



# Town of Ravenel

## Planning & Zoning Commission

### PUBLIC HEARINGS AND REGULAR MEETING

**Thursday, December 7, 2023, at 6:00 p.m.**

**Council Chambers at Town Hall**

**5962 Highway 165, Ravenel, SC 29470**

A LIVESTREAM VIDEO LINK WILL BE AVAILABLE VIA THE TOWN FACEBOOK PAGE.  
IF YOU HAVE ANY COMMENT ON ANY ITEM ON THIS AGENDA, YOU MAY EMAIL YOUR COMMENT TO:

[townadministrator@townofravenel.com](mailto:townadministrator@townofravenel.com)

**Public Hearing (Map Amendment 2023-06): 6:00 p.m.**

~~**Public Hearing (Map Amendment 2023-07): 6:05 p.m. or immediately following**~~

**Regular Meeting Agenda: 6:05 p.m. or immediately following**

1. Call to Order / Roll Call
2. Invocation & Pledge of Allegiance
3. Approval of Agenda
  - a. Recusals / Conflicts of Interest
4. Approval of Prior Meeting Minutes
  - a. N/A
5. Old Business:
6. New Business
  - a. Request MA2023-06
  - ~~b. Request MA2023-07~~ **WITHDRAWN**
  - c. Site Plan Review East Coast Hydraulics
  - d. Site Plan Review Parson's Tax Office
7. Public Comments
8. Commissioner Comments
9. Next Meeting Date: January 4, 2024
10. Adjournment

# REVISIONS

**TOWN OF RAVENEL  
PLANNING AND ZONING COMMISSION  
PUBLIC HEARING AND REGULAR MEETING  
THURSDAY, SEPTEMBER 7, 2023  
6:00 P.M.**

The Public Hearing and Regular Planning and Zoning Commission Meeting of the Town of Ravenel was held September 7, 2023, 6:00 p.m. at 5962 Highway 165, Ravenel, South Carolina. The following members of the Planning and Zoning Commission were present: Nicole Barron, Eric Grant, Laurie Infinger (Vice-Chairperson), Jerry Jackson (Chairman), Thomas Masi, and Town Administrator and Planner Mike Hemmer, who supervised.

The media and public were duly notified of the date, time, and place of the meeting.

**Public Hearing for Section 6.6.2 and 6.7.2 of the Town of Ravenel Zoning Code:**

Chairman Jackson called the Public Hearing to order at 6:00 p.m. A quorum was present to conduct business.

The purpose of this Public Hearing is to consider amending Section 6.6.2 and 6.7.2 of the Town of Ravenel Zoning Code pertaining to the composition of the Planning and Zoning Commission and the Board of Zoning Appeals. These amendments would allow non-resident stakeholders with a strong concern for the future welfare of the Town to be able to serve on either board to provide a better representation of the interest and concerns within Ravenel.

There were no Public Comments.

The Public Hearing closed at 6:04 p.m.

**Regular Meeting Agenda:**

**1. CALL TO ORDER**

Chairman Jackson called the Regular Meeting to order at 6:04 p.m. A quorum was present to conduct business.

**2. INVOCATION & PLEDGE OF ALLEGIANCE**

The Lord's Prayer and the Pledge of Allegiance were recited by attendees.

**3. APPROVAL OF AGENDA**

**a. Recusals/Conflicts of Interest**

None.

**4. APPROVAL OF PRIOR MEETING MINUTES**

**a. August 3, 2023**

Commissioner Infinger made a motion to approve the August 3, 2023, Planning and Zoning Commission Meeting minutes; this motion was seconded by Commissioner Grant. All voted in favor. Motion passed unanimously.

## 5. OLD BUSINESS

None.

## 6. NEW BUSINESS

### a. Section 6.6.2 and 6.7.2 (Residency Changes to Text of Town Zoning Code)

*An ordinance amending section 6.6.2 of the Town of Ravenel Zoning Code pertaining to the composition of the Planning Commission, and Section 6.7.2 pertaining to the composition of the Board of Zoning Appeals.*

Mr. Hemmer explained the terms of the proposed ordinance. He shared that both boards consist of five members. These members are appointed by the Town Council who consider professional expertise, knowledge of the community, and strong concern for the Town and its citizens. **The ordinance states that with this amendment, at least three members will be required to occupy residency in Ravenel. Non-resident appointments must own property, a business, or demonstrate some other significant connection to Ravenel.**

Commissioner Masi made a motion to recommend approval of amending Section 6.6.2 and 6.7.2 of the Town of Ravenel Zoning Code **subject to the following changes:**

- **Four members must reside in the Town of Ravenel.**
- **The remaining member isn't required to reside in the Town of Ravenel but must own property or a business in the Town of Ravenel.**
- **The omission of the statement: "or demonstrate some other significant connection to Ravenel".**

This motion was seconded by Commissioner Barron. All voted in favor. Motion passed unanimously.

### b. 2025 Comprehensive Plan

The purpose of The Comprehensive Plan is to provide a shared vision for the future of the community, protect property rights, and encourage sound development. It includes an inventory of existing conditions and demographic information. Elements of the plan involve population, housing, economic development, natural resources, cultural resources, community facilities, transportation, land use, and priority investment. The last plan was approved by the Planning and Zoning Commission and adopted by the Town Council in 2020. Every five years, elements of the plan must be reevaluated, and the entire plan must be updated at least once every 10 years.

Commissioners discussed statistics that they'd like to see reflected into updates of The Comprehensive Plan including:

- Average family size
- Approved Planned Developments
- Infrastructure
- Demographics of surrounding unincorporated areas
- Rapid growth
- Sewer capacity
- Annexations
- Population data
- Traffic patterns

- Commercial, retail, and industrial business components
- Employment opportunities
- Public works
- Affordable housing
- Economic development incentives
- Police and fire departments
- Hospitals and medical facilities
- Schools and educational programs
- Community resources

#### **7. PUBLIC COMMENTS**

None.

#### **8. COMMISSIONER COMMENTS**

None.

#### **9. NEXT MEETING**

The next Planning and Zoning Commission Meeting will be held on Thursday, November 2, 2023, at 6:00 p.m.

#### **10. ADJOURNMENT**

Commissioner Masi made a motion to adjourn at 7:28 p.m.; this motion was seconded by Commissioner Infinger. All voted in favor. Motion passed unanimously.



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**Nicole Barron**

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**Eric Grant**

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**Laurie Infinger**

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**Jerry Jackson**

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**Thomas Masi**

**Minutes transcribed from tape and respectfully submitted by: Mikayla White, Clerk-Receptionist**



# **TOWN OF RAVENEL**

## **NOTICE OF PUBLIC HEARING**

The Planning and Zoning Commission of the Town of Ravenel, SC will hold a Public Hearing at 6:00 p.m., on Thursday, December 7, 2023 at Ravenel Town Hall located at 5962 Highway 165 in Ravenel, SC.

The purpose of the Public Hearing is to consider Request MA2023-06 to change the zoning district for TMS #244-00-00-159 located on Savannah Highway in Ravenel from Neighborhood Commercial (NC) to General Business (GB) and for TMS #244-00-00-104 having address 4292 Savannah Highway from Agricultural Residential (AR) to General Business (GB).

By Town Code, property owners within 300' of property to be rezoned are hereby notified. Documents related to this Rezoning Request are available for public inspection in the office of the Planning and Zoning Administrator at Ravenel Town Hall.

Please call (843) 889-8732 with questions.



# Town of Ravenel

*Parish*

## REZONING / TEXT AMENDMENT APPLICATION Planning and Zoning Commission

Date: 11/3/23

Application #: MA2023-06

Applicants must complete and submit this form, along with the required information and fee for any amendment to the Ravenel Zoning Code text or map. A Public Hearing before the Ravenel Planning & Zoning Commission will be scheduled with a public notice to be advertised at least 14 days prior. Property to be rezoned will be posted and adjacent property owners within 300' will be notified by mail. The Planning & Zoning Commission will make a recommendation to Ravenel Town Council to approve or deny the request. The Town Council of the Town of Ravenel will, by ordinance with two readings, make any amendments to the Ravenel Zoning Code.

**To be completed by applicant – PLEASE PRINT**

Subject Property Address: 4271 Savannah Hwy (Lot 3) TMS #: 244-00-00-159  
Property Owner: Elizabeth Louise Postell <sup>Lulu</sup> Phone #: 843-870-8337  
Applicant Name: The Trust of Michael Smith Phone #: 843-908-2300  
Applicant's Mailing Address: 915 Industrial Rd. Walterboro, SC 29488

**Relationship of Applicant to Owner (same, representative, buyer, other)**

Buyer

Lot Size: (total acres) .81 Highland (total acres) \_\_\_\_\_ Wetland (total acres) \_\_\_\_\_

Plat Recorded: \_\_\_\_\_ Book \_\_\_\_\_ Page \_\_\_\_\_ Deed Recorded: \_\_\_\_\_ Book \_\_\_\_\_ Page \_\_\_\_\_

Current Zoning of Property: Agriculture requested Zoning of Property: General Business

Reason for requested Zoning / Description of Text Amendment: Transferring from Agriculture to a business office

Requirements for Submittal: Approved, Recorded Plat of Subject Property and a Fee of \$150

I, Elizabeth L. Postell, certify that I am the owner of the subject property and the information on this application is complete and accurate. I authorize the subject property to be posted and inspected.

Elizabeth L. Postell  
Signature of Owner

11/3/23  
Date

[Signature]  
Signature of Applicant/Representative

11-3-23  
Date

The owner and/or Applicant should attend the Public Hearing before the Planning and Zoning Commission Meeting as additional information may be required.



Paid *[initials]*

# Town of Ravenel

## REZONING / TEXT AMENDMENT APPLICATION Planning and Zoning Commission

Date: 11/3/23

Application #: MA2023-06  
~~MA2023-07~~

Applicants must complete and submit this form, along with the required information and fee for any amendment to the Ravenel Zoning Code text or map. A Public Hearing before the Ravenel Planning & Zoning Commission will be scheduled with a public notice to be advertised at least 14 days prior. Property to be rezoned will be posted and adjacent property owners within 300' will be notified by mail. The Planning & Zoning Commission will make a recommendation to Ravenel Town Council to approve or deny the request. The Town Council of the Town of Ravenel will, by ordinance with two readings, make any amendments to the Ravenel Zoning Code.

**To be completed by applicant – PLEASE PRINT**

Subject Property Address: 4292 Savannah Hwy (Lot 2) TMS #: 244-00-00-104

Property Owner: Elizabeth Louise Postell Luhn Phone #: 843-870-8337

Applicant Name: The Trust of Michael Smith Phone #: 843-908-2300

Applicant's Mailing Address: 915 Industrial Rd. Walterboro, SC 29488

**Relationship of Applicant to Owner (same, representative, buyer, other)**

Buyer

Lot Size: (total acres) 24.7 Highland (total acres) \_\_\_\_\_ Wetland (total acres) \_\_\_\_\_

Plat Recorded: \_\_\_\_\_ Book \_\_\_\_\_ Page \_\_\_\_\_ Deed Recorded: \_\_\_\_\_ Book \_\_\_\_\_ Page \_\_\_\_\_

Current Zoning of Property: Agriculture/Residential requested Zoning of Property: General Business

Reason for requested Zoning / Description of Text Amendment: Transferring from Agriculture to a business office. House on-site will be made into the office

**Requirements for Submittal: Approved, Recorded Plat of Subject Property and a Fee of \$150**

I, Elizabeth Louise Postell Luhn, certify that I am the owner of the subject property and the information on this application is complete and accurate. I authorize the subject property to be posted and inspected.

Elizabeth Louise Postell  
Signature of Owner

11/3/23  
Date

[Signature]  
Signature of Applicant/Representative

11-3-23  
Date

The owner and/or Applicant should attend the Public Hearing before the Planning and Zoning Commission Meeting as additional information may be required.

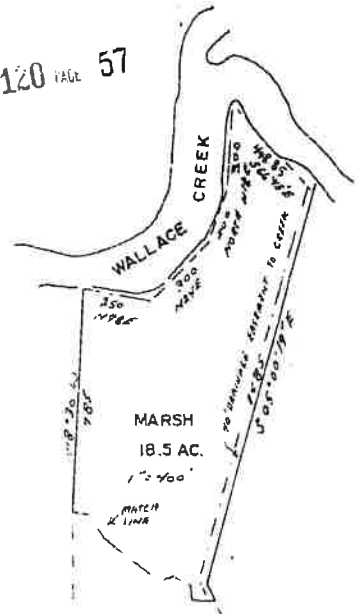
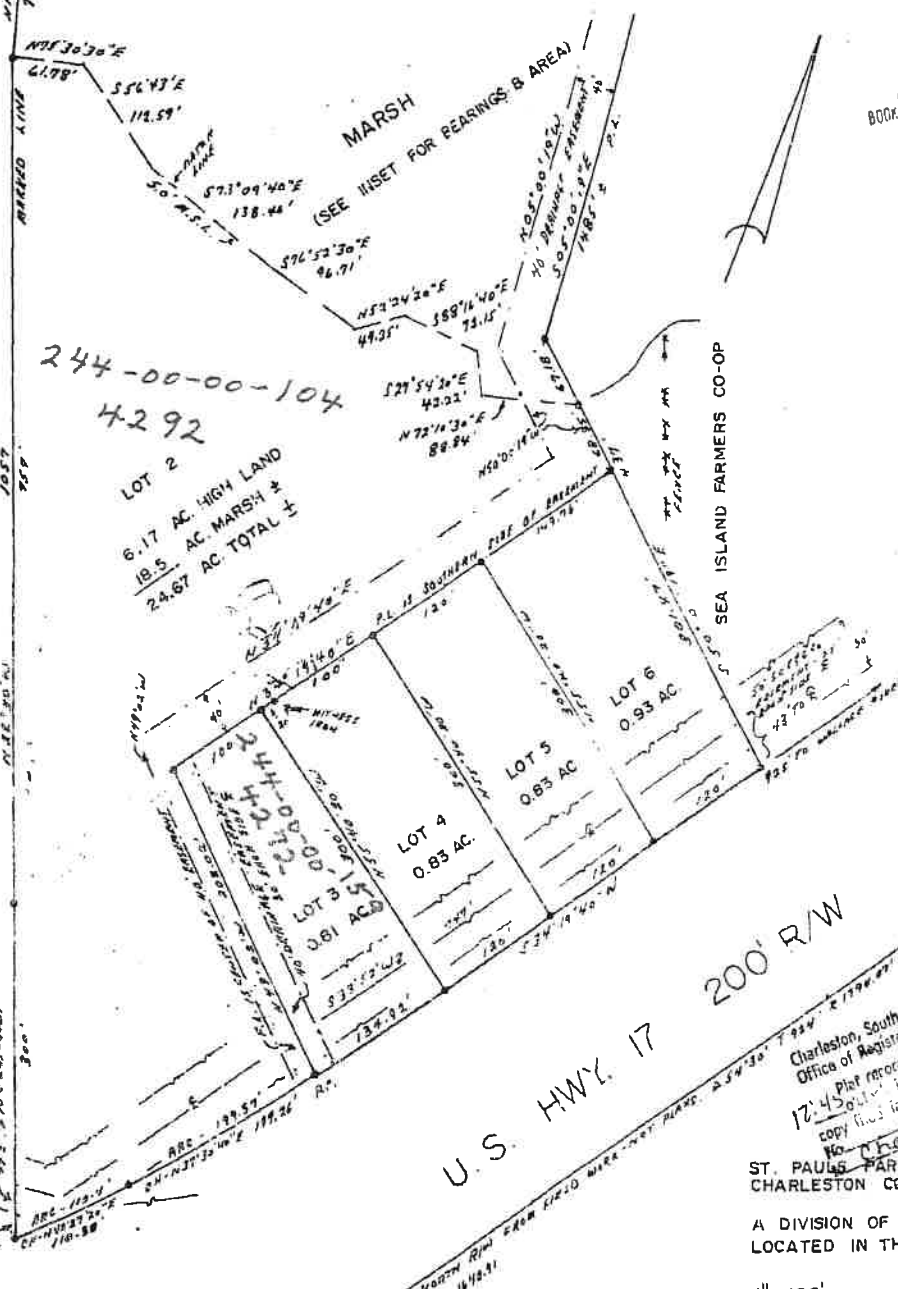


#7895

1. 1/4" R/W AT ALL CORNERS 2. SURVEYED TO 1/2" SOUTH OF HENRY FENCE ON U.S. 17 - R/W MARKER FOUND 1.5' SOUTH OF FENCE.  
3. THE APPROVAL OF THIS PLAN IN NO WAY OBLIGATES THE COUNTY OF CHARLESTON TO ACCEPT THE DRAINAGE EASEMENTS SHOWN FOR EITHER MAINTENANCE OR CONSIDERATION.

BOOK W120 PAGE 57

GREENWAY LAND CO INC.



244-00-00-104  
4292  
LOT 2  
6.17 AC. HIGH LAND  
18.5 AC. MARSH ±  
24.67 AC. TOTAL ±

LOT 4  
0.81 AC.  
LOT 5  
0.83 AC.  
LOT 6  
0.93 AC.

U.S. HWY. 17  
200' R/W

Surveyed by  
S. B. B. B. B.  
REGISTERED MEASURE

NOVEMBER 6, 1979

# 7895

Charleston, South Carolina  
Office of Register Meas  
12:45 PM  
copy filed in file 4  
No. 12  
Chas Co. Planning Board  
Nov 1979  
and tracing cloth  
Drawing 6  
Folio 6  
white print delivered  
Robert L. King  
Register Meas Conveyance

ST. PAULS PARISH  
CHARLESTON COUNTY, S.C.  
A DIVISION OF THE LANDS OF ARNOLD POSTELL  
LOCATED IN THE RANTOWLES SECTION.

1" = 100' JULY 13, 1979

I HEREBY DEDICATE THE DRAINAGE EASEMENT  
SHOWN TO THE USE OF THE PUBLIC FOREVER.

ARNOLD POSTELL

Robert L. King  
45 Holly Road  
Charleston, S.C. 29407



11/16/23, 3:53 PM

Charleston County SC

[Charleston County GIS](#) [Charleston County ROD](#) [Charleston County Home Page](#)

▼ 2440000159 X 🔍

Charleston County GIS







- F:** The Commercial Corridor Overlay District should be noted on the Ravenel Zoning Map legend along with the Mobile Home and Planned Development designations. These zoning features should be noted so that a reader of the map is aware they exist. Furthermore, the CCOZ can be described in the legend text.
- G:** Consider how zoning, building, and maintenance code enforcement can impact other public services. Maintaining clear lots and unbroken windows helps with Police patrolling. Reduction of underbrush fuel helps with firefighting.
- H:** On the north side of US Highway 17, the commercial corridor is not well defined as there are a mixture of recreational, commercial, and residential uses entering town from the east up to the intersection of US Highway 17 and Old Jacksonboro Road. These diverse land uses seem to co-exist. However, only lots directly facing U.S. Highway 17 should be commercial. This will limit commercial encroachment into the residential and natural recreation areas.
- I:** Industrial uses within Ravenel include the Carolina Eastern, Inc. fertilizer business on Highway 165 and the "17 South Commerce Center" off of US Highway 17. Just west of the Commerce Center is a parcel that is zoned industrial. There does not appear to be industrial development pressure at this time and Ravenel has more acreage zoned for industrial than what is currently being used as industrial. However, thought must be given to allowing industrial uses near residential uses and features such as churches and schools. There are some large tracts on the outskirts of town where industrial park settings could be developed to discourage industrial development in the central areas of town.

## **2: IMPROVE OUTCOMES THROUGH SPECIFIC ZONING CONSIDERATIONS**

- A:** The low-density residentially zoned areas of AR and R-1 should be protected from the encroachment of the more intensive commercial and industrial uses. The value of these areas, and therefore the Ravenel property tax base, should also be preserved by limiting development that has a tendency to be lower-value in nature.
- B:** The Historic Conservation Overlay District is underutilized. The town should consider applying this overlay to the sites identified in Charleston County Historical and Architectural Surveys. This can help determine if there is a Historic District or cluster of significant sites. The Atlantic Coast Line Railroad Depot is eligible for the National Register of Historic Places and should be included in the local Historic Conservation zoning overlay district.
- C:** The R-3 zoning district (that allows higher density and multi-family) appears to be encroaching into the AR-zoned areas along the north side of Old Jacksonboro Road and U.S. Highway 17. While Old Jacksonboro Road does provide the effect of a bypass off of U.S. Highway 17 and connects to Highway 165, the impact of added development in this corridor on the larger tract, single-family homes in this area should be controlled. The R-3 zoning should be reconsidered and not increased on the Old Jacksonboro Road corridor.

# EAST COAST HYDRAULICS CYLINDER REPAIR SHOP

5507 SAVANNAH HIGHWAY  
RAVENEL, SC 29470

## CODE AND BUILDING DATA

**PROJECT NARRATIVE**  
THIS IS A PRE-ENGINEERED METAL PARTS STORAGE BUILDING. THE ENTIRE BUILDING WILL BE ONE FLOOR.

### APPLICABLE CODES

- 2021 SOUTH CAROLINA BUILDING CODE
- 2021 SOUTH CAROLINA PLUMBING CODE
- 2021 SOUTH CAROLINA MECHANICAL CODE
- 2017 ANSI CODE
- 2009 INTERNATIONAL ENERGY CONSERVATION CODE
- 2021 NATIONAL ELECTRIC CODE

### CODE REQUIREMENTS

- OCCUPANCY: S-2
- CONSTRUCTION TYPE (TABLE 504.3): TYPE IIB
- BUILDING HEIGHT: ALLOWABLE: 55'  
ACTUAL: 25'-0"
- BUILDING FLOOR AREA BY DESIGN: BUILDING FLOOR AREA BY IBC TABLE 506.2:  
  
GROUP S-2: ALLOWABLE: 26,000 SF  
ACTUAL: 14,727 SF
- SEPARATION REQUIREMENTS PER 508 NON-SEPARATED OCCUPANCIES MOST RESTRICTIVE APPLIED TO ENTIRE BUILDING NO SEPARATION REQUIREMENTS REQUIRED
- FIRE RESISTANCE RATING REQUIREMENTS (TABLE 601): NONE REQUIRED
- BUILDING OCCUPANT LOAD (IBC TABLE 1004) S-2 AREA: 300 GROSS = 14,727 / 300 = 50  
50 TOTAL OCCUPANTS
- EXIT ACCESS TRAVEL DISTANCE (TABLE 1017.2) ALLOWABLE: 200'  
ACTUAL: 91'-2"
- CORRIDOR RATING (TABLE 1018.1): NONE REQUIRED

### ENERGY CODE COMPLIANCE

- WINDOWS U FACTOR ( $\leq 0.50$ ): 0.28 U
- WINDOW SHGC ( $\leq 0.30$ ): 0.28
- DOOR U FACTOR ( $\leq 0.50$ ): 0.34
- CEILING INSULATION (R-30 MIN): R-30
- WALL INSULATION (R-13 MIN): R-13
- BUILDING ENVELOPE AIR SEALING: VISUAL INSPECTION PER IECC SECTION 402.4.2.2
- PIPES CARRYING FLUIDS ABOVE 105 F SHALL BE INSULATED TO MIN OF R-3
- MINIMUM OF 50% LAMPS TO BE HIGH EFFICIENT

## PROJECT TEAM DIRECTORY

### STRUCTURAL ENGINEER:

THE BASTION GROUP LLC.  
412 N GUM ST, SUITE B  
SUMMERVILLE, SC 29483  
PHONE: 843-300-8876

### CIVIL ENGINEER:

CANEBRAKE ENGINEERING AND SURVEYING LLC.  
202 W MAIN ST  
CLINTON, SC 29325  
PHONE: 864-249-7034

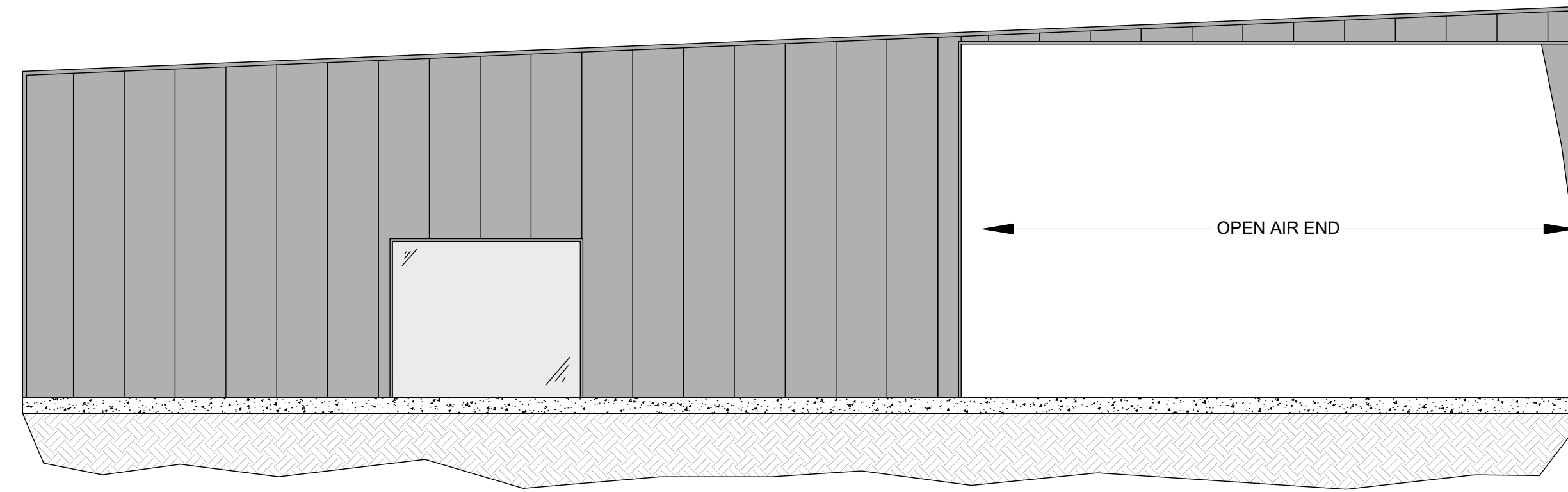
### MEP ENGINEER:

HENSLEY & GOERLING CONSULTING ENGINEERS LLC.  
202 W MAIN ST  
CLINTON, SC 29325  
MECH/PLUMB PHONE: 843-696-2869  
ELECTRICAL PHONE: 843-437-1390

### GENERAL CONTRACTOR:

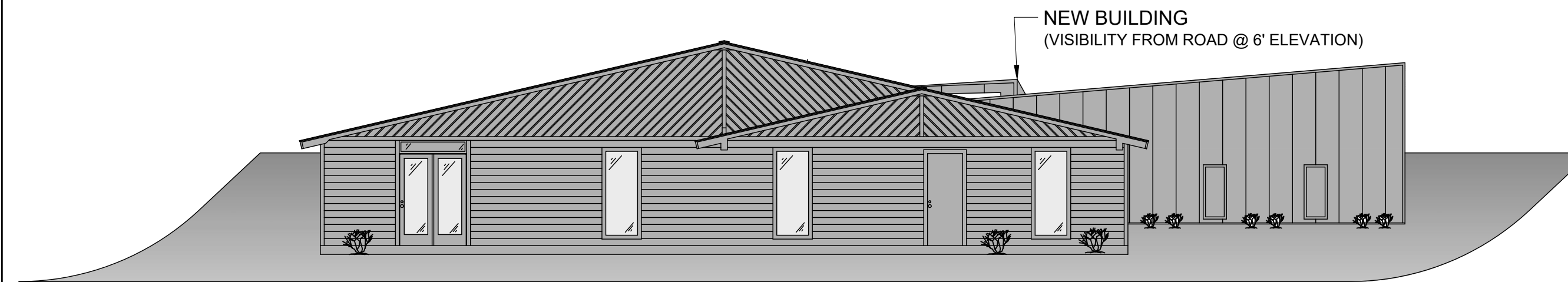
THE BASTION GROUP LLC.  
412 N GUM ST, SUITE B  
SUMMERVILLE, SC 29483  
PHONE: 843-300-8876

## BUILDING ELEVATIONS



**FRONT ELEVATION**

SCALE: NTS



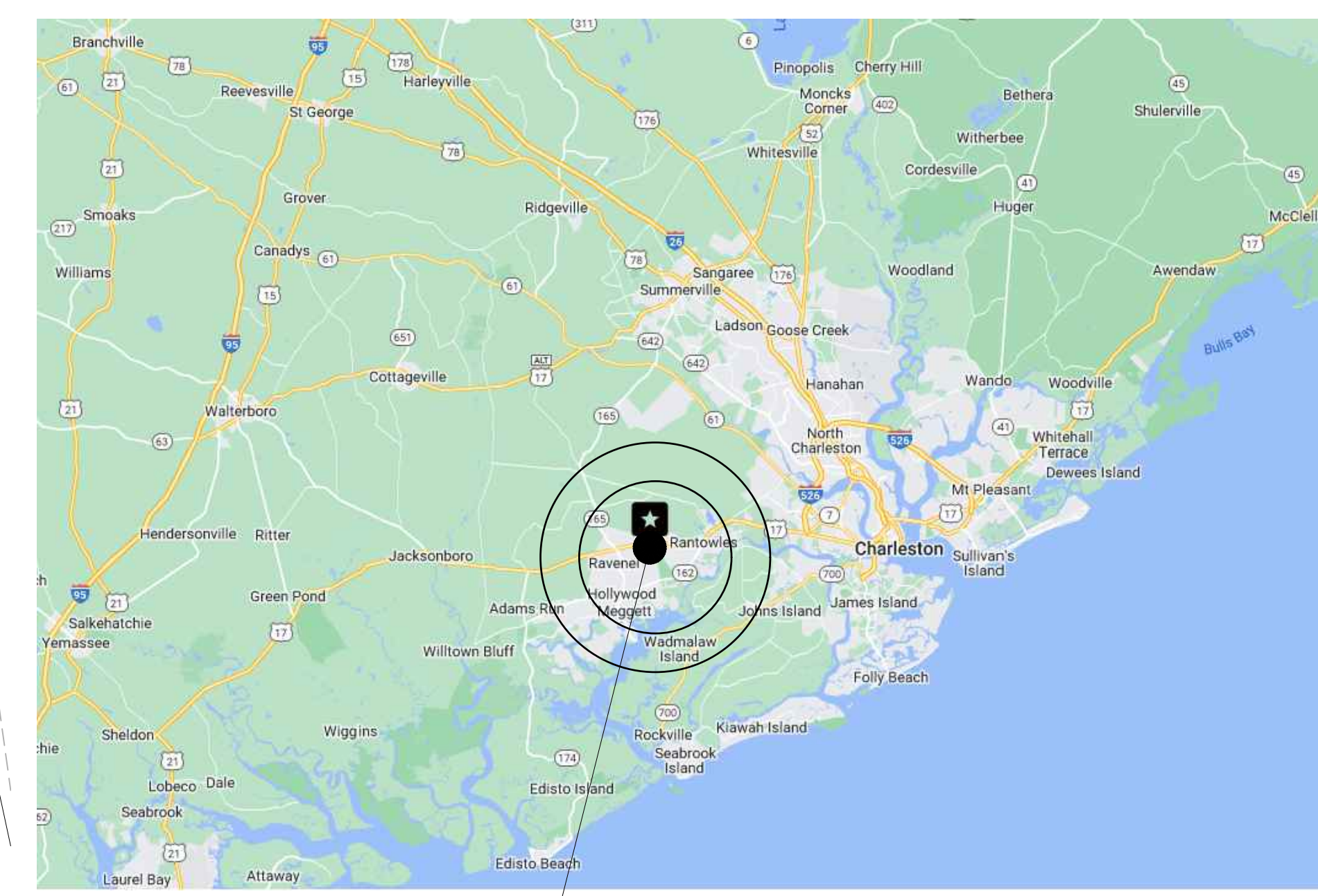
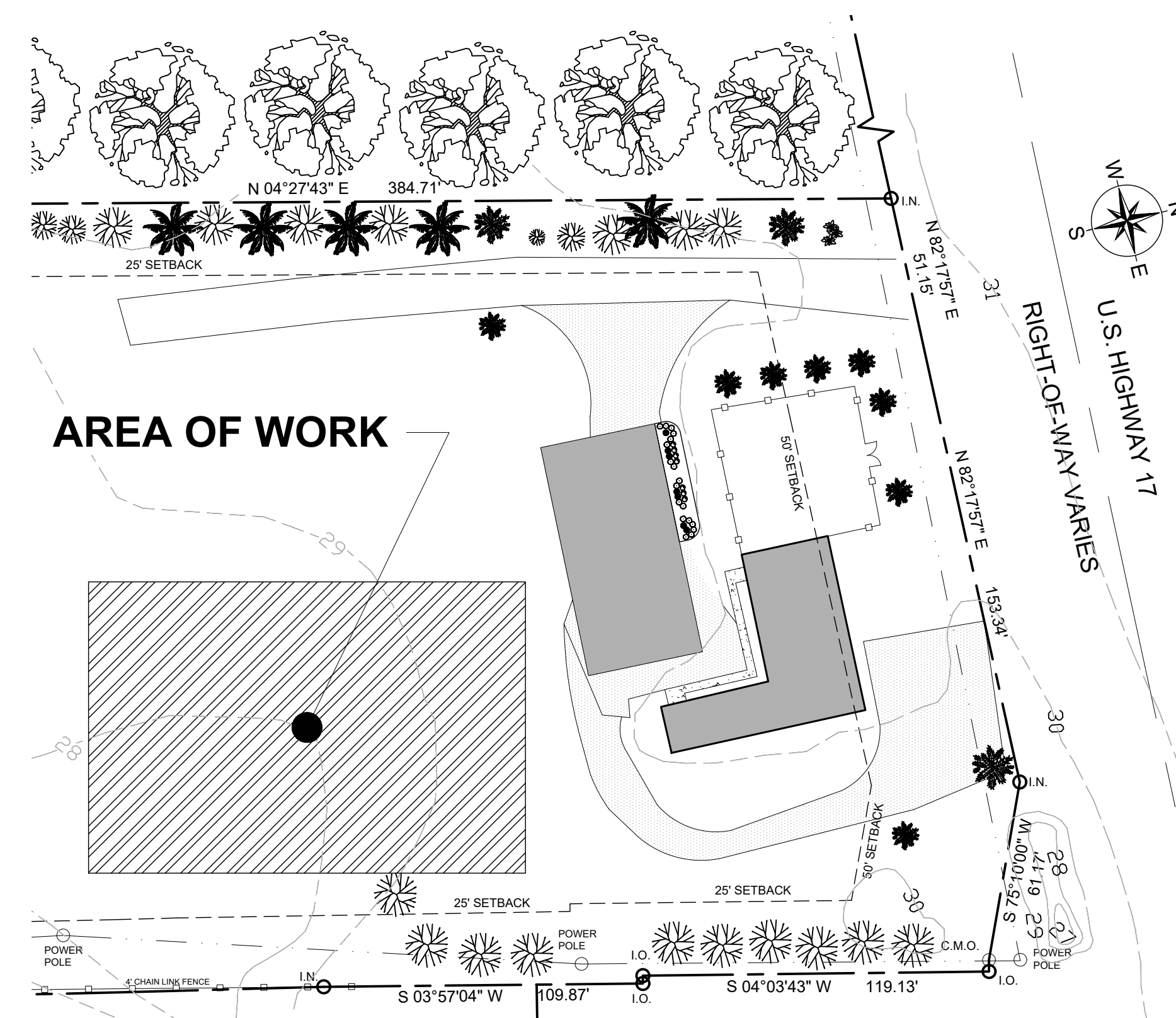
**STREET VIEW VISIBILITY**

SCALE: NTS

## DRAWING SHEET INDEX

SHEET	SHEET DESCRIPTION	ISSUE DATE	REV DATE
CS001	COVER SHEET AND NOTES		
LS100	LIFE SAFETY PLAN		
A100	FLOOR PLAN		
A300	ELEVATION PLAN		
A301	ELEVATION PLAN		
A302	BUILDING RENDERING		
C000	CIVIL COVER		
C100	EXISTING CONDITIONS & DEMOLITION		
C200	SITE PLAN		
C300	EROSION & SEDIMENT CONTROL PLAN		
C400	GRADING PLAN		
C900	DETAILS		
C901	DETAILS		
C902	DETAILS		
P000	PLUMBING - LEGEND, ABBREV. NOTES & SPECS.		
P101	PLUMBING PLAN		
M000	MECHANICAL - LEGEND, ABBREV. NOTES & SPECS.		
M101	MECHANICAL - HVAC PLAN		
M601	MECHANICAL - DETAILS AND SCHEDULES		
E000	ELECTRICAL - LEGEND, ABBREV. NOTES & SPECS.		
E101	ELECTRICAL - LIGHTING PLAN		
E201	ELECTRICAL - POWER PLAN		
E601	ELECTRICAL - SINGLE LINE DIAGRAM & SCHEDULES		
S001	STRUCTURAL NOTES		
S002	SPECIAL INSPECTIONS		
S100	FOUNDATION PLAN		
S200	DETAILS AND SECTIONS PLAN		
S201	DETAILS AND SECTIONS PLAN		

## SITE VICINITY MAPS



**PROJECT LOCATION**

## ISSUED DATES

PERMIT	*****
BID	DATE
CONSTRUCTION	DATE

DATE: 11.20.2023

REVISIONS:

REV.	DESCRIPTION	ISSUED FOR CONSTRUCTION
0		

SEAL: CONNER S. JEWELL, PROFESSIONAL ENGINEER, No. 39116

SEAL: THE BASTION GROUP LLC, No. 6227

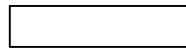
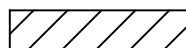
**THE BASTION GROUP**  
LIMITED LIABILITY COMPANY  
412 NORTH GUM ST. SUMMERVILLE, SC 29485 - (843) 300-8876  
WWW.BASTIONGROUPLLC.COM

**EAST COAST HYDRAULICS**  
5507 SAVANNAH HIGHWAY  
RAVENEL, SC 29470

**COVER SHEET AND NOTES**

SCALE: AS NOTED  
BASTION PROJECT NO. 21.093  
DRAWN BY: bnd DATE: 11.20.2023  
DRAWING STATUS: IFC  
SHEET: A001  
SHEET: 1 OF 28 | REVISION NO. 0

**WALL LEGEND**

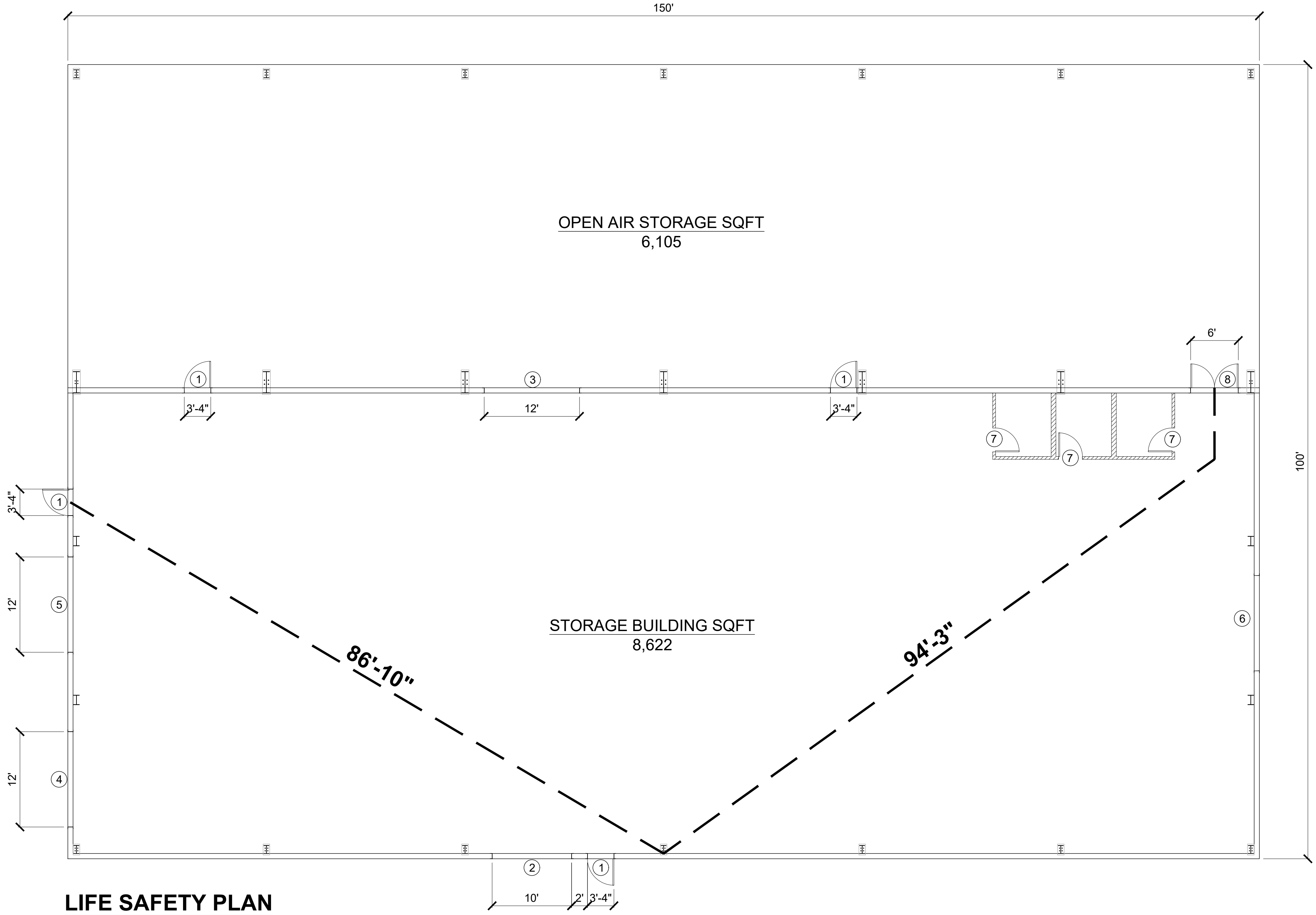
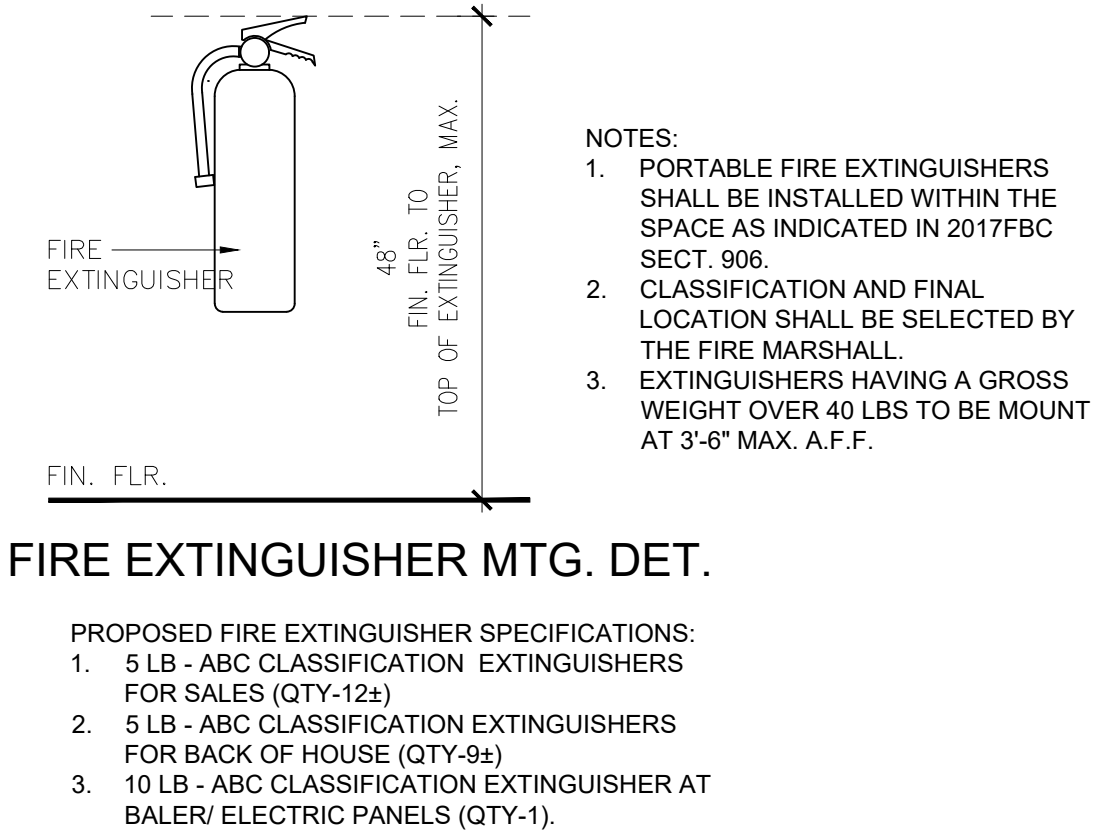
	PEMB. WALLS
	INTERIOR WALLS

**CODE REQUIREMENTS**

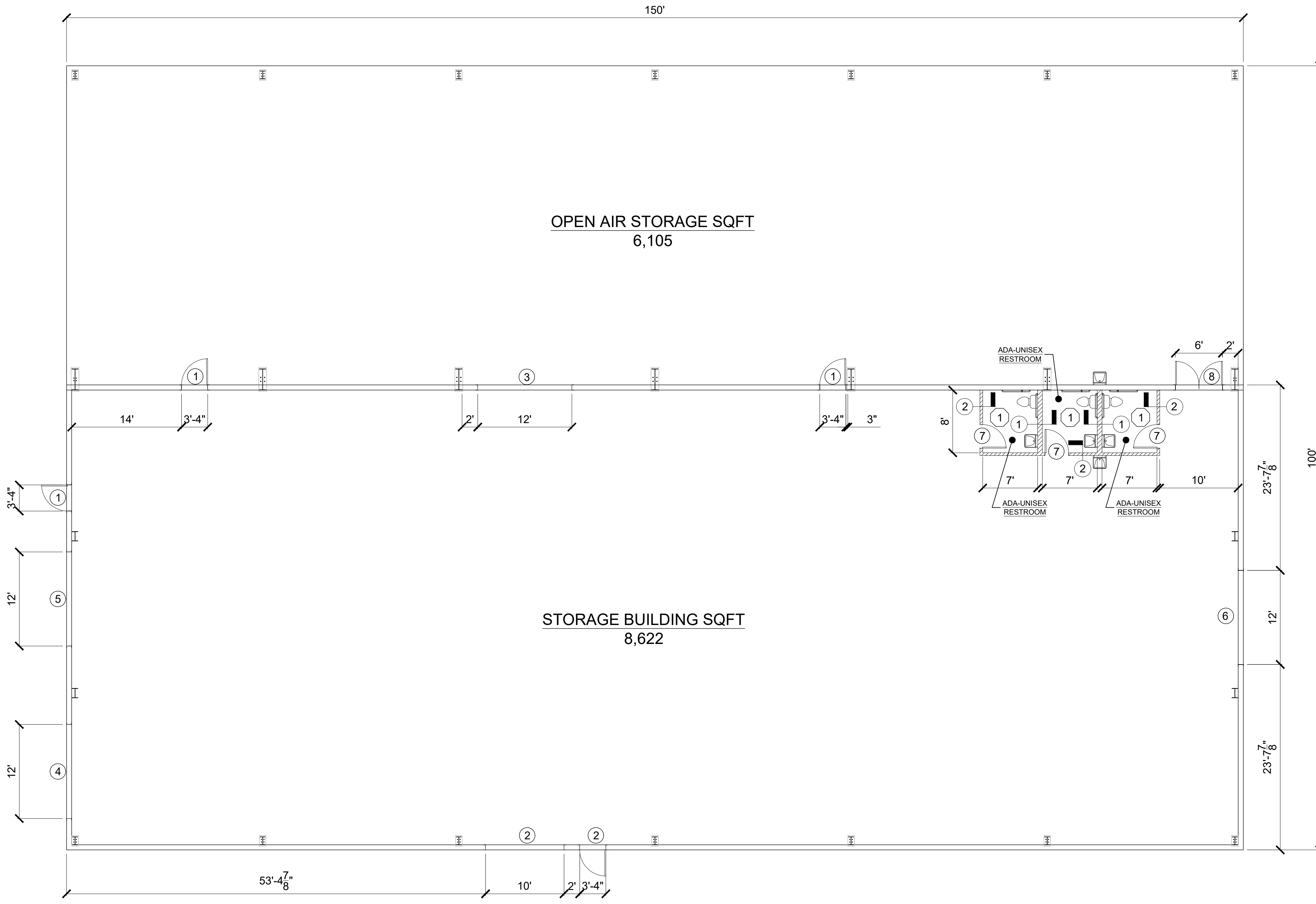
- OCCUPANCY: S-2
- CONSTRUCTION TYPE (TABLE 504.3): TYPE IIB
- BUILDING HEIGHT: ALLOWABLE: 55'  
ACTUAL: 25'-0"
- BUILDING FLOOR AREA BY DESIGN: BUILDING FLOOR AREA BY IBC TABLE 506.2:  
GROUP S-2: ALLOWABLE: 26,000 SF  
ACTUAL: 14,727 SF
- SEPARATION REQUIREMENTS PER 508  
NON-SEPARATED OCCUPANCIES  
MOST RESTRICTIVE APPLIED TO ENTIRE BUILDING  
NO SEPARATION REQUIREMENTS REQUIRED
- FIRE RESISTANCE RATING REQUIREMENTS (TABLE 601):  
NONE REQUIRED
- BUILDING OCCUPANT LOAD (IBC TABLE 1004)  
S-2 AREA: 300 GROSS = 14,727 / 300 = 50  
50 TOTAL OCCUPANTS
- EXIT ACCESS TRAVEL DISTANCE (TABLE 1017.2)  
ALLOWABLE: 200'  
ACTUAL: 91'-2"
- CORRIDOR RATING (TABLE 1018.1): NONE REQUIRED

**DOOR SCHEDULE**

KEY	SIZE	DESCRIPTION
①	3'-4" x 7'-0"	NEW EXTERIOR HOLLOW METAL DOOR
②	10'-0" x 10'-0"	NEW ROLL UP OVERHEAD DOOR
③	12'-0" x 12'-0"	NEW ROLL UP OVERHEAD DOOR
④	12'-0" x 14'-0"	NEW ROLL UP OVERHEAD DOOR
⑤	12'-0" x 16'-0"	NEW ROLL UP OVERHEAD DOOR
⑥	12'-0" x 10'-0"	OPENING - PENETRATION
⑦	3'-0" x 7'-0"	NEW INTERIOR RESTROOM DOOR
⑧	PR. 3'-0" x 7'-0"	NEW EXTERIOR HOLLOW METAL DOUBLE DOOR



**FIRE EXTINGUISHER MTG. DET.**



**FLOOR PLAN**  
SCALE: 1/8" = 1'-0"

WALL LEGEND	
	PEMB. WALLS
	INTERIOR WALLS

- KEYNOTES**
- ① CEILING ELEVATION @ 9'-0". USE 3-5/8" METAL STUD @ 24" O.C. W/ 1/2" DRYWALL.

