

LIVESTOCK WINTER FEEDING STATION  
 WITH WALLS IN FEEDING AREA  
 LANDOWNER –  
 COUNTY, ILLINOIS  
 USDA–NATURAL RESOURCES CONSERVATION SERVICE

Designed \_\_\_\_\_  
 Drawn M. QUINONES  
 Checked \_\_\_\_\_  
 Approved \_\_\_\_\_  
 Date 6/09

LIVESTOCK WINTER FEEDING STATION  
 WITH WALLS IN FEEDING AREA  
 COVER SHEET 30 ANIMALS



File No. IL-ENG-190A  
 Drawing No.

**INDEX**

SHEET	DESCRIPTION
1.	Cover Sheet
2A.	Steel Schedule
2B.	Estimated Quantities
3.	Floor Plan
4.	Roof And Truss Details Of Covered Feeding Area
5.	Roof And Truss Details Of Covered Stacking Area
6.	Post, Heavy Use Area, Entrance Footer & Floor Details
7.	Floor, Wall & Joint Details
8.	Bracing And Purlin Details
9.	Optional Side Entrance Details
10.	Curb Details

Note:  
 Underground utilities present  
 (including drainage tile) are  
 the responsibility of the  
 landowner and the contractor.

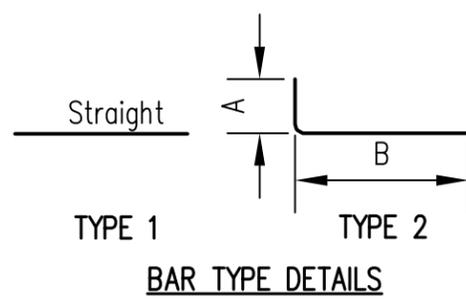
JOB CLASS \_\_\_\_\_

FEEDING STATION WITHOUT SIDE ENTRANCE								
REINFORCING STEEL SCHEDULE (60,000 PSI)								
Location	Mark	Size	Qty	Length	Type	A	B	Tot. Ft.
Entrance Footer	1	#4	13	1'-9"	2	0'-6"	1'-3"	22'-9"
Entrance Footer	2	#4	6	18'-3"	1			109'-6"
Stacking Area Corner Walls	8	#4	8	8'-6"	2	4'-3"	4'-3"	68'-0"
Stacking Area Side Walls	9	#4	8	9'-1"	1			72'-8"
Stacking Area Side Walls-Footings	10	#5	14	7'-7"	1			106'-2"
Stacking Area Side & End Walls	11	#4	55	3'-10"	1			210'-10"
Stacking Area End Wall	12	#4	4	25'-3"	1			101'-0"
Stacking Area End Wall-Footing	13	#5	7	22'-3"	1			155'-9"
Stacking Area Walls-Footing	14	#5	55	8'-3"	2	2'-1"	6'-2"	453'-9"
Feeding Area Footing	15	#5	14	41'-8"	1			583'-4"
Feeding Area Side Walls-Footing	16	#5	84	8'-3"	2	2'-1"	6'-2"	693'-0"
Feeding Area Side Walls	17	#4	84	3'-10"	1			322'-0"
Feeding Area Side Walls	18	#4	8	41'-8"	1			333'-4"

Type	Total Linear Feet	Weight Lb.
#4 Bars	1240	828
#5 Bars	1992	2078
<b>Total Weight</b>		<b>2906</b>

FEEDING STATION WITH 2 SIDE ENTRANCES								
REINFORCING STEEL SCHEDULE (60,000 PSI)								
Location	Mark	Size	Qty	Length	Type	A	B	Tot. Ft.
Entrance Footer	1	#4	13	1'-9"	2	0'-6"	1'-3"	22'-9"
Entrance Footer	2	#4	6	18'-3"	1			109'-6"
Roll Curb	3	#4	18	15'-8"	1			282'-0"
Roll Curb	4	#4	26	1'-0"	1			26'-0"
Roll Curb	5	#4	26	2'-7"	1			67'-2"
Roll Curb	6	#4	26	3'-2"	2	0'-7"	2'-7"	82'-4"
Roll Curb	7	#4	26	1'-10'	2	0'-7"	1'-3"	47'-8"
Stacking Area Corner Walls	8	#4	8	8'-6"	2	4'-3"	4'-3"	68'-0"
Stacking Area Side Walls	9	#4	8	9'-1"	1			72'-8"
Stacking Area Side Walls-Footings	10	#5	14	7'-7"	1			106'-2"
Stacking Area Side & End Walls	11	#4	55	3'-10"	1			210'-10"
Stacking Area End Wall	12	#4	4	25'-3"	1			101'-0"
Stacking Area End Wall-Footing	13	#5	7	22'-3"	1			155'-9"
Stacking Area Walls-Footing	14	#5	55	8'-3"	2	2'-1"	6'-2"	453'-9"
Feeding Area Footing	15	#5	14	25'-8"	1			359'-4"
Feeding Area Side Walls-Footing	16	#5	52	8'-3"	2	2'-1"	6'-2"	429'-0"
Feeding Area Side Walls	17	#4	52	3'-10"	1			199'-4"
Feeding Area Side Walls	18	#4	8	25'-8"	1			205'-4"

Type	Total Linear Feet	Weight Lb.
#4 Bars	1495	999
#5 Bars	1504	1569
<b>Total Weight</b>		<b>2567</b>



Date: 6/09

Designed: M. QUINONES  
Drawn: \_\_\_\_\_  
Checked: \_\_\_\_\_  
Approved: \_\_\_\_\_

**LIVESTOCK WINTER FEEDING STATION  
WITH WALLS IN FEEDING AREA  
STEEL SCHEDULE 30 ANIMALS**

**NRCS**  
Natural Resources Conservation Service  
United States Department of Agriculture

File No. IL-ENG-190Ba  
Drawing No. \_\_\_\_\_

Sheet 2A of 10

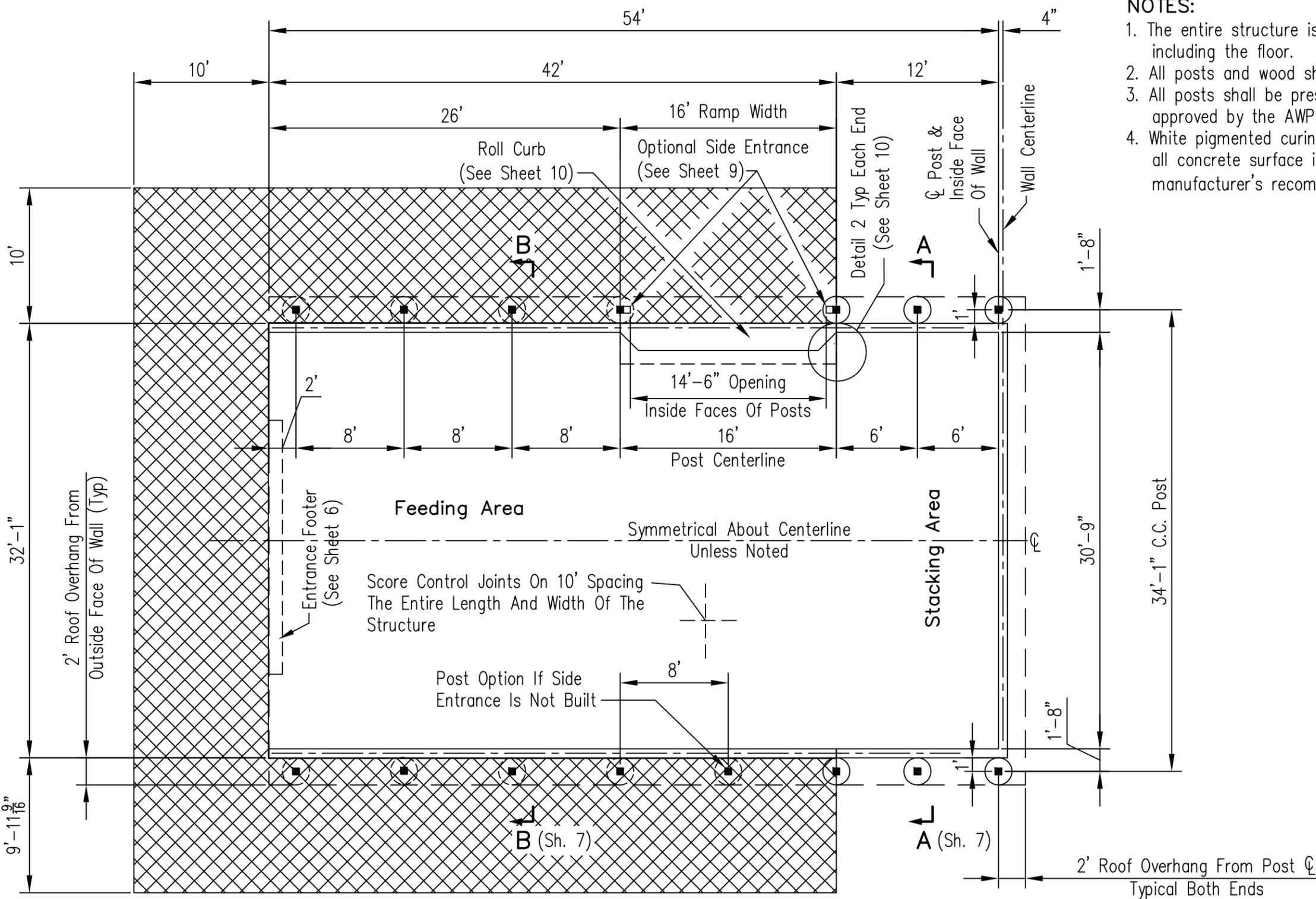
Description		Without Side Entrance	With 2 Side Entrances
Dimensions	Stacking Area Floor Length, Ft.	12	12
	Feeding Area Floor Length, Ft.	42	42
Posts	Stacking Area Columns 6" x 6" x 15'-0"	6	6
	Feeding Area Columns 6" x 6" x 15'-0"	10	8
	Side Entrance Columns 6" x 6" x 14'-0"	--	4
Concrete (4,000 PSI)	Stacking Area Walls & Footing, Cu.Yd.	13.7	13.7
	Stacking Area Slab, Cu.Yd.	1.8	1.8
	Feeding Area Side Walls And Roll Curbs, Cu.Yd.	23.9	18.9
	Feeding Area Slab & Entrance Footer, Cu.Yd.	12.7	14.5
	Total Concrete Cu.Yd. (Excludes Concrete Around Posts)	52.1	48.9
Welded Wire Fabric	6" x 6" x 8/8 Gauge Sq.Ft. (Does Not Include Overlap)	900	1049
Trusses	Truss	15	15
	Truss Bracing 2" x 4" Lin.Ft.	282	282
	Knee Brace 2" x 6" x 6'	16	14
	Truss Support 2" x 6" x 42"	16	14
	Angle Iron Brace 2" x 2" x 3/8" Galvanized Steel Lin.Ft.	--	6
Girders	Girder 2" x 12" Lin.Ft.	224	247
	Girder Support 2" x 6" x 12"	32	28
	Support Block 2" x 6" x 24"	--	8
	Girder Brace 2" x 6" x 51"	--	8
	Spacer Block 1" x 6" x 11 1/2 "	--	4
Roofing Material	Roofing (29 Ga. Galv.) Sq.Ft. (Does Not Include Overlap)	2128	2128
	Roof Cap Lin.Ft.	56	56
	Gable End Sheathing Sq.Ft.	217	217
	Purlins 2"x4" Lin.Ft.	1232	1232
Gutters	Gutter 6" Lin.Ft.	112	112
	Downspout 3" x 4"	2	2
	Pressure Treated Plate 2" x 6" Lin.Ft.	112	112
Heavy Use Area	Base Course Material Tons	38	38
	Surface Aggregate Tons	13	13
	Geotextile Sq.Ft. (Does Not Include Overlap)	1361	1361
Slab And Footing	Base Course Material Tons	24	24

