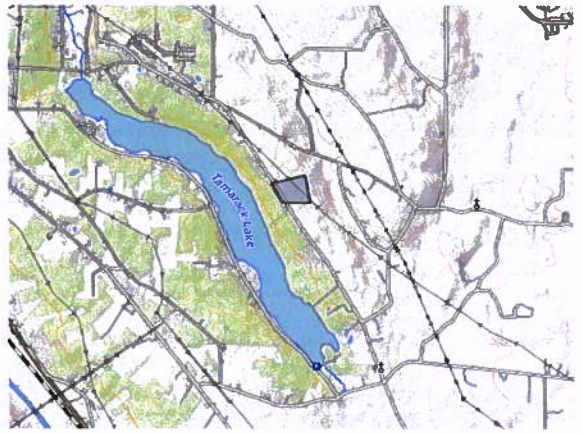
Maloney
Crawford County
Roofed HUA/WSF



Location Map *(not to scale)*

N

Construction Specifications
(checked if included in "contractor information package")

- ☐ *PA-309, Agrichemical Handling Fac.*
- ☐ *PA-313, Waste Storage Facility*
- ☐ *PA-360, Waste Facility Closure*
- ☐ *PA-362, Diversion*
- ☐ *PA-367, Roofs and Covers*
- ☐ *PA-412, Grassed Waterway*
- ☐ *PA-468, Lined Waterway*
- ☐ *PA-500, Obstruction Removal*
- ☐ *PA-516, Pipeline*
- ☐ *PA-533, Pumping Plant*
- ☐ *PA-558, Roof Runoff Structure*
- ☐ *PA-560, Access Road*
- ☐ *PA-561, Heavy Use Area*
- ☐ *PA-574, Spring Development*
- ☐ *PA-575, Trails and Walkways*
- ☐ *PA-578, Stream Crossing*
- ☐ *PA-587, Structure for Water Control*
- ☐ *PA-606, Subsurface Drain*
- ☐ *PA-614, Watering Facility*
- ☐ *PA-620, Underground Outlet*
- ☐ *PA-634, Waste Transfer*
- ☐ *PA-635, Vegetative Treatment Area*
- ☐ *PA-642, Well*
- ☐ *PA-659, Wetland Enhancement*
- ☐ Other: _____

Project Notes:

1. Regulations: All Federal, State, and Local laws, rules, and regulations governing the construction of this facility shall be strictly followed. The owner or operator is responsible for obtaining all construction permits.
2. NRCS Design: Failure to construct this facility in accordance with design or authorized modifications will result in withdrawal of NRCS technical and financial assistance.
3. ACT 187: The PA One Call utility check serial number for this design is 20251391950 dated 5/19/25. It is the duty of the contractor to comply with the PA Act 187 (1996) and all of it's revisions before performing any excavation. The PA One Call phone number is 1-800-242-1776.
4. Pre-Construction Meeting: A meeting between the landowner, contractor, and NRCS representative shall be required prior to any excavation or construction work. See the Pre-Construction Check list in the construction package.
5. Certification of Conformance: The certification of conformance shall certify that all work was performed to NRCS specification. See the Certification of Conformance sheet in the construction package.
6. Contractor Verification: The contractor is responsible for verifying actual field measurements shown on the plans.
7. It is the responsibility of the contractor to implement all measures necessary to protect work-in-progress from environmental conditions such as temperature extremes, surface and ground water, and etc.
8. Engineering Job Approval Class for this project is: IV

Index of Drawing Sheets

Contractor Information Package

- ___ Construction Specifications
- ___ Certification of Conformance
- ___ Ag Construction Safety
- ___ Cold Weather Concreting Fact Sheet
- ___ Hot Weather Concreting Fact Sheet
- ___ Safety Sign Fact Sheet
- ___ Soil Cave In Fact Sheet
- ___ Geotextile Information
- ___ Truss Design Requirements
- ___ Concrete Batch Ticket Sheet

Appendix (not for contractor)

- ___ Operation and Maintenance Plan
- ___ Soils Information
- ___ Design Calculations
- ___ Survey Data
- ___ PA One Call
- ___ Quality Assurance Plan

AS-BUILT / DESIGN INFORMATION

		Quality Assurance Statement			Engineers Statement		
		To the best of my knowledge, I certify that the practices have been installed as per the attached drawings and specifications, based on my observations and information provided to me.			In my professional opinion, I certify that the practices have been installed as per the attached drawings and specifications, based on the information provided to me and/or observations I have made.		
Practice	CIN	Description	Designed Amount	Inspector *(initials)*	As-Built Amount *(by inspector)*	Certified By: *(Eng. signature)*	Date
313		Waste Storage Structure	40'x60' = 2400SF				
367		Roofs and Covers	40'x60' + 56'x72' = 6432 SF				
558		Dripline Drain / Gutter	232 ft / 32ft				
560		Access Road	112 LF (1564SF)				
561		Concrete HUA	56' x 72' = 4032 SF				
620		6" Pipe, 8" Pipe	216 LF, 700 LF				
606		4" Foundation Drain	40 LF				
382		Confinement Fence	344 LF				
587		Drop boxes	2 Ea				
561		Concrete aprons	870 SF				

Approved by _____ Title _____ Title _____

Date 5/2025 5/2025 5-25

Designed ZWA Drawn ZWA Revised JJG Checked

Maloney
Crawford County, PA
Cover Sheet

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Sheet No. 1 of 22

ROLES AND RESPONSIBILITIES DURING CONSTRUCTION

Landowner/Operator Responsibilities

1. Obtain all necessary construction permits as applicable and follow all Federal, State, and Local regulations
2. Attend and host a pre-construction meeting with all contractors and NRCS
3. Notify NRCS prior to starting construction and keep the agency informed of construction progress
4. Be available for consultation and decision making
5. Hire competent contractors and assure they are complying with the approved construction drawings and specifications
6. Stop work of contractor as NRCS deems necessary or when contractor fails to comply with contract requirements or safety issues are witnessed, NRCS may withdraw technical and/or financial assistance for not complying with this design and safety standards
7. Notify contractor of any utilities not verified on the PA One Call utility check

Contractor Responsibilities

1. Attend the pre-construction meeting with the landowner and NRCS
2. Know and follow all construction drawings and specifications
3. Keep landowner and NRCS informed of construction schedule, specifically notify NRCS during these times:
   - 3.1. prior to backfilling any pipelines or concrete walls
   - 3.2. starting sub-base material placement
   - 3.3. 24-hours prior to placing any concrete
   - 3.4. prior to removing concrete forms
   - 3.5. prior to setting posts and trusses
   - 3.6. prior to backfilling any precast or plastic collection tanks
4. Only perform work Monday through Friday unless otherwise approved by the NRCS representative
5. Understand that NRCS will inspect all work
6. Contact PA One Call (811) at least 3 working days prior to digging (800) 242-1776
7. Know and follow all OSHA safety standards including but not limited to Subpart E, Personal Protective Equipment; Subpart L, scaffolding; and Subpart P, Excavations
8. Protect work-in-progress from environmental conditions such as temperature, surface runoff, ground water, etc.
9. Repair any work that does not meet the construction specifications
10. Verify actual field measurements and build to dimensions and elevations as shown in the construction drawings and specifications
11. Develop and submit a cold weather concreting plan meeting ACI 306R-16 for NRCS approval when pouring any concrete during cold weather as defined by ACI
12. Follow requirements of the Erosion and Sediment Control Plan and any additional requirements by the local Conservation District

NRCS Responsibilities

1. Attend the pre-construction meeting
2. Review all construction drawings and specifications with the landowner and contractor
3. Follow the quality assurance plan and inform contractor of the results of inspections
4. Keep landowner informed of faulty work, safety concerns, and any violations of contract documents
5. Ensure that engineering approval is obtained prior to making changes during construction
6. Complete as-built checks and document as needed for as-built drawings
7. Notify the engineer when practices are ready for certification

Date 5/25/21
Approved by
Title
Title

Date
Designed
Drawn
Reviewed JSG 5.25
Checked

Maloney
Crawford County, PA
Roles and Responsibilities

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Sheet No. 2 of 22

Additional Conditions & Construction Notes

A. Heavy Use Are Protection, Construction Specification PA-561 AND Waste Stacking Facility, PA-313

1. This item shall consist of all excavation and installation of steel reinforcement, concrete slab-on-grade, curbs and walls for animal confinement areas and manure stacking area as shown on the construction drawings.

2. The sub-grade for the heavy use area shall be approved by the NRCS representative prior to the placement of the sub-base and concrete.

3. All manure and organic matter shall be removed from the planned construction area to the extent shown on the construction drawings or until virgin ground is exposed, whichever is greater.

4. All sub-base material shall be crusher run stone and meet the gradation requirements of AASHTO #57 (PADOT 2B). The material shall be compacted with a smooth drum vibratory roller and be installed at the locations and dimensions shown on the drawings. River gravel or bank-run gravel shall not be used.

5. Fill as described below are designated by earthfill and backfill. Earthfill shall be used for bringing up the designed structure to grade and backfill shall be used for filling around the structure.

6. Earthfill requirements shall be as follows:

   a. Any additional earthfill required beyond the extents shown in the drawings must be approved by the design engineer. Fill material used for the hua shall be clean, with no stones larger than 6" in diameter. Frozen material or organic matter shall not be used in the fill material, and shall be completely removed prior to compaction.

   b. Each lift shall be scarified with a disc or toothed blade or bucket before the next lift is applied.

   c. Fill shall be placed in 6" maximum loose lift thicknesses and compacted with 6 passes. One pass of the roller is defined as enough trips to ensure complete coverage of the entire surface.

   d. Any compacted fill required as a foundation for a structure must be approved by the design engineer before placement of the sub-base and concrete.

7. Backfill requirements shall be as follows:

   a. Grading and compaction of all backfill adjacent to structures and sub base beneath structures is required. No rock over 6 inches on the surface should be present in the earth backfill material.

   b. Within 3ft of concrete walls a hand compactor shall be used such as a vibratory plate or small remote vibratory roller. Maximum loose lift thickness shall be 4" for vibratory plates and 8" for a remote vibratory roller.

   c. Beyond 3ft from a concrete wall larger vibratory compaction equipment shall be used. Maximum loose lift thickness shall be 18" for vibratory rollers and 12" for rubber-tired equipment.

8. The contractor is responsible for contacting the concrete supplier in advance to ensure the proper concrete mix is provided and that necessary information is detailed on the batch ticket for each truck. The concrete design mix shall be submitted to the NRCS inspector for approval prior to ordering of concrete.

9. Concrete shall not be poured between December 1st to March 15th.

10. Concrete wall form ties shall be removed below the concrete surface and shall be patched with nonshrink portland cement grout, site-mixed portland cement repair mortar, or other product intended to repair surface defects of concrete as approved by the NRCS representative.

B. Roofs and Covers, Construction Specification PA-367, and Roof Runoff, Construction Specification PA-558

1. PE sealed manufacturer truss drawings must be supplied to the design engineer for approval before construction begins.

2. Trusses shall be designed for loading criteria indicated in the design drawings. The 40ft span truss shall be designed with a raised heel to match the height of the 56ft span truss, this shall be determined by the truss designer.

3. Truss bracing shall be a combination of manufacturer required bracing PLUS permanent bracing as indicated in the design drawings.

4. Prior to ordering materials a submittal shall be furnished to the NRCS inspector for the following: trusses, LVL's, posts, and connectors if different than indicated in the construction drawings. The submittal shall include the manufacturer and specifications.

5. Roof runoff structures shall be installed on the roof as shown in the construction drawings.

6. Sides shall be installed on the building with a 18" ventilation gap as shown on the construction drawings. A maximum of 3 sides can be installed, one must be left completely open.

D. Underground Outlet, Construction Specification PA-620 and Subsurface Drain, PA-606

1. This item shall consist of furnishing of all materials and installation of the underground outlets for the roof downspouts as shown on the drawings.

2. Any materials labeled on the design drawings as PVC Sch40 shall meet ASTM D1785. Those labeled as SDR35 shall meet ASTM D3034.

3. Wherever outlet lines pass beneath access areas the pipeline shall be bedded with a 1' thickness of AASHTO#57 stone. The rest of the trench shall be compacted with native soil in 6" lifts.

4. Risers for roof water outlet lines will be installed in the locations shown, extend at least 5' above the finished ground, and be of a size compatible to both the downspouts and the underground pipeline in that location

5. All outlets must be equipped with animal guard and have a stabilized outlet to resist erosion. Animal guard can be purchased from a supplier or installed using 2-stainless steel bolts positioned vertical at the end of pipe.

6. The foundation drain shall be 4" perforated SDR-35 pipe meeting ASTM D3034. It shall have a 1ft envelope of clean stone placed around the pipe, the drain shall outlet into the roof gutter underground outlet. The drain is only required around the 6ft high wall.

E. Access Road, Construction Specification PA-560

1. An access road shall be installed where shown on the drawings, the road shall be sloped to the drop boxes and away from the buildings.

2. Geotextile shall be placed below the access road and shall be nonwoven with a minimum weight of 8 oz/sy and tensile strength of 180lbs.

3. Materials and dimensions shall match what is shown on the construction drawings. Top coat may consist of compacted PennDOT 2A or approved alternative.

4. Moisture of all compacted materials must be sufficient to provide near optimum compaction. No dust should become airborne during compaction. The NRCS representative should concur in the suitability for compaction.

5. Reinforced gravel areas should be compacted uniformly with 3 passes over the entire surface with a vibratory roller for each layer.

F. Fence, Construction Specification PA-382

1. A confinement fence around the heavy use area shall be installed to contain animals to the pad as shown in the construction drawings. The minimum height above the interior floor shall be 48-inches to receive an EQIP payment. Any access points on the heavy use area shall have gates installed.

2. The confinement fence shall consists of one of the following options, rows of fence shall be equally spaced to the required height:
   2.1. 1.5" galvanized or powder coated steel pipe
   2.2. 2x6 rough cut or pressure treated lumber
   2.3. High tensile electric
   2.4. steel guide rail

3. Slate bars are planned above the 18" high feed alley curb, the height and type of slant bar shall be determined by the owner.

4. The waste stacking facility is required to have a safety fence around the perimeter of the concrete walls except where more than 4ft of exterior wall height is exposed above the ground or where siding has been installed, safety fence is not required here.

5. Any fencing which will interfere with concrete proposed in the design must be approved by the design engineer unless specifically detailed within the design drawings. This includes, but is not limited to: posts set on top of walls, posts connected to walls, posts through concrete floors, etc.

6. All fencing installed as part of this project shall be made to match-up with any planned grazing or perimeter fencing outside of the immediate area of this project. Fencing for pasture and grazing is not included as part of this project. Interior fencing is the responsibility of the owner.

