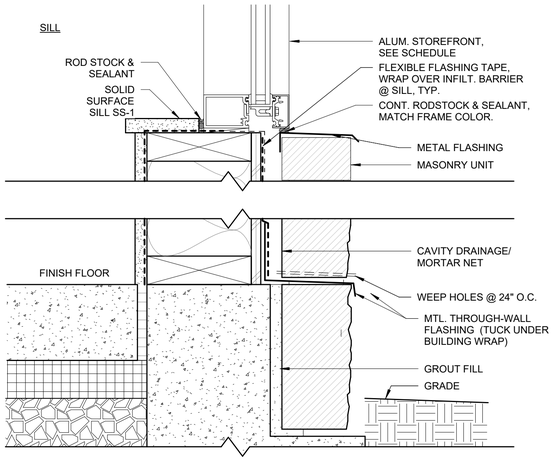


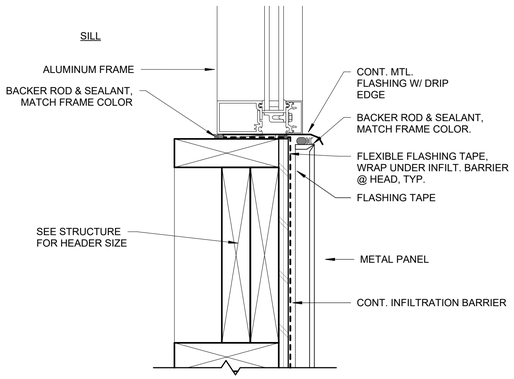
3 HM DOOR @ NON INSUL. WALLS
3" = 1'-0"