DOOR SCHEDULE		
KEY	SIZE	DESCRIPTION
①	3'-4" x 7'-0"	NEW EXTERIOR HOLLOW METAL DOOR
②	10'-0" x 10'-0"	NEW ROLL UP OVERHEAD DOOR
③	12'-0" x 12'-0"	NEW ROLL UP OVERHEAD DOOR
④	12'-0" x 14'-0"	NEW ROLL UP OVERHEAD DOOR
⑤	12'-0" x 16'-0"	NEW ROLL UP OVERHEAD DOOR
⑥	12'-0" x 10'-0"	OPENING - PENETRATION
⑦	3'-0" x 7'-0"	NEW INTERIOR RESTROOM DOOR
⑧	PR. 3'-0" x 7'-0"	NEW EXTERIOR HOLLOW METAL DOUBLE DOOR

WALL SCHEDULE			
KEY	TYPE	DESCRIPTION	DETAILS AND NOTES
1	20GA METAL	INTERIOR WALL 6" METAL STUD @ 16" O.C.	SEE SHEET S201 FOR DETAILS
2	20GA METAL	INTERIOR WALL 3-5/8" METAL STUD @ 16" O.C.	SEE SHEET S201 FOR DETAILS

DATE: 11/20/2023

DESCRIPTION: ISSUED FOR CONSTRUCTION

REV: 0

**THE BASTION GROUP**  
 LIMITED LIABILITY COMPANY  
 412 NORTH GUM ST. SUMMERVILLE, SC 29485 - (843) 300-8876  
 WWW.BASTIONGROUP.LLC.COM

**EAST COAST HYDRAULICS**  
 5507 SAVANNAH HIGHWAY  
 RAVENEL, SC 29470

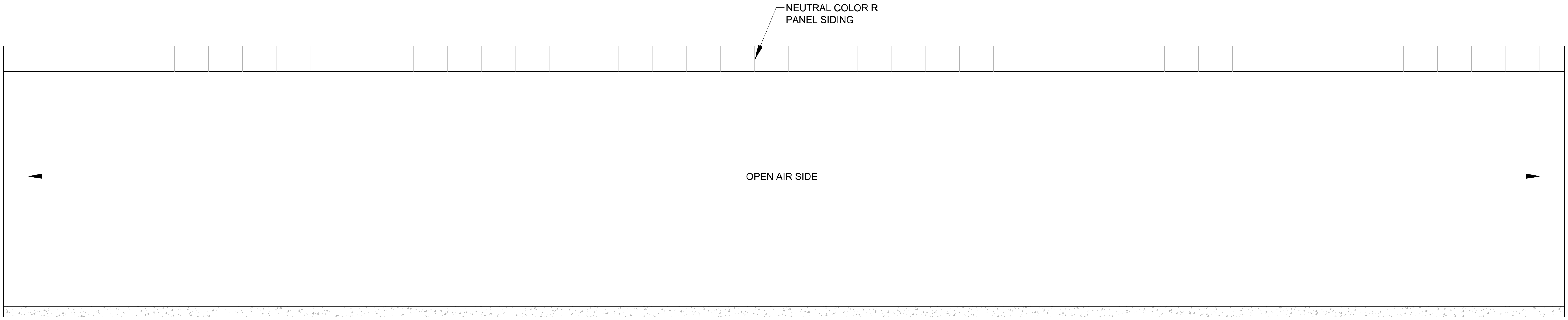
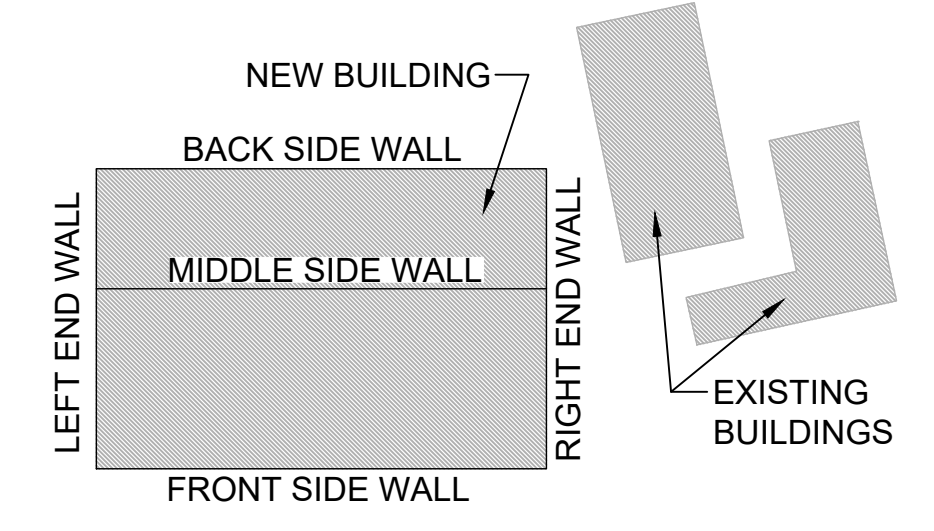
**FLOOR PLAN**

SCALE: AS NOTED  
 BASTION PROJECT NO. 21.093  
 DRAWN BY: bnd DATE: 11.20.2023  
 DRAWING STATUS: IFC  
 SHEET: A100

SHEET: 3 OF 28 REVISION NO. 0



**ELEVATION LEGEND**



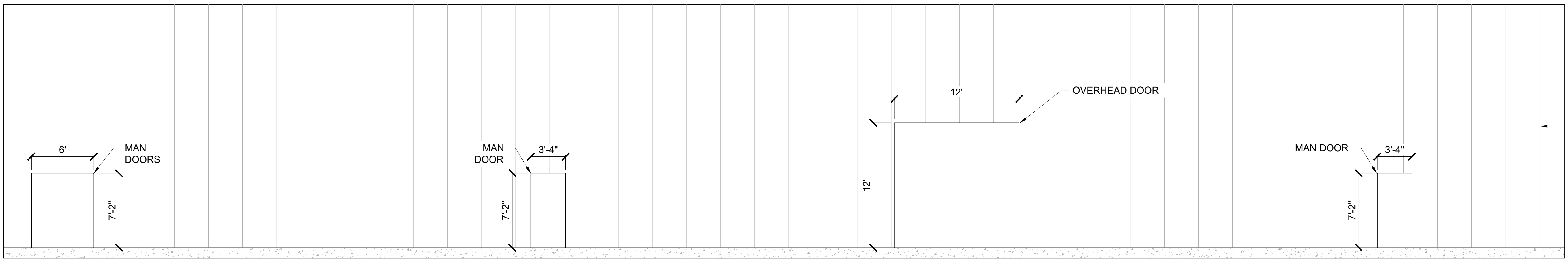
RIDGE  
EL. 25'-0"

TOP OF OPENING  
EL. 22'-7"

FINISH FLOOR  
EL. 0'-0"

**BACK SIDE WALL ELEVATION**

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

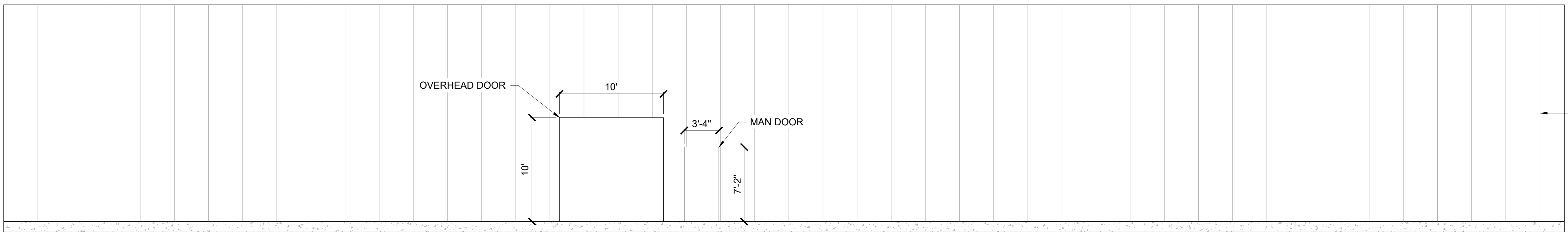


RIDGE  
EL. 23'-4"

FINISH FLOOR  
EL. 0'-0"

**MIDDLE SIDE WALL ELEVATION**

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



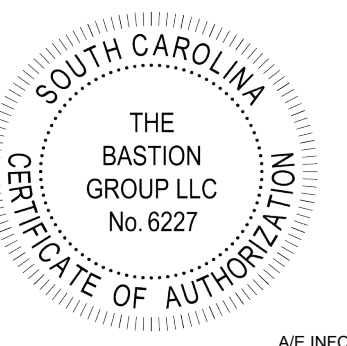
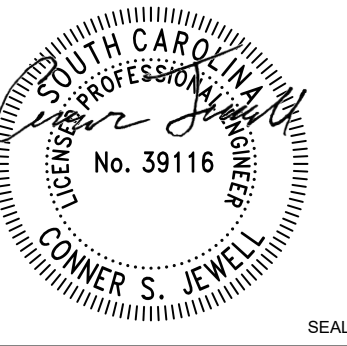
RIDGE  
EL. 20'-10"

FINISH FLOOR  
EL. 0'-0"

**FRONT SIDE WALL ELEVATION**

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

DATE	11/20/2023
DESCRIPTION	ISSUED FOR CONSTRUCTION
REV	0

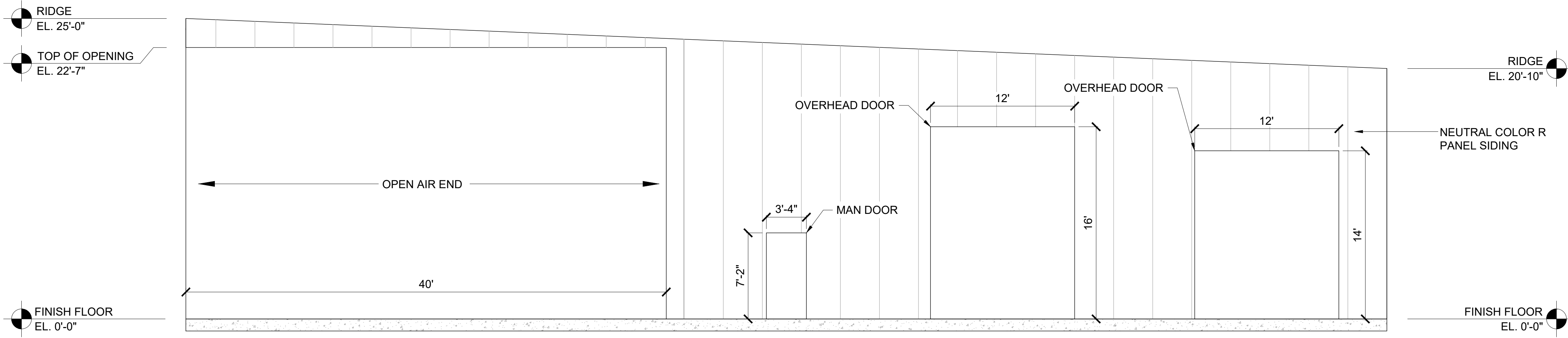
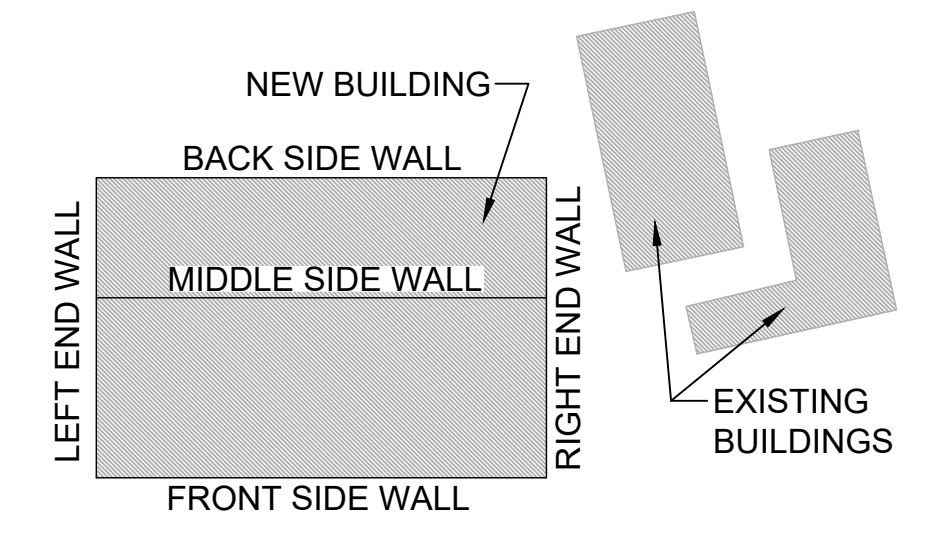


**THE BASTION GROUP**  
LIMITED LIABILITY COMPANY  
412 NORTH GUM ST. SUMMERVILLE, SC 29485 - (843) 300-8876  
WWW.BASTIONGROUPLLC.COM

**EAST COAST HYDRAULICS**  
5507 SAVANNAH HIGHWAY  
RAVENEL, SC 29470

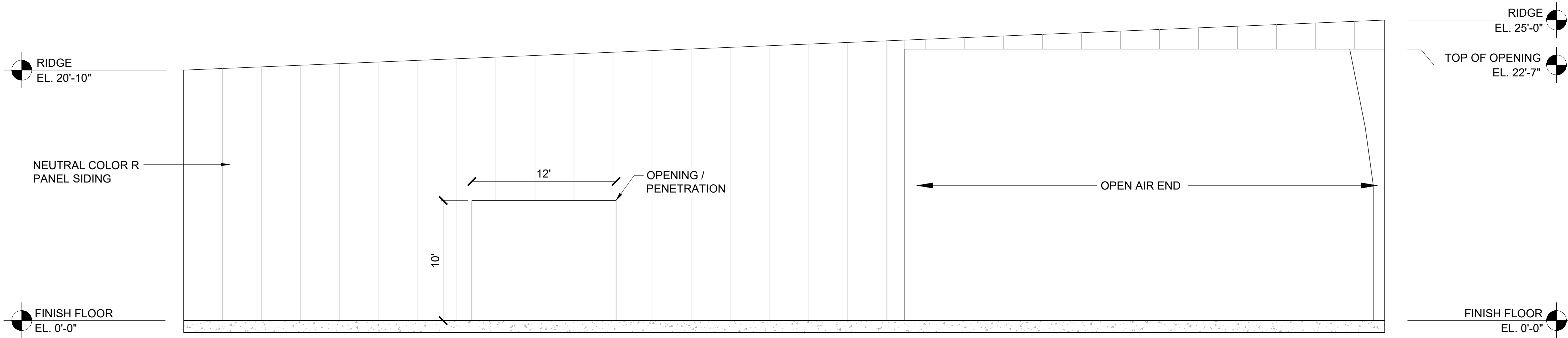
SCALE: AS NOTED  
BASTION PROJECT NO. 21.093  
DRAWN BY: bnd DATE: 11.20.2023  
DRAWING STATUS: IFC  
SHEET: **A300**  
SHEET: 4 OF 28 REVISION NO. 1

**ELEVATION LEGEND**



**LEFT END WALL ELEVATION**

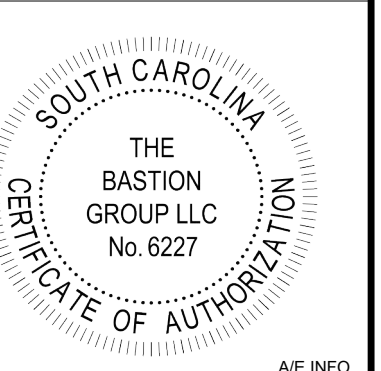
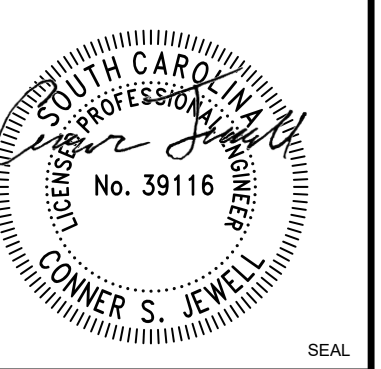
SCALE: 3/16" = 1'-0"



**RIGHT END WALL ELEVATION**

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

DATE	11/20/2023
DESCRIPTION	ISSUED FOR CONSTRUCTION
REV	0



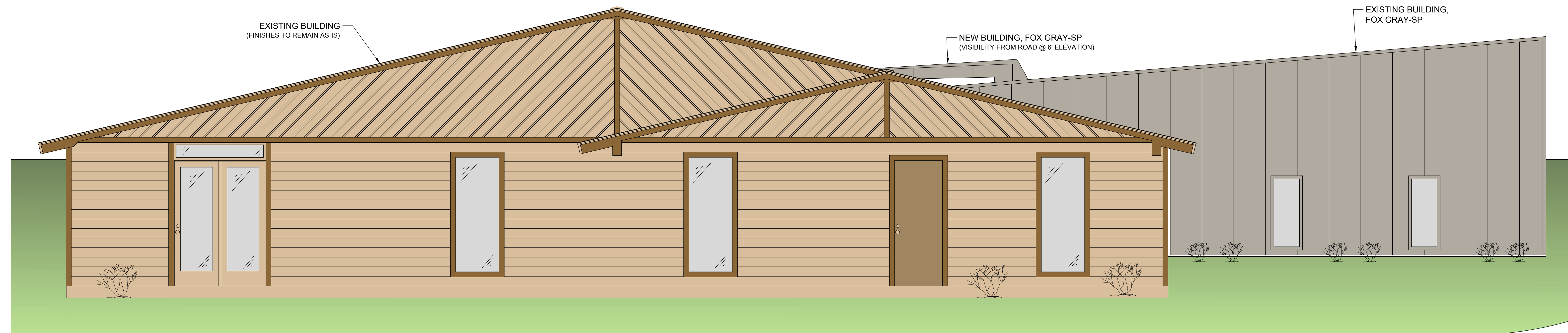
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**EAST COAST HYDRAULICS**  
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RAVENEL, SC 29470

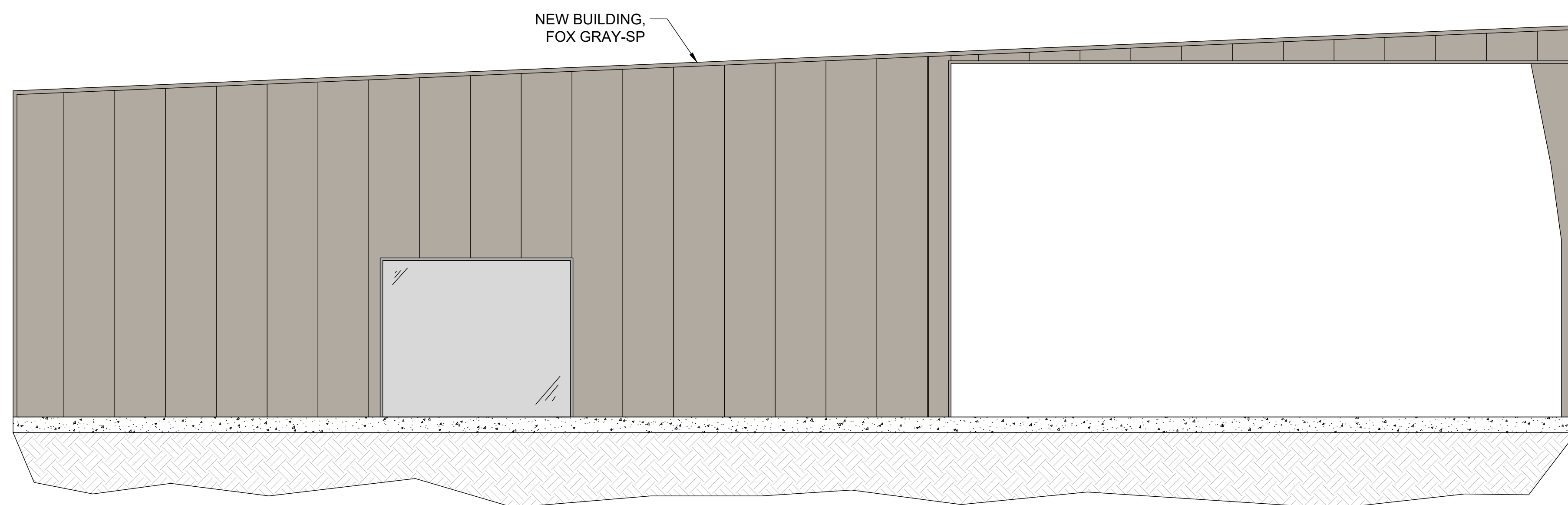
**ELEVATION PLAN**

SCALE:	AS NOTED
BASTION PROJECT NO.	21.093
DRAWN BY:	bnd
DATE:	11.20.2023
DRAWING STATUS:	IFC
SHEET:	A301
SHEET: 5 OF 28 REVISION NO. 0	



**STREET VIEW RENDERING**

SCALE: NTS



**COLOR LEGEND**

- EXISTING BUILDING COLOR
- FOX GRAY-SP  
RGB CODE: 176,170, 161

**NEW BUILDING RENDERING**

SCALE: NTS

REV	DESCRIPTION	DATE
0		

CONNER S. JEWEL  
No. 39116  
SOUTH CAROLINA  
PROFESSIONAL ENGINEER

THE BASTION GROUP LLC  
No. 6227  
SOUTH CAROLINA  
CERTIFICATE OF AUTHORIZATION

**THE BASTION GROUP**  
LIMITED LIABILITY COMPANY  
412 NORTH GUM ST. SUMMERVILLE, SC 29485 • (843) 900-8876  
WWW.BASTIONGROUPLLC.COM

**EAST COAST HYDRAULICS**  
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RAVENEL, SC 29470

**BUILDING RENDERING**

SCALE: AS NOTED	
BASTION PROJECT NO. 21.093	
DRAWN BY: BND	DATE: 10.30.23
DRAWING STATUS: IFP	
SHEET: A302	
SHEET: 6 OF 28 REVISION NO.	

**SAFETY NOTICE TO THE CONTRACTOR:**  
 IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. ANY CONSTRUCTION OBSERVATION BY THE ENGINEER OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON, OR NEAR THE CONSTRUCTION SITE.

**WARRANTY/DISCLAIMER**  
 THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER THE ENGINEER OF RECORD OR PERSONNEL OF THE FIRM CAN OR DO WARRANT THESE DESIGNS OR PLANS AS CONSTRUCTED, EXCEPT AS IN THE SPECIFIC CASES WHERE THE ENGINEER INSPECTS AND CONTROLS THE PHYSICAL CONSTRUCTION ON A CONTEMPORARY BASIS AT THE SITE.

**EROSION CONTROL NOTES**

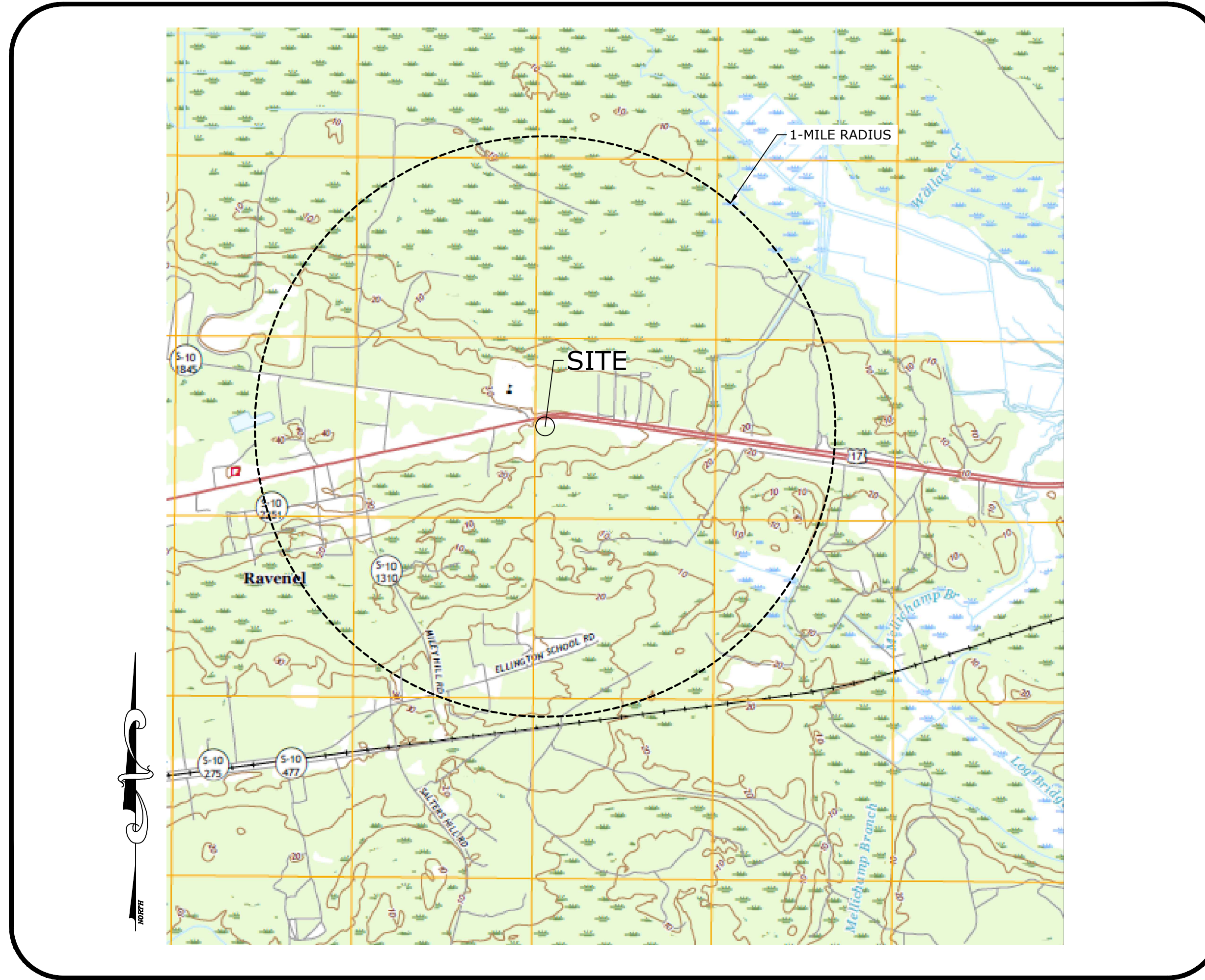
- SUBJECT PROPERTY:  
 5507 SAVANNAH HIGHWAY, TOWN OF RAVENEL, SC  
 SOIL TYPES: Cn (CHIPLEY LOAMY FINE SAND) / LsB (LAKELAND SAND), HYDROLOGIC SOIL GROUP A  
 Sa (ST JOHNS FINE SAND) / Ss (STONY FINE SANDY LOAM) HYDROLOGIC SOIL GROUP A/D
- SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSTALLED AND FUNCTIONING PRIOR TO BEGINNING ANY PROJECT EARTH DISTURBING ACTIVITIES.
- TO SECURE THE PROJECT SITE, LOCATE LIMITS OF CONSTRUCTION, PROTECT AREAS THAT ARE TO REMAIN UNDISTURBED, AND PREVENT MIGRATION OF CONSTRUCTION DEBRIS, ORANGE CONSTRUCTION FENCING SHALL BE INSTALLED AROUND AREAS NOT REQUIRING SILT FENCING. ANY ACCUMULATION OF CONSTRUCTION DEBRIS ON PUBLIC ROADWAYS OR ADJACENT PROPERTIES SHALL BE REMOVED WITHIN 24 HOURS. CARE SHALL BE TAKEN WHEN INSTALLING CONSTRUCTION FENCING TO NOT OBSCURE ONCOMING TRAFFIC AT INTERSECTIONS, ADJACENT DRIVEWAYS AND THE PROJECT CONSTRUCTION ENTRANCE.
- CONTRACTOR(S) TO MAINTAIN EROSION CONTROL MEASURES UNTIL GRASSING IS ESTABLISHED. OWNER WILL BE RESPONSIBLE FOR EROSION CONTROL MAINTENANCE THEREAFTER.
- A CERTIFIED EROSION PREVENTION AND SEDIMENT CONTROL (CEPSC) INSPECTOR SHALL BE MAINTAINED TO PROVIDE INSPECTION AND DOCUMENTATION OF EPRSC PRACTICES THROUGHOUT CONSTRUCTION IN ACCORDANCE WITH SCDHEC REGULATIONS.
- THE CONTRACTOR SHALL PROVIDE A SUITABLE RAIN GAUGE ON SITE AND RECORD DAILY RAINFALL AMOUNTS. THE CONTRACTOR SHALL NOTIFY THE INSPECTOR WITHIN 1 BUSINESS DAY IF A RAINFALL EVENT EQUAL TO OR GREATER THAN 0.5" HAS OCCURRED AT THE SITE.
- ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY SEVEN (7) DAYS AND WITHIN 24 HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES 1/2 INCH OR MORE OF PRECIPITATION. DAMAGED OR INEFFECTIVE DEVICES SHALL BE REPAIRED OR REPLACED AS NECESSARY. WRITTEN INSPECTION REPORTS SHALL BE KEPT ON SITE. IF POSSIBLE, SUPPORTING PHOTOGRAPHS SHALL ALSO BE RECORDED ALONG WITH THE INSPECTION REPORT. A WRITTEN MAINTENANCE RECORD OF ALL REPAIRS TO SEDIMENT/EROSION CONTROL DEVICES SHALL ALSO BE MAINTAINED AND KEPT ON SITE. REGULAR MAINTENANCE SHALL ALSO BE PERFORMED INCLUDING REMOVAL OF SILT FROM AROUND CATCH BASINS AND REPAIR CONSTRUCTION ENTRANCE AS NEEDED TO PREVENT OFFSITE SEDIMENTATION.
- ANY MODIFICATIONS FROM THE APPROVED PLANS TO THE SEDIMENT/EROSION CONTROL FEATURES INSTALLED ON SITE SHALL BE RECORDED WITH INITIALS AND DATE ON THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND THE DESIGN ENGINEER SHALL BE NOTIFIED. THE DESIGN ENGINEER SHALL BE NOTIFIED IF ANY MAJOR CHANGES IN THE SWPPP ARE REQUIRED.
- ALL DISTURBED AREAS SHALL RECEIVE TOPSOIL & BE GRASSED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:  
 A. LIME: 2 TONS PER ACRE  
 B. FERTILIZER: 1000 LBS PER ACRE OF 10-10-10  
 C. SEED: PER GRASSING SCHEDULE DETAIL  
 D. MULCH: 1.5 TONS PER ACRE - WHEAT STRAW  
 IF TEMPORARY VEGETATION IS REQUIRED TO ASSIST IN SILTATION CONTROL, FOLLOW THE GRASSING SCHEDULE DETAIL.
- SOIL DISTURBANCE SHOULD BE LIMITED TO AREAS BEING ACTIVELY WORKED. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED.
- SLOPES STEEPER THAN 3:1 AND/OR EXCEEDING EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH FLEX TERRA OR SYNTHETIC/VEGETATIVE MATS IN ADDITION TO HYDRO SEEDING. TEMPORARY SLOPE DRAINS SHALL BE INSTALLED AS NECESSARY DURING CONSTRUCTION WHERE SAID SLOPES EXCEED EIGHT (8) VERTICAL FEET.
- CAT TRACK OR SURFACE ROUGHENING IS REQUIRED FOR ALL SLOPES GREATER THAN 4:1 PRIOR TO SEEDING AND LYING OF SYNTHETIC OR VEGETATIVE MATS. CAT TRACKING OR SURFACE ROUGHENING SHALL PRODUCE A SURFACE WITH FURROWS RUNNING ACROSS THE SLOPE, PARALLEL WITH SLOPE CONTOURS, AND PERPENDICULAR TO SURFACE RUNOFF.
- SILT FENCES SHALL BE CLEANED OR REPLACED WHEN SEDIMENT REACHES 1/3 HEIGHT OF THE FENCE OR WHEN THE SILT FENCE BECOMES INEFFECTIVE, WHICHEVER COMES FIRST.
- PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE ANY SEDIMENTS BEFORE BEING PUMPED BACK INTO WATERS OF THE STATE.
- SILT FENCE SHALL BE INSTALLED ALONG LINES OF EQUAL ELEVATION. TIE BACKS SHALL BE INSTALLED EVERY 100 LINEAR FEET ALONG THE FENCE LINE.
- SILT FENCING SHALL BE PLACED NO CLOSER THAN 5 FT. DOWNHILL FROM THE TOE OF ANY FILL AREA.
- ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFF SITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
- DURING THE COURSE OF CONSTRUCTION ACTIVITIES EROSION AND SEDIMENT CONTROLS SHALL BE USED TO PREVENT SEDIMENT ACCUMULATION ON PUBLIC ROADWAYS (INCLUDING STREET GUTTERS), SEDIMENT LADEN RUNOFF FROM ENTERING INTO EXISTING STORM WATER SYSTEM INLETS OR DEPOSITING ON ADJACENT PROPERTIES, AND AIRBORNE DUST MIGRATION OFF-SITE. ANY ACCUMULATION OF SEDIMENT FROM THE PROJECT SITE ON PUBLIC ROADWAYS OR ADJACENT PROPERTIES SHALL BE REMOVED WITHIN 24 HOURS.
- THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO THE PAVED ROADWAY FROM CONSTRUCTION AREAS. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS MAY BE REQUIRED.
- THE CONTRACTOR SHALL CONTROL DUST AS NECESSARY USING DUST CONTROL BMPs INCLUDING PROJECT PHASING, VEGETATIVE COVER, MULCH, SPRINKLING WATER, BARRIERS AND/OR COVERS.
- TEMPORARY STOCKPILING OF USEABLE OR WASTE MATERIALS FOR MORE THAN SEVEN (7) DAYS SHALL HAVE APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES INSTALLED. THE CONTRACTOR SHALL PROVIDE STOCKPILE MANAGEMENT PER BMPs AS DESCRIBED IN THE SCDOT WATER QUALITY PROTECTION DURING CONSTRUCTION FIELD MANUAL (JANUARY 2004) SECTION 8.6. ACTIVE STOCKPILES SHALL BE COVERED, STABILIZED OR PROTECTED WITH TEMPORARY LINEAR SEDIMENT BARRIER PRIOR TO THE ONSET OF PRECIPITATION.
- TEMPORARY STOCKPILES SHALL BE PLACED A MINIMUM OF 50 FEET AWAY FROM CONCENTRATED STORM WATER FLOWS, DRAINAGE COURSES, STORM WATER INLET STRUCTURES, ADJACENT PROPERTY, AND PUBLIC ROADWAYS. REPAIR AND/OR REPLACE PERIMETER CONTROLS AS NECESSARY. SEDIMENT SHALL BE REMOVED WHEN SEDIMENT ACCUMULATION REACHES 1/3 OF THE BARRIER HEIGHT.
- THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF ANY SEDIMENT CONTROL DEVICES NEEDED OR REQUIRED AT BORROW OR HAUL AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A GRADING AND/OR MINING PERMIT FOR OFFSITE BORROW PITS AND/OR STOCKPILE AREAS.
- SOLID WASTE DISPOSAL SHALL BE IN COMPLIANCE WITH SCDHEC SOLID WASTE REGULATIONS AND TOWN OF RAVENEL & CHARLESTON COUNTY NUISANCE ORDINANCE.
- THE CONTRACTOR SHALL ESTABLISH AN APPROPRIATE AREA ON SITE FOR TOPSOIL STORAGE. STOCKPILE SHALL BE STABILIZED AND SILT FENCE SHALL BE INSTALLED TO PREVENT SEDIMENTATION. CONTRACTOR SHALL COORDINATE WITH LANDSCAPING CONTRACTOR AND OWNER FOR DISTRIBUTION OF TOPSOIL ON SITE.
- ALL EXISTING OR NEW STORM WATER STRUCTURES SHALL BE CLEANED OF ANY ACCUMULATED CONSTRUCTION DEBRIS OR SEDIMENTS FROM THIS PROJECT SITE. DISPOSAL OF ALL RECOVERED SEDIMENTS AND CONSTRUCTION DEBRIS SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CITY, STATE AND FEDERAL REGULATIONS.
- THE CONTRACTOR AND OWNER SHALL ALLOW TOWN OF RAVENEL, CHARLESTON COUNTY, SC DHEC, OR OTHER IMPLEMENTING AGENCY TO CONDUCT ONSITE INSPECTIONS.
- A MINIMUM 10' WIDE BUFFER SHALL BE MAINTAINED ALONG THE EDGES OF ALL WETLANDS DURING DEMOLITION AND CONSTRUCTION ACTIVITY.
- TEMPORARY TOILETS, IF USED DURING CONSTRUCTION, SHALL NOT BE PLACED WITHIN 50' OF AN EXISTING OR PROPOSED STORMDRAIN INLET OR OUTLET.
- TEMPORARY CONCRETE TRUCK WASH OUT AREAS SHALL NOT BE PLACED WITHIN 50' OF AN EXISTING OR PROPOSED STORMDRAIN INLET.
- ANY GROUNDWATER ENCOUNTERED WHILE TRENCHING MUST BE FILTERED PRIOR TO DISCHARGE.

**ENCROACHMENT NOTES**

- PRIOR TO CONSTRUCTION ALL EROSION CONTROL FEATURES SHALL BE INSTALLED PER THE EROSION AND SEDIMENT CONTROL PLANS.
- WHERE ENCROACHMENT INTO SC DOT OR OTHER PUBLIC RIGHT-OF-WAY IS REQUIRED FOR COMPLETION OF WORK, CONTRACTOR SHALL COORDINATE ENCROACHMENT PERMIT WITH REGULATING AGENCY.
- CONTRACTOR SHALL FOLLOW ALL SCOT APPROVED TRAFFIC CONTROL STANDARDS DURING CONSTRUCTION.
- EMERGENCY SERVICES (911) SHALL BE NOTIFIED PRIOR TO ROAD CLOSURES AND/OR REROUTING.

# EAST COAST HYDRAULICS CYLINDER REPAIR SHOP

TOWN OF RAVENEL, CHARLESTON COUNTY, SOUTH CAROLINA



**SCDHEC STANDARD NOTES**

- IF NECESSARY, SLOPES, WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS. IN ADDITION TO HYDROSEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.
- STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN DAYS AFTER WORK HAS CEASED, EXCEPT AS STATED BELOW.  
 • WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.  
 • WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.
- ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY CALENDAR WEEK. IF PERIODIC INSPECTION OR OTHER INFORMATION INDICATES THAT A BMP HAS BEEN INAPPROPRIATELY, OR INCORRECTLY, THE PERMITTEE MUST ADDRESS THE NECESSARY REPLACEMENT OR MODIFICATION REQUIRED TO CORRECT THE BMP WITHIN 48 HOURS OF IDENTIFICATION.
- PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE SEDIMENT BEFORE BEING PUMPED BACK INTO ANY WATERS OF THE STATE.
- ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
- THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO PAVED ROADWAY(S) FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS MAY BE REQUIRED. RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURE AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING CONSTRUCTION OR OBTAIN APPROVAL OF AN INDIVIDUAL PLAN IN ACCORDANCE WITH S.C. REG. 72-300 ET SEQ. AND SCR100000.
- TEMPORARY DIVERSION BERMS AND/OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT-LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.
- ALL WATERS OF THE STATE (WOS), INCLUDING WETLANDS, ARE TO BE FLAGGED OR OTHERWISE CLEARLY MARKED IN THE A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS WHERE A 50-FOOT BUFFER CANT BE MAINTAINED BETWEEN THE DISTURBED AREA AND ALL WOS. A 10-FOOT BUFFER SHOULD BE MAINTAINED BETWEEN THE LAST ROW OF SILT FENCE AND ALL WOS.
- LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.
- A COPY OF THE SWPPP, INSPECTIONS RECORDS, AND RAINFALL DATA MUST BE RETAINED AT THE CONSTRUCTION SITE OR A NEARBY LOCATION EASILY ACCESSIBLE DURING NORMAL BUSINESS HOURS, FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE DATE THAT FINAL STABILIZATION IS REACHED.
- INITIATE STABILIZATION MEASURES ON ANY EXPOSED STEEP SLOPE (3H:1V OR GREATER) WHERE LAND-DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED, AND WILL NOT RESUME FOR A PERIOD OF 7 CALENDAR DAYS.
- MINIMIZE SOIL COMPACTION AND, UNLESS INFASIBLE, PRESERVE TOPSOIL.
- MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER, AND OTHER WASH WATERS. WASH WATERS MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL THAT PROVIDES EQUIVALENT OR BETTER TREATMENT PRIOR TO DISCHARGE;
- MINIMIZE THE DISCHARGE OF POLLUTANTS FROM DEWATERING OF TRENCHES AND EXCAVATED AREAS. THESE DISCHARGES ARE TO BE ROUTED THROUGH APPROPRIATE BMPs (SEDIMENT BASIN, FILTER BAG, ETC.).
- THE FOLLOWING DISCHARGES FROM SITES ARE PROHIBITED:  
 □ WASTEWATER FROM WASHOUT OF CONCRETE, UNLESS MANAGED BY AN APPROPRIATE CONTROL;  
 □ WASTEWATER FROM WASHOUT AND CLEANOUT OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS;  
 □ FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE; AND  
 □ SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING.
- AFTER CONSTRUCTION ACTIVITIES BEGIN, INSPECTIONS MUST BE CONDUCTED AT A MINIMUM OF AT LEAST ONCE EVERY CALENDAR WEEK AND MUST BE CONDUCTED UNTIL FINAL STABILIZATION IS REACHED ON ALL AREAS OF THE CONSTRUCTION SITE.
- IF EXISTING BMPs NEED TO BE MODIFIED OR IF ADDITIONAL BMPs ARE NECESSARY TO COMPLY WITH THE REQUIREMENTS OF THIS PERMIT AND/OR SC'S WATER QUALITY STANDARDS, IMPLEMENTATION MUST BE COMPLETED BEFORE THE NEXT STORM EVENT WHENEVER PRACTICABLE. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICABLE, THE SITUATION MUST BE DOCUMENTED IN THE SWPPP AND ALTERNATIVE BMPs MUST BE IMPLEMENTED AS SOON AS REASONABLY POSSIBLE.
- A PRE-CONSTRUCTION CONFERENCE MUST BE HELD FOR EACH CONSTRUCTION SITE WITH AN APPROVED ON-SITE SWPPP PRIOR TO THE IMPLEMENTATION OF CONSTRUCTION ACTIVITIES. FOR NON-LINEAR PROJECTS THAT DISTURB 10 ACRES OR MORE THIS CONFERENCE MUST BE HELD ON-SITE UNLESS THE DEPARTMENT HAS APPROVED OTHERWISE.

\*\*\*CAUTION\*\*\*



THE UTILITIES SHOWN ARE SHOWN FOR THE CONTRACTOR'S CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATIONS OF ALL UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

**SITE DATA:**

SITE AREA: 5.66 AC  
 TOTAL DISTURBED AREA: ±0.9 AC

JURISDICTION: CHARLESTON COUNTY  
 PARCEL ID: 2280000032  
 ZONING: GENERAL BUSINESS  
 PROPOSED USE: REPAIR SHOP

BUILDING SETBACK REQUIREMENTS:  
 FRONT: 50'  
 SIDE: 25'  
 REAR: 25'

IMPERVIOUS AREA:  
 EXISTING: 1.39 AC (60,696 SF)  
 PROPOSED: 1.71 AC (74,657 SF)  
 NET: 0.32 AC (13,961 SF) INCREASE  
 PERCENTAGE OF PARCEL AREA: 32%  
 MAX. ALLOWABLE LOT COVERAGE: 40%

**ENGINEER:**



202 W MAIN STREET, CLINTON, SC 29325  
 864-833-4757 WWW.CANEBRAKECIVIL.COM

**DRAWING LIST:**

TITLE	SHEET
COVER	
EXISTING CONDITIONS & DEMOLITION	C100
SITE PLAN	C200
EROSION & SEDIMENT CONTROL PLAN	C300
GRADING PLAN	C400
DETAILS	C900
DETAILS	C901
DETAILS	C902

## 5507 SAVANNAH HIGHWAY

**OWNER/CLIENT:**

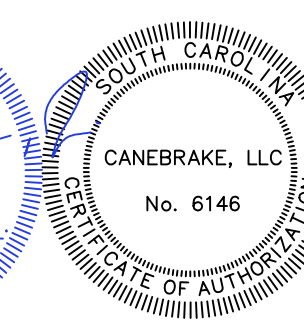
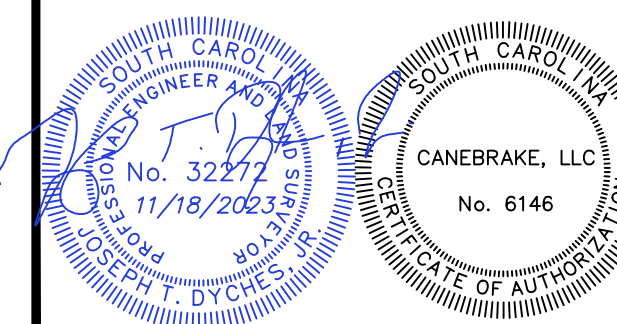
**RAESKI, LLC**

RAESKI, LLC  
 5507 SAVANNAH HIGHWAY  
 RAVENEL, SC 29470

**24-HOUR CONTACT**

CONNOR JEWELL  
 CONTRACTOR  
 (803) 447-9660

**CERTIFICATION:**



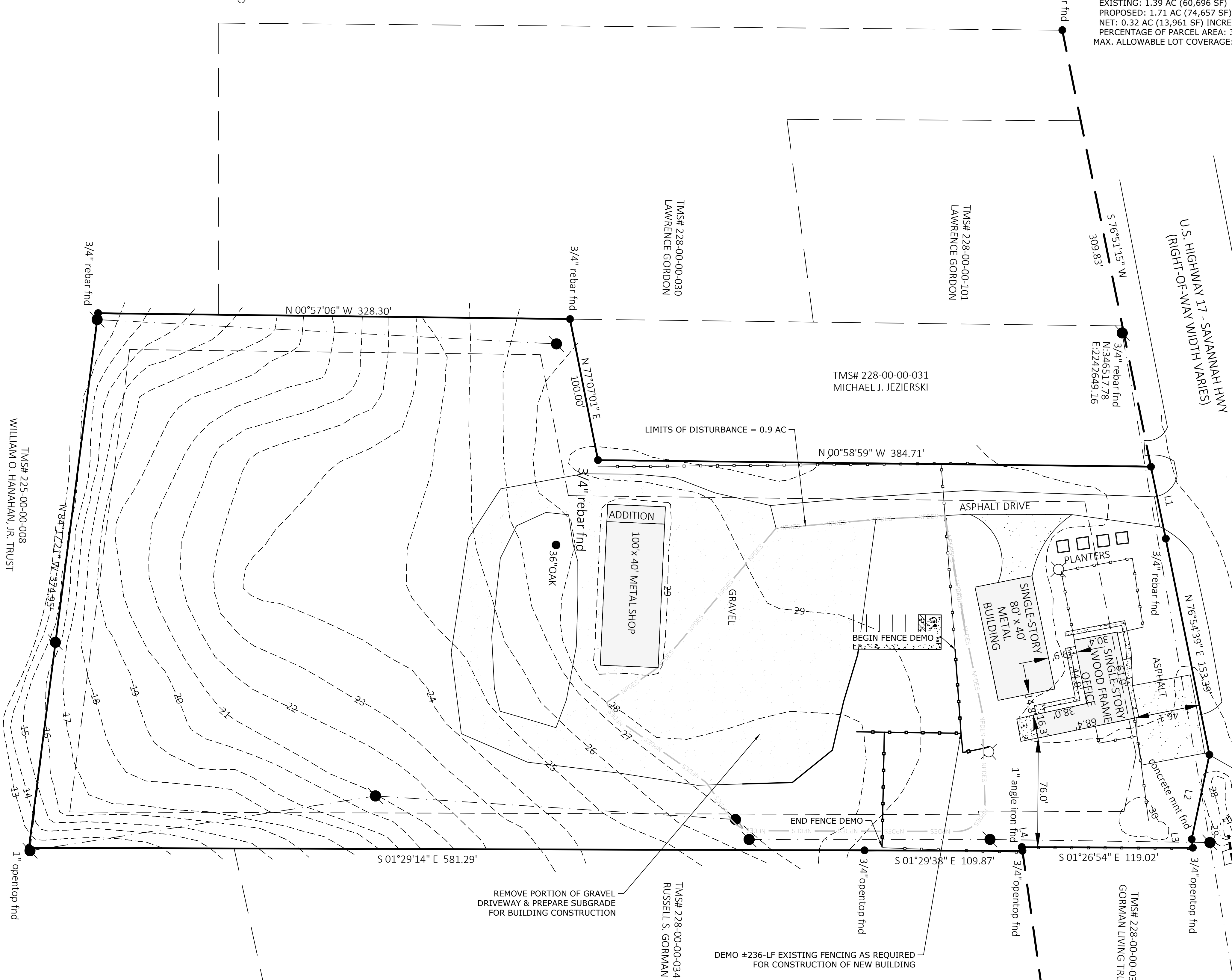
**REVISIONS:**

- ISSUE FOR PERMIT 10-8-2023
- REV. PER ZONING COMMENTS 11-18-2023
- 
- 
- 
- 
- 
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- 
-

**LEGEND**

SYMBOLS	ABBREVIATIONS
	CT CRIMP TOP
	EP EDGE OF PAVEMENT
	FFE FINISHED FLOOR
	ELEVATION
	IPS IRON PIN SET
	IPO IRON PIN OLD
	N&C NAIL & CAP
	OT OPEN TOP
	SR SOLID ROD
	RB REBAR
	R/W RIGHT OF WAY
LINETYPES	
	FENCELINE
	GAS LINE
	OVERHEAD POWER
	OVERHEAD TELEPHONE
	SANITARY SEWER
	STORM SEWER
	UNDERGROUND POWER
	UNDERGROUND TEL
	WATER LINE
	RAILROAD
	DITCHLINE

REF. PLAT



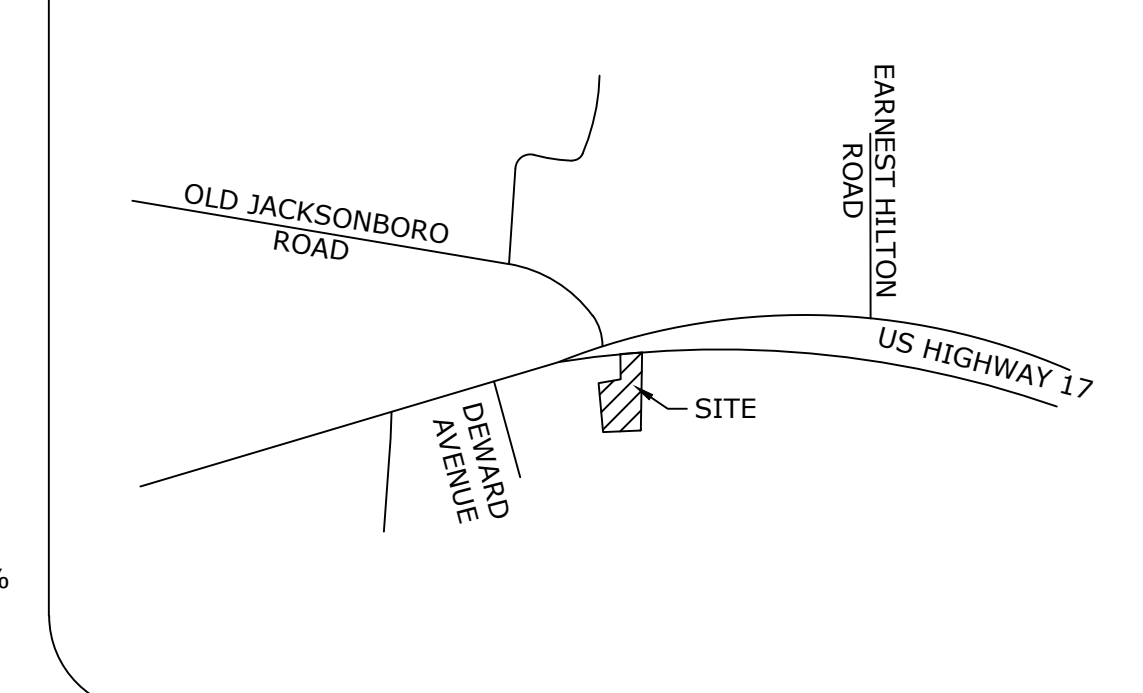
SITE AREA: 5.66 AC  
 TOTAL DISTURBED AREA: ±0.9 AC

JURISDICTION: CHARLESTON COUNTY  
 PARCEL ID: 2280000032  
 ZONING: GENERAL BUSINESS  
 PROPOSED USE: REPAIR SHOP

BUILDING SETBACK REQUIREMENTS:  
 FRONT: 50'  
 SIDE: 25'  
 REAR: 25'

IMPERVIOUS AREA:  
 EXISTING: 1.39 AC (60,696 SF)  
 PROPOSED: 1.71 AC (74,657 SF)  
 NET: 0.32 AC (13,961 SF) INCREASE  
 PERCENTAGE OF PARCEL AREA: 32%  
 MAX. ALLOWABLE LOT COVERAGE: 40%

**LOCATION MAP (NOT TO SCALE)**



**DEMOLITION NOTES:**

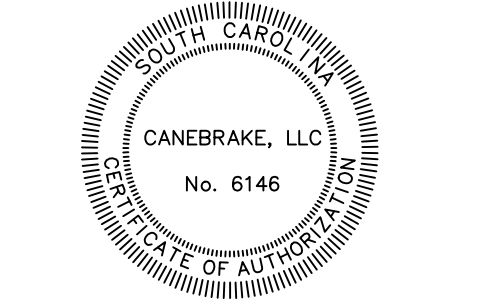
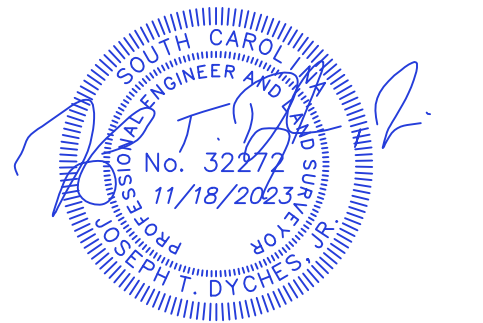
1. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES BY CALLING UTILITY LOCATION SERVICE AT 811 THREE (3) DAYS PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR SHALL INSPECT ALL STRUCTURE, FACILITIES, AND AREAS SLATED FOR DEMOLITION TO GAIN A FULL UNDERSTANDING OF THE WORK REQUIRED. THE CONTRACTOR SHALL TAKE WHATEVER MEASURES NECESSARY TO PROTECT THE SAFETY OF THE PUBLIC, EMPLOYEES, AND AGENTS DURING INSPECTIONS AND SUBSEQUENT WORK. THE OWNER, CLIENT, AND ENGINEER ARE NOT RESPONSIBLE FOR THE CONDITION OF THE BUILDINGS, FACILITIES, OR OTHER AREAS SLATED FOR DEMOLITION.
3. ALL MATERIALS NOT DESIGNATED FOR REUSE ARE TO BE DISPOSED OF OFF-SITE IN A LEGAL MANNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND SAFE STORAGE OF ALL MATERIALS DESIGNATED TO BE SAVED OR REUSED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS TO REPAIR OR REPLACE MATERIALS DAMAGED DUE TO HIS WORK OR FAILURE TO PROTECT THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES.
4. THE CONTRACTOR SHALL COORDINATE WITH ALL APPROPRIATE UTILITY OWNERS, OPERATORS, AND USERS PRIOR TO DISCONNECTION AND DEMOLITION. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE AUTHORITY HAVING JURISDICTION. ENGINEER IS NOT RESPONSIBLE FOR UTILITY COORDINATION FOR THIS PROJECT.
5. THE CONTRACTOR SHALL CONDUCT ALL WORK IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.
6. THE CONTRACTOR SHALL CONDUCT ALL DEMOLITION, REMOVAL, STORAGE, CLEANUP, ETC. IN ACCORDANCE WITH ALL REGULATING AUTHORITIES INCLUDING (BUT NOT LIMITED TO) FLORENCE COUNTY, SCDHEC, AND THE U.S. ENVIRONMENTAL PROTECTION AGENCY.
7. MATERIALS REMOVED FROM SITE ARE TO BE RECYCLED, AS REASONABLE.
8. ALL WORK ON STATE, COUNTY, OR CITY RIGHT-OF-WAY INCLUDING DRIVEWAY APRONS, WATER AND SEWER TAPS OR ANY OTHER WORK REQUIRES AN ENCROACHMENT PERMIT FROM THE APPROPRIATE AGENCY.
9. APPROPRIATE CONSTRUCTION BMPs ARE TO BE INSTALLED PRIOR TO EARTH-DISTURBING DEMOLITION ACTIVITIES. SEE EROSION CONTROL / STORMWATER POLLUTION PREVENTION PLANS FOR MORE DETAILED INFORMATION.
10. CONTRACTOR TO VERIFY FIELD CONDITIONS ARE PROPERLY REPRESENTED AND DESIGNED CONDITIONS WILL BE REASONABLY MET. ENGINEER TO BE NOTIFIED IMMEDIATELY IF CONFLICTING CONDITIONS EXIST.

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**CANEBRAKE**  
 ENGINEERING + SURVEYING

202 W MAIN STREET, CLINTON, SC 29325  
 864-833-4757  
 JOSEPH@CANEBRAKECIVIL.COM

**REGISTRATION:**



**PROJECT:**  
 EAST COAST HYDRAULICS CYLINDER REPAIR SHOP

**OWNER/CLIENT:**  
 RAESKI, LLC

**CITY:**  
 RAVENEL

**COUNTY:**  
 CHARLESTON

**STATE:**  
 SOUTH CAROLINA

**FIELD:**  
 DRAFTED: JTD  
 REVIEWED: JTD

**REVISED / ISSUED:**  
 ISSUE FOR PERMIT 10/8/23  
 REV. PER ZONING 11/18/23

**HORIZONTAL SCALE:** 1" = 40'  
**VERTICAL SCALE:** N/A

EXISTING CONDITIONS & DEMOLITION PLAN

SHEET 8 OF 28

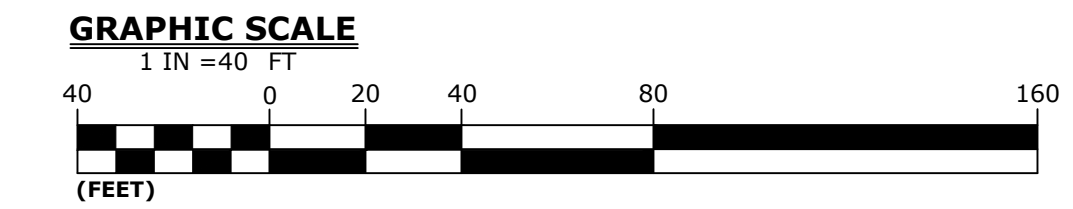
**C100**

I HAVE PLACED MY SIGNATURE AND SEAL ON THE DESIGN DOCUMENTS SUBMITTED SIGNIFYING THAT I ACCEPT RESPONSIBILITY FOR THE DESIGN OF THE SYSTEM. FURTHER, I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT WITH THE REQUIREMENTS OF TITLE 46, CHAPTER 14 OF THE CODE OF LAWS OF SC, 1976 AS AMENDED, PURSUANT TO REGULATION 72-300 ET SEQ. (IF APPLICABLE), AND IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF SCR100000."

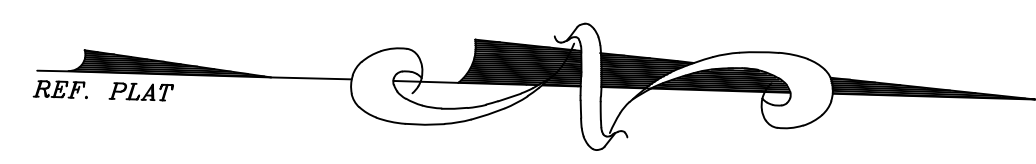
SITE EXISTING CONDITIONS BASED ON TOPOGRAPHIC SURVEY BY MATTHEW HALTER, PE, PLS DATED 5/12/2022.