Date \_\_\_\_\_  
 Designed \_\_\_\_\_  
 Drawn M. QUINONES 6/09  
 Checked \_\_\_\_\_  
 Approved \_\_\_\_\_

LIVESTOCK WINTER FEEDING STATION  
 WITH WALLS IN FEEDING AREA  
 ESTIMATED QUANTITIES 30 ANIMALS



File No. IL-ENG-190Bb  
 Drawing No.



**NOTES:**

1. The entire structure is to be constructed level including the floor.
2. All posts and wood shall be number 2 southern pine.
3. All posts shall be pressure treated with a preservative approved by the AWPAs for ground contact.
4. White pigmented curing compound shall be applied to all concrete surface in accordance with manufacturer's recommendation.

**LEGEND**

- 6"x6"x14' Pressure Treated Entrance Post
- 6"x6"x15' Pressure Treated Building Post
- ▨ Heavy Use Area (See Sheet 6)

Date	6/09
Designed	M. QUINONES
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**LIVESTOCK WINTER FEEDING STATION  
WITH WALLS IN FEEDING AREA  
FLOOR PLAN 30 ANIMALS**

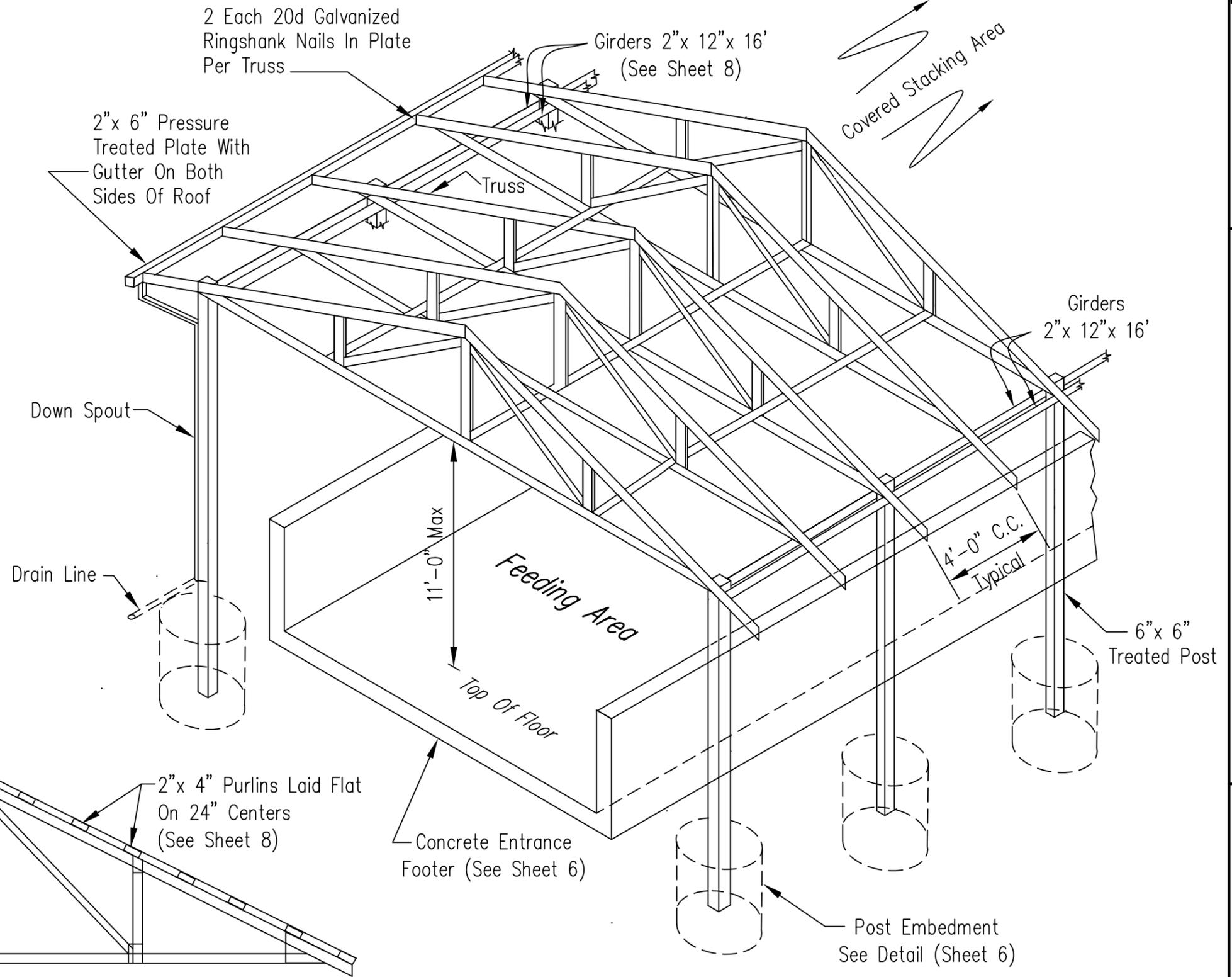
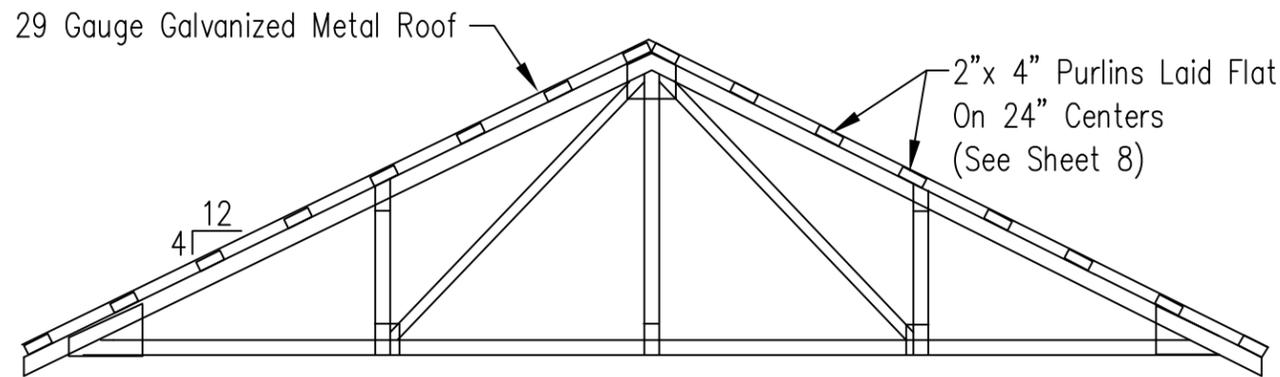


File No.	IL-ENG-190C
Drawing No.	
Sheet 3 of 10	

When Drawings Are Plotted  
(22"x34") Scale: 1/4"=1'-0"  
(11"x17") Scale: 1/8"=1'-0"

NOTES:

1. Gutters shall be installed according to Roof Runoff Structure Standard, (Code 558). They shall be standard 6 inch gutters with 3 inch x 4 inch down spouts every 85 feet of the building's length on both sides of the building.
2. A 12"x 12" concrete entrance footer is to be installed at the entrance. (See Sheet 6)
3. Gable ends of roof structure shall be sheathed with pressure treated plywood or other suitable material.
4. If feeders are to be added along the edges of the covered feeding area, the feeding area shall be fenced so livestock can not eat from outside of the structure.
5. All areas disturbed during construction shall be seeded and mulched according to Critical Area Planting standard (code 342).
6. See additional truss bracing on sheet 8.