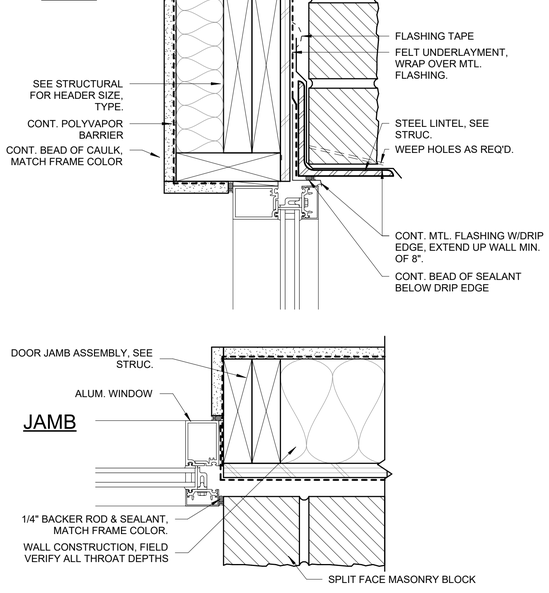




1 STOREFRONT @ INSUL. WALLS - DETAIL
3" = 1'-0"



2 STOREFRONT @ NON INSUL. WALLS
3" = 1'-0"



4 ALUM. WINDOW/DOOR @ MASONRY WALLS
3" = 1'-0"

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07.17.24

REVISIONS:		
NO.	DESCRIPTION:	DATE:
2	Addendum #2	8/7/24

SHEET NAME:
DOOR & WINDOW DETAILS

FULL-SCALE: 22x34
HALF-SCALE: 11x17
DRAWING MAY NOT BE PRINTED TO SCALE

PROJECT NO.
OSE#: M2319-10X
SD STATE FAIR

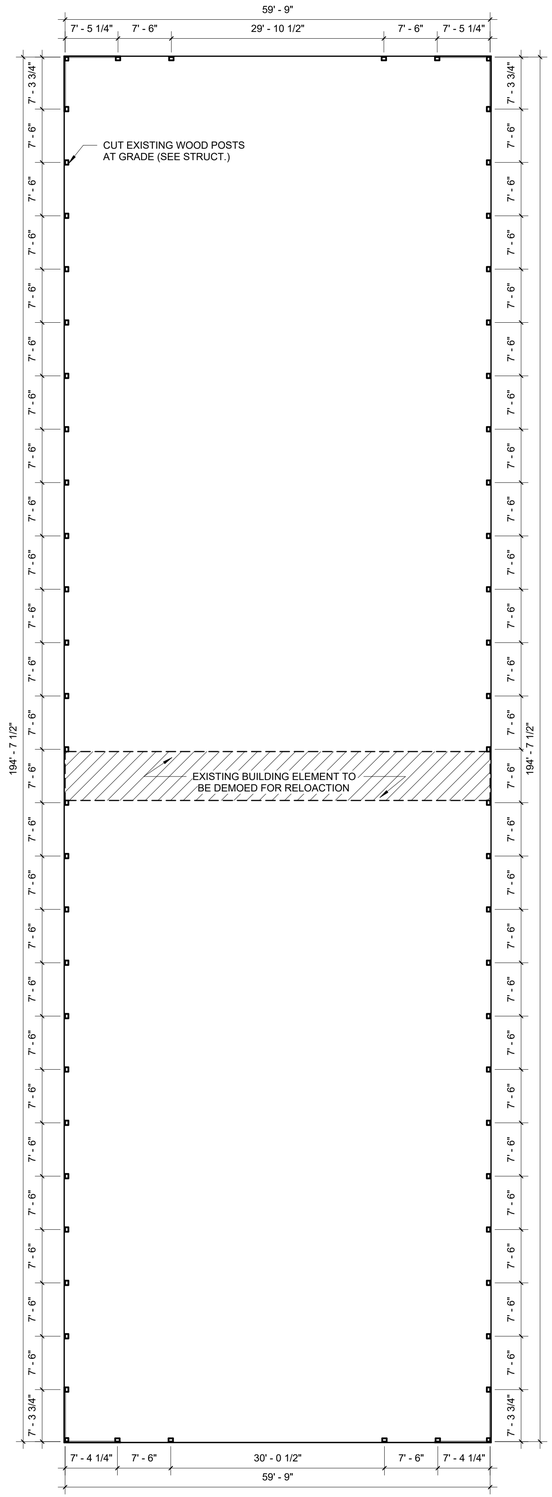
LIVESTOCK PLAZA/SHEEP BARN

HURON, SD

PROJECT MANAGER:
NICK KUMMER

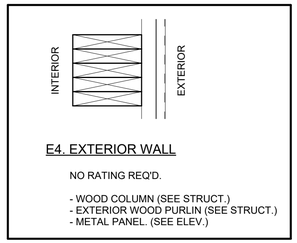
DATE:
07.17.2024

SHEET:
A7.2



1 EXISTING SHED - DEMO PLAN

3/32" = 1'-0"



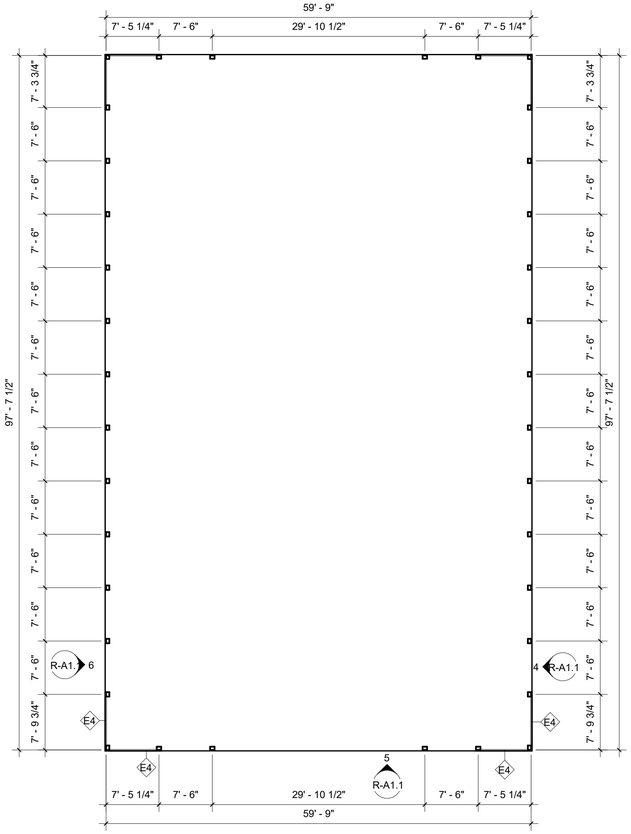
E4. EXTERIOR WALL

NO RATING REQ'D.

- WOOD COLUMN (SEE STRUCT.)
- EXTERIOR WOOD PURLIN (SEE STRUCT.)
- METAL PANEL. (SEE ELEV.)

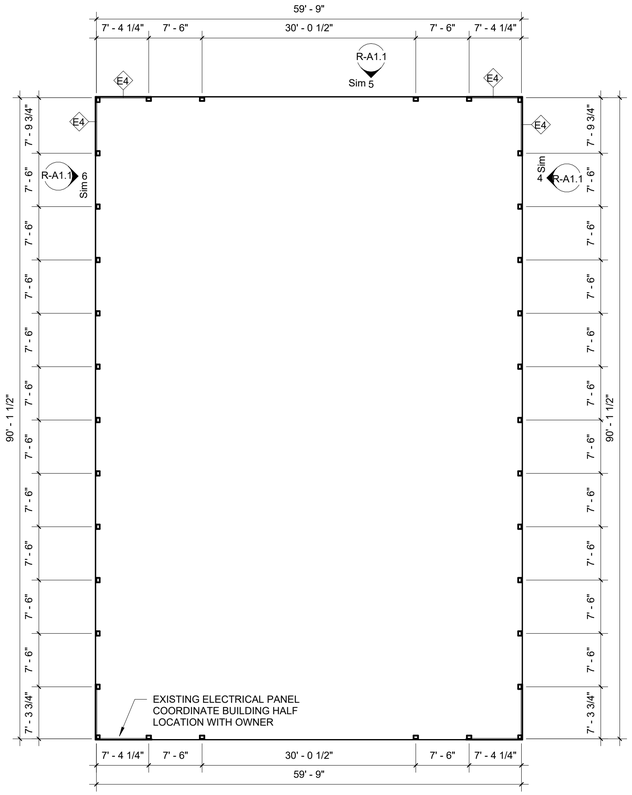
7 WALL TYPES - SHED RELOCATION

1 1/2" = 1'-0"



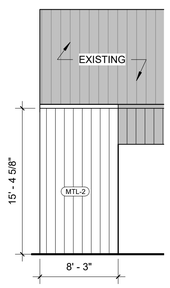
2 RELOCATED SHED - NORTH HALF PLAN

3/32" = 1'-0"



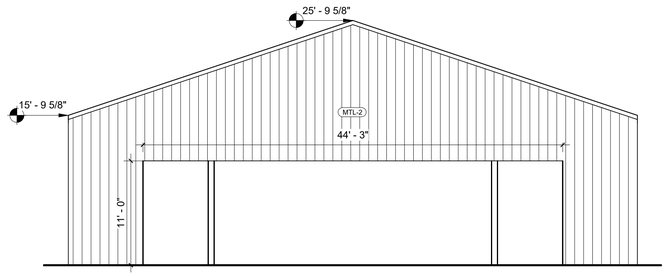
3 RELOCATED SHED - SOUTH HALF PLAN

3/32" = 1'-0"



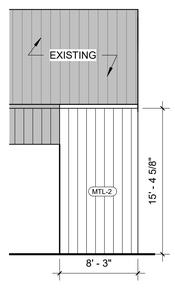
4 SHED HALF - EAST ELEV.