Approved by / Title / Date
Designed 3/2025
Drawn 3/2025
Revised
Checked JSG 5-25

Maloney
CRAWFORD COUNTY, PENNSYLVANIA
Additional Conditions & Construction Notes

USDA
United States Department of Agriculture

File Name

Sheet No. 3 of 22

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CRAWFORD COUNTY, PENNSYLVANIA

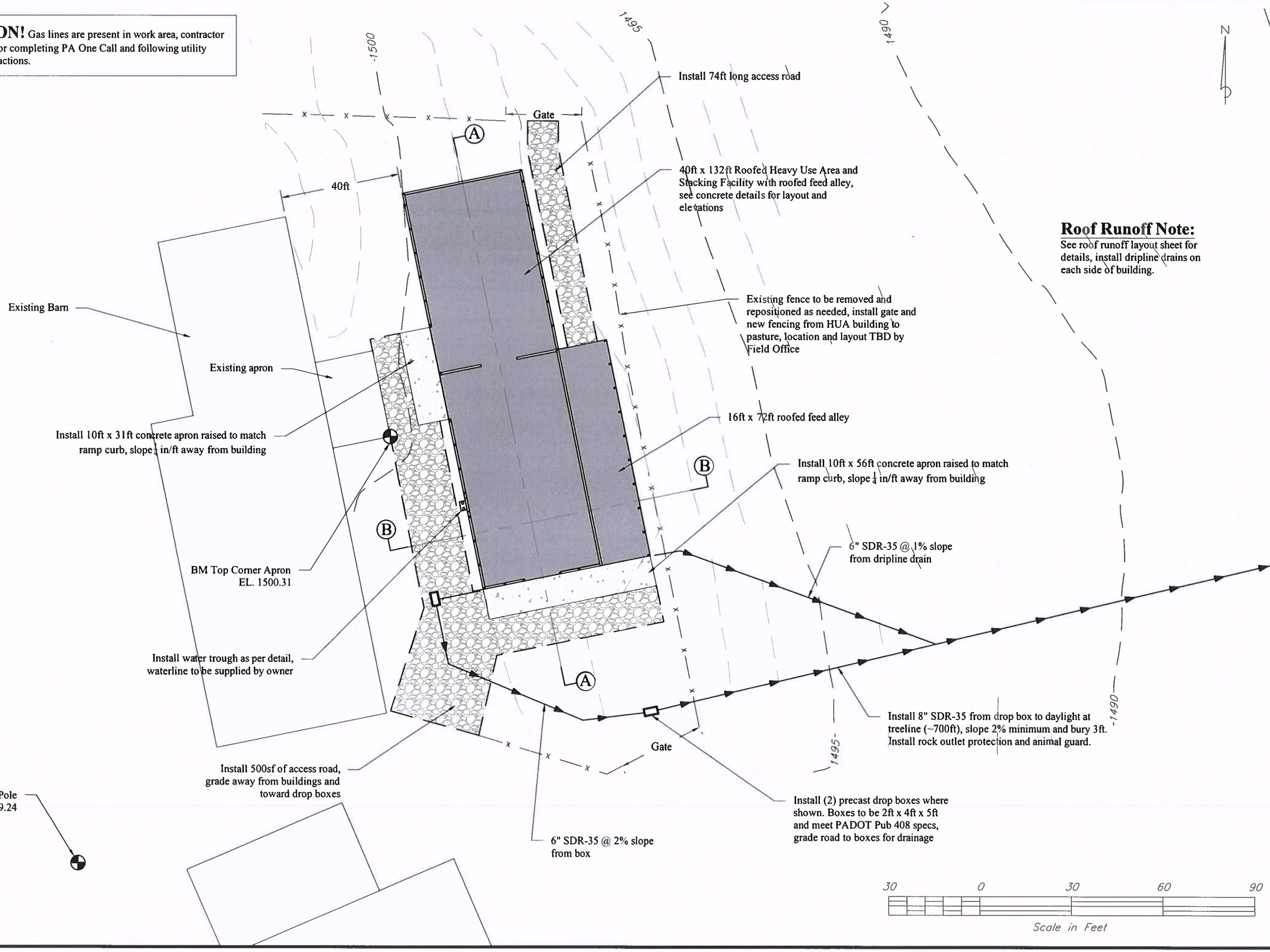
Existing Conditions

Designed zwa Date 5/2025
Drawn
Revised
Checked JSG 5-25

Approved by Date
Title
Title

Sheet 4 of 7 Sheets File Name

!CAUTION! Gas lines are present in work area, contractor is reponsible for completing PA One Call and following utility company instructions.



Roof Runoff Note:

See roof runoff layout sheet for details, install dripline drains on each side of building.

Approved by
Title
Title

Date 5/2025
Designed ZW/S
Drawn
Revised
Checked JSG
5-25

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CRAWFORD COUNTY, PENNSYLVANIA
Plan View - 30 Scale

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File Name

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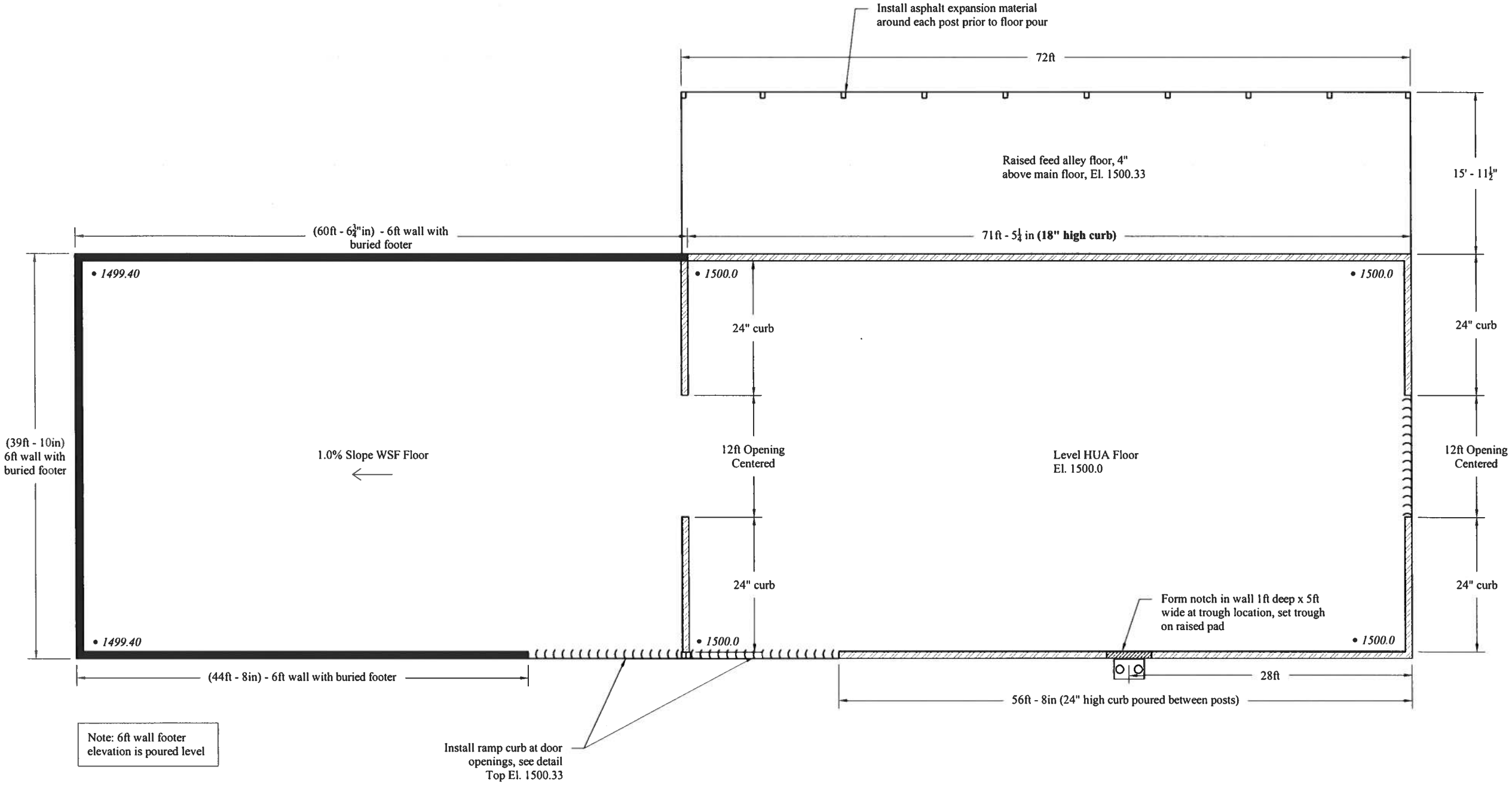
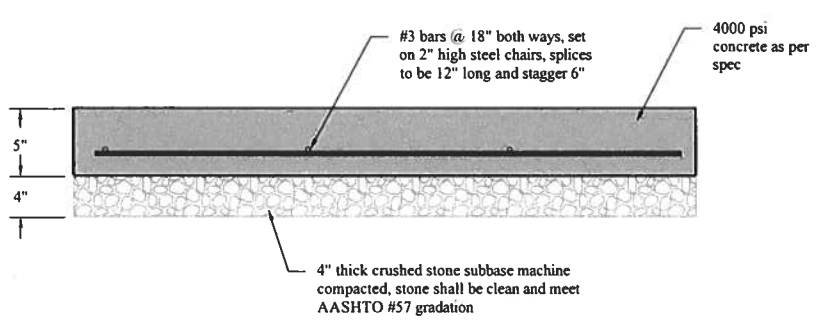
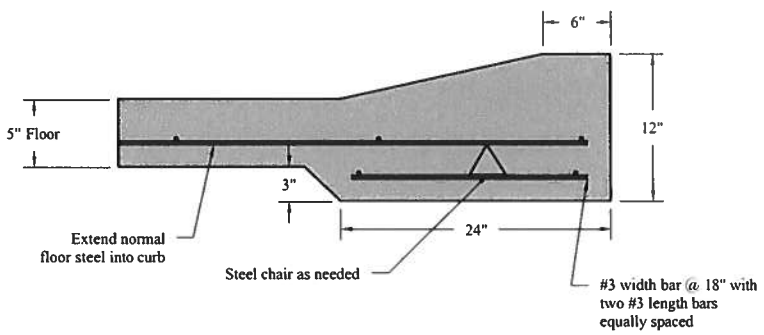


Floor Detail (typ.)



Ramp Curb Detail



Approved by _____ Date 5/25
Title _____
Title _____
Designed ZWB Date 5/25
Drawn ZWB Revised _____
Checked JSC 5-25

Maloney
CRAWFORD COUNTY, PENNSYLVANIA
Concrete Plan View

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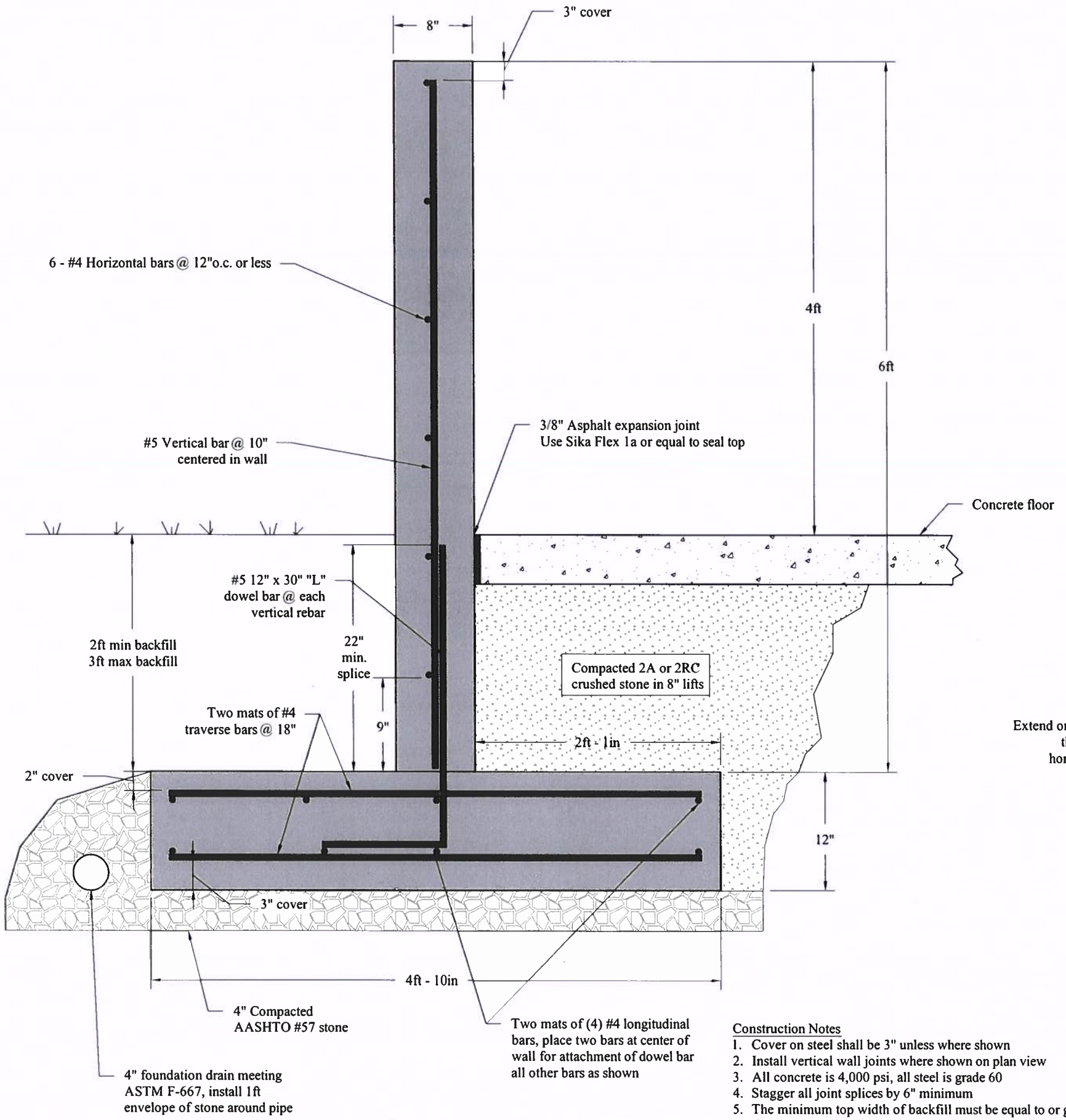
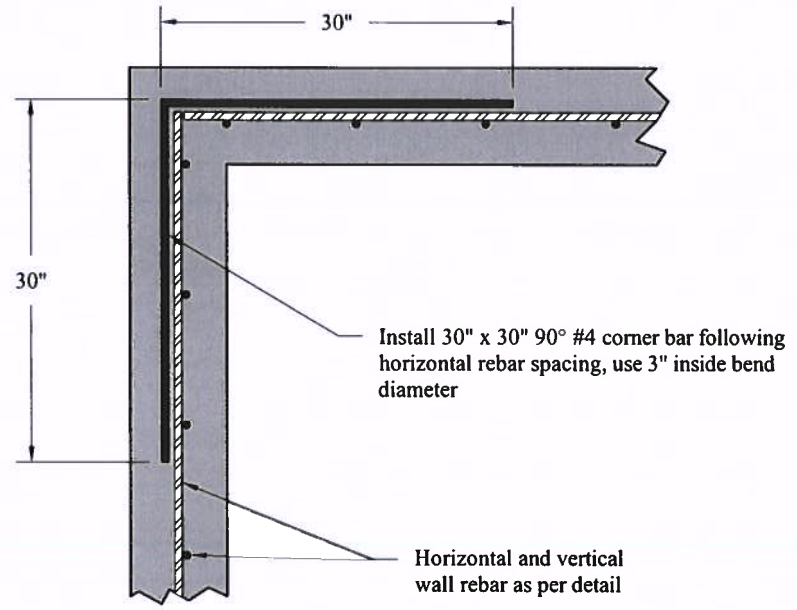
File Name _____

Sheet No. 6 of 22

6ft HIGH CONCRETE WALL - BURIED FOOTER

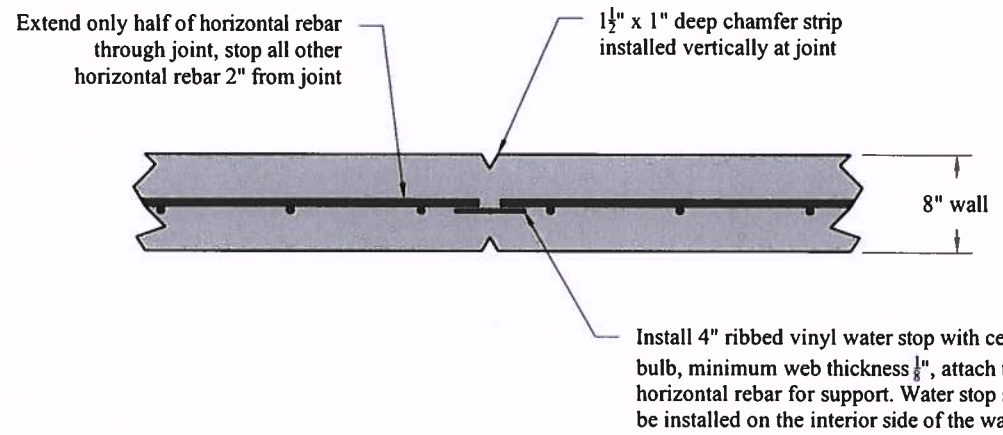
Adapted from PA Design Guide 12, 9/2021 - Designed for Roof Structure on Top





Wall Corner Detail

Steel Splice Lengths
#4 Bar - 20"
#5 Bar - 25"



Notes:
1. Install joints no more than 25ft apart, locate joint 4ft from all corners
2. Joints shall be located halfway between planned roof column locations and shall not be installed where a column is planned.