See Truss Manufacturer's Certification Sheet. Trusses shall be designed and manufactured by a certified truss manufacturer. Trusses are designed for 30 pounds per square foot total load.

Sixty Six (66) nails or screws per 100 square feet shall be used to secure the roofing.

Not To Scale

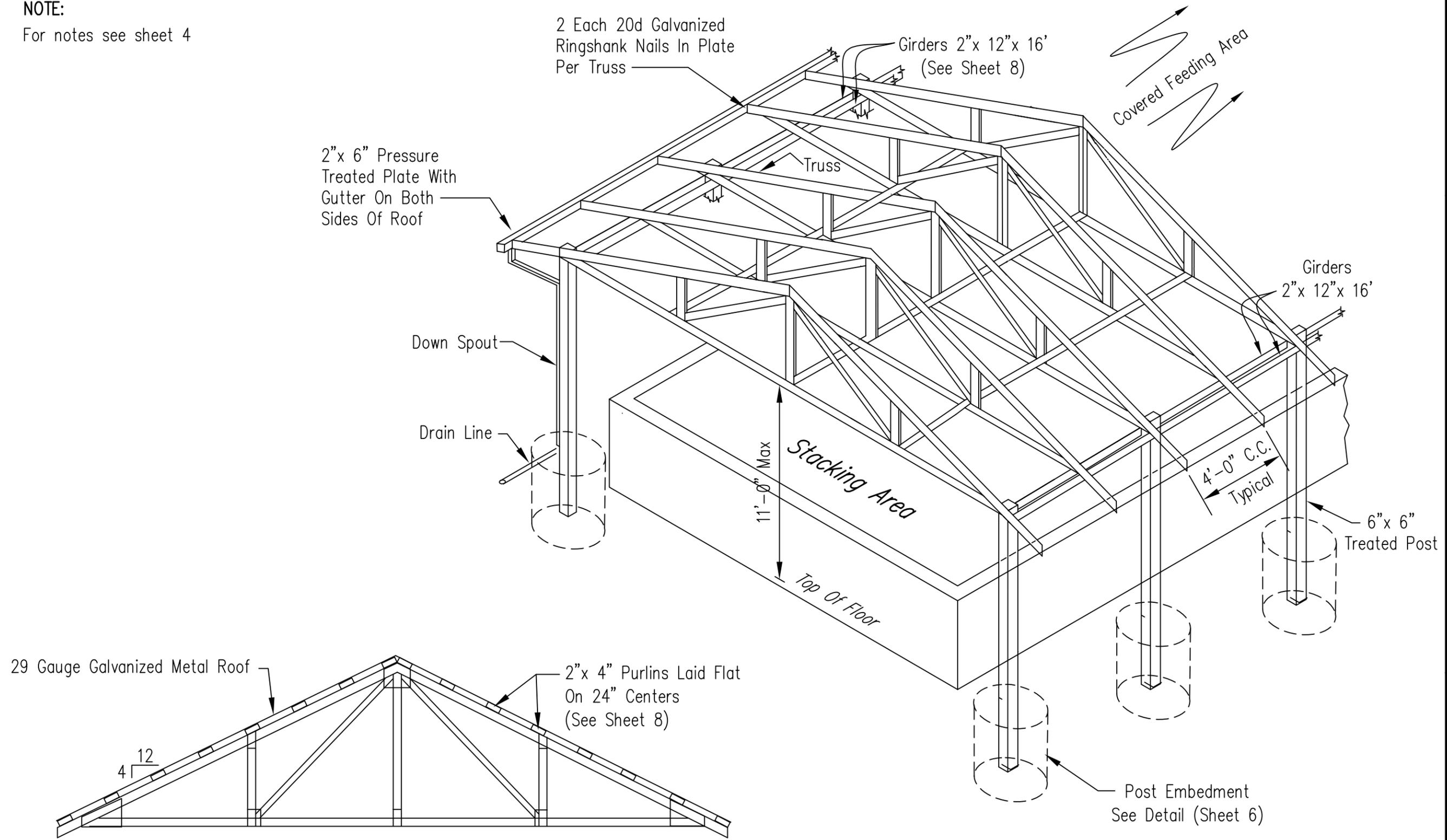
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LIVESTOCK WINTER FEEDING STATION  
ROOF AND TRUSS DETAILS  
OF COVERED FEEDING AREA



File No. IL-ENG-190D  
Drawing No.

NOTE:  
For notes see sheet 4

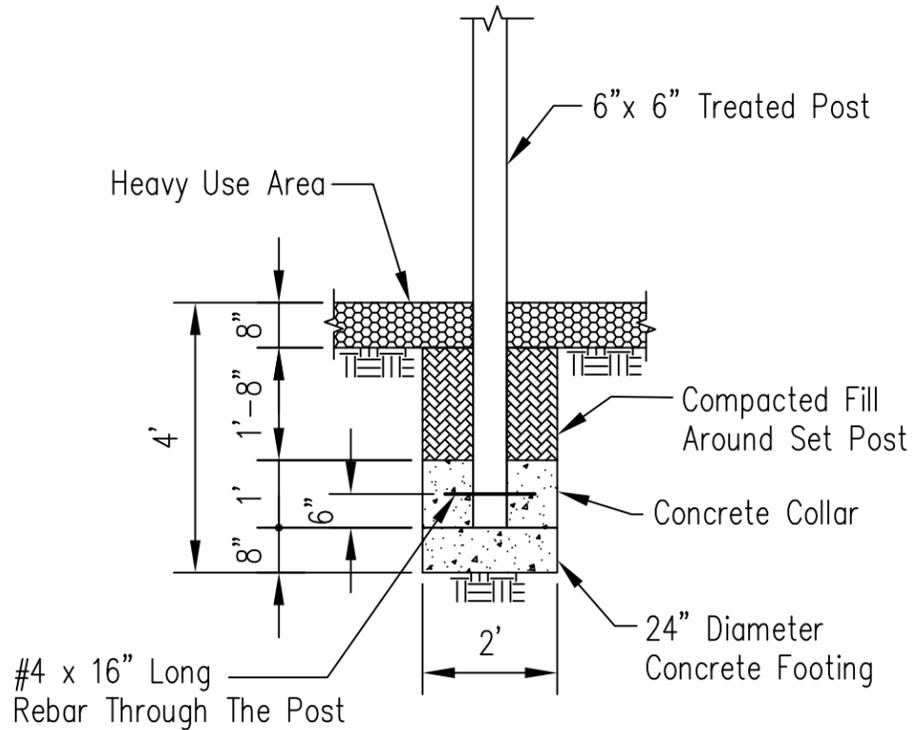


See Truss Manufacturer's Certification Sheet.  
Trusses shall be designed and manufactured by a certified truss manufacturer.  
Trusses are designed for 30 pounds per square foot total load.

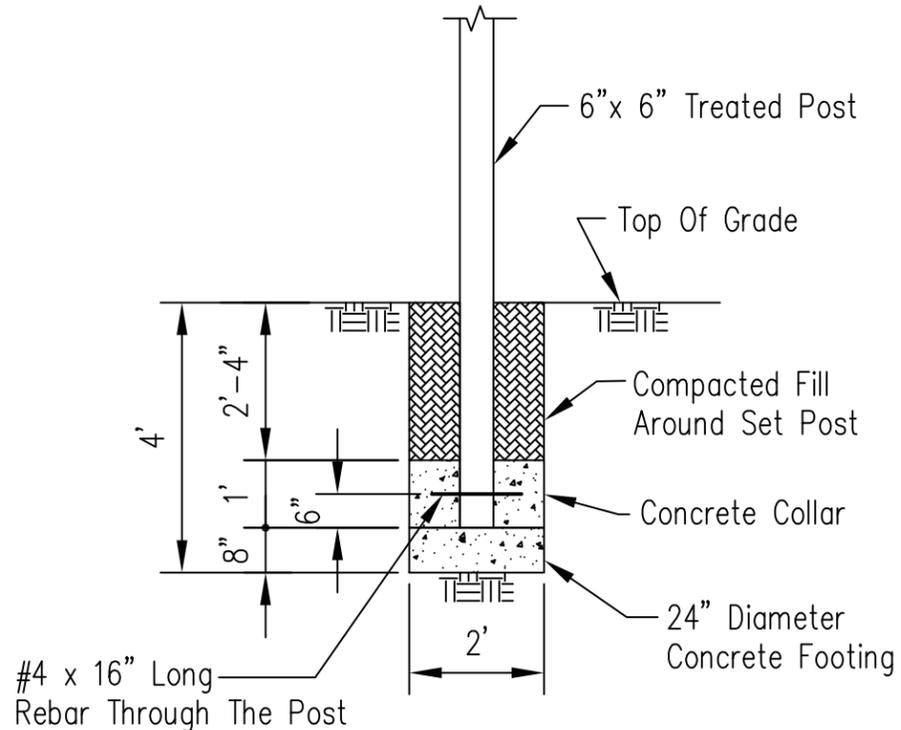
Sixty Six (66) nails or screws per 100 square feet shall be used to secure the roofing.

