



# HENDERSON COUNTY ENGINEERING

Memorandum To: Interested Bidders

From: Marcus A. Jones, P.E.  
County Engineer

**Subject: Request for Proposals  
Construct Solid Waste Equipment Storage Facility**

Date: March 19, 2020

This request for proposals is presented to achieve a strong value for Henderson County to construct the Solid Waste Compost Facility. In turn, it is important to the County that we maintain a fair and competitive procurement process for the proposers. To be added to the bid list, Qualified bidders interested in bidding on this project should contact the County Engineer at [majones@hendersoncountync.gov](mailto:majones@hendersoncountync.gov). In addition, all question should be direct to the County Engineer. Henderson County reserves the right to reject any and / or all bids.

**Proposals are due:** April 9, 2020 by 5:00 pm  
Engineering Department  
Attention: Solid Waste Compost Facility  
1 Historic Courthouse Square, Suite 6  
Hendersonville, NC 28792

**Location of Work:** Henderson County Solid Waste  
191 Transfer Station Drive  
Hendersonville, NC 28791

**Detailed Scope of Work:**

- With the attached plans (Summit Engineer of NC, March 2020) and materials on site, the contractor will construct the Solid Waste Equipment Storage Facility.
- The structure has been dismantled from a location on the northern portion of the solid Waste property.
- Materials not salvaged from the deconstruction have been replaced with new materials. A list of materials on site can be found below.
- Contractor is responsible for providing all necessary materials not on site.
- Install necessary erosion control measures to avoid sediment entering the creek. County must approve measures prior to construction.
- Furnish the necessary supervision, labor, tools, equipment and materials to complete the required work.



# HENDERSON COUNTY ENGINEERING

- Install necessary safety fencing and barricades at project site.
- Obtain required permits.
- Provide for landfill and hauling fees.
- Work schedule is from 7:00 am to 5:00 pm Monday – Saturday. With advanced permission from the property owner and County, work outside these hours may be permitted.

**List of materials on site:**

Material Salvaged from Barn	
Tin 15ft	125
Tin 9ft	70
2x6x14	25
2x8x10	12
2x4x15	92
2x6x7	54
2x4x10	130
Trusses	15

New Material Purchased	
2x6x10 #2 PRM	191
8x8x20 Treated	43
2x6x12 #2 PRM	18
2x4x10 #2 PRM	80
2x4x10 #1 SYP KD	460
2x6x16 #1 SYP	20

**The following information must be included in the proposal:**

1. Proposed Contract signed by bidder and ready for County’s signature.
2. Work Schedule for start and completion
3. Copy of Contractor’s Licensure with North Carolina
4. One-year warranty on above work.
5. Workers Compensation per requirement of the State of North Carolina
6. Certificate of General Liability Insurance
7. E-Verify: As a condition of payment for services rendered under this agreement, CONTRACTOR shall comply with the requirements of Article 2 of Chapter 64 of the General Statutes. Further, if CONTRACTOR provides the services to the County utilizing a subcontractor, CONTRACTOR shall require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the General Statutes as well. CONTRACTOR shall verify, by affidavit, compliance of the terms of this section upon request by the COUNTY.

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N:\PROJECTS\05530\DWG-G--HENDERSONCOUNTY(PHASE1).DWG 3/17/2020P:\RBL\31771501.MXD

# ADVANCED COMPOSTING TECHNOLOGIES

## GRINDER OPEN FLOOR CONCEPT

### 52' x 45' BUILDING (PHASE 1)

For: Henderson County  
1 Historic Courthouse Square  
Hendersonville, North Carolina 28792

P: 828-697-4809

Henderson County

- CAUTION -  
 BEFORE STARTING EXCAVATION  
 CHECK FOR UNDERGROUND UTILITIES

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NOTES:

- 1 - PLAN SET FOR CONSTRUCTION DRAWINGS AND SPECIFICATIONS.
- 2 - HENDERSON COUNTY IS RESPONSIBLE FOR ALL BIDDING AND PREPARATION OF CONTRACT DOCUMENTS.
- 3 - ADVANCED COMPOSTING TECHNOLOGIES IS RESPONSIBLE FOR FURNISHING ALL AERATION EQUIPMENT, PIPING FOR INSTALLATION BY THE CONTRACTOR AND CUTTING CONCRETE GROOVES.
- 4 - HENDERSON COUNTY IS RESPONSIBLE FOR ELECTRICAL WORK.
- 5 - CONTRACTOR IS TO USE TRUSSES SALVAGED BY HENDERSON COUNTY AND PLACED ON THE GROUND AT THE LANDFILL. HENDERSON COUNTY IS RESPONSIBLE FOR SELECTING UNDAMAGED TRUSSES FOR USE BY THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE TRUSSES ONCE RELEASED BY HENDERSON COUNTY FOR TRANSPORT AND INSTALLATION.

No.	Revisions	Date	By

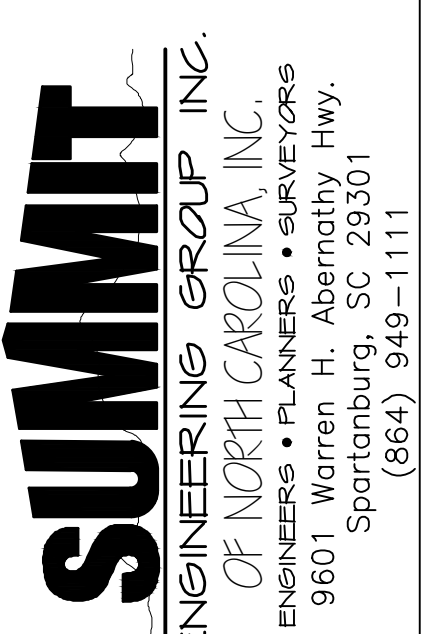
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NO.	DESCRIPTION	DATE	BY

PROJECT ENG: <b>RSW</b>	DESIGNED BY: <b>RSW</b>	DRAWN BY: <b>CKD</b>	CHECKED BY: <b>RSW</b>
APPROVALS			APPROVED: <b>RSW</b>

**PRELIMINARY PROGRESS DRAWINGS**

DATE: \_\_\_\_\_  
SIGNATURE: \_\_\_\_\_



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9801 Warren H. Abernathy Hwy.  
Spartanburg, SC 29301  
(864) 949-1111

**PHASE I COVER SHEET**

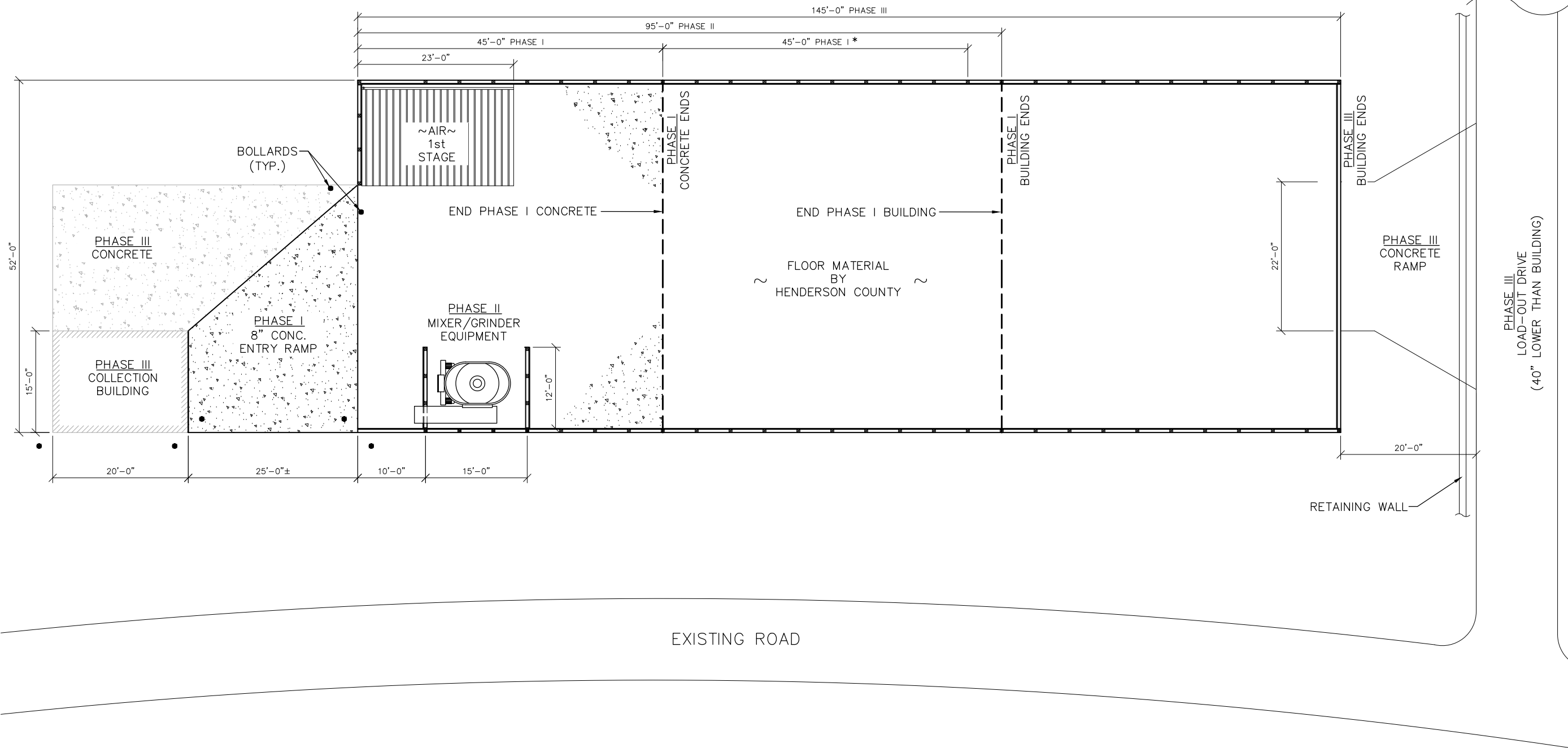
DATE: MAR. 2020    SCALE: AS SHOWN

**PROJECT**  
**ADVANCED COMPOSTING TECHNOLOGIES**  
 P.O. Box 2440  
 Candler, North Carolina 28715  
**GRINDER OPEN FLOOR**  
**52'x45' BUILDING**  
**HENDERSON COUNTY**

N.B. NO.	SHEET
REF.	<b>1</b>
PROJECT NO.	OF
<b>05530</b>	<b>9</b>

FILE: G-HendersonCounty

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**THREE PHASES OF CONSTRUCTION**  
SCALE: 1/8" = 1'-0"

REVISIONS			
NO.	DESCRIPTION	DATE	BY

APPROVALS	
PROJECT ENG: RSW	DESIGNED BY: RSW
DRAWN BY: CKD	CHECKED BY: RSW
APPROVED: RSW	

**PRELIMINARY PROGRESS DRAWINGS**

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

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**PHASE I PHASED CONSTRUCTION**