THE UTILITIES SHOWN ARE SHOWN FOR THE CONTRACTOR'S CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATIONS OF ALL UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.



LEGEND	
SYMBOLS	ABBREVIATIONS
	CT CRIMP TOP
	EP EDGE OF PAVEMENT
	FFE FINISHED FLOOR
	IPS IRON PIN SET
	IPO IRON PIN OLD
	N&C NAIL & CAP
	OT OPEN TOP
	SR SOLID ROD
	RB REBAR
	R/W RIGHT OF WAY
LINETYPES	
	FENCELINE
	GAS LINE
	OVERHEAD POWER
	OVERHEAD TELEPHONE
	SANITARY SEWER
	STORM SEWER
	UNDERGROUND POWER
	UNDERGROUND TEL
	WATER LINE
	RAILROAD
	DITCHLINE

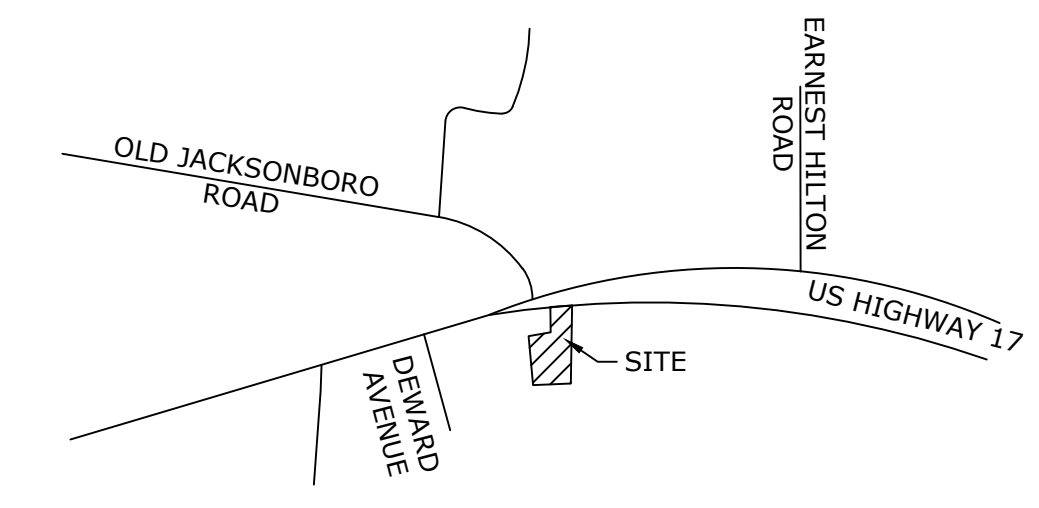


**PARKING CALCULATION:**

ZONING: GENERAL BUSINESS  
 USE: REPAIR  
 PARKING REQUIRED: (WAREHOUSING/ OTHER)  
 1 SPACE PER EACH TWO EMPLOYEES  
 10 EMPLOYEES, MIN. 5 SPACES REQUIRED  
 REGULAR SPACES PROPOSED: 5 (GRAVEL)  
 ADA SPACES PROPOSED: 1 (CONCRETE)  
 TOTAL PROPOSED: 6

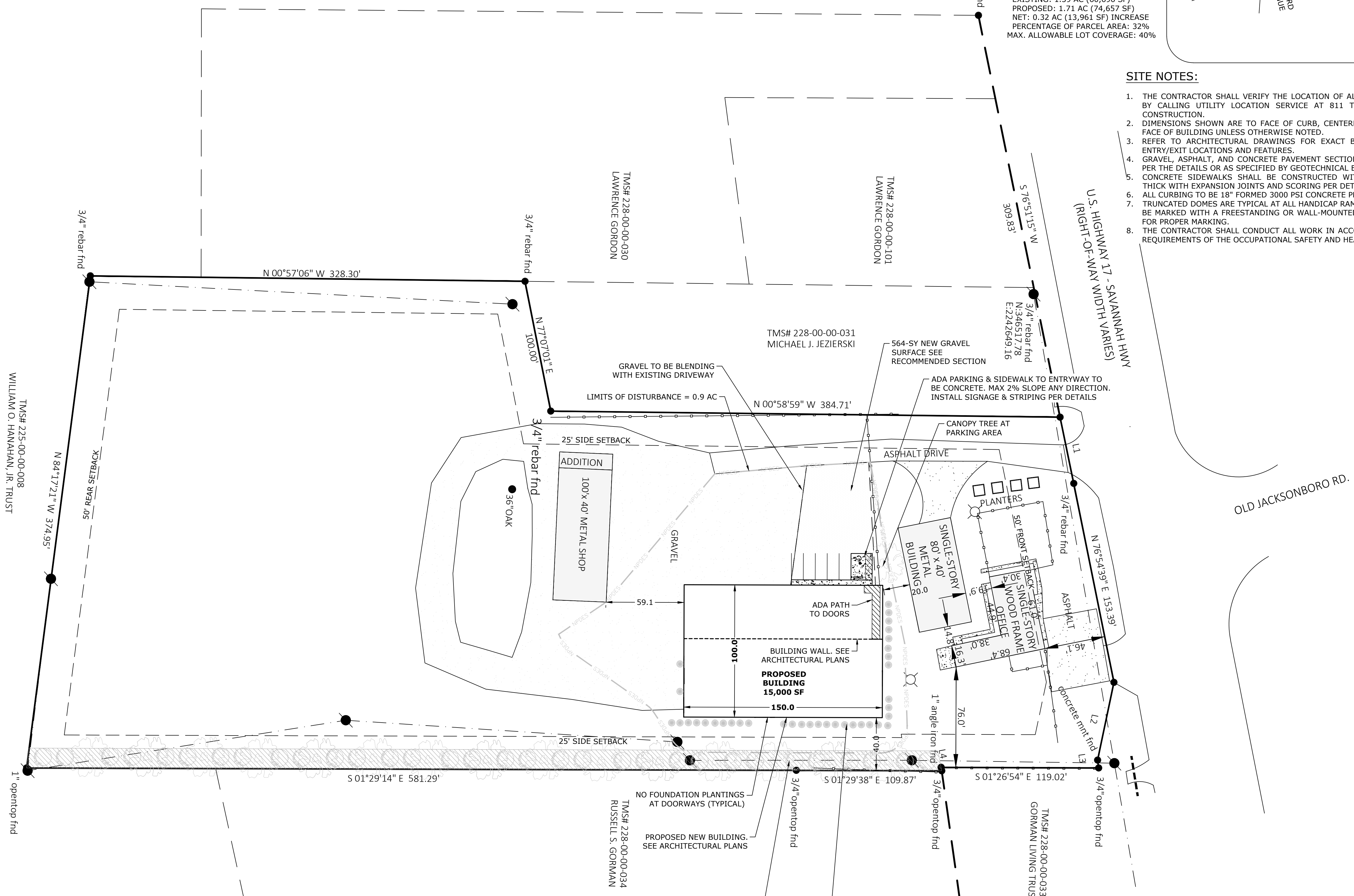
SITE AREA: 5.66 AC  
 TOTAL DISTURBED AREA: ±0.9 AC  
 JURISDICTION: CHARLESTON COUNTY  
 PARCEL ID: 2280000037  
 ZONING: GENERAL BUSINESS / COMMERCIAL CORRIDOR OVERLAY  
 PROPOSED USE: REPAIR SHOP  
 BUILDING SETBACK REQUIREMENTS:  
 FRONT: 50'  
 SIDE: 25'  
 REAR: 25'  
 IMPERVIOUS AREA:  
 EXISTING: 1.39 AC (60,696 SF)  
 PROPOSED: 1.71 AC (74,657 SF)  
 NET: 0.32 AC (13,961 SF) INCREASE  
 PERCENTAGE OF PARCEL AREA: 32%  
 MAX. ALLOWABLE LOT COVERAGE: 40%

**LOCATION MAP (NOT TO SCALE)**



**SITE NOTES:**

1. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES BY CALLING UTILITY LOCATION SERVICE AT 811 THREE (3) DAYS PRIOR TO CONSTRUCTION.
2. DIMENSIONS SHOWN ARE TO FACE OF CURB, CENTERLINE OF PARKING STALL OR FACE OF BUILDING UNLESS OTHERWISE NOTED.
3. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND ENTRY/EXIT LOCATIONS AND FEATURES.
4. GRAVEL, ASPHALT, AND CONCRETE PAVEMENT SECTIONS SHALL BE CONSTRUCTED PER THE DETAILS OR AS SPECIFIED BY GEOTECHNICAL ENGINEER.
5. CONCRETE SIDEWALKS SHALL BE CONSTRUCTED WITH 3000 PSI CONCRETE 4" THICK WITH EXPANSION JOINTS AND SCORING PER DETAIL.
6. ALL CURBING TO BE 18" FORMED 3000 PSI CONCRETE PER DETAILS.
7. TRUNCATED DOMES ARE TYPICAL AT ALL HANDICAP RAMPS. HANDICAP SPACES WILL BE MARKED WITH A FREESTANDING OR WALL-MOUNTED SIGN. SEE DETAIL SHEETS FOR PROPER MARKING.
8. THE CONTRACTOR SHALL CONDUCT ALL WORK IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.

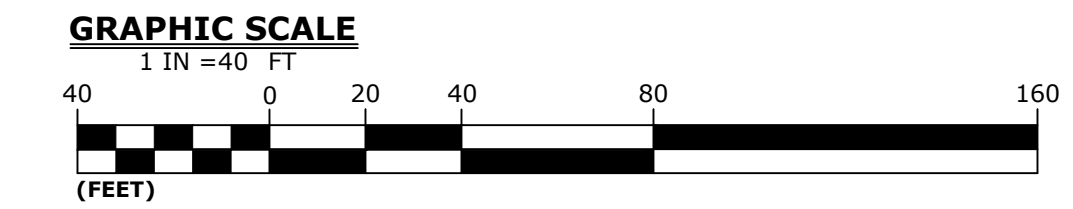


**SCREENING REQUIRED**  
 HATCH DENOTES REQUIRED SCREENING AREA  
 1. INSTALL 6' OPAQUE FENCE OR 15' LANDSCAPED BUFFERYARD  
 2. PLANT 2 CANOPY TREES & 6 UNDERSTORY TREES PER 100' OF PROPERTY LINE

**FOUNDATION PLANTINGS REQUIRED**  
 INSTALL TEN (10) SHRUBS AND/OR ORNAMENTAL GRASSES, AT LEAST 2' HEIGHT AND DIAMETER AT PLANTING. ONE PER 100' OF PLANTING AREA. REMAINING GROUND TO BE COVERED WITH PINE STRAW, MULCH, WOOD CHIPS, DECORATIVE ROCK OR SIMILAR MATERIAL.



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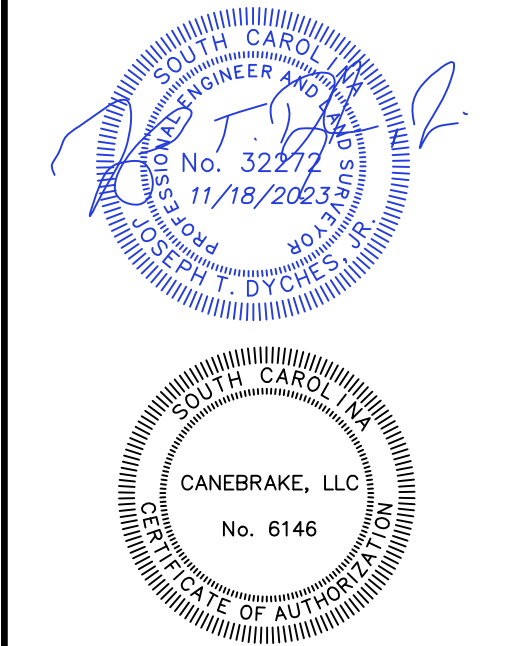
I HAVE PLACED MY SIGNATURE AND SEAL ON THE DESIGN DOCUMENTS SUBMITTED SIGNIFYING THAT I ACCEPT RESPONSIBILITY FOR THE DESIGN OF THE SYSTEM. FURTHER, I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT WITH THE REQUIREMENTS OF TITLE 48, CHAPTER 14 OF THE CODE OF LAWS OF SC, 1976 AS AMENDED, PURSUANT TO REGULATION 72-300 ET SEQ. (IF APPLICABLE), AND IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF SCR100000.

SITE EXISTING CONDITIONS BASED ON TOPOGRAPHIC SURVEY BY MATTHEW HALTER, PE, PLS DATED 5/12/2022.

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 202 W MAIN STREET, CLINTON, SC 29325  
 864-833-4757  
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**REGISTRATION:**



**PROJECT:**  
 EAST COAST HYDRAULICS CYLINDER REPAIR SHOP

**OWNER / CLIENT:**  
 RAESKI, LLC

**CITY:**  
 RAVENEL

**COUNTY:**  
 CHARLESTON

**STATE:**  
 SOUTH CAROLINA

**FIELD:**  
 DRAFTED: JTD  
 REVIEWED: JTD

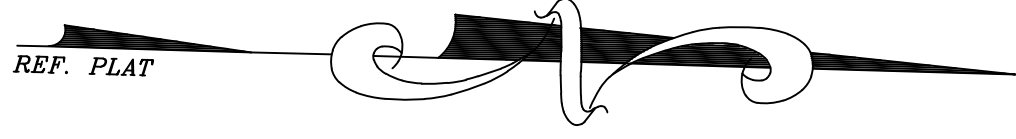
**REVISED / ISSUED:**  
 ISSUE FOR PERMIT: 10/8/23  
 REV. PER ZONING: 11/18/23

**HORIZONTAL SCALE:** 1" = 40'  
**VERTICAL SCALE:** N/A

SITE PLAN  
 SHEET 9 OF 28

**C200**

LEGEND	
SYMBOLS	ABBREVIATIONS
	CT CRIMP TOP
	EP EDGE OF PAVEMENT
	FFE FINISHED FLOOR
	IPS IRON PIN SET
	IPO IRON PIN OLD
	N&C NAIL & CAP
	OT OPEN TOP
	SR SOLID ROD
	RB REBAR
	R/W RIGHT OF WAY
LINETYPES	
	FENCELINE
	GAS LINE
	OVERHEAD POWER
	OVERHEAD TELEPHONE
	SANITARY SEWER
	STORM SEWER
	UNDERGROUND POWER
	UNDERGROUND TEL
	WATER LINE
	RAILROAD
	DITCHLINE



CONTRACTOR SHALL CLEAR AND GRUB ONLY IN AREAS REQUIRED FOR INSTALLATION OF EROSION CONTROL MEASURES BEFORE ANY OTHER SITE DISTURBANCE

24-HOUR CONTACT  
CONNER JEWELL  
CONTRACTOR  
(803) 447-9660

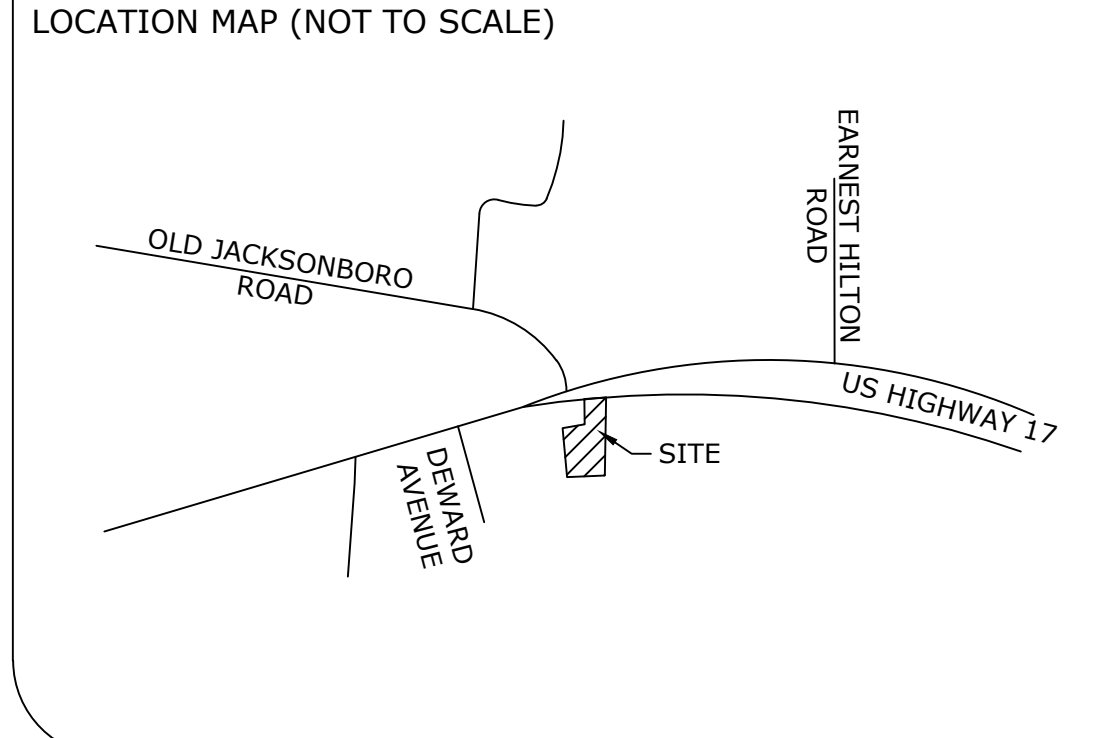
TOTAL SITE DISTURBANCE:  
0.9 ACRES

ANY EXCESS SOIL HAULED OFF-SITE MUST BE TO AN APPROVED PERMITTED SITE.

MAINTENANCE STATEMENT  
EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

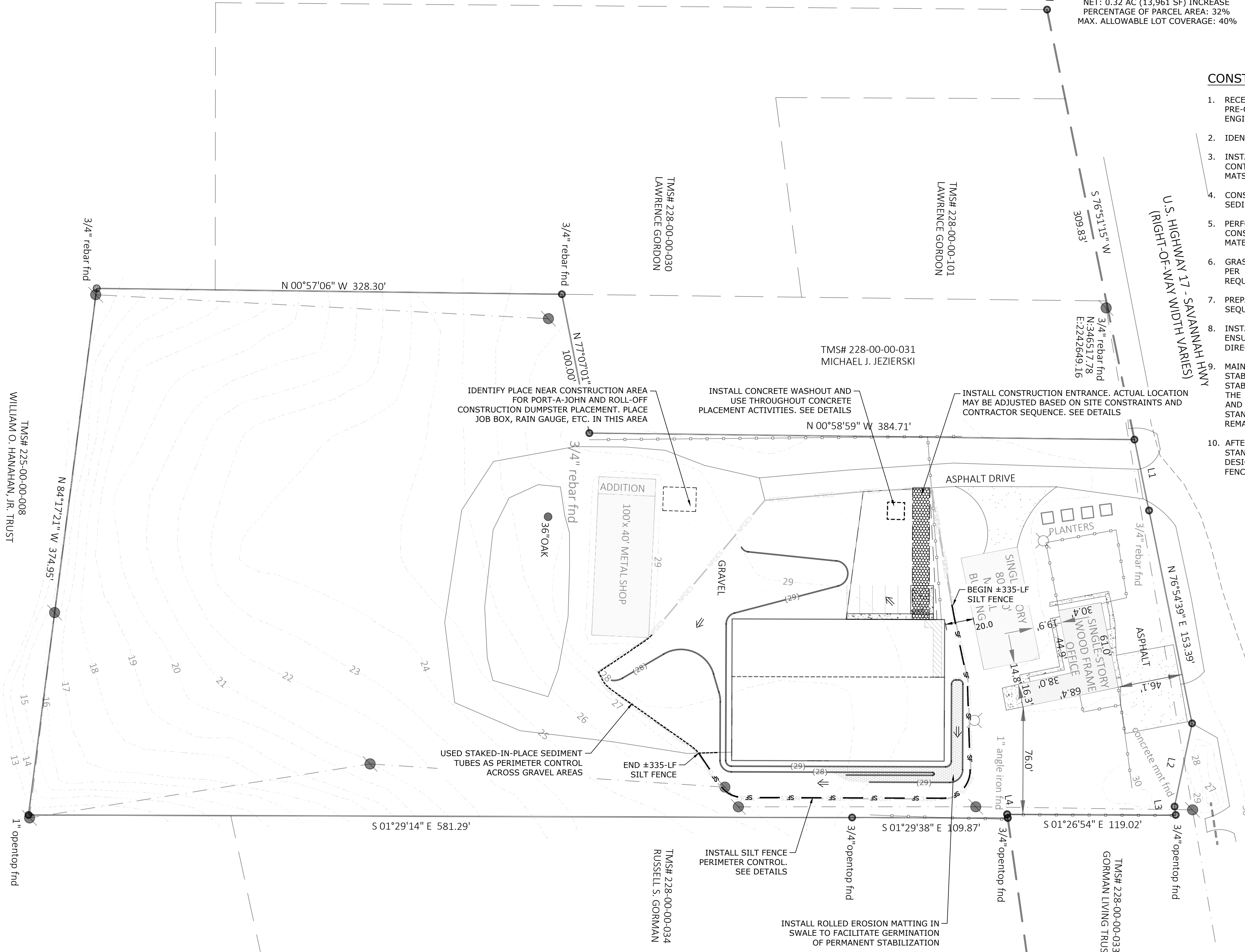
STORMWATER DIVERSIONS OR VEGETATED CONVEYANCES TO BE SEEDED IMMEDIATELY AFTER INSTALLATION

SITE AREA: 5.66 AC  
TOTAL DISTURBED AREA: ±0.9 AC  
JURISDICTION: CHARLESTON COUNTY  
PARCEL ID: 2280000032  
ZONING: GENERAL BUSINESS  
PROPOSED USE: REPAIR SHOP  
BUILDING SETBACK REQUIREMENTS:  
FRONT: 50'  
SIDE: 25'  
REAR: 25'  
IMPERVIOUS AREA:  
EXISTING: 1.39 AC (60,696 SF)  
PROPOSED: 1.71 AC (74,657 SF)  
NET: 0.32 AC (13,961 SF) INCREASE  
PERCENTAGE OF PARCEL AREA: 32%  
MAX. ALLOWABLE LOT COVERAGE: 40%



**CONSTRUCTION SEQUENCE**

1. RECEIVE PERMIT APPROVAL FROM TOWN OF RAVENEL & SCDHEC. HOLD PRE-CONSTRUCTION MEETING ON-SITE WITH OWNER, CONTRACTOR, DESIGN ENGINEER, AND TOWN BUILDING OFFICIAL.
2. IDENTIFY LIMITS OF DISTURBANCE ON SITE & CALL 811 FOR UTILITY LOCATE.
3. INSTALL SILT FENCE AND OTHER INITIAL EROSION PREVENTION & SEDIMENT CONTROL (EPSC) MEASURES AS REQUIRED. INSTALL STONE CONSTRUCTION MUD MATS AT ALL POINTS WHERE CONSTRUCTION ACCESS IS REQUIRED.
4. CONSTRUCT DIVERSION BERMS AND OTHER CONVEYANCES NECESSARY TO ENSURE SEDIMENT-LADEN RUNOFF IS DIRECTED TO CONSTRUCTION BMPs.
5. PERFORM REMOVAL OF VEGETATION AND SITE GRADING AS REQUIRED FOR CONSTRUCTION. ALL DISTURBANCE IS TO BE LIMITED AS SHOWN ON PLANS. ANY MATERIALS TO BE REMOVED FROM SITE SHOULD BE TAKEN TO APPROVED SITE.
6. GRASS ALL DISTURBED AREAS IMMEDIATELY AS FINAL GRADES AREA ACHIEVED, PER THE GRASSING SPECIFICATIONS. FERTILIZE, WATER, AND RESEED AS REQUIRED TO ESTABLISH A VIGOROUS STAND OF GRASS.
7. PREPARE PAD FOR BUILDING CONSTRUCTION. INSTALL UTILITY CONNECTIONS IN SEQUENCE WITH PAD & FOUNDATION CONSTRUCTION.
8. INSTALL SPLASH PADS AND PERFORM FINAL DRESSING ON GRAVEL DRIVEWAY. ENSURE PROPER GRADING SUCH THAT ALL RUNOFF FROM IMPERVIOUS AREAS IS DIRECTED TO STORMWATER FEATURES.
9. MAINTAIN ALL EROSION PREVENTION & SEDIMENT CONTROLS UNTIL FINAL STABILIZATION IS ACHIEVED. AFTER COMPLETION OF CONSTRUCTION AND STABILIZATION OF THE SITE, ANY REMAINING SEDIMENT ACCUMULATION AROUND THE SITE AND ALONG THE SILT FENCE IS TO BE REMOVED, MIXED WITH TOPSOIL, AND SPREAD EVENLY IN AREAS NOT SUBJECT TO EROSION AND A PERMANENT STAND OF GRASS IS TO BE ESTABLISHED IN THESE AREAS. SILT FENCE SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION IS ACHIEVED.
10. AFTER COMPLETION OF CONSTRUCTION AND SITE IS STABILIZED PER DHEC STANDARD (STABILIZATION OF 70% PER SQUARE YARD), AND UPON APPROVAL BY DESIGN ENGINEER AND TOWN OF RAVENEL BUILDING OFFICIAL, REMOVE SILT FENCE AND ANY REMAINING TEMPORARY SEDIMENT/EROSION CONTROL MEASURES.



TMS# 225-00-00-008  
WILLIAM O. HANNAHAN, JR. TRUST

TMS# 228-00-00-030  
LAWRENCE GORDON

TMS# 228-00-00-101  
LAWRENCE GORDON

TMS# 228-00-00-031  
MICHAEL J. JEZERSKI

TMS# 228-00-00-034  
RUSSELL S. GORWMAN

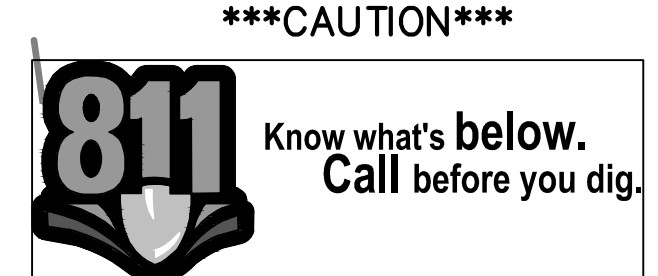
U.S. HIGHWAY 17 - SAVANNAH HWY  
(RIGHT-OF-WAY WIDTH VARIES)

OLD JACKSONBORO RD.

I HAVE PLACED MY SIGNATURE AND SEAL ON THE DESIGN DOCUMENTS SUBMITTED SIGNIFYING THAT I ACCEPT RESPONSIBILITY FOR THE DESIGN OF THE SYSTEM. FURTHER, I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT WITH THE REQUIREMENTS OF TITLE 48, CHAPTER 14 OF THE CODE OF LAWS OF SC, 1976 AS AMENDED, PURSUANT TO REGULATION 72-300 ET SEQ. (IF APPLICABLE), AND IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF SCR1000000."

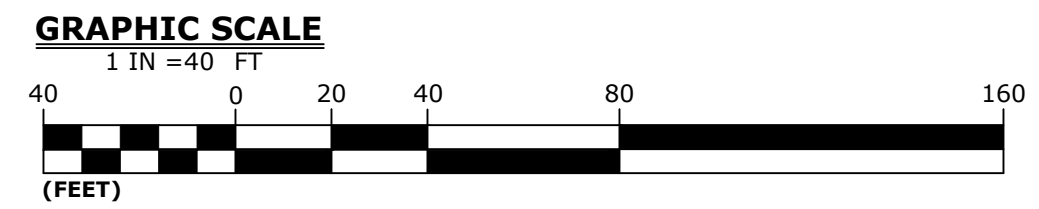
SITE EXISTING CONDITIONS BASED ON TOPOGRAPHIC SURVEY BY MATTHEW HALTER, PE, PLS DATED 5/12/2022.

	WEEK																			
	1	2	4	6	8	10	12	14	16	18	1	2	4	6	8	10	12	14	16	18
PRE-CONSTRUCTION MEETING ON SITE (RECEIVE APPROVED PERMIT)																				
IDENTIFY LIMITS OF DISTURBANCE																				
INSTALL PERIMETER SILT FENCE																				
REMOVE VEGETATION & GRADE SITE																				
GRASS DISTURBED AREAS AS REASONABLE FOR CONSTRUCTION																				
CONSTRUCT BUILDING & SITE FEATURES																				
REQUEST INITIAL CLOSEOUT INSPECTION																				
MAINTAIN S&EP CONTROLS																				
RECEIVE ENGINEER APPROVAL TO REMOVE S&E CONTROLS																				
REMOVE CONTROLS / RECEIVE C.O.																				



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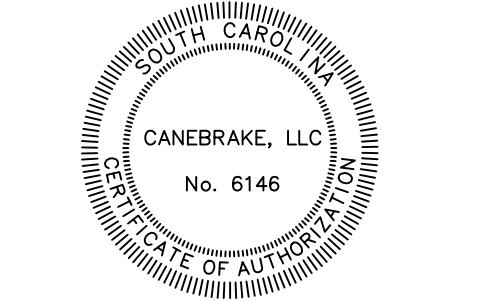
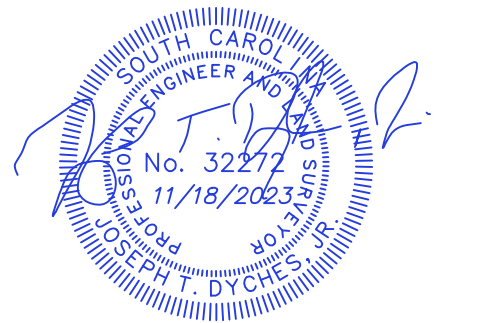
**EROSION PREVENTION & SEDIMENT CONTROLS ARE REQUIRED TO BE INSTALLED PRIOR TO DEMOLITION. SEE SHEET C300 & THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PRIOR TO INITIATION DEMOLITION OR CONSTRUCTION ACTIVITIES.**



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ENGINEERING + SURVEYING  
202 W MAIN STREET, CLINTON, SC 29325  
864-833-4757  
JOSEPH@CANEBRAKECIVIL.COM

**REGISTRATION:**



**PROJECT:**  
EAST COAST HYDRAULICS CYLINDER REPAIR SHOP

**OWNER / CLIENT:**  
RAESKI, LLC

**CITY:**  
RAVENEL

**COUNTY:**  
CHARLESTON

**STATE:**  
SOUTH CAROLINA

**FIELD:**  
**DRAFTED:** JTD  
**REVIEWED:** JTD

**REVISED / ISSUED:**  
ISSUE FOR PERMIT 10/8/23  
REV. PER ZONING 11/18/23

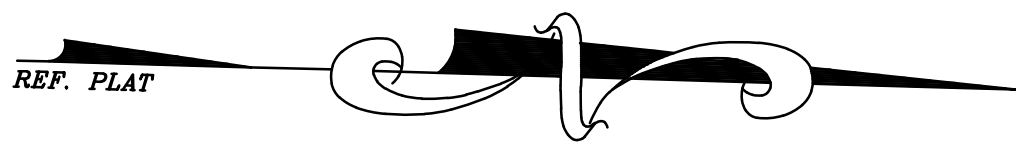
**HORIZONTAL SCALE:** 1" = 40'  
**VERTICAL SCALE:** N/A

SEDIMENT & EROSION CONTROL PLAN

SHEET 10 OF 28

**C300**

LEGEND	
SYMBOLS	ABBREVIATIONS
	CT CRIMP TOP
	EP EDGE OF PAVEMENT
	FFE FINISHED FLOOR ELEVATION
	IPS IRON PIN SET
	IPO IRON PIN OLD
	N&C NAIL & CAP
	OT OPEN TOP
	SR SOLID ROD
	RB REBAR
	R/W RIGHT OF WAY
LINETYPES	
	FENCELINE
	GAS LINE
	OVERHEAD POWER
	OVERHEAD TELEPHONE
	SANITARY SEWER
	STORM SEWER
	UNDERGROUND POWER
	UNDERGROUND TEL
	WATER LINE
	RAILROAD
	DITCHLINE



**SPOT ELEVATION NOTES:**

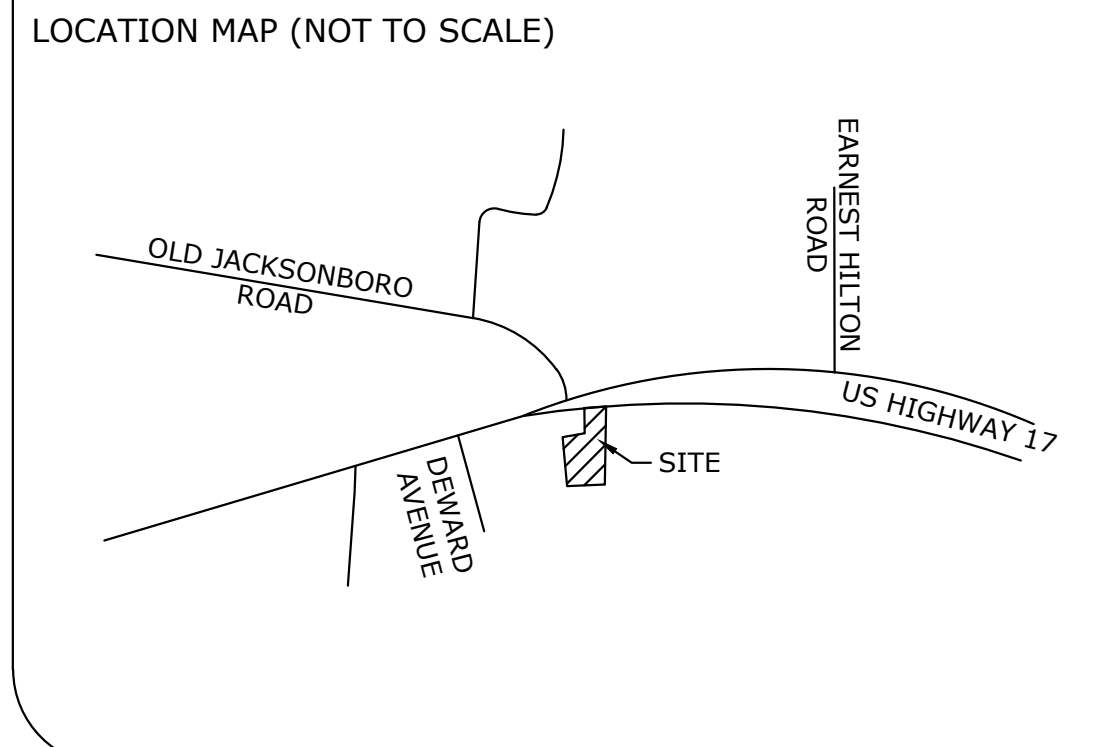
- CONTRACTOR TO COORDINATE CONSTRUCTION STAKING SERVICES TO ENSURE PROPER GRADES ARE ACHIEVED. A DIGITAL FILE MAY BE MADE AVAILABLE BY THE DESIGN ENGINEER UPON REQUEST.
- SITE IS DESIGNED TO HAVE POSITIVE DRAINAGE ACROSS ALL AREAS. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT SWALES, SLOPES, OR GENERAL GRADING PERFORMED DIRECTS STORMWATER RUNOFF AWAY FROM OR AROUND STRUCTURES.
- IN THE CASE THAT EXISTING CONDITIONS DIFFER FROM DESIGN PLANS, DESIGN ENGINEER IS TO BE NOTIFIED IMMEDIATELY.
- ELEVATIONS SHOWN ARE FINAL GRADES. CONTRACTOR TO DEDUCT PAVEMENT SECTIONS, FOUNDATION THICKNESS, ETC. TO DETERMINE SUBGRADE / BASE ELEVATIONS.

SITE AREA: 5.66 AC  
TOTAL DISTURBED AREA: ±0.9 AC

JURISDICTION: CHARLESTON COUNTY  
PARCEL ID: 2280000032  
ZONING: GENERAL BUSINESS  
PROPOSED USE: REPAIR SHOP

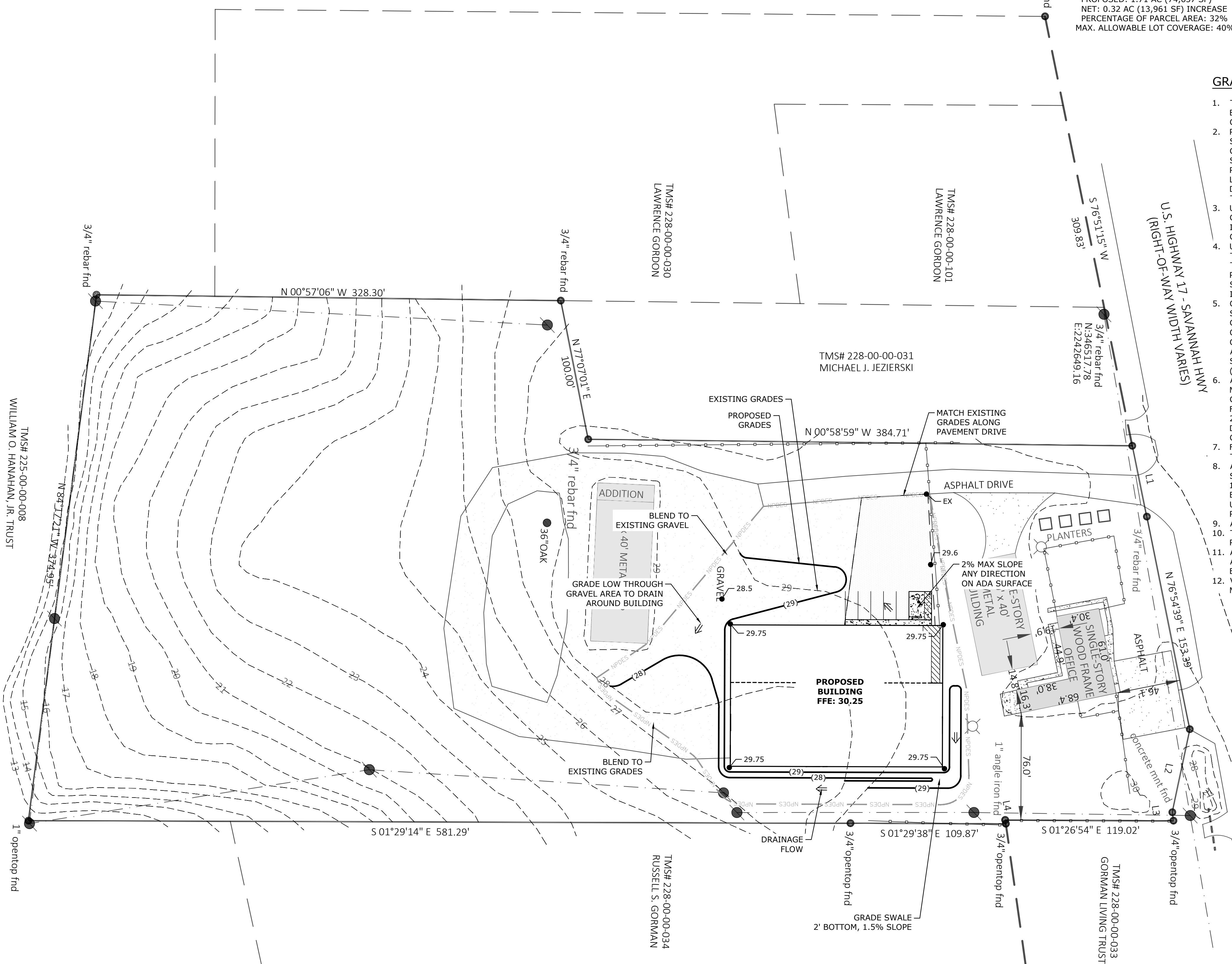
BUILDING SETBACK REQUIREMENTS:  
FRONT: 50'  
SIDE: 25'  
REAR: 25'

IMPERVIOUS AREA:  
EXISTING: 1.39 AC (60,696 SF)  
PROPOSED: 1.71 AC (74,657 SF)  
NET: 0.32 AC (13,961 SF) INCREASE  
PERCENTAGE OF PARCEL AREA: 32%  
MAX. ALLOWABLE LOT COVERAGE: 40%



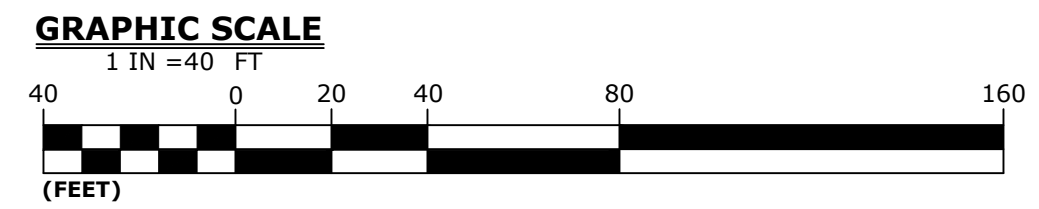
**GRADING NOTES:**

- THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES BY CALLING UTILITY LOCATION SERVICE AT 811 THREE (3) DAYS PRIOR TO CONSTRUCTION.
- PRIOR TO STARTING ANY CUTS OR FILLS THE CONTRACTOR SHALL STRIP AND STOCKPILE ALL TOPSOIL. STRIPPING OF TOPSOIL CAN ONLY COMMENCE AFTER THE CLEAR AND GRUB OPERATIONS ARE COMPLETE IN THAT AREA. TOPSOIL SHALL BE STOCKPILED IN AREAS DESIGNATED ON THE PLANS OR APPROVED BY THE OWNERS REPRESENTATIVE. THE CONTRACTOR SHALL REVIEW THE SOILS REPORTS, BORING LOGS, AND WHEN NECESSARY FIELD VERIFY SO AS TO BE FAMILIAR WITH THE DEPTH OF TOPSOIL. THE CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO PREVENT OVER- AND UNDER-REMOVAL.
- UNLESS OTHERWISE NOTED, THE GRADES SHOWN ON THE PLANS ARE FINISHED GRADES. THEREFORE, PAVEMENT, BUILDING SLABS, SUBBASE, AND OTHER IMPROVEMENTS MUST BE DEDUCTED TO ACHIEVE SUBGRADE ELEVATION. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING FINAL GRADES ARE ACHIEVED.
- UNLESS OTHERWISE NOTED ON THE DRAWINGS OR IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL RETAIN AND PAY ALL COST FOR SOIL COMPACTION TESTING TO BE PERFORMED BY AN INDEPENDENT, QUALIFIED PARTY. FOR EACH LIFT PLACED, COMPACTION TESTING IS TO BE DONE EVERY 2000 SF, UNLESS OTHERWISE SPECIFIED. IN TRENCHES, TESTING SHOULD BE DONE EVERY OTHER LIFT AT 100' INTERVALS, UNLESS OTHERWISE SPECIFIED.
- COMPACTION REQUIREMENTS SHALL BE THOSE OUTLINED IN THE SOILS/GEOTECHNICAL REPORT. IN THE SOILS REPORT IS NOT CLEAR OR DOES NOT GIVE REQUIREMENTS, THE FOLLOWING WILL BE USED. UNDER AND 20 FEET OUTSIDE THE BUILDING ENVELOPE THE SOILS SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM DRY DENSITY PER ASTM D1557 (MODIFIED PROCTOR). UNDER AND 10 FEET OUTSIDE OF PROPOSED OR FUTURE PAVEMENT AREAS, THE SOIL SHALL BE COMPACTED TO A MINIMUM OF 95% MAX. DRY DENSITY PER ASTM D1557 (MODIFIED PROCTOR).
- AS SUITABLE, THE ON-SITE MATERIAL SHALL BE USED TO MAKE FILLS. ALL MATERIAL TO BE USED FOR FILLS SHALL BE FREE OF ORGANICS, FROZEN MATERIAL, CONTAMINATED MATERIAL, DEBRIS, AND ANY ROCKS LARGER THAN 4" IN DIAMETER. FOR FILL PLACEMENT WITHIN 1' OF SUBGRADE, NO ROCK SHALL BE GREATER THAN 2" IN DIAMETER. THE CONTRACTOR SHALL BEAR ALL COST ASSOCIATED WITH DRYING, SEGREGATING, OR REQUIRED METHODS TO TREAT SOILS TO MEET COMPACTION OR OTHER REQUIREMENTS.
- FILLS SHALL BE PLACED IN LIFTS, NOT TO EXCEED 1' IN MASS FILLS AND 8" IN TRENCHES OR RESTRICTED AREAS.
- ALL FINAL SUBGRADE UNDER PROPOSED PAVEMENT, BUILDING, OR OTHER STRUCTURE SHALL BE PROOF ROLLED WITH A 10-TON ROLLER OR A LOADED 10-WHEEL DUMP TRUCK FOR THE IDENTIFYING OF SOFT AREAS. AREAS FOUND TO BE SOFT OR UNACCEPTABLE ARE TO BE SCARIFIED, DRIED, AND RE-COMPACTED, OR UNDERCUT AND REPLACED WITH SUITABLE STRUCTURAL FILL. RETEST BY PROOF ROLL AS NECESSARY.
- ALL EXCAVATION SHALL BE "UNCLASSIFIED EXCAVATION".
- THE CONTRACTOR SHALL CONDUCT ALL WORK IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.
- ALL WORK OF STATE, COUNTY, OR CITY RIGHT-OF-WAY, INCLUDING DRIVEWAY APRONS, WATER AND SEWER TAPS, OR ANY OTHER ACTIVITIES REQUIRE ENCROACHMENT PERMITTING WITH THE APPROPRIATE AGENCY.
- VIGOROUS AND HEALTHY GRASS STAND, OR OTHER PERMANENT STABILIZATION, MUST BE EVIDENT PRIOR TO COMPLETION OF CONSTRUCTION.



**EROSION PREVENTION & SEDIMENT CONTROLS ARE REQUIRED TO BE INSTALLED PRIOR TO DEMOLITION. SEE SHEET C300 & IMPLEMENT THE SEDIMENT & EROSION CONTROL PLAN PRIOR TO INITIATION DEMOLITION OR CONSTRUCTION ACTIVITIES.**

\*\*\*CAUTION\*\*\*



I HAVE PLACED MY SIGNATURE AND SEAL ON THE DESIGN DOCUMENTS SUBMITTED SIGNIFYING THAT I ACCEPT RESPONSIBILITY FOR THE DESIGN OF THE SYSTEM. FURTHER, I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT WITH THE REQUIREMENTS OF TITLE 48, CHAPTER 14 OF THE CODE OF LAWS OF SC, 1976 AS AMENDED, PURSUANT TO REGULATION 72-300 ET SEQ. (IF APPLICABLE), AND IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF SCR100000.

SITE EXISTING CONDITIONS BASED ON TOPOGRAPHIC SURVEY BY MATTHEW HALTER, PE, PLS DATED 5/12/2022.

THIS DRAWING IS THE PROPERTY OF CANEBRAKE, LLC. FOR USE BY THE CLIENT. IT MAY NOT BE USED, MODIFIED, REPRODUCED, OR RELIED UPON WITHOUT WRITTEN AUTHORIZATION OF CANEBRAKE, LLC. OR AS REQUIRED BY LAW.

**CANEBRAKE**  
ENGINEERING + SURVEYING  
202 W MAIN STREET, CLINTON, SC 29325  
864-833-4757 JOSEPH@CANEBRAKECIVIL.COM

REGISTRATION:

PROJECT:  
**EAST COAST HYDRAULICS CYLINDER REPAIR SHOP**

OWNER/CLIENT:  
**RAESKI, LLC**

CITY:  
**RAVENEL**

COUNTY:  
**CHARLESTON**

STATE:  
**SOUTH CAROLINA**

FIELD:  
DRAFTED: JTD  
REVIEWED: JTD

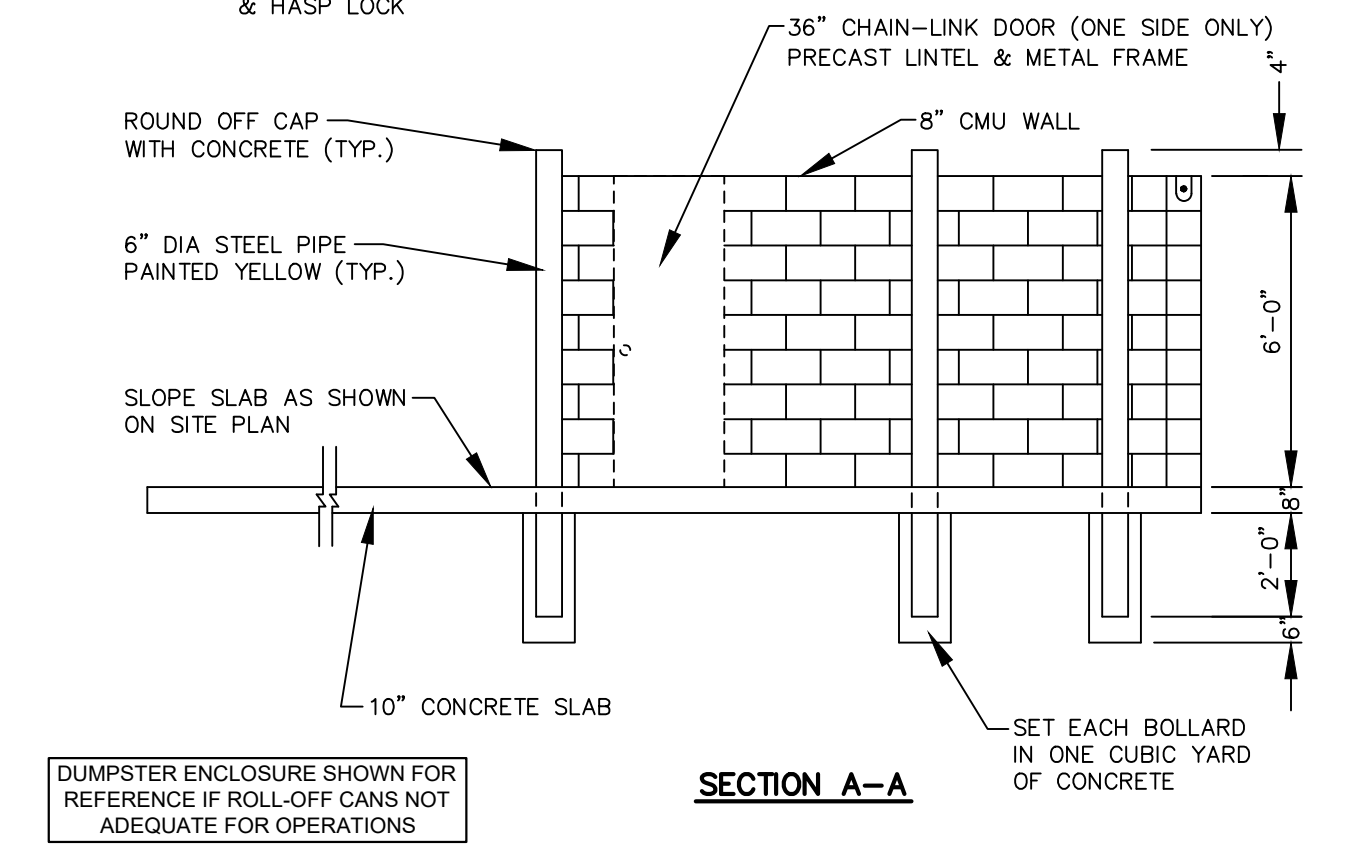
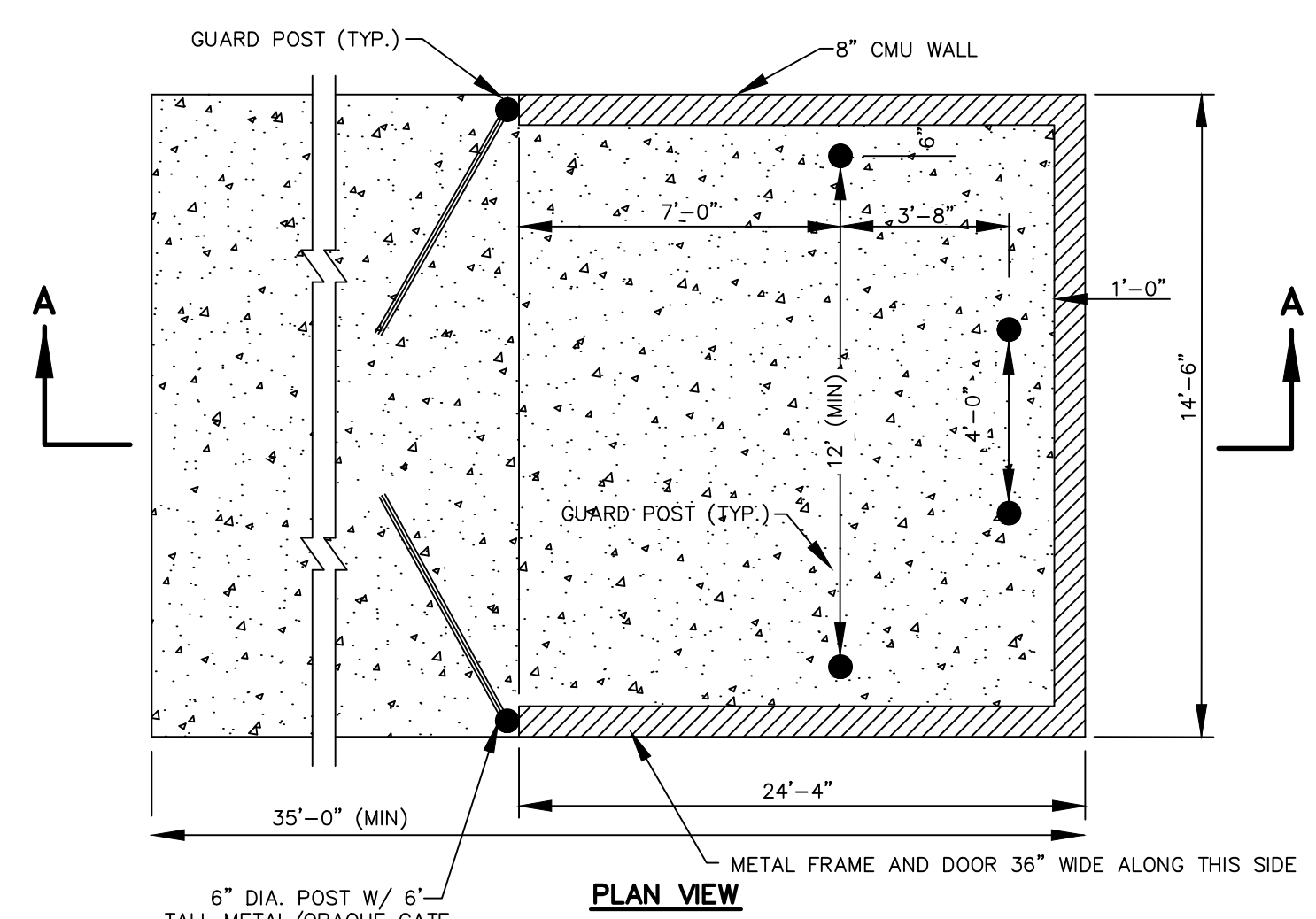
REVISED / ISSUED:  
ISSUE FOR PERMIT 10/8/23  
REV. PER ZONING 11/18/23