Not To Scale

Date _____ 6/09	Designed _____ M. QUINONES	Drawn _____	Checked _____	Approved _____
LIVESTOCK WINTER FEEDING STATION ROOF AND TRUSS DETAILS OF COVERED STACKING AREA				
 <b>NRC</b> Natural Resources Conservation Service United States Department of Agriculture				
File No. IL-ENG-190E				
Drawing No.				
Sheet 5 of 10				

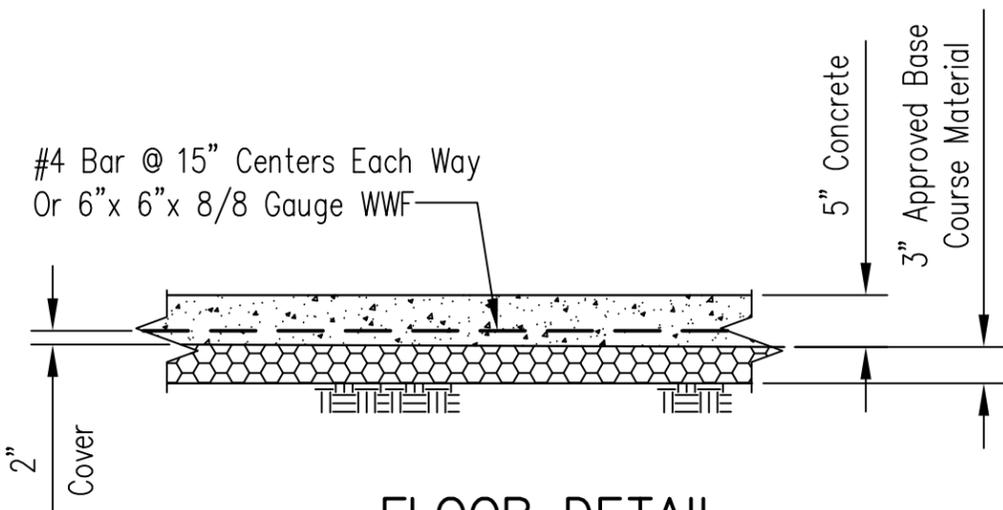


**POST EMBEDMENT DETAIL  
BELOW HEAVY USE AREA**

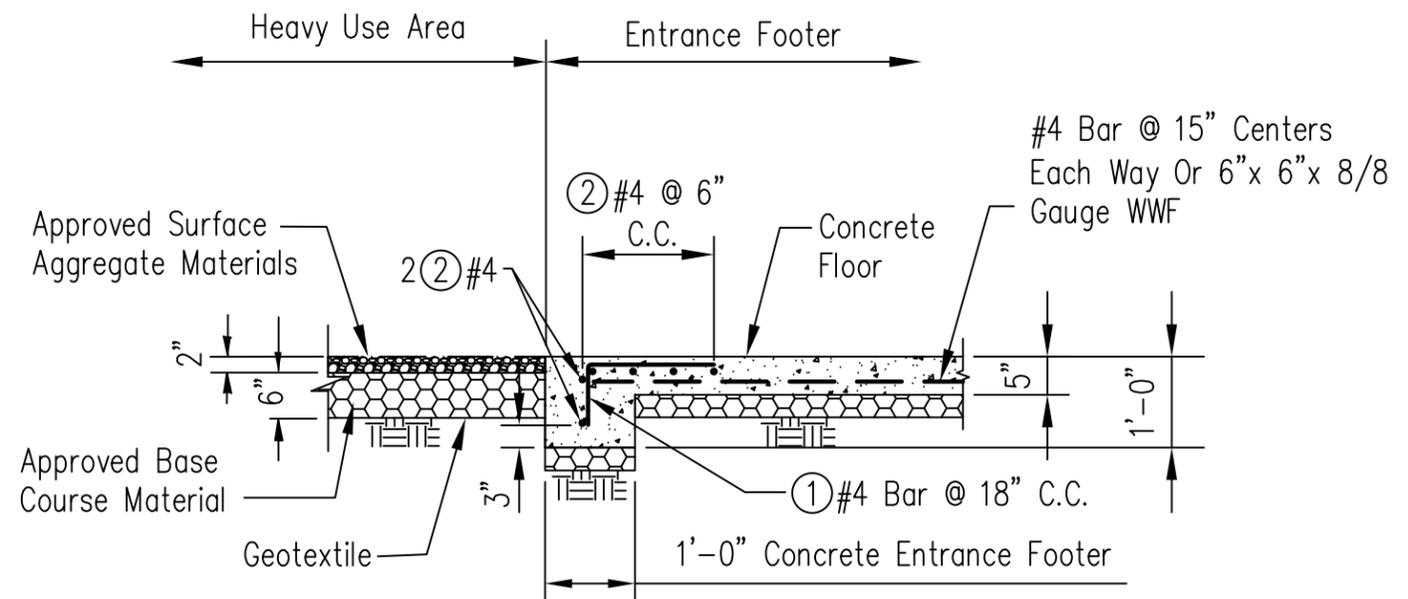


**POST EMBEDMENT DETAIL**

- Notes:
1. Install entrance footer as shown on plan see sheet 3.
  2. For concrete see Note 1 on sheet 10.
  3. For geotextile see Note 8 on sheet 10.



**FLOOR DETAIL**



**SECTION VIEW OF ENTRANCE FOOTER  
AND HEAVY USE AREA**

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Designed	M. QUINONES
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Checked	
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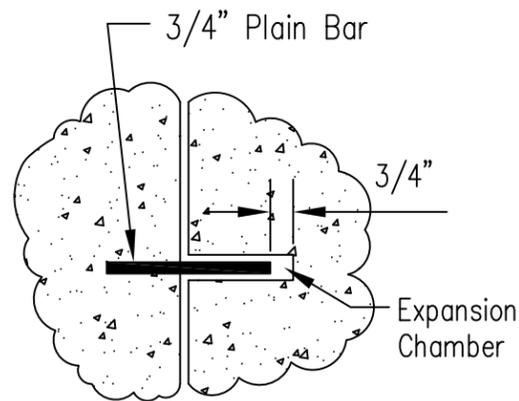
**LIVESTOCK WINTER FEEDING STATION  
POST, HEAVY USE AREA, ENTRANCE  
FOOTER AND FLOOR DETAILS**

**NRCS**  
Natural Resources Conservation Service  
United States Department of Agriculture

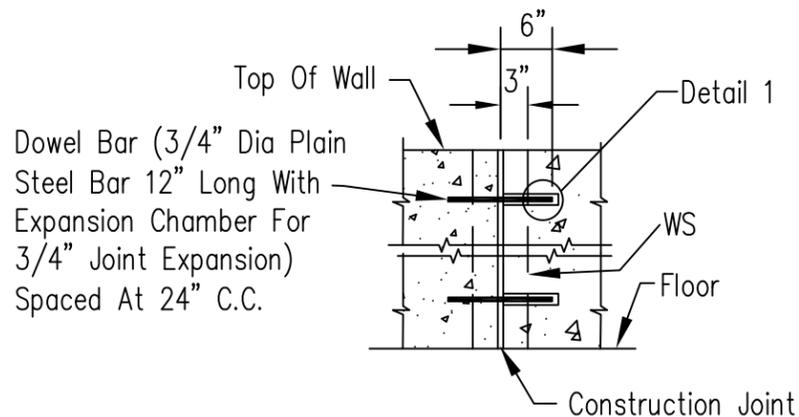
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Drawing No.

Sheet 6 of 10

Not To Scale

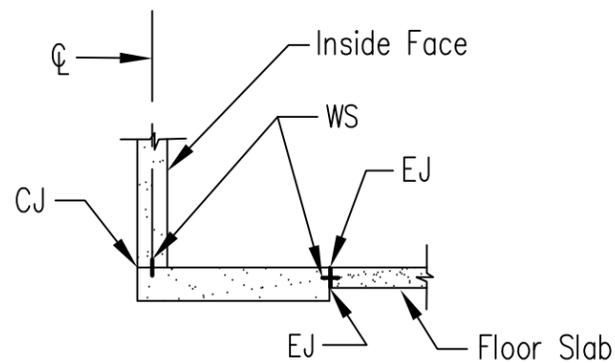


**DETAIL 1**

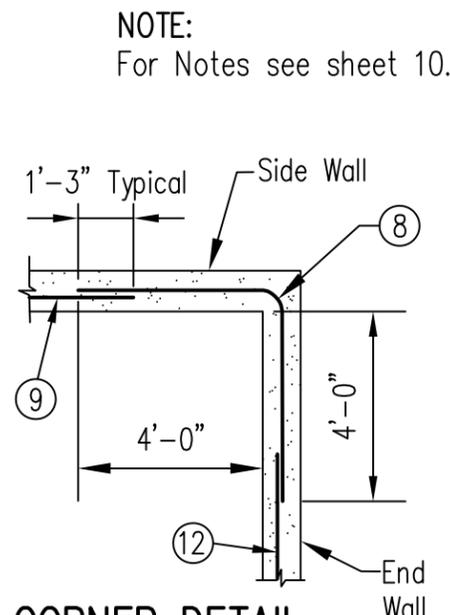


**EXPANSION JOINT  
DETAIL-WALL**

Spacing Not Greater Than 30' C.C.