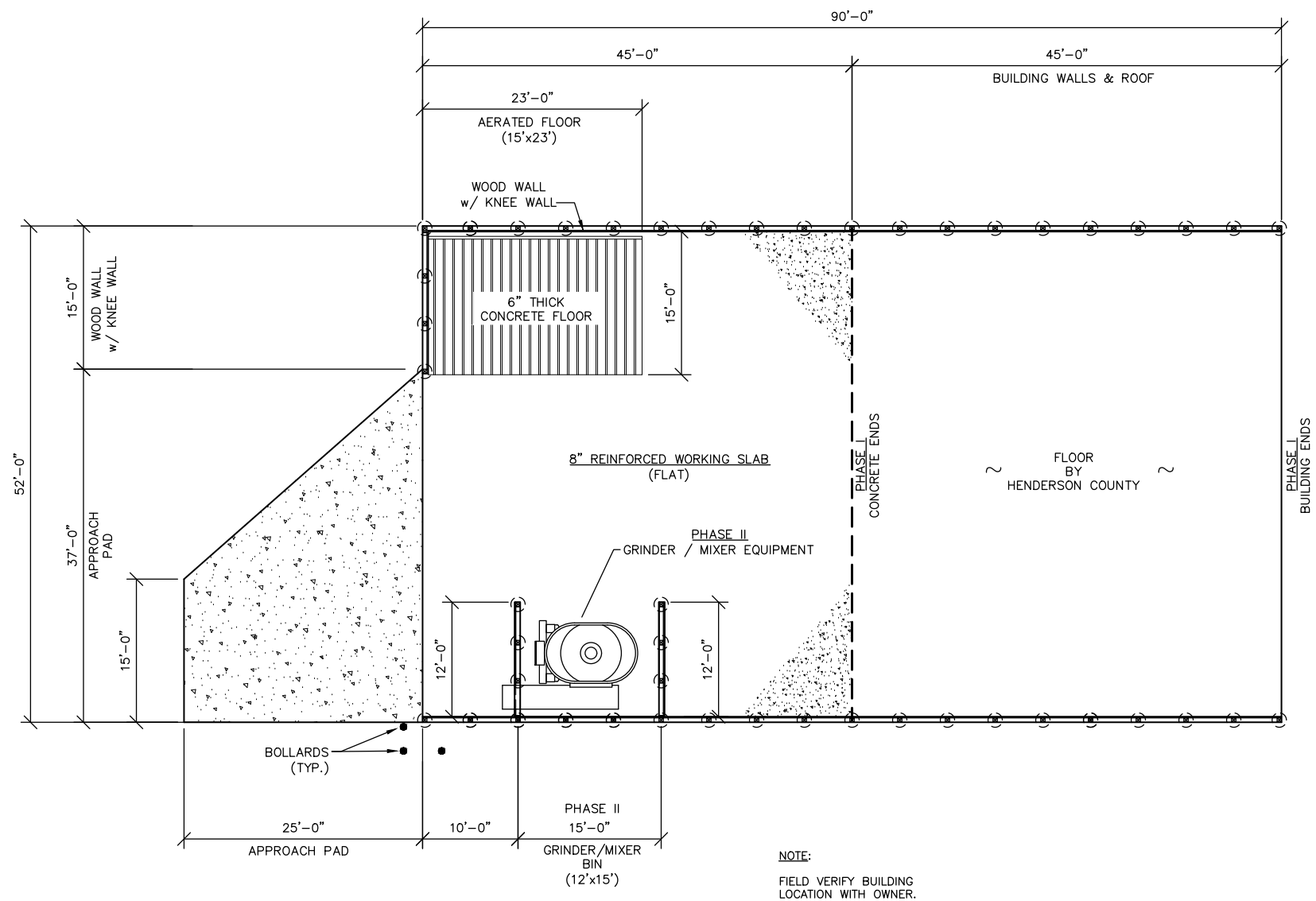
SHEET TITLE: \_\_\_\_\_  
DATE: MAR. 2020 SCALE: AS SHOWN

**PROJECT**  
ADVANCED COMPOSTING TECHNOLOGIES  
P.O. Box 2440  
Candler, North Carolina 28715  
**GRINDER OPEN FLOOR 52'x45' BUILDING HENDERSON COUNTY**

N.B. NO.	SHEET
REF.	2
PROJECT NO.	OF
05530	9

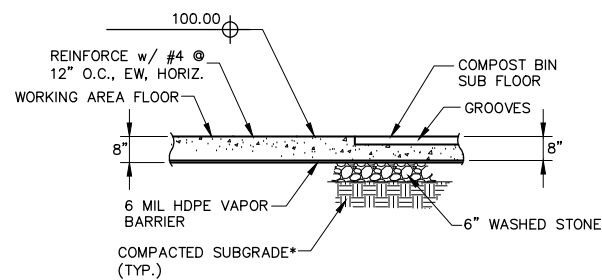
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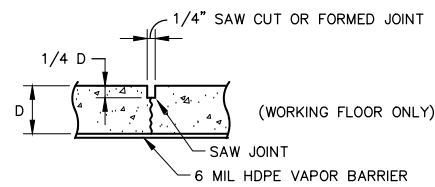


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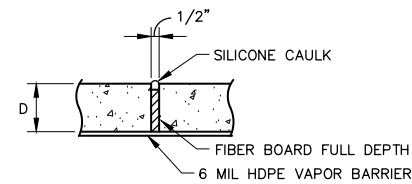
SCALE: 1/8" = 1'-0"



**SECTION A**  
1/2" = 1'-0"



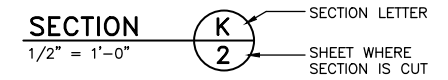
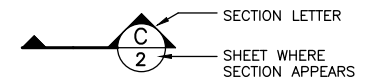
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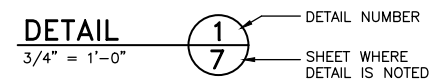
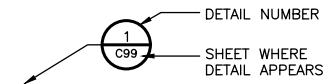
**EXPANSION JOINT DETAIL**

**SECTION C**  
NOT TO SCALE

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**SECTION REFERENCES**



**DETAIL REFERENCES**

REVISIONS	
NO.	DESCRIPTION

APPROVALS	
PROJECT ENG:	DESIGNED BY:
DRAWN BY:	CHECKED BY:
APPROVED:	
RSW	RSW
RSW	CKD
RSW	RSW

**PRELIMINARY PROGRESS DRAWINGS**

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SIGNATURE: \_\_\_\_\_

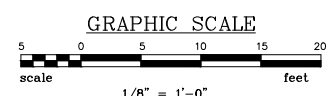
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**PHASE I SITE PLAN AND DETAILS**

SHEET TITLE: \_\_\_\_\_  
DATE: MAR. 2020 SCALE: AS SHOWN

**ADVANCED COMPOSTING TECHNOLOGIES**  
P.O. Box 2440  
Candler, North Carolina 28715  
**GRINDER OPEN FLOOR**  
**52'x45' BUILDING**  
**HENDERSON COUNTY**

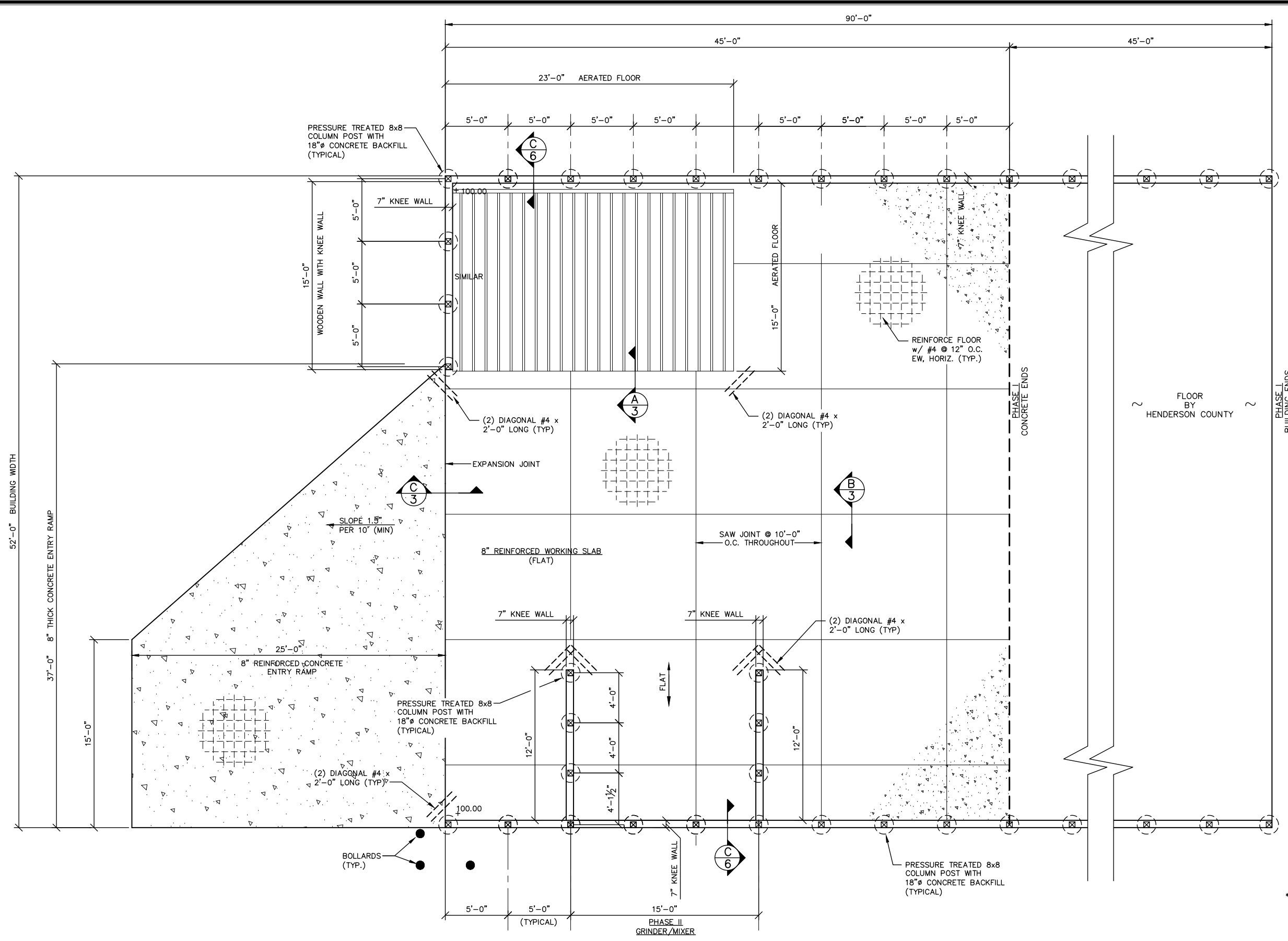
N.B. NO.	SHEET
REF.	3
PROJECT NO.	OF
05530	9



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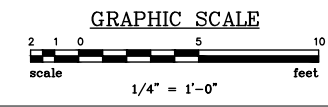
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**CONCRETE SLAB PLAN**  
1/4" = 1'-0"

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- \*NOTES:**
- SUBGRADE FILL SOILS TO BE COMPACTED TO 95% STANDARD PROCTOR.
  - MINIMUM SUBGRADE BEARING STRENGTH OF SUBGRADE TO BE 2,500 lb/sf.



REVISIONS	
NO.	DESCRIPTION

APPROVALS	
PROJECT ENG.	DATE
RSW	
DESIGNED BY:	
RSW	
DRAWN BY:	
CKD	
CHECKED BY:	
RSW	
APPROVED:	
RSW	

**PRELIMINARY PROGRESS DRAWINGS**

DATE: \_\_\_\_\_  
SIGNATURE: \_\_\_\_\_

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**PHASE I CONCRETE SLAB PLAN**