1/8" = 1'-0"



5 SHED HALF - END ELEV.

1/8" = 1'-0"



6 SHEDHALF - WEST ELEV.

1/8" = 1'-0"

GENERAL NOTES - BUILDING RELOCATION

1

A. GENERAL CONTRACTOR TO CONTRACT WITH A MOVING COMPANY. (SEE SPECIFICATIONS) CONTRACTOR TO COORDINATE EXISTING FOUNDATION DEMOLITION AND PROJECT SCHEDULE WITH MOVING COMPANY.

B. APPLY NEW SIDING, ROOFING, AND FLASHING PER MANUFACTURERS STANDARDS.

C. MTL-2 TO CLOSELY MATCH EXISTING METAL SIDING AND ROOFING. COORDINATE EXACT COLOR AND MATERIAL WITH OWNER.

2

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LIVESTOCK PLAZA/SHEEP BARN

HURON, SD

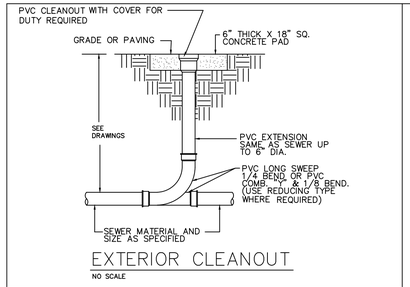
PROJECT MANAGER:
NICK KUMMER

DATE:
07.17.2024

SHEET:
R-A1.1

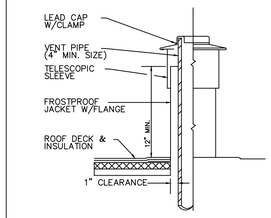
NORTH

DATE PRINTED: 8/8/2024 9:21:17 AM



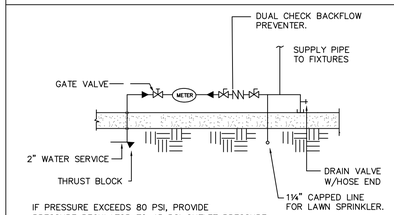
EXTERIOR CLEANOUT

NO SCALE



PLUMBING VENT DETAIL

NO SCALE



WATER ENTRANCE PIPING DETAIL

NO SCALE

PART 1 - GENERAL

1.1 All work shall be done in strict accordance with applicable codes and ordinances.

1.2 The contractor shall give all notices, obtain all permits, arrange all inspections, and pay all fees.

1.3 The contractor shall deliver and install the mechanical materials and equipment covered by the plans and specifications to the owner complete and free from defects. Provide a written warranty for a period of 12 months against defective workmanship and material after final acceptance at no additional cost to the owner.

1.4 The contractor shall furnish two (2) copies of maintenance and operating manuals.

1.5 The contractor shall furnish six (6) copies of shop drawings on all major equipment

1.6 All piping and ductwork shall be tested, as required by code.

1.7 All equipment shall be as listed on the equipment schedules, or approved equal.

PART 2 - PLUMBING

2.1 Interior water piping (above grade) may be type "M" hard copper tubing, ASTM B88.
Cold water piping underfloor shall be pex.
Hot and cold water plumbing above floor may be pex.
Hot water pex must be red, cold water pex must be blue.

2.2 Copper tubing shall be assembled with cast or wrought copper solder joint fittings.

2.3 Dielectric fittings shall be used where copper piping is connected to dissimilar metal.

2.4 Joints shall be made with a non-corrosive flux with solder composed of 95 percent tin and 5 percent antimony.

2.5 Soil, waste, and vent piping buried in the ground shall be PVC, Schedule 40, ASTM S3665

2.6 Waste piping from waste stacks to fixtures on first and basement floor may be schedule 40 PVC, ASTM S3665

2.7 Vent piping above ground shall be PVC, Schedule 40, ASTM S3665.

2.8 Wall cleanouts shall be provided with polished stainless steel or chromium plated bronze cover plate secured to cleanout plug with countersunk screw.

2.9 Floor drains shall be cast iron, with perforated nickel bronze strainer, adjustable collar, p-trap, and double flange. Floor drains shall be as manufactured by Wade, Zurn, Jay R. Smith, or equal.

2.10 Provide new fixtures, free from flaws and blemishes with finished surfaces clear, smooth and bright. Visible parts of fixture brass and accessories shall be chrome plated. Manufacturer and model numbers on drawings are provided for desired style and quality. Fixtures shall be as manufactured American Standard, Crane, Universal Rundle, Gerber, or equal.

2.11 Provide valves of one manufacturer, non-rising stem 125 PSI, bronze body, bronze bonnet, bronze wedge, threaded or soldered end, as manufactured by Nibco, Hammond or equal.

2.12 Insulation shall be per ASTM C534. Insulation products shall be fire resistant per ASTM E 84. Insulate all valves and fittings. All domestic hot and cold water piping shall be insulated with 1" thick fiberglass Insulation. Maintain vapor barrier on all cold water piping. Insulate all piping in the mechanical room, lawn sprinkler water piping inside the building, and all branch piping to wall hydrants/hose bibs.

2.13 Gas water heaters shall be automatic, storage type with insulated glass lined steel tank and steel jacket with baked enamel finish. Controls shall include adjustable thermostat, high limit cut out and ASME rated and labeled pressure and temperature relief valve. Size and capacity shall be as shown on drawing. Manufacturer shall be A.O. Smith, State Industries, Rheem, or equal.