**EXPANSION JOINT  
DETAIL-FLOOR & WALL**

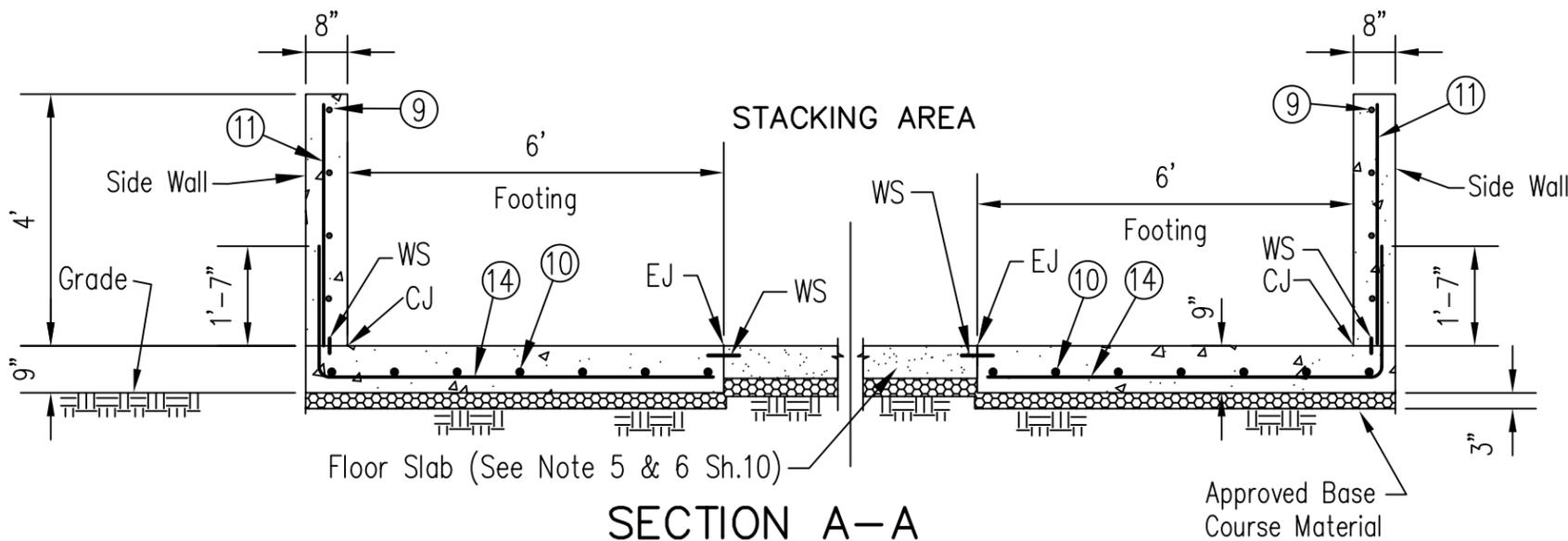


**CORNER DETAIL  
PLAN VIEW**

Stacking Area

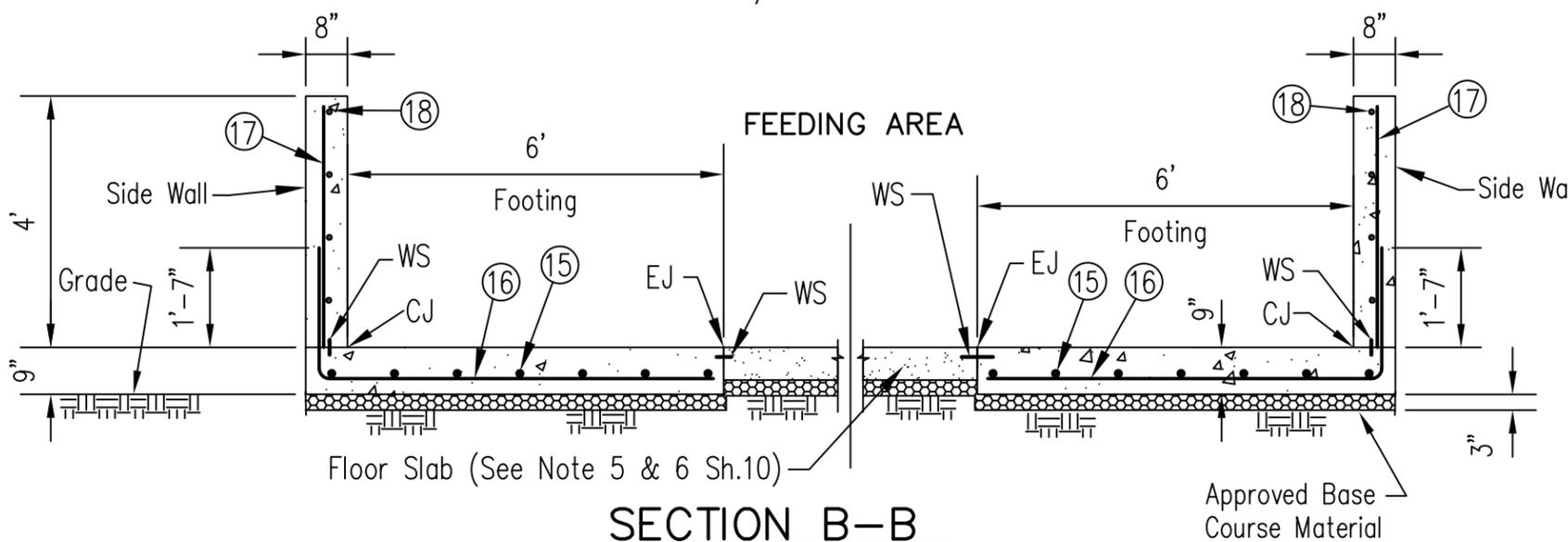
**LEGEND**

- WS = 6" Nonmetallic Water Stop
- CJ = Construction Joint
- EJ = Expansion Joint



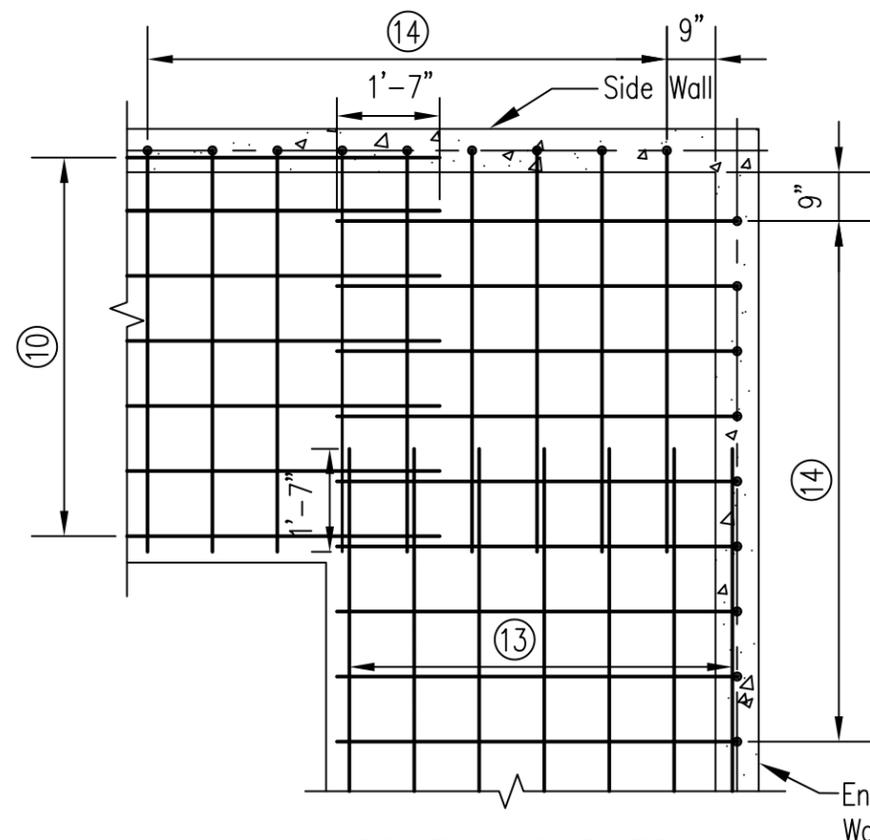
**SECTION A-A**

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



**SECTION B-B**

Scale 3/8" = 1'-0"