DATE: MAR. 2020 SCALE: AS SHOWN

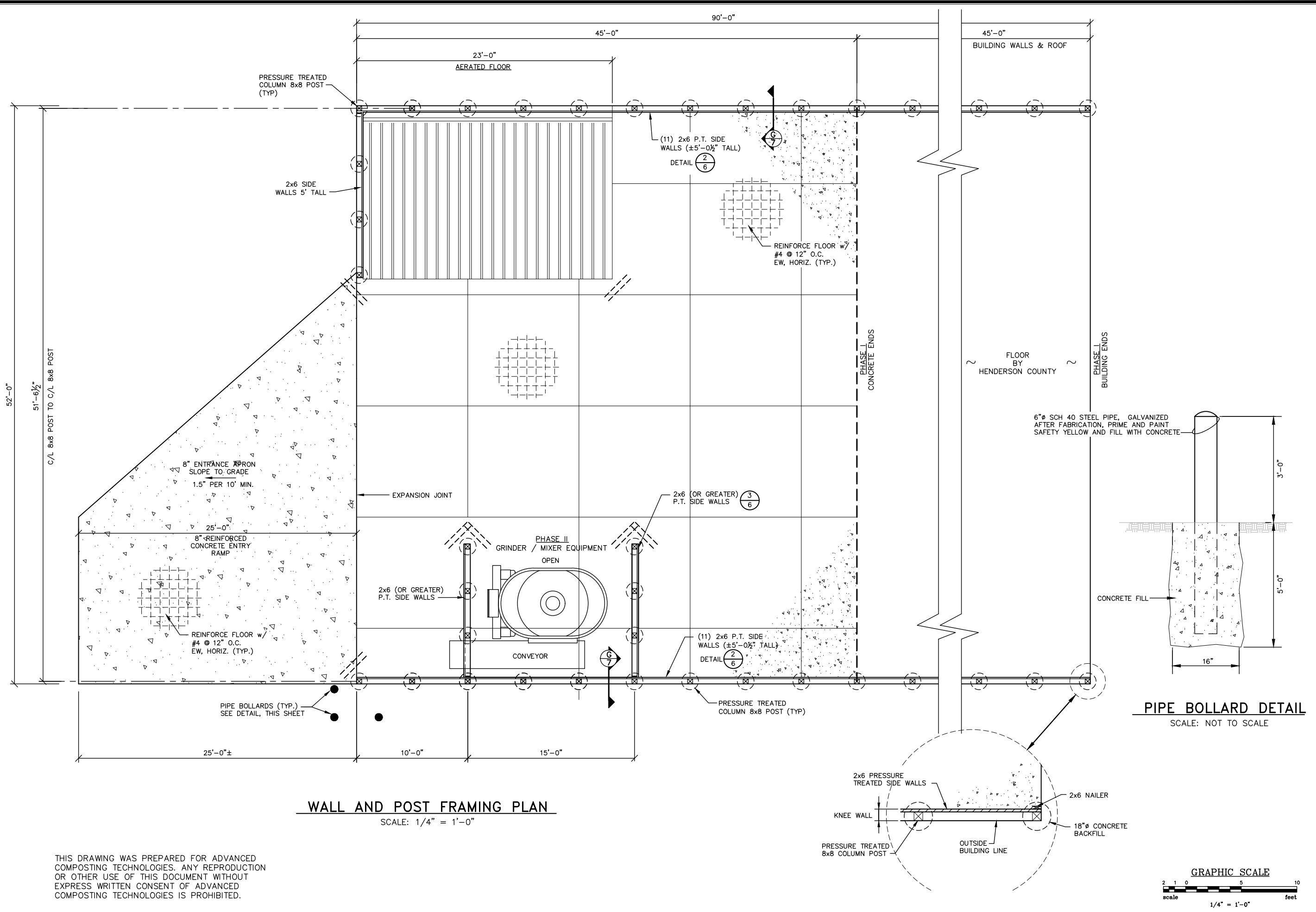
**PROJECT ADVANCED COMPOSTING TECHNOLOGIES**  
P.O. Box 2440  
Candler, North Carolina 28715  
**GRINDER OPEN FLOOR**  
**52'x45' BUILDING**  
**HENDERSON COUNTY**

N.B. NO.	SHEET
REF.	4
PROJECT NO.	OF
05530	9

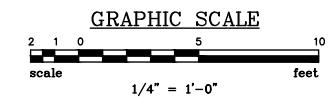
FILE: G-HendersonCounty

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REVISIONS	
NO.	DESCRIPTION

APPROVALS	
PROJECT ENG:	DESIGNED BY:
RSW	RSW
DRAWN BY:	CHECKED BY:
CKD	RSW
APPROVED:	RSW

PRELIMINARY PROGRESS DRAWINGS

DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

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PHASE I  
FRAMING PLAN

DATE: MAR. 2020 SCALE: AS SHOWN

PROJECT  
**ADVANCED COMPOSTING TECHNOLOGIES**  
P.O. Box 2440  
Candler, North Carolina 28715

SHEET  
**5**  
OF  
**9**

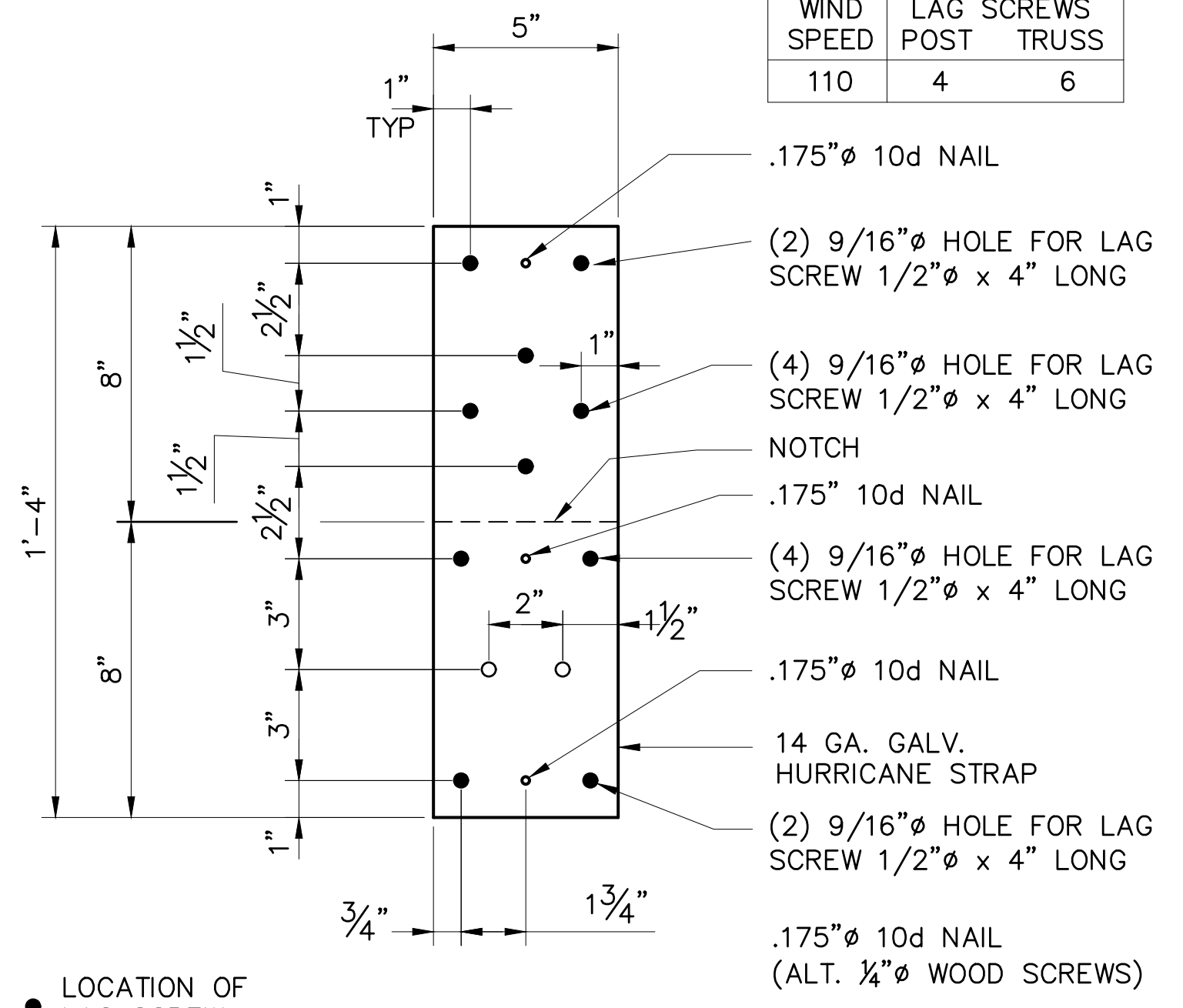
PROJECT NO.  
**05530**

FILE: G-HendersonCounty

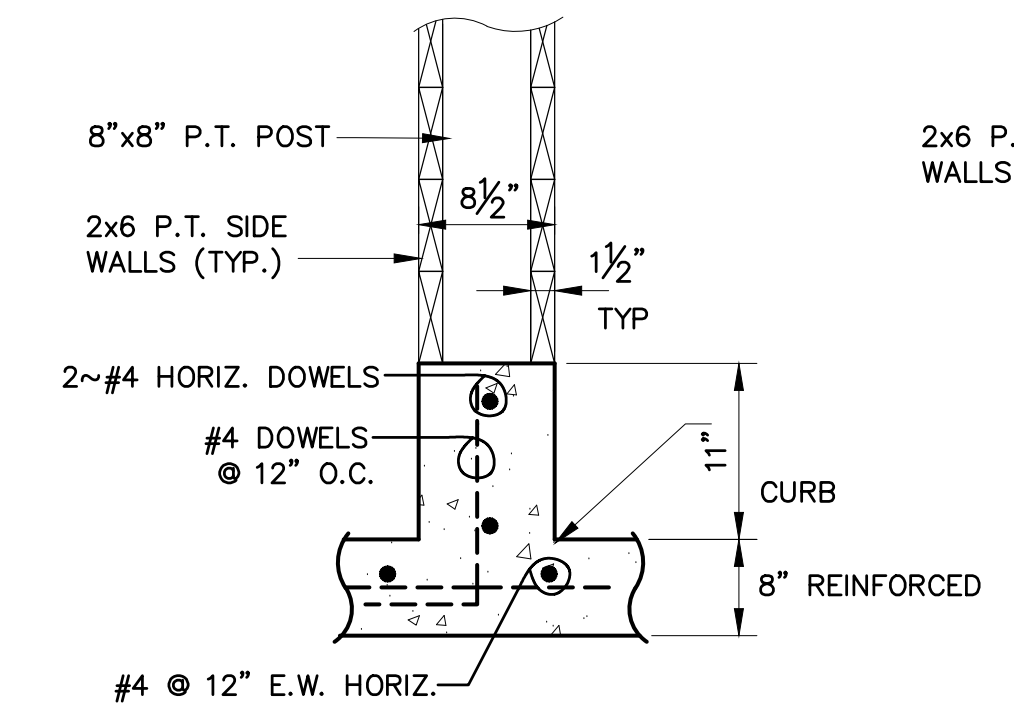
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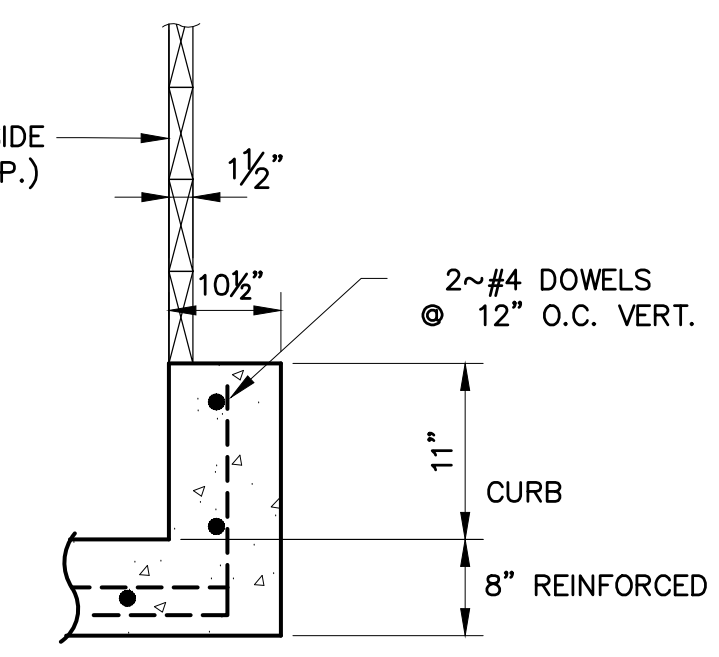
WIND SPEED	LAG SCREWS POST	TRUSS
110	4	6



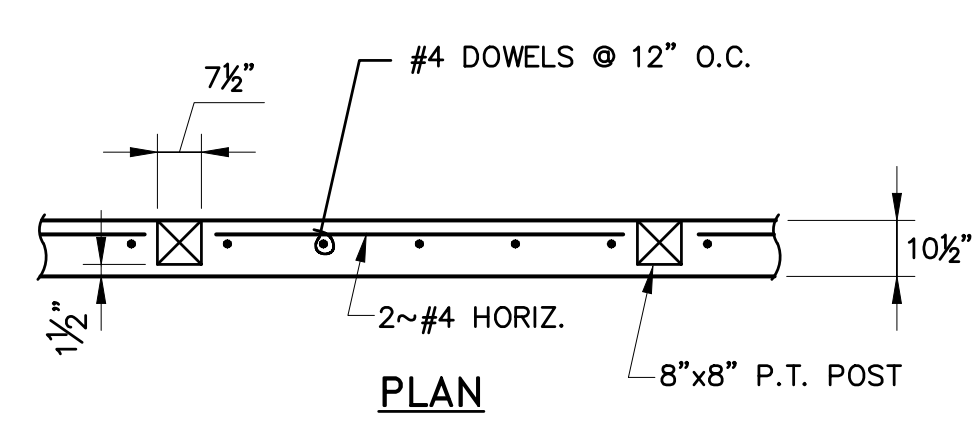
**HURRICANE STRAP DETAIL**  
3" = 1'-0"