Wall Control Joint Detail

Construction Notes
1. Cover on steel shall be 3" unless where shown
2. Install vertical wall joints where shown on plan view
3. All concrete is 4,000 psi, all steel is grade 60
4. Stagger all joint splices by 6" minimum
5. The minimum top width of backfill must be equal to or greater than the backfill height
6. No surcharge is designed for this wall.

Design
Approved by
Title
Title

Date
Designed
Drawn ZNG 3/30/2022
Revised ZNG 5/9/24
Checked JSG 5-25

Maloney
CRAWFORD COUNTY, PENNSYLVANIA
6ft High Concrete Wall - Buried Footer

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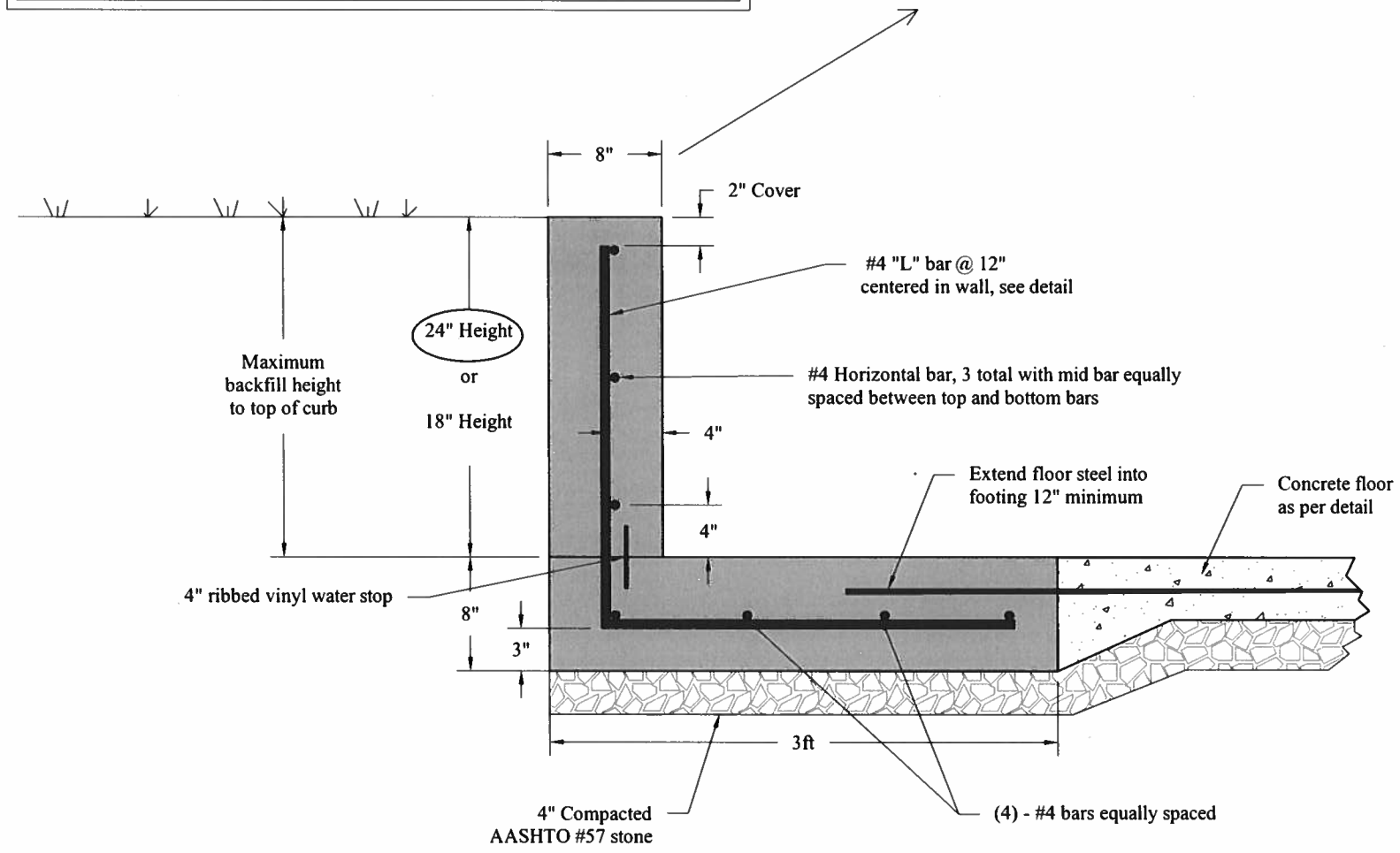
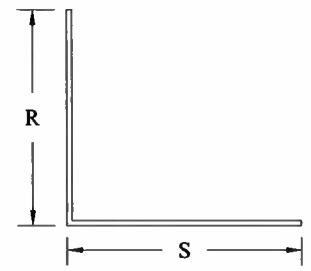
File Name
WPA-006
Sheet No. 7 of 22

18in - 24in HIGH CONCRETE CURB

Adapted From: Wisconsin NRCS WI-523, 2ft L-wall with no surcharge

The curb located along the side of the building shall be installed between the columns, install a 1x6 PT scab board on inside of column prior to setting forms, the width of the curb will be 7" column + 0.75" 1x6 = 7.75".



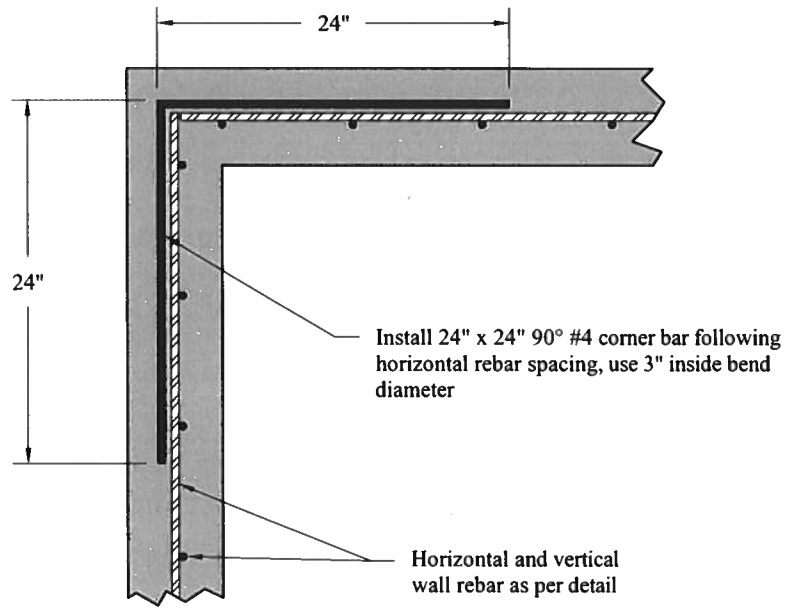


L Bar

L Bar Dimensions		
	18" Curb	**24" Curb**
R length	21"	27"
S length	30"	30"

Construction Notes

1. Cover on steel shall be 2" unless where shown
2. Install vertical wall joints where shown on plan view
3. All concrete is 4,000 psi, all steel is grade 60
4. #4 bar splices shall be 20", stagger all joint splices by 6" minimum
5. No surcharge is designed for this wall, the floor steel must extend into the footer and a 6ft minimum length floor slab be poured.
6. Footing steel placement in corners shall have the length and width bars extended into the backside of the corner.
7. Maximum backfill is to the top of the wall, minimum shall be level with the top of footing. Backfill shall slope away for drainage.



Wall Corner Detail

Approved by _____ Title _____ Date 5-25

Designed _____ Drawn ZW/B Checked JSG Revised _____ Date 2/28/24

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CRAWFORD COUNTY, PENNSYLVANIA

24inch Concrete Curb – no surcharge

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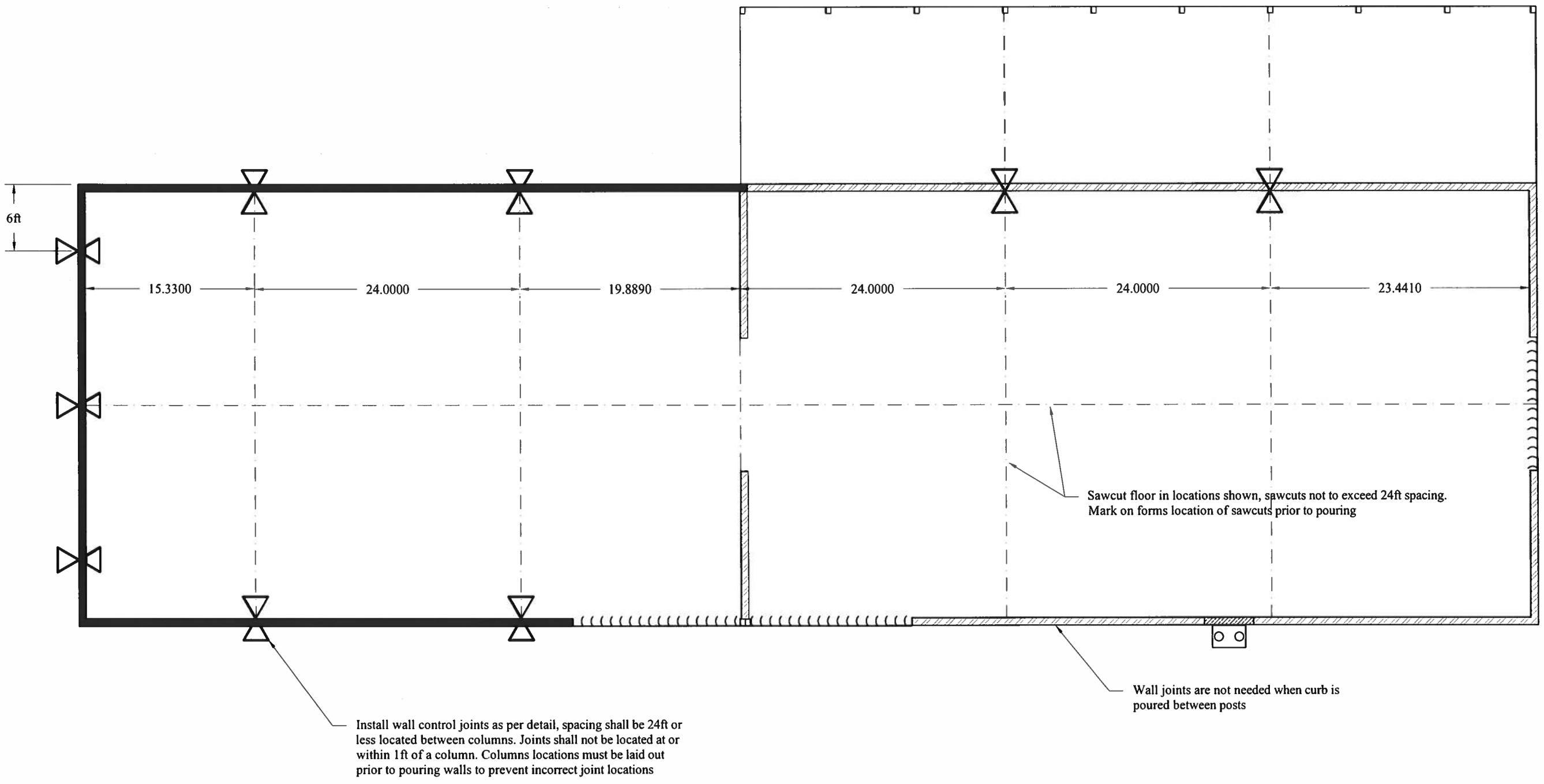
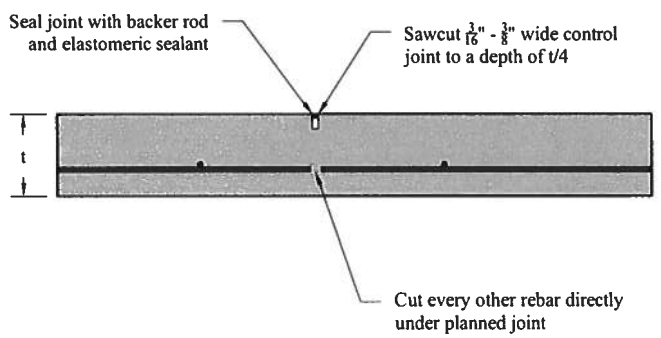
File Name WPA-013

Sheet No. 8 of 22



Control Joint Detail



Control Joint Notes:

1. Backer rod shall be slighly larger than sawcut
2. Sealant depth shall be ¼"
3. Space joints a maximum of 30ft apart or as shown on plans
4. Sawcut floor as soon as concrete sets and no later than 24 hours after the pour

Approved by
Title
Title

Date 5/25
Designed ZMM
Drawn
Revised
Checked JSG 5.25

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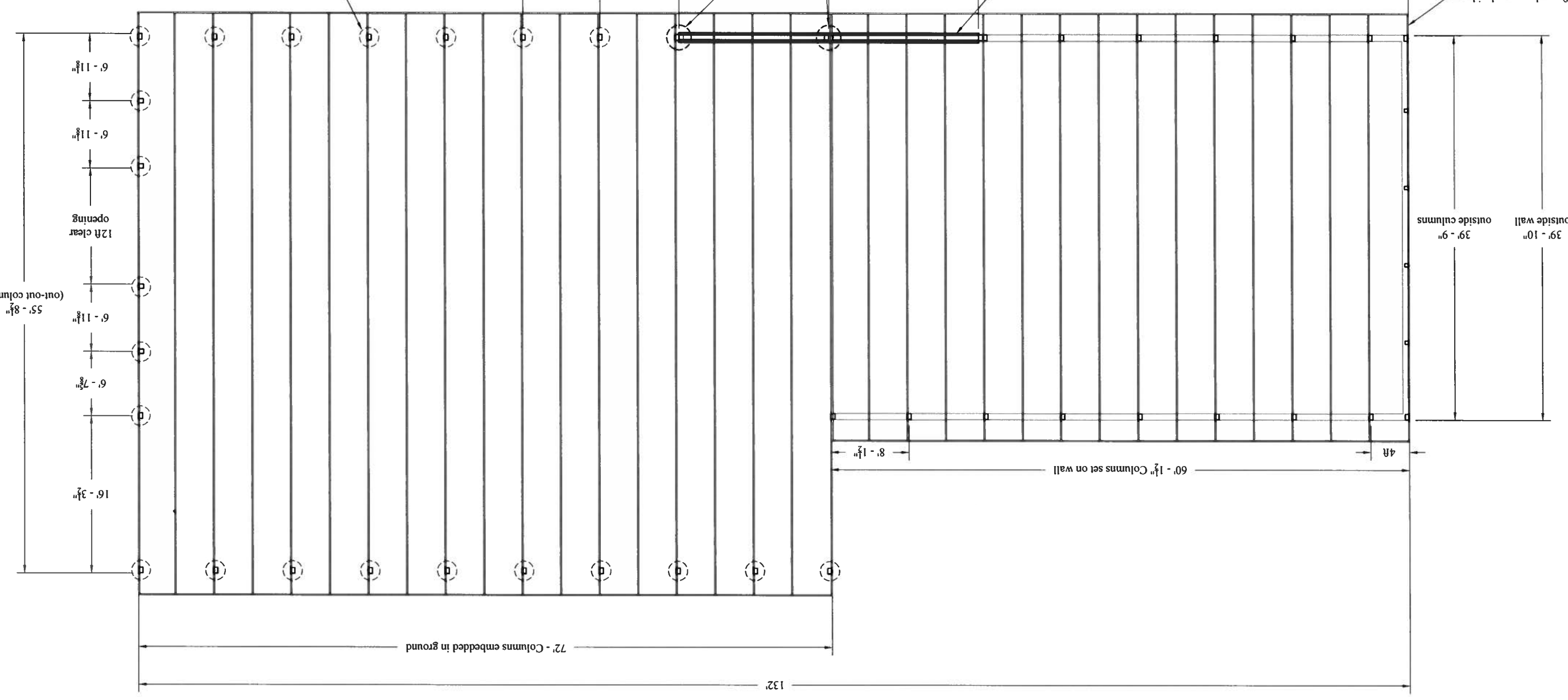
CRAWFORD COUNTY, PENNSYLVANIA