**WALL & FOOTING CORNER  
REINFORCING DETAIL-PLAN VIEW**

Stacking Area

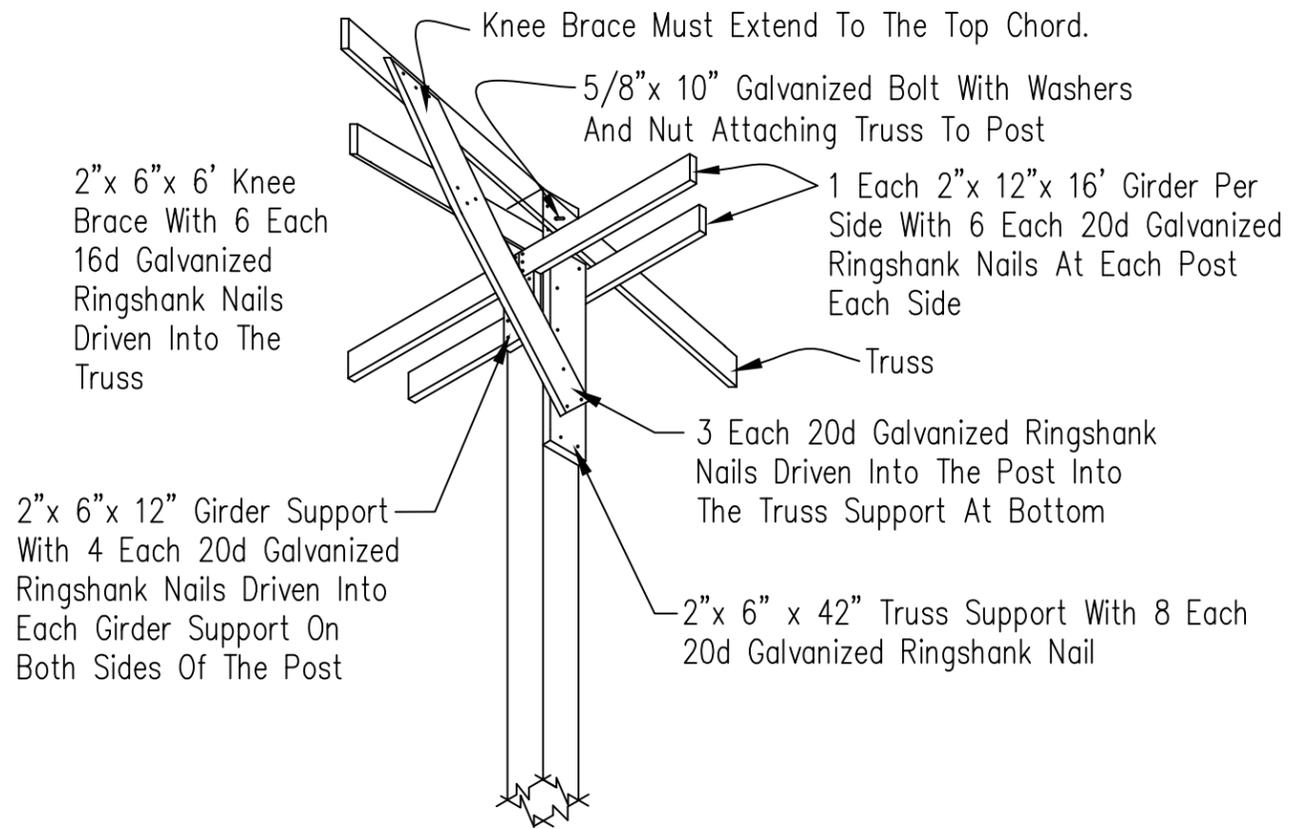
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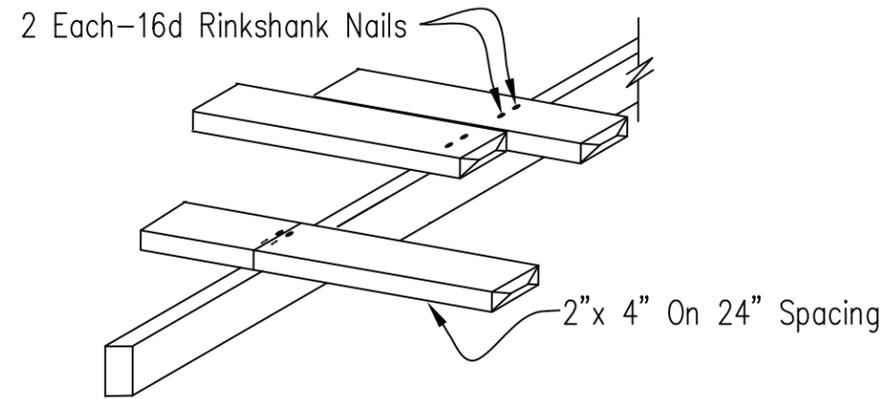
**LIVESTOCK WINTER FEEDING STATION  
FLOOR, WALL & JOINT DETAILS**



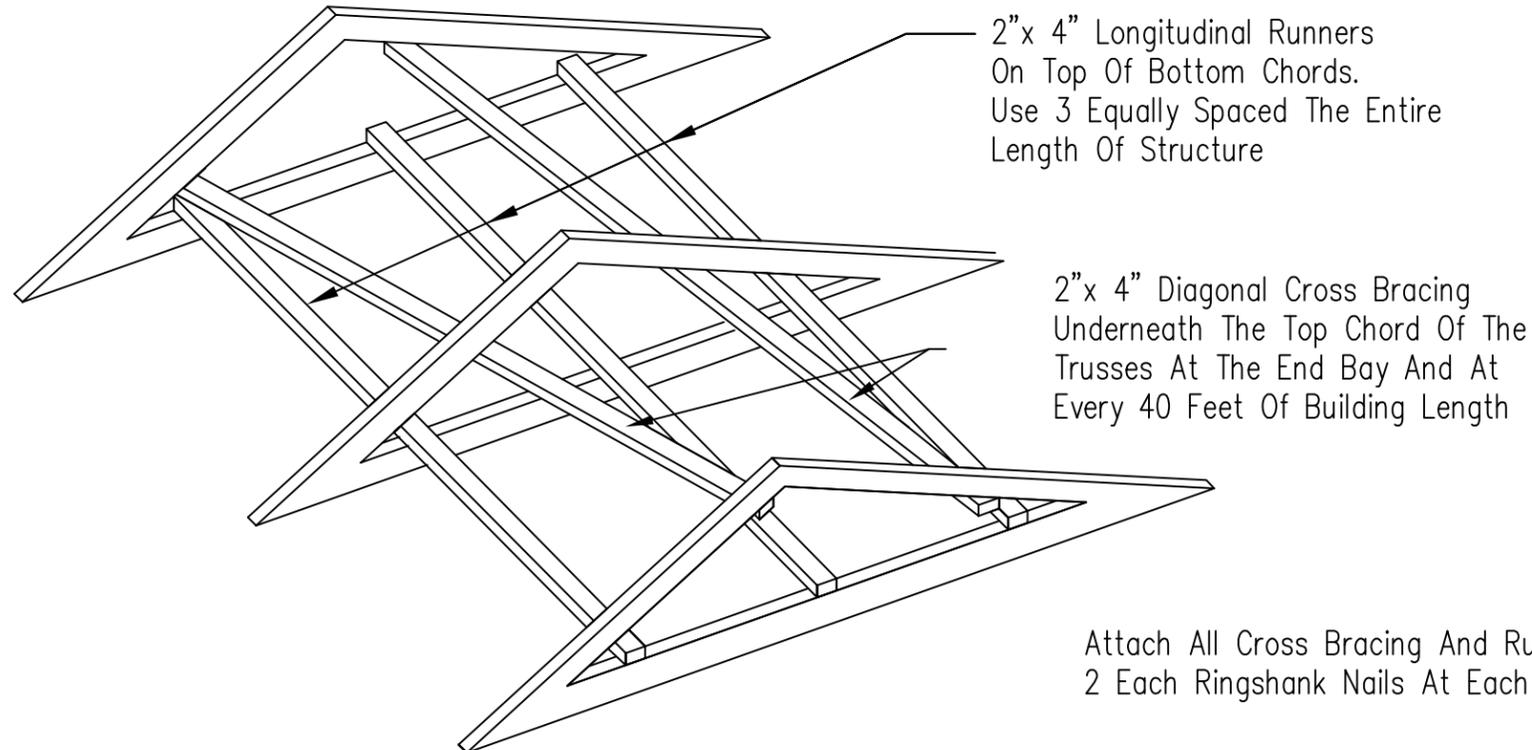
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IL-ENG-190G  
Drawing No.



**POST TRUSS DETAIL**

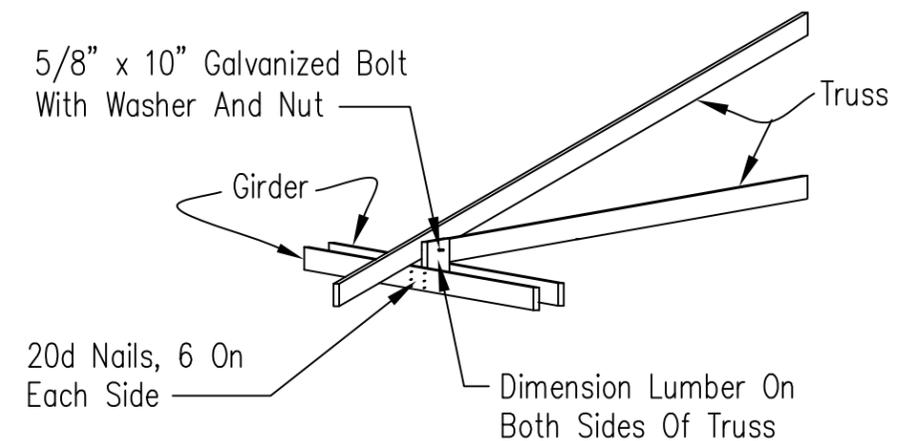


**PURLINS SPACED @ 24" CENTERS**



**TRUSS BRACING DETAILS**

Attach All Cross Bracing And Runners With 2 Each Ringshank Nails At Each Truss

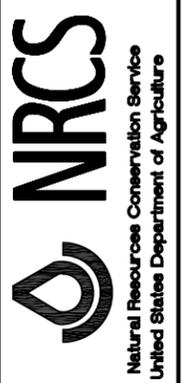


**TRUSS TO GIRDER ANCHORAGE**

Note:  
The truss support, girder support and knee brace shall be pressure treated. See Note 3 sheet 3 of 10.