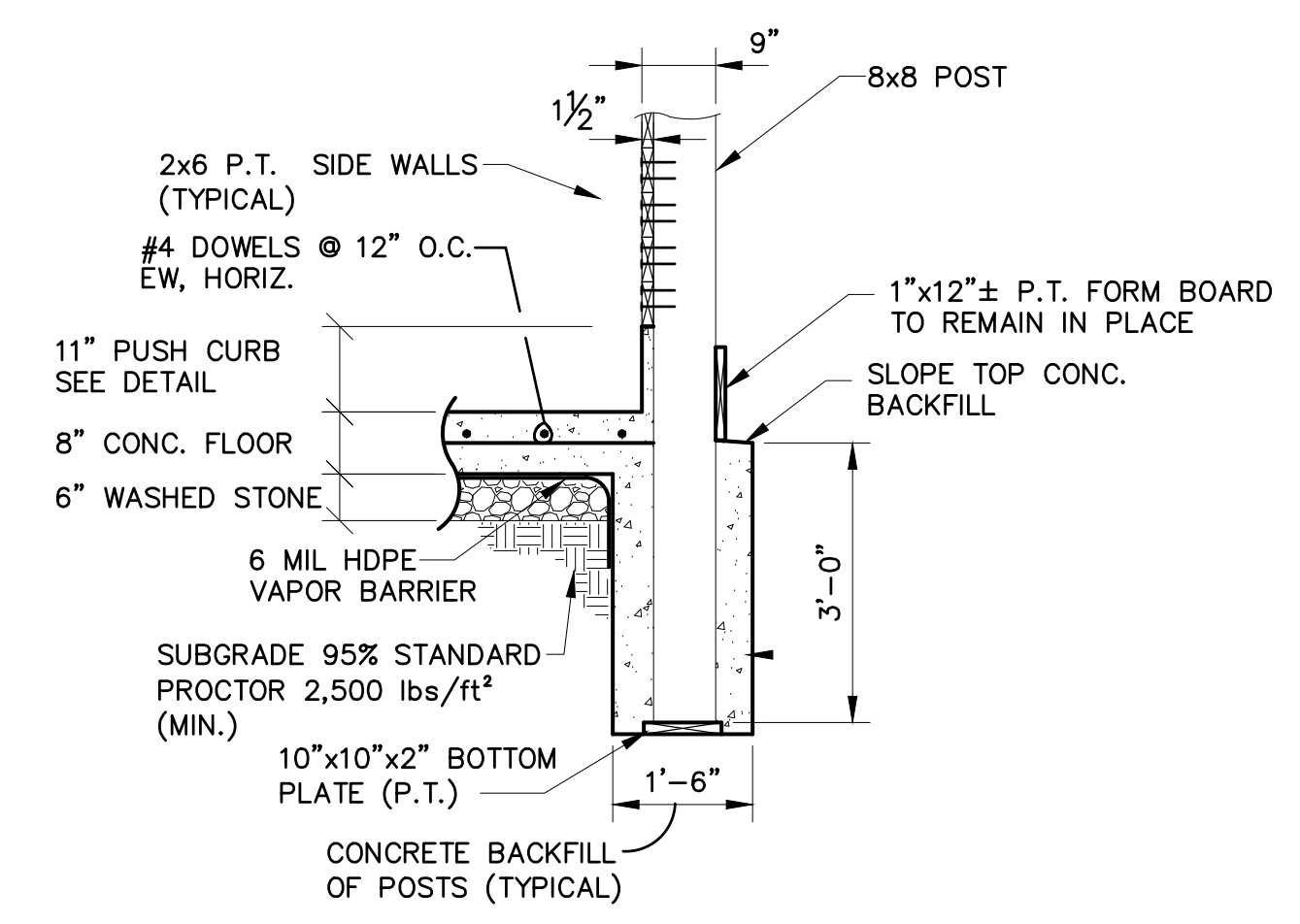
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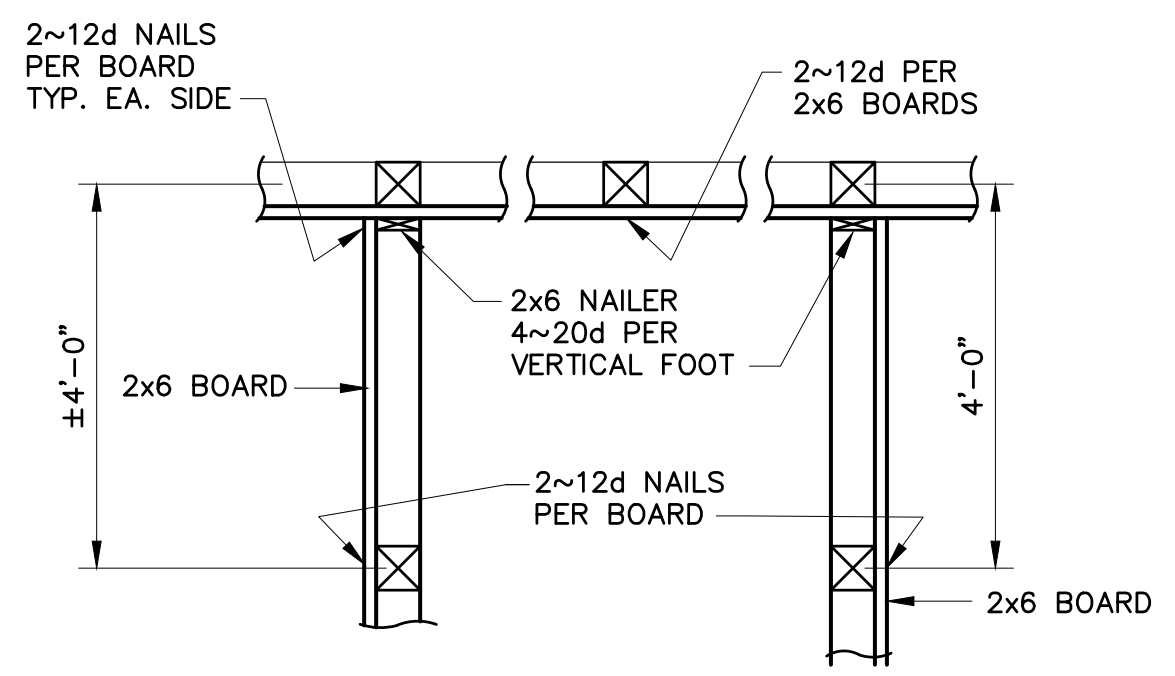
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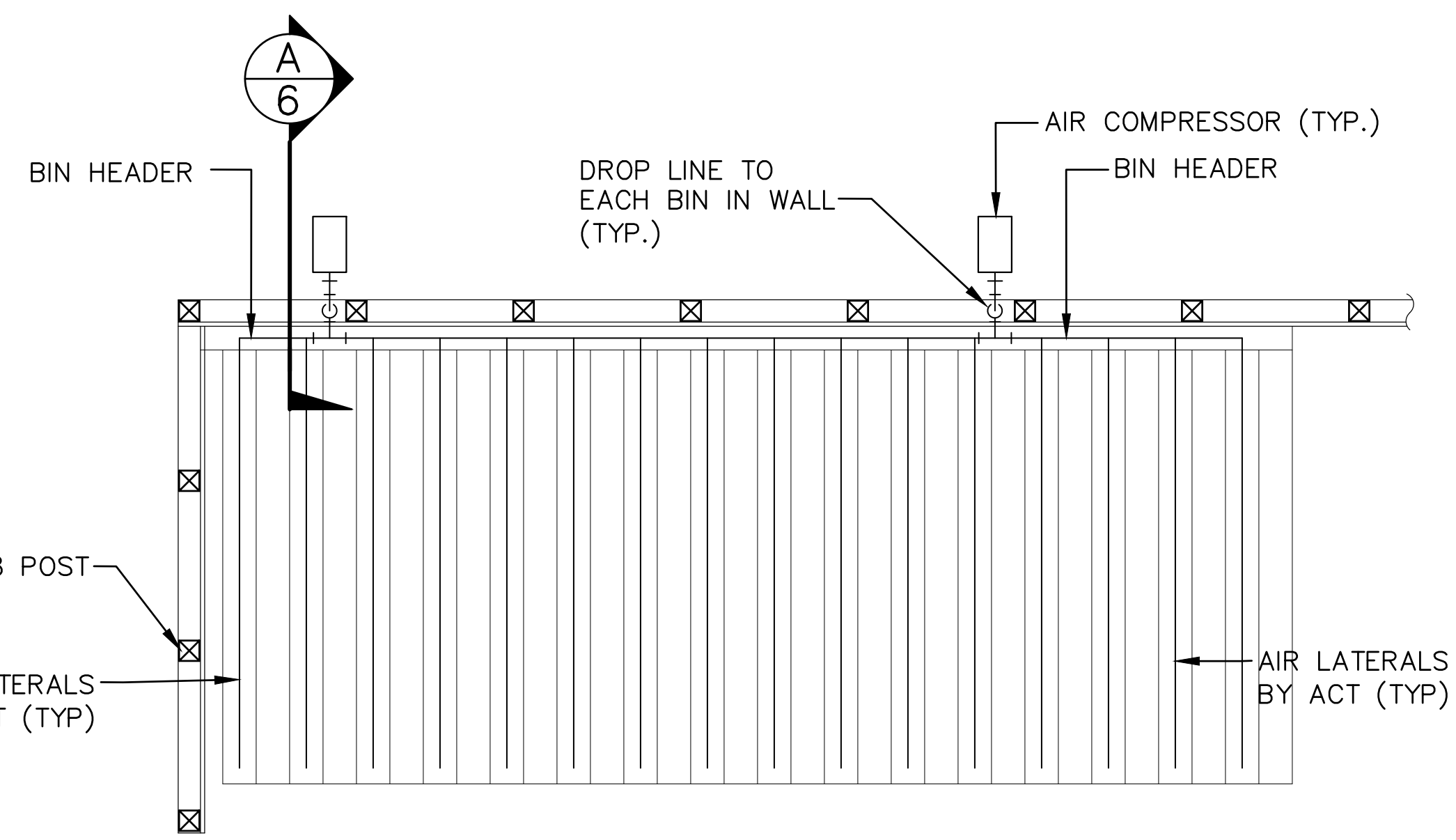
**PUSH CURB FOR POSTS DETAIL**  
1/2" = 1'-0"