HORIZONTAL SCALE: 1" = 40'  
VERTICAL SCALE: N/A

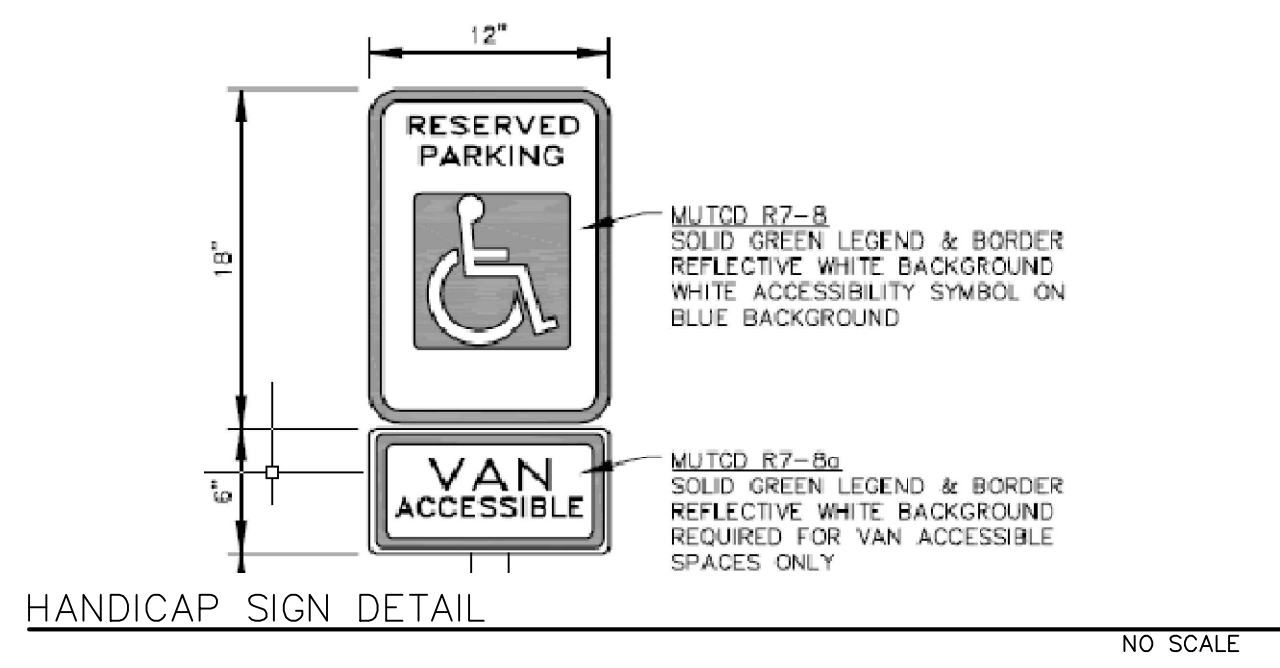
GRADING PLAN  
SHEET 11 OF 28

**C400**

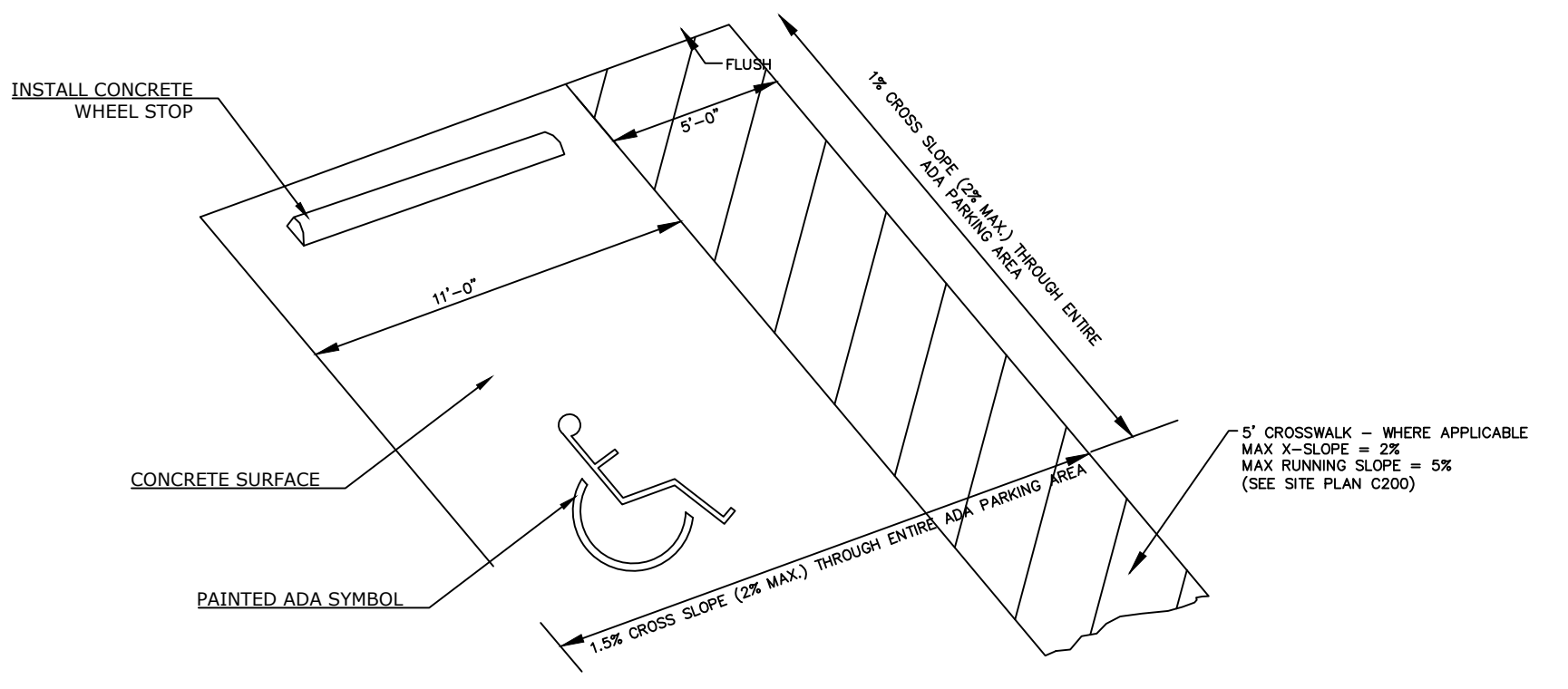




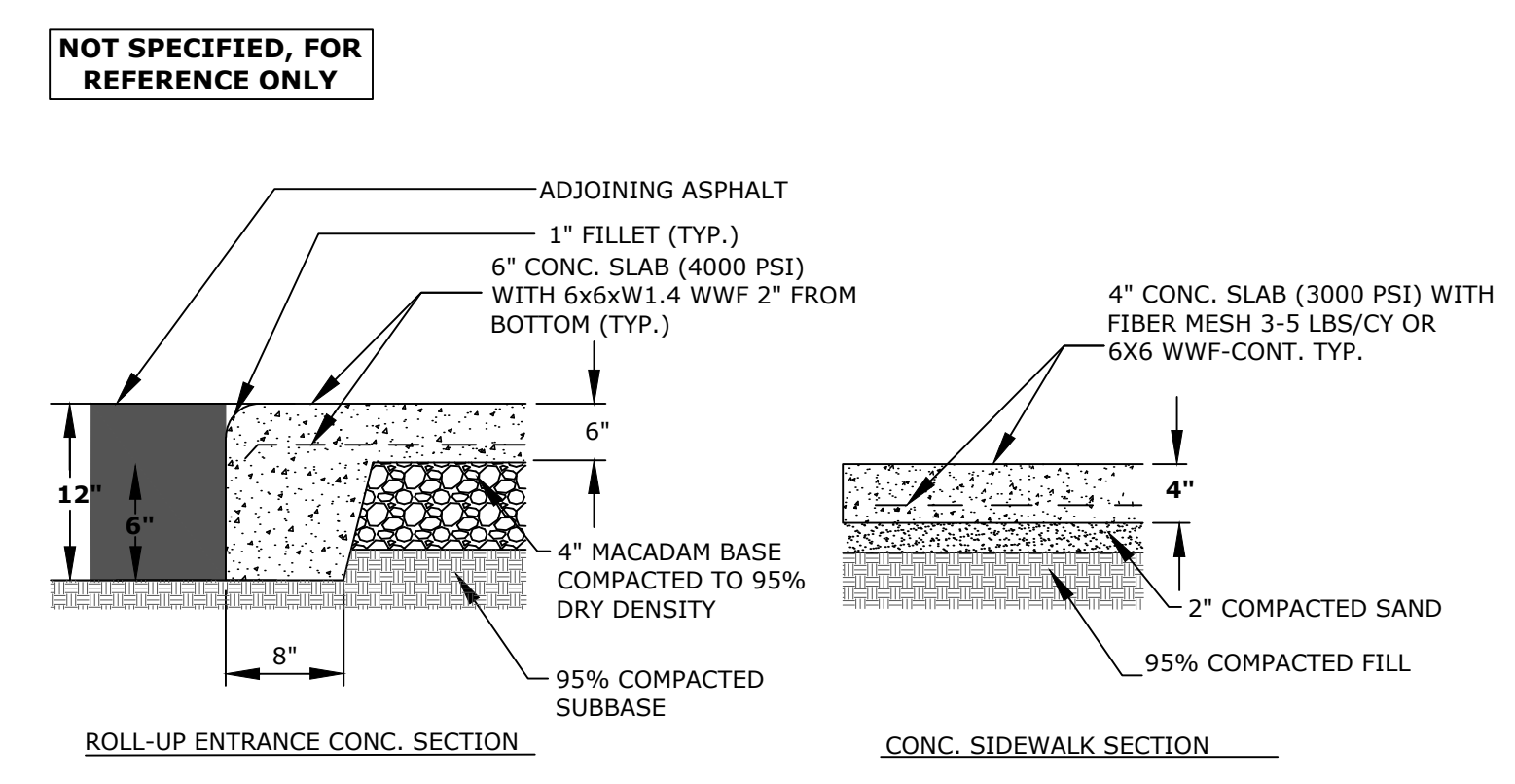
ENCLOSED DUMPSTER PAD WITH GATE  
NO SCALE



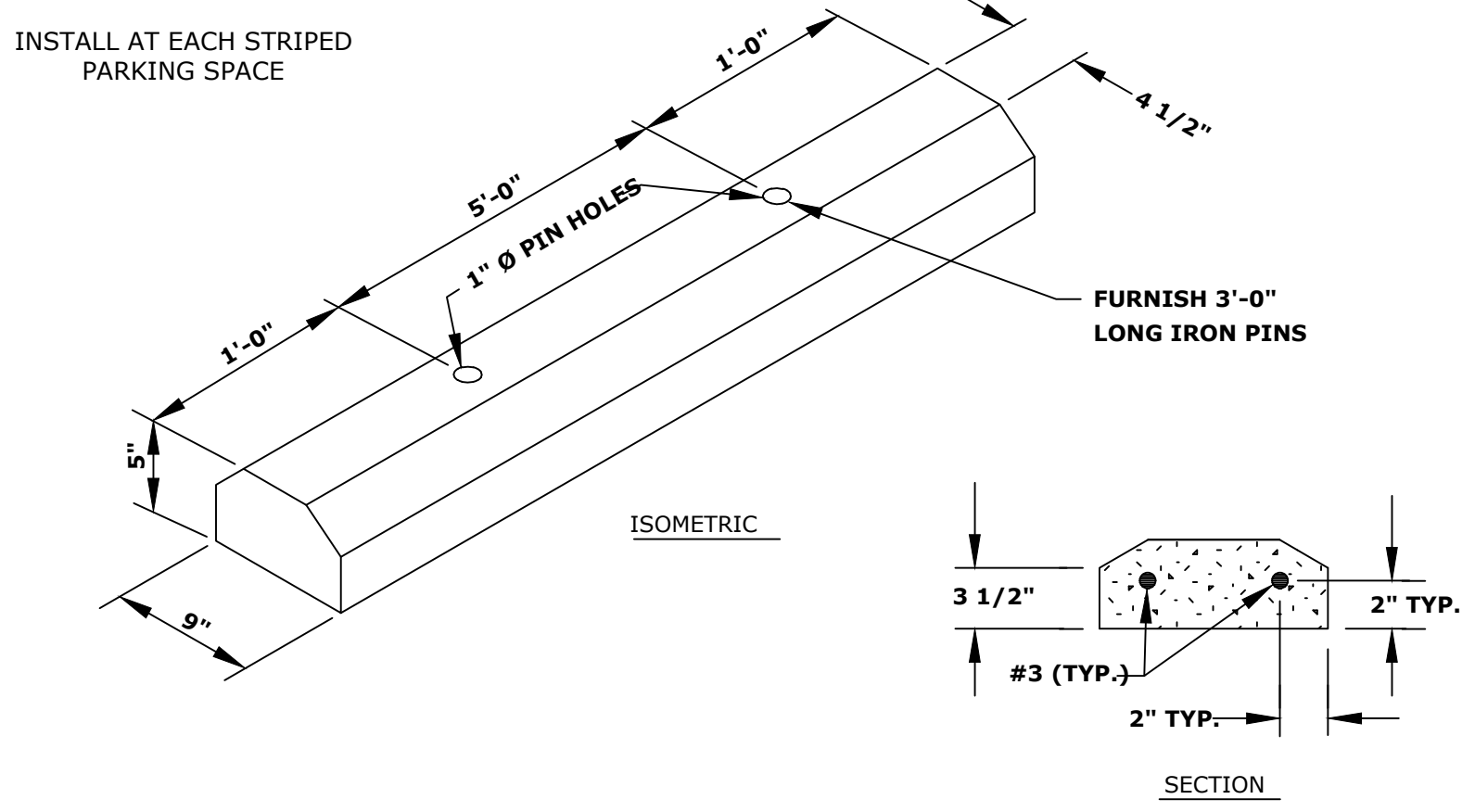
HANDICAP SIGN DETAIL  
NO SCALE



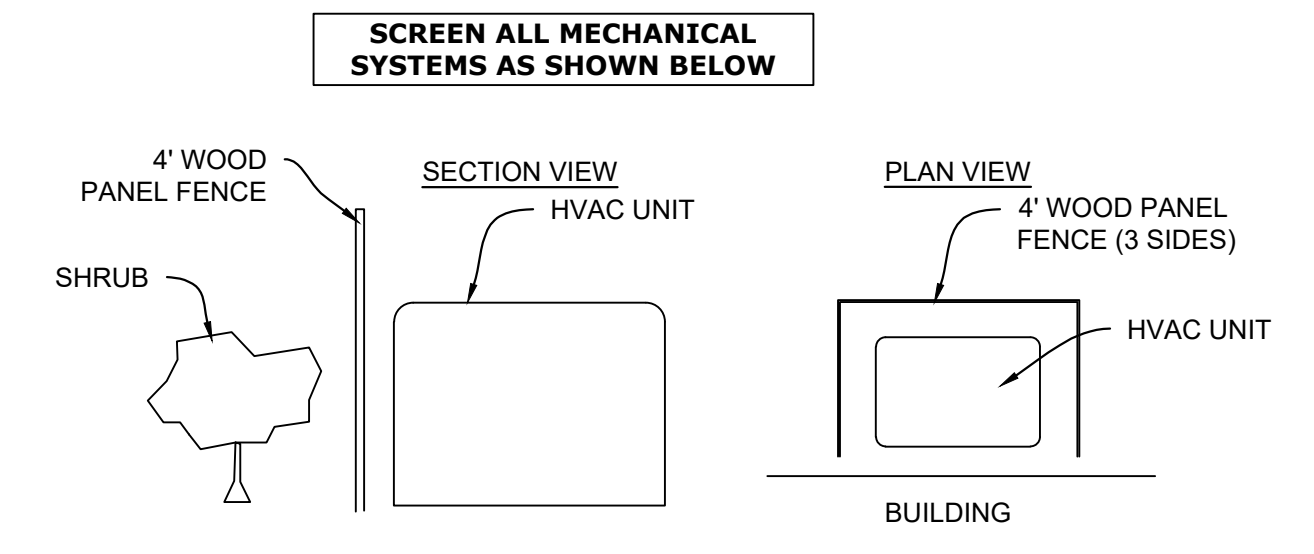
HANDICAP SPACE DETAIL  
NO SCALE



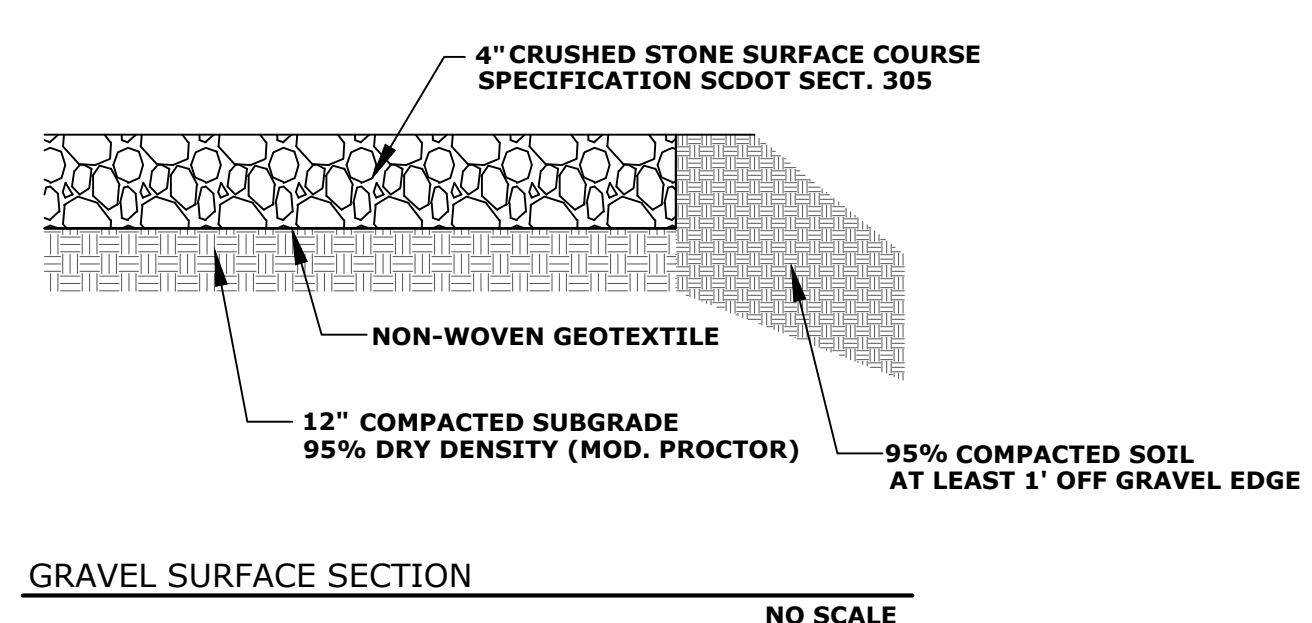
NOTE: SIDEWALK TO HAVE A SCORED JOINT EVERY 4'. ALSO A 1/2" EXPANSION EVERY 28', CONNECTION TO ADJACENT SIDEWALK AND OTHER SURFACES.  
CONCRETE ENTRANCE/SIDEWALK SECTION  
NO SCALE



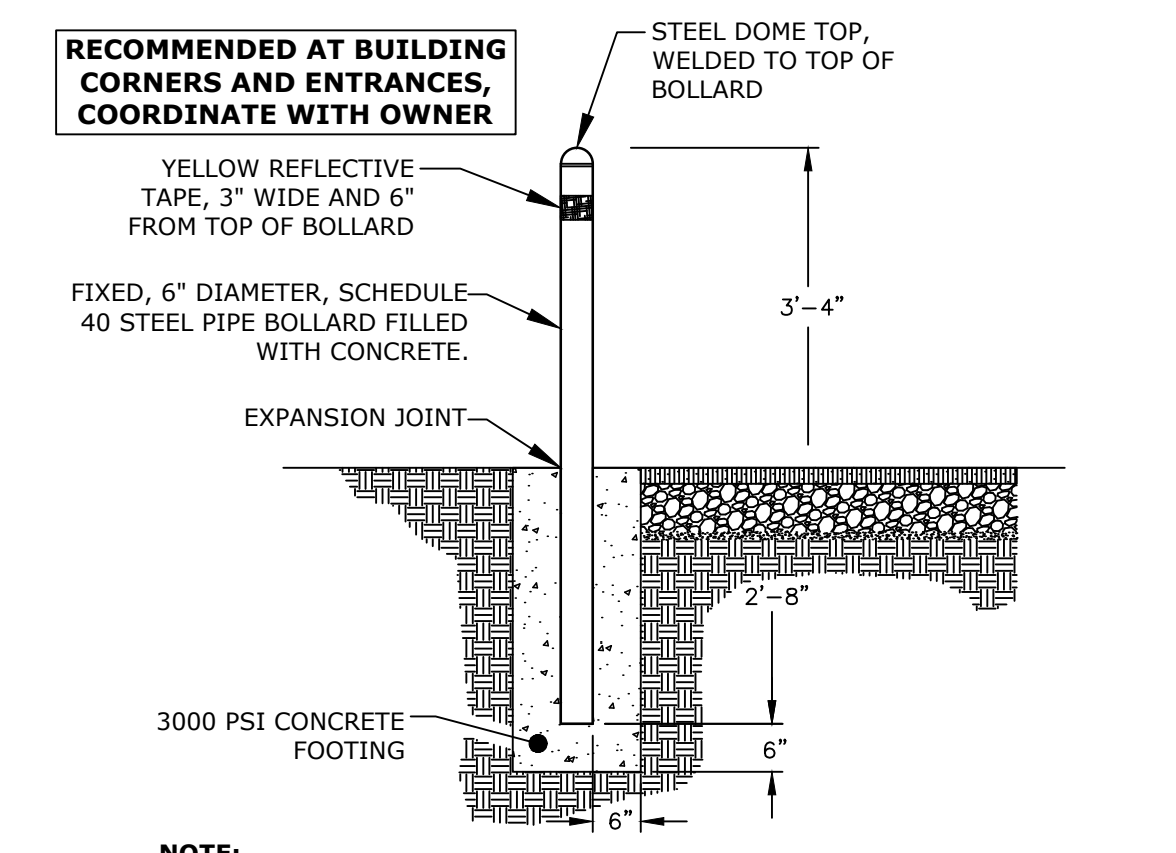
PRECAST CONCRETE WHEEL STOP  
NO SCALE



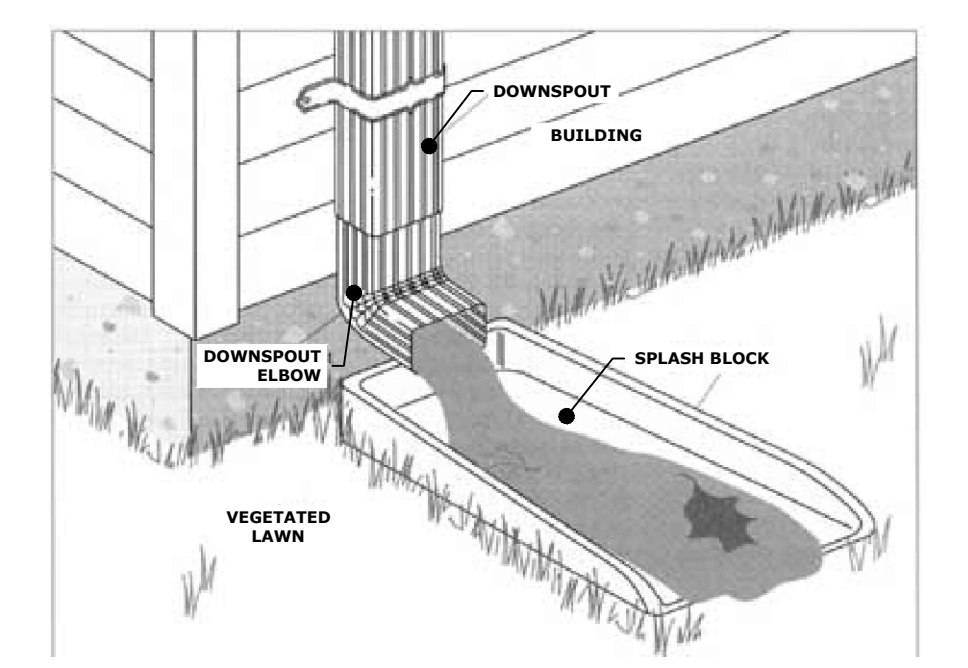
HVAC SCREENING  
NO SCALE



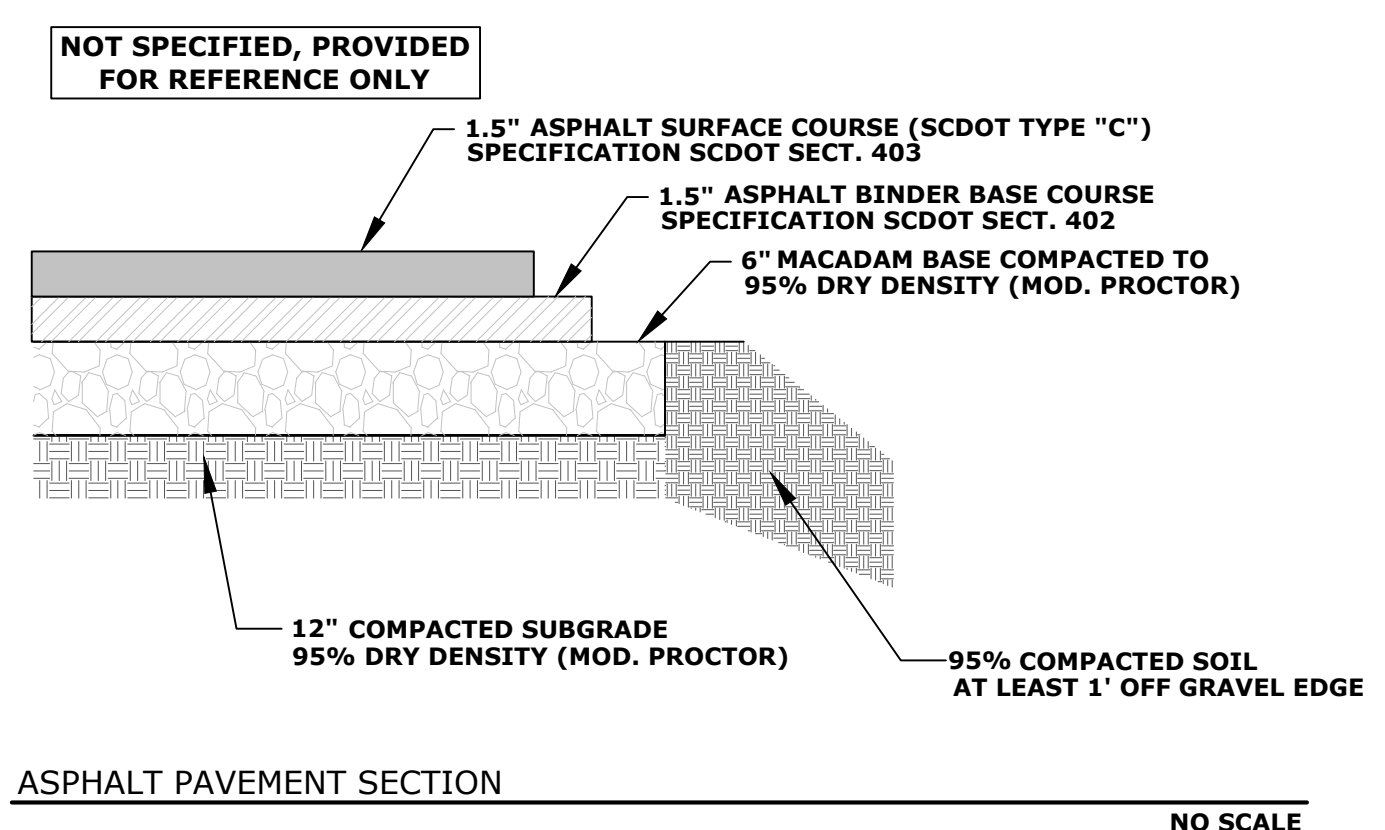
GRAVEL SURFACE SECTION  
NO SCALE



NOTE: ALL METAL SHALL BE GALVANIZED PAINT, ONE COAT METAL PRIMER AND TWO COATS METAL ENAMEL OF OWNERS' COLOR SELECTION.  
BOLLARD DETAIL  
NO SCALE

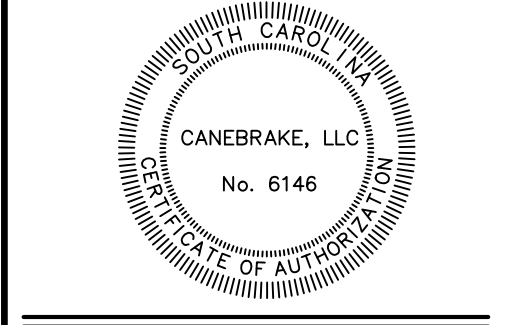
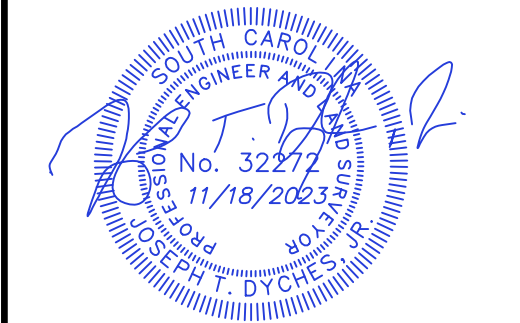


ALL GUTTER DISCHARGES TO HAVE SPLASH BLOCK OR OTHER DISSIPATION METHOD.  
SPLASH BLOCK  
NO SCALE



ASPHALT PAVEMENT SECTION  
NO SCALE

REGISTRATION:



PROJECT:  
EAST COAST  
HYDRAULICS  
CYLINDER  
REPAIR SHOP

OWNER/CLIENT:  
RAESKI, LLC

CITY:  
RAVENEL

COUNTY:  
CHARLESTON

STATE:  
SOUTH CAROLINA

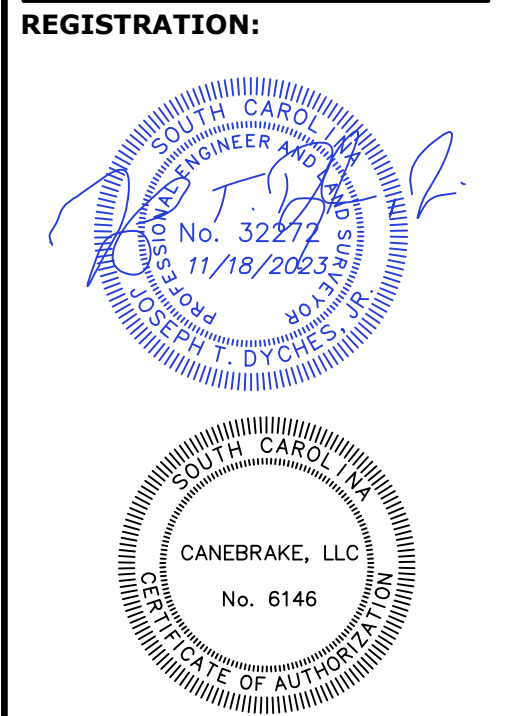
FIELD:  
DRAFTED: JTD  
REVIEWED: JTD

REVISED / ISSUED:  
ISSUE FOR PERMIT 10/8/23  
REV. PER ZONING 11/18/23

HORIZONTAL SCALE: N/A  
VERTICAL SCALE: N/A

DETAILS  
SHEET 12 OF 28

**C900**



PROJECT:  
**EAST COAST HYDRAULICS CYLINDER REPAIR SHOP**

OWNER/CLIENT:  
**RAESKI, LLC**

CITY: **RAVENEL**

COUNTY: **CHARLESTON**

STATE: **SOUTH CAROLINA**

FIELD: \_\_\_\_\_

DRAFTED: **JTD**

REVIEWED: **JTD**

REVISED / ISSUED:  
ISSUE FOR PERMIT: 10/8/23  
REV. PER ZONING: 11/18/23

HORIZONTAL SCALE: **N/A**

VERTICAL SCALE: **N/A**

DETAILS

SHEET **13 OF 28**

### TEMPORARY STOCKPILE AREA

NOTES:

- SILT FENCE TO EXTEND AROUND ENTIRE PERIMETER OF STOCKPILE, OR IF STOCKPILE AREA IS LOCATED ON/NEAR A SLOPE THE SILT FENCE IS TO EXTEND ALONG CONTOURS OF THE DOWN-GRADIENT AREA.
- IF STOCKPILE IS TO REMAIN FOR MORE THAN 14 DAYS, TEMPORARY STABILIZATION MEASURES MUST BE IMPLEMENTED.
- SILT FENCE SHALL BE MAINTAINED UNTIL STOCKPILE AREA HAS EITHER BEEN REMOVED OR PERMANENTLY STABILIZED.
- THE KEY TO FUNCTIONAL TEMPORARY STOCKPILE AREAS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR SEDIMENT REMOVAL.

South Carolina Department of Health and Environmental Control	
TEMPORARY STOCKPILE	
STANDARD DRAWING NO. <b>SC-15</b>	PAGE <b>1 of 1</b>
NOT TO SCALE	
FEBRUARY 2014	DATE

### CONSTRUCTION ENTRANCE

SPECIFICATION	SIZE
ROCK PAD THICKNESS	6 INCHES
ROCK PAD WIDTH	24 FEET
ROCK PAD LENGTH	100 FEET
ROCK PAD STONE SIZE	D = 2-3 INCHES

South Carolina Department of Health and Environmental Control	
CONSTRUCTION ENTRANCE	
STANDARD DRAWING NO. <b>SC-06</b>	PAGE <b>1 of 2</b>
NOT TO SCALE	
FEBRUARY 2014	DATE

### CONSTRUCTION ENTRANCE - GENERAL NOTES

- Stabilized construction entrances should be used at all points where traffic will egress/ingress a construction site onto a public road or any impervious surfaces, such as parking lots.
- Install a non-woven geotextile fabric prior to placing any stone.
- Install a culvert pipe across the entrance when needed to provide positive drainage.
- The entrance shall consist of 2-inch to 3-inch D50 stone placed at a minimum depth of 6-inches.
- Minimum dimensions of the entrance shall be 24-feet wide by 100-feet long, and may be modified as necessary to accommodate site constraints.
- The edges of the entrance shall be tapered out towards the road to prevent tracking at the edge of the entrance.
- Divert all surface runoff and drainage from the stone pad to a sediment trap or basin or other sediment trapping structure.
- Limestone may not be used for the stone pad.

### CONSTR. ENTRANCE - INSPECTION & MAINTENANCE

- The key to functional construction entrances is weekly inspections, routine maintenance, and regular sediment removal.
- Regular inspections of construction entrances shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
- During regular inspections, check for mud and sediment buildup and pad integrity. Inspection frequencies may need to be more frequent during long periods of wet weather.
- Reshape the stone pad as necessary for drainage and runoff control.
- Wash or replace stones as needed and as directed by site inspector. The stone in the entrance should be washed or replaced whenever the entrance fails to reduce the amount of mud being carried off-site by vehicles. Frequent washing will extend the useful life of stone pad.
- Immediately remove mud and sediment tracked or washed onto adjacent impervious surfaces by brushing or sweeping. Flushing should only be used when the water can be discharged to a sediment trap or basin.
- During maintenance activities, any broken pavement should be repaired immediately.
- Construction entrances should be removed after the site has reached final stabilization. Permanent vegetation should replace areas from which construction entrances have been removed, unless area will be converted to an impervious surface to serve post-construction.

South Carolina Department of Health and Environmental Control	
CONSTRUCTION ENTRANCE	
STANDARD DRAWING NO. <b>SC-06</b>	PAGE <b>2 of 2</b>
GENERAL NOTES	
FEBRUARY 2014	DATE

### SEDIMENT TUBE INSTALLATION

SLOPE	MAX. SEDIMENT TUBE SPACING
LESS THAN 2%	150- FEET
2%	100- FEET
3%	75- FEET
4%	50- FEET
5%	40- FEET
6%	30- FEET
GREATER THAN 6%	25- FEET

South Carolina Department of Health and Environmental Control	
SEDIMENT TUBES	
STANDARD DRAWING NO. <b>SC-05</b>	PAGE <b>1 of 2</b>
NOT TO SCALE	
FEBRUARY 2014	DATE

### SEDIMENT TUBES - GENERAL NOTES

- Sediment tubes may be installed along contours, in drainage conveyance channels, and around inlets to help prevent off-site discharge of sediment-laden stormwater runoff.
- Sediment tubes are elongated tubes of compacted geotextiles, curled excelsior wood, natural coconut fiber, or hardwood mulch. Straw, pine needles, and leaf mulch-filled sediment tubes are not permitted.
- The outer netting of the sediment tube should consist of seamless, high-density polyethylene photodegradable materials treated with ultraviolet stabilizers or a seamless, high-density polyethylene non-degradable material.
- Sediment tubes, when used as checks within channels, should range between 18-inches and 24-inches depending on channel dimensions. Diameters outside this range may be allowed where necessary when approved.
- Curled excelsior wood, or natural coconut products that are rolled up to create a sediment tube are not allowed.
- Sediment tubes should be staked using wooden stakes (2-inch X 2-inch) or steel posts (standard "U" or "T" sections with a minimum weight of 1.25 pounds per foot) at a minimum of 48-inches in length placed on 2-foot centers.
- Install all sediment tubes to ensure that no gaps exist between the soil and the bottom of the tube. Manufacturer's recommendations should always be consulted before installation.
- The ends of adjacent sediment tubes should be overlapped 6-inches to prevent flow and sediment from passing through the field joint.
- Sediment tubes should not be stacked on top of one another, unless recommended by manufacturer.
- Each sediment tube should be installed in a trench with a depth equal to 1/3 the diameter of the sediment tube.
- Sediment tubes should continue up the side slopes a minimum of 1-foot above the design flow depth of the channel.
- Install stakes at a diagonal facing incoming runoff.

### SEDIMENT TUBES - INSPECTION & MAINTENANCE

- The key to functional sediment tubes is weekly inspections, routine maintenance, and regular sediment removal.
- Regular inspections of sediment tubes shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
- Attention to sediment accumulations in front of the sediment tube is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
- Remove accumulated sediment when it reaches 1/3 the height of the sediment tube.
- Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
- Large debris, trash, and leaves should be removed from in front of tubes when found.
- If erosion causes the edges to fail to a height equal to or below the height of the sediment tube, repairs should be made immediately to prevent runoff from bypassing tube.
- Sediment tubes should be removed after the contributing drainage area has been completely stabilized. Permanent vegetation should replace areas from which sediment tubes have been removed.

South Carolina Department of Health and Environmental Control	
SEDIMENT TUBES	
STANDARD DRAWING NO. <b>SC-05</b>	PAGE <b>2 of 2</b>
GENERAL NOTES	
FEBRUARY 2014	DATE

### TRACKING

DOZER TREADS CREATE CLEAT IMPRINTS PARALLEL TO THE SLOPE CONTOUR

TRACK IN ANY/all SLOPES PRIOR TO SEEDING/STABILIZATION

SHOULD BE SEED AND STABILIZED IMMEDIATELY.

South Carolina Department of Health and Environmental Control	
TRACKING	
STANDARD DRAWING NO. <b>EC-01</b>	PAGE <b>1</b>
APPROVED BY: _____ DATE: _____	

### SILT FENCE INSTALLATION

### FLAT-BOTTOM TRENCH DETAIL

18-IN. TO 24-IN. (MINIMUM)

### V-SHAPED TRENCH DETAIL

18-IN. TO 24-IN. (MINIMUM)

### SILT FENCE - GENERAL NOTES

- Do not place silt fence across channels or in other areas subject to concentrated flows. Silt fence should not be used as a velocity control BMP. Concentrated flows are any flows greater than 0.5 cfs.
- Maximum sheet or overlaid flow path length to the silt fence shall be 100-feet.
- Maximum slope steepness (normal [perpendicular] to the fence line) shall be 2:1.
- Silt fence joints, when necessary, shall be completed by one of the following options:
  - Wrap each fabric together at a support post with both ends fastened to the post, with a minimum overlap.
  - Overlap silt fence by installing 3-feet passed the support post to which the new silt fence roll is attached. Attach old roll to new roll with heavy-duty plastic ties or.
  - Overlap entire width of each silt fence roll from one support post to the next support post.
- Attach filter fabric to the steel posts using heavy-duty plastic ties that are evenly spaced within the top 8-inches of the fabric.
- Install the silt fence perpendicular to the direction of the stormwater flow and place the silt fence the proper distance from the toe of steep slopes to provide sediment storage and access for maintenance and cleanout.
- Install Silt Fence Checks (Tie-Backs) every 50-100 feet, dependent on slope, along silt fence that is installed with slope and where concentrated flows are expected or are documented along the proposed/installed silt fence.

South Carolina Department of Health and Environmental Control	
SILT FENCE	
STANDARD DRAWING NO. <b>SC-03</b>	PAGE <b>1 of 2</b>
NOT TO SCALE	
FEBRUARY 2014	DATE

### SILT FENCE - POST REQUIREMENTS

- Silt fence posts must be 48-inch long steel posts that meet, at a minimum, the following physical characteristics:
  - Composed of a high strength steel with a minimum yield strength of 30,000 psi.
  - Include a standard "T" section with a nominal face width of 1.38-inches and a nominal "T" length of 1.48-inches.
  - Weight 1.25 pounds per foot (± 8%).
- Posts shall be equipped with projections to aid in fastening of filter fabric.
- Steel posts may need to have a metal soil stabilization plate welded near the bottom when installed along steep slopes or installed in loose soils. The plate should have a minimum cross section of 17-square inches and be composed of 15 gauge steel, at a minimum. The metal soil stabilization plate should be completely buried.
- Install posts to a minimum of 24-inches. A minimum height of 1- to 2-inches above the fabric shall be maintained, and a maximum height of 3 feet shall be maintained above the ground.
- Post spacing shall be at a maximum of 6-feet on center.

### SILT FENCE - FABRIC REQUIREMENTS

- Silt fence must be composed of woven geotextile filter fabric that consists of the following requirements:
  - Composed of fibers consisting of long chain synthetic polymers of at least 85% by weight of polypropylene, polyesters, or polyamides that are formed into a network such that the filaments or yarns retain directional stability relative to each other.
  - Free of any treatment or coating which might adversely affect its physical properties after installation.
  - Free of any defects or flaws that significantly affect its physical and/or filtering properties; and
  - Have a minimum width of 36-inches.
- Use only fabric appearing on SC DOT's Qualified Products Listing (QPL), Approval Sheet #34, meeting the requirements of the most current edition of the SC DOT Standard Specifications For Highway Construction.
- 12-inches of the fabric should be placed within excavated trench and toed in when the trench is backfilled.
- Filter fabric shall be purchased in continuous rolls and cut to the length of the barrier to avoid joints.
- Filter fabric shall be installed at a minimum of 24-inches above the ground.

### SILT FENCE - INSPECTION & MAINTENANCE

- The key to functional silt fence is weekly inspections, routine maintenance, and regular sediment removal.
- Regular inspections of silt fence shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
- Attention to sediment accumulations along the silt fence is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
- Remove accumulated sediment when it reaches 1/3 the height of the silt fence.
- Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
- Check for areas where stormwater runoff has eroded a channel beneath the silt fence, or where the fence has sagged or collapsed due to runoff overtopping the silt fence. Install checker/tee-backs and/or re-install silt fence as necessary.
- Check for tears within the silt fence, areas where silt fence has begun to decompose, and for any other circumstance that may render the silt fence ineffective. Removed damaged silt fence and re-install new silt fence immediately.
- Silt fence should be removed within 30 days after final stabilization is achieved and once it is removed, the resulting disturbed area shall be permanently stabilized.

South Carolina Department of Health and Environmental Control	
SILT FENCE	
STANDARD DRAWING NO. <b>SC-03</b>	PAGE <b>2 of 2</b>
GENERAL NOTES	
FEBRUARY 2014	DATE

### STRAW BALE BARRIER CONCRETE WASHOUT

LETTERS A MINIMUM OF 5" IN HEIGHT

CONCRETE WASHOUT SIGN DETAIL

### CONCRETE WASHOUT STRAW BALES OR ABOVE GROUND

- ACTUAL LAYOUT DETERMINED IN FIELD.
- INSTALL CONCRETE WASHOUT SIGN (24"x24", MINIMUM) WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
- TEMPORARY WASHOUT AREA MUST BE AT LEAST 50' FROM A STORM DRAIN, CREEK BANK OR PERIMETER CONTROL.
- CLEAN OUT CONCRETE WASHOUT AREA WHEN 50% FULL.
- THE KEY TO FUNCTIONAL CONCRETE WASHOUTS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR CLEAN OUT.
- SILT FENCE SHALL BE INSTALLED AROUND PERIMETER OF CONCRETE WASHOUT AREA EXCEPT FOR THE SIDE UTILIZED FOR ACCESSING THE WASHOUT.
- A ROCK CONSTRUCTION ENTRANCE MAY BE NECESSARY ALONG ONE SIDE OF THE WASHOUT TO PROVIDE VEHICLE ACCESS.

South Carolina Department of Health and Environmental Control	
CONCRETE WASHOUT STRAW BALES OR ABOVE GROUND	
STANDARD DRAWING NO. <b>RC-07</b>	PAGE <b>1 of 1</b>
NOT TO SCALE	
FEBRUARY 2014	DATE

**STANDARD NOTES -- SEEDING & STABILIZATION**

Temporary Stabilization

Temporary Stabilization is defined as a condition where exposed soils or disturbed areas are provided a temporary vegetative and/or non-vegetative protective cover to prevent erosion and sediment loss. Temporary stabilization may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until either final stabilization can be achieved or until further construction activities take place to re-disturb this area.

Initiating Temporary Stabilization  
Initiate temporary stabilization by mulch or temporary stabilization by seeding within 7 calendar days where land disturbing activities have temporarily ceased on the Project and will not resume for a period exceeding 14 calendar days. Where land disturbing activities on a portion of the Project are temporarily ceased, and the land disturbing activities are resumed within 14 days, temporary stabilization measures are not required to be initiated on that portion of the Project.

Temporary stabilization by seeding is required if the Project will not be worked for a period longer than 60 days.

Initiate temporary stabilization measures as soon as practicable for areas where initiating temporary stabilization measures within 7 days is infeasible (e.g., where snow cover, frozen ground, or drought conditions preclude stabilization).

Acceptance of Temporary Stabilization  
Before acceptance of temporary stabilization by the regulatory agency and the Design Engineer or Landscape Architect, temporary stabilization is required that is sufficient to control erosion for a given area and length of time before the next phase of construction or the establishment of permanent seeding is to commence. A satisfactory stand of temporary stabilization meeting the requirements of this Specification is required regardless of the time of the year the work is performed.

Temporary Cover by Mulch  
Use temporary cover by mulch where it is not feasible or practicable to bring an area to final slope and grade. Finish the surface so that permanent seeding can be performed without subsequent disturbance by additional grading.

Temporary Cover by Seeding  
Following the preparation of the seedbed, sow seed per the seeding Tables and apply an appropriate Mulch prior to a rainfall event that compacts the seedbed. The CONTRACTOR may add granular lime and fertilizer as necessary to enhance growth.

Final Stabilization

Final Stabilization is defined that all land-disturbing activities at the construction site have been completed and that on all areas not covered by permanent structures, either

- (1) A uniform (e.g., evenly distributed, without large bare areas) permanent vegetative cover with a density of 70 percent has been established, or
- (2) Equivalent permanent stabilization measures (such as the use of landscaping mulch, riprap, pavement and gravel) have been implemented to provide effective cover for exposed portions of the construction site not stabilized with permanent vegetation.

Final stabilization by temporary seeding must be achieved with permanent perennial vegetation prior to issuing the Notice of Termination (NOT).

Permanent Seeding  
Initiate permanent seeding within 7 calendar days where land disturbing activities have permanently ceased on the Project. Where land disturbing activities are resumed within 14 days, stabilization measures are not required to be initiated on that portion of the Project. Initiate permanent seeding measures as soon as practicable for areas where initiating permanent seeding measures within 7 days is infeasible (e.g., where snow cover, frozen ground, or drought conditions preclude stabilization).

When performing permanent seeding for permanent detention ponds, ensure that the detention pond is cleaned of any deposited sediment and graded to the required permanent detention basin configuration. Ensure the seedbed for the permanent seeding is established in accordance with this Specification.

Acceptance of Permanent Seeding  
Before acceptance, a uniform perennial vegetative cover with a density of 70% of each square yard of the seeded area is required. A well developed root system must be established to sufficiently survive dry periods and winter weather and be capable of re-establishment in the spring.

Permanent Seeding Installation  
Following the preparation of the seedbed, perform permanent seeding per the seeding Tables and apply an appropriate Mulch within 5 working days and/or prior to a rainfall event that compacts the prepared seedbed. If a rain event occurs that compacts or erodes the seedbed prior to performing permanent seeding, the seedbed must be re-prepared prior to conducting permanent seeding. Add fertilizer and lime as required by a soil test.

Sod

Initiate Sod applications within 7 calendar days where land disturbing activities have permanently ceased on the Project. Initiate Sod applications within 7 days is infeasible (e.g., where snow cover, frozen ground, or drought conditions preclude stabilization). Use Sod on slopes less than 2H:1V.

Acceptance of Sod  
Acceptance is contingent on establishing a satisfactory stand of perennial grass. Sod application areas are acceptable when all requirements including maintenance are met and a healthy, evenly colored, viable stand of grass is established. A satisfactory stand of grass must have a root system that is sufficient to survive dry periods and winter weather and is capable of re-establishing in the spring.

Do not use sodding on slopes steeper than 2H:1V, and if sodding is mowed, do not place on slopes greater than 2H:1V. Install Warm Season Sod between March 1st and September 1st. Install Cool Season Sod anytime during the year as long as the soil is not frozen. Do not place Sod on:

- Soil that is frozen and/or when the 10-day forecasted low temperature remains below 35 degrees Fahrenheit;
- Soil that is excessively wet;
- Soil that is excessively dry (periods of heat or drought) unless watering is specified;
- Soil that is composed of compacted clay; and
- Soil that has been treated with pesticides.

Sod Bed Preparation  
• Ensure the Sod bed is uniform and conforms to the finished grade of the Project.  
• Loosen the Sod Bed to a minimum depth of 3 inches before placing Sod.  
• Furnish and place topsoil or compost in the Sod Bed in areas where the existing Sod Bed has little or no topsoil.  
• Lay Sod when Sod Bed is moist. Moist dry Sod Beds before sod is laid.

Sod Installation  
Provide Sod with living, well-established growth, with a dense root mat of predominant grass species. Provide vigorous, well rooted, healthy turf, free from disease, insect pests, weeds, other grasses, stones, and any other harmful or detrimental materials.

Amendments  
Lime  
Agricultural Granular Lime  
Use agricultural grade, standard ground limestone for all permanent seeding applications and Sodding applications.

Applying Granular Lime  
A soil analysis is recommended prior to application. Apply at a rate within ±10% of weight recommendation of soil analysis. Do not apply more than 2,500 lbs/acre of lime in a single application.

Fast Acting Lime  
Use fast acting liquid and/or dry forms of lime for all temporary seeding and permanent seeding applications.

Granular Fertilizer  
Use for all permanent seeding applications and all Sodding applications. Proper mixture is dependent on the existing soil conditions and it is recommended that a soil analysis be performed if the soil conditions are uncertain in the area of fertilizer application.

Use fertilizer that incorporates a minimum of 50% water insoluble (slow release) nitrogen. Animal by-product or municipal waste fertilizers are not acceptable under this Specification.

Unless a soil analysis is performed to determine otherwise, a good rule of thumb granular fertilizer to apply in the Upstate of South Carolina is 10–10–10. In no cases should a 20–20–20 fertilizer be used due to the potential burning of the seedbed.

Compost Soil Amendment

For seedbeds that have little or no topsoil, are highly acidic, or are lacking sufficient nutrients to sustain a health stand of grass, place, and mix certified weed free compost into the seedbed to ensure a good stand of grass.

Biological Growth Stimulant

Use for all permanent seeding, Sodding, and temporary seeding applications. Animal by-product or municipal waste products are not acceptable. Liquid fertilizers are not acceptable, and can cause burning of the seedbed if applied as such.

Seeding Dates and Rates of Application

Perform seeding during the periods and at the rates specified in the seeding tables. Do not use temporary cover by seeding or permanent seeding for projects when:

- The ground is frozen and/or when the 10-day forecasted low temperature remains below 35 degrees Fahrenheit;
- The ground is excessively wet; or
- The ground is excessively dry (periods of drought) unless watering is specified.

During periods of adverse conditions, use temporary cover by mulch.

Seedbed Preparation

- Ensure that the areas receiving permanent seeding are uniform and conform to the finished grade of the Project.
- Perform minor shaping and evening of uneven and rough areas outside of the graded area in order to provide for more effective erosion control and for ease of subsequent mowing operations.

- Loosen the seedbed (including cut slopes) to a minimum depth of three (3) inches before initiating permanent seeding and temporary seeding.
- An acceptable method of preparing the seedbed on slopes is vertically tracking the seedbed up and down the slope with proper equipment.

- Remove stones larger than two and one-half (2½) inches in any dimension, large dirt clods, roots, or other debris brought to the surface.
- Use compost if good seedbed material is not located on site or results of the soil test show the seedbed is excessively nutrient deficient to the extent of requiring costly fertilizer additions and or have excessively low pH values (lower than 5.0).
- Consider the use of mechanical seed drills to perform permanent seeding on areas where temporary seeding or temporary cover by mulch was previously utilized.

Mulch

Required for all permanent seeding, temporary seeding, and temporary cover applications. Do not use Mulch in areas where concentrated flow is expected. Use HECF Mulch for temporary seeding and temporary cover applications when the application area will require additional grading prior to permanent seeding. Do not use Erosion Control Blankets (ECB) or Turf Reinforcement Matting (TRM) in this situation.

Wood Chip Mulch

Wood chip mulch is not acceptable for seeding applications. If wood chip mulch is used for temporary cover by mulch, it must be removed prior to performing permanent seeding.

Straw or Hay Mulch with Tackifier

Use material that is certified weed. Do not use on slopes steeper than 4H:1V. Anchor using one of the following tackling agents:

- Organic or Chemical Tackifier
- Hydraulic Straw Tackifiers
- Emulsified Asphalt

Applying Straw or Hay Mulch

Uniformly apply material at the rate of 2,000 pounds per acre.

Compost Mulch

Only use from producer that participates in the USCC STA program. Do not use materials that have been treated with chemical preservatives as a compost mulch. Do not use mixed municipal solid waste compost.

Hydraulic Erosion Control Products (HECPs)

Use as an allowable mulch for temporary cover by mulch, temporary cover by seeding or permanent cover by seeding applications. Do not use as a channel liner or for areas receiving concentrated flow.

Temporary Erosion Control Blankets (ECB) and Turf Reinforcement Matting (TRM)

Consider for permanent seeding application areas with steep slopes or areas where there is a significant erosion problem or potential for erosion. Use in areas where concentrated flow is expected. Do not use for temporary seeding applications when the application area will require additional grading or modifications prior to permanent seeding.

Protection of Structures

Cover any parts of bridges, culverts, guardrails, signs, sidewalks, curb and gutters, catch basins, pipe ends, and other structures as necessary to prevent discoloration before spraying HECPs, organic or chemical tackifiers.

Slope Interruption Devices

The maximum allowable continuous slope length for straw or hay mulch, HECPs, compost and ECB applications is 50 feet. Slope Interruption devices (such as sedimentation basins) or TRMs are required for continuous slope length longer than 50 feet.

Inspection

Ensure that all seed, Sod, fast acting lime, biological growth stimulants, agricultural granular lime, granular fertilizer, straw and hay mulch, HECPs, compost mulch, and ECBs are applied as Specified. The Design Engineer or Landscape Architect, or member of the Design Engineer or Landscape Architect staff must document on-site that these materials are applied correctly by completing and signing proper forms.