Control Joint Layout

United States Department of Agriculture

File Name

Sheet No. 9 of 22



Notes:
- All trusses spaced 4ft oc
- 40ft span truss shall have raised heel determined by truss designer to ensure top chord of truss matches roof plane of 56ft truss span.
- Side wall columns shall be 4-ply 2"x8" glulam
- End wall columns shall be 3-ply 2"x6" glulam
- All girders to be 1¾" x 9¼" LVL 2.0E

Maloney

CRAWFORD COUNTY, PENNSYLVANIA

Roof Layout

United States Department of Agriculture

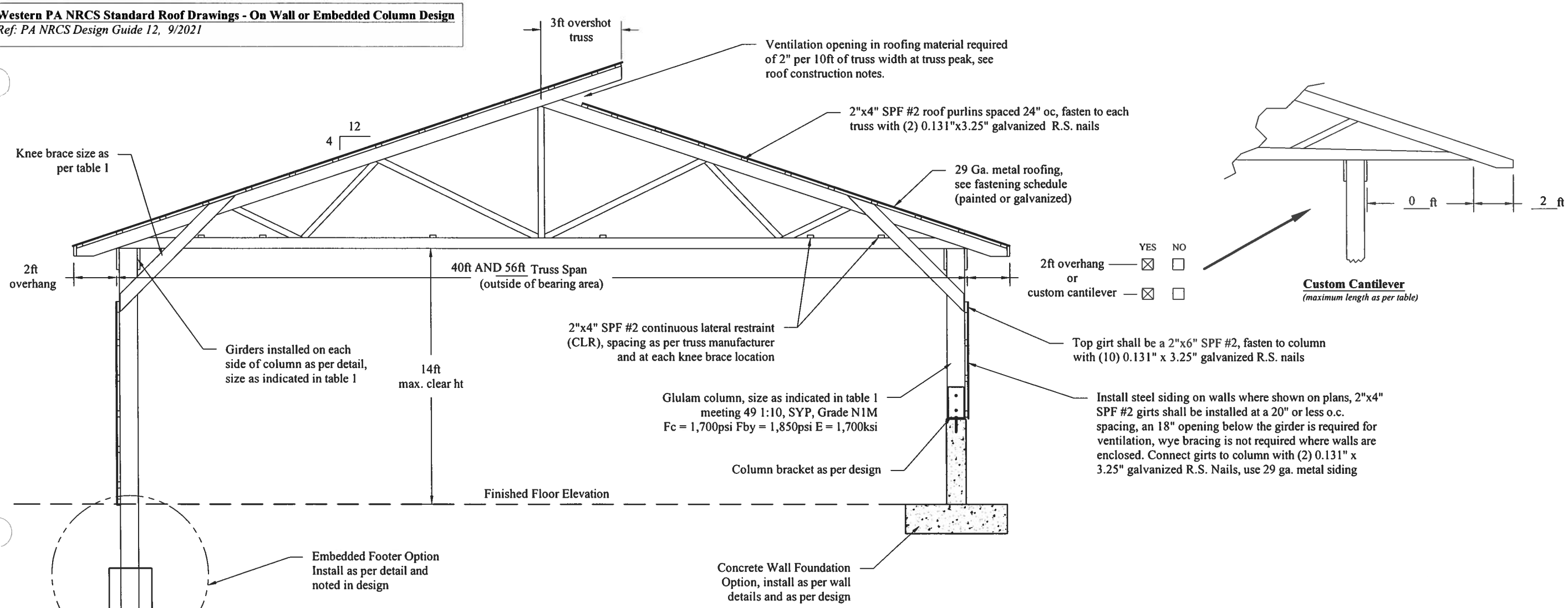
USDA

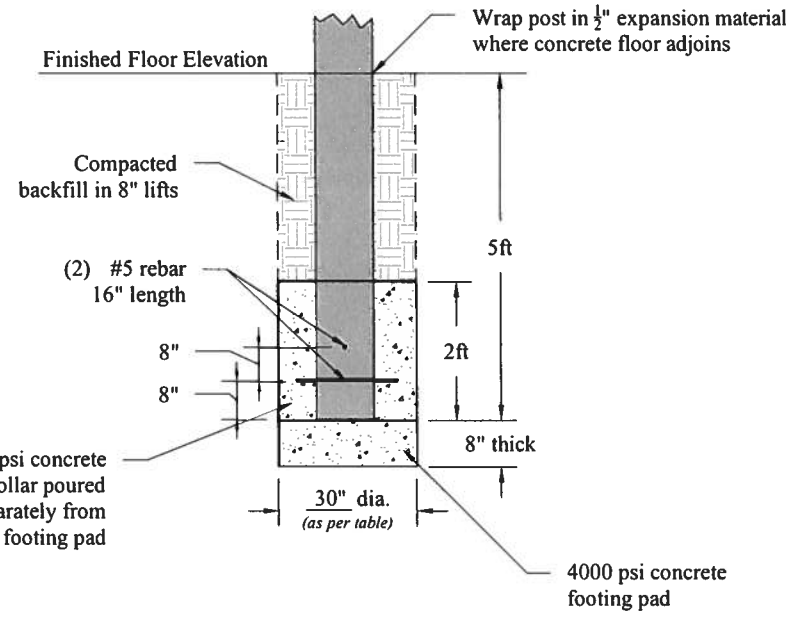
Designed	ZU/GJ
Drawn	
Revised	
Checked	JSG
Date	5/25
Date	5/25
Approved by	
Title	
Title	

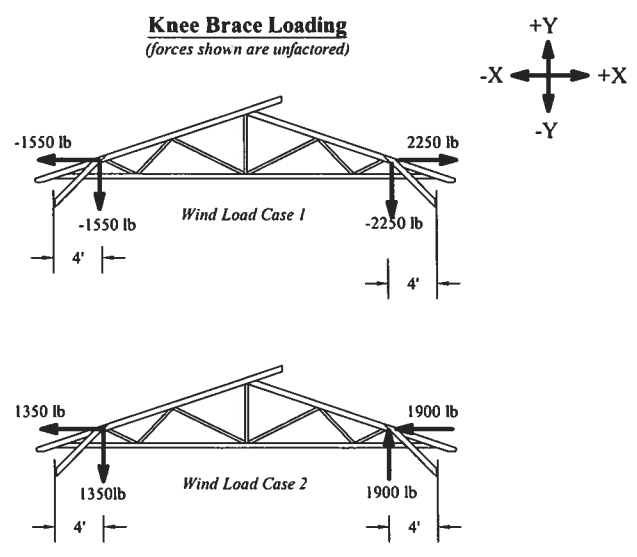
File Name

Sheet 10 of 22

Western PA NRCS Standard Roof Drawings - On Wall or Embedded Column Design
Ref: PA NRCS Design Guide 12, 9/2021







Truss Design Requirements (2018 IBC, ASCE 7-16)

1. **Truss Loading Information**
1.1. Snow Load: 35psf (Pg) ground, 24psf (Ps) sloped, 24psf (Pf) flat
1.1.1. Unbalanced Windward Snow Load: 7psf
1.1.2. Unbalanced Leeward Snow Load: 41psf located 8ft from ridge, then 24psf
1.2. Top Chord Live: 24psf
1.3. Top Chord Dead: 5psf
1.4. Bottom Chord Live: 0 psf
1.5. Bottom Chord Dead: 5psf
1.6. Wind Speed (V): 105 mph
1.7. Wind Load Risk Category: I
1.8. Wind Exposure: C
1.9. Building Enclosure Category: Partially Enclosed

TCLL: 24
TCDL: 5
BCLL: 0
BCDL: 5

2. **Truss Geometry Information**
2.1. Span as indicated, 4:12 Pitch, 3ft overshot top chord, overhangs/cantilever as shown
2.2. Top Chord shall have a specific gravity of 0.55
3. **Knee Brace Information**
4. Knee brace forces must be applied to the top chord of truss, a panel point shall be installed on the top chord located 4ft from either end of truss for connection of knee brace. Forces shown are unfactored and will need to have the appropriate load combinations calculated as per ASCE-7.
5. Knee brace forces shall be applied as such: apply uniform dead loads to the top and bottom chords, apply uniform snow loads to the top chord, apply vertical and horizontal knee brace forces to the top chord as wind forces, do not apply uniform wind loads to the top chord in conjunction with the knee brace forces. Two separate truss designs may be required to meet this criteria.

r6 revision, zwa - 2/28/24

Approved by: Title: Title:

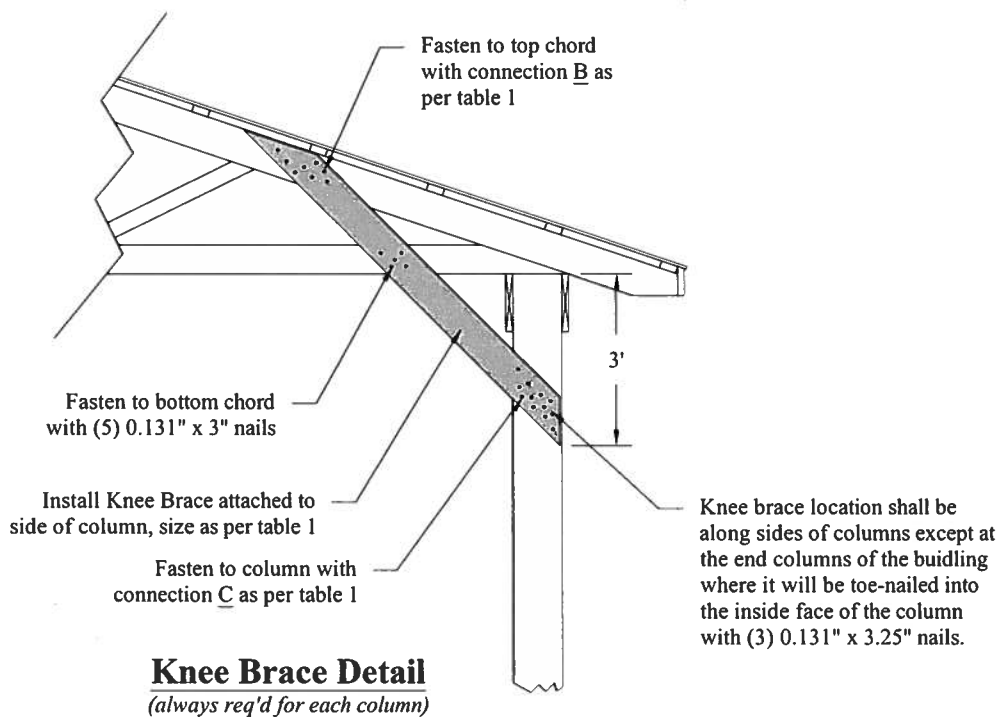
Date: 3/2022 2/28/24 5.25
Designed: Drawn: ZWG Revised: ZWG Checked: JSG

Maloney
CRAWFORD COUNTY, PENNSYLVANIA
Roof Details Sheet 1

USDA United States Department of Agriculture

File Name: WPA - 002
Sheet No. 1 of 6
11/22

Western PA NRCS Standard Roof Drawings - Embedded Column Design
Ref: PA NRCS Design Guide 12, 9/2021



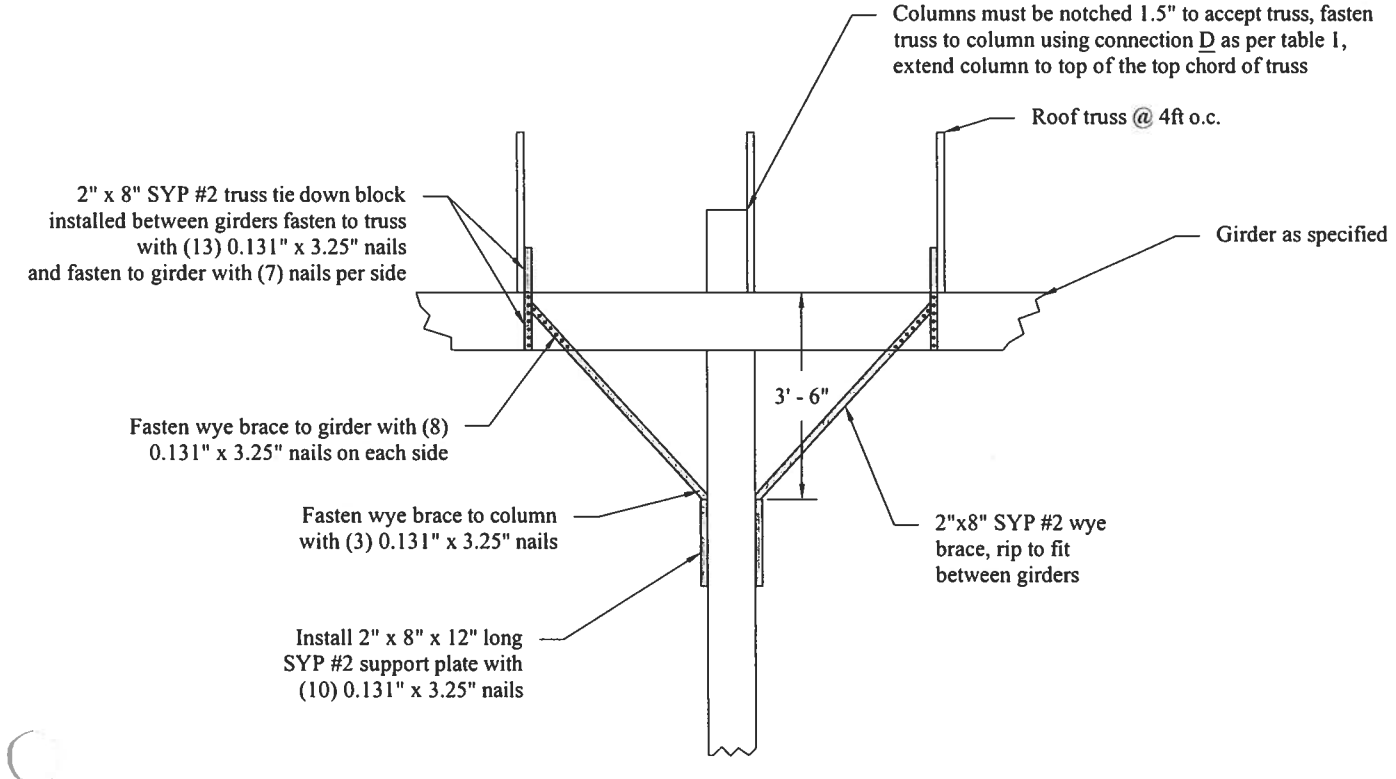
Knee Brace Detail
(always req'd for each column)