**SECTION C**  
1/2" = 1'-0"



**GRINDER/MIXER NAILING PLAN DETAIL 3**  
1/2" = 1'-0"

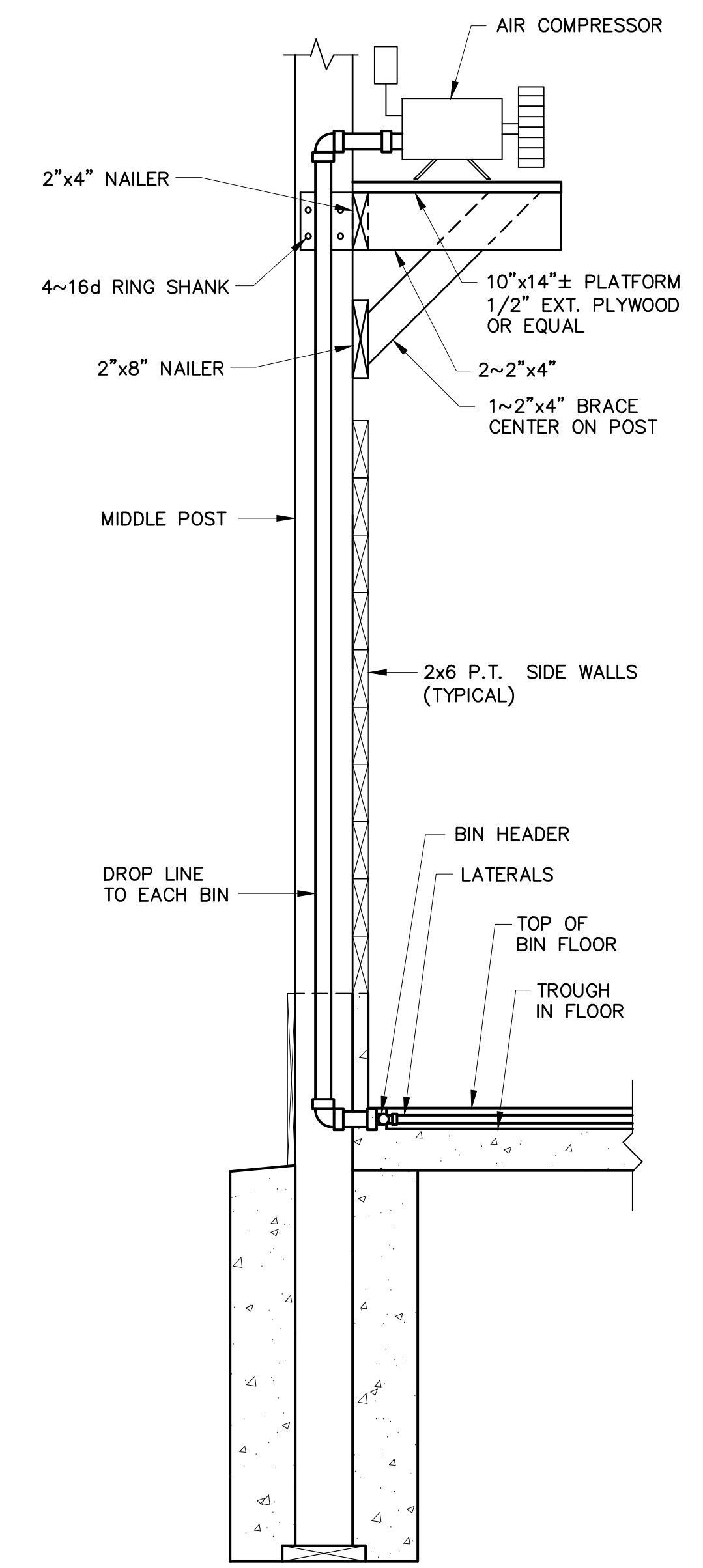


**AIR SYSTEM SCHEMATIC**  
SCALE: NOT TO SCALE

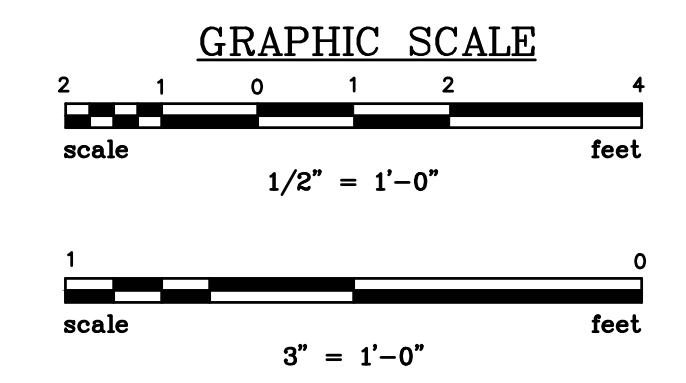
**NOTES:**

- 1 - ADVANCED COMPOSTING TECHNOLOGIES (ACT) IS RESPONSIBLE FOR FURNISHING ALL AERATION EQUIPMENT AND PIPING FOR INSTALLATION BY THE CONTRACTOR.
- 2 - ACT TO CUT AIR GROOVES IN AERATION AREA.

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**SECTION A**  
SCALE: NOT TO SCALE 6



NO.	DESCRIPTION	DATE	BY

PROJECT ENG.	DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
RSW	RSW	CKD	RSW	RSW

**PRELIMINARY PROGRESS DRAWINGS**

DATE: \_\_\_\_\_  
SIGNATURE: \_\_\_\_\_

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**PHASE I KNEE WALL DETAILS AND AIR PIPING**

SHEET TITLE: \_\_\_\_\_  
DATE: MAR. 2020  
SCALE: AS SHOWN

**ADVANCED COMPOSTING TECHNOLOGIES**  
P.O. Box 2440  
Candler, North Carolina 28715  
**GRINDER OPEN FLOOR**  
52'x45' BUILDING  
HENDERSON COUNTY

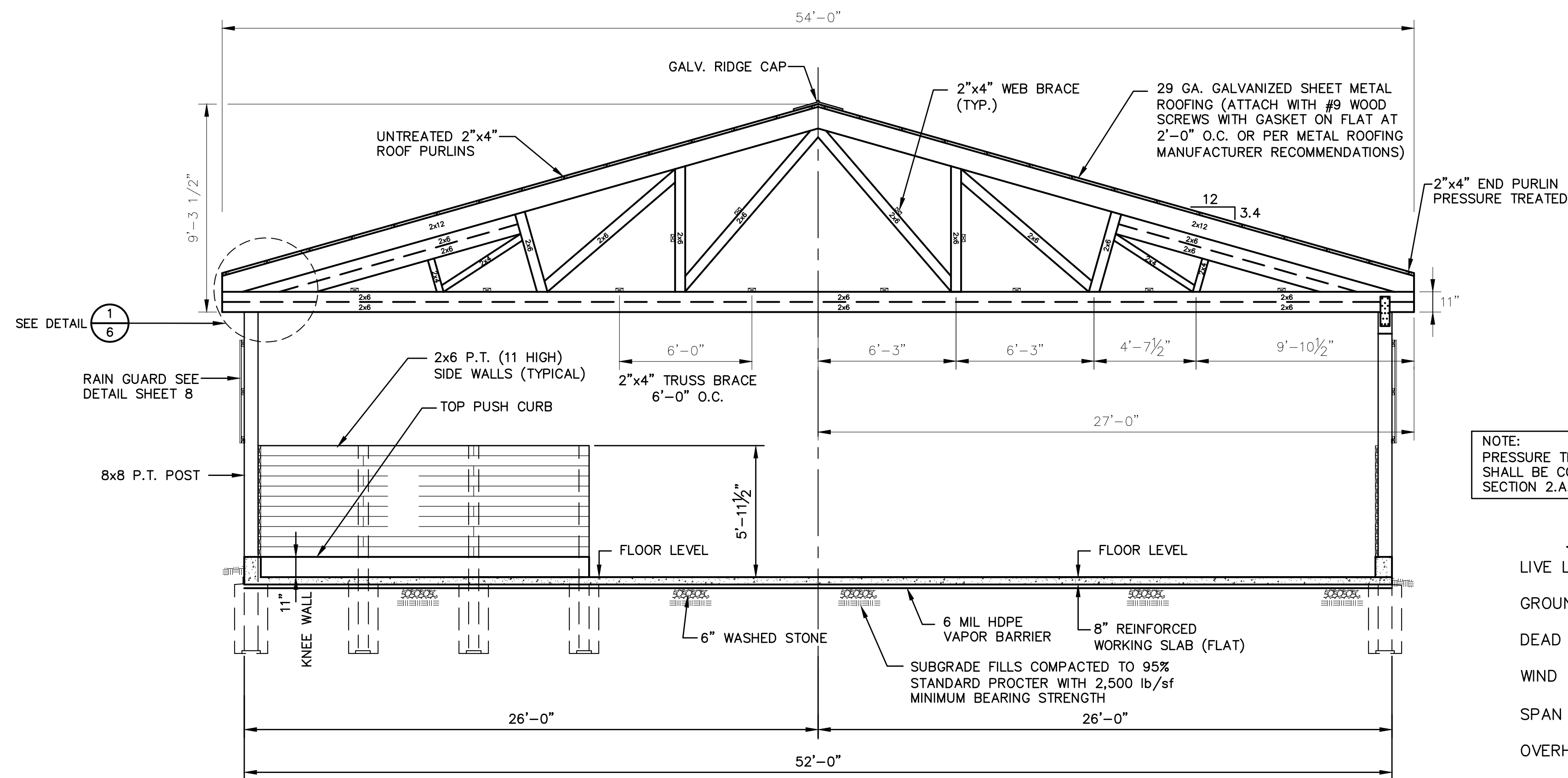
N.B. NO.	SHEET
REF.	6
PROJECT NO.	OF
05530	9

FILE: G-HendersonCounty



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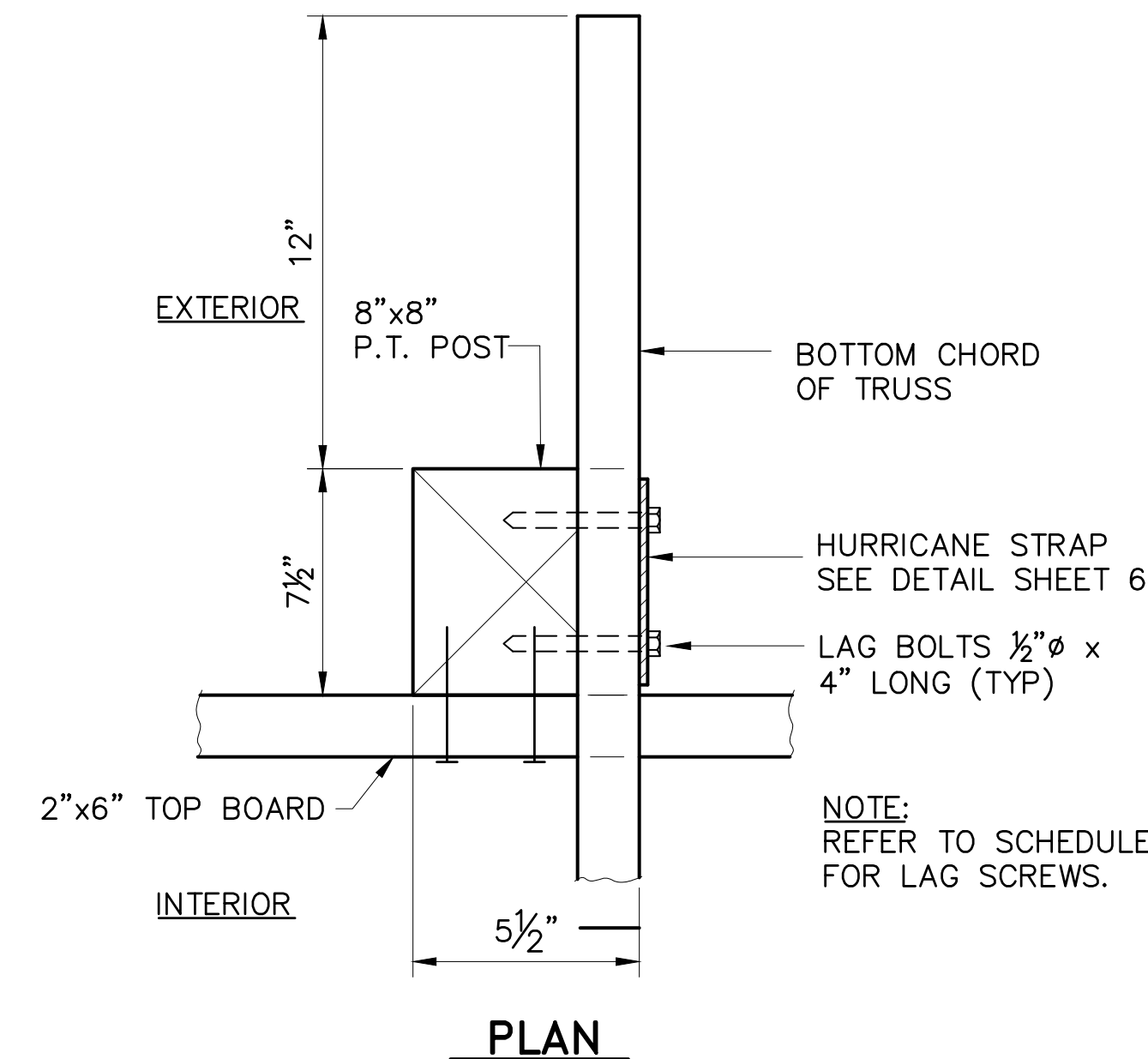