Maintenance

Perform all maintenance necessary to keep stabilization areas in a satisfactory condition until the work is finally accepted. This includes mowing, repairing areas of erosion and washes, and applying additional seed, fertilizer, and mulch to areas where a satisfactory stand of grass has not been achieved.

Mowing

Mow road shoulders and medians when vegetation reaches a height of approximately 18 to 24 inches. Do not perform excessive mowing of Slopes resulting in ruts, furrows or grooves. Do not perform excessive mowing of Slopes that inhibits the establishment of the slope vegetation. Do not perform mowing when soil and weather conditions are such that rutting or other damage to the Project may occur.

Ensure mowing results in a uniform vegetation height of 4 to 6 inches, unless otherwise directed. When utilizing a nurse crop for permanent seeding, mow Millet (no lower than 3 inches) once it reaches a height of 18 inches to reduce competitiveness with the permanent vegetation. Mow Wheat and Rye Grain (no lower than 3 inches) once they reach a height of 6–8 inches to reduce competitiveness with permanent vegetation.

ECB and TRM APPLICATION TABLE

ECB/TRM Type <sup>1</sup>	Slope (H:V) <sup>2</sup>	Minimum Slope Length (ft)
Temporary ECB or Type 1 TRM	≤ 1:1	5
Type 2 TRM	≤ 1.5:1	5
Type 3 TRM	≤ 1:1	5

<sup>1</sup> Strictly comply with the manufacturer's specifications.  
<sup>2</sup> The maximum allowable continuous slope length for ECBs is 50 feet. Slope interruption devices or TRMs are required for continuous slope length longer than 50 feet.

**Non Slope Areas**

Spring / Summer Non Slope Areas (during establishment, mow when Millet reaches 18-inches in height)

Common Name <sup>1</sup>	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Planting Dates												
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Common Bermudagrass <sup>1</sup> (hulled = hull absent)	<i>Cynodon dactylon</i>	50	1.15				•	•	•	•						
White Clover	<i>Trifolium repens</i>	5	0.11				•	•	•							
Browtop Millet	<i>Panicum ramosum</i>	10	0.23				•	•	•	•	•					

Fall / Winter Non Slope Areas (during establishment, mow when Rye reaches 6 to 8-inches in height)

Common Name <sup>1</sup>	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Planting Dates												
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Tall Fescue (KY-31)	<i>Festuca arundinacea</i>	50	1.15	•	•	•	•									
Common Bermudagrass <sup>1</sup> (unhulled = hull present)	<i>Cynodon dactylon</i>	15	0.34				•	•	•							
White Clover	<i>Trifolium repens</i>	5	0.11				•	•	•							
Crimson Clover <sup>2</sup>	<i>Trifolium incarnatum</i>	20	0.46	•	•	•	•	•	•							
Rye Grain <sup>3</sup>	<i>Secale cereale</i>	15	0.34	•	•	•	•	•	•							

<sup>1</sup> Common Bermudagrass: Do not use Giant Bermudagrass(MK-37).  
<sup>2</sup> Only use pre-inoculated legumes or use an appropriate inoculant with the seed at planting.  
<sup>3</sup> Mow Rye Grain (no lower than 3 inches) once it reaches a height of 6–8 inches to reduce competitiveness with permanent vegetation.  
<sup>4</sup> If the Common Name of the seed listed in the Tables is not available, use seed with the listed Botanical Name.

**Road Medians & Shoulders**

Spring / Summer Road Median & Shoulders (during establishment, mow when Millet reaches 18-inches in height)

Common Name <sup>1</sup>	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Planting Dates												
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Common Bermudagrass <sup>1</sup> (hulled = hull absent)	<i>Cynodon dactylon</i>	25	0.57				•	•	•	•						
Browtop Millet	<i>Panicum ramosum</i>	10	0.23				•	•	•	•						

Fall / Winter Road Median & Shoulders (during establishment, mow when Rye reaches 6 to 8-inches in height)

Common Name <sup>1</sup>	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Planting Dates												
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Tall Fescue (KY-31)	<i>Festuca arundinacea</i>	50	1.15	•	•	•	•									
Common Bermudagrass <sup>1</sup> (unhulled = hull present)	<i>Cynodon dactylon</i>	15	0.34				•	•	•							
Crimson Clover <sup>2</sup>	<i>Trifolium incarnatum</i>	20	0.46	•	•	•	•	•	•							
Rye Grain <sup>3</sup>	<i>Secale cereale</i>	15	0.34	•	•	•	•	•	•							

<sup>1</sup> Common Bermudagrass: Do not use Giant Bermudagrass(MK-37).  
<sup>2</sup> Only use pre-inoculated legumes or use an appropriate inoculant with the seed at planting.  
<sup>3</sup> Mow Rye Grain (no lower than 3 inches) once it reaches a height of 6–8 inches to reduce competitiveness with permanent vegetation.  
<sup>4</sup> If the Common Name of the seed listed in the Tables is not available, use seed with the listed Botanical Name.

**Slopes & Buffers**

Spring / Summer Slopes (during establishment, mow when Millet reaches 18-inches in height. After establishment, only mow at end of winter season)

Common Name <sup>1</sup>	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Planting Dates												
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Pick 1	Tall Fescue (KY-31)	<i>Festuca arundinacea</i>	50	1.15				•	•							
	Bahiagrass	<i>Paspalum notatum</i>	30	0.69				•	•	•	•					
	Common Bermudagrass <sup>1</sup> (hulled = hull absent)	<i>Cynodon dactylon</i>	15	0.34				•	•	•	•					
	White Clover	<i>Trifolium repens</i>	5	0.11				•	•	•						
Pick 2	Weeping Lovegrass	<i>Eragrostis curvula</i>	5	0.11				•	•	•	•	•	•			
	Hairy Vetch <sup>2</sup>	<i>Vicia villosa</i>	10	0.23				•	•							
	Browtop Millet	<i>Panicum ramosum</i>	10	0.23				•	•	•	•					

Fall / Winter Slopes (during establishment, mow when Rye reaches 6 to 8-inches in height. After establishment, only mow at end of winter season)

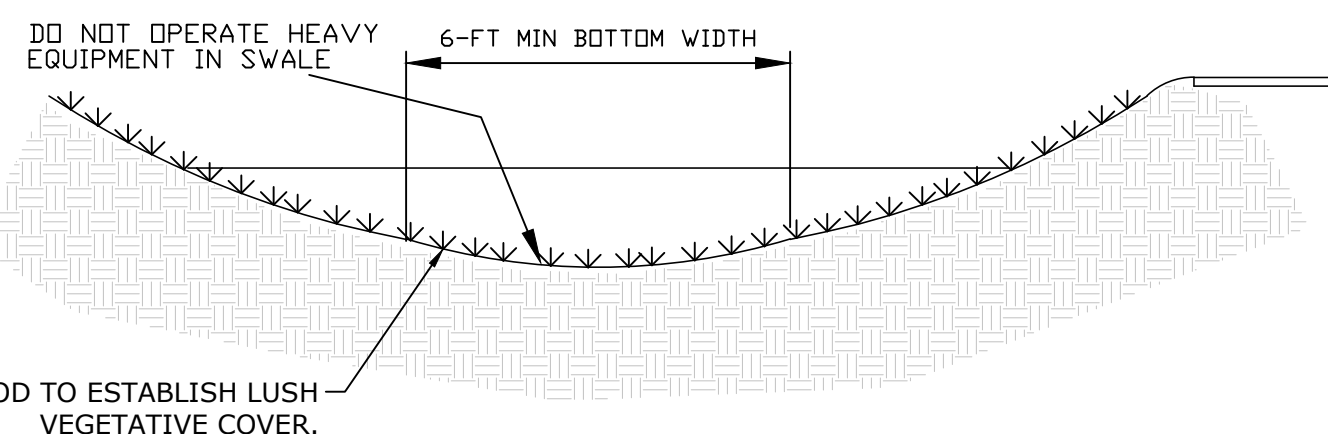
Common Name <sup>1</sup>	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Planting Dates												
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Tall Fescue (KY-31)	<i>Festuca arundinacea</i>	50	1.15	•	•	•	•									
Common Bermudagrass <sup>1</sup> (unhulled = hull present)	<i>Cynodon dactylon</i>	15	0.34				•	•	•							
White Clover <sup>2</sup>	<i>Trifolium repens</i>	5	0.11				•	•	•							
Weeping Lovegrass	<i>Eragrostis curvula</i>	5	0.11				•	•	•	•	•	•				
Crimson Clover <sup>2</sup>	<i>Trifolium incarnatum</i>	20	0.46	•	•	•	•	•	•							
	Hairy Vetch <sup>2</sup>	<i>Vicia villosa</i>	10	0.23	•	•	•	•	•							
Rye Grain <sup>3</sup>	<i>Secale cereale</i>	15	0.34	•	•	•	•	•	•							

<sup>1</sup> Common Bermudagrass: Do not use Giant Bermudagrass(MK-37).  
<sup>2</sup> Only use pre-inoculated legumes or use an appropriate inoculant with the seed at planting.  
<sup>3</sup> Mow Rye Grain (no lower than 3 inches) once it reaches a height of 6–8 inches to reduce competitiveness with permanent vegetation.  
<sup>4</sup> If the Common Name of the seed listed in the Tables is not available, use seed with the listed Botanical Name.

MULCH APPLICATION TABLE

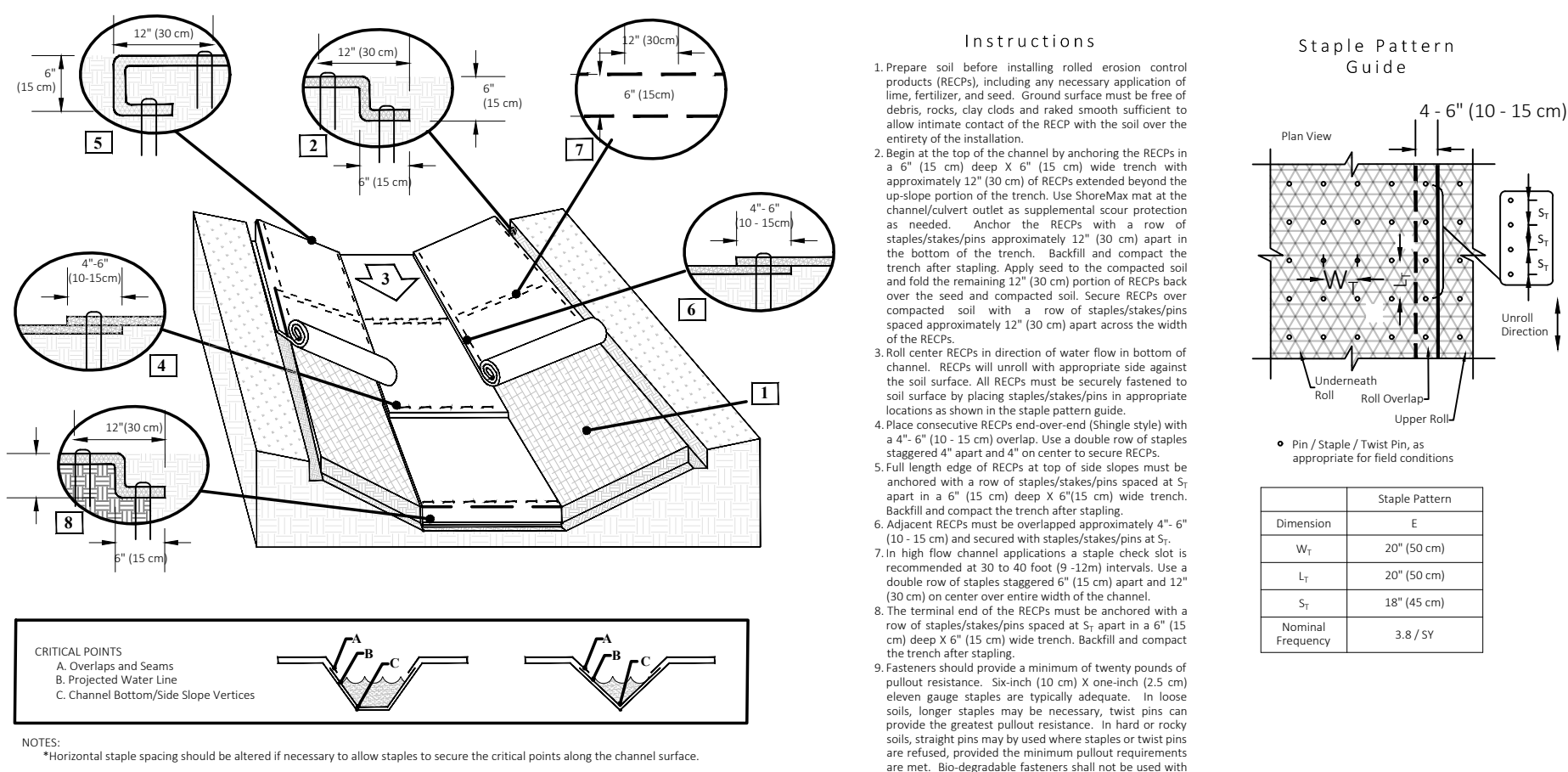
Mulch	Applicable Slopes (H:V)	Minimum Application Rate (lbs/acre-dry)
Wood Chips	≤ 4:1	500 CY/acre
Straw or Hay with Tackifier	≤ 4:1	2,000
HECP Type 1	≤ 4:1	2,000
HECP Type 2	4:1 ≤ S ≤ 3:1	2,500
HECP Type 3	3:1 ≤ S ≤ 2:1	3,000
HECP Type 4	2:1 ≤ S ≤ 1:1	3,500
Compost Mulch	> 1:1	4,000 temp cover only <sup>3</sup>
	≤ 2:1	200 CY/acre

<sup>1</sup> The maximum allowable continuous slope length for all mulch applications is 50 feet. Slope interruption devices or TRMs are required for continuous slope length longer than 50 feet.  
<sup>2</sup> Strictly comply with the manufacturer's mowing recommendations for the actual slope steepness and the actual continuous slope length of the application.  
<sup>3</sup> HECF Type 4 may be used for permanent cover applications on slopes 1:1 or greater at a minimum rate of 4,500 pounds per acre.



**SWALE DETAIL**

N.T.S.



## PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	CW	HW	SAN	VENT	BASIS OF DESIGN
P-1	WATER CLOSET (ADA)	1/2"	-	3"	2"	TOTO DRAKE, TANK TYPE, ADA COMPLIANT, 1.6 GPF, ELONGATED BOWL, MODEL CST744SLB
P-2	LAVATORY (ADA)	1/2"	1/2"	1-1/4"	1-1/4"	TOTO COMMERCIAL, ADA COMPLIANT WALL HUNG LAVATORY, MODEL LT307, TOTO KEANE, SINGLE HANDLE ADA COMPLIANT FAUCET, MODEL TL211SD
P-3	HAND SINK (ADA)	1/2"	1/2"	1-1/2"	1-1/2"	MUSTEE MODEL 19CFT UTILATUB WALL MOUNTED SERVICE SINK WITH INTEGRAL TWO HANDLE FAUCET

- NOTES:**
- PROVIDE ANGLE STOP VALVES, SUPPLY TUBING, P-TRAPS, ESCUTCHEON PLATES, CARRIERS, ETC., FOR COMPLETE INSTALLATION.
  - ALL SUPPLY AND WASTE LINES SHALL BE CONCEALED IN ADJACENT WALL, FLOOR AND CEILING, UNLESS NOTED OTHERWISE.
  - MANUFACTURER AND MODEL NUMBER LISTED AS BASIS OF DESIGN. PROVIDE INDICATED OR EQUAL THAT MEETS SCHEDULED PERFORMANCE REQUIREMENTS.

## OTHER DRAINAGE AND FIXTURE SPECIALTIES

UNLESS OTHERWISE INDICATED NUMBERS ARE JAY R. SMITH. EQUAL PRODUCTS: WATTS, ZURN, JOSAM AND WADE.

**CO - FINISHED FLOORS:**  
 JAY R. SMITH FIG. 4237L CLEANOUT WITH GASKET SEAL THREADED PLUG FOR EASY REMOVAL, ADJUSTABLE ROUND EXTRA HEAVY DUTY NICKEL BRONZE TOP, FLASHING FLANGE, SPEEDI-SET OUTLET CONNECTION.

**CO - TILE FLOORS:**  
 JAY R. SMITH FIG. 4151 C.I. CLEANOUT WITH GASKET SEAL THREADED PLUG FOR EASY REMOVAL, ADJUSTABLE ROUND NICKEL BRONZE TOP RECESSED FOR TILE WITH SECURING SCREW, SPEEDI-SET OUTLET CONNECTION.

**WCO - WALL CLEANOUT**  
 JAY R. SMITH FIG. 9776 THREADED WALL CLEANOUT WITH 6" LONG, VANDAL PROOF CENTER SCREW. POLISHED STAINLESS STEEL COVER PLATE.

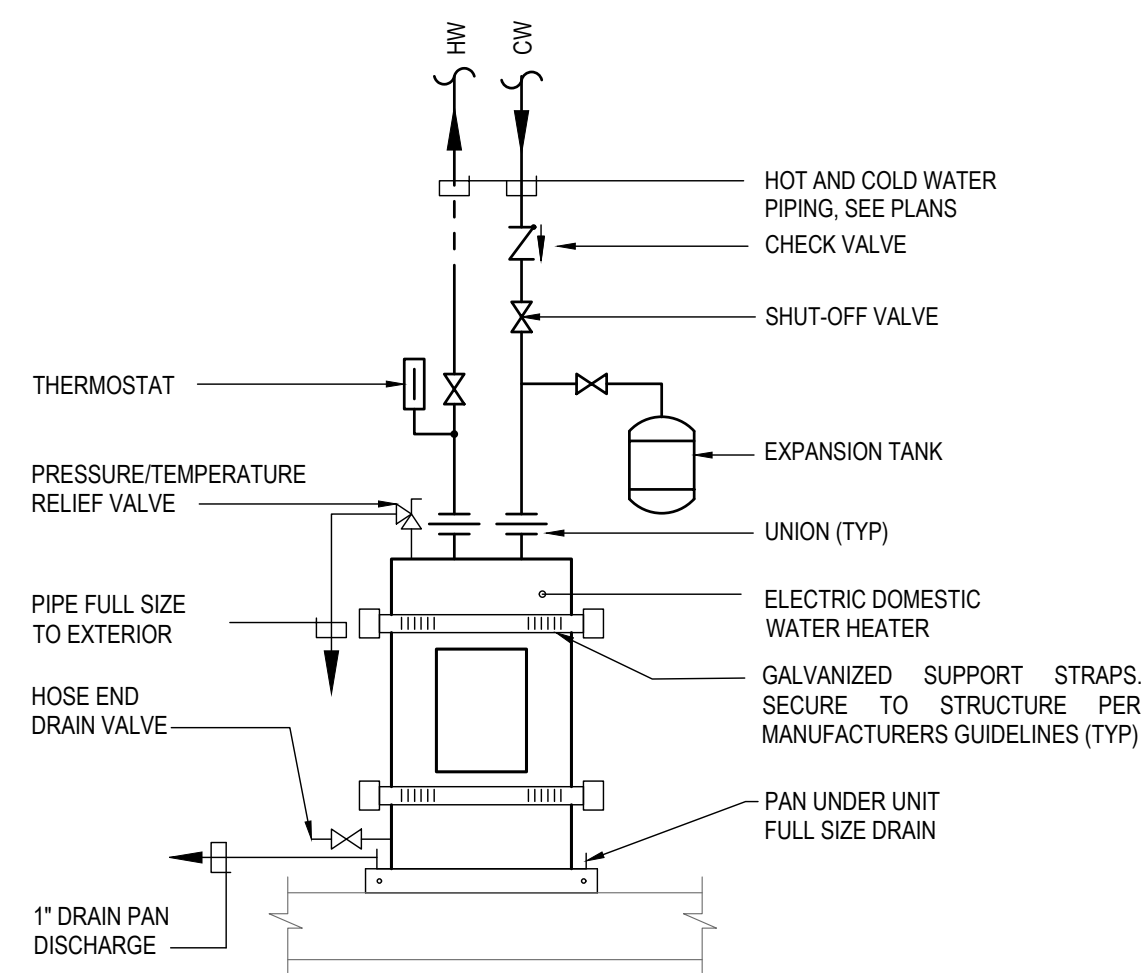
**WATER HAMMER ARRESTORS:**  
 JAY R. SMITH 5000 SERIES ALL STAINLESS STEEL "HYDROTROLS". INSTALL IN AN UPRIGHT POSITION AT ALL FLUSH VALVES, AND OTHER QUICK CLOSING VALVES. LOCATE AND SIZE AS INDICATED ON DRAWINGS OR IN ACCORDANCE WITH PDI STANDARD WH-201. MINIMUM OF 1 PER END OF EACH CW/HW BRANCH PIPING.

**HB - HOSE BIBB STANDARD NON-LOCKING TYPE**  
 JAY R. SMITH HOSE BIBB, MODEL # 5672 OR APPROVED EQUAL. PROVIDE 3/4" WATER SUPPLY WITH SHUT-OFF VALVE.

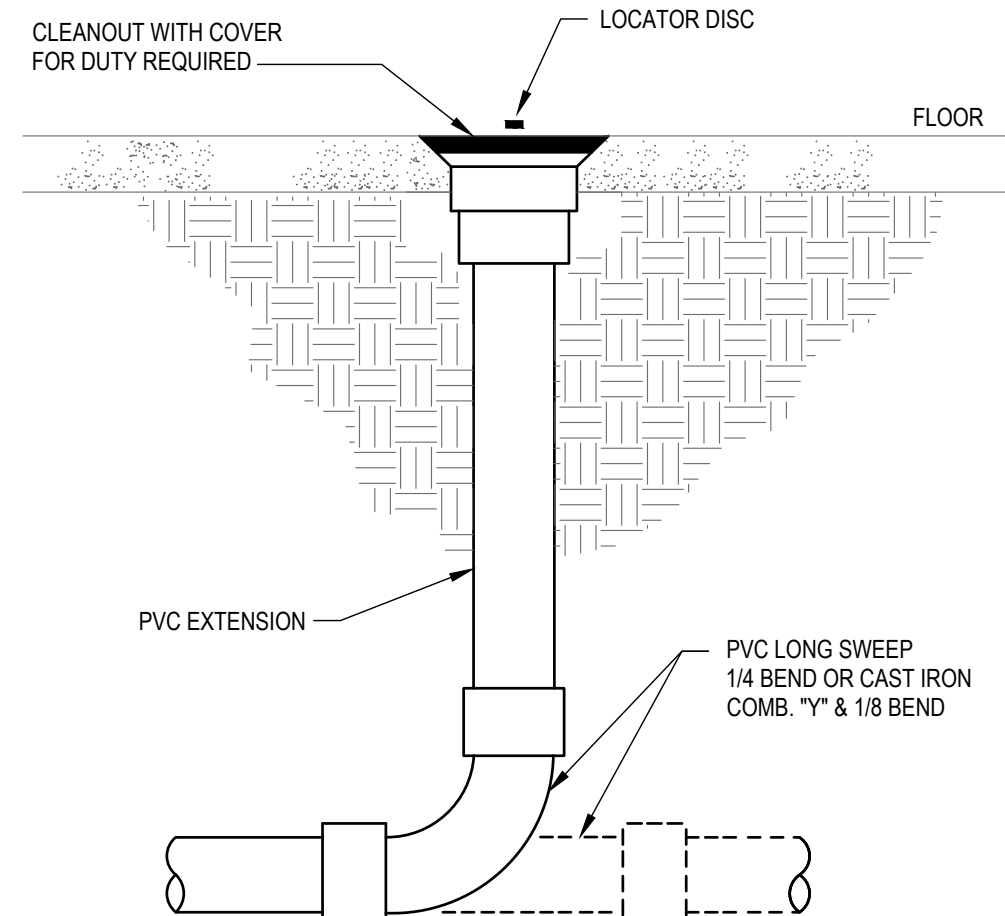
**FD - FLOOR DRAINS-GENERAL/RESTROOMS:**  
 JAY R. SMITH FIG.9600 FLOOR DRAIN WITH 5" DIAMETER OR 6"x6" NICKEL BRONZE STRAINER, 3" NO-HUB OUTLET CONNECTION AND TRAP PRIMER CONNECTION.

ELECTRIC WATER HEATER SCHEDULE							
MARK	STORAGE CAP (GAL)	RECOVERY @ 80°F	ELECTRICAL (V/PH/Hz)	ELECTRICAL		BASIS OF DESIGN	NOTES
				NO. @ WATTS	OPERATION		
EW-H-1	20	13.0	208/1/60	1 @ 2500	N/A	STATE PCE 20 10MSA	SEE BELOW

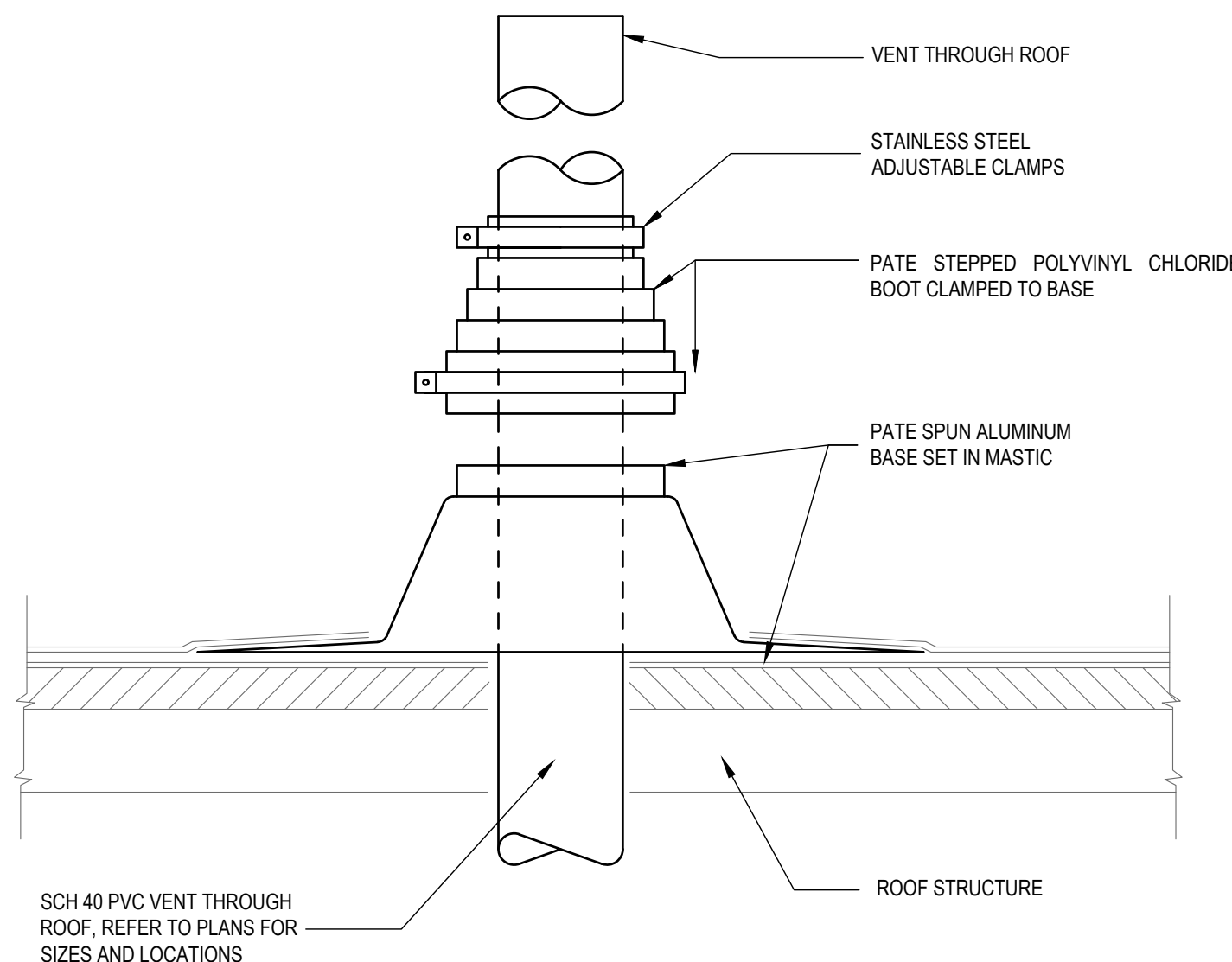
- NOTES:**
- PROVIDE 2.0 GALLON EXPANSION TANK, MODEL AMTROL ST-5 OR APPROVED EQUAL.
  - PROVIDE FULL-PORT BALL VALVES ON HOT AND COLD PIPING TO WATER HEATER.
  - PROVIDE SEISMIC RATED EQUIPMENT SUPPORTS.
  - PROVIDE WITH EMERGENCY DRAIN PAN.
  - MANUFACTURER AND MODEL NUMBER LISTED AS BASIS OF DESIGN. PROVIDE INDICATED OR EQUAL THAT MEETS SCHEDULED PERFORMANCE REQUIREMENTS.



**1** DETAIL - TYPICAL ELECTRIC WATER HEATER



**2** DETAIL - TYPICAL FLOOR CLEANOUT



**3** DETAIL - TYPICAL VENT THROUGH ROOF

## PLUMBING LEGEND

	PIPE DROP
	PIPE RISE
	PIPE CAP
	BRANCH TAKE OFF
	PIPE DROP TEE
	PIPE RISE TEE
	CHECK VALVE
	UNION
	PIPE FLANGE
	CONCENTRIC REDUCER
	FLOW ARROW
	SHUTOFF VALVE (GATE VALVE)
	SANITARY PIPING (SAN)
	SANITARY VENT PIPING (V)
	DOMESTIC COLD WATER PIPING (CW)
	DOMESTIC HOT WATER PIPING (HW)
	FLOOR DRAIN
	SANITARY VENT THROUGH ROOF (VTR)
	CLEAN OUT
	GRADE CLEAN OUT
	WALL CLEAN OUT
	HOSE BIBB

## PLUMBING ABBREVIATIONS

EW-H-X	ELECTRIC TANK TYPE WATER HEATER DESIGNATION
P-X	PLUMBING FIXTURE DESIGNATION
AHJ	AUTHORITY HAVING JURISDICTION
AP	ACCESS PANEL
AFF	ABOVE FINISHED FLOOR
DN	DOWN
(E)	EXISTING
GC	GENERAL CONTRACTOR
INV ELEV	INVERT ELEVATION
WPD	WATER PRESSURE DROP
TYP	TYPICAL

## PLUMBING GENERAL NOTES AND SPECIFICATIONS

- A. ALL PLUMBING WORK SHALL BE IN ACCORDANCE WITH INTERNATIONAL PLUMBING CODE (IPC) AND INTERNATIONAL ENERGY CONSERVATION CODE CURRENTLY ADOPTED BY THE AUTHORITY HAVING JURISDICTION.
- B. PLUMBING SANITARY AND VENT PIPING SHOWN IS ONLY FOR DIAGRAMMATIC PURPOSES. COORDINATE VENT THROUGH ROOF LOCATION WITH HVAC AIR INTAKES. MAINTAIN MINIMUM CODE REQUIRED CLEARANCE TO INTAKES AND BUILDING OPENINGS.
- C. PROVIDE CLEANOUTS AT THE BASE OF EACH SANITARY WASTE STACK IF TWO OR MORE LEVELS. CLEANOUTS SHALL BE SIZED TO MATCH THE PIPING BEING SERVED. FLOOR CLEANOUTS SHALL BE SPACED PER IPC AND ALL LOCAL CODES. ALSO PROVIDE CLEANOUTS IN HORIZONTAL CHANGE OF DIRECTIONS >45°.
- D. THE MANUFACTURERS OF ALL EQUIPMENT SHOWN ARE THE BASIS OF DESIGN. CONTRACTOR SHALL PROVIDE EQUIPMENT OF EQUAL SPECIFICATIONS AND PERFORMANCE.
- E. COORDINATE UNDERGROUND PIPING INVERT ELEVATIONS WITH STRUCTURAL FOOTING ELEVATIONS AND CIVIL INVERT CONNECTIONS PRIOR TO ANY UNDERGROUND PIPING INSTALLATIONS.
- F. VALVES AND FITTINGS SHALL BE THE SAME SIZE AS THE PIPING WHERE THEY ARE LOCATED UNLESS NOTED OTHERWISE.
- G. THE CONTRACTOR SHALL ROUGH-IN ALL WASTE AND WATER SUPPLIES FOR FIXTURES AND PERFORM FINAL CONNECTIONS AS NEEDED.
- H. ALL FLOOR DRAINS SHALL BE PROVIDED WITH TRAP PRIMER CONNECTIONS, UNLESS NOTED OTHERWISE.
- I. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND ELEVATIONS OF ALL PLUMBING FIXTURES.
- J. PROVIDE THERMAL INSULATION FOR HOT WATER, HOT WATER RECIRCULATION AND COLD WATER PIPING IN ACCORDANCE WITH THE INTERNATIONAL ENERGY CONSERVATION CODE.
- K. HOT, COLD & RECIRCULATING WATER PIPING 1" AND SMALLER SHALL COPPER OR PEX PIPING ACCORDING TO ASTM F 876 WITH ASTM F 1807 METAL INSERT AND COPPER CRIMP RING FITTINGS. WITH APPROPRIATE FITTINGS AND CONNECTIONS. NO "SHARK BITE" FITTINGS WILL BE ALLOWED.
- L. INSTALL HANGERS FOR PEX TUBING EVERY 32".
- N. ALL SANITARY, WASTE AND VENT PIPING SERVING SHALL BE SCHEDULE 40 PVC-DWV PIPE AND FITTINGS WITH SOLVENT CEMENT JOINTS. PER ASTM D-1785 AND D-2865. ALL PIPE AND FITTINGS SHALL BE MANUFACTURED IN THE UNITED STATES AND CONFORM TO NSF-14. PVC PIPING SHALL NOT BE LOCATED IN RETURN AIR PLENUM SPACES. CELLULAR-CORE PVC SHALL BE PERMITTED UPON OWNER/ENGINEER APPROVAL.
- O. ALL PIPING ABOVE GRADE SHALL BE PROPERLY SUPPORTED BY THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES OR CEILING STRUCTURE. WATER PIPING SHALL BE HUNG USING COPPER LOOP HANGERS WITH INSULATION AND PIPE SADDLES OVER COPPER PIPING. SANITARY AND VENT PIPING SHALL BE HUNG USING GALVANIZED LOOP HANGERS FOR CAST IRON OR PVC PIPING.
- P. WATER PIPING ROUTED IN EXTERIOR WALLS SHALL BE ROUTED ON THE HEATED SIDE (INSIDE) OF WALL INSULATION.
- Q. SANITARY AND DRAINAGE PIPING 2" AND SMALLER SHALL BE SLOPED AT 1/4" PER FOOT MINIMUM. PIPING 3" AND LARGER SHALL BE SLOPED AT 1/8" PER FOOT MINIMUM, UNLESS SHOWN OTHERWISE ON THE PLANS.
- R. TOPS OF ALL FLOOR DRAINS AND CLEAN OUTS SHALL BE SET FLUSH WITH FINISHED FLOOR.
- S. LOCATE ALL SECTIONAL OR MAIN CONTROL VALVES WITHIN 1'-0" FROM ACCESS PANELS, CEILING TILES, OR OTHER POINT OF ACCESS.
- T. ALL COLD WATER, HOT WATER AND DRAIN PIPING AT HANDICAPPED FIXTURES SHALL BE INSULATED WITH HAND-LAV GUARD MODELS 102 AND 105 INSULATION KITS.
- U. ALL EXPOSED PIPING PENETRATING CEILING AND WALLS SHALL BE INSTALLED WITH CHROME-PLATED ESCUTCHEONS AT THE PENETRATION. ALL PIPING PENETRATING EXTERIOR WALLS AND ROOFS SHALL BE FLASHED IN AN APPROVED MANNER AND SHALL BE PROTECTED AS REQUIRED BY LOCAL CODE AUTHORITY.
- V. PROVIDE WATER HAMMER ARRESTORS SIZED PER PDI SPECIFICATIONS ON ALL DOMESTIC WATER LINES AND/OR WHERE NOTED ON THE DRAWINGS.
- W. SHOP DRAWINGS SHALL BE SUBMITTED TO AND REVIEWED BY THE ARCHITECT/OWNER PRIOR TO ORDERING, PURCHASING, OR FABRICATING ANY EQUIPMENT OR SYSTEMS. SHOP DRAWINGS SHALL INCLUDE: ALL EQUIPMENT SCHEDULED ON THE DRAWINGS; PLUMBING FIXTURES AND TRIM; WATER HEATERS AND ACCESSORIES.
- X. CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL PLUMBING EQUIPMENT WITH THE ELECTRICAL DRAWINGS, AND SHALL FURNISH EQUIPMENT WIRED FOR THE VOLTAGES SHOWN THEREIN.
- Y. ALL PIPE PENETRATIONS OF FIRE AND/OR SMOKE-RATED ASSEMBLIES SHALL BE FIRE-STOPPED AS REQUIRED TO RESTORE ASSEMBLY TO ORIGINAL INTEGRITY. FIRE BARRIER PRODUCTS SHALL BE AS MANUFACTURED BY 3M COMPANY, CP25 CAULK, CS195 COMPOSITE PANEL, FS195 WRAP/STRIP, OR PSS 7900 SERIES SYSTEMS AS RECOMMENDED BY MANUFACTURER FOR PARTICULAR APPLICATION, OR EQUIVALENT SYSTEM AS APPROVED BY LOCAL CODE OFFICIALS.
- Z. PERFORM CORING, CUTTING, FITTING REPAIRING AND FINISHING OF THE WORK NECESSARY FOR THE INSTALLATION OF THE EQUIPMENT ON THIS PROJECT. HOWEVER, NO CUTTING OF THE WORK OF OTHER TRADES OR OF ANY STRUCTURAL MEMBER SHALL BE DONE WITHOUT THE CONSENT OF THE ARCHITECT AND PROPERTY MANAGER. PROPERLY FILL SEAL, FIREPROOF AND WATERPROOF ALL OPENINGS, SLEEVES, AND HOLES IN SLABS. FURNISH AND INSTALL ALL REQUIRED SLEEVES AND INSERTS.
- AA. ALL FLOOR PENETRATIONS THROUGH CONCRETE SLABS MUST BE CORE-BORED OR SAWCUT, SLEEVED, SEALED, FIRESTOPPED AND WATERPROOFED. ALL PIPING SLEEVES SHALL EXTEND A MINIMUM OF 4" ABOVE FINISHED FLOOR.
- AB. TESTING OF ALL WATER PIPING AND DRAINAGE PIPING SHALL FOLLOW THE LATEST ADOPTED EDITION OF THE INTERNATIONAL PLUMBING CODE AND ALL STATE AMENDMENTS.
- AC. PROTECTION OF THE WATER SUPPLY SYSTEM FOR THIS FACILITY SHALL MEET THE BACKFLOW PREVENTION DEVICE REQUIREMENTS OF THE IPC (CURRENTLY ADOPTED), SECTION 608.
- AD. THE SANITARY AND WASTE INVERT ELEVATIONS PROVIDED ARE FOR REFERENCE ONLY. EXISTING PLANS DO NOT INDICATE PIPE INVERT ELEVATIONS FOR EXISTING SANITARY AND WASTE PIPING SYSTEMS. THE CONTRACTOR SHALL VERIFY EXISTING PIPE INVERT ELEVATIONS WITH CIVIL SITE DRAWINGS AND PROVIDE A SHOP DRAWING INDICATING SITE CONDITIONS PRIOR TO CONSTRUCTION.
- AE. ALL MATERIALS LOCATED WITHIN THE CEILING RETURN AIR PLENUM SHALL BE NON-COMBUSTIBLE AND SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.
- AG. PER THE INTERNATIONAL BUILDING CODE (IBC), PLUMBING EQUIPMENT AND COMPONENTS, INCLUDING SUPPORTS AND ATTACHMENTS, SHALL BE DESIGNED FOR SEISMIC FORCES IN ACCORDANCE WITH CHAPTER 13 OF ASCE 7-16. WHERE DESIGN FOR SEISMIC AND WIND LOADS ARE REQUIRED, THE MORE DEMANDING FORCE MUST BE USED. FOR ALL COMPONENTS REQUIRING SEISMIC RESTRAINT, THE COMPONENT SUPPORTS AND ATTACHMENTS SHALL BE DESIGNED BY A REGISTERED DESIGN PROFESSIONAL OR BE ACCOMPANIED BY THE APPROPRIATE ICCES EVALUATION REPORT. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT SUCH DESIGN AND INSTALLATION ARE IN ACCORDANCE WITH THE IBC REQUIREMENTS.
- AH. ALL PLUMBING EQUIPMENT AND SYSTEMS SHALL BE GUARANTEED FOR A MINIMUM PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE.

DATE

DESCRIPTION

REV

**THE SOUTH CAROLINA PROFESSIONAL ENGINEERS' AND SURVEYORS' BOARD**  
 HENSLEY AND GOERLING CONSULTING ENGINEERS, LLC  
 No. 5279  
 CERTIFICATE OF AUTHORIZATION  
 SEAL

**THE SOUTH CAROLINA PROFESSIONAL ENGINEERS' AND SURVEYORS' BOARD**  
 No. 2222  
 No. 2445  
 N. D. GORRAN  
 A.E. INFO

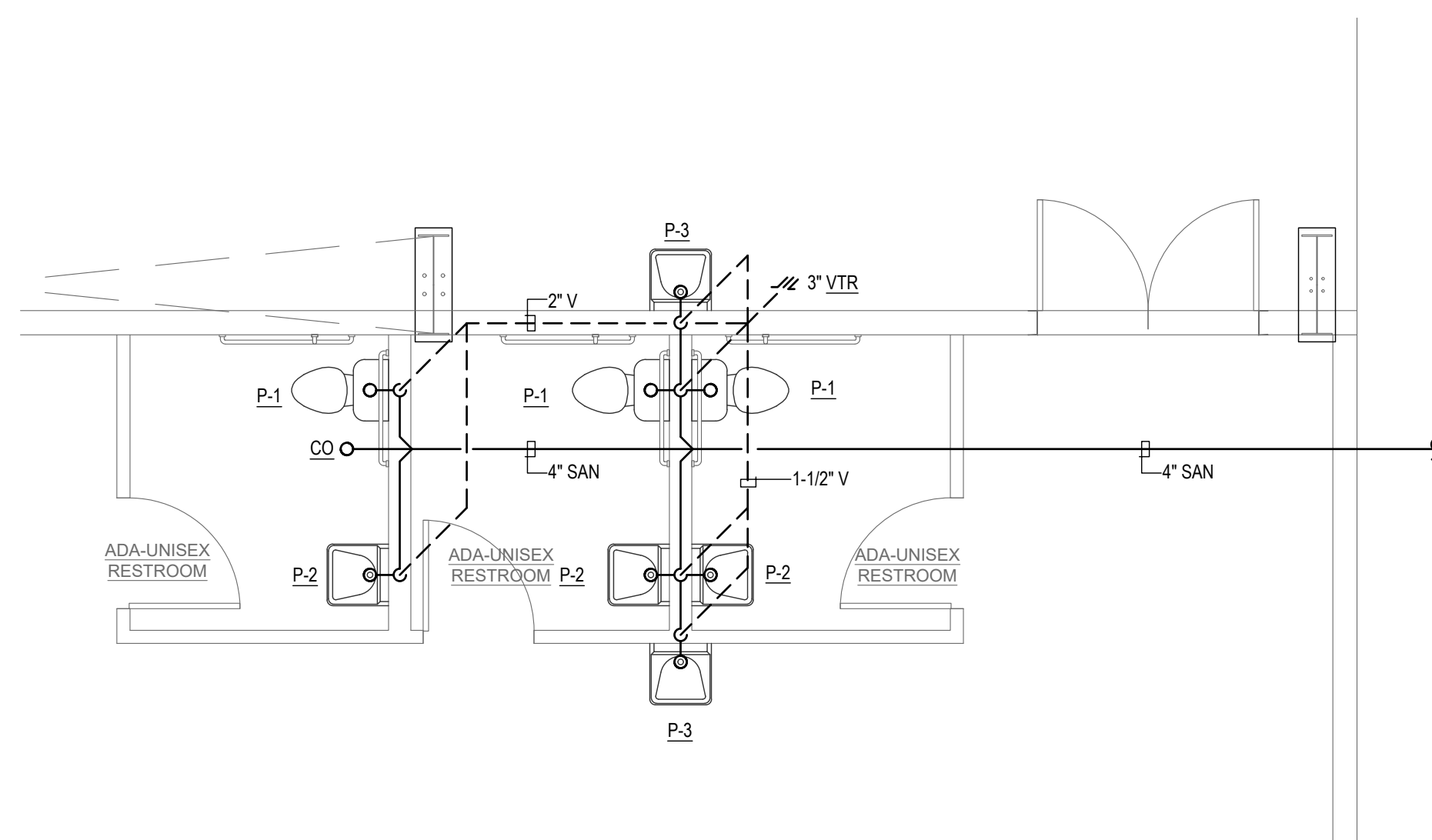
**THE BASTION GROUP**  
 LIMITED LIABILITY COMPANY  
 412 NORTH GUM ST. SUMMERVILLE, SC 29485 - (843) 300-8876  
 WWW.BASTIONGROUPPLLC.COM

**EAST COAST HYDRAULICS**  
 5607 SAVANNAH HIGHWAY  
 RAVENEL, SC 29470  
**PLUMBING - LEGEND, ABBREV. NOTES & SPECS.**

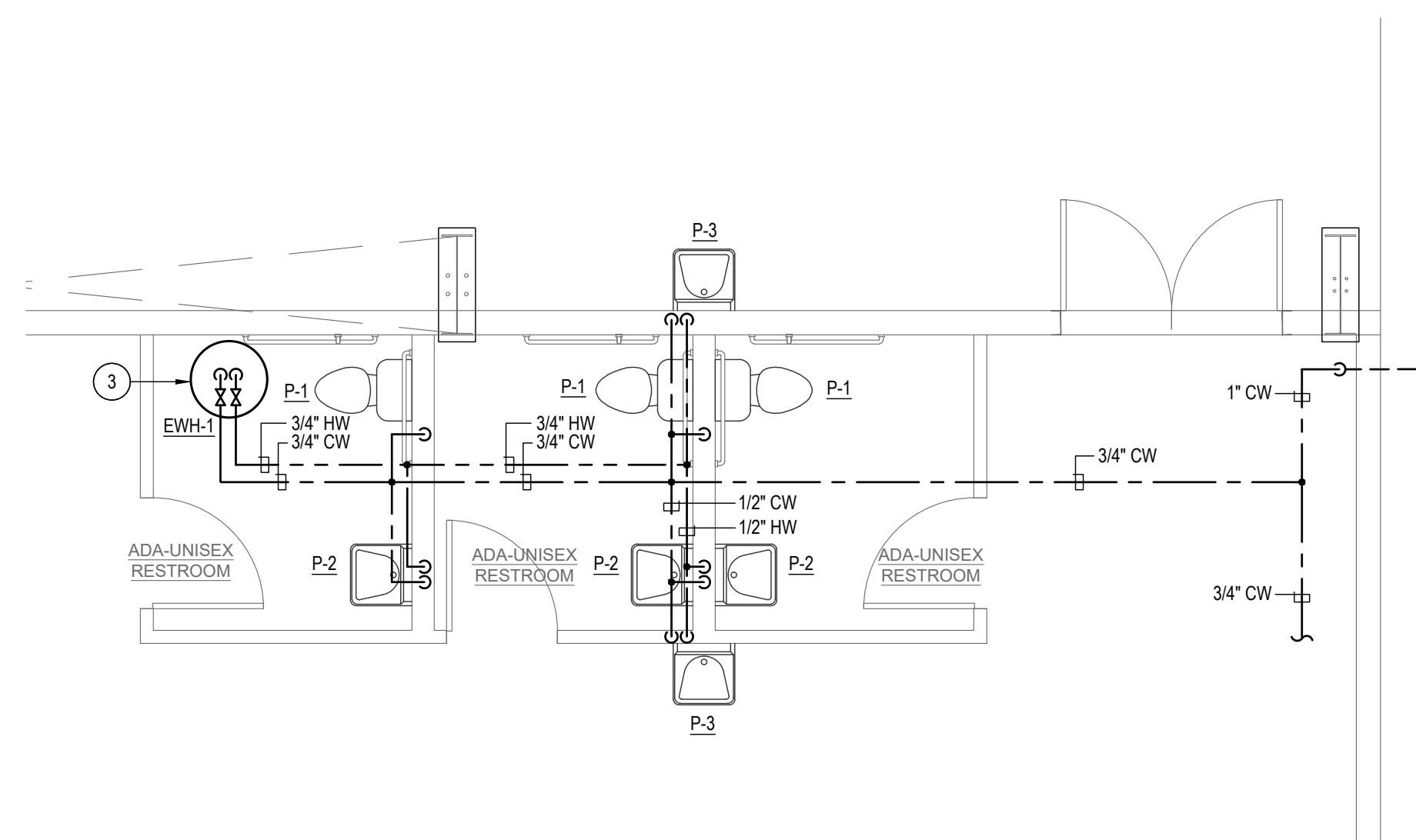
SCALE: AS NOTED  
 BASTION PROJECT NO.

DRAWN BY: BMW DATE: 10.19.2023  
 DRAWING STATUS: PERMIT  
 SHEET: P000  
 SHEET: 15 OF 28 REVISION NO.

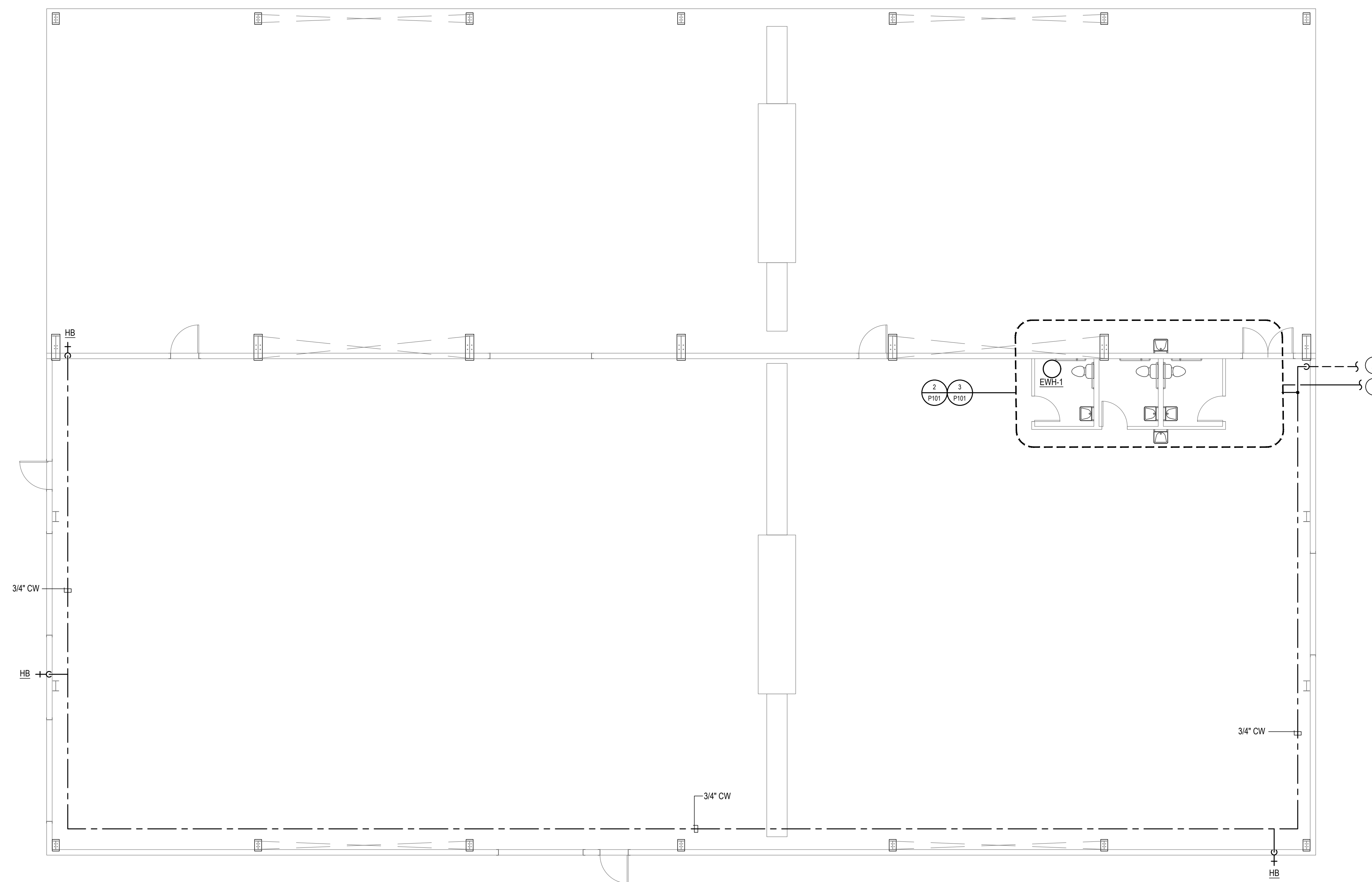
**HG**  
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 HIG@eng.com 843.416.2301  
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**2** SANITARY AND VENT PLAN - RESTROOMS  
1/8" = 1'-0"



**3** DOMESTIC WATER PLAN - RESTROOMS  
1/8" = 1'-0"



**1** PLUMBING PLAN  
1/8" = 1'-0"

**GENERAL DRAWING NOTES**

- A. PIPE INVERT ELEVATIONS PROVIDED ON PLANS ARE FOR REFERENCE ONLY.
- B. REFER TO PLUMBING FIXTURE SCHEDULE FOR FIXTURE DOMESTIC WATER, SANITARY AND VENT PIPING CONNECTION SIZES.

**DRAWING NOTES #**

- 1. 4" SANITARY, INV. ELEV. -3'-0". REFER TO CIVIL SITE PLAN FOR CONTINUATION.
- 2. 1" CW FROM METER, REFER TO CIVIL SITE PLAN FOR CONTINUATION.
- 3. EWH-1 LOCATED ABOVE CEILING ON PLATFORM.

REV	DESCRIPTION



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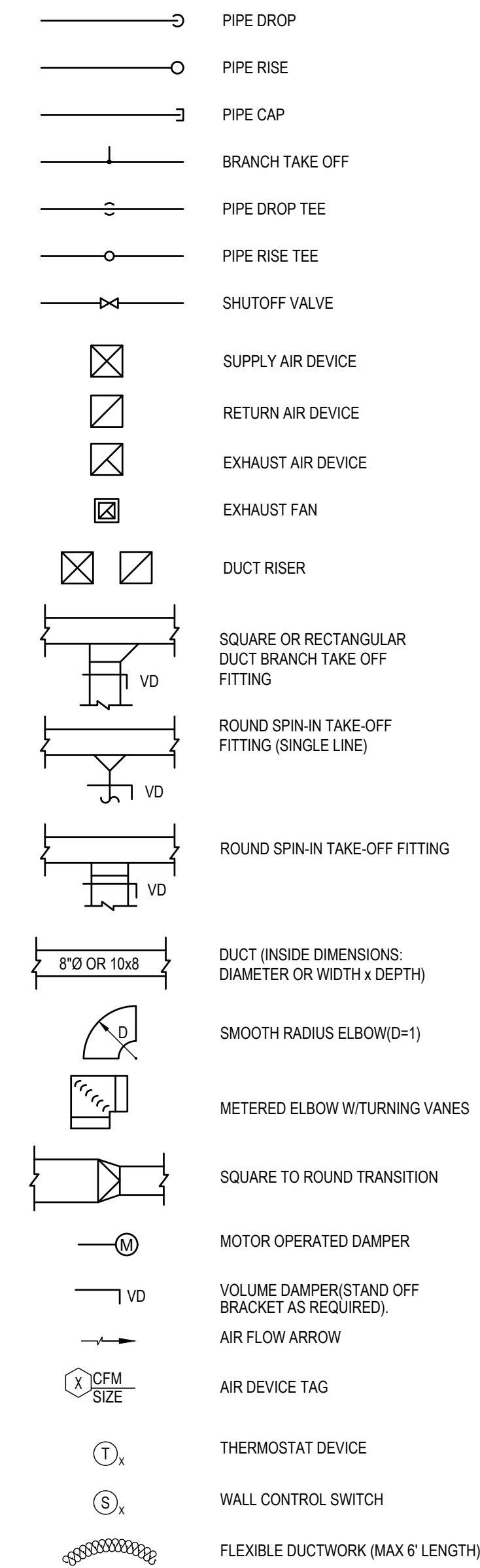


**EAST COAST HYDRAULICS**  
5507 SAVANNAH HIGHWAY  
RAVENEL, SC 29470  
**PLUMBING PLAN**

SCALE: AS NOTED  
BASTION PROJECT NO.