Table 1 - Roof Member Size	30ft Span	40ft Span	50ft Span	60ft Span
Footer Size 8ft span (Ml/Cl soils)	23" dia.	26" dia.	32" dia.	~~32" dia.~~
Footer Size 8ft span (all other soils)	19" dia.	24" dia.	30" dia.	30" dia.
Footer Size 16ft span (Ml/Cl soils)	28" dia.	31" dia.	34" dia.	~~37" dia.~~
Footer Size 16ft span (all other soils)	23" dia.	26" dia.	32" dia.	32" dia.
Knee Brace Size	2"x6" SYP #2	2"x8" SYP #2	2"x10" SYP #2	2"x10" SYP #2
Column Size	4-Ply 2"x6"	4-Ply 2"x8"	4-Ply 2"x8"	4-Ply 2"x8"
[3] Girder Size	2"x10" SYP #1	2"x12" SYP #1	2"x12" SYP #1	1¾" x 9¼" 2.0E LVL
[1] Connection A	(6) ¼"x4" screws	(8) ¼"x4" screws	(10) ¼"x4" screws	(12) ¼"x4" screws
Connection B	(5) ¼"x3" screws	(7) ¼"x3" screws	(8) ¼"x3" screws	(10) ¼"x3" screws
Connection C	(9) ¼"x4" screws	(10) ¼"x4" screws	(11) ¼"x4" screws	(14) ¼"x4" screws
Connection D	(5) ¼"x4" screws	(6) ¼"x4" screws	(7) ¼"x4" screws	(9) ¼"x4" screws
[2] Hand Driven Nail Option for Connection A	(8) 0.177"x4" R.S. Nails	(10) 0.177"x4" R.S. Nails	(12) 0.177"x4" R.S. Nails	(16) 0.177"x4" R.S. Nails
[2] Power Driven Nail Option for Connection A	(15) 0.131"x3.25" R.S. Nails	(20) 0.131"x3.25" R.S. Nails	(25) 0.131"x3.25" R.S. Nails	(30) 0.131"x3.25" R.S. Nails
5ft Max. Cantilever	Use 40ft design	Use 50ft design	Use 60ft design	None
8ft Max. Cantilever	Use 50ft design	Use 60ft design	None	None

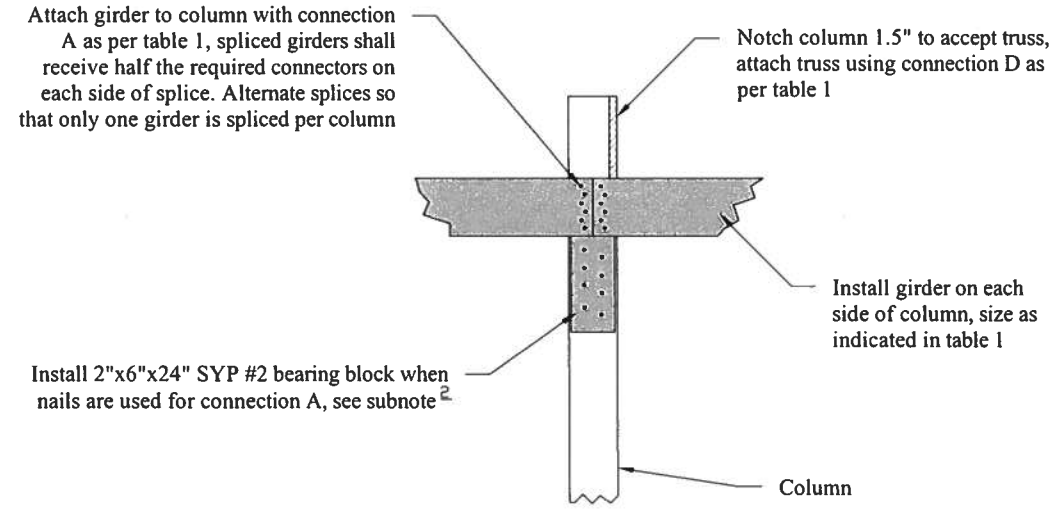
[1] Substitution of power driven nails or hand driven nails is allowed, follow nailing rate as per table. All nails shall be ring shank and hot-dipped galvanized.

[2] A maximum of 12 hand driven nails is allowed on each side of girder, a bearing block must be installed for the remaining nails required. The maximum of 16 power nails is allowed on each side of girder, a bearing block must be installed for the remaining nails required. Bearing blocks shall have a minimum of 8 nails regardless.

[3] LVL shall have properties of Fb = 2600psi, Fv = 285psi, alternatively 2"x12" MSR lumber can also be used and shall be SYP 1450f-1.5E or better.



Wye Bracing Detail
(req'd when sides are not enclosed with girts and steel)



Girder Connection Detail

r6 revision, zwa - 2/28/24

Approved by: Title

Date: 3/2022 | 2/28/24
Designed: Title
Drawn: ZWA
Reviewed: ZWA
Checked: JSG
5-25

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CRAWFORD COUNTY, PENNSYLVANIA
Roof Details Sheet 2

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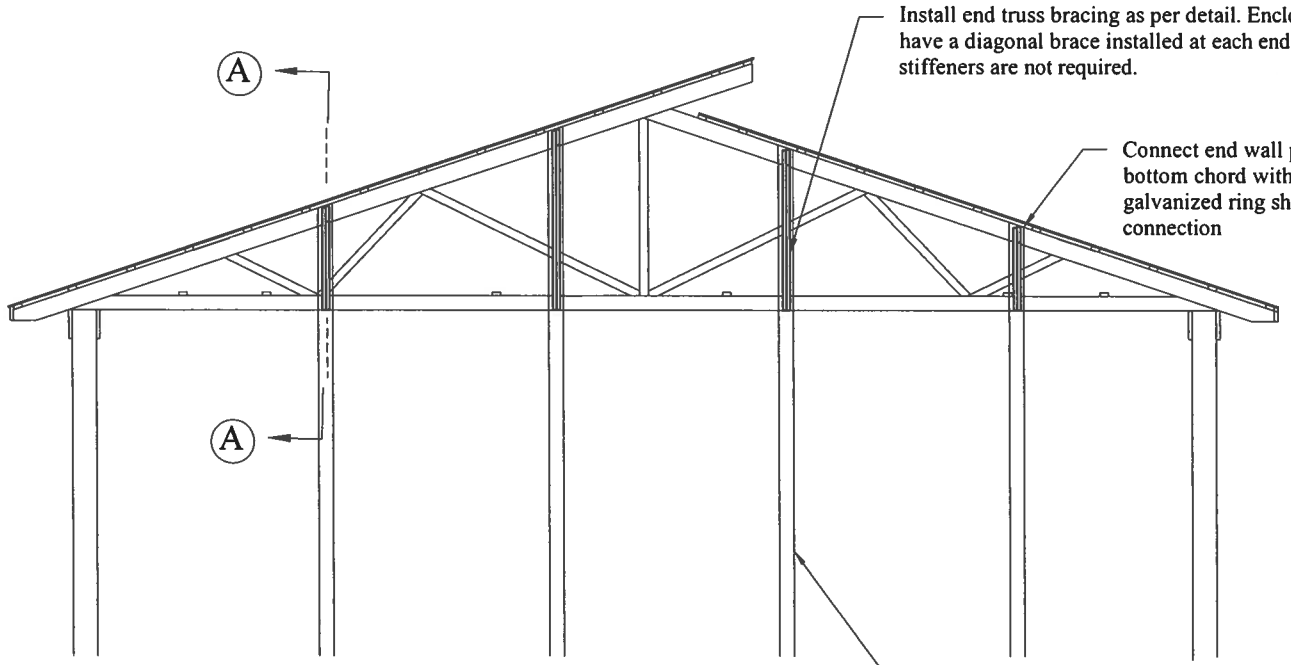
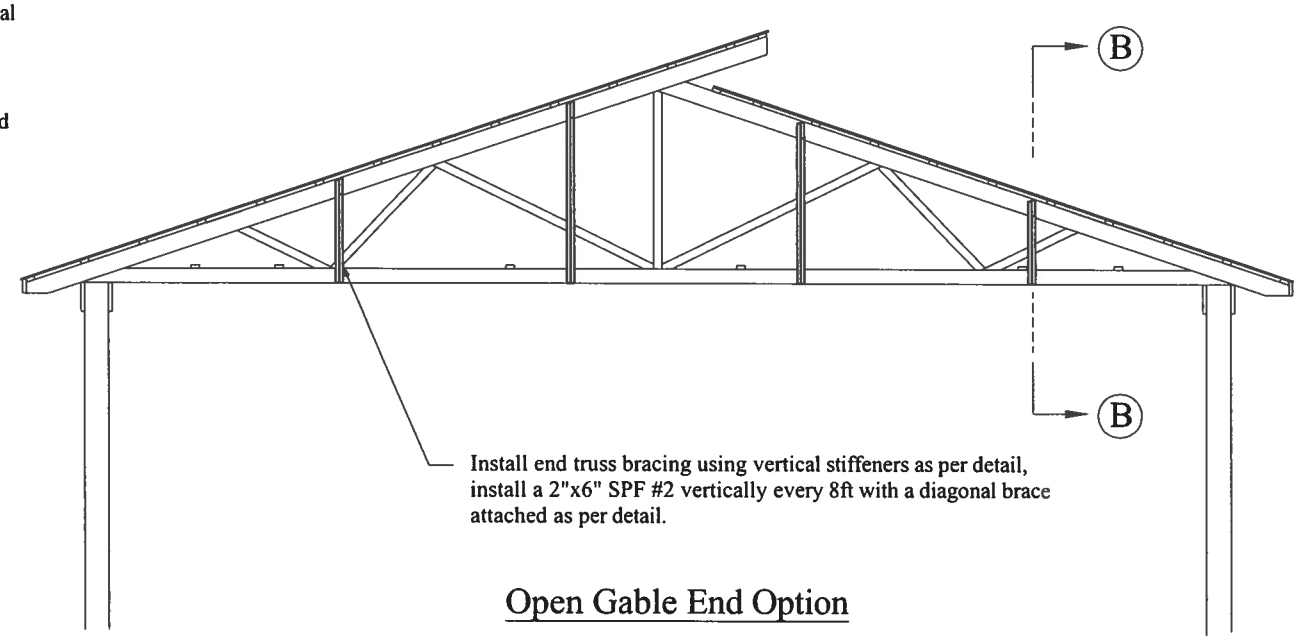
File Name: WPA-002
Sheet No. 2 of 6
12/22

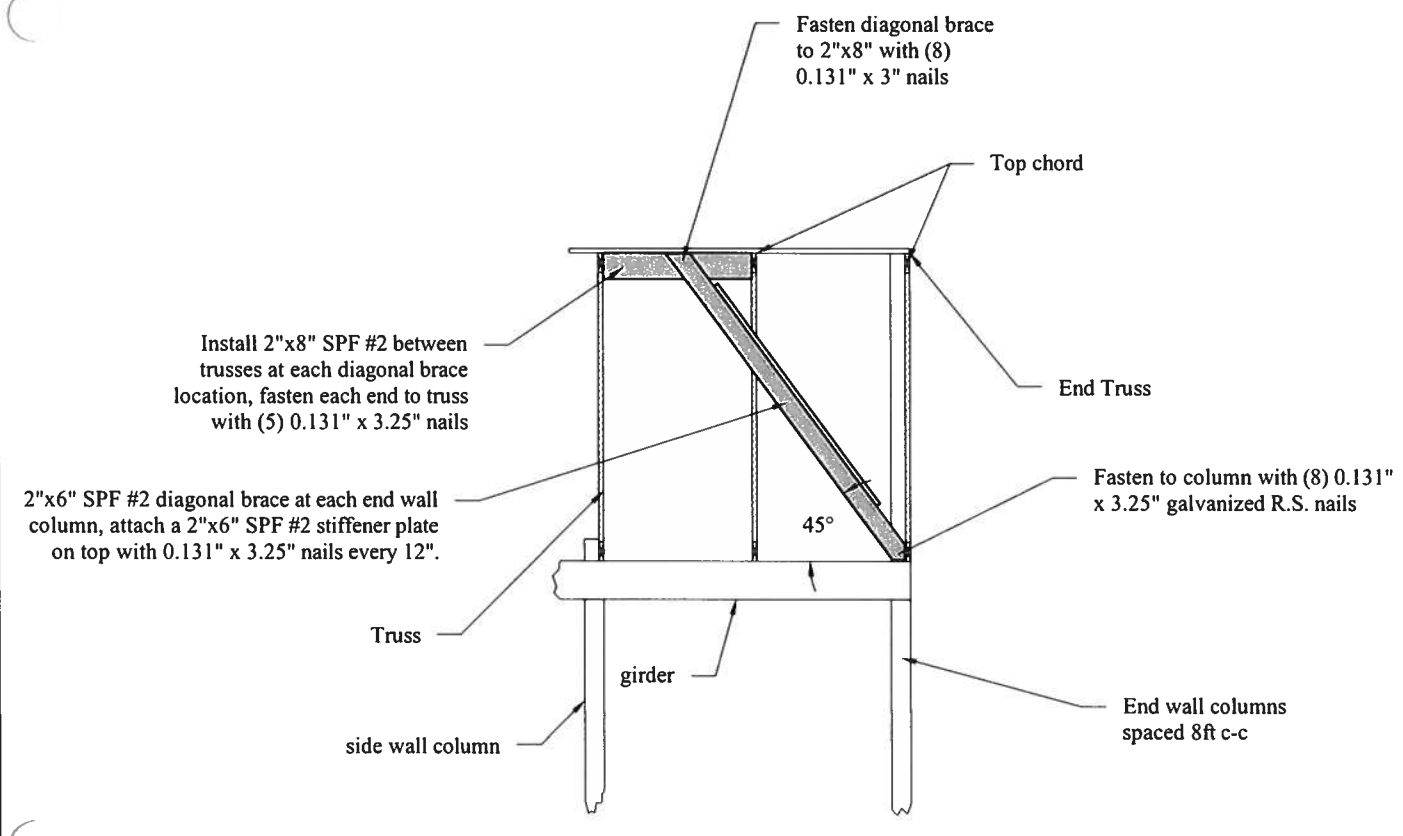
Western PA NRCS Standard Roof Drawings - Embedded Column Design
Ref: PA NRCS Design Guide 12, 9/2021