**SECTION D**  
1/4" = 1'-0"  
scale 1/4" = 1'-0" feet

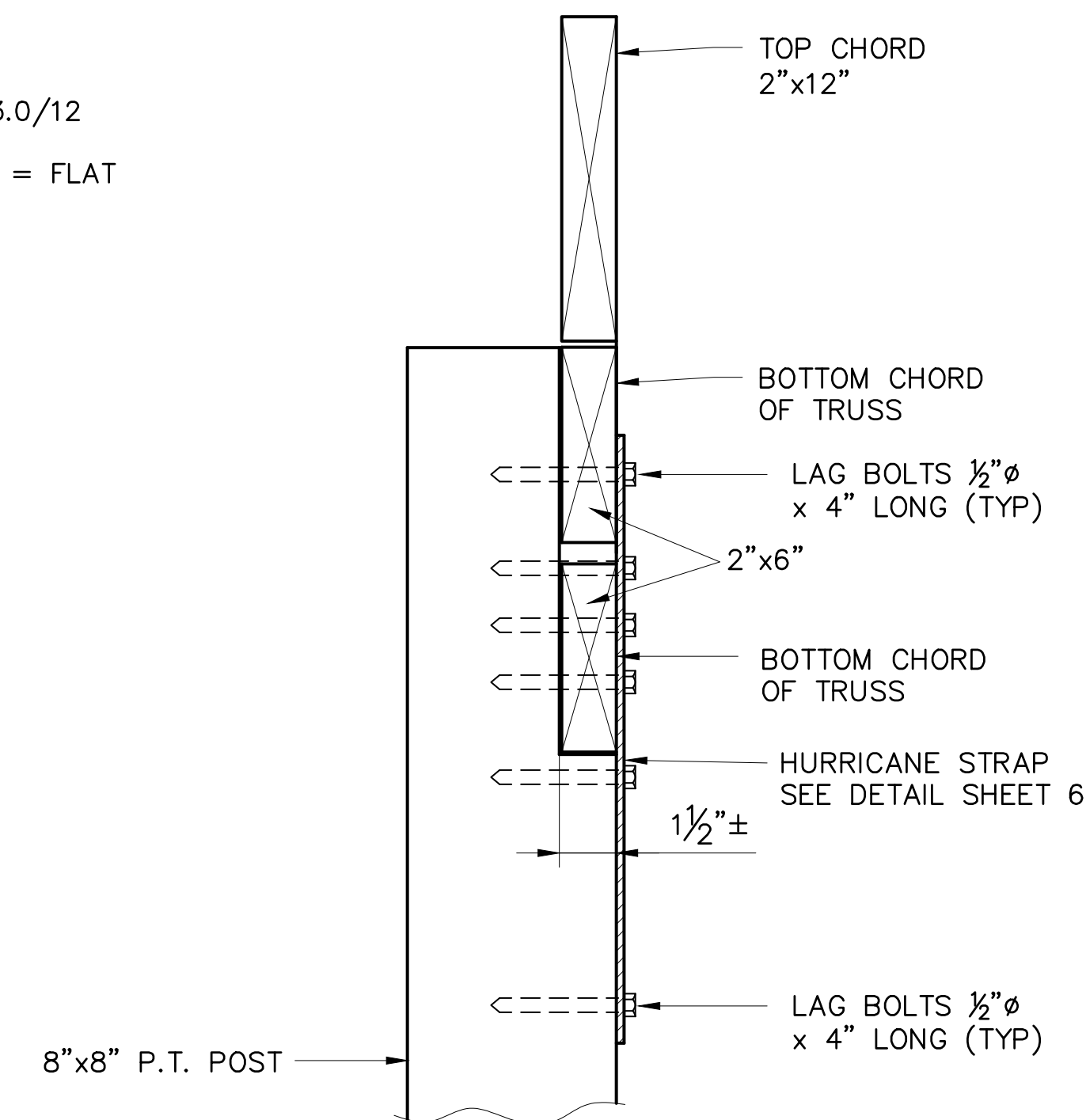
NOTE:  
PRESSURE TREATED WOOD (P.T.)  
SHALL BE CCA OR ALTERNATE -  
SECTION 2.A.2.b.

**TRUSS INFORMATION**

- LIVE LOAD (L.L.) - 5 psf
- GROUND SNOW LOAD (G.S.L.) - 20 psf
- DEAD LOAD (D.L.) - 5 psf
- WIND LOAD (W.L.) - 110 mph (EXPOSURE C)
- SPAN - - - - - 27'-0"
- OVERHANG - - - - - 1'-0"
- PITCH - - - - - TOP CHORD (T.C.) = 3.0/12  
BOTTOM CHORD (B.C.) = FLAT
- SPACING - - - - - 5'-0" O.C.



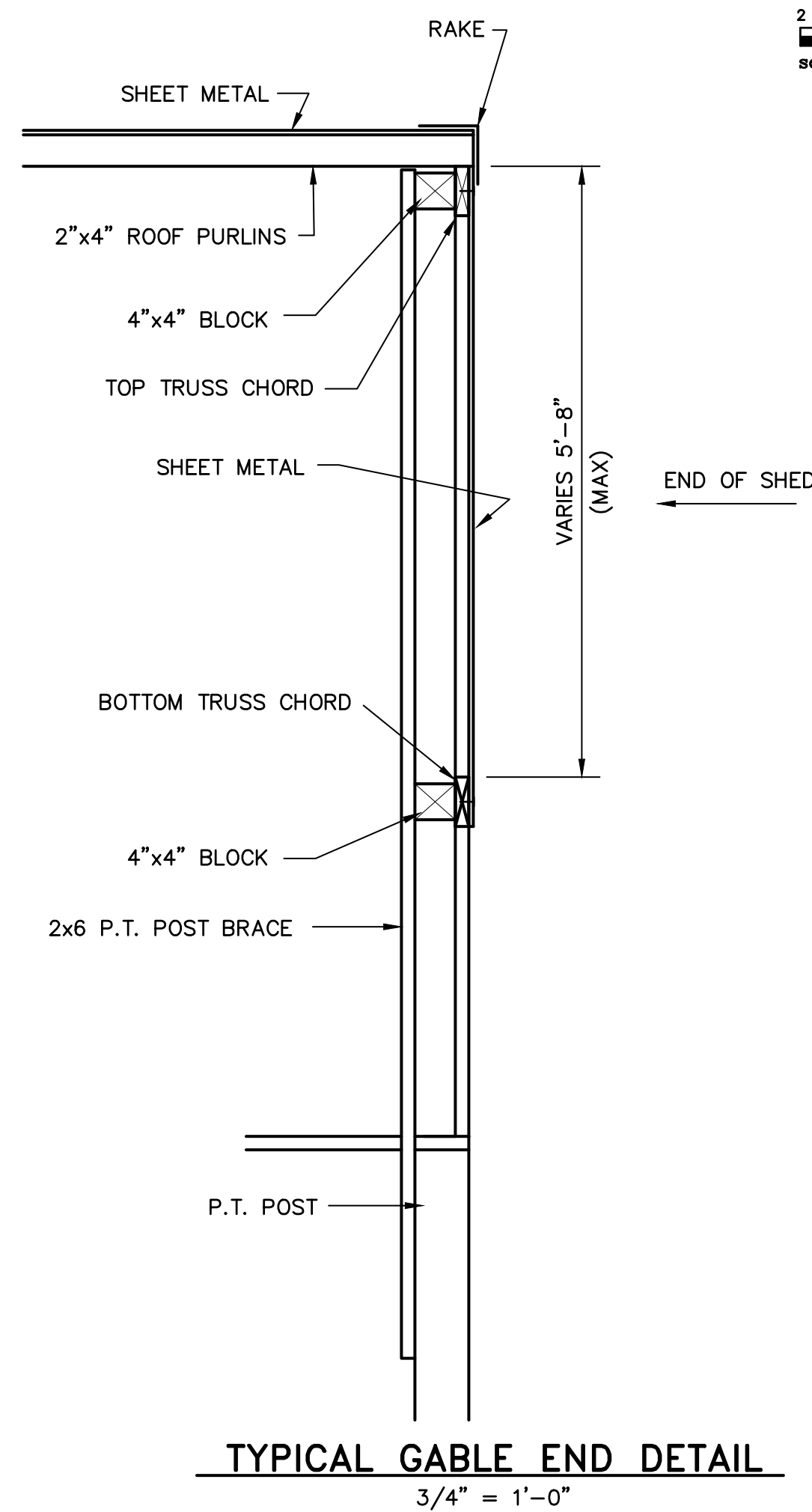
**PLAN**



**SECTION E**

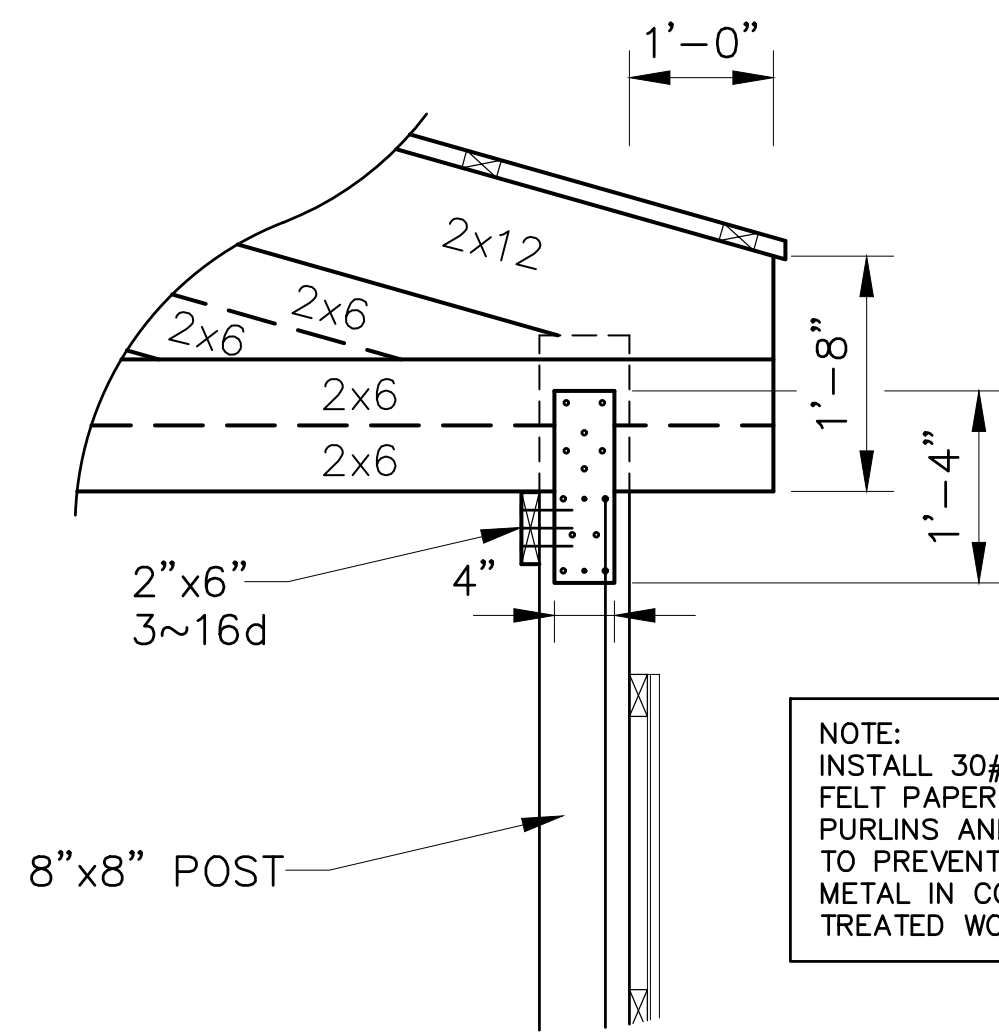
**POST / TRUSS CONNECTION**

NOT TO SCALE **SECTION E**  
6

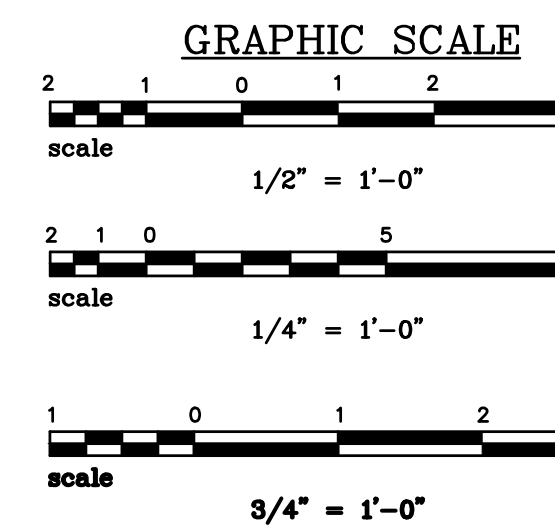


**TYPICAL GABLE END DETAIL**

3/4" = 1'-0"



**DETAIL 1**  
3/4" = 1'-0"



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REVISIONS	
NO.	DESCRIPTION

APPROVALS	PROJECT ENG.	DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
RSW	RSW	RSW	CKD	RSW	RSW

**PRELIMINARY PROGRESS DRAWINGS**

DATE: \_\_\_\_\_  
SIGNATURE: \_\_\_\_\_

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Spartanburg, SC 29301  
(864) 949-1111