DRAWN BY: BMW DATE: 10.19.2023  
DRAWING STATUS: PERMIT  
SHEET: **P101**  
SHEET: 16 OF 28 REVISION NO.

**MECHANICAL LEGEND**



**MECHANICAL ABBREVIATIONS**

EF-X	EXHAUST FAN UNIT DESIGNATION
WEF-X	WALL EXHAUST FAN DESIGNATION
AD	ACCESS DOOR
AP	ACCESS PANEL
ADP	AIR PRESSURE DROP
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
BD	BACKDRAFT DAMPER
BOD	BOTTOM OF DUCT
CD	CONDENSATE PIPING
DG	DOOR GRILLE
DB	DRY BULB
DN	DOWN
EA	EXHAUST AIR
(E)	EXISTING
EAT	ENTERING AIR TEMPERATURE
EWT	ENTERING WATER TEMPERATURE
FD	FIRE DAMPER
FSD	FIRE/SMOKE DAMPER
FC	FLEXIBLE CONNECTION
GC	GENERAL CONTRACTOR
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
NIS	NOT IN SCOPE
OA	OUTSIDE AIR
RA	RETURN AIR
RG	RETURN GRILLE
RLRS	REFRIGERANT LIQUID AND SUCTION PIPING
SA	SUPPLY AIR
TOD	TOP OF DUCT
WPD	WATER PRESSURE DROP

**MECHANICAL GENERAL NOTES AND SPECIFICATIONS**

- A. FABRICATE ALL DUCTWORK IN ACCORDANCE WITH SMACNA STANDARDS. ALL DUCTWORK SHALL BE A MINIMUM OF 26 GAUGE.
- B. PROVIDE ACCESS DOORS IN INACCESSIBLE CEILINGS TO ACCESS MEP DEVICES ABOVE CEILINGS NOT OTHERWISE ACCESSIBLE.
- C. INSTALL FLEXIBLE DUCTS IN ACCORDANCE WITH SMACNA STANDARDS AND PROJECT SPECIFICATIONS.
- D. MAXIMUM ALLOWED FLEXIBLE DUCT LENGTH SHALL NOT EXCEED SIX (6) FEET.
- E. PROVIDE MANUAL VOLUME DAMPERS AT EACH DUCT BRANCH LEADING TO AN OUTLET/INLET OPENING. INSTALL DAMPERS AT MAIN DUCT CONNECTIONS. BALANCE, LOCK, AND TAG HANDLE WITH ORANGE RIBBON OR SOME SORT OF VISIBLE TAGGING TAPE.
- F. DUCT PRESSURE CLASSIFICATION SHALL BE AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS. IF NOT INDICATED, IT SHALL BE AS FOLLOWS:
  - 1. SUPPLY DUCTS : 2" POSITIVE
  - 2. RETURN DUCTS: 2" NEGATIVE
  - 3. EXHAUST DUCTS: 2" NEGATIVE
- G. SEAL WITH GRAY WATER BASED DUCT SEALANT.
- H. REFER TO AIR DEVICE SCHEDULE FOR INLET DUCT SIZES UNLESS OTHERWISE INDICATED.
- I. VERIFY ARCHITECTURAL REFLECTED CEILING PLANS IN THE FIELD FOR EXACT LAYOUT LOCATION OF ALL CEILING GRILLES & DIFFUSERS, COORDINATE WITH ALL OTHER TRADES FOR THEIR LAYOUTS.
- J. COORDINATE FINAL EQUIPMENT/FIXTURE LOCATIONS WITH THE GENERAL CONTRACTOR. THE LOCATION AS INDICATED ON THE DRAWING IS APPROXIMATE. INSTALL ALL MECHANICAL EQUIPMENT SUCH THAT MANUFACTURERS MAINTENANCE AREA IS CLEAR, AND EASILY ACCESSIBLE.
- K. COORDINATE ALL ROOF PENETRATION SIZES AND LOCATIONS WITH APPROVED EQUIPMENT SHOP DRAWINGS. ROOF REPAIR/FLASHING BY OTHERS.
- L. ALL ROOFTOP EQUIPMENT SHALL BE INSTALLED A MINIMUM OF 10'-0" FROM THE INSIDE OF PARAPET WALL IN ACCORDANCE WITH THE APPLICABLE MECHANICAL CODE.
- M. COORDINATE ALL MECHANICAL, PLUMBING AND ELECTRICAL WORK & EQUIPMENT WITH STRUCTURAL MEMBERS, ELECTRICAL WORK, FIXTURES AND ALL OTHER TRADES.
- N. DO NOT ROUTE ANY WET PIPING THROUGH ELECTRICAL, COMMUNICATION OR ELEVATOR EQUIPMENT ROOMS.
- O. RUN ALL PIPING CONCEALED ABOVE CEILING EXCEPT WHERE INDICATED.
- P. PROVIDE INSULATED TRAPPED CONDENSATION DRAIN PIPING, WITH AIR GAPS, FROM COOLING COIL DRAIN PANS TO NEAREST STORM DRAIN OR TO OUTSIDE AS INSTRUCTED BY THE ENGINEER, AND/OR AS SHOWN ON THE PLANS.
- Q. PROVIDE FLEXIBLE DUCT FLEXIBLE CONNECTION BETWEEN EACH DUCT FAN CONNECTION, MINIMUM 6".
- R. PROVIDE VFD'S, STARTERS AND DISCONNECT SWITCHES FOR ALL MECHANICAL EQUIPMENT WHICH COMPLY WITH SPECIFICATIONS FOR MANUFACTURER, QUALITY, CONFORMANCE AND OPTIONS.
- S. PROVIDE FIRE/SMOKE DAMPERS AT ALL DUCT PENETRATIONS OF ALL FIRE/SMOKE RATED ASSEMBLIES, TO MAINTAIN THE INTEGRITY OF THE ASSOCIATED FIRE/SMOKE ASSEMBLY.
- T. FIRESTOP/SMOKESTOP AND SLEEVE ALL PENETRATIONS THROUGH FIRE/SMOKE RATED ASSEMBLIES. REFER TO LIFE SAFETY PLANS FOR RATED ASSEMBLIES AND LOCATIONS.
- U. PROVIDE ALL CONCEALED SUPPLY AND RETURN DUCTWORK WITH 2" FOIL FACED FIBERGLASS WRAP INSULATION, FSK TAPE ALL SEAMS AND SEAL WITH GRAY WATER BASED DUCT SEALANT.
- V. ALL EXPOSED DUCTWORK SHALL BE DOUBLE WALL SPIRAL DUCTWORK WITH PAINT GRIP FINISH.
- W. PROTECT ALL OPENINGS IN DUCTWORK DURING CONSTRUCTION.
- X. REFER TO ELECTRICAL DRAWINGS FOR ALL ELECTRICAL REQUIREMENTS FOR EQUIPMENT.
- Y. THE MECHANICAL CONTRACTOR IS TO COORDINATE WITH THE GENERAL CONTRACTOR AND OTHER TRADES REQUIRED OPENINGS IN WALLS, FOUNDATIONS, FLOORS, AND ROOFS.
- Z. OUTSIDE AIR INLETS TO BE LOCATED A MINIMUM OF 10 FT FROM ANY EXHAUST AIR OUTLET OR PLUMBING VENT STACK. COORDINATE WITH THE PLUMBING AND THE GENERAL CONTRACTORS IN THE FIELD. OUTSIDE AIR INTAKES AND EXHAUST DISCHARGE FOR BUILDING VENTILATION WILL BE LOCATED A MINIMUM OF 10 FT ABOVE GRADE.
- AA. THE MECHANICAL CONTRACTOR TO VERIFY MECHANICAL EQUIPMENT LOCATIONS AND BE RESPONSIBLE FOR ALL

- RELATED CLEARANCES IN THE FIELD AND PER IMC 2021, SECTION 306. PROVIDE ADEQUATE MAINTENANCE CLEARANCE AROUND EACH PIECE OF EQUIPMENT PER THE MANUFACTURER'S RECOMMENDATIONS. PROVIDE CLEARANCE IN FRONT OF ELECTRICAL PANELS AND OTHER ELECTRICAL EQUIPMENT PER THE NATIONAL ELECTRICAL CODE REQUIREMENTS. COORDINATE WITH THE ELECTRICAL AND GENERAL CONTRACTORS IN THE FIELD.
- AB. PROVIDE WATER PROOF SEALING OF PIPE AND DUCT PENETRATIONS OF EXTERIOR WALLS, FLOORS, AND/OR ROOF.
- AC. ALL DUCTWORK AND PIPING PENETRATING THROUGH RATED WALLS TO BE FIRE STOPPED.
- AD. PENETRATIONS THROUGH FIRE RATED FLOORS AND WALLS ARE TO BE FIRE SEALED SO AS TO MAINTAIN FLOOR OR WALL INTEGRITY IN THE EVENT OF A FIRE.
- AE. VERIFY COLLAR SIZES ON ALL EQUIPMENT INLETS AND OUTLETS. TRANSITION DUCTWORK AS NECESSARY. EXTERNALLY INSULATE ALL TRANSITIONS AT EQUIPMENT CONNECTIONS.
- AF. PROVIDE FLEXIBLE DUCT, PIPE CONNECTIONS, AND VIBRATION ISOLATORS FOR INTERNALLY ISOLATED UNITS.
- AG. DO NOT MOUNT DISCONNECT SWITCHES ON HVAC EQUIPMENT EXCEPT AS RECOMMENDED BY MANUFACTURER.
- AH. AVOID ROUTING DUCTWORK OVER LIGHTS WHEREVER POSSIBLE. MAINTAIN MINIMUM 6" CLEARANCE BETWEEN DUCT INSULATION TO TOP OF LIGHTS.
- AI. KEEP MECHANICAL SYSTEMS TIGHT TO STRUCTURE AT ALL TIMES, MAINTAINING ACCESSIBILITY.
- AJ. ALL 90 AND 45 DEGREE ELBOWS SHALL HAVE TURNING VANES (DO NOT INCLUDE AT RADIUS TURNS OFF THE DISCHARGE OF AIR HANDLING UNITS).
- AK. PRIOR TO STARTUP OF AIR HANDLING SYSTEMS, INSTALL AND MAINTAIN TEMPORARY FILTERS OVER ALL RETURN, EXHAUST AND RELIEF GRILLES AND OPENINGS. FILTRATION MEDIUM SHALL HAVE A RATING OF MERV 8 OR BETTER.
- AL. INSTALL DIELECTRIC UNIONS AT CONNECTIONS OF DISSIMILAR METALS.
- AM. ALL MATERIALS LOCATED WITHIN THE CEILING RETURN AIR PLENUM SHALL BE NONCOMBUSTIBLE AND SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.
- AO. TESTING AND BALANCING (TAB)
  - 1. PROVIDE TESTING AND BALANCING ON EACH SYSTEM IN ACCORDANCE WITH AABC, ASHRAE 111, NEBB AND SMACNA'S HVAC SYSTEMS - TESTING, ADJUSTING, AND BALANCING.
  - 2. CONTRACTOR SHALL EXAMINE ALL CONTRACT DOCUMENTS AND BECOME FAMILIAR WITH PROJECT CONDITIONS REQUIREMENTS AND ANY OTHER RELATED EXISTING CONDITIONS. EXAMINE EQUIPMENT AND MATERIAL SUBMITTALS, DESIGN DATA AND PERFORMANCE CRITERIA.
  - 3. CONTRACTOR SHALL REPORT DEFICIENCIES DISCOVERED BEFORE AND DURING PERFORMANCE TAB PROCEDURES.
  - 4. CONTRACTOR SHALL PREPARE A TAB PLAN INCLUDING EQUIPMENT AND SYSTEMS TO BE TESTED, STRATEGIES, INSTRUMENTS, AND SAMPLES.
  - 5. IF INITIAL TAB PROCEDURES WERE NOT PERFORMED DURING PEAK SUMMER AND WINTER CONDITIONS, PERFORM ADDITIONAL TAB DURING NEAR-PEAK SUMMER AND WINTER CONDITIONS.
- AQ. SEISMIC GENERAL NOTES:
  - 42. PER THE 2021 BUILDING CODE, MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT AND COMPONENTS, INCLUDING THEIR SUPPORTS AND ATTACHMENTS, SHALL BE DESIGNED FOR SEISMIC FORCES IN ACCORDANCE WITH CHAPTER 13 OF ASCE 7-16.
  - 43. EXTERIOR EQUIPMENT (INCLUDING ROOF CURBS, RAILS, SUPPORTS) EXPOSED TO WIND SHALL BE DESIGNED AND INSTALLED TO RESIST THE WIND PRESSURES DETERMINED IN ACCORDANCE WITH CHAPTERS 26 TO 29 OF ASCE 7-16.
  - 44. REFERENCE THE STRUCTURAL DRAWINGS FOR SITE SPECIFIC INFORMATION ON SEISMIC DESIGN CATEGORY, WIND SPEEDS, ETC.
  - 45. FOR ALL COMPONENTS REQUIRING SEISMIC RESTRAINT, THE COMPONENT SUPPORTS AND ATTACHMENTS SHALL BE DESIGNED BY A REGISTERED DESIGN PROFESSIONAL.
  - 46. SEISMIC RESTRAINTS FOR DUCTWORK AND PIPING MUST BE SHOWN ON SUBMITTAL SHOP DRAWINGS SHOWING SPECIFIC RESTRAINT LOCATIONS ALONG WITH ACCOMPANYING DETAILS AND CALCULATIONS.
- AT. ALL MECHANICAL EQUIPMENT AND SYSTEMS SHALL BE GUARANTEED FOR A MINIMUM PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE.

BUILDING DESIGN COMMISSIONING DATA	
1. OUTSIDE DESIGN CONDITIONS:	
ASHRAE DATA FOR GREENVILLE, SC	
SUMMER (0.4%)	94.1°F DB / 73.4°F WB
WINTER (99.6%)	21.6°F DB
EVAPORATION (0.4%)	87.5°F MCD B
2. COMFORT COOLING & DEHUMIDIFICATION: 75°F +/- 5°F / 50% RH +/- 10% RH	
3. COMFORT HEATING: 70°F +/- 5°F	
4. CODES:	
2021 INTERNATIONAL BUILDING CODE	
2021 INTERNATIONAL MECHANICAL CODE	
2021 INTERNATIONAL PLUMBING CODE	
2009 INTERNATIONAL ENERGY CONSERVATION CODE NATIONAL	
NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS (LATEST EDITIONS)	
ASHRAE STANDARDS AND HANDBOOKS (LATEST EDITIONS)	
OWNER'S INSURANCE UNDERWRITERS STANDARDS	
5. BUILDING ENVELOPE CRITERIA:	
WALL R-VALUE:	R-19
ROOF R-VALUE:	R-26
WINDOW U-VALUE:	U-0.6
WINDOW SHADING COEFFICIENT:	SHGC - 0.25
DOOR U-VALUE:	U-0.7

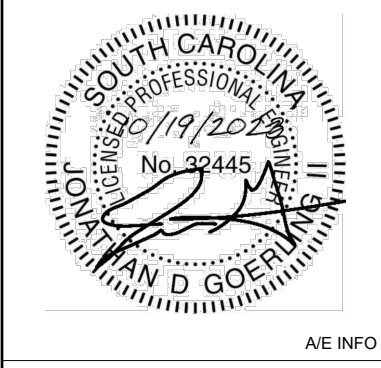


**EAST COAST HYDRAULICS**  
 5507 SAVANNAH HIGHWAY  
 RAVENEL, SC 29470

**MECHANICAL - LEGEND,  
 ABBREV. NOTES & SPECS.**

SCALE: AS NOTED  
 BASTION PROJECT NO.

DRAWN BY: BMW DATE: 10.19.2023  
 DRAWING STATUS: PERMIT  
 SHEET: M000  
 SHEET: 17 OF 28 REVISION NO.



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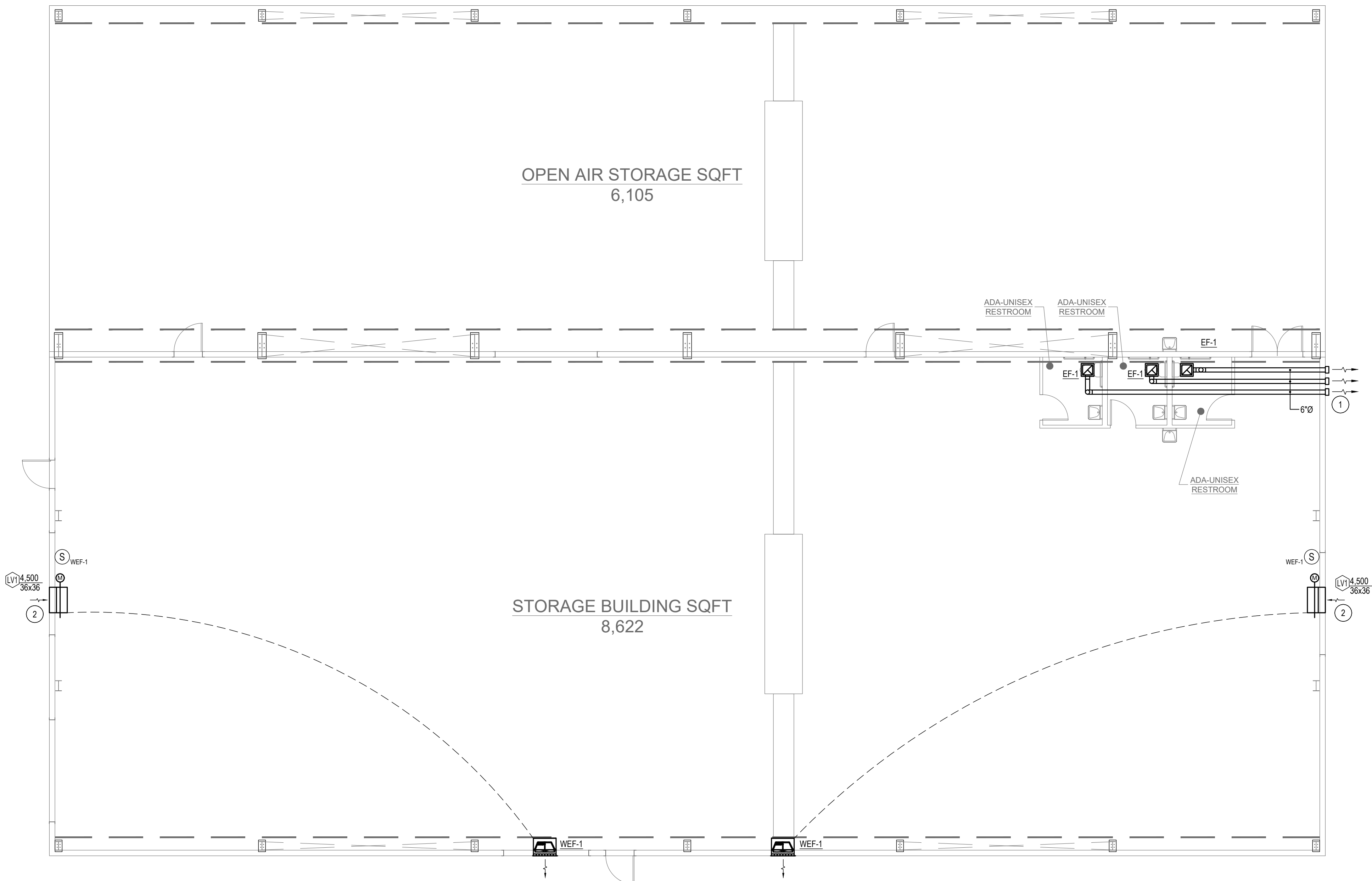
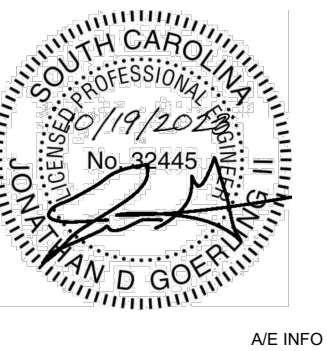
**GENERAL DRAWING NOTES**

A. CONTRACTOR SHALL COORDINATE DUCTWORK AND EQUIPMENT WITH LIGHTING, STRUCTURAL COMPONENTS AND ARCHITECTURAL PLANS. FIELD ADJUST ROUTING AS REQUIRED TO AVOID CONFLICTS.

**DRAWING NOTES #**

1. PROVIDE EXHAUST WALL CAP WITH WEATHER HOOD AND INTEGRAL BACKDRAFT DAMPER. GREENHECK MODEL WC OR EQUAL. COORDINATE COLOR WITH ARCHITECT. TYPICAL OF 3.
2. COORDINATE FINAL LOCATION AND HEIGHT OF INTAKE LOUVER WITH ARCHITECT. INTERLOCK RESPECTIVE LOUVER MOTOR OPERATED DAMPER WITH WEF-1 OPERATION. PROVIDE 120V MOTOR OPERATED DAMPER, COORDINATE WITH ELECTRICAL.

REV	DESCRIPTION	DATE



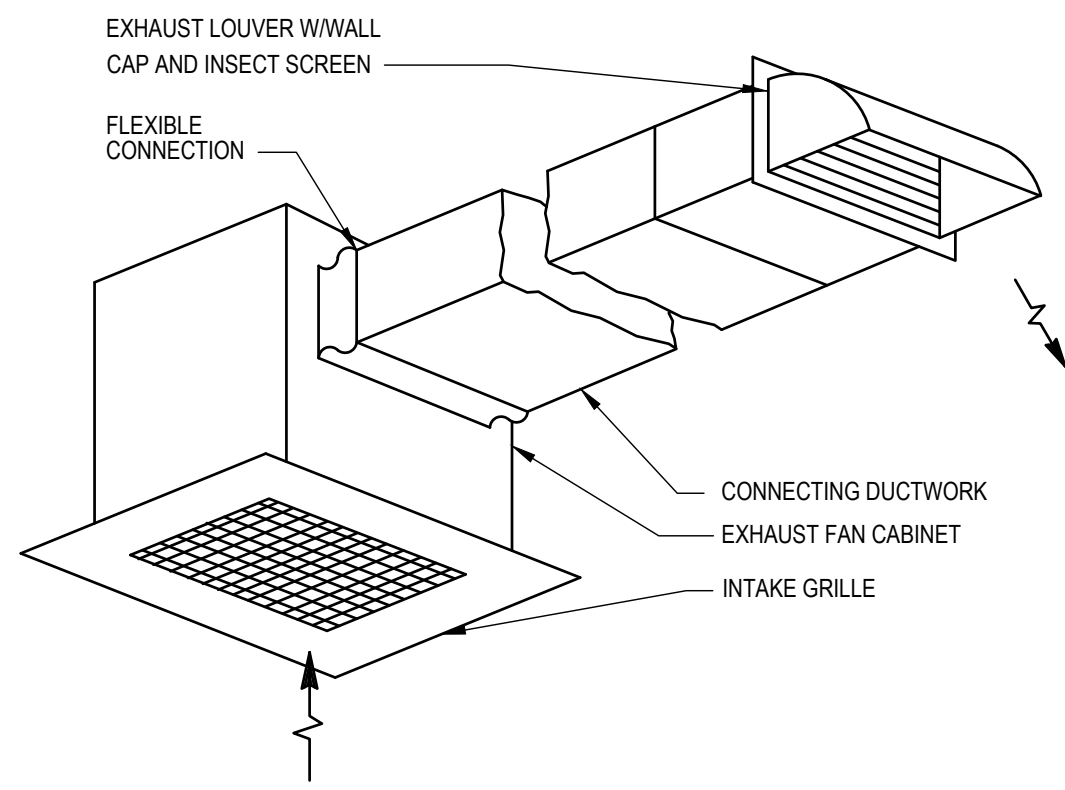
**1 HVAC PLAN**  
1/8" = 1'-0"

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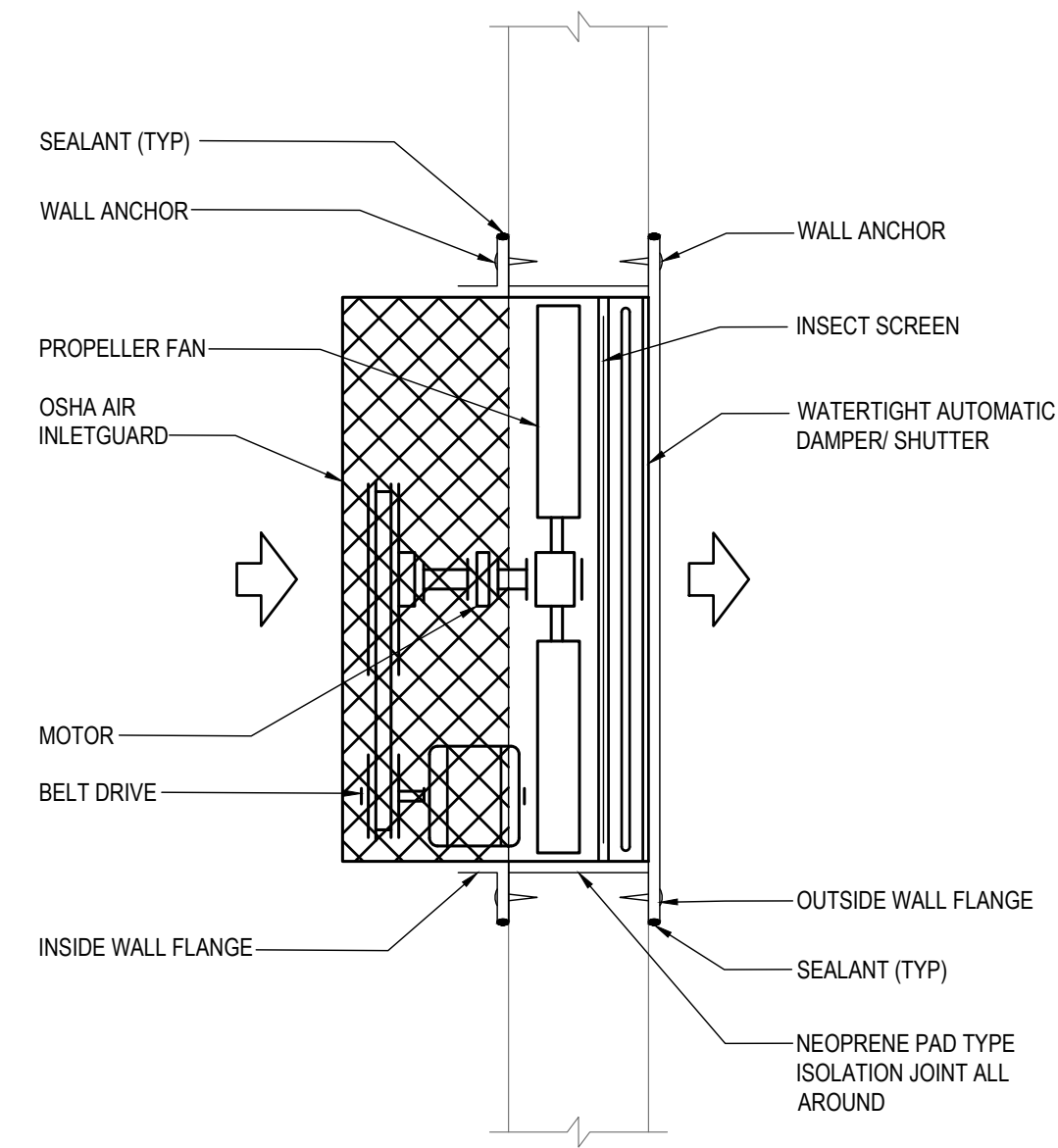
**EAST COAST HYDRAULICS**  
5507 SAVANNAH HIGHWAY  
RAVENEL, SC 29470  
**MECHANICAL - HVAC PLAN**

**HG**  
**HENSLEY & GOERLING**  
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Mech. Plans hgoerling@hensleygoerling.com (843) 486-2309  
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DRAWN BY: BMW	DATE: 10.19.2023
DRAWING STATUS: PERMIT	SHEET: <b>M101</b>
SHEET: 18 OF 28 REVISION NO.	



1  
NTS  
DETAIL - TYPICAL CEILING EXHAUST FAN



2  
NTS  
DETAIL - TYPICAL SIDEWALL BELT DRIVE EXHAUST FAN

WALL EXHAUST FAN SCHEDULE												
MARK	QTY.	TYPE	CFM	ESP (IN WC)	RPM	DRIVE	FLA	HP	ELECTRICAL (V/Hz/PH)	APPROX WEIGHT (LBS)	BASIS OF DESIGN	NOTES
WEF-1	2	WALL EXHAUST FAN	4,500	0.15	621	BELT	9.8	1/2	115/1/60	100	GREENHECK SBE-1L24	SEE BELOW

NOTES:

- FAN SHALL BE INTERLOCKED WITH INTAKE LOUVER MOTOR OPERATED DAMPER. COORDINATED WITH ELECTRICAL CONTRACTOR.
- FAN SHALL HAVE INTEGRAL BACKDRAFT DAMPER.
- EQUIPMENT MANUFACTURER AND MODEL LISTED AS BASIS OF DESIGN. PROVIDE INDICATED OR EQUAL MEETING SCHEDULED PERFORMANCE REQUIREMENTS.

EXHAUST FAN SCHEDULE											
MARK	QTY.	TYPE	CFM	ESP (IN WC)	DRIVE	AMPS (A)	WATTS	ELECTRICAL V/Hz/PH	APPROX WT (LBS)	BASIS OF DESIGN	NOTES
EF-1	2	CEILING EXHAUST FAN	100	0.25	DIRECT	0.18	21	115/1/60	25	GREENHECK SPA-125	SEE BELOW

NOTES:

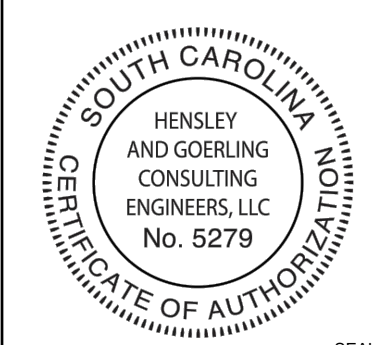
- FAN SHALL BE INTERLOCKED WITH WALL LIGHT SWITCH. COORDINATE WITH ELECTRICAL CONTRACTOR.
- FAN SHALL HAVE INTEGRAL BACKDRAFT DAMPER.
- EQUIPMENT MANUFACTURER AND MODEL LISTED AS BASIS OF DESIGN. PROVIDE INDICATED OR EQUAL MEETING SCHEDULED PERFORMANCE REQUIREMENTS.

LOUVER SCHEDULE										
MARK	QTY.	TYPE	SIZE (HxW)	CFM	VELOCITY (FPM)	FREE AREA (SF)	PRESSURE DROP (IN WC)	MATERIAL	BASIS OF DESIGN	NOTES
LV1	2	OA INTAKE	36"x36"	4,500	905	5.0	0.12	ALUMINUM	GREENHECK ESD-635	SEE BELOW

NOTES:

- PROVIDE WITH ALL ACCESSORIES REQUIRED FOR INSTALLATION.
- PROVIDE BIRD SCREEN.
- EQUIPMENT MANUFACTURER AND MODEL LISTED AS BASIS OF DESIGN. PROVIDE INDICATED OR EQUAL MEETING SCHEDULED PERFORMANCE REQUIREMENTS.

REV	DESCRIPTION	DATE



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MECHANICAL - DETAILS & SCHEDULES



SCALE: AS NOTED  
BASTION PROJECT NO.  
DRAWN BY: BMW DATE: 10.19.2023  
DRAWING STATUS: PERMIT  
SHEET: M601  
SHEET: 19 OF 20 REVISION NO.



**ELECTRICAL LEGEND**

	2X4 FIXTURE
	2X4 EMERGENCY FIXTURE
	2X2 FIXTURE
	2X2 EMERGENCY FIXTURE
	LINEAR FIXTURE (LENGTH AS SPECIFIED)
	EMERGENCY LINEAR FIXTURE (LENGTH AS SPECIFIED)
	LINEAR FIXTURE (LENGTH AS SPECIFIED)
	EMERGENCY LINEAR FIXTURE (LENGTH AS SPECIFIED)
	DOWN LIGHT/ PENDANT LIGHT AS SPECIFIED
	DOWN LIGHT/ PENDANT EMERGENCY LIGHT AS SPECIFIED
	WALL MOUNTED FIXTURE
	WALL MOUNTED EMERGENCY FIXTURE
	CEILING MTD EXIT SIGN W/ ARROWS AS INDICATED (80° AFF TO BOTTOM)
	WALL MTD EXIT SIGN W/ ARROWS AS INDICATED (90° AFF)
	WALL MTD EXIT SIGN/BATTERY PACK COMBO W/ ARROWS AS INDICATED (90° AFF)
	BATTERY PACK W/ NO. OF HEADS AS SHOWN.
	SINGLE-POLE DOUBLE-POLE 3-WAY AND 4-WAY SWITCHES (48° AFF)
	WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR WITH MANUAL OVERRIDE
	SINGLE-POLE 3-WAY DIMMER SWITCHES
	DIGITAL LOW VOLTAGE RELAY SWITCH
	CEILING MOUNT DUAL TECHNOLOGY OCCUPANCY SENSOR
	SINGLE-POLE MOTOR RATED SWITCH
	NEW TELECOMMUNICATIONS OUTLET, PROVIDE 3/4" CONDUIT WITH PULLSTRING TO ACCESSIBLE CEILING.
	NEW TELECOMMUNICATIONS FLOORBOX, PROVIDE 1" CONDUIT WITH PULLSTRING TO ACCESSIBLE CEILING.
	DISCONNECT SWITCH - NON-FUSED. SEE DISCONNECT SWITCH SCHEDULE FOR DISCONNECT SWITCH DETAILS
	JUNCTION BOX OR PULL BOX
	WALL MOUNTED JUNCTION BOX OR PULL BOX
	DUPLEX RECEPTACLE. "G" INDICATES GROUND FAULT RECEPTACLE. "WP" INDICATES WEATHERPROOF RECEPTACLE. "AC" INDICATES MOUNTED ABOVE COUNTER RECEPTACLE. "U" INDICATES USB TYPE RECEPTACLE
	DOUBLE DUPLEX (QUAD) RECEPTACLE. "G" INDICATES GROUND FAULT RECEPTACLE. "WP" INDICATES WEATHERPROOF RECEPTACLE.
	DUPLEX RECEPTACLE MOUNTED 48" AFF. "G" INDICATES GROUND FAULT RECEPTACLE. "WP" INDICATES WEATHERPROOF RECEPTACLE.
	DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER. "G" INDICATES GROUND FAULT RECEPTACLE. "WP" INDICATES WEATHERPROOF RECEPTACLE.
	NON-STANDARD SPECIALTY RECEPTACLE. TYPE AS SPECIFIED ON DRAWINGS.
	DUPLEX RECEPTACLE FLOOR BOX. "G" INDICATES GROUND FAULT RECEPTACLE.
	POWER AND DATA FLOOR BOX SYMBOLS SHOWN TOGETHER SHALL HAVE BOTH DATA AND POWER IN ONE FLOOR BOX
	CONDUIT TURNING UP
	CONDUIT TURNING DOWN
	POINT OF DISCONNECTION
	POINT OF RECONNECTION
	4#12, 1#12G, 1#CND TYPICAL WIRE AND CONDUIT CALLOUT. G-GROUND
	30A, 600V, 3P, NEMA1 TYPICAL DISCONNECT CALLOUT.
	A-A-2-a TYPICAL LIGHTING FIXTURE CALL OUT. (FIXTURE-PANEL-CIRCUIT-SWITCH/LEG)
	S <sub>a</sub> TYPICAL LIGHTING SWITCH CALL OUT. (LOWER CASE LETTER IS SWITCH/LEG)

**ELECTRICAL ABBREVIATIONS**

1PH	SINGLE-PHASE
3PH	THREE-PHASE
A	AMP
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLER UNIT
BFC	BELOW FINISHED CEILING
BFF	BELOW FINISHED FLOOR
CATV	COMMUNITY ANTENNA TELEVISION
CLG	CEILING MOUNTED
CND	CONDUIT
ECB	ENCLOSED CIRCUIT BREAKER
(E)	EXISTING
FACP	FIRE ALARM CONTROL PANEL
GC	GENERAL CONTRACTOR
G	GROUND FAULT CIRCUIT INTERRUPTER
HP	HEAT PUMP
IWH	INSTANTANEOUS WATER HEATER
J-BOX	JUNCTION BOX
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
MTD	MOUNTED
NEMA	NATIONAL ELECTRICAL MANUFACTURER ASSOCIATION
NFDS	NON-FUSIBLE DISCONNECT SWITCH
NIS	NOT IN SCOPE
NTS	NOT TO SCALE
P	POLE
PH	PHASE
PNL	PANEL
PWR	POWER
RTU	ROOF TOP UNIT
SCCR	SHORT CIRCUIT CURRENT RATING
SD	SMOKE DETECTOR
SF	SQUARE FOOT
U	UNIVERSAL SERIAL BUS (USB)
UNO	UNLESS NOTED OTHERWISE
VFD	VARIABLE FREQUENCY DRIVE
WH	WATER HEATER
XFMR	TRANSFORMER

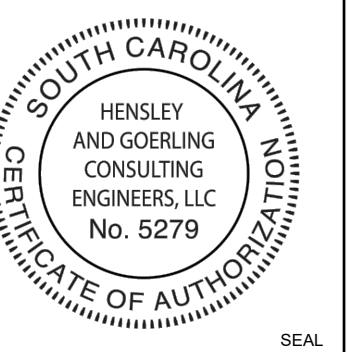
**ELECTRICAL LINE TYPES**

	ELECTRICAL EQUIPMENT NEW WORK
	ELECTRICAL EQUIPMENT FUTURE WORK
	EXISTING ELECTRICAL EQUIPMENT
	ELECTRICAL EQUIPMENT DEMO WORK
	ELECTRICAL RESIDENTIAL LIGHTING/RECEPTACLE SWITCH/LEG

**ELECTRICAL GENERAL NOTES AND SPECIFICATIONS**

- A. ALL RECEPTACLE OUTLETS SHALL BE 20 AMP, COMMERCIAL GRADE, 125 VAC, 2-POLES, 3-WIRE, DUPLEX, NEMA 5-20R TYPE, TAMPER PROOF, COLOR SELECTED BY ARCHITECT.
- B. THE CONTRACTOR SHALL COORDINATE ALL REQUIRED SHUTDOWNS ON EXISTING UTILITIES WITH UTILITY COMPANY.
- C. ALL WORK SHALL COMPLY WITH THE 2020 EDITION OF THE NEC AND THE LATEST ADOPTED EDITION OF THE NFPA, IBC, AND ANY APPLICABLE LOCAL ORDINANCE
- D. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL SYSTEM GROUNDING AND BONDING AS REQUIRED BY THE NEC AND LOCAL ORDINANCES.
- E. ALL WIRING SHALL BE IN CONDUIT. MINIMUM CONDUIT SIZE SHALL BE 3/4". MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG. ALL CIRCUITS SHALL BE PROVIDED WITH AN INDIVIDUAL NEUTRAL AND GROUNDING CONDUCTOR WITH THE PHASE CONDUCTOR. MC CABLE AND 1/2" CONDUIT IS ACCEPTABLE IF APPROVED BY AHJ.
- F. THE ELECTRICAL DRAWINGS ARE SCHEMATIC IN NATURE. BEFORE STARTING THE WORK THE CONTRACTOR SHALL REVIEW ALL OTHER DISCIPLINE DRAWINGS AND VERIFY FIELD CONDITIONS AND SHALL MAKE ANY REQUIRED MINOR ADJUSTMENTS. ANY MAJOR DISCREPANCIES FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
- G. ALL CONDUITS USED FOR POWER AND TELECOMMUNICATION SYSTEMS SHALL BE EMT WITH COMPRESSION TYPE FITTINGS AND BODIES. SUPPORT ALL CONDUITS WITH ZINC COATED CONDUIT STRAPS AND P-1000 UNISTRUT CHANNELS.
- H. ALL CONDUCTORS #10 AND SMALLER SHALL BE SOLID COPPER AND CONDUCTORS #8 AND LARGER SHALL BE STRANDED COPPER. UNLESS NOTED OTHERWISE, CONDUCTORS SHALL BE COPPER AND INSULATION SHALL BE DUAL RATED AT THHN/THWN.
- I. ALL DEVICES, EQUIPMENT MATERIAL AND LABOR SHALL BE PROVIDED BY THE CONTRACTOR UNLESS NOTED OTHERWISE.
- J. ALL ELECTRICAL EQUIPMENT AND DEVICES SHALL BE MOUNTED AS PER EQUIPMENT AND DEVICE MANUFACTURER RECOMMENDATIONS.
- K. CONTRACTOR SHALL PROVIDE SUBMITTALS TO GC/ARCHITECT FOR REVIEW AND APPROVAL OF ALL ELECTRICAL EQUIPMENT AND DEVICES DESCRIBED IN THE DRAWINGS. SUBMITTALS SHALL INCLUDE CUT SHEETS, DIMENSIONS, WIRING DIAGRAMS, ACCESSORIES, OPERATION MANUALS, AND ALL NECESSARY INFORMATION FOR REVIEWER TO MAKE A SOUND EVALUATION.
- L. FOR ANY SUBSTITUTED LIGHTING FIXTURES, CONTRACTOR SHALL PROVIDE UPDATED PHOTOMETRIC LAYOUTS, INCLUDING AVERAGE FOOT CANDLES, AVERAGE-MINIMUM RATIO, MAXIMUM FOOT CANDLE POINT, AND MINIMUM FOOT CANDLE POINT FOR EACH AREA WITH SUBSTITUTED FIXTURES.
- M. PROVIDE STARTUP OF ALL ELECTRICAL SYSTEMS AND COORDINATE WITH CONTRACTOR STARTUP WITNESSING.
- N. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE SET OF RECORD DRAWINGS TO THE OWNER AT THE END OF THE CONSTRUCTION.
- O. ALL MATERIALS AND EQUIPMENT TO BE INSTALLED SHALL BE NEW AND FREE OF DEFECTS. ALL ELECTRICAL EQUIPMENT SHALL COMPLY WITH NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA) STANDARDS AND SHALL BE UL LABELED. ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN A WORKMANLIKE MANNER.
- P. PROVIDE LAMINATED PLASTIC NAMEPLATES FOR EACH EQUIPMENT ENCLOSURE. EACH NAMEPLATE SHALL IDENTIFY EQUIPMENT NAME, EQUIPMENT FUNCTION, PANELBOARD CONNECTED TO AND CIRCUIT NUMBER. NAMEPLATE SHALL BE MELAMINE PLASTIC (.0125" THICK), WHITE LETTERS ON BLACK BACKGROUND. MINIMUM SIZE OF LETTERS SHALL BE 0.25".
- Q. COORDINATE ALL REQUIRED FINAL CONNECTIONS TO MECHANICAL HVAC, APPLIANCES, AND EQUIPMENT WITH VENDOR SHOP DRAWINGS.
- R. ALL TELECOMMUNICATIONS OUTLETS SHALL HAVE 3/4" CONDUIT WITH PULLSTRING STUBBED UP TO ACCESSIBLE CEILING.
- S. COORDINATE COLOR AND FINISHES WITH OWNER/CONTRACTOR/ARCHITECT.
- T. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION FIXTURES.
- U. COORDINATE FINAL EQUIPMENT/FIXTURE LOCATIONS WITH THE GENERAL CONTRACTOR. THE LOCATION AS INDICATED ON THE DRAWING IS APPROXIMATE. INSTALL ALL MECHANICAL EQUIPMENT SUCH THAT MANUFACTURER'S MAINTENANCE AREA IS CLEAR.
- V. COORDINATE ALL MECHANICAL PLUMBING AND ELECTRICAL WORK & EQUIPMENT WITH STRUCTURAL MEMBERS, ELECTRICAL WORK, FIXTURES AND ALL OTHER TRADES.
- W. ALL EQUIPMENT, DEVICES AND FIXTURES SPECIFIED ARE PERFORMANCE BASED. EQUALS ARE ALLOWED AS LONG AS THEY MEET THE PERFORMANCE REQUIREMENTS OF THE SPECIFIED EQUIPMENT, DEVICES AND FIXTURES.
- X. AIC RATING OF ALL EQUIPMENT SHALL MEET OR EXCEED THE UTILITY AVAILABLE FAULT CURRENT (AIC RATING). IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH UTILITY AND PROVIDE EQUIPMENT AS NECESSARY AT NO COST TO THE OWNER. AIC RATING SHALL BE LABELED ON ALL SERVICE ENTRANCE EQUIPMENT PER NEC 110.24.
- Y. ELECTRICAL SINGLE LINE DIAGRAM IS TO SHOW GENERAL INTENT. CONTRACTOR TO COORDINATE EXACT REQUIREMENTS WITH UTILITY.
- Z. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO THOROUGHLY UNDERSTAND EXISTING SITE CONDITIONS, SO THAT ANY DEVIATIONS TO THE PLANS AND SPECIFICATIONS ARE AT NO COST TO THE OWNER.
- AA. EMERGENCY EGRESS LIGHTING SHOWN IS SCHEMATIC IN NATURE. MINOR ADJUSTMENTS MAY BE NEEDED IN THE FIELD AS DEEMED BY THE AHJ. CONTRACTOR SHALL PERFORM WORK NEEDED AT NO ADDITIONAL COST TO THE OWNER.
- AB. CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWING SHOWING COVERAGE OF LIGHTING CONTROL OCCUPANCY SENSORS BASED ON VENDOR THAT WILL BE SUPPLYING THE EQUIPMENT.
- AC. COORDINATE LOCATION OF EXIT AND EMERGENCY LIGHTING WITH ARCHITECTURAL LIFE SAFETY PLAN PRIOR TO INSTALLATION.
- AD. CONTRACTOR TO VERIFY AVAILABLE AIC RATING FROM UTILITY AND PROVIDE NEXT HIGHER STANDARD RATING. ALL ELECTRICAL EQUIPMENT SHALL BE FULLY RATED. SERIES RATING IS NOT ACCEPTABLE. CONTRACTOR SHALL PROVIDE LABEL STATING AVAILABLE AIC RATING ON SERVICE ENTRANCE EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH UTILITY AND PROVIDE EQUIPMENT AS NECESSARY AT NO COST TO THE OWNER.
- AE. RECEPTACLES LOCATED WITHIN 6' OF WATER SOURCE SHALL BE GFCI TYPE.
- AF. CONTRACTOR SHALL BALANCE ALL PANEL PHASES TO WITHIN 10% OF EACH OTHER.
- AG. CONTRACTOR SHALL PROVIDE PANEL BOARDS WITH THE FOLLOWING BRANCH CIRCUIT RANGES:  
AG.A. 0 - 125 AMP RATED PANELBOARDS SHALL ACCOMMODATE A MINIMUM OF 60 AMP BRANCH BREAKERS.  
AG.B. 126 - 225 AMP RATED PANELBOARDS SHALL ACCOMMODATE A MINIMUM OF 100 AMP BRANCH BREAKERS.  
AG.C. 226 - 400 AMP RATED PANELBOARDS SHALL ACCOMMODATE A MINIMUM OF 225 AMP BRANCH BREAKERS.  
AG.D. 401 - 600 AMP RATED PANELBOARDS SHALL ACCOMMODATE A MINIMUM OF 400 AMP BRANCH BREAKERS.  
AG.E. 601 - 800 AMP RATED PANELBOARDS SHALL ACCOMMODATE A MINIMUM OF 600 AMP BRANCH BREAKERS
- AH. PER THE INTERNATIONAL BUILDING CODE (IBC), ELECTRICAL EQUIPMENT AND COMPONENTS, INCLUDING SUPPORTS AND ATTACHMENTS, SHALL BE DESIGNED FOR SEISMIC FORCES IN ACCORDANCE WITH CHAPTER 13 OF ASCE 7-16. WHERE DESIGN FOR SEISMIC AND WIND LOADS ARE REQUIRED, THE MORE DEMANDING FORCE MUST BE USED. FOR ALL COMPONENTS REQUIRING SEISMIC RESTRAINT, THE COMPONENT SUPPORTS AND ATTACHMENTS SHALL BE DESIGNED BY A REGISTERED DESIGN PROFESSIONAL OR BE ACCOMPANIED BY THE APPROPRIATE ICCES EVALUATION REPORT. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT SUCH DESIGN AND INSTALLATION ARE IN ACCORDANCE WITH THE IBC REQUIREMENTS.
- AI. PER IFC 510, EMERGENCY RESPONDER RADIO COVERAGE IS REQUIRED IN NEW AND RENOVATED BUILDINGS. CONTRACTOR TO PROVIDE AN ENGINEERING EVALUATIONS OF THE EMERGENCY RESPONDER COVERAGE IN THE BUILDING OR CLARIFY THE INTENT TO INSTALL RADIO BOOSTING SYSTEM. A PLAN REVIEW AND PERMIT WILL BE REQUIRED FOR THE INSTALLATION OF EMERGENCY RESPONDER RADIO SYSTEMS AND RELATED EQUIPMENT PER IFC SECTION 510.3. ENGINEERING ASSESSMENTS MUST BE CONDUCTED AS SOON AS PRACTICAL IN ORDER TO AVOID DELAYS AND PROPERLY IDENTIFY THE APPROPRIATE LEVEL OF COVERAGE.
- AJ. ALL ELECTRICAL EQUIPMENT, SYSTEMS AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE.
- AK. ALL EXIT SIGNS SHALL BE PROVIDED WITH INTEGRAL BATTERY BACK-UP UNLESS NOTED TO BE CONNECTED TO EMERGENCY GENERATOR FOR EMERGENCY OPERATION.
- AL. CONTRACTOR SHALL COORDINATE WITH MECHANICAL PLANS TO VERIFY CEILING CAVITY IS NOT A RETURN PLENUM. IF CEILING CAVITY IS BEING USED AS A RETURN PLENUM THEN ALL ELECTRICAL CABLING SHALL BE PLENUM RATED.
- AM. CONTRACTOR SHALL PROVIDE ALL GROUNDING/BONDING CONNECTIONS IN THE BUILDING AS REQUIRED BY THE NEC AND LOCAL CODES.

DATE	DESCRIPTION	REV



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**ELECTRICAL - LEGEND, ABBREV. NOTES & SPECS.**

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SCALE: AS NOTED	BASTION PROJECT NO.
DRAWN BY: BAL	DATE: 10.19.2023
DRAWING STATUS: PERMIT	SHEET: E000
SHEET: 20 OF 28	REVISION NO.

LIGHT FIXTURE SCHEDULE (SUBSTITUTED FIXTURES MUST MEET PERFORMANCE REQUIREMENTS)

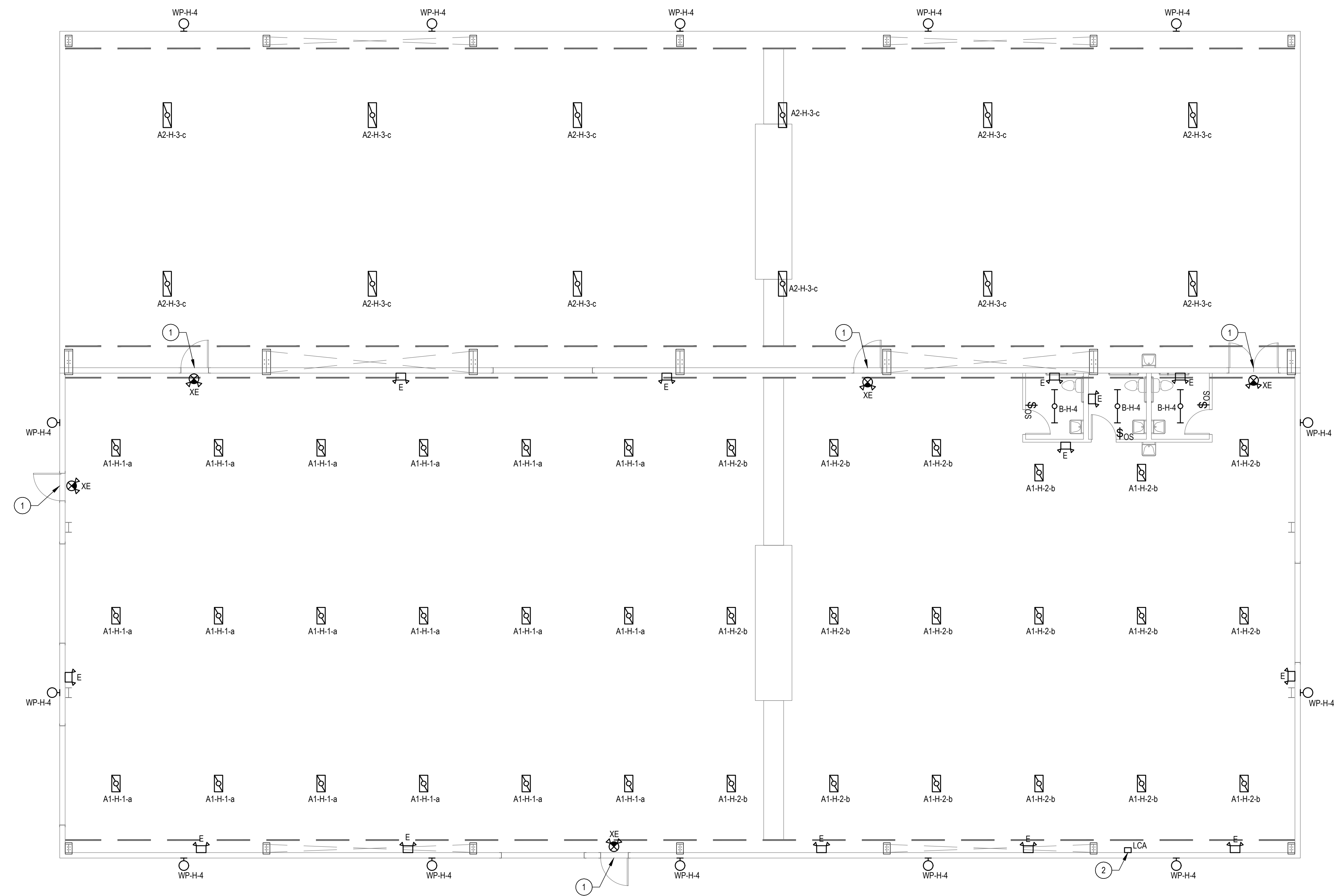
TYPE	LAMP TYPE	MOUNTING	LAMP WATTAGE	VOLTAGE	FIXTURE TYPE	REMARKS	DESCRIPTION
A1	LED	PENDANT @ 17' AFF	181	UNV	ILP. EVT-24L-U-40-FRL	COORDINATE EXACT REQUIREMENTS WITH ARCHITECT/OWNER PRIOR TO ORDERING.	1X2 HIGH BAY
A2	LED	PENDANT @ 20' AFF	273	UNV	ILP. EVT-36L-U-40-FRL	COORDINATE EXACT REQUIREMENTS WITH ARCHITECT/OWNER PRIOR TO ORDERING.	1X3 HIGH BAY
B	LED	PENDANT @ 10' AFF	46	UNV	ILP. VS4-6L-U-40-FRL	COORDINATE EXACT REQUIREMENTS WITH ARCHITECT/OWNER PRIOR TO ORDERING.	4' LINEAR STRIP
WP	LED	WALL MOUNT	57	UNV	ILP. OWL-13L-U-CCTS	COORDINATE EXACT LOCATION & REQUIREMENTS WITH ARCHITECT/OWNER PRIOR TO ORDERING.	WALLPACK
E	LED	WALL MOUNT @ 7.5' AFF	5	UNV	ILP. EXL1-U-WH	CONNECT TO CLOSEST UNSWITCHED LIGHTING CIRCUIT. COORDINATE EXACT LOCATION & REQUIREMENTS WITH ARCHITECT/OWNER PRIOR TO ORDERING.	2-HEAD EMERGENCY
XE	LED	WALL/CEILING AS SHOWN	5	UNV	ILP. EXC1-U-2RWH	CONNECT TO CLOSEST UNSWITCHED LIGHTING CIRCUIT. COORDINATE EXACT LOCATION & REQUIREMENTS WITH ARCHITECT/OWNER PRIOR TO ORDERING.	EXIT/EMERGENCY COMBO

GENERAL DRAWING NOTES

- CONTRACTOR SHALL COORDINATE EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL LIGHTING FIXTURES AND DEVICES WITH OWNER/ARCHITECT PRIOR TO INSTALLATION.
- CONTRACTOR SHALL PROVIDE A COMPLETE LIGHTING CONTROL SYSTEM. SEE LIGHTING CONTROL SCHEDULE ON THIS SHEET FOR LIGHTING CONTROL SEQUENCE OF OPERATIONS.
- LIGHTING CONTROL DEVICES ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL PROVIDE DEVICES COUNTS AND LOCATIONS AS REQUIRED FOR COVERAGE BASED ON SELECTED LIGHTING CONTROL MANUFACTURERS RECOMMENDATIONS

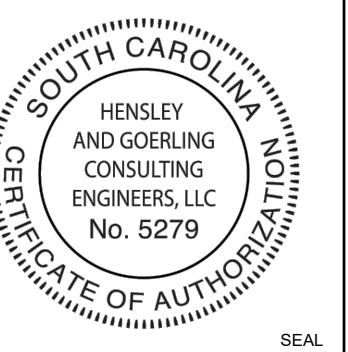
DRAWING NOTES #

- PROVIDE DUAL LAMP EXTERIOR RATED EMERGENCY EGRESS LIGHTING AT THIS LOCATION.
- APPROXIMATE LOCATION OF LIGHTING CONTACTOR "LCA". LIGHTING CONTACTOR SHALL CONTROL SWITCHLEGS a-c. SWITCHLEGS a-c SHALL BE ONE SCHEDULING ZONE. SEE DETAIL #2 ON SHEET E601 FOR TYPICAL MULTI-POLE LIGHTING CONTACTOR WIRING DIAGRAM.