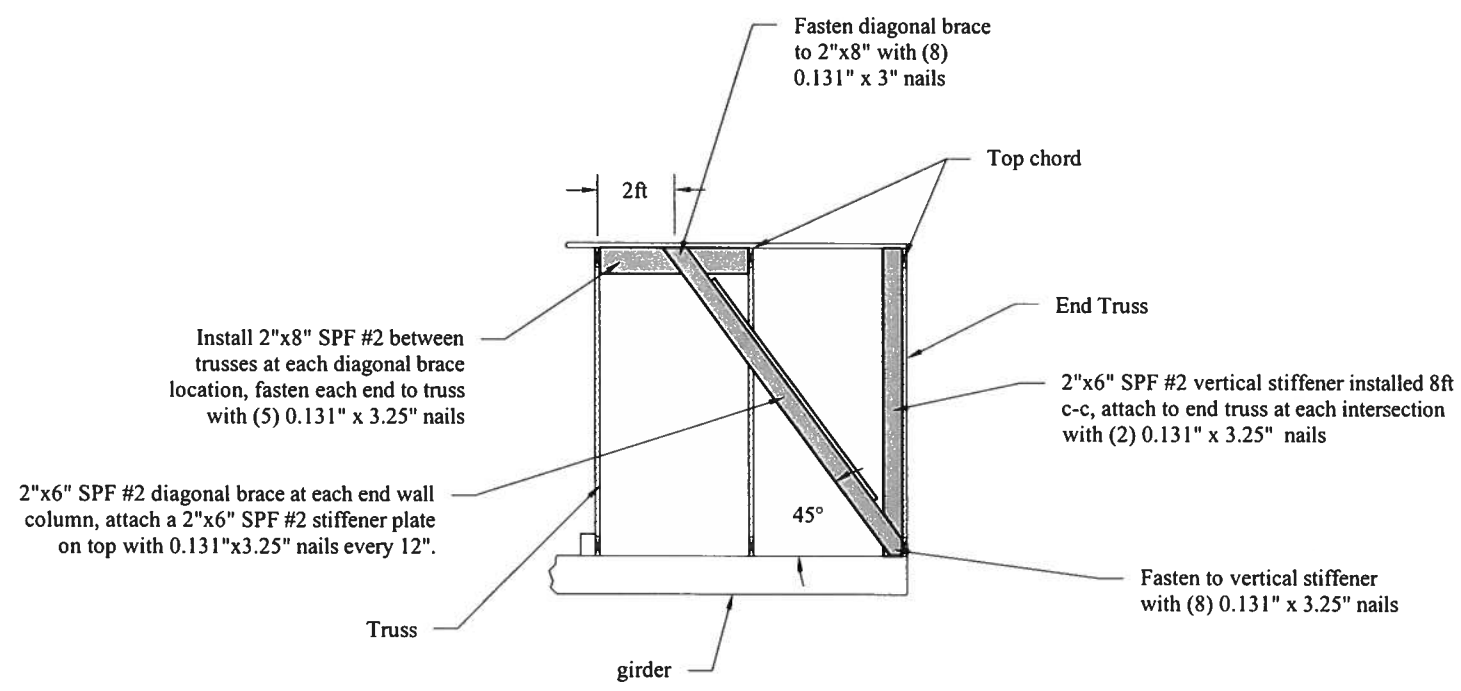
Enclosed End Wall Option



Open Gable End Option



Cross-Section A - Enclosed End Walls



Cross-Section B - Open Gable End

Approved by _____ Title _____ Date _____ Title _____

Designed _____ Date 3/2022
Drawn ZW/DL
Revised ZW/DL 2/28/24
Checked JSG SJS

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Truss Bracing Detail

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File Name WPA-002
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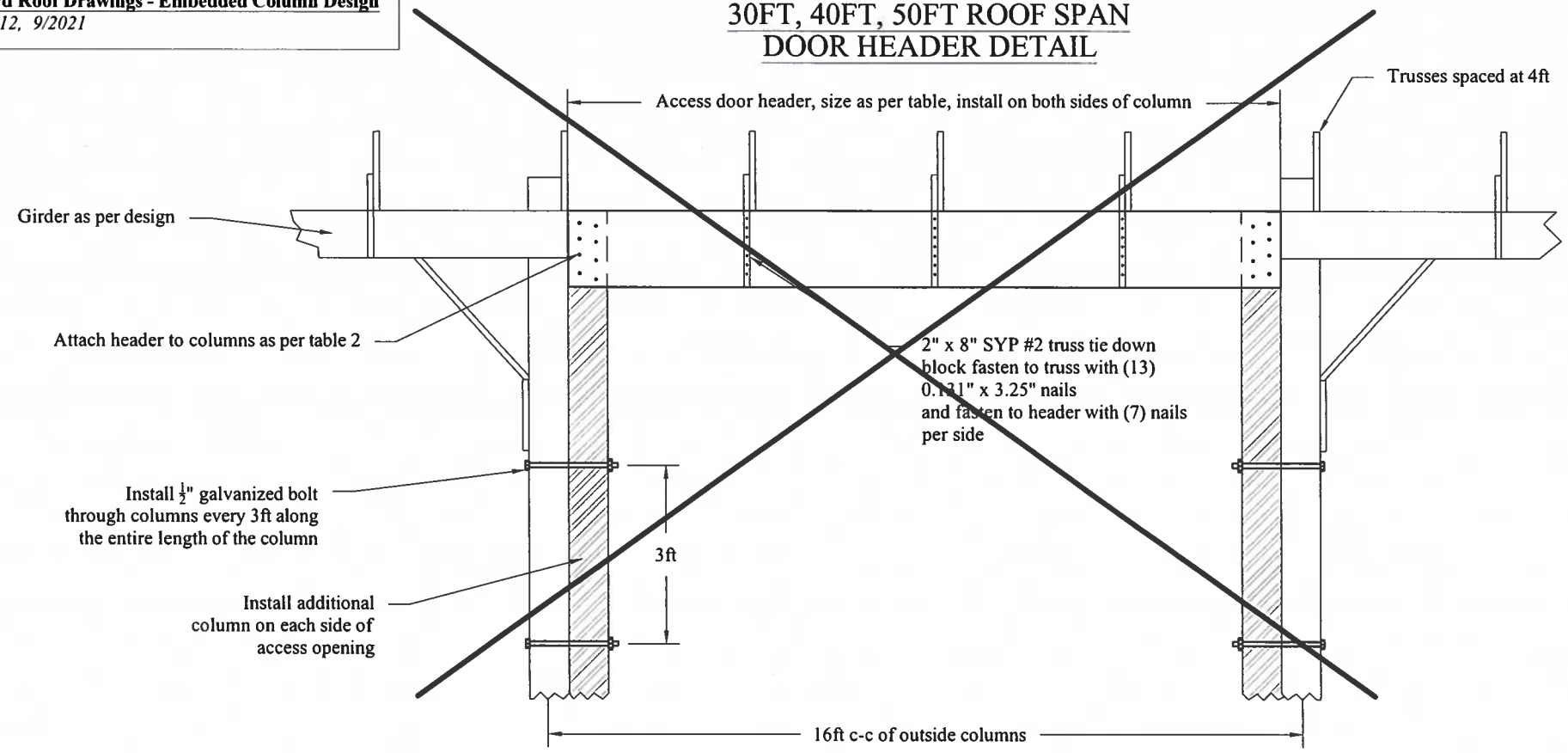
Western PA NRCS Standard Roof Drawings - Embedded Column Design
Ref: PA NRCS Design Guide 12, 9/2021

30FT, 40FT, 50FT ROOF SPAN DOOR HEADER DETAIL



60FT SPAN ROOF DOOR HEADER DETAIL

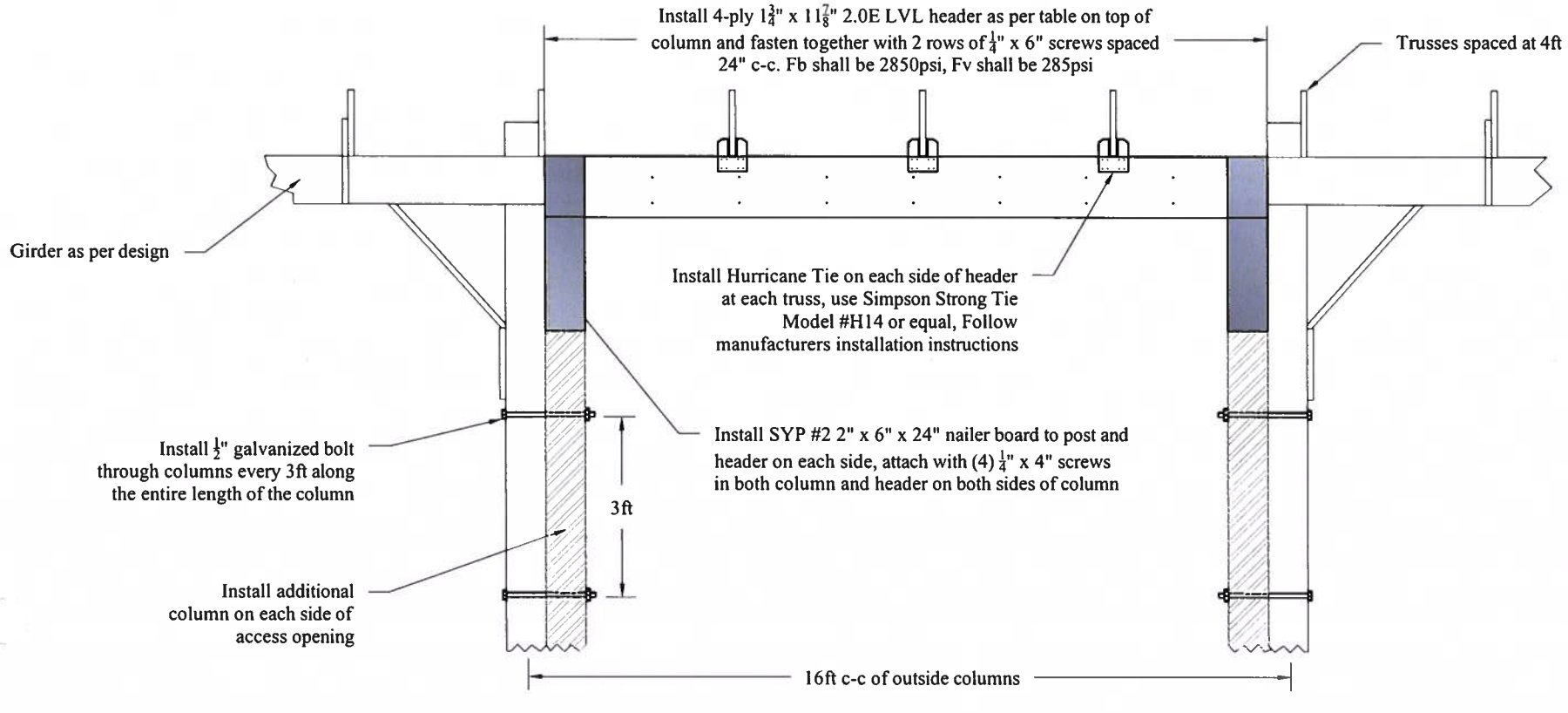


Table 2 - 16ft Header Sizing			
	~~30ft Span~~	~~40ft & 50ft Span~~	60ft Span
Header Size *(install on each side of column)*	~~1¾" x 11⅞" LVL~~	~~1¾" x 14" LVL~~	4-ply 1¾" x 11¼" LVL
Header Properties	2.0E, Fb=2850psi, Fv=285psi		
Header Connection	~~(7) ¼"x4" screws per side~~	~~(10) ¼"x4" screws per side~~	See Detail

Approved by _____ Date _____
Title _____ Title _____
Designed _____ Date 3/2022
Drawn ZW/B
Revised ZW/B Date 2/28/24
Checked JSG 525

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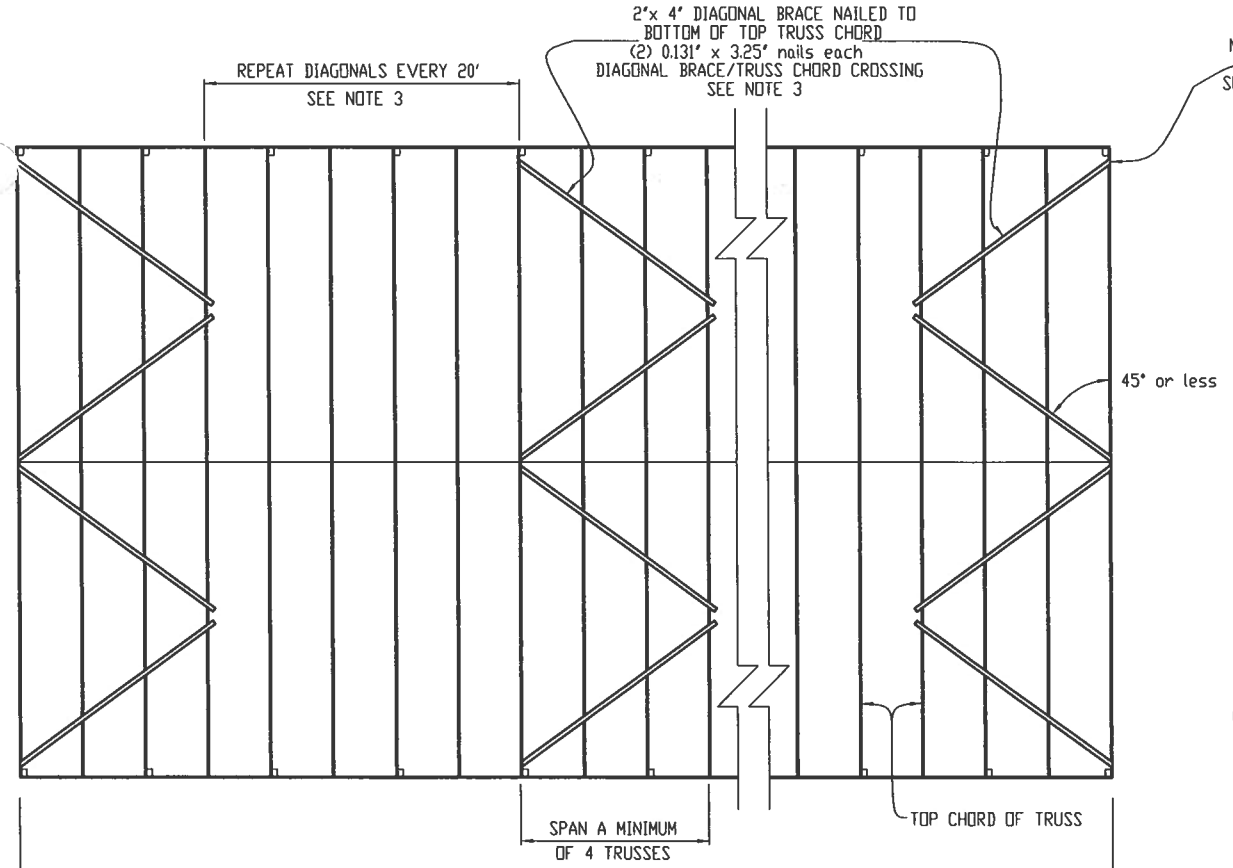
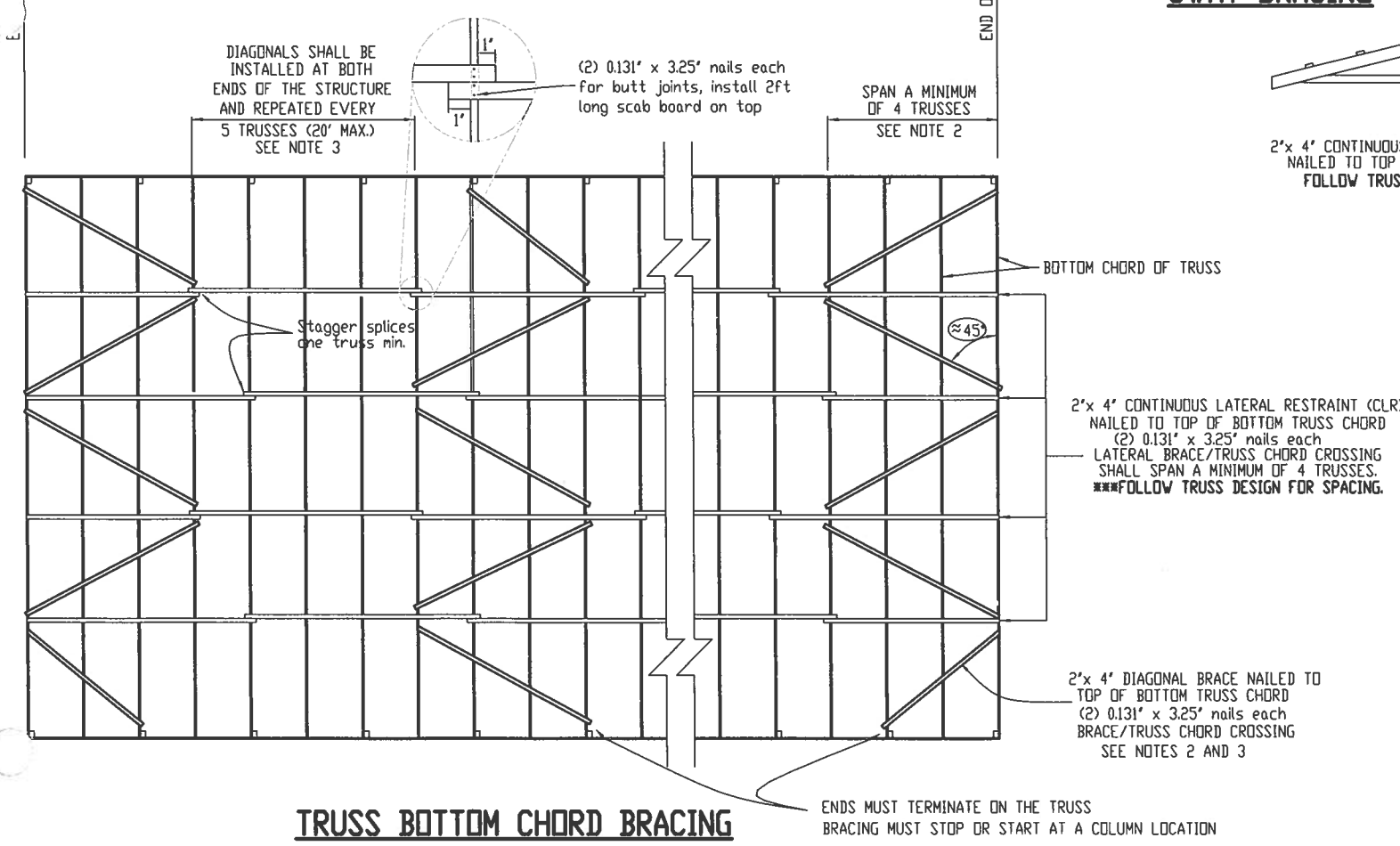
16ft Access Header Detail