**PHASE I BUILDING SECTIONS AND DETAILS**

SHEET TITLE: \_\_\_\_\_  
DATE: MAR. 2020 SCALE: AS SHOWN

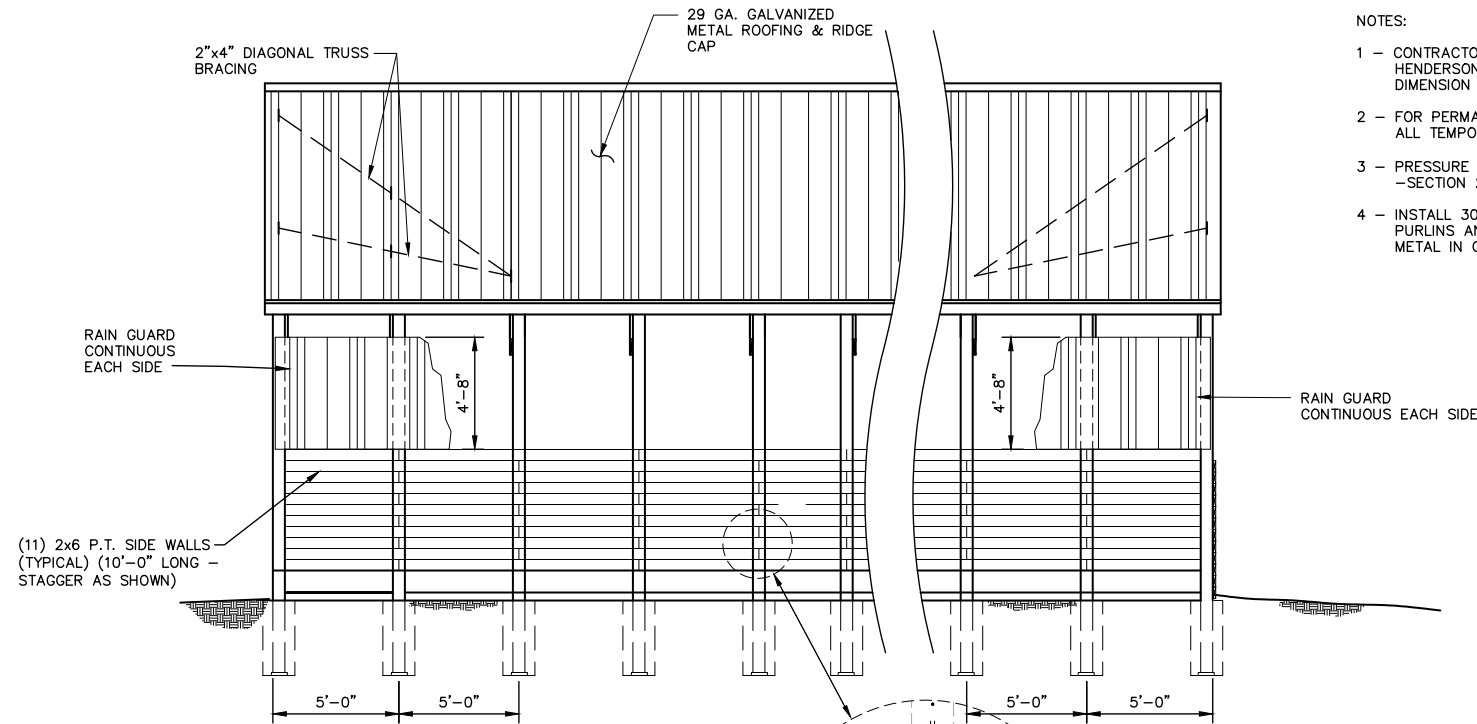
**ADVANCED COMPOSTING TECHNOLOGIES**  
P.O. Box 2440  
Candler, North Carolina 28715  
**GRINDER OPEN FLOOR 52'x45' BUILDING**  
HENDERSON COUNTY

N.B. NO. \_\_\_\_\_  
REF. \_\_\_\_\_  
PROJECT NO. **05530**  
SHEET **7** OF **9**

FILE: G-HendersonCounty

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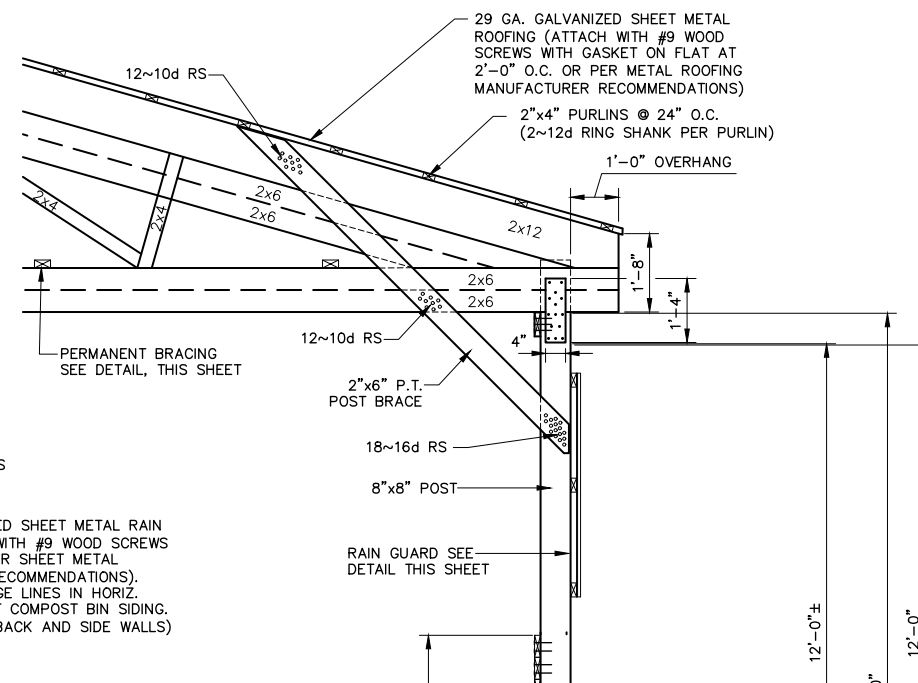


**SIDE ELEVATION SECTION H 4**  
1/4" = 1'-0"

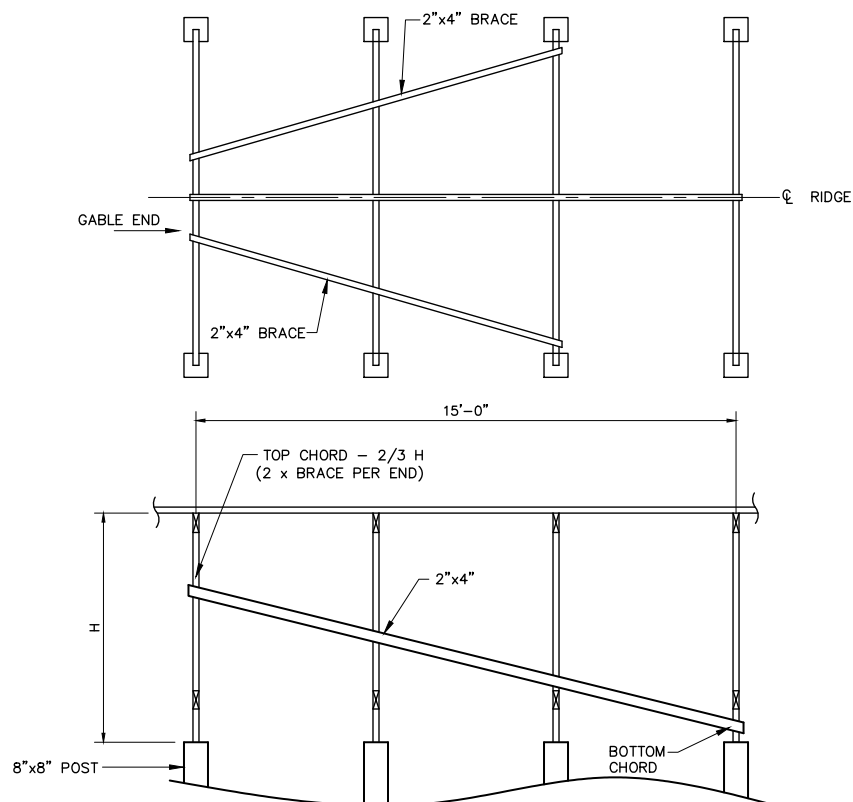
**NOTES:**

- 1 - CONTRACTOR SHALL INSTALL PRE-USED TRUSSES FURNISHED BY HENDERSON COUNTY. PROVIDE NEW GABLE END TRUSSES TO SAME DIMENSION AS USED TRUSSES.
- 2 - FOR PERMANENT TRUSS BRACING, CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY BRACING DURING CONSTRUCTION.
- 3 - PRESSURE TREATED WOOD (P.T.) SHALL BE CCA OR ALTERNATE -SECTION 2.A.2.b.
- 4 - INSTALL 30# ASPHALT IMPREGNATED FELT PAPER BETWEEN THE 2x4 PURLINS AND THE METAL SHEETING TO PREVENT CORROSION OF THE METAL IN CONTACT WITH THE TREATED WOOD.

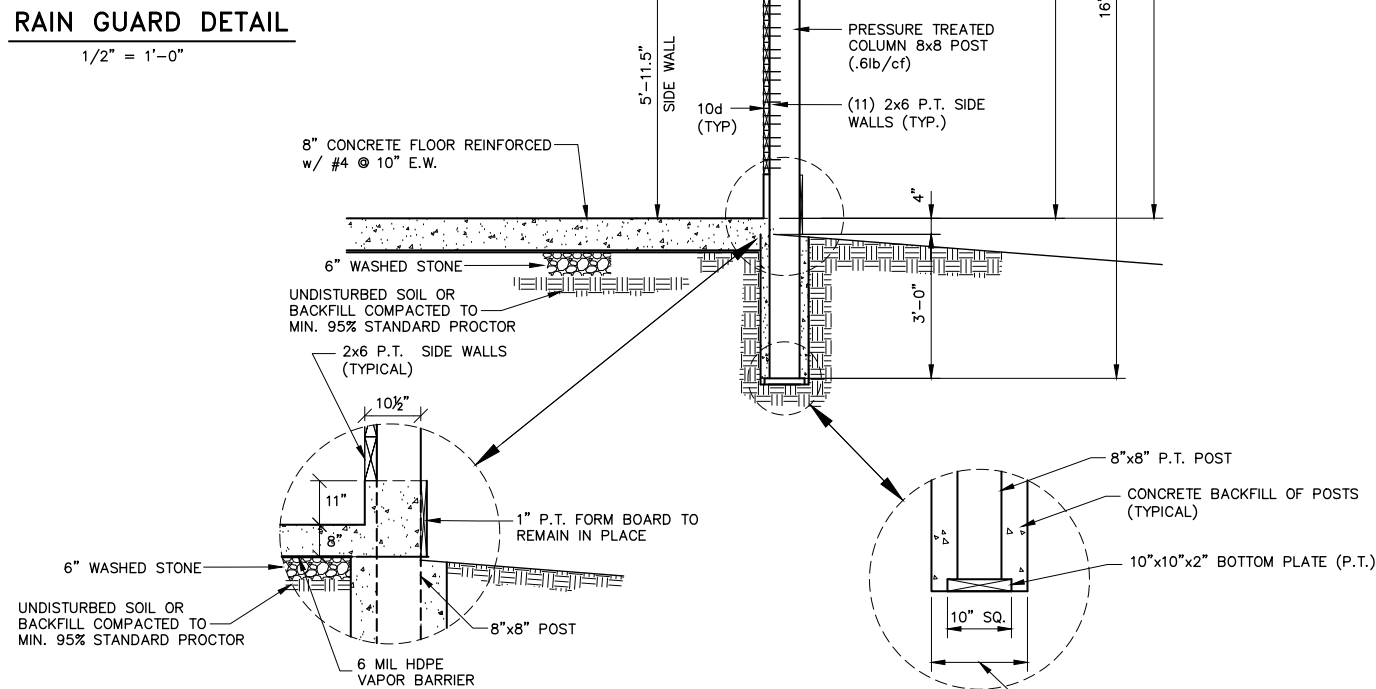
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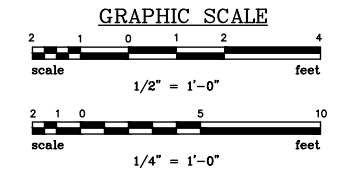
**RAIN GUARD DETAIL**  
1/2" = 1'-0"



**BRACING PLAN TOP VIEW GABLE END BRACING DETAIL 1 8**  
SCALE: NOT TO SCALE



**SECTION G 4**  
SCALE: NOT TO SCALE



REVISIONS	
NO.	DESCRIPTION

APPROVALS	
PROJECT ENG.	DESIGNED BY:
CHECKED BY:	DRAWN BY:
APPROVED:	DATE:
RSW	RSW
CKD	RSW
RSW	RSW

**PRELIMINARY PROGRESS DRAWINGS**

**SUMMIT ENGINEERING GROUP, INC. OF NORTH CAROLINA, INC.**  
ENGINEERS • PLANNERS • SURVEYORS  
9601 Warren H. Abernathy Hwy.  
Spartanburg, SC 29301  
(864) 949-1111

**PHASE I BUILDING SECTIONS AND DETAILS**

**PROJECT: ADVANCED COMPOSTING TECHNOLOGIES**  
P.O. Box 2440  
Candler, North Carolina 28715  
**GRINDER OPEN FLOOR 52' x 45' BUILDING HENDERSON COUNTY**

N.B. NO.	SHEET
REF.	8
PROJECT NO.	OF
05530	9

FILE: G--HendersonCounty

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**CONSTRUCTION NOTES**

**SECTION 1 – GRADING**

**Clearing**

- A. The site shall be cleared of all vegetation, grass, roots, and debris. The topsoil shall be removed to residual and clay/silt or sandy soil subgrade.