ROOM TYPES	LIGHTING CONTROL SCHEDULE											
	MANUAL ON	MANUAL OFF	MANUAL DIMMING	AUTOMATIC ON TO 100% POWER	AUTOMATIC OFF AFTER 15 MINUTES OF NO OCCUPANCY	AUTOMATIC OFF AFTER 30 MINUTES OF NO OCCUPANCY	DIM TO 50% POWER AFTER 15 MINUTES OF NO OCCUPANCY	TIME CLOCK CONTROLLED	PHOTOCELL CONTROLLED	KEYED SWITCH	TIMER SWITCH	MANUAL OVERRIDE
STORAGE	X	X						X				X
OPEN AREA	X	X						X				X
RESTROOMS	X	X		X	X							
EXTERIOR LIGHTING									X			

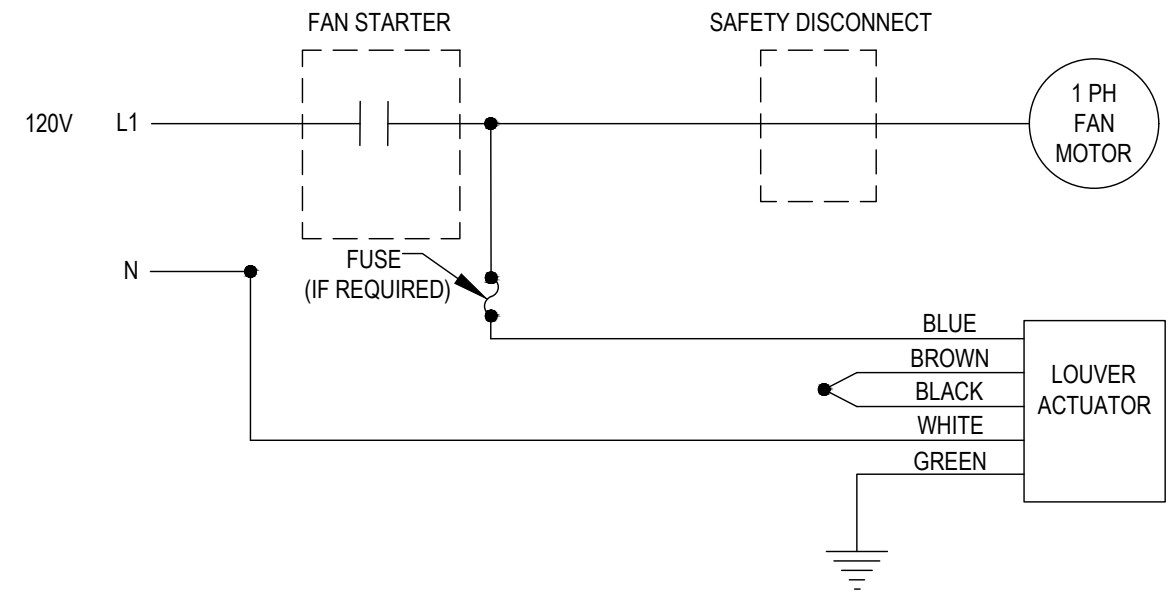
1 LIGHTING PLAN  
1/8" = 1' - 0"



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ELECTRICAL - LIGHTING PLAN  
SCALE: AS NOTED  
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DRAWN BY: BAL DATE: 10.19.2023  
DRAWING STATUS: PERMIT  
SHEET: E101  
SHEET: 21 OF 28 REVISION NO.

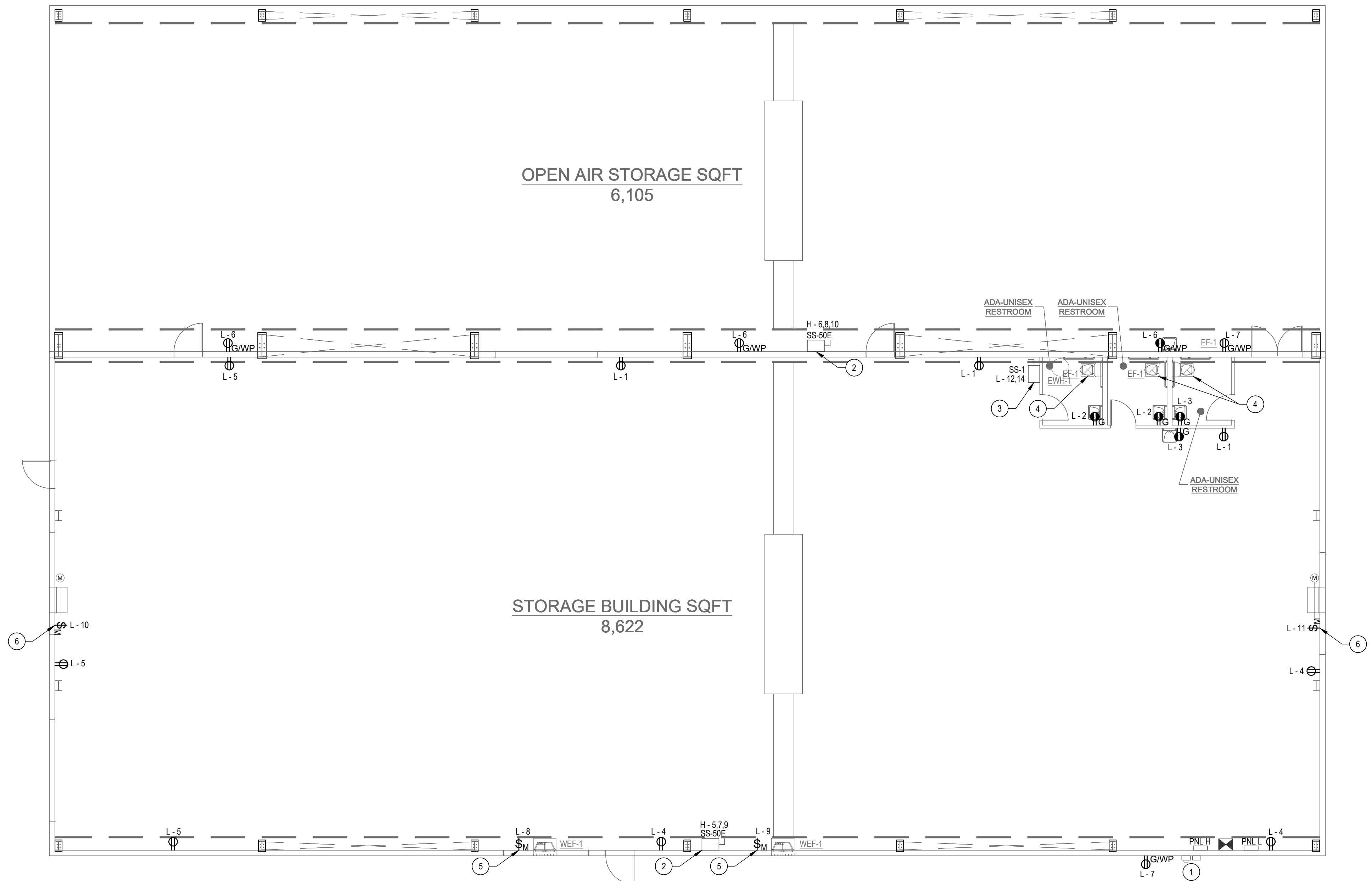




**2 EXHAUST FAN/LOUVER WIRING DIAGRAM - DETAIL**  
N.T.S.

- GENERAL DRAWING NOTES**
- A. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL ELECTRICAL EQUIPMENT AND DEVICES WITH OWNER/ARCHITECT PRIOR TO INSTALLATION.
  - B. CONTRACTOR SHALL PROVIDE CLEARANCES AROUND ALL ELECTRICAL EQUIPMENT AND DEVICES AS REQUIRED BY THE NEC AND LOCAL CODES.
  - C. ALL POWER AND DATA RECEPTACLES SHOWN ADJACENT TO EACH OTHER SHALL BE MOUNTED AT THE SAME HEIGHT.
  - D. CONTRACTOR SHALL INCREASE CND & CONDUCTOR SIZES AS REQUIRED FOR VOLTAGE DROP BASED ON ACTUAL CND RUNS IN THE FIELD.

- DRAWING NOTES**
1. PROPOSED LOCATION OF UTILITY SERVICE EQUIPMENT.
  2. PROVIDE DISCONNECT SWITCH FOR OVERHEAD CRANE. COORDINATE EXACT REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION.
  3. PROVIDE DISCONNECT SWITCH FOR EWH-1. COORDINATE EXACT REQUIREMENTS WITH PLUMBING CONTRACTOR PRIOR TO INSTALLATION.
  4. PROVIDE 2#12, 1#12G, 3/4" CND WITH CONNECTION TO EXHAUST FAN. CONNECT EXHAUST FAN TO SWITCHED LIGHTING CIRCUIT SERVING THE AREA. COORDINATE EXACT REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION.
  5. PROVIDE 2#12, 1#12G, 3/4" CND & 20A, 120V, 1P, MOTOR RATED SWITCH WITH CONNECTION TO WEF-1. WALL MOUNTED EXHAUST FANS SHALL BE INTERCONNECTED WITH LOUVERS. SEE DETAIL #2 ON THIS SHEET. COORDINATE EXACT REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION.
  6. PROVIDE 2#12, 1#12G, 3/4" CND & 20A, 120V, 1P, MOTOR RATED SWITCH WITH CONNECTION TO EXHAUST LOUVER. LOUVER SHALL BE INTERCONNECTED WITH WALL EXHAUST FAN. SEE DETAIL #2 ON THIS SHEET. COORDINATE EXACT REQUIREMENTS AND LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION.



**1 POWER PLAN**  
1/8" = 1'-0"

**208V, 1PH DISCONNECT SWITCH SCHEDULE**

MARK	AMPERAGE RATING	VOLTAGE	# OF POLES	NEMA RATING	BREAKER SERVED	TYPICAL CIRCUIT REQUIREMENTS
SS-1	30A	250V	2	NEMA 1	208V 20A	2#12, 1#12G, 3/4" CND
SS-1E	30A	250V	2	NEMA 3R	208V 20A	2#12, 1#12G, 3/4" CND
SS-2	30A	250V	2	NEMA 1	208V 30A	2#10, 1#10G, 3/4" CND
SS-2E	30A	250V	2	NEMA 3R	208V 30A	2#10, 1#10G, 3/4" CND
SS-3	60A	250V	2	NEMA 1	208V 40A	2#8, 1#10G, 1" CND
SS-3E	60A	250V	2	NEMA 3R	208V 40A	2#8, 1#10G, 1" CND
SS-4	60A	250V	2	NEMA 1	208V 50A	2#6, 1#10G, 1" CND
SS-4E	60A	250V	2	NEMA 3R	208V 50A	2#6, 1#10G, 1" CND
SS-5	60A	250V	2	NEMA 1	208V 60A	2#6, 1#10G, 1" CND
SS-5E	60A	250V	2	NEMA 3R	208V 60A	2#6, 1#10G, 1" CND

**480V, 3PH DISCONNECT SWITCH SCHEDULE**

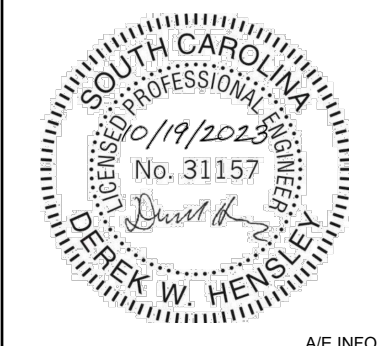
MARK	AMPERAGE RATING	VOLTAGE	# OF POLES	NEMA RATING	BREAKER SERVED	TYPICAL CIRCUIT REQUIREMENTS
SS-20	30A	600V	3	NEMA 1	480V, 3P, 20A	3#12, 1#12G, 3/4" CND
SS-20E	30A	600V	3	NEMA 3R	480V, 3P, 20A	3#12, 1#12G, 3/4" CND
SS-20-4	30A	600V	4	NEMA 1	480V, 3P, 20A	4#12, 1#12G, 3/4" CND
SS-30	30A	600V	3	NEMA 1	480V, 3P, 30A	3#10, 1#10G, 3/4" CND
SS-30E	30A	600V	3	NEMA 3R	480V, 3P, 30A	3#10, 1#10G, 3/4" CND
SS-40	60A	600V	3	NEMA 1	480V, 3P, 40A	3#8, 1#10G, 1" CND
SS-40E	60A	600V	3	NEMA 3R	480V, 3P, 40A	3#8, 1#10G, 1" CND
SS-50	60A	600V	3	NEMA 1	480V, 3P, 50A	3#6, 1#10G, 1" CND
SS-50E	60A	600V	3	NEMA 3R	480V, 3P, 50A	3#6, 1#10G, 1" CND
SS-60	60A	600V	3	NEMA 1	480V, 3P, 60A	3#6, 1#10G, 1" CND
SS-60E	60A	600V	3	NEMA 3R	480V, 3P, 60A	3#6, 1#10G, 1" CND
SS-70	100A	600V	3	NEMA 1	480V, 3P, 70A	3#4, 1#8G, 1-1/4" CND
SS-70E	100A	600V	3	NEMA 3R	480V, 3P, 70A	3#4, 1#8G, 1-1/4" CND
SS-80	100A	600V	3	NEMA 1	480V, 3P, 80A	3#4, 1#8G, 1-1/4" CND
SS-80E	100A	600V	3	NEMA 3R	480V, 3P, 80A	3#4, 1#8G, 1-1/4" CND
SS-90	100A	600V	3	NEMA 1	480V, 3P, 90A	3#3, 1#8G, 1-1/2" CND
SS-90E	100A	600V	3	NEMA 3R	480V, 3P, 90A	3#3, 1#8G, 1-1/2" CND
SS-100	100A	600V	3	NEMA 1	480V, 3P, 100A	3#2, 1#8G, 2" CND
SS-100E	100A	600V	3	NEMA 3R	480V, 3P, 100A	3#2, 1#8G, 2" CND
SS-110	200A	600V	3	NEMA 1	480V, 3P, 110A	3#2, 1#8G, 2" CND
SS-110E	200A	600V	3	NEMA 3R	480V, 3P, 110A	3#1, 1#8G, 2" CND
SS-125	200A	600V	3	NEMA 1	480V, 3P, 125A	3#1/0, 1#6G, 2-1/2" CND
SS-125E	200A	600V	3	NEMA 3R	480V, 3P, 125A	3#1/0, 1#6G, 2-1/2" CND
SS-150	200A	600V	3	NEMA 1	480V, 3P, 150A	3#1/0, 1#6G, 2-1/2" CND
SS-150E	200A	600V	3	NEMA 3R	480V, 3P, 150A	3#1/0, 1#6G, 2-1/2" CND
SS-175	200A	600V	3	NEMA 1	480V, 3P, 175A	3#2/0, 1#6G, 2-1/2" CND
SS-175E	200A	600V	3	NEMA 3R	480V, 3P, 175A	3#2/0, 1#6G, 2-1/2" CND



**EAST COAST HYDRAULICS**  
5507 SAVANNAH HIGHWAY  
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**ELECTRICAL - POWER PLAN**

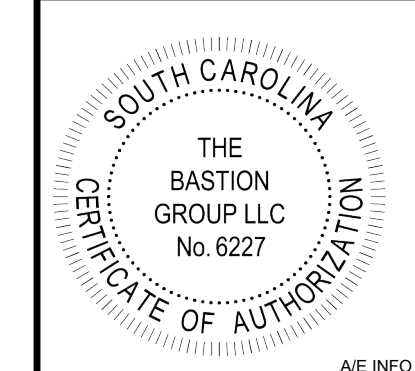
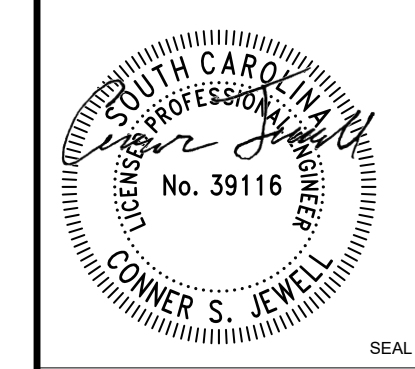
SCALE: AS NOTED  
BASTION PROJECT NO.  
DRAWN BY: BAL DATE: 10.19.2023  
DRAWING STATUS: PERMIT  
SHEET: **E201**  
SHEET: 22 OF 28 REVISION NO.



**THE BASTION GROUP**  
LIMITED LIABILITY COMPANY  
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DATE	11.20.2023
REV	0
DESCRIPTION	ISSUED FOR CONSTRUCTION



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**STRUCTURAL NOTES**

SCALE:	AS NOTED
BASTION PROJECT NO.	21.093
DRAWN BY:	brd
DATE:	11.20.2023
DRAWING STATUS:	IFC
SHEET:	S001
SHEET:	24 OF 28
REVISION NO.:	0

## ABBREVIATIONS

AB	ANCHOR BOLT	MAS	MASONRY
ADJ	ADJACENT	MAX	MAXIMUM
AFF	ABOVE FINISHED FLOOR	MECH	MECHANICAL
AHU	AIR HANDLER UNIT	MEZZ	MEZZANINE
ALUM	ALUMINUM	MFR	MANUFACTURER
ALT	ALTERNATE	MID	MIDDLE
APPD	APPROVED	MIN	MINIMUM
APPROX	APPROXIMATE	MISC	MISCELLANEOUS
ARCH	ARCHITECT	MJ	MASONRY JOINT
		MO	MASONRY OPENING
B/	BOTTOM OF		
BLDG	BUILDING	N	NORTH
BM	BEAM	NO	NUMBER
BOT	BOTTOM	NOM	NOMINAL
BRDG	BRIDGING	NS	NEAR SIDE
BRG	BEARING	NTS	NOT TO SCALE
BLK	BLOCK		
BTWN	BETWEEN	OC	ON CENTER
		OD	OUTSIDE DIAMETER
CANT	CANTILEVER	OF	OUTSIDE FACE
C/C	CENTER TO CENTER	OPNG	OPENING
CHAM	CHAMFER		
CIRC	CIRCULAR	PL	PLATE
CJ	CONTROL JOINT	PLF	POUNDS PER LINEAL FOOT
CL	CENTER LINE	PROJ	PROJECTION
CLR	CLEAR	PSF	POUNDS PER SQUARE FOOT
CMU	CONCRETE MASONRY	PSI	POUNDS PER SQUARE INCH
UNITS		PT	PRESSURE TREATED
COL	COLUMN		
CONC	CONCRETE	RAD	RADIUS
CONN	CONNECTION	REF	REFERENCE
CONST	CONSTRUCTION	REINF	REINFORCEMENT
CONT	CONTINUOUS	REV	REVISION
CONTR	CONTRACTOR	RTU	ROOF TOP UNIT
COORD	COORDINATE		
CTRD	CENTERED	S	SOUTH
		SA	SLEEVE ANCHOR
D	DEPTH	SB	SLAB BOLSTER
DBE	DECK BEARING	SCHED	SCHEDULE
DBL	DOUBLE	SECT	SECTION
DET	DETAIL	SIM	SIMILAR
DIA	DIAMETER	SPEC	SPECIFICATION
DIAG	DIAGONAL	SP	SPACING
DIM	DIMENSION	SQ	SQUARE
DL	DEAD LOAD	SS	STAINLESS STEEL
DWGS	DRAWINGS	STD	STANDARD
		STIFF	STIFFENERS
E	EAST	STL	STEEL
EA	EACH	SYMM	SYMMETRICAL
EB	EXPANSION BOLT		
EF	EACH FACE	TB	TIE BEAM
EJ	EXPANSION JOINT	TC	TIE COLUMN
EL	ELEVATION	TEMP	TEMPORARY
ELEV	ELEVATOR	TOC	TOP OF CONCRETE
EQ	EQUAL	TOP	TOP OF PILE
EXP	EXPANSION	TOS	TOP OF STEEL
EXIST	EXISTING	TRAN	TRANSVERSE
EXT	EXTERIOR	TS	TUBE STEEL
		TYP	TYPICAL
FF	FINISHED FLOOR		
FLR	FLOOR	UNO	UNLESS NOTED OTHERWISE
FDN	FOUNDATION		
FRMG	FRAMING		
FTG	FOOTING	VERT	VERTICAL
FV	FIELD VERIFY		
		W	WEST
GA	GAUGE	W/	WITH
GL	GRID LINE	W/O	WITHOUT
		WT	WEIGHT
ID	INSIDE DIAMETER	WWM	WELDED WIRE MESH
IF	INSIDE FACE		
INCL	INCLUDE		
INT	INTERIOR		
LB	POUND		
LL	LIVE LOAD		
LONG	LONGITUDINAL		
LT	LIGHT		
LTWT	LIGHTWEIGHT		

## LIGHT GAUGE FRAMING (CONT.)

- AXIALLY LOADED STUDS SHALL BE INSTALLED SO THAT THE ENDS ARE POSITIONED AGAINST THE INSIDE OF THE RUNNER TRACK WEB PRIOR TO FASTENING AND SHALL BE ATTACHED TO BOTH FLANGES OF THE UPPER AND LOWER RUNNER TRACKS.
- COMPLETE, UNIFORM AND LEVEL BEARING SUPPORT SHALL BE PROVIDED FOR THE BOTTOM RUNNER.
- FRAMING OF WALL OPENINGS SHALL INCLUDE HEADERS AND SUPPORT STUDS.
- RESISTANCE TO BENDING AND ROTATION ABOUT THE MINOR AXIS SHALL BE PROVIDED BY HORIZONTAL STRAP AND BLOCKING OR COLD-ROLLED CHANNEL BRACING.
- SOLID BLOCKING, A FIELD-CUT RUNNER OR CSJ JOIST SECTION, IS WELDED OR SCREW-ATTACHED BETWEEN OUTER FLOOR JOISTS, OVER ALL INTERIOR SUPPORTS AND ADJACENT TO OPENINGS AT MAX. 10' O.C. COLD-ROLLED CHANNELS OR STRAP BRACING OF 1 1/2" X 20-GAUGE CORROSION STEEL IS SCREW TO BOTTOM JOIST FLANGE BETWEEN SOLID BLOCKING.
- LATERAL SUPPORT FOR FLOOR JOISTS IS PROVIDED BY SUB FLOOR OR DECK MATERIAL ON THE TOP FLANGES. BRIDGING CONSISTING OF SOLID BLOCKING AND STRAP BRACING OR 1 1/2" COLD-ROLLED CHANNELS SCREW-ATTACH OR WELD TO BOTTOM JOIST FLANGES. BRIDGING IS TO BE INSTALLED AT MID SPAN FOR SPANS 16' OR LESS AT 8' O.C. MAX. FOR SPANS GREATER THAN 16'.
- SOLID BLOCKING, A FIELD-CUT RUNNER OR CSJ JOIST SECTION, IS WELDED OR SCREW-ATTACHED BETWEEN OUTER FLOOR JOISTS, OVER ALL INTERIOR SUPPORTS AND ADJACENT TO OPENINGS AT MAX. 10' O.C. COLD-ROLLED CHANNELS OR STRAP BRACING OF 1 1/2" X 20-GAUGE CORROSION STEEL IS SCREW TO BOTTOM JOIST FLANGE BETWEEN SOLID BLOCKING.
- WHERE SUB-FLOORS OR DECKING DO NOT PROVIDE LATERAL SUPPORT, FLOOR JOISTS MUST BE BRACED AT ALL BEARING POINTS AND AT INTERVALS WITHIN SPANS. FOR JOISTS IN CONTINUOUS SPAN CONDITIONS, PORTIONS OF THE BOTTOM FLANGES ARE IN COMPRESSION AND MUST BE Laterally BRACED, BASED ON DESIGN REQUIREMENTS, BETWEEN SOLID BLOCKING.

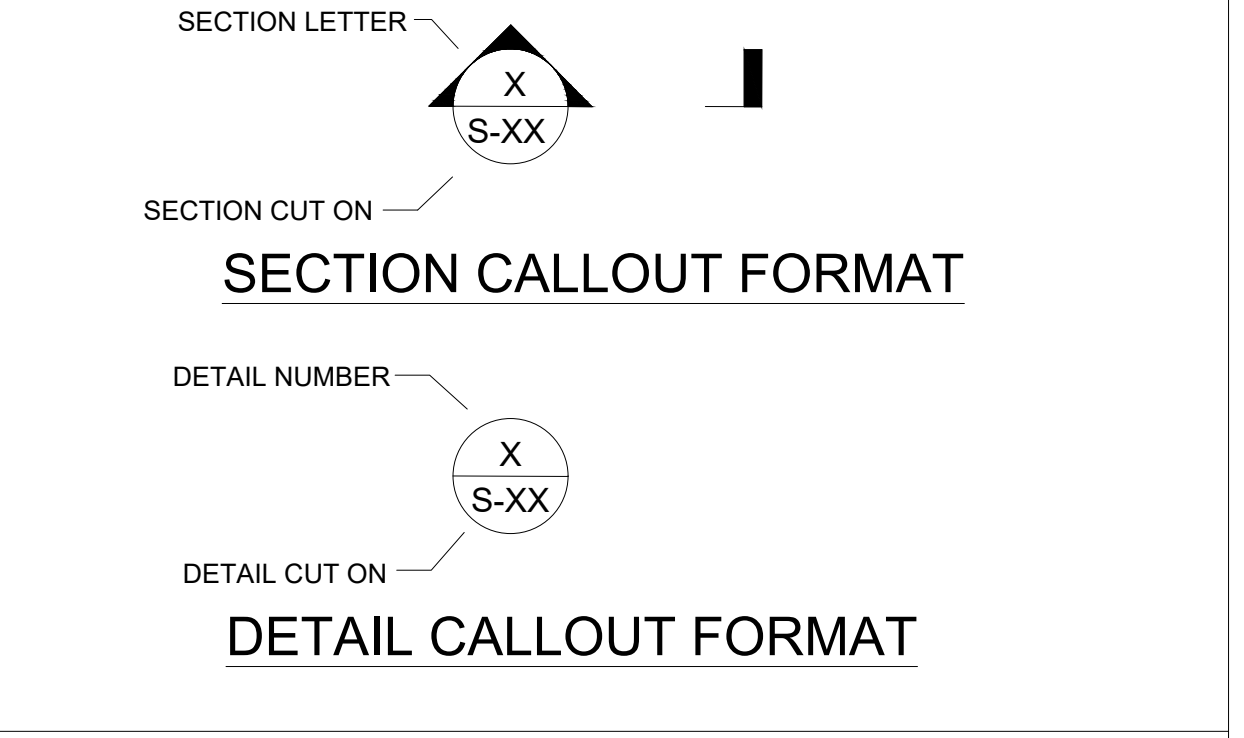
## CONCRETE NOTES (CONT.)

- CONSTRUCT FORMS COMPLYING TO SHAPES, LINES, AND DIMENSIONS SHOWN ON DRAWINGS TO OBTAIN AND HOLD ACCURATE ALIGNMENT OF CONCRETE DURING PLACEMENT AND CURING.
- FABRICATE FORMS FOR EASY REMOVAL WITHOUT HAMMERING OR PRYING AGAINST CONCRETE SURFACES.
- THOROUGHLY CLEAN FORMS AND ADJACENT SURFACES TO RECEIVE CONCRETE. REMOVE CHIPS, WOOD, SAWDUST, DIRT, OR ANY OTHER DEBRIS PRIOR TO CONCRETE PLACEMENT.
- CLEAN REINFORCING OF LOOSE RUST, MILL SCALE, DIRT, OR ANY OTHER FOREIGN MATERIAL. ACCURATELY POSITION, SUPPORT AND SECURE REINFORCEMENT.
- ANCHOR BOLTS SHALL NOT DEVIATE FROM THEIR THEORETICAL LOCATION BY MORE THAN 0.4 TIMES THE DIFFERENCE BETWEEN THE BOLT DIAMETER AND THE HOLE DIAMETER THROUGH WHICH THE BOLT PASSES.
- PROPORTION AND DESIGN MIXES TO RESULT IN CONCRETE SLUMP AT POINT OF PLACEMENT NOT LESS THAN 4" AND NOT MORE THAN 6". ADDITION OF WATER TO READY-MIX CONCRETE IN THE FIELD SHALL NOT BE ALLOWED. ADMIXTURES MAY BE USED TO INCREASE SLUMP.
- DEPOSIT CONCRETE IN A CONTINUOUS OPERATION UNTIL THE PLACING OF CONCRETE IS COMPLETE. IF THE POUR IS TO BE DISCONTINUOUS MORE THAN 30 MINUTES, CONTRACTOR SHALL USE CONSTRUCTION JOINTS, AS DETAILED ON THE DRAWINGS OR APPROVED BY THE ENGINEER.

## LIGHT GAUGE FRAMING

- CONFORM TO THE LATEST EDITION OF THE FOLLOWING:
- NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL STRUCTURAL FRAMING, AISI S240 LATEST EDITION.
  - AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) STANDARD C-955 - STANDARD SPECIFICATION FOR LOAD BEARING (TRAVERSE AND AXIAL) STEEL STUDS, RUNNERS (TRACKS), AND BRACING OR BRIDGING FOR SCREW APPLICATION OF GYPSUM BOARD AND METAL PLASTER BASES.
  - ASTM STANDARD C-1007-STANDARD SPECIFICATION FOR INSTALLATION OF LOAD BEARING (TRAVERSE AND AXIAL) STEEL STUDS AND RELATED ACCESSORIES.
- ALL STUDS AND ACCESSORIES SHALL BE MADE OF THE TYPE, SIZE, GAUGE AND SPACING SHOWN ON THE DRAWINGS.
  - ALL STRUCTURAL MEMBERS SHALL BE DESIGNED IN ACCORDANCE WITH AMERICAN IRON AND STEEL INSTITUTE (AISI) "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS", LATEST EDITION.
  - ALL METAL STUDS SHALL BE FORMED FROM CORROSION-RESISTANT STEEL, CORRESPONDING TO THE REQUIREMENTS OF ASTM C955, WITH A MINIMUM YIELD STRENGTH OF 33 KSI FOR SJ STUDS AND CR RUNNERS.
  - ALL METAL STUDS AND RUNNERS SHALL BE ZINC COATED MEETING ASTM A653, G-60, OR EQUIVALENT.
  - PREFABRICATED PANELS SHALL BE SQUARE, WITH COMPONENTS ATTACHED IN A MANNER TO PREVENT RACKING AND TO MINIMIZE DISTORTION WHILE LIFTING AND TRANSPORTING.
  - ALL FRAMING COMPONENTS SHALL BE CUT SQUARE FOR ATTACHMENT TO PERPENDICULAR MEMBERS OR, AS REQUIRED, FOR AN ANGULAR FIT AGAINST ABUTTING MEMBERS.
  - ALL FRAMING COMPONENTS SHALL BE PLUMBED, ALIGNED AND LEVELED.
  - FASTENING OF COMPONENTS SHALL BE WITH SELF-DRILLING SCREWS OR WELDING. SCREWS AND WELDS SHALL BE OF SUFFICIENT SIZE TO ENSURE THE STRENGTH OF THE CONNECTION. WIRE TYING OF COMPONENTS SHALL NOT BE PERMITTED. ALL WELDS SHALL BE TOUCHED UP WITH ZINC-RICH PAINT.
  - SPLICES IN FRAMING COMPONENTS, OTHER THAN RUNNER TRACK, SHALL NOT BE PERMITTED.
  - ABUTTING LENGTHS OF RUNNER SHALL BE BUTT-WELDED, SPLICED OR EACH LENGTH SECURELY ANCHORED TO A COMMON STRUCTURAL ELEMENT. RUNNERS SHALL BE SECURELY ANCHORED TO THE SUPPORTING STRUCTURE AS SHOWN ON THE DRAWING.
  - TEMPORARY BRACING, WHERE REQUIRED, SHALL BE PROVIDED UNTIL ERECTION IS COMPLETE.

## STRUCTURAL GENERAL NOTES



## CONCRETE NOTES

- CONFORM TO THE LATEST EDITION OF THE FOLLOWING:
- ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".
  - ACI 302.1R "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION".
  - ACI 308.1 "SPECIFICATION FOR CURING CONCRETE".
- ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 28 DAYS.
  - UNLESS NOTED OTHERWISE, ALL CONCRETE FLAT WORK SHALL CONFORM TO THE FOLLOWING FINISHING TOLERANCES MEASURED AS PER ASTM E1155:  
OVERALL FLATNESS NUMBER, Ff>40  
MINIMUM LOCAL FLATNESS NUMBER, Ff>28  
OVERALL LEVELNESS NUMBER, Fl>30  
MINIMUM LOCAL LEVELNESS NUMBER, Fl>20
  - ALL CONCRETE FLOORS AND WALLS SHALL CURED WITH A CURING AGENT THAT CONFORMS WITH ASTM C309, INSTALLED PER MANUFACTURERS RECOMMENDATIONS PER THE RECOMMENDATIONS OF ACI 302.
  - ALL FOUNDATIONS ARE TO BEAR ON UNDISTURBED "RESIDUAL" SOIL OR ON TESTED, STRUCTURAL BACK FILL (95% MODIFIED PROCTOR VALUE FOR BACK FILL).
  - STRUCTURAL FOUNDATION DESIGN IS BASED UPON AN ALLOWABLE SOIL BEARING VALUE OF 2000 P/SF. THIS MUST BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION BY SUBSURFACE INVESTIGATION.
  - ALL REINFORCING STEEL BARS SHALL BE GRADE 60 DEFORMED BARS COMPLYING WITH ASTM SECTION A615. REINFORCING STEEL WHICH IS INDICATED ON THE PLANS AS BEING WELDED SHALL COMPLY WITH ASTM A706, AND SHALL ALSO BE DEFORMED. WIRE FOR WWF SHALL COMPLY WITH ASTM A185 FOR SMOOTH WIRE AND ASTM A497 FOR DEFORMED WIRE, AND SHALL HAVE A MINIMUM YIELD STRENGTH OF 60KSI.
  - ALL DETAILING, FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL COMPLY WITH THE REQUIREMENTS OF THE ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI-SP-66).
  - ALL REINFORCING BAR SPLICE LENGTHS AND LOCATIONS, EMBEDMENTS, LENGTHS, HOOKS, ETC. SHALL BE DONE AS INDICATED ON THE DRAWINGS. NO VARIATION WILL BE ACCEPTED WITHOUT PRIOR APPROVAL OF THE ENGINEER. IF NO DIMENSION IS PROVIDED, THE SPLICE LENGTH SHALL BE CLASS "B" LENGTH AS PER ACI 318, SECTION 12.15.
  - THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT: (MIN. COVER LISTED)  
(A) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"  
(B) CONCRETE EXPOSED TO EARTH OR WEATHER: #6 THROUGH #18 BARS: 2" #5 BAR, W31 OR D31 WIRE AND SMALLER: 1-1/2"  
(C) CONCRETE NOT EXPOSED TO WEATHER OR NOT IN CONTACT WITH GROUND: SLABS, WALLS, JOISTS #14 AND #18 BARS: 1-1/2" #11 BAR AND SMALLER: 3/4" BEAMS, COLUMNS  
PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS: 1-1/2" SHELLS, FOLDED PLATE MEMBERS #6 BAR AND LARGER: 3/4" #5 BAR, W31 OR D31 WIRE, AND SMALLER: 1-1/4"
  - ALL EMBEDDED STRUCTURAL STEEL, INCLUDING ANCHOR BOLTS, SHALL COMPLY WITH ASTM A36, UNLESS INDICATED DIFFERENTLY ON THESE DRAWINGS.
  - ALL BUILDING SLABS TO BE PLACED OVER A 6MIL VAPOR BARRIER.

## STRUCTURAL GENERAL NOTES

- ANY ITEMS REFERENCED AS BEING ON "HOLD" ARE TO BE INCLUDED IN THE WORK AS SHOWN, HOWEVER, CONSTRUCTION OR FABRICATION IS NOT TO BEGIN UNTIL THE "HOLD" REFERENCE IS REMOVED.
  - ELEVATIONS ON THE STRUCTURAL DRAWINGS REFERENCE THE FINISHED FLOOR ELEVATION, ASSIGNED THE DATUM 0'-0".
  - THE STRUCTURAL INTEGRITY OF THIS STRUCTURE IS DESIGNED TO BE ATTAINED IN IT'S COMPLETED STATE. WHILE UNDER CONSTRUCTION ANY TEMPORARY BRACING OR SHORING WHICH MAY BE REQUIRED TO MAINTAIN STABILITY PRIOR TO COMPLETION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
  - ALL CONSTRUCTION SHALL CONFORM TO THE INTERNATIONAL BUILDING CODE OF THE INTERNATIONAL CODE COUNCIL, 2021 EDITION, AND ALL INCLUDED REFERENCE CODES AND STANDARDS, THE LATEST EDITIONS AT THE TIME OF PERMITTING. THE PROVISIONS OF THE INTERNATIONAL BUILDING CODE MEET OR EXCEED THAT OF THE PREVIOUS EDITIONS OF THE STANDARD BUILDING CODE. REFERENCED SECTIONS OF THE BUILDING CODES ARE NOT INTENDED TO BE ALL INCLUSIVE; THAT IS, OTHER PERTINENT SECTIONS MAY NOT BE NOTED ON THE DRAWINGS, BUT ARE STILL THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
  - THE DIMENSIONS, LOCATIONS, AND ELEVATIONS OF ANY EXISTING STRUCTURES WHICH RELATE TO OR INFLUENCES NEW CONSTRUCTION SHALL BE VERIFIED BY FIELD MEASUREMENT BY THE CONTRACTOR PRIOR TO PREPARATION AND SUBMISSION OF CHECKED SHOP DRAWINGS TO THE ENGINEER OF RECORD FOR REVIEW.
  - PROTECTION OF EXISTING STRUCTURES DURING THE COURSE OF THE CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
  - FOR SEISMIC AND WIND DESIGN LIMITATIONS SPECIFIED IN IBC SECTIONS 1704 AND 1705, QUALITY ASSURANCE PLANS ARE TO BE PROVIDED BY THE GENERAL CONTRACTOR TO BE SUBMITTED WITH THE APPLICATION FOR PERMIT, AS REQUIRED BY SECTION 1704.1. DOCUMENTATION OF ALL INSPECTIONS AND QUALITY ASSURANCE ITEMS ARE TO BE AS REQUIRED BY THE IBC. THE FOLLOWING SYSTEMS WILL REQUIRE SEISMIC STRUCTURAL INSPECTION AS DEFINED IN IBC CHAPTER 17 FOR SEISMIC DESIGN CATEGORY C OR ABOVE:
    - STRUCTURAL CONCRETE (SECTION 1705.3)
    - STRUCTURAL MASONRY AND VENEERS (SECTION 1705.4)
    - STRUCTURAL WOOD (SECTIONS 1705.11.1 AND 1705.12.2)
    - STRUCTURAL SOILS (SECTION 1705.6)
    - ARCHITECTURAL COMPONENTS (SECTION 1705.12.5)
    - PLUMBING, MECHANICAL, AND ELECTRICAL COMPONENTS (SECTION 1705.12.6)
- TESTING REQUIRED FOR THIS PROJECT IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL TESTING IS SUBJECT TO REVIEW BY THE ENGINEER.
- DESIGN CRITERIA  
SLAB LIVE LOAD: LIGHT STORAGE 125 PSF (TABLE 4-1)
- BASIC WIND SPEED (3 SECOND GUST): 143 MPH  
WIND IMPORTANCE FACTOR: IW=1.0  
WIND EXPOSURE: C  
INTERNAL PRESSURE COEFFICIENT: ±0.55
- SEISMIC USE GROUP: I  
SDS: 1.1738G  
SD1: 0.6328G  
SEISMIC SITE CLASS: D  
SEISMIC DESIGN CATEGORY: D  
BASIC SEISMIC-FORCE-RESISTING SYSTEM;  
SEE PRE-ENGINEERED BUILDING MANUFACTURER DRAWINGS

## SCHEDULE OF SPECIAL INSPECTIONS

THIS STATEMENT OF SPECIAL INSPECTION/QUALITY ASSURANCE PLAN INCLUDES THE FOLLOWING BUILDING SYSTEMS, SOILS & FOUNDATIONS, MASONRY, AND TIMBER

SPECIAL INSPECTION AGENCIES	FIRM	CONTACT
1. SPECIAL INSPECTION COORDINATOR	TO BE DETERMINED BY OWNER	ADDRESS TELEPHONE EMAIL
2. INSPECTOR	TO BE DETERMINED BY OWNER	ADDRESS TELEPHONE EMAIL
3. SPECIAL INSPECTOR	TO BE DETERMINED BY OWNER	ADDRESS TELEPHONE EMAIL

## SOILS AND FOUNDATIONS

ITEM	AGENCY #	SCOPE
1. SHALLOW FOUNDATIONS	#2	INSPECT SOILS BELOW FOOTINGS FOR ADEQUATE BEARING CAPACITY AND CONSISTENCY WITH GEOTECHNICAL REPORT.  INSPECT REMOVAL OF UNSTABLE MATERIAL AND PREPARATIONS OF SUBGRADE PRIOR TO PLACEMENT OF CONTROLLED FILL.
2. CONTROLLED STRUCTURAL FILL	#3	PERFORM SIEVE TESTS (ASTM D4222 & D1140) AND MODIFIED PROCTOR TESTS (ASTM D1557) OF EACH SOURCE OF FILL MATERIAL.  INSPECT PLACEMENT, LIFT THICKNESS AND COMPACTION OF CONTROLLED FILL.  TEST DENSITY OF EACH LIFT OF FILL BY NUCLEAR METHODS (ASTM D2922)  VERIFY EXTENT AND SLOPE OF FILL PLACEMENT
4. LOAD TESTING	#3	TESTING AGENCY TO WITNESS PROOF ROLL OF SUBGRADE PRIOR TO PLACING VAPOR BARRIER OVER STONE

## CAST-IN-PLACE CONCRETE

ITEM	AGENCY #	SCOPE
1.MIX DESIGN	#2	REVIEW CONCRETE BATCH TICKETS AND VERIFY COMPLIANCE WITH APPROVED MIX DESIGN. VERIFY THAT WATER ADDED AT THE SITE DOES NOT EXCEED THAT ALLOWED BY THE MIX DESIGN.
2. MATERIAL CERTIFICATION	#1	
3. REINFORCEMENT INSTALLATION	#2	INSPECT SIZE, SPACING, COVER, POSITIONING AND GRADE OF REINFORCING STEEL. VERIFY THAT REINFORCING BARS ARE FREE OF FORM OIL OR OTHER DELETERIOUS MATERIALS. INSPECT BAR LAPS AND MECHANICAL SPLICES. VERIFY THAT BARS ARE ADEQUATELY TIED AND SUPPORTED ON CHAIRS OR BOLSTERS
4. ANCHOR RODS	#2	INSPECT SIZE, POSITIONING AND EMBEDMENT OF ANCHOR RODS. INSPECT CONCRETE PLACEMENT AND CONSOLIDATION AROUND ANCHORS.
5. CONCRETE PLACEMENT	#2	INSPECT PLACEMENT OF CONCRETE. VERIFY THAT CONCRETE CONVEYANCE WAND DEPOSITING AVOIDS SEGREGATION OF CONTAMINATION. VERIFY THAT CONCRETE IS PROPERLY CONSOLIDATED.
6. SAMPLING AND TESTING OF CONCRETE	#3	TEST CONCRETE COMPRESSIVE STRENGTH (ASTM C31 OR C173), SLUMP (ASTM C143), AIR-CONTENT (ASTM C231 OR C173) AND TEMPERATURE (ASTM C1064).
7. CURING AND PROTECTION	#2	INSPECT CURING, COLD WEATHER PROTECTION AND HOT WEATHER PROTECTION PROCEDURES.

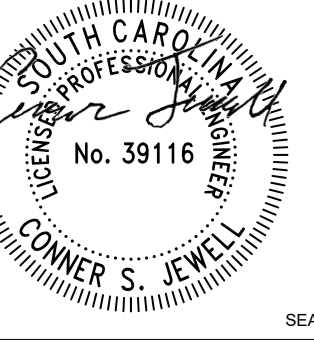
## STRUCTURAL STEEL

ITEM	AGENCY #	SCOPE
1. MATERIAL CERTIFICATION	#1	REVIEW CERTIFIED MILL TEST REPORTS AND IDENTIFICATION MARKINGS ON HOT ROLLED SHAPES, HIGH STRENGTH BOLTS NUTS AND WELDING ELECTRODES.
2. BOLTING	#3	INSPECT INSTALLATION AND TIGHTENING OF HIGH-STRENGTH BOLTS. VERIFY THAT SPLINES HAVE SEPARATED FROM THE TENSION CONTROL BOLTS VERIFY PROPER TIGHTING SEQUENCE. CONTINUOUS INSPECTION OF BOLTS IN SLIP CRITICAL CONNECTIONS.
3. STRUCTURAL DETAILS	#3	INSPECT STEEL FRAME FOR COMPLIANCE WITH STRUCTURAL DRAWINGS, INCLUDING BRACING, MEMBER CONFUIRATION AND CONNECTION DETAILS.

DATE  
11.20.2023

DESCRIPTION  
ISSUED FOR CONSTRUCTION

REV  
0



AE INFO

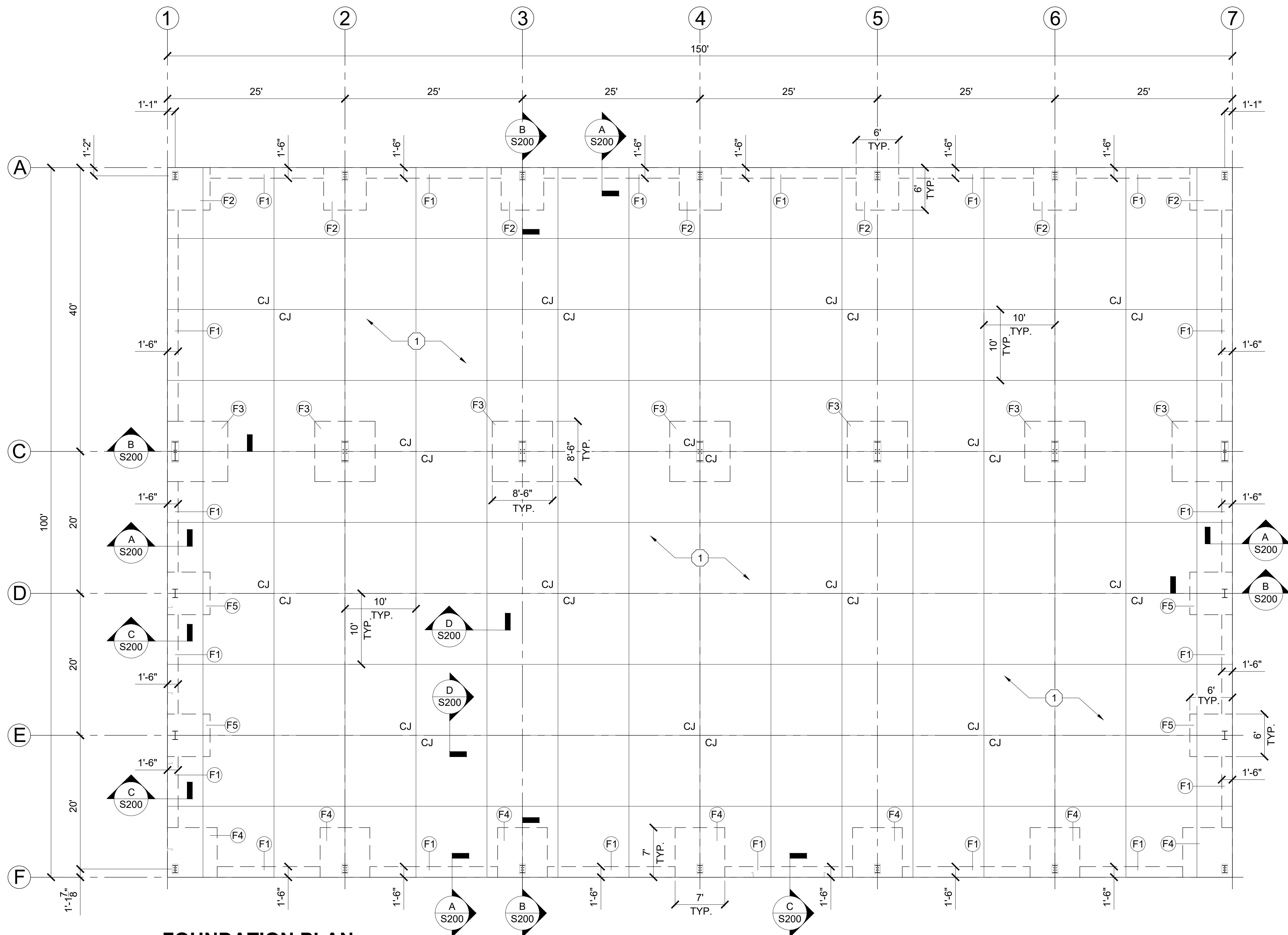
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EAST COAST HYDRAULICS  
5507 SAVANNAH HIGHWAY  
RAVENEL, SC 29470  
SPECIAL INSPECTIONS

SCALE: AS NOTED  
BASTION PROJECT NO.  
21.093  
DRAWN BY: bnd DATE: 11.20.2023  
DRAWING STATUS: IFC  
SHEET:  
S002

SHEET: 25 OF 28 REVISION NO. 0



**FOUNDATION PLAN**  
SCALE: 1/8" = 1'-0"

LEGEND	
	FOOTING NAME
	SECTION DETAIL SHEET NO.

**GENERAL NOTES**

- SAW CUT SLAB WITH EARLY ENTRY SAW AS SOON AS POSSIBLE. CUT AT 10'-0" INCREMENTS WITH NO PANEL MORE THAN 1:1.5 LENGTH / WIDTH RATIO. SEE SHEET S200 FOR SECTIONS AND DETAILS.
- BOTTOM OF ALL FOOTINGS TO BE MIN. 2'-0" BELOW FINISHED GRADE.
- SEE PEMB. PHENIX DRAWING SET 550-259, SHEET AB-101 FOR ANCHOR BOLT SETTING PLANS.
- SEE SHEET S200 FOR STANDARD MASONRY DETAILS.
- CONTRACTOR TO CONFIRM ALL DIMENSIONS AND ELEVATIONS WITH PEMB. MANUFACTURER DRAWINGS AND SUBMIT RFI FOR ANY DISCREPANCIES.

**KEYNOTES**

- 6" THICK CONCRETE BUILDING SLAB ON 10MIL POLY VAPOR RETARDER OVER COMPACTED BASE, MUST PASS PROOF ROLL PRIOR TO POUR. SLAB FIBER REINFORCED W/ FIBER FORCE 750 @3LB/YD TYP.