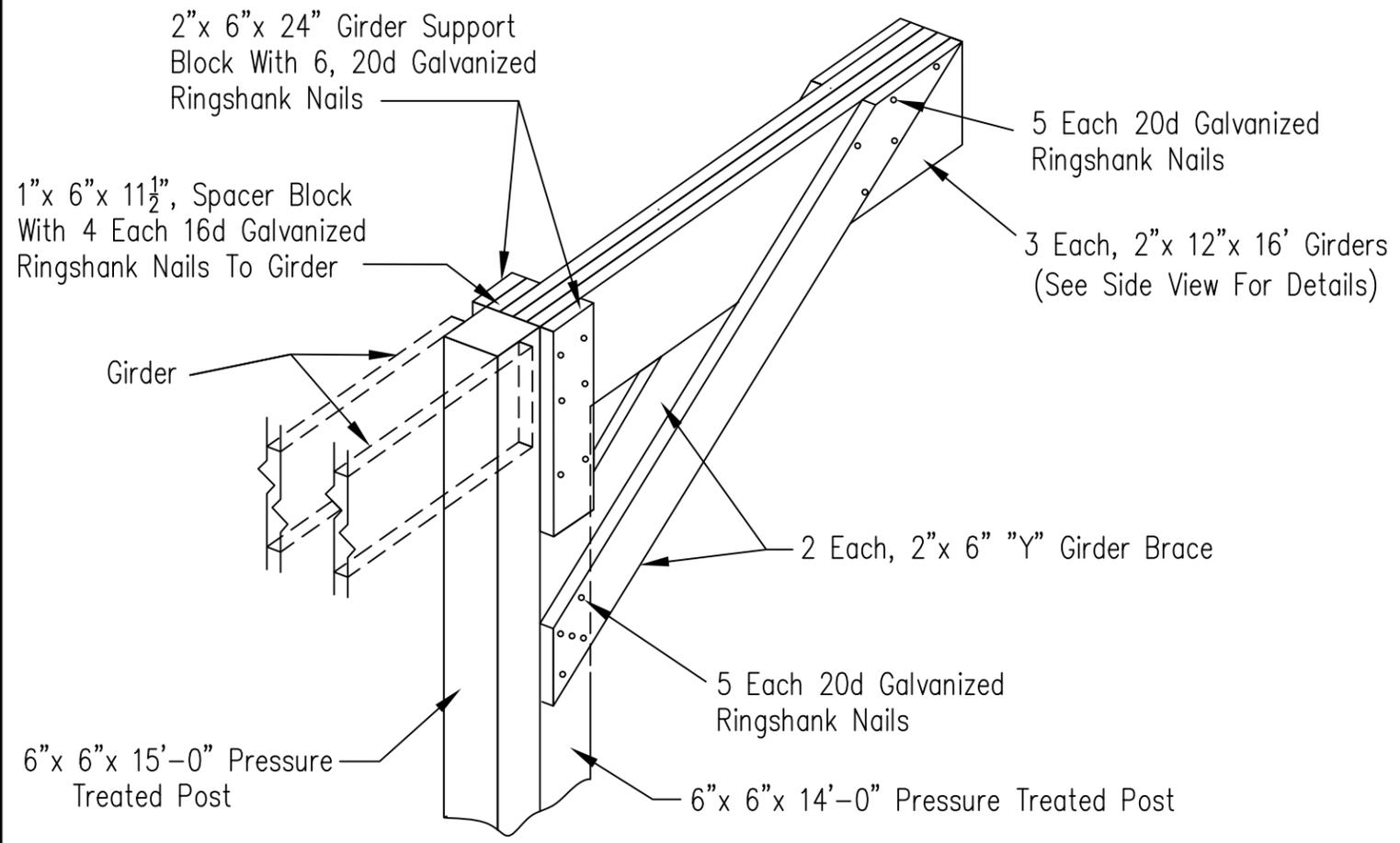
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LIVESTOCK WINTER FEEDING STATION  
BRACING AND PURLIN  
DETAILS

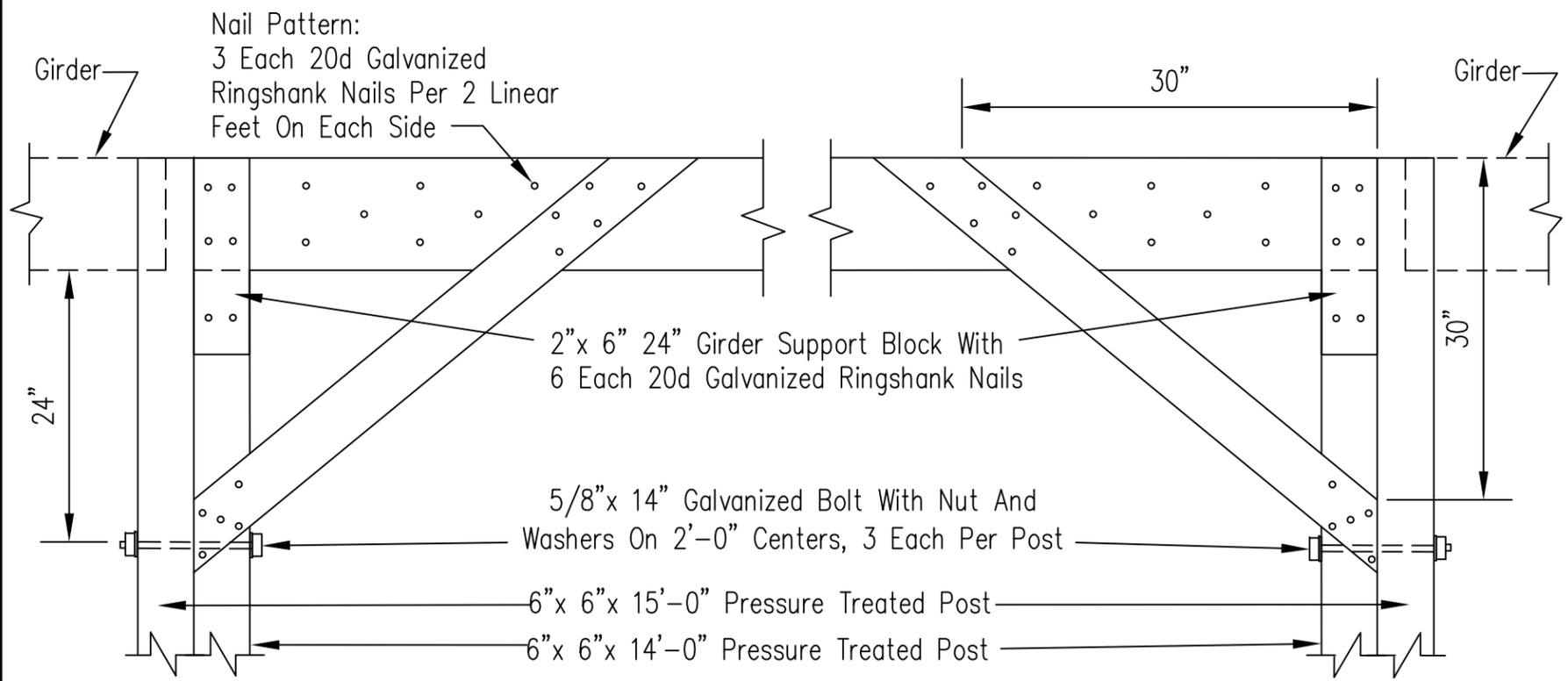


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Drawing No.

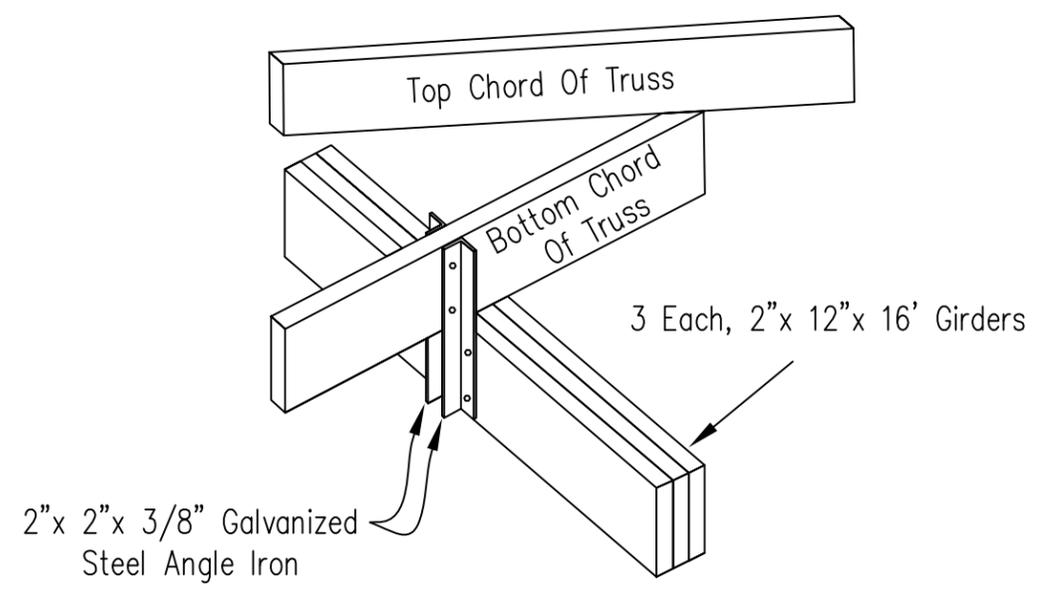
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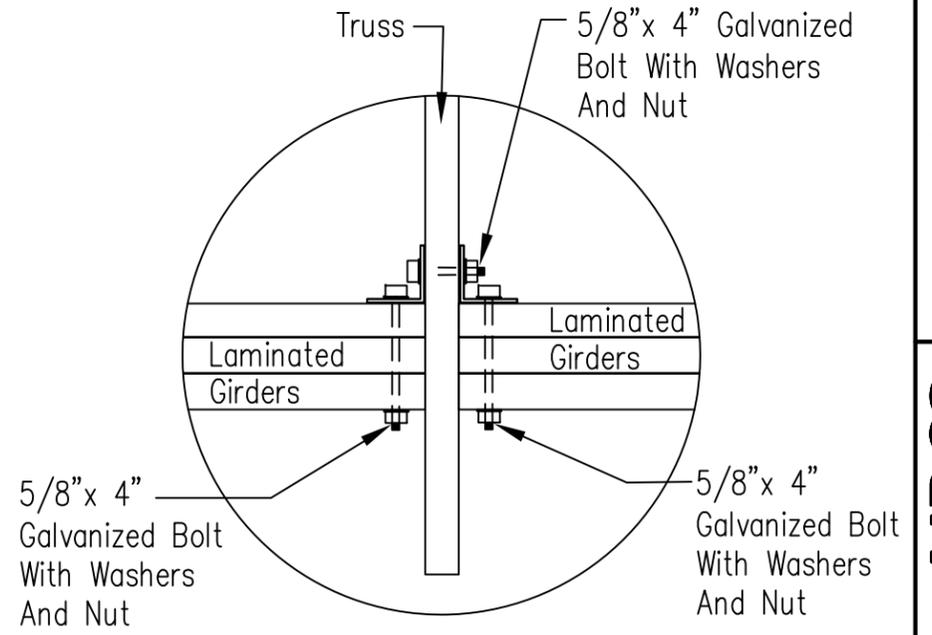
**ISOMETRIC VIEW**