2.14 GAS PIPING:
A. Low pressure pipe and fittings: ANSI/ASTM A53 or 120 Black steel, Schedule 40 with ANSI/ASME B16.3, ANSI/ASTM A 126 Malleable iron threaded fittings above grade; Install in accordance with NFPA 54. See drawings for required gas pressure (2psi.)

B. Pitch lines and install drip legs for condensation collection points.

PART 3 - HEATING AND AIR CONDITIONING

3.0 Not Used

3.1 Gas furnaces shall be high efficiency natural gas fired and bear the label of the American Gas Association. Furnace combustion air shall be piped from outdoors. Furnace, cooling coil and condensing unit shall be of one manufacturer and have capacities as indicated on drawings. Furnish and install pads for the condensing units. Gas furnace shall be Lennox, Trane, York, Ruud Rheem, Carrier or equal.

3.2 Ceiling mounted exhaust fans shall be provided complete with backdraft damper, integral exhaust grille and wall or roof cap. Motors shall be mounted on resilient elastic grommets. Motor and fan shall be centrifugal, dynamically and statically balanced. Fans shall be AMCA sealed and U.L. listed, as shown on drawing. Fans shall be as manufactured by Loren Cook, Greenheck, Nutone, Broan, or equal.

3.3 Ductwork shall be galvanized steel constructed and installed as recommended by SMACNA. Sheet metal gauges shall be in accordance with local mechanical code.

3.4 Grilles, registers and diffusers shall be the type and style as shown on the drawings. Grilles, registers, and diffusers shall be as manufactured by Hart and Cooley, Lima, Titus or equal.

3.5 Refrigerant piping shall be insulated with 1/2" armaflex insulation. Refrigerant piping shall be sized according to manufacturers recommendations.

3.6 Contractor shall provide vent terminal assemblies for the combustion air and exhaust connections from each gas fired furnace. Assemblies shall be wall mounted and shall be installed per the manufacturers installation instructions.

3.7 The following listed systems shall be insulated with 1" thick duct liner.

A. All supply duct.

3.8 All exterior supply air and return air duct shall be insulated with 1/2" duct board with weatherproof cover.

PART 4 - TEMPERATURE CONTROL

4.1 All wiring in connection with the temperature control equipment shall be provided by the mechanical contractor.

4.2 Sequence of control

A. Furnace: Provide a heating-cooling thermostat with subbase with Heat-off-cool switch and fan on-off-auto switch.

PART 5 - EXECUTION

5.1 Coordinate work closely with other trades.

5.2 Power wiring and final connection shall be by electrical contractor. Control wiring shall be by electrical contractor.

5.3 Equipment which is required by code or is specified to have UL or similar listing, shall be installed as required to meet that listing.

5.4 Balance duct systems related to premises.

5.5 The contractor shall be held responsible for, and be required to make good, at his own expense, any and all damages to any work or materials in place on the premises or included in this contract, during the execution of his contract.

5.6 Install condensing units in accordance with manufacturers recommendations. Provide mounting pad and anchors for setting unit and maintain recommended clearances.

5.7 Install refrigerant piping according to manufacturers recommendations, charged and leak free.

5.8 Install vent terminal for furnace according to manufacturers recommendations. Install condensation drains and extend to nearest drain.

5.9 Install thermostats where indicated and install control wiring according to national electric code.

5.10 Valves shall be installed as detailed on the drawings with stem upright of horizontal. When valves are not shown in detail on the plans, it shall be understood that the plumbing contractor shall provide all valves & fittings necessary for the control and operation of all equipment. Gate valves shall be installed in service requiring the valve to be fully opened or tightly closed.

5.11 Install insulation after testing is complete.

5.12 The exact location of pipes will be determined by the contractor after the working plans are made to avoid interference with new ductwork, piping, and lighting fixtures.

5.13 Install escutcheons at each wall, floor, and ceiling penetration in exposed finish locations and within cabinets and mill work. Use deep pattern escutcheons where required to conceal protruding pipe fittings.

5.14 The contractor shall schedule his work to coincide with the progress of alteration work in this area.

5.15 Provide all materials, tools, labor, and other related items to complete all work, including rough-in for, and make plumbing connections to all new equipment in accordance with the local plumbing codes and mechanical codes.

5.16 All water piping shall be sterilized in accordance with the American Water Works Association, AWWA C651, and as required by the local health board.

FAN COIL SCHEDULE

UNIT NO.	MANUF.	MODEL NO.	CFM	ESP	MOTOR HP	ELEC.	PHASE	COOLING MBH	HEATING KW	VOLTS/PH	FL	MCA	MAX FUSE	REMARKS
FC-1,2	TRANE	NTXWST10B112AA	600	---		208/230	1	18	---	---	1.95	2.44		CLASSROOMS
FC-3	TRANE	NTXWST09B112AA	300	---		208/230	1	9	---	---	0.5	1.0		OFFICE
FC-4,5	TRANE	NTXWST06B112AA	200	---		208/230	1	6	---	---	1.0	1.0		CLASSROOMS

HEAT PUMP UNIT SCHEDULE

UNIT NO.	MANU.	MODEL	MATCHED AHU	CAPACITY (MBH)	AMB. AIR TEMP.	SUCT. TEMP.	ELECTRICAL VOLTS PH	FLA	MCA	MIN. SEER	OPE WT.	REMARKS
HP-1	TRANE	NTXMMX42A152CA	FC-1,2,3	42	95	----	208/230	1	32.5	9.0	190	40A HACR, #1
HP-2	TRANE	NTXMMX20A122CA	FC-4,5	19.9	95	----	208/230	12.4	17.2	9.0	190	20A HACR, #2