**FOOTING SCHEDULE**

NAME	SIZE	REINFORCING	NOTES
F1	1'-6" W x 1'-6" D	(3) #4s CONTINUOUS	SLAB FOOTING - SEE SECTIONS AND DETAILS, SHEET S200
F2	6' W x 6' W x 30" D	#6s @ 6" O.C. T&B. E.W.	FRAME FOOTING - SEE SECTIONS AND DETAILS, SHEET S200
F3	8'-6" W x 8'-6" W x 36" D	#6s @ 6" O.C. T&B. E.W.	FRAME FOOTING - SEE SECTIONS AND DETAILS, SHEET S200
F4	7' W x 7' W x 30" D	#6s @ 6" O.C. T&B. E.W.	FRAME FOOTING - SEE SECTIONS AND DETAILS, SHEET S200
F5	6' W x 6' W x 24" D	#5s @ 6" O.C. T&B. E.W.	FRAME FOOTING - SEE SECTIONS AND DETAILS, SHEET S200

DATE  
11.20.2023

DESCRIPTION  
ISSUED FOR CONSTRUCTION

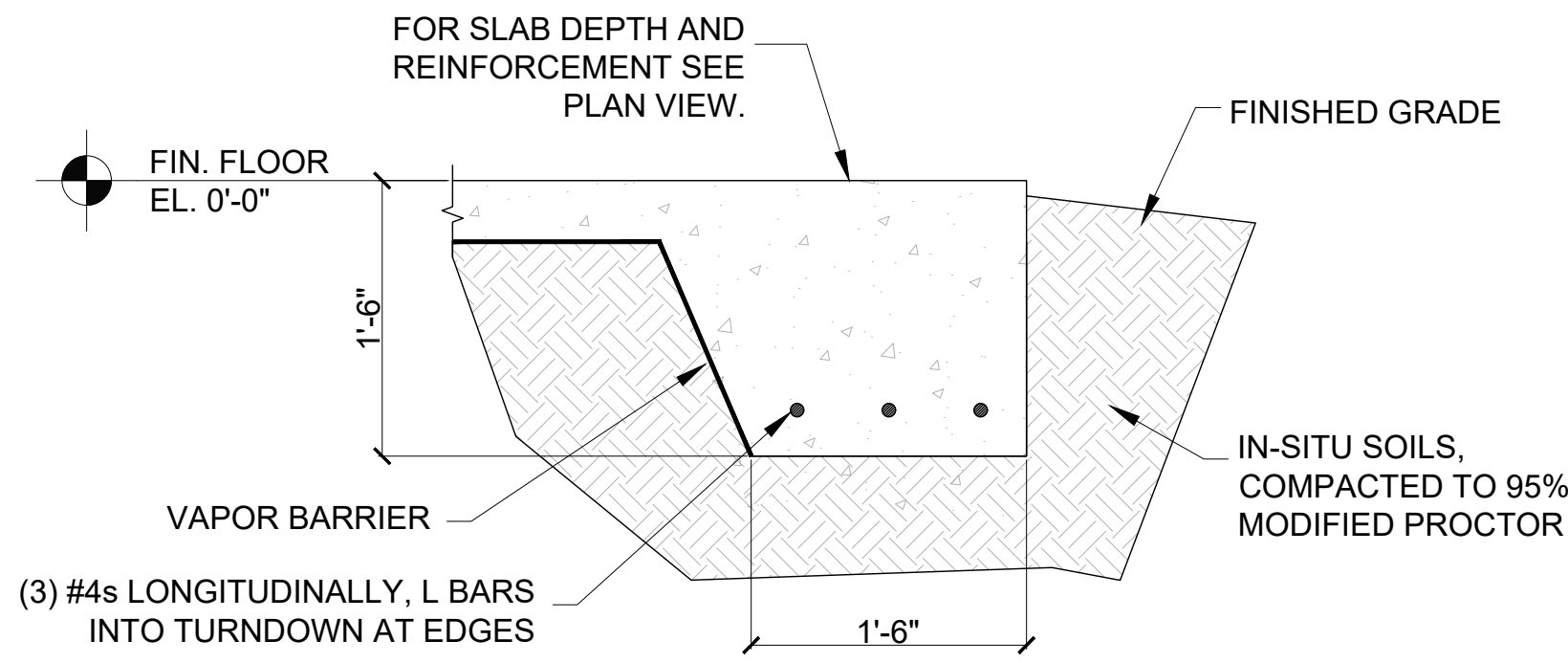


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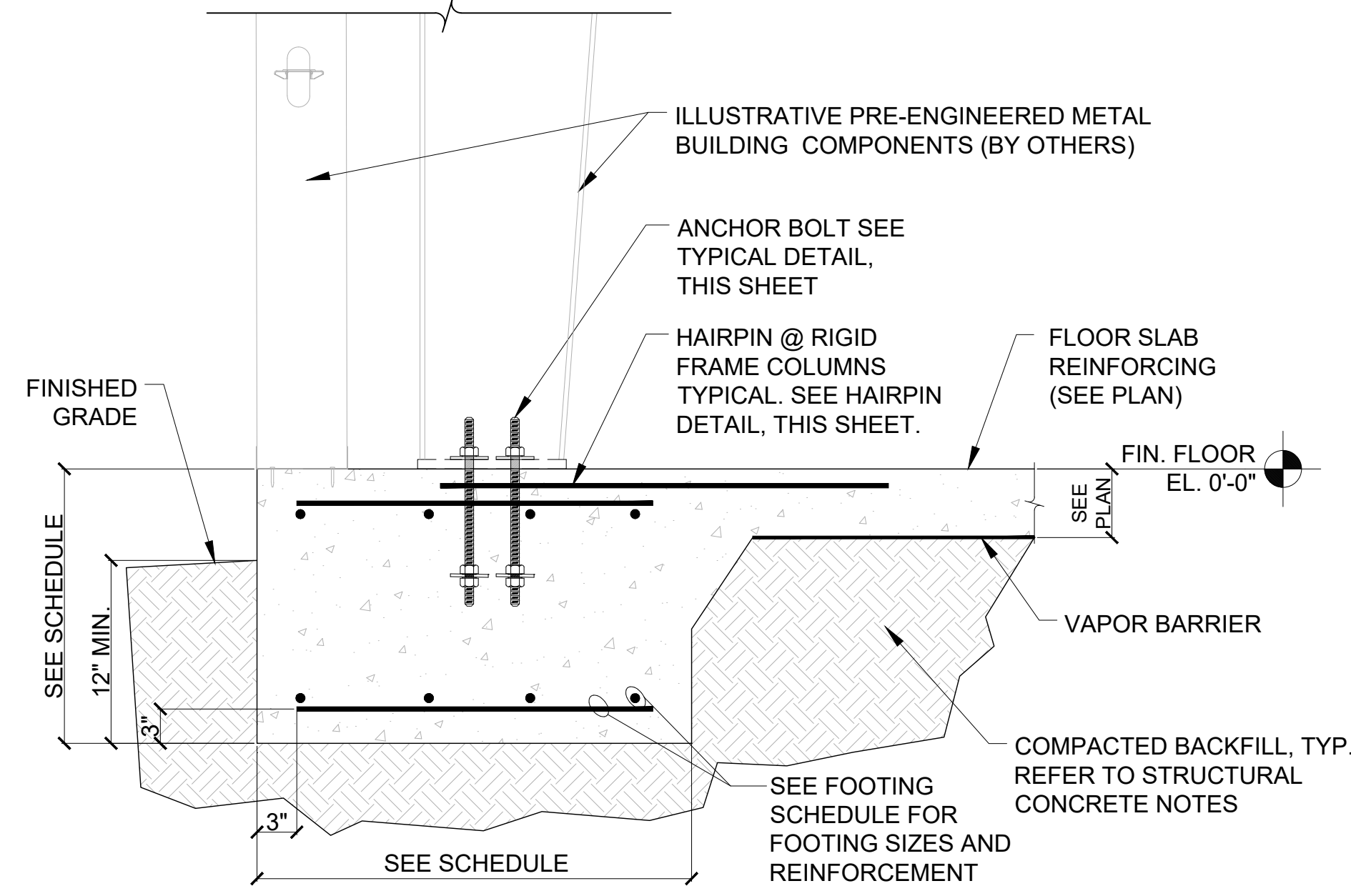
**EAST COAST HYDRAULICS**  
5507 SAVANNAH HIGHWAY  
RAVENEL, SC 29470  
**FOUNDATION PLAN**

SCALE: AS NOTED  
BASTION PROJECT NO. 21.093  
DRAWN BY: bnd DATE: 11.20.2023  
DRAWING STATUS: IFC  
SHEET: S100  
SHEET: 26 OF 28 REVISION NO. 0

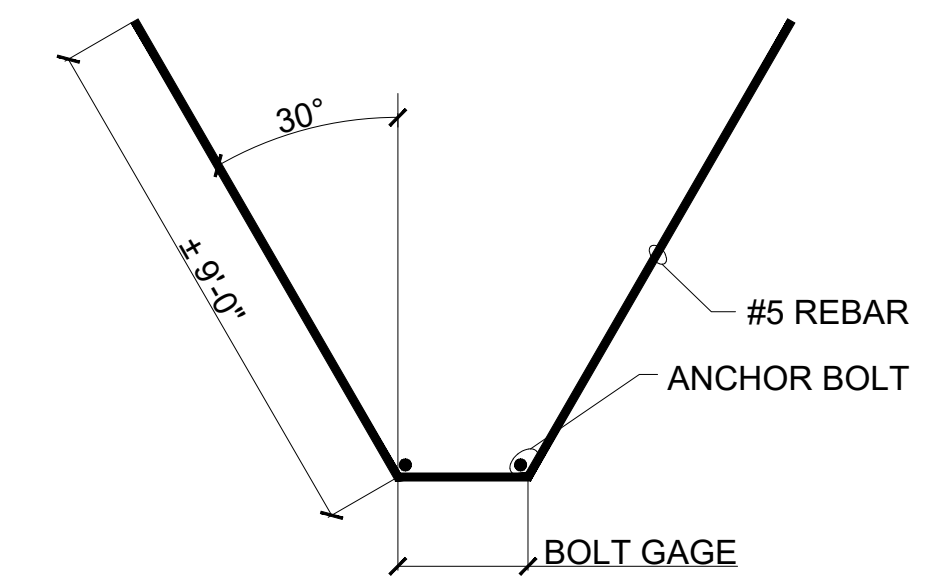
FOOTING SCHEDULE			
NAME	SIZE	REINFORCING	NOTES
F1	1'-6" W x 1'-6" D	(3) #4s CONTINUOUS	SLAB FOOTING - SEE SECTIONS AND DETAILS, SHEET S200
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F3	8'-6" W x 8'-6" W x 36" D	#6s @ 6" O.C. T&B. E.W.	FRAME FOOTING - SEE SECTIONS AND DETAILS, SHEET S200
F4	7' W x 7' W x 30" D	#6s @ 6" O.C. T&B. E.W.	FRAME FOOTING - SEE SECTIONS AND DETAILS, SHEET S200
F5	6' W x 6' W x 24" D	#5s @ 6" O.C. T&B. E.W.	FRAME FOOTING - SEE SECTIONS AND DETAILS, SHEET S200



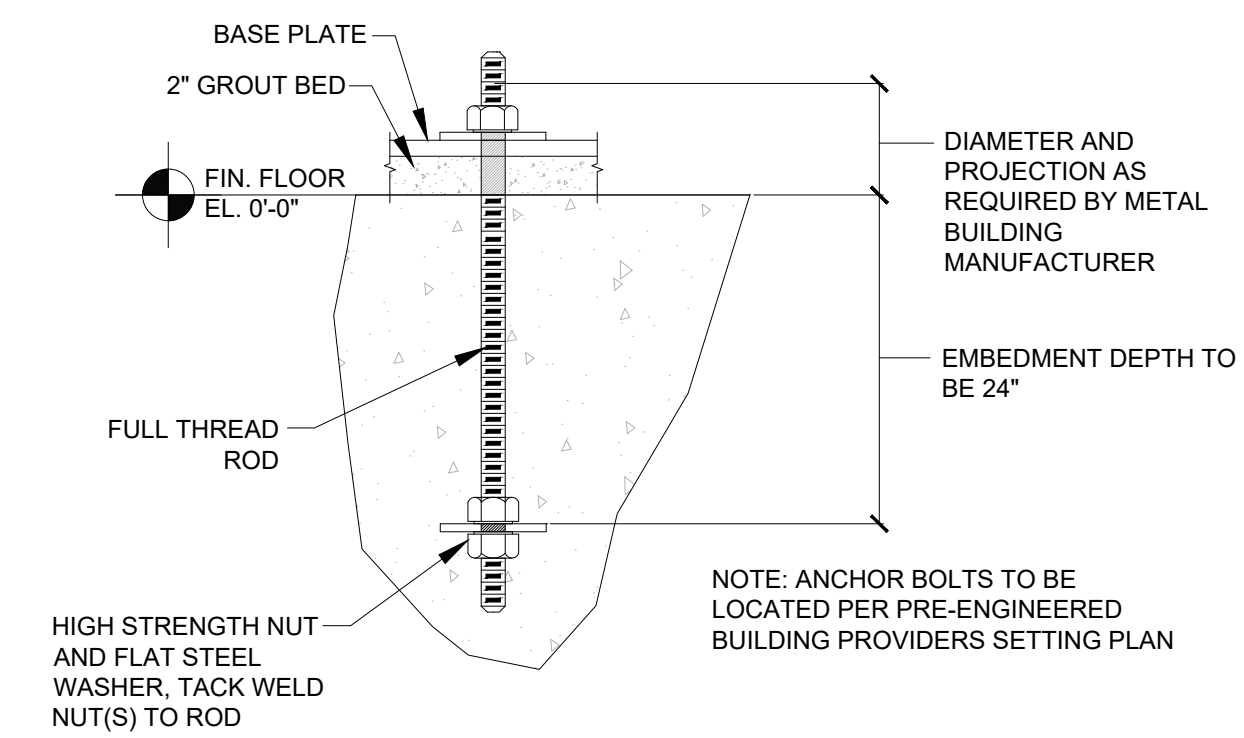
**A SLAB FOUNDATION SECTION**  
SCALE: 1" = 1'-0"



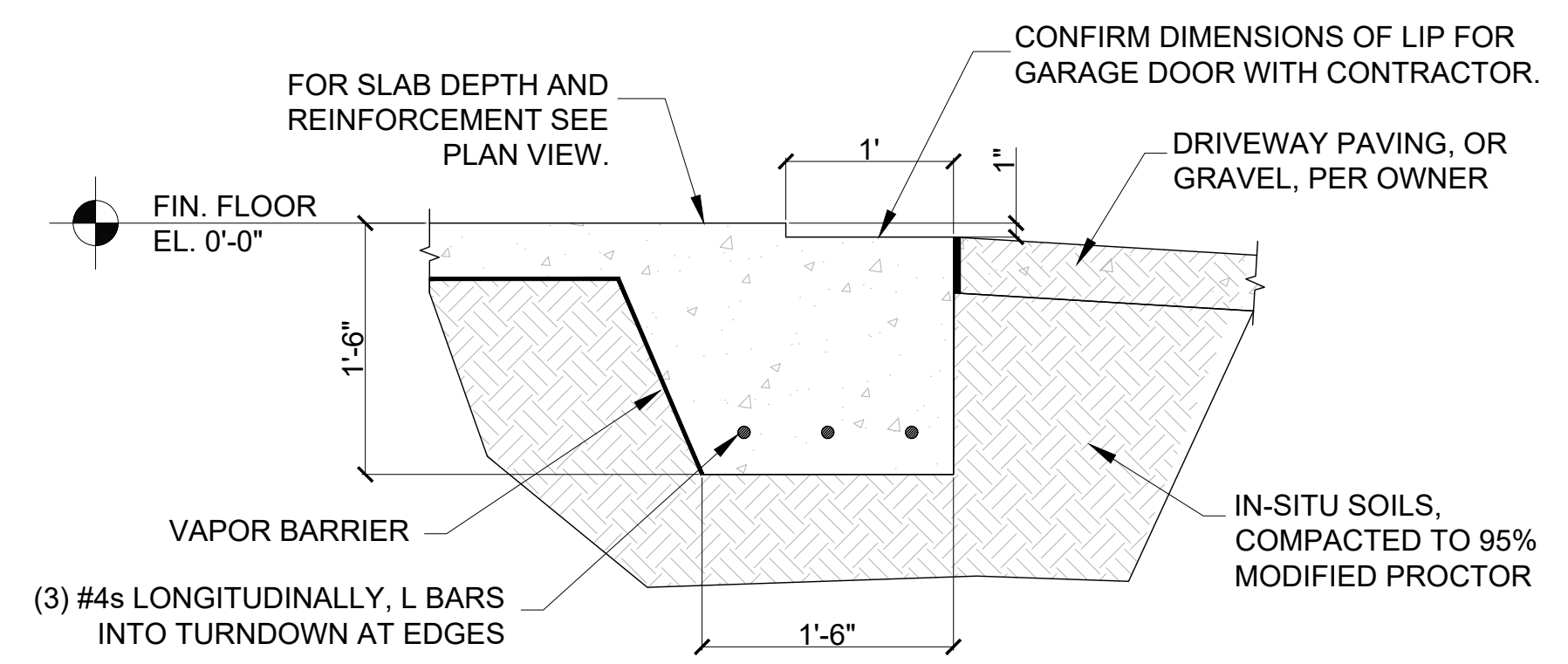
**B FRAME FOUNDATION SECTION**  
SCALE: NTS



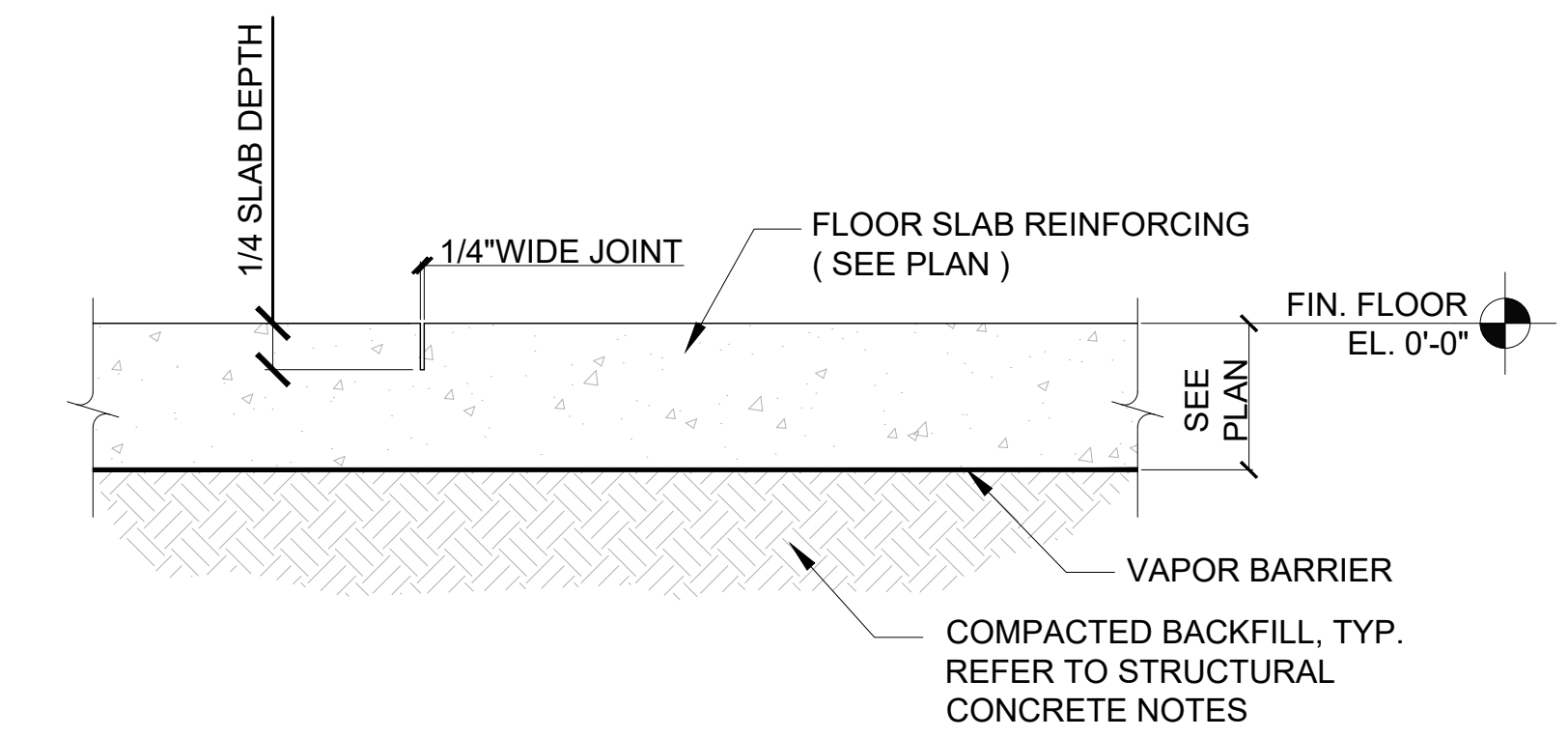
**HAIRPIN DETAIL**  
SCALE: NTS



**ANCHOR BOLT DETAIL**  
SCALE: NTS



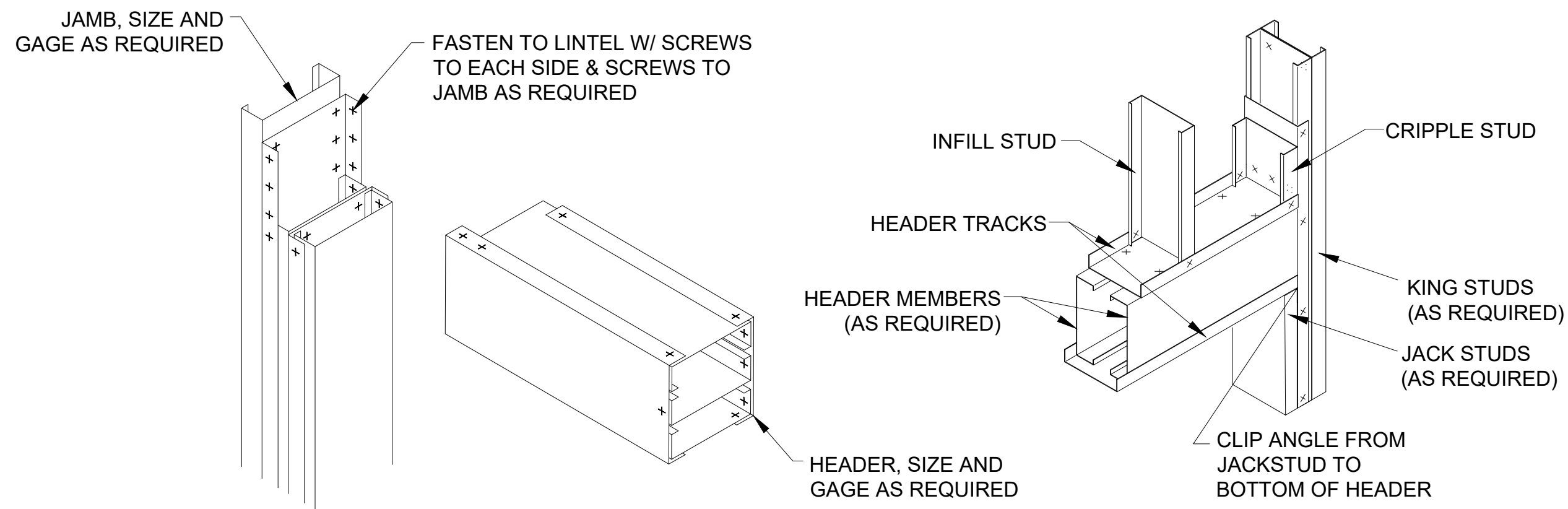
**C OVERHEAD DOOR LIP SECTION**  
SCALE: 1" = 1'-0"



**D CONTROL JOINT SECTION**  
SCALE: NTS

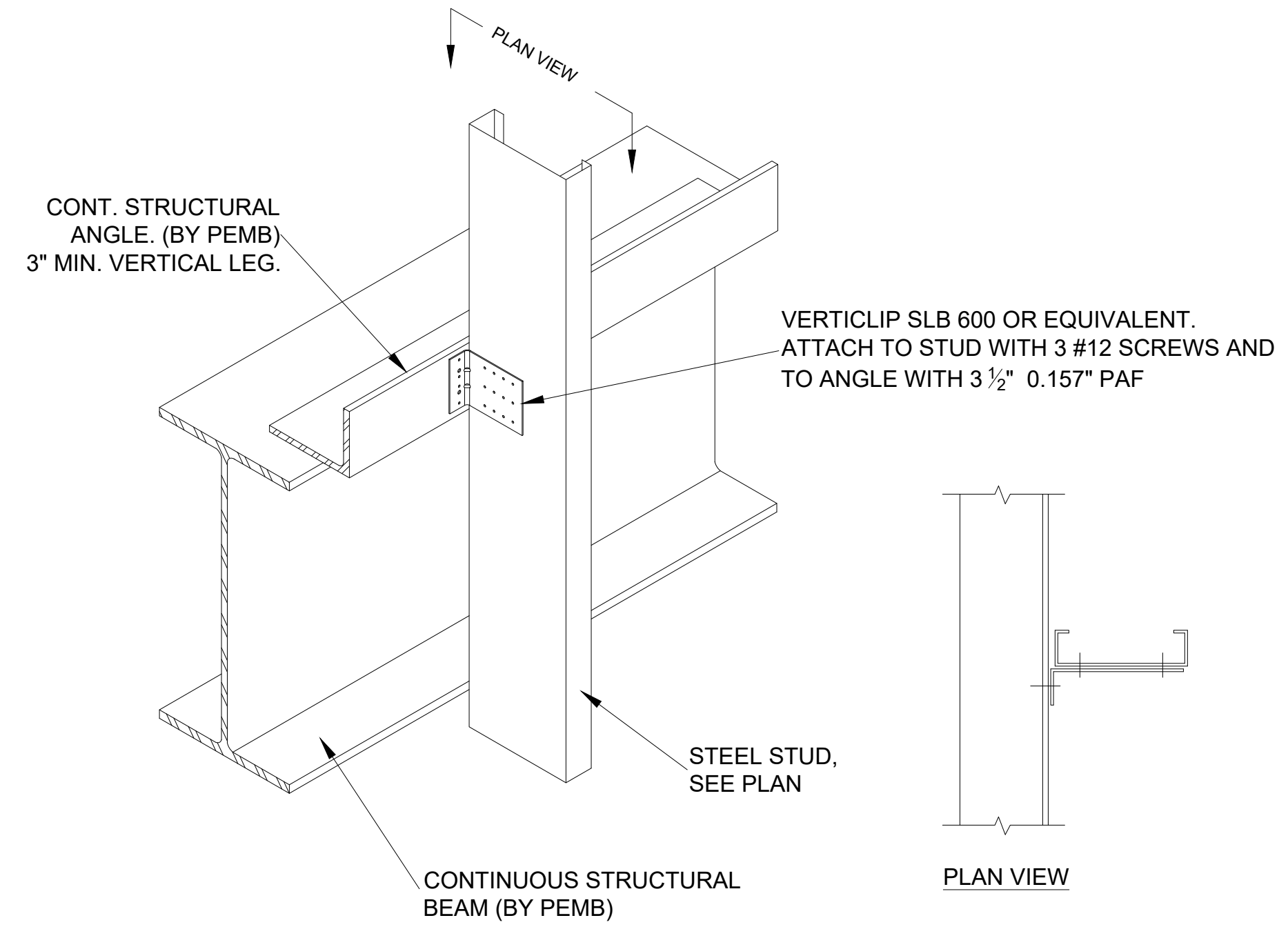
DATE	11/20/2023
DESCRIPTION	ISSUED FOR CONSTRUCTION
REV	0
<b>THE BASTION GROUP</b> LIMITED LIABILITY COMPANY 412 NORTH GUM ST. SUMMERVILLE, SC 29485 - (843) 300-8876 WWW.BASTIONGROUPLLC.COM	
<b>EAST COAST HYDRAULICS</b> 5507 SAVANNAH HIGHWAY RAVENEL, SC 29470 <b>DETAILS AND SECTIONS</b> <b>PLAN</b>	
SCALE:	AS NOTED
BASTION PROJECT NO.	21.093
DRAWN BY:	bnd
DATE:	11.20.2023
DRAWING STATUS:	IFC
SHEET:	S200
SHEET: 27 OF 28   REVISION NO. 0	





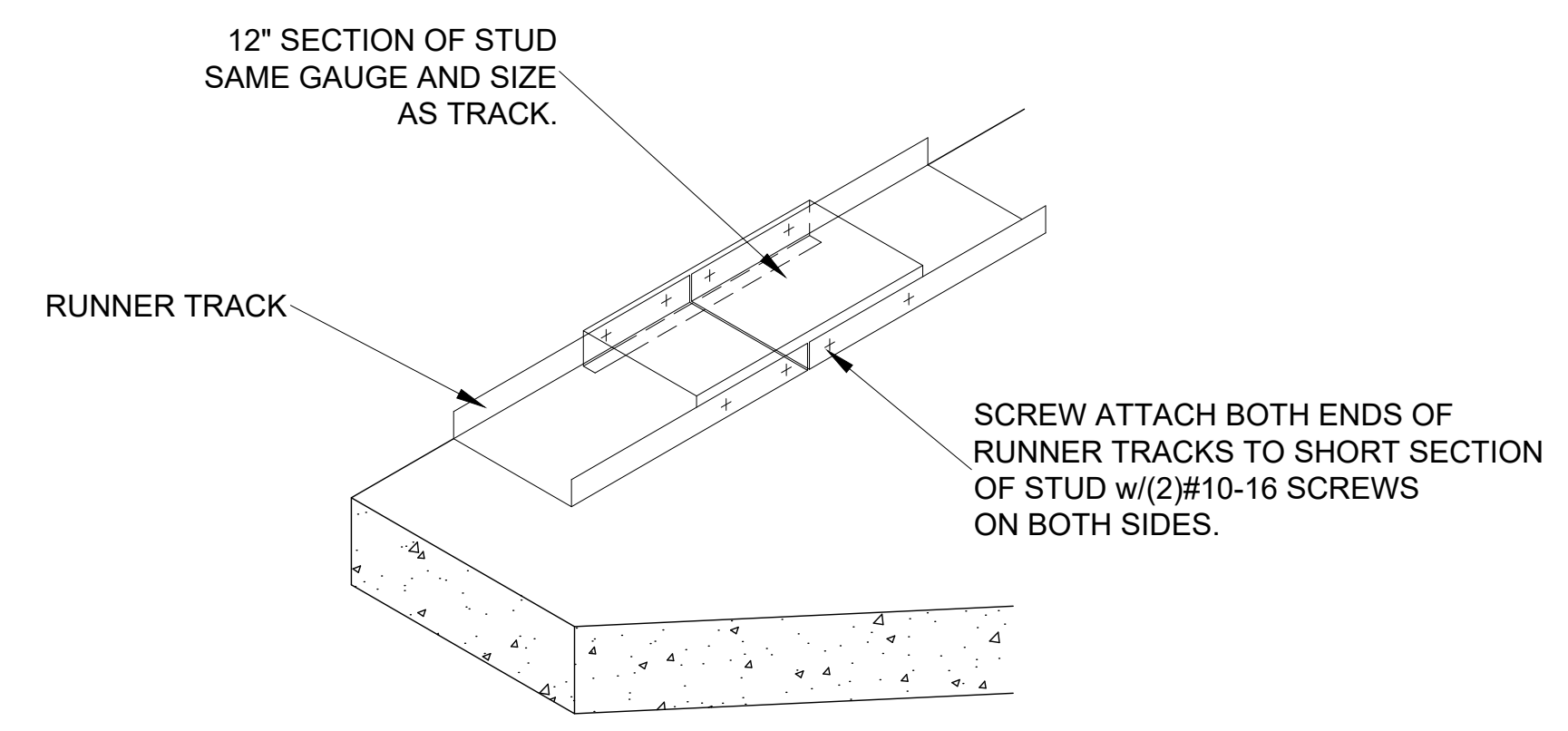
**HEADER DETAIL**

SCALE: NTS



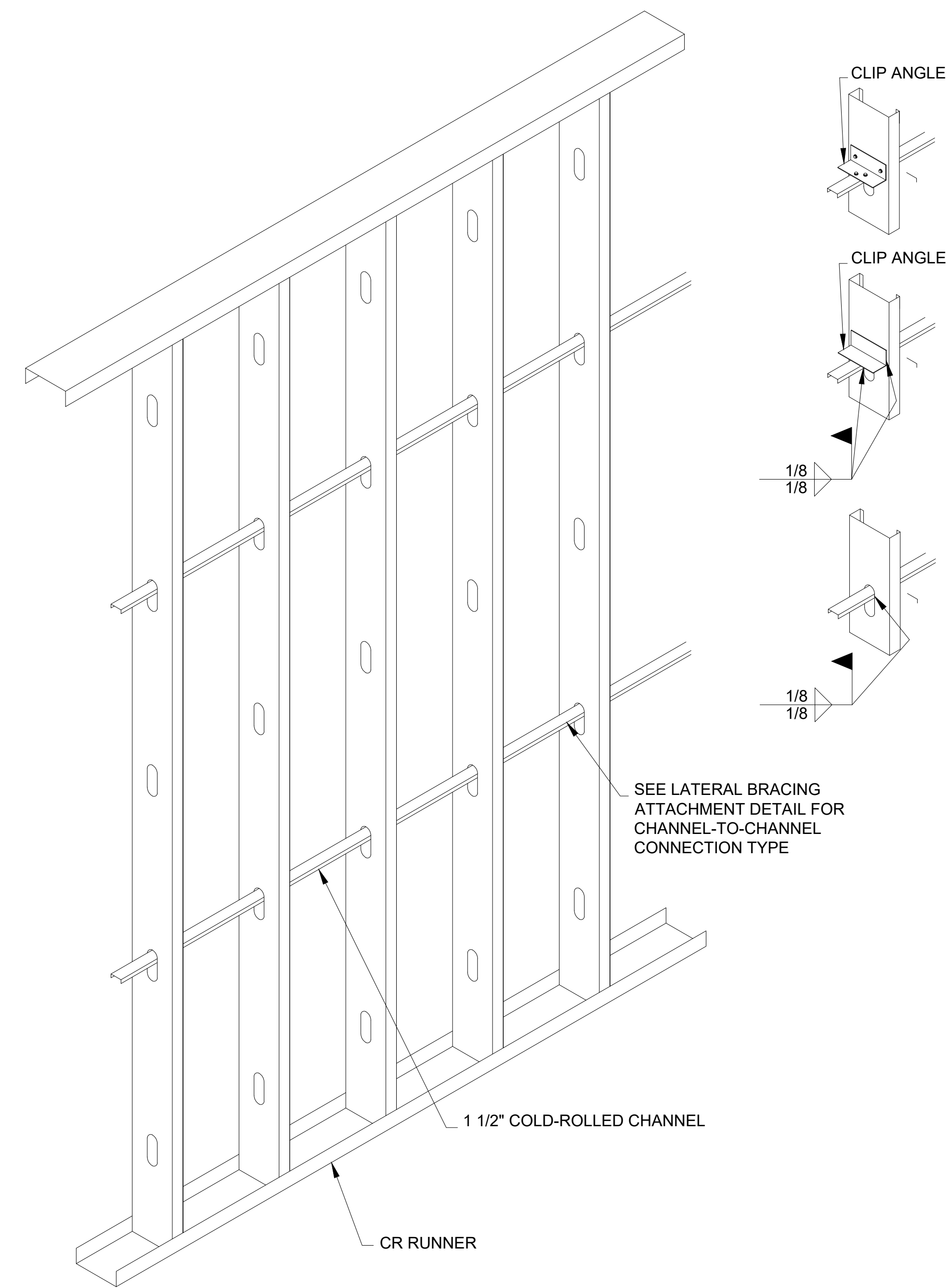
**TYPICAL CURTAIN WALL TOP ANCHORAGE**

SCALE: NTS



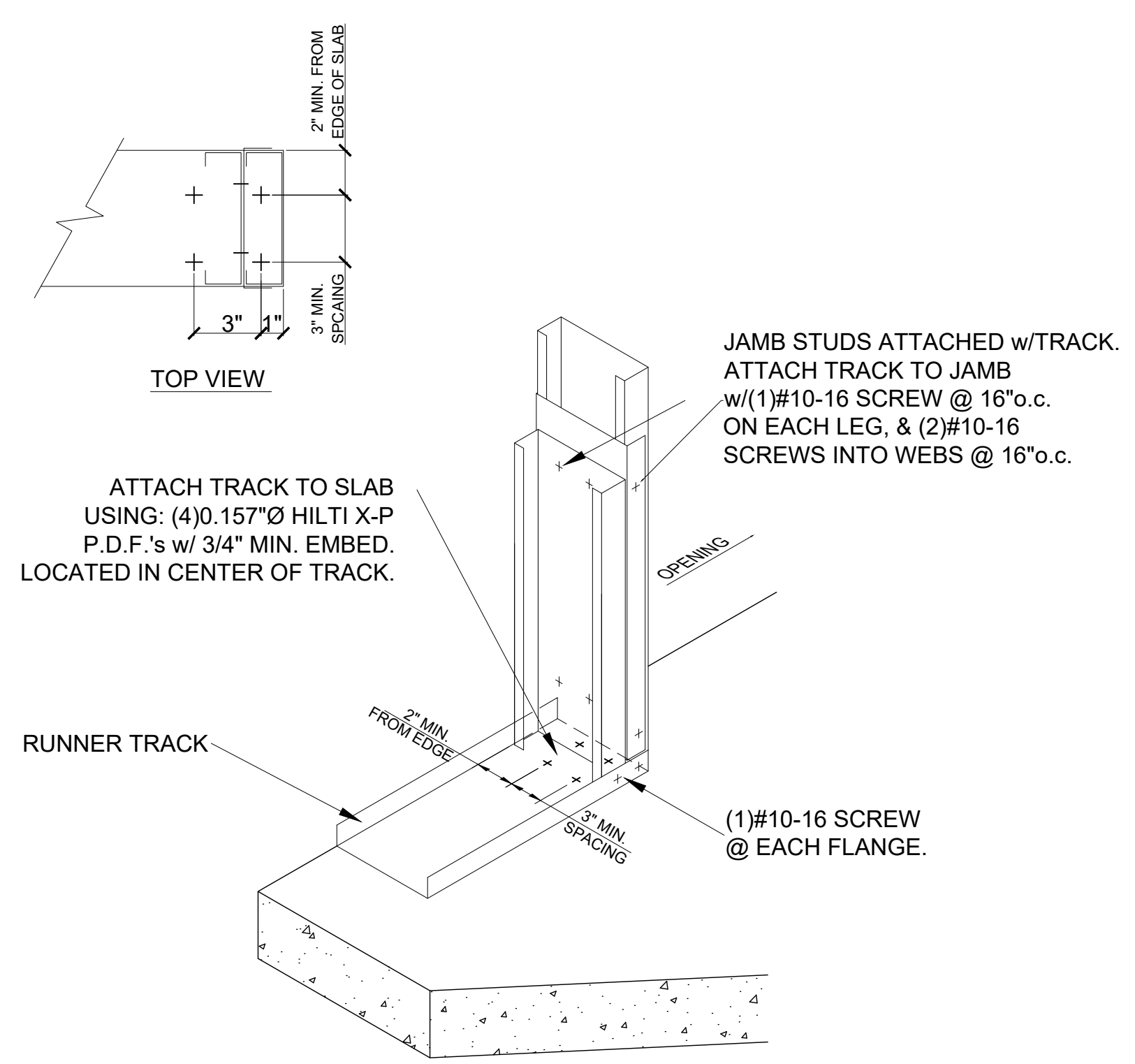
**TYPICAL TRACK SPLICE**

SCALE: NTS



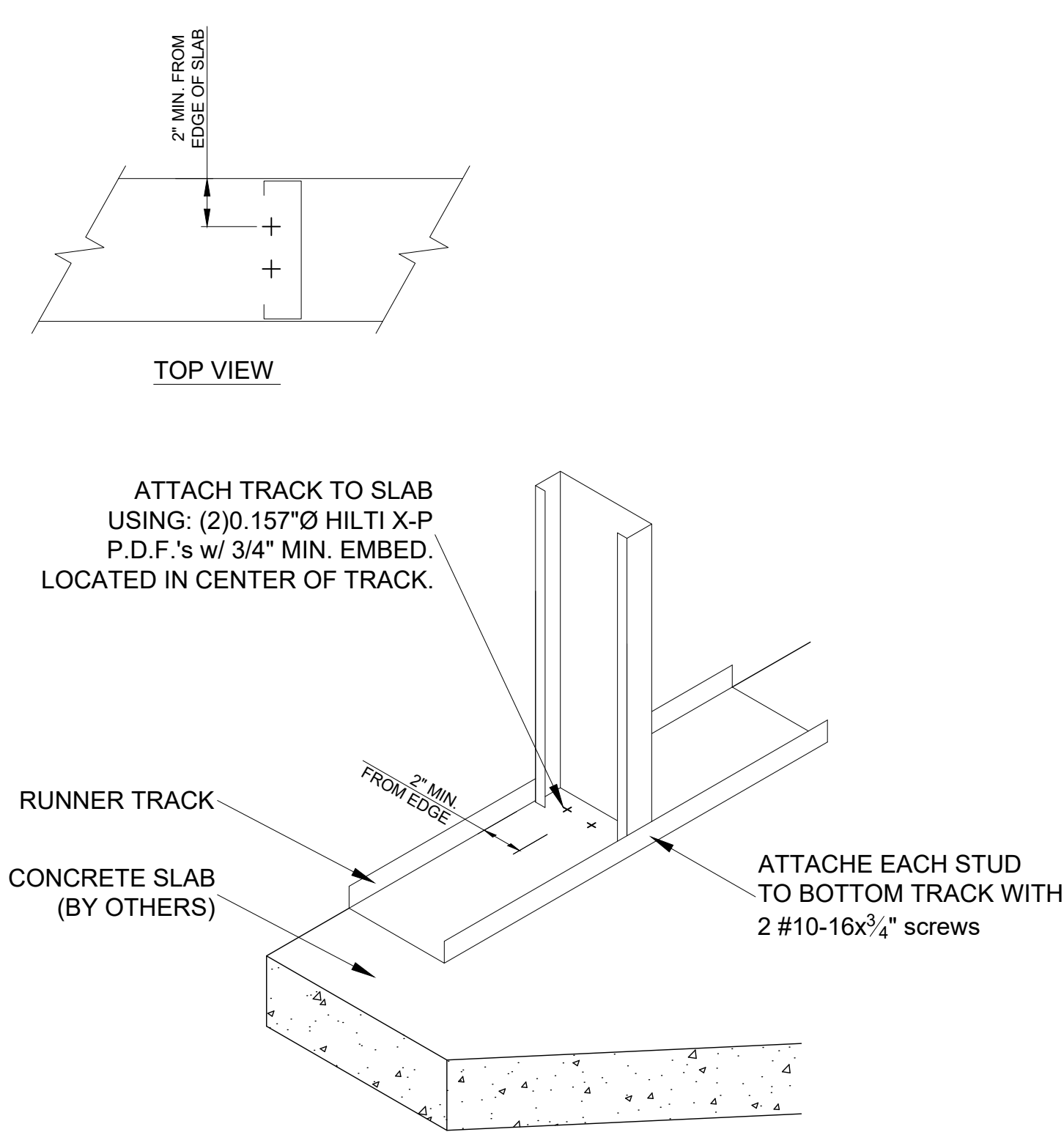
**LATERAL BRACING DETAIL**

SCALE: NTS



**TYPICAL DOOR JAMB ANCHORAGE**

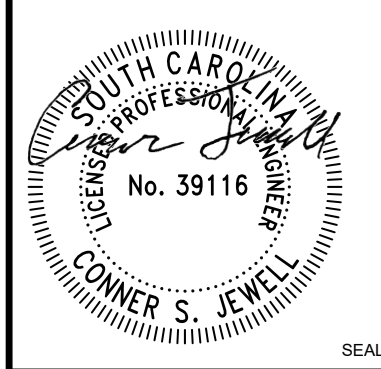
SCALE: NTS



**TYPICAL WALL TO FOUNDATION DETAIL**

SCALE: NTS

DATE	11/20/2023
DESCRIPTION	ISSUED FOR CONSTRUCTION
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EAST COAST HYDRAULICS  
5507 SAVANNAH HIGHWAY  
RAVENEL, SC 29470

DETAILS AND SECTIONS  
PLAN

SCALE:	AS NOTED
BASTION PROJECT NO.	21.093
DRAWN BY:	bnh
DATE:	11.20.2023
DRAWING STATUS:	IFC
SHEET:	S200
SHEET:	28 OF 28
REVISION NO.:	0

## site plan

From: Mike Hemmer (townadministrator@townofravenel.com)

To: 8435570099tax@att.net

Date: Thursday, October 26, 2023 at 03:51 PM EDT

Renee,

The Site Plan submittal needs the following information for the P&Z to be able to review. I'm attaching the CCOZ standards and will reference them.

Item F2 – Parking is to be to the rear or side of the building. I realize that if you are to build at a later date, you want to build closer...so that should be addressed as the reasoning, but it doesn't mean that a temporary plan will be approved. A parking plan is needed...number of spaces, location of ADA spots, etc.

ADA in rear of building beside the ramp. All other parking will be behind building

Item F3 – There is to be a buffer yard of 15' in front. You have the room and you do show some landscaping...but there are no descriptions regarding your plants. It looks like you need 3 canopy, 3 understory, and 25 bushes.

Species names are required. 3 Canopy are oaks 3 understory are Crape Myrtal 25 Bushes will be 12 Gardenia 15 will be Japanese Holly. Black mulch around each tree and all bushes

Item G – What does your sign package consist of?

A banner on the building until the end of April then will go through planning for a permanent sign

Item I1 – What is the building material facing Savannah Highway? Will you be making that decorative at all? Again, I realize it is temporary, but that doesn't mean it will be approved. Raw wood facing Savannah Hwy.

Will paint if planning would prefer a color instead of raw wood. No decorative at this time.

Item I2 – Color samples are needed. The elevation rendering of the building should be in color.

Building will be raw wood color and the roof will be black I will attach a piece of the wood and roof.

Item I3 – I do not see any foundation plantings at the building...required.

8 Bushes will be placed in front of building. Bushes will be tea oliva shrub

Item J4 – What is the surface of the parking lot? Detail is needed along with the entrances to Cornelia. What is the flow of the parking lot for emergency vehicles? The Fire District will ask "Where is the nearest fire hydrant?" 125 ft across the road

Surface of parking lot will be dirt. Flow for emergency vehicles in one drive way and out the other on CorneliaDr.

Item L2, L3, & L4 describes the plans you are missing (Landscaping, Parking, Colors). Also, where is the utility plan?

And the septic field isn't located...can't park there. Where is the trash dumpster? Is it screened?

Landscaping will add 6 trees 3 Canopy 3 understory 33 bushes 25 at the road 4 by the building. Parking will have 6 spots 1 ADA on back of building (by the ramp)and 5 on the back of the building. Color of the building is Raw wood with black roof Trash will be removed from premises, no dumpster will be needed. Septic tank and septic lines are outlined.

Michael D. Hemmer

Town/Planning & Zoning Administrator

**Town of Ravenel**

5962 Highway 165 ♦ Ravenel, SC 29470 ♦ (843) 889-8732



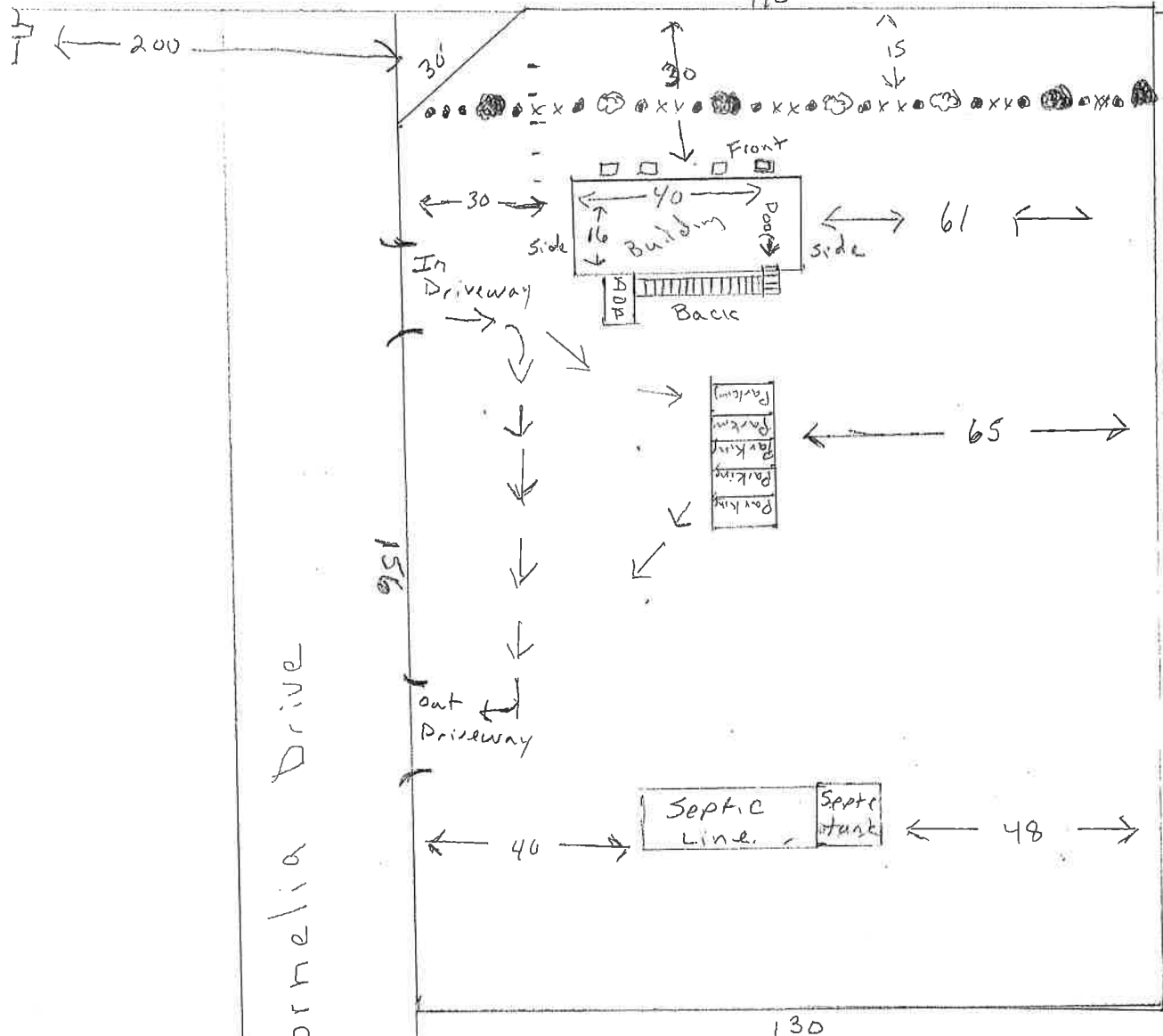
CCOZ.pdf  
108.9kB

Savanna Hwy



125' ↗

← 200









Cornelia Drive

156

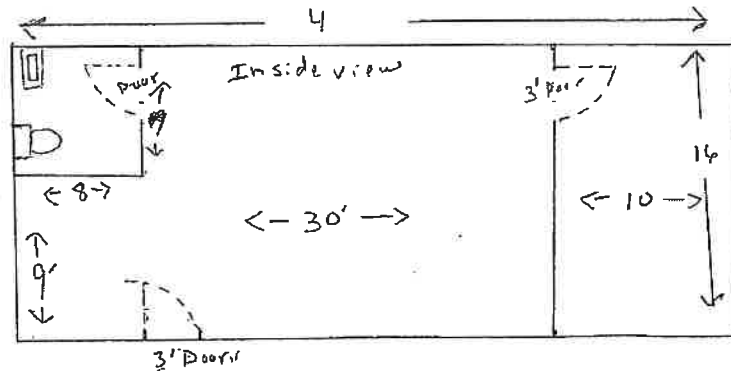
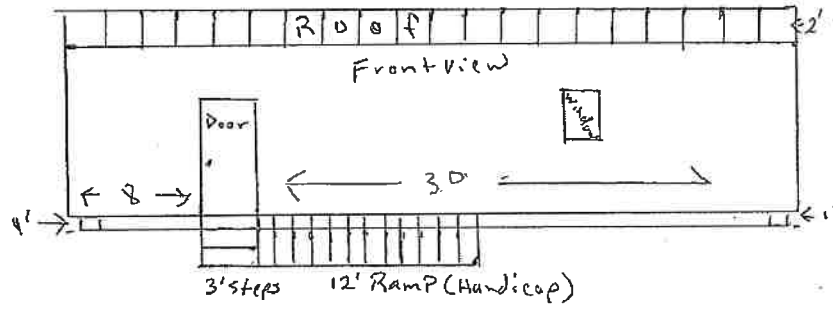
130

TMS 229-13-00-139

1-30

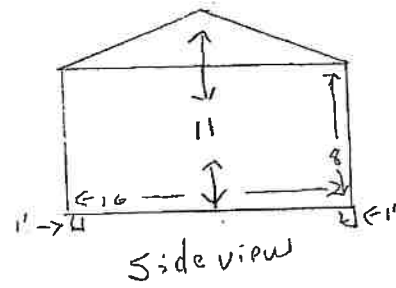
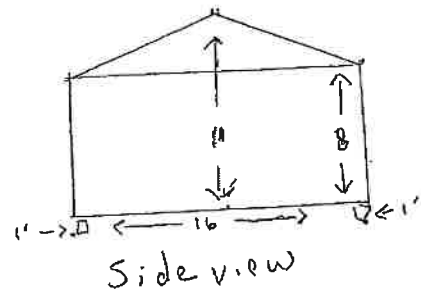
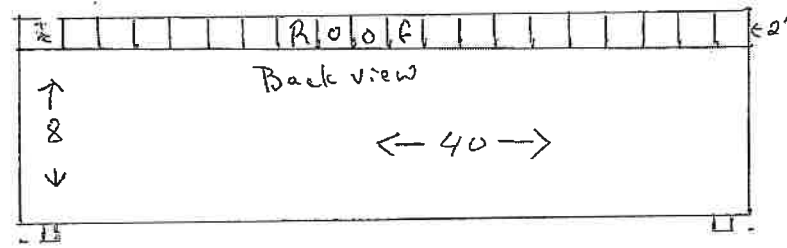
-  = Oak Tree
-  = Crape Myrtle
-  = Holly Bush
-  = Gardenia
-  = Tea Olive Bush
-  = Fire Hydrant + 125ft across street and 1ft down the road

Tms 229-13-00-139



1'-30'

TMS 229-13-00-139





Fire hydrant  
about 200ft from  
Property line



Fire hydrant  
about 100ft  
from Property line

Introducing...

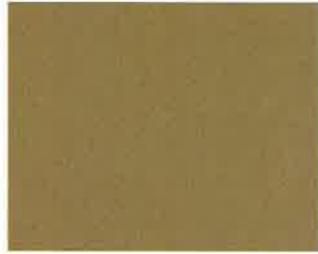
# GRACELAND

## COLOR COLLECTIONS

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Acorn



Warm Sand



Light Khaki



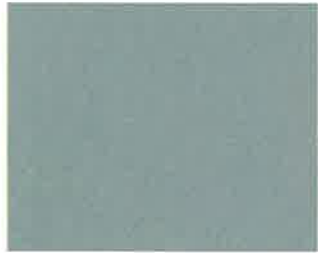
Clay



Desert



Coffee Bean



Fossil



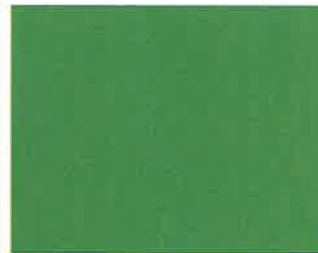
Slate



Graphite



Olive



Fern



Eco Green



Aquamarine



Ocean Blue



Blue Slate



Sapphire



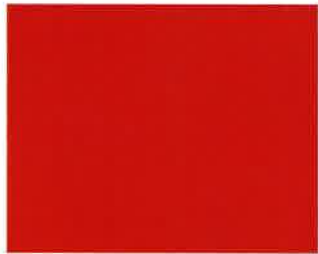
Steel Blue



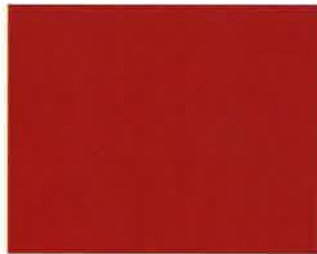
Pine



Lemonade



Ruby Red



Scarlet Red



Cinnamon



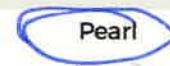
Pearl



Midnight

The colors shown represent the actual paint color as accurately as possible.

229-13-00-139



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Define Outdoor Spaces / Mounding Growth Habit



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 ALL  
 SUMMER**



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 PART SHADE**



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 2.5-3' W**



**0°F TO 10°F  
 USDA ZONES 7-10**



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