**SIDE VIEW**



**TRUSS TO LAMINATED GIRDER ATTACHMENT**



**TOP VIEW OF TRUSS TO LAMINATED GIRDER ATTACHMENT**

Not To Scale

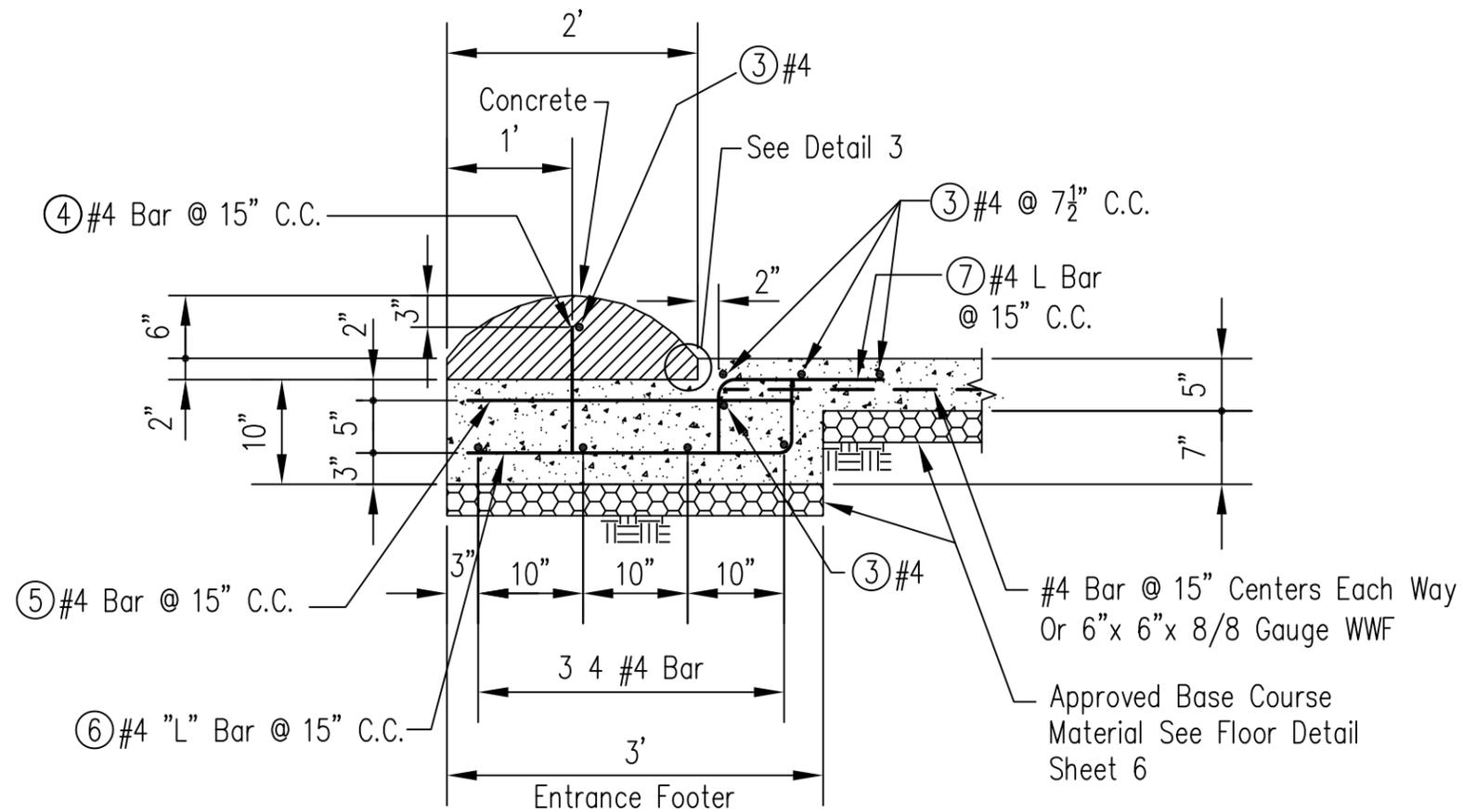
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**LIVESTOCK WINTER FEEDING STATION**  
**OPTIONAL SIDE ENTRANCE**  
**DETAILS**

**NRCS**  
Natural Resources Conservation Service  
United States Department of Agriculture

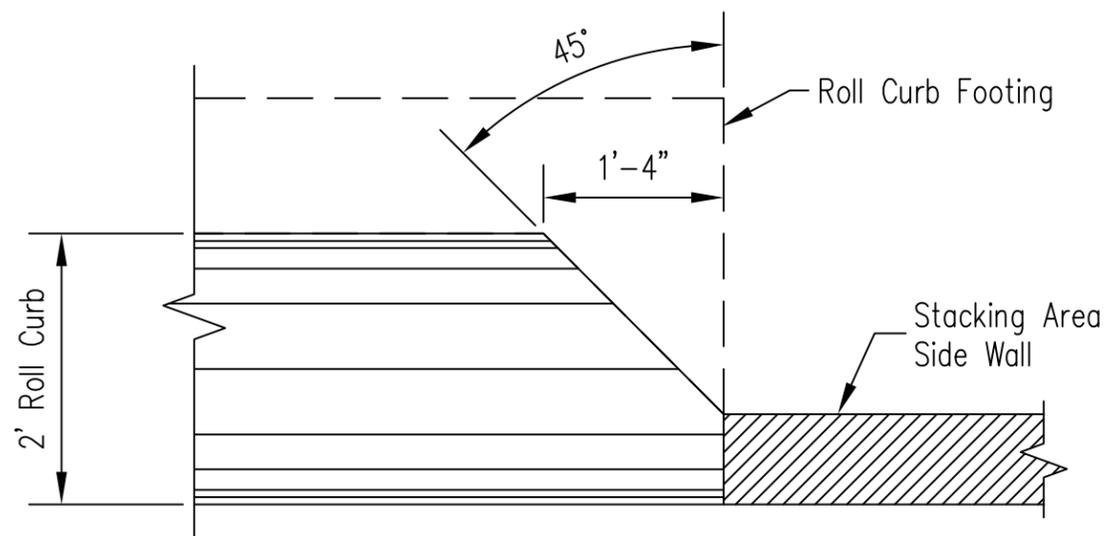
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Drawing No.

Sheet 9 of 10



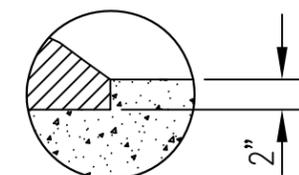
**SECTION VIEW OF ROLL CURB**

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



**DETAIL 2 (PLAN VIEW)**

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



**DETAIL 3**

**NOTES:**

**GENERAL**

1. Concrete mix should be design to yield 28 day compressive strength of 4000 PSI.

**STEEL**

2. The 8" sidewall and 9" floor shall have one row of steel placed at 12 inch centers in both direction.
3. All steel placed in the 8" sidewall and 9" floor shall have a minimum concrete cover over reinforcement of two inches, except when the concrete is placed on or against the earth, then the minimum concrete cover shall be three inches.
4. Length of reinforcing bar splice lap shall be at least 15 inches for #4 bar and and 19 inches for #5 bar.

**WALL**

5. The wall will be built with expansion joints (see Expansion Joint Detail-Floor & Wall). No section of wall will be over 30' long between expansion joints.

**FLOOR SLAB**

6. The 5" floor shall be constructed by the following method:  
Place concrete on top of 3 inch layer of approved base course material. Use number 4 bars @ 15" spacing each way or 6"x6"x 8/8 gauge WWF. Concrete cover for steel placed in floor slab shall be 2" minimum.
7. Where ever the floor slab exceeds 30' in length or width, water tight control joints (see Expansion Joint Detail-Floor & Wall) will be installed.
8. Geotextile (non-woven) minimum criteria:
 

Weight of Geotextile (oz/sq.yd.)	6
Tensile strength (lb) ASTM D 4632	180
Elongation at failure (%) ASTM D 4632	≥50
Puncture (lb) ASTM D 4833	80
Ultraviolet light ASTM D 4355	70
Apparent opening size (AOS) ASTM D 4751	max 40 sieve
Permittivity sec <sup>-1</sup> ASTM D 4491	0.70

Date	6/09
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**LIVESTOCK WINTER FEEDING STATION CURB DETAILS**



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Drawing No.

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