#1. HEAT PUMP POWERS FAN COIL FC-1,2,3 #2. HEAT PUMP POWERS FAN COIL FC-4,5

PLUMBING FIXTURE SCHEDULE

FIXTURE	TYPE	MANUF.	MODEL	TRIM	SUPPLIES	WASTE	REMARKS
WC-1	WATER CLOSET FLUSH TANK FLOOR MOUNTED ELONGATED	AM. STD.	211CA. 104 211CA. 105	OLSONITE 10SSCRT	BRASS CRAFT G2CR19C	----	OPEN FRONT SEAT, W/O COVER - SLOW CLOSE VERIFY RIGHT HAND FLUSH
WC-2	WATER CLOSET FLUSH TANK FLOOR MOUNTED ELONGATED HANDICAPPED	AM. STD.	211AA. 104 211AA. 105	OLSONITE 10SSCT	BRASS CRAFT G2CR19C	----	OPEN FRONT SEAT W/O COVER - SLOW CLOSE VERIFY RIGHT HAND FLUSH
UR-1	URINAL WALL MOUNTED OMNI-FLO TOP SPUD	ZURN Z5755-U	ZURN VALVE ZER6203-CPM-WSI	1.0 GPF BATTERY OPERATED		----	BATTERY OPERATED ZURN CARRIER REQUIRED MOUNT AT A.D.A. HEIGHT
L-1	LAVATORY COUNTERTOP A.D.A. ADA	KOHLER PENNINGTON	K-2196-4	KOHLER K-4007T0-4AKL	WATTS GCB94A	GRID DRAIN	P-TRAP, W/ GRID
MSK-1	LAUNDRY TUB FLOOR MOUNTED 24X24	MUSTEE	19CF	MUSTEE 6" SWING SPOUT	----	S.S. DOME STRAINER & LINT BASKET	WITH HOSE HOLDER AND MOP HANGER
WH	WALL HYDRANT W/ VACUUM BREAKER	WOODFORD	65-C	----	----	----	KEY OPERATED
FD	FLOOR DRAIN	SIOUX CHIEF	832-2ANR	----	----	----	----
CO	FLOOR CLEAN OUT	SIOUX CHIEF	852-4LNR	----	----	----	5.5" DIA.
EWC-1	ELECTRIC BOTTLE FILLER	ELKAY	EZ8WSSSMC	----	----	----	NON-FILTERED REFRIGERATED

WATER HEATER SCHEDULE

UNIT NO.	MANUFACTURER	MODEL	STORAGE CAPACITY	RECOVERY GAL.	ELECTRICAL VOLTS	PHASE	ELEMENTS KW	NO.	INPUT MBH	REMARKS
WH-1	E-MAX	SPEX3208T			208	1	3.0	1	----	INSTANTANEOUS.
1). ONE EACH FOR EACH LAV AND MOP SINK. (5) TOTAL.										

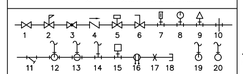
FAN SCHEDULE

FAN NO.	MANUF.	MODEL NO.	CFM	S.P. (IN.)	RPM	TIP SPEED (FPM)	MOTOR HP	BHP	ELEC.	SONES	REMARKS
EF-1	PANASONIC	FV-30VQ3	258	.25	877	----	62W	---	120	2.0	REST RMS. - SWITCH W/ LIGHTS
EF-2	PANASONIC	FV-30VQ3	258	.25	877	----	62W	---	120	2.0	REST RMS. - SWITCH W/ LIGHTS
EF-3	GREENHECK	SEI-16-428	2900	.015	1725	----	.25	---	120	16	

LEGEND

SYMBOL	ABBREV.	DESCRIPTION
G	G	GAS LINE (FIRM)
IG	IG	GAS LINE (INTERRUPTIBLE)
FOS	FOS	FUEL OIL SUPPLY
FOR	FOR	FUEL OIL RETURN
FOV	FOV	FUEL OIL VENT
A	A	AIR
CW	CW	COLD WATER
HW	HW	HOT WATER
RHW	RHW	RECIRCULATED HOT WATER
TW	TW	TEMPERED WATER
V	V	VENT
W	W	WASTE BELOW GRADE
W	W	WASTE BELOW FLOOR
W	W	WASTE ABOVE GRADE
AV	AV	ACID VENT
AW	AW	ACID WASTE
DS	DS	DOWNSPOUT (RAINWATER)
DI	DI	DEIONIZED WATER
HWS	HWS	HEATING WATER SUPPLY
HWR	HWR	HEATING WATER RETURN
LPS	LPS	LOW PRESSURE STEAM
LPR	LPR	LOW PRESSURE RETURN
CHS	CHS	CHILLED WATER SUPPLY
CHR	CHR	CHILLED WATER RETURN
CWS	CWS	CONDENSER WATER SUPPLY
CWR	CWR	CONDENSER WATER RETURN
RL	RL	REFRIGERANT LIQUID
RS	RS	REFRIGERANT SUCTION
SPR	SPR	SPRINKLER
VAC	VAC	VACUUM
O	O	OXYGEN
		CONNECTION TO EXISTING
	HD	CHROMED BRASS SPRINKLER HEAD-PENDENT
	HD	BRASS SPRINKLER HEAD-UPRIGHT
CO, WCO	CO, WCO	FLOAT & THERMO. TRAP (F&T) THERMOSTATIC TRAP
CO, WCO	CO, WCO	CLEANOUT, WALL CLEANOUT
WH	WH	WALL HYDRANT
RD	RD	ROOF DRAIN
FD	FD	FLOOR DRAIN
T	STAT	THERMOSTAT
T	STAT	THERMOSTAT W/LOCKING COVER
T N	N.STAT	NIGHT THERMOSTAT
T R	R.STAT	RECESSED STAT (ASPIRATING)
H		HUMIDISTAT
S		SPACE SENSOR
	HB	HOSE BIBB