**Grading**

- A. The Contractor shall be responsible for all site grading, stabilization and proper compaction.
- B. The site shall be shaped to the size of the compost facility and graded to drain away from the facility.
- C. The site shall be graded to residual soil and any soft or unstable subgrade excavated, backfilled and compacted.
- D. Sites on fill shall be uniformly graded, backfilled, and compacted to 95% Standard Proctor using heavy grading equipment or roller compactor.
- E. The site shall be proof rolled by driving a loaded truck or other heavy rubber tired equipment over the site and inspected for movement or "pumping of the soil". If movement is observed, the soft areas are to be excavated, backfilled and recompacted.
- F. All finished subgrade shall have a minimum bearing strength of 2,500 lb/sf @ 95% standard proctor.

**SECTION 2 – MATERIALS**

- A. All lumber shall be of good quality southern yellow pine (SYP) No. 2, MSR #1, fb = 2,100 psi.
  - 1. Structural members shall be manufactured to meet the loads, spacing, and spans as noted on the drawings.
    - a. Wind loads shall meet the local codes of each county where the facility is located as noted on the drawings.
  - 2. Rafters may be a manufactured wood product with equal or greater strength than SYP No 2, MSR #1, fb = 2,100 psi.
    - a. Pressure treated lumber (PT) shall be preserved with copper chromated arsenic (CCA–Type I, II, or III) conforming to Federal Specification TT–W–571.
      - 1. The following wood components of the facility are to be pressure treated.
        - a. Rear Post columns on walls – 0.4 lb. retention  
Rear Post columns in ground – 0.6 lb. retention
        - b. Front post columns on walls – 0.4 lb retention  
Front post columns in ground – 0.6 lb retention  
CCA – 0.60 lb/cf, ACQ – 0.60 lb/cf
        - c. Exposed boards and purlins as noted on the drawings – 0.4 lb. retention
        - d. Column bracing – 0.4 lb retention
      - b. Alternative copper pressure treated lumber (PT) shall be preserved in accordance with American Wood Preservative Association (APWA) Standard UC4B and commodity standard C15/C16.
        - 1. Under these standards the following preservatives are allowed.
          - a. Post Columns
            - 1) ACQ – 0.40 lb/cf
            - 2) CBA–A – 0.41 lb/cf
            - 3) ACZA – 0.40 lb/cf
          - b. Exposed boards and purlins
            - 1) ACQ – 0.40 lb/cf
            - 2) CBA–A – 0.40 lb/cf
            - 3) CZA – 0.40 lb/cf
            - 4) MICRONIZED CQC – 0.34 lb/cf (GROUND CONTACT)
            - 5) MICRONIZED CAC – 0.15 lb/cf (GROUND CONTACT)
          - c. Column Bracing
            - 1) ACQ – 0.40 lb/cf
            - 2) CBA–A – 0.40 lb/cf
            - 3) CZA – 0.40 lb/cf
            - 4) MICRONIZED CAC – 0.15 lb/cf
      - 2. The alternative copper preservatives are corrosive to metal. All metal surfaces in direct contact with the pressure treated lumber shall be in accordance with section 2, B with minimum 30 lb. felt.
      - 3. All pressure treated lumber shall be accredited by the American Lumber Standard Committee (ALSC) and shall conform to the standards of the AWPA.
        - a. When alternative treated lumber is used, the end tag shall be saved and made available to the NRCS for their review as part of the cost reimbursement program.
    - 3. The following wood components of the facility do not need to be pressure treated.
      - a. Roof rafters
      - b. Roof purlins
- B. Aluminum fasteners shall not be used in direct contact with treated wood. Galvanized or stainless steel bolts, washers, nuts, nails and other hardware which meet requirements of ASTM A153 for fasteners and A653 Class G185 sheet metal for connections, type 304 or 316 stainless steel, or other type of coating as approved by the preservative manufacturer. All fasteners, connectors and other metal contacting ACZA, ACQ, or CA treated wood shall be stainless steel.
  - 1. Nails used to fasten pressure treated lumber shall be ring shank with annular threads or spiral shank nails, sized as shown on the drawings.
  - 2. Nails used to fasten purlins to the roof rafters shall be ring or spiral shank.
  - 3. Fasteners used to fasten sheet metal roofing, end walls and rain guard to purlins shall be #9 wood screws with washers.
  - 4. Bolts in contact with treated lumber shall be hot dipped galvanized or stainless steel.

- C. Roof decking shall be 29 gauge (ASTM A653, Grade 80, hot dipped G–90 galvanized steel) with raised seams.
- D. Fasteners, nails, wood screws, lag screws and bolts shall not be place closer than 5 times the diameter of the fastener from the edge of the wood.
- E. All water stops between concrete walls and floors shall be minimum 6 inch PVC. overlap any water stop joints a minimum of 6 inches.

**SECTION 3– CONCRETE**

- A. Material – Concrete walls, floors and slabs on grade shall have a minimum compressive strength of 4,000 psi after 28 days.
  - 1. Cement shall be Portland cement, ASTM C 150 Type 1.
  - 2. Aggregate shall conform to:
    - a. Fine aggregate – ASTM C33
    - b. Coarse aggregate – ASTM C33 – Size #57
  - 3. Admixtures:
    - a. Air entrancing – ASTM C260
    - b. Calcium chloride is not allowed.
- B. Concrete Mix
  - 1. Maximum water cement ratio: 4.5/1
  - 2. Air entrainment: 4 – 6%
  - 3. Slump: 3–5 inches
- C. Floor reinforcement
  - 1. Bin floors and working slab reinforcement shall be reinforced w/ ASTM A615 grade 60 rebar.
- D. Footing and wall reinforcement shall be rebar, ASTM A615, grade 60.
- E. The finished concrete shall be prevented from drying for a curing period of at least 7 days after it is placed by either application of curing compound as recommended by the manufacturer or continuous moist curing or a combination of moist curing until curing compound is applied.

**INSPECTION AND MAINTENANCE NOTES**

1. Construction Inspection (Henderson County)
  - A. Verify that lumber grade, preservative, and fasteners meet specification requirements.
  - B. Verify the sheet metal gauge, fasteners with washers and ridge cap.
  - C. Verify the facility dimensions, subgrade compaction, post & rafter spacing and connections.
  - D. Verify all nailed connections have the number and type of nails called for in the drawings.
  - E. Verify soil compaction and bearing strength from soils engineer report. Minimum compaction of fill is 95% Standard Procter and minimum bearing strength of the subgrade is to be 2,500 lb/sf.
  - F. Verify concrete mix design. Concrete supplier to provide written mix design for 4,000 psi concrete at 28 days curing time.
  - G. Verify steel placement in floors, footings and walls after forming and prior to pouring concrete.
  - H. Verify fastener sizes and materials.
2. Maintenance (Henderson County)
  - A. Conduct regular, yearly, maintenance inspection and material repair or replacement for:
    - 1. Cracks and splits in wood posts and brace members.
    - 2. Any nail pull-outs at connections to rafters, bracing and roofing, side boards, etc.
    - 3. Cracks in concrete flooring outside the contraction joints. Repair by filling with concrete crack sealer.
    - 4. Excessively warped, rotted or sagging wood members.
    - 5. Roof leaks or loose sheet metal.
    - 6. Apply non-shrink Thoroseal over any vertical wall shrinkage cracks created by differential shrinkage between walls and floor slab.

Table 5C: End-Use-ICC Evaluation Service									
Southern Pine Preservatives and Retentions									
Code Official Advisory per International Code Council Evaluation Service Report (ESR)									
Classification	Preservative System	ESR	Use Category (UC & Minimum Retention Requirements - Pounds per Cubic Foot (pcf))						
			Above Ground			Ground Contact / Fresh Water			
			Interior	Fence	Decking	General Use	General Use	Critical	Piling
Waterborne, Copper Based, Solution	Alkaline Copper Quat (ACQ-C&D)	628	0.15	0.15	0.15	0.25	0.40	0.60	
		643	0.15	0.15	0.15	0.15	0.40	0.60	
		1980	0.20	0.15	0.15	0.20	0.40	0.60	
	Alkaline Copper Betaine (KDS)	2500	0.14	0.14	0.14	0.19	0.36		
	Alkaline Copper Betaine (KDS-B)	2500	0.10	0.10	0.10	0.14	0.27		
	Alkaline Copper + DCOI (ACD)	2711	0.13	0.13	0.13	0.17	0.28	0.44	
Waterborne, Copper Based, Suspension	Ammoniacal Copper Quat (ACQ-A&B)	1980	0.20	0.15	0.15	0.20	0.40	0.60	
	Copper Azole (CA-C)	1721	0.06	0.06	0.06	0.06	0.15	0.25	0.35
	Copper HDO Type A (CX-A)	1863	0.20	0.20	0.11	0.20	0.30	0.45	
	Dispersed Copper Azole (uCA-C)	1721	0.05	0.05	0.05	0.05	0.14	0.23	0.33
	Micronized Copper Azole (MCA)	2325	0.07	0.06	0.06	0.07	0.16	0.24	
Waterborne, Carbon Based	Micronized Copper Azole	2240	0.06	0.06	0.06	0.06	0.15	0.23	
	Micronized Copper Quat (MCQ)	1980	0.15	0.10	0.15	0.15	0.34	0.60	
	Tebuconazole + Imidacloprid (EL)	2067	0.0187	0.0187	0.0187	0.0187			
	DCOI + Imidacloprid (EL2)	1851	0.0187	0.0187	0.0187	0.0187			
Waterborne, Borates	Propiconazole-Tebuconazole-Imidacloprid (PTI)	1477	0.013	0.018	0.018	0.018			
	DOT & Polymer Binder	1081	0.50	0.50	0.50	0.50			
	Inorganiz Boron (SBX)	648	0.17						

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<p><b>REVISIONS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DESCRIPTION</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	DESCRIPTION	DATE	BY																									<p><b>APPROVALS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>PROJECT ENG: <b>RSW</b></td> <td>DESIGNED BY: <b>RSW</b></td> <td>DRAWN BY: <b>CKD</b></td> <td>CHECKED BY: <b>RSW</b></td> <td>APPROVED: <b>RSW</b></td> </tr> </table>	PROJECT ENG: <b>RSW</b>	DESIGNED BY: <b>RSW</b>	DRAWN BY: <b>CKD</b>	CHECKED BY: <b>RSW</b>	APPROVED: <b>RSW</b>	<p><b>PRELIMINARY PROGRESS DRAWINGS</b></p>	<p><b>SUMMIT ENGINEERING GROUP INC. OF NORTH CAROLINA INC.</b>                  ENGINEERS • PLANNERS • SURVEYORS                  9801 Warren H. Abernathy Hwy.                  Spartanburg, SC 29301                  (864) 949-1111</p>
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