United States Department of Agriculture

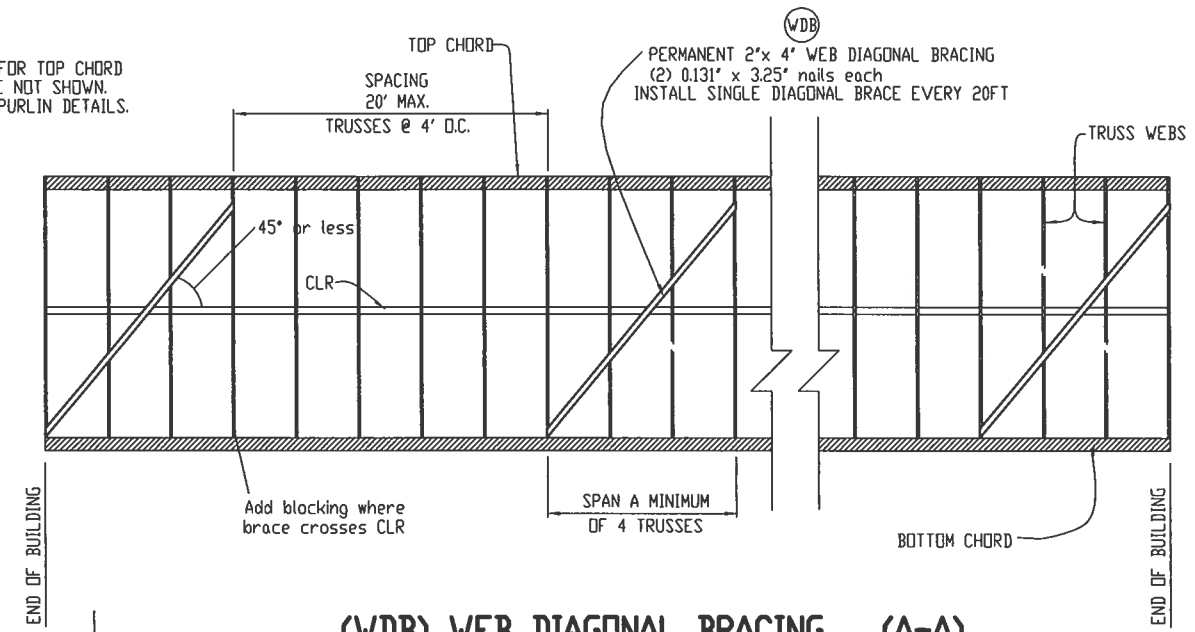
File Name WPA-002
Sheet No. 4 of 6
14/22



TRUSS TOP CHORD BRACING

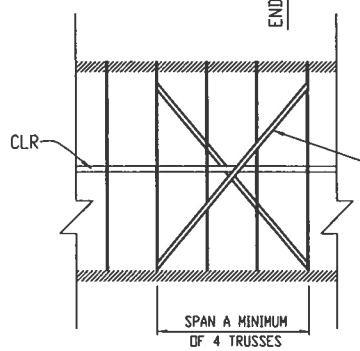


TRUSS BOTTOM CHORD BRACING

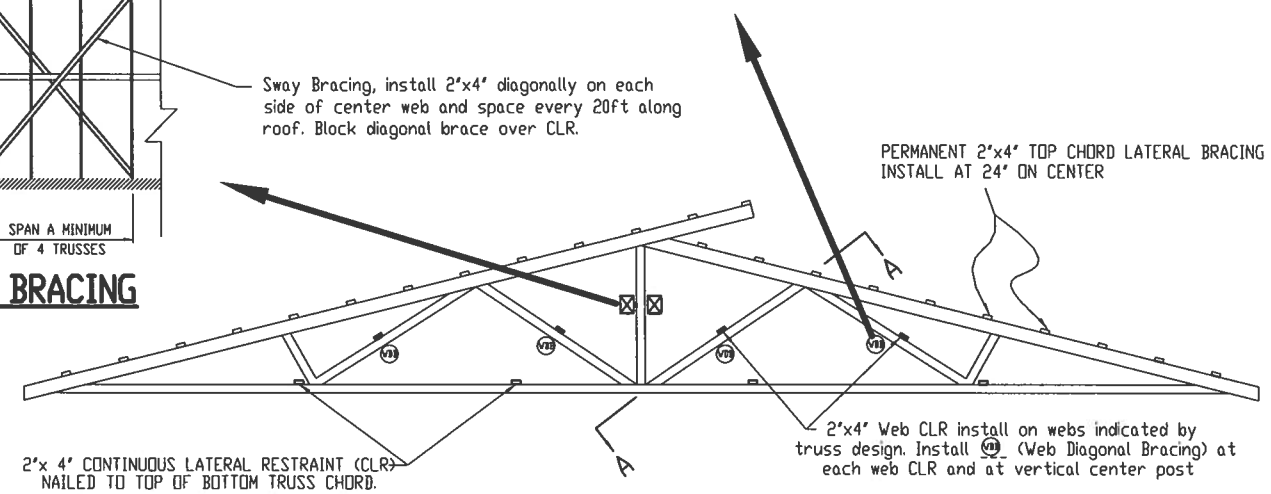


(WDB) WEB DIAGONAL BRACING (A-A)

(ELEVATION - PARTIAL SIDE VIEW)



SWAY BRACING



CROSS-SECTION

(ACTUAL TRUSS CONFIGURATION FURNISHED MAY DIFFER FROM THAT SHOWN ABOVE)

Construction Notes:

1. Truss designer may require additional bracing beyond that shown on this drawing.
2. If the bottom chord continuous lateral bracing spacing is 7' or greater the diagonals can be installed between these lateral bracing runs. If the spacing is at 4' the diagonals can be installed directly on top of the lateral runs. Spacings other than this will require that blocks be installed. Another option other than blocks is to install the bracing on the bottom of the bottom chord.
3. Diagonal bracing for the top and bottom chords are required on both ends of the structure as shown and evenly spaced throughout the structure at intervals not to exceed 20'.
4. All temporary bracing and truss handling instructions shall be followed from the Truss Manufacturer and the BCSI B-series summary sheets produced by the Truss Plate Institute (TPI).
5. Web Diagonal bracing is required on any webs that require continuous lateral restraint as shown by the truss design. Sway bracing is also required on center web member regardless of whether the truss design calls for continuous lateral restraint and spaced every 20ft along the length of the building.

Approved by — Title — Date

Designed — Date 11/2016
Drawn ZWG
Revised ZWG 2/28/24
Checked JSC S.25

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CRAWFORD COUNTY, PENNSYLVANIA
Permanent Truss Bracing Detail

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United States Department of Agriculture

File Name WPA-002
Sheet No. 5 of 6 15/22

Roof Construction Notes

1. All nails shall be hot–dipped galvanized regardless of location. Nails used to attached purlins and girts shall be power driven hot–dipped galvanized ring shank (R.S.) 0.131" x 3.25" nails. Nails used for wye braces, knee braces, and truss bracing shall be power driven R.S. or smooth shank 0.131" x 3.25" nails, substitution of hand driven nails is allowed and shall be post frame ring shank 0.135" x 3.5" nails.

2. Structural screws shall have a nominal diameter and length as shown in the design, the minimum root diameter shall be no less than 0.172". Allowable fasteners include: $\frac{1}{4}$" SDS Simpson Strong Tie, TimberLOK by Fasten Master, and $\frac{5}{16}$" GRK RSS screws, other screws can be proposed with approval by the NRCS Engineer.

3. All wood in contact with the ground or manure shall be pressure treated as per the American Wood Protection Association (AWPA) standard U1. All columns shall follow category UC4B and be treated using ACQ or CCA – 0.6 pcf retention. Pressure treated length shall be a minimum of 1ft above where it is contacting the ground or manure for sided buildings. Open sided buildings shall have pressure treated columns for their entire length.

4. Trusses shall follow the loading requirements as shown in the design and include gable end trusses on each end. Truss designs must be submitted to the NRCS engineer for approval prior to purchasing and include a P.E. seal.

5. Ventilation at the truss ridge is required and shall be accomplished by providing an opening at the ridge of 2" per 10ft of truss width for the entire length of building, (E.g. 8" for a 40ft truss span). An over shot style truss shall be installed to provide this required opening, alternatively an open ridge with custom cupola could be installed provided the minimum opening is met.

6. Roofing and siding material shall be 29 gauge corrugated steel panels and shall have a protective coating installed on the face. Bubble insulation is recommended to be installed on the underside of the panels though not required. The metal shall be fastened using a #10x1.5" screw at a 9" o.c. spacing. Screws shall be installed on both sides of the corrugations at all endlaps, eaves, and roof ridge.

7. Sides are allowed on the building only at locations shown on plan view drawing, a maximum of 3 sides\end are allowed to be enclosed. An 18" opening shall be installed below the girder for ventilation, the opening shall extend around the gable end. Gable ends when sided shall have 3–ply 2"x6" columns installed at 8ft c–c spacing and shall follow the properties and installation requirements of the side wall columns as shown in this design, the columns shall extend to the top chord of the end truss and be fastened with (6) 0.131" x 3.25" galvanized R.S. nails in top and bottom chord.

Knee Brace Loads - For Roof Designer

Knee Brace Loads on Top Chord

		Wind Case 1				Wind Case 2			
		Left Brace		Right Brace		Left Brace		Right Brace	
		X	Y	X	Y	X	Y	X	Y
30FT SPAN	OPEN ON WALL	-1350	-1350	-1450	1450	1000	1000	2550	-2550
	OPEN EMBEDDED	-1100	-1100	-1750	1750	800	800	2100	-2100
	SHEATHED ON WALL	-550	-550	1300	-1300	-1050	-1050	-1550	1550
	SHEATHED EMBEDDED	-1000	-1000	1700	-1700	-900	-900	-1600	1600
40FT SPAN	OPEN ON WALL	-1750	-1750	-2550	2250	1150	1150	3000	-3000
	OPEN EMBEDDED	-1500	-1500	-2150	2150	1000	1000	2500	-2500
	SHEATHED ON WALL	-800	-800	1550	-1550	-1250	-1250	-1600	1600
	SHEATHED EMBEDDED	-1150	-1150	1850	-1850	-1050	-1050	-1750	1750
50FT SPAN	OPEN ON WALL	-2150	-2150	-3050	3050	1300	1300	3450	-3450
	OPEN EMBEDDED	-1900	-1900	-2550	2550	1200	1200	2900	-2900
	SHEATHED ON WALL	-1050	-1050	1800	-1800	-1450	-1450	-1650	1650
	SHEATHED EMBEDDED	-1300	-1300	2000	-2000	-1200	-1200	-1900	1900
60FT SPAN	OPEN ON WALL	-2500	-2500	-3550	3550	1350	1350	4050	-4050
	OPEN EMBEDDED	-2150	-2150	-3050	3050	1250	1250	3400	-3400
	SHEATHED ON WALL	-1350	-1350	2100	-2100	-1600	-1600	-1800	1800
	SHEATHED EMBEDDED	-1550	-1550	2250	-2250	-1350	-1350	-1900	1900

Column Bracket Construction Notes and Details *(if applicable)*

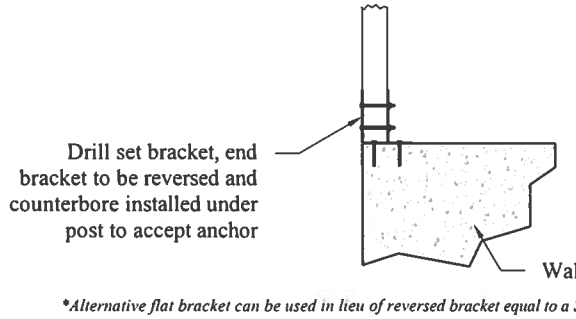
1. Column brackets shall be prefabricated engineered brackets equal to a Sturdi–Wall Drill Set SW series bracket and rated to 1,000lb shear strength and 3,600lbs uplift strength. Wet–Set style brackets are not allowed for this application. The bracket shall be installed according to the manufacturers instructions and centered on the concrete wall.

2. Brackets shall be sized for the column size indicated in the design, for Sturdi–Wall Brackets the appropriate size models shall be:
   2.1. 3–ply 2"x6" glulam = Model SW63 or SW60
   2.2. 4–ply 2"x6" glulam = Model SW64 or SW60
   2.3. 4–ply 2"x8" glulam = Model SW84 or SW80

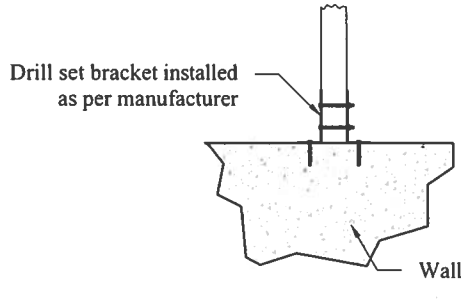
3. Column brackets shall be attached to the concrete with $\frac{5}{8}$" x 5" long screw anchors equal to a Simpson Strong–Tie Titen HD Heavy–Duty Screw Anchor. The anchor shall be galvanized or stainless steel and installed as per the manufacturers instructions.