SYMBOL	ABBREV.	DESCRIPTION
CI	CI	CAST IRON
WB	WB	WASHER BOX
VCP	VCP	VITRIFIED CLAY PIPE
EWC	EWC	ELECT. WATER COOLER
DF	DF	DRINKING FOUNTAIN
L OR LAV	L OR LAV	LAVATORY
SK	SK	SINK
S.SK	S.SK	SERVICE SINK
WC	WC	WATER CLOSET
UR	UR	URINAL
SH	SH	SHOWER
VTR	VTR	VENT THRU ROOF
CONV	CONV	CONVECTOR
CUH	CUH	CABINET UNIT HEATER
RH	RH	REHEAT
RAD	RAD	RADIATION
UH	UH	UNIT HEATER
AFF	AFF	ABOVE FINISHED FLOOR



1. SHUT-OFF VALVE (GATE OR BALL)
2. PRESSURE REDUCING VALVE
3. BALANCE VALVE (BALL OR BUTTERFLY)
4. CHECK VALVE
5. CONTROL VALVE
6. GAS COCK
7. THERMOMETER
8. PRESSURE GAUGE
9. MANUAL AIR VENT
10. UNION
11. STRAINER W/DRAIN VALVE
12. TOP CONNECTION
13. BOTTOM CONNECTION
14. SIDE CONNECTION
15. SHOCK ABSORBER
16. FLOW FITTING (DESIGN G.P.M.)
17. PIPE ANCHOR
18. PIPE CAP OR PLUG
19. PIPE RISER DOWNWARD
20. PIPE RISER UPWARD

	SUPPLY DUCT UP (S/A OR O/A)
	SUPPLY DUCT DOWN (S/A OR O/A)
	RETURN OR EXHAUST DUCT UP (R/A OR E/A)
	RETURN OR EXHAUST DUCT DOWN (R/A OR E/A)
	ROUND DUCT SECTION SUPPLY
	ROUND DUCT SECTION RETURN
	DUCT RISE OR DROP IN DIRECTION OF AIR FLOW
	1. WIDTH DIMENSION 2. WIDTH DIMENSION 3. DEPTH DIMENSION
	CEILING EXHAUST FAN
	TYPICAL DUCT TURN R EQUAL TO W (MINIMUM)
	COMBINATION SMOKE/ RADIATION DAMPER
	TYPICAL DUCT TURN WITH TURN VANES
	FIRE DAMPER
	1. CONICAL TAKE-OFF 2. BRANCH DUCT INTO SIDE OF MAIN DUCT
	FLEXIBLE DUCT CONNECTION (CANVAS)
	ROUND DUCT (SMALL SIZES)
	M-MOTORIZED DAMPER FD-FIRE DAMPER S-SMOKE DAMPER
	1. SPLITTER DAMPER 2. MANUAL VOLUME DAMPER
	1. ADJUSTABLE VOLUME EXTRACTOR 2. REHEAT COIL
D-1 CFM	REGISTER, GRILLE OR DIFFUSER NO.(SEE SCHEDULE) AIR QUANTITY (CFM)
14x8	-SIDE SHOWN x DEPTH -INSIDE CLEAR DIMENSION

THESE DRAWINGS ARE DIAGRAMATICAL. DO NOT SCALE! VERIFY LAYOUT OF PLUMBING AND MECHANICAL SYSTEM WITH DIMENSIONED ARCHITECTURAL DRAWINGS.

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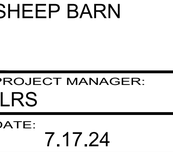

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PRO ENG. PROJECT NO.
Pe-2407

LIVESTOCK PLAZA
SHEEP BARN

PROJECT MANAGER:
LRS

DATE:
7.17.24

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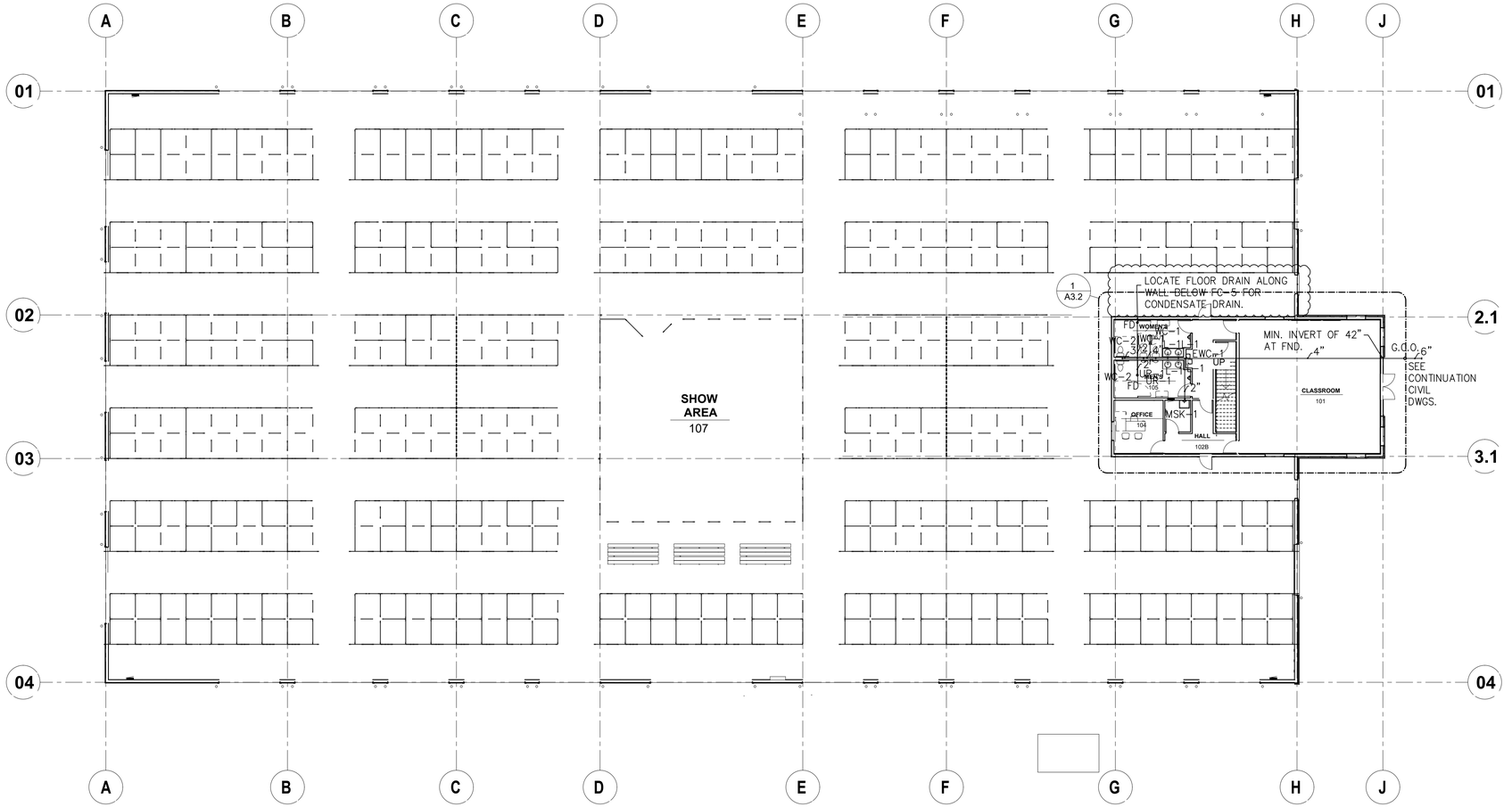

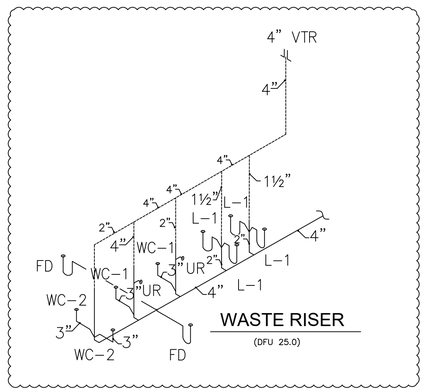

UNDERFLOOR WASTE PLUMBING PLAN
SCALE: 1/16" = 1'-0"

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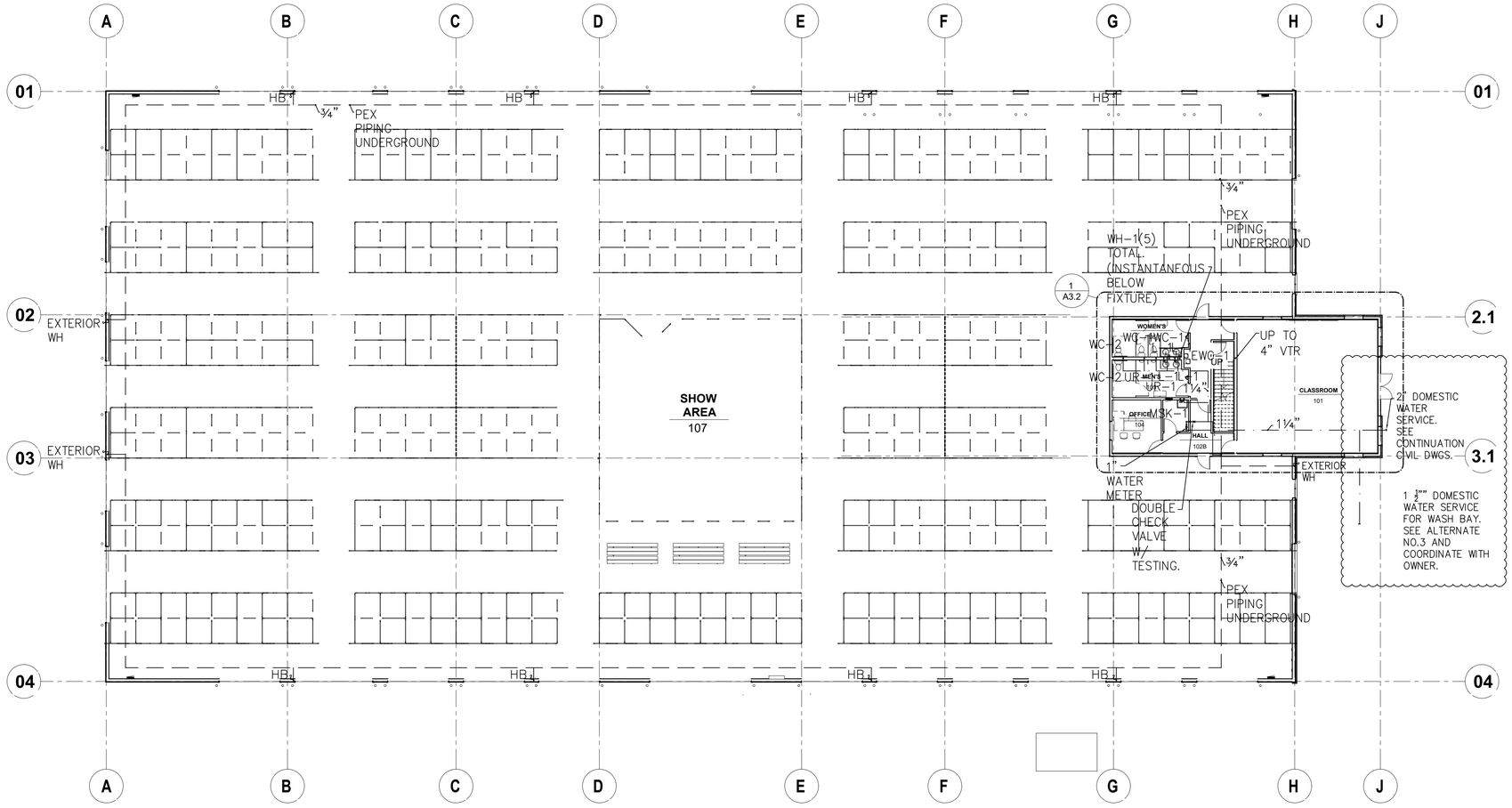