4. Bracket and concrete anchor information shall be submitted to the NRCS Engineer for approval prior to ordering.

Door Opening and Corner Bracket Detail



Sidewall and Endwall Bracket Detail



**Alternative flat bracket can be used in lieu of reversed bracket equal to a Sturdi-Wall SW90*

Approved by: Title

Date 3/2022 2/28/24 5-25

Designed ZWG Drawn ZWG Revised ZWG Checked JSG

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CRAWFORD COUNTY, PENNSYLVANIA

Roof Construction Notes and Column Bracket Notes

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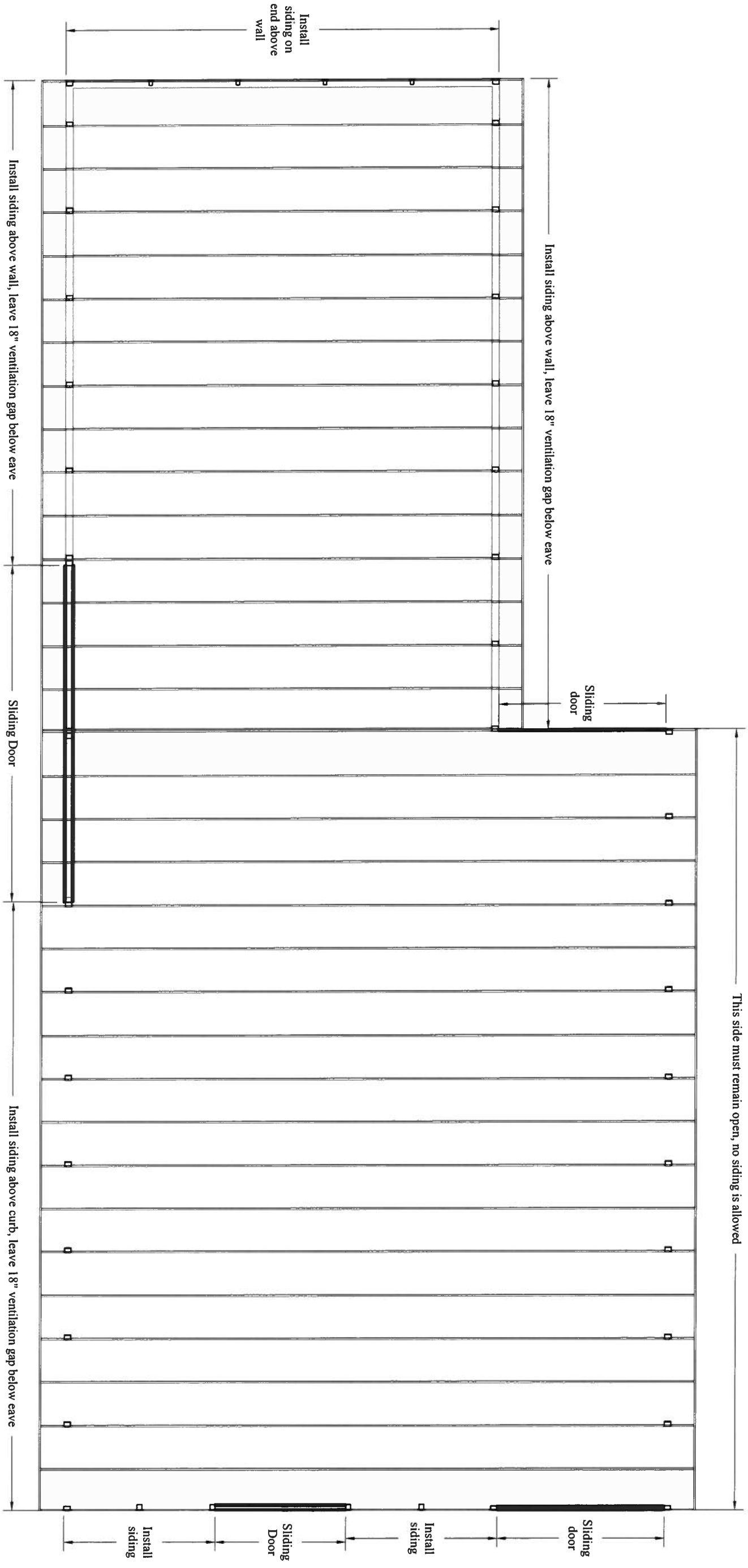
File Name WPA-002

Sheet No. 6 of 6 16/22



Note:
Sliding door design and installation is the responsibility of the owner and contractor.

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of 22			

United States Department of Agriculture

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CRAWFORD COUNTY, PENNSYLVANIA

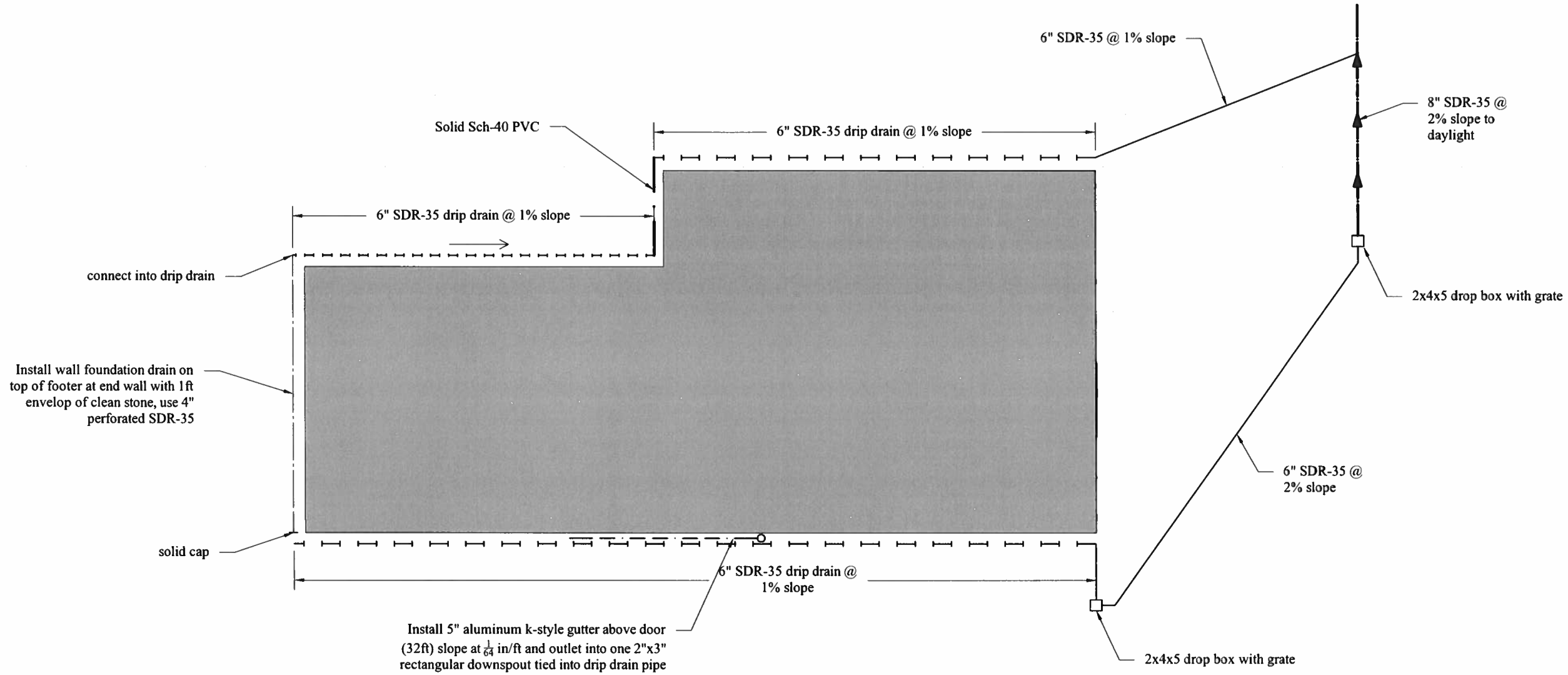
Siding Layout

Designed	zwa	Date	5/25
Drawn			5/25
Revised			
Checked	JSG		5.25

Approved by _____ Date 5/27

Title _____

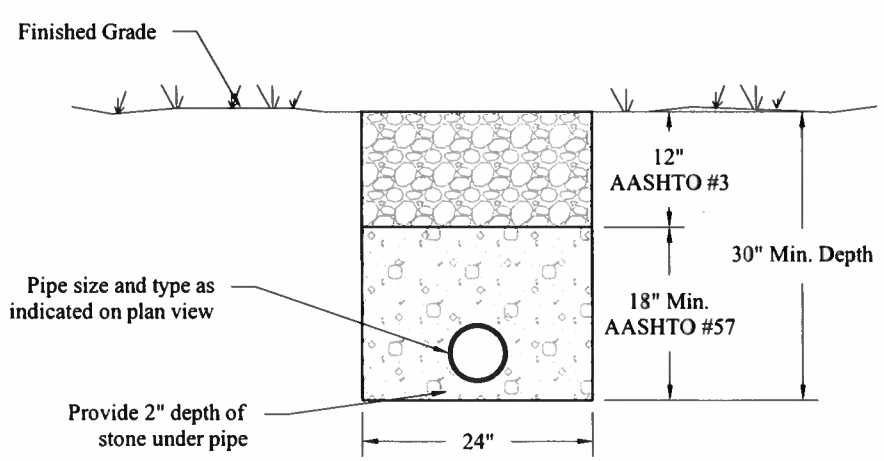
Title _____



Drop Box Notes:

1. Drop boxes shall meet PennDOT Pub408 Spec and have a traffic rated grate installed.
2. Boxes shall be 2ft x 4ft x 5ft deep, inlet holes shall be field measured and core drilled to meet grade requirement of pipes. Outlet holes shall be cast at the bottom of the sidewall to the size shown.
3. Grout pipes into holes with hydraulic cement or water tight gasket.

Dripline Drain Detail



Construction Notes:

1. Perforated pipe used shall be SDR-35 and conform to ASTM D-3034 and be installed to the grade shown on plan view.
2. Base course stone shall be 18" minimum depth and consist of clean AASHTO #57 (PADOT 2B) and is allowed to be river gravel or crusher run stone.
3. Top course of stone shall be 12" thick and be clean meeting the gradation requirements of AASHTO #3. This is allowed to be river gravel or crusher run stone.

Approved by — Title — Date 5/25
Title — Date 5/25
Designed ZW/B — Date 5/25
Drawn — Date
Revised — Date
Checked JSG — Date 5.25

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Roof Runoff Plan and Details

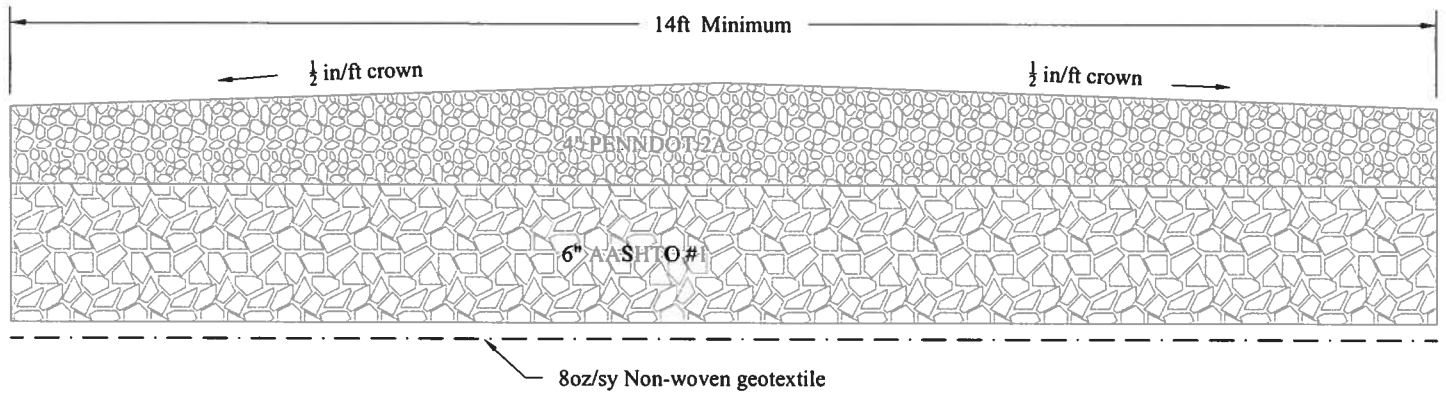
USDA United States Department of Agriculture

File Name

Sheet No. 18 of 22

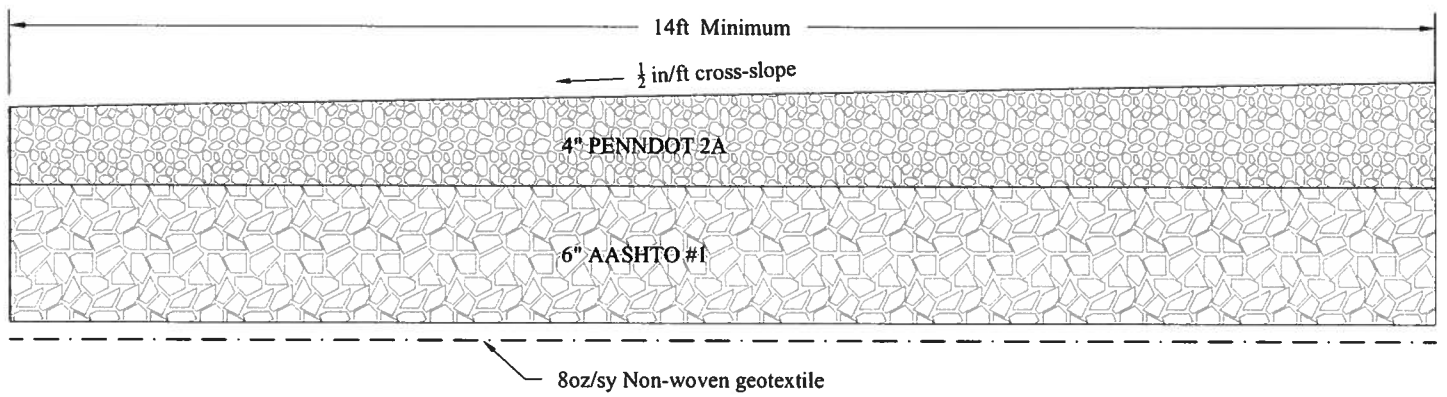
Access Road Detail - Crown Option

(not to scale)



Access Road Detail - Cross-Slope Option

(not to scale)



Notes:

1. Install geotextile with a 1 ft overlap between sections.
2. Stone depth shall be measured after compaction, the minimum depths are shown
3. All stone shall be compacted with a smooth drum vibratory roller.
4. All gravel areas shall slope away from the structure floor.
5. AASHTO #1 can be substituted with shale or sandstone if material is approved by the NRCS inspector prior to placement.
6. Install access road with a cross-slope or crown for drainage off the road at minimum slope shown, locations shall be as staked in the field as per the NRCS Inspector.
7. Access roads shall have a maximum slope of 10%
8. Geotextile shall be placed below the access road and shall be a minimum of 8oz/sy nonwoven with a grab tensile strength of 180lbs.
9. Materials and dimensions shall match what is shown on the construction drawings. Top Coat may consist of compacted PennDOT 2A or approved alternative.

Date 5/25
Approved by
Title

Date 5/25
Designed ZW/S
Drawn
Reviewed
Checked JSG 5.25

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Access Road Detail

USDA
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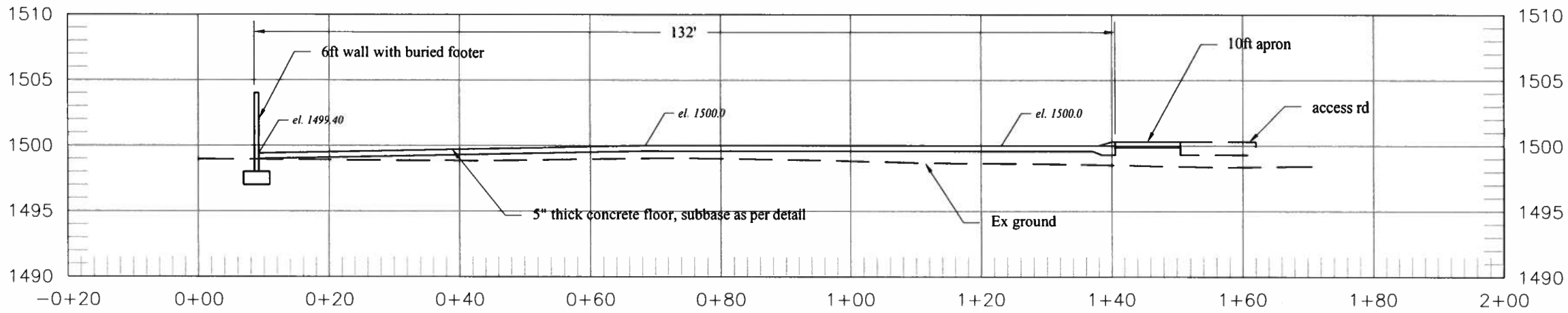