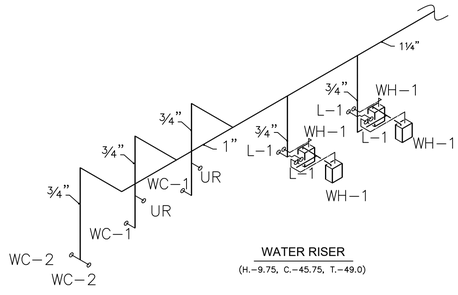

WATER RISER
(H.-9.75, C.-45.75, T.-49.0)

WATER PIPING PLAN
SCALE: 1/16" = 1'-0"

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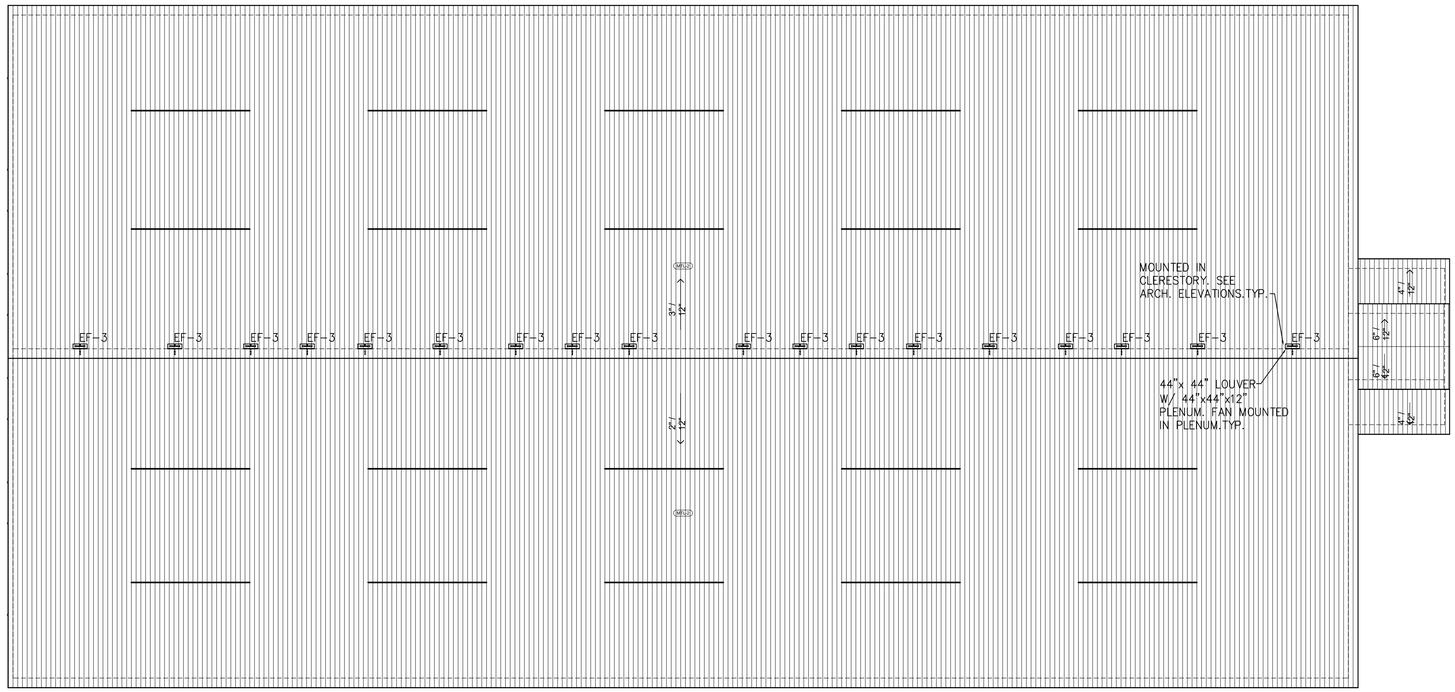

HVAC ROOF PLAN

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

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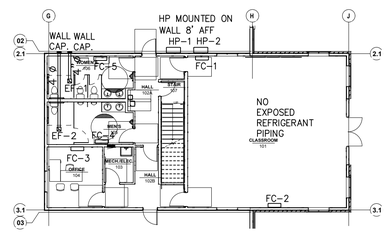

HVAC PLAN -OFFICE CLASSROOMS

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

NORTH

CONDENSATE DRAIN
FC-2 PIPE CONDENSATE DOWN AND SPILL ON GRADE.
FC-1 PIPE CONDENSATE THROUGH WALL AND SPILL ON EXTERIOR GRADE.
FC-3 AND FC-4 PIPE CONDENSATE THROUGH WALL AND SPILL TO MOP SINK.
FC-5 PIPE CONDENSATE DOWN TO FLOOR DRAIN BELOW FAN COIL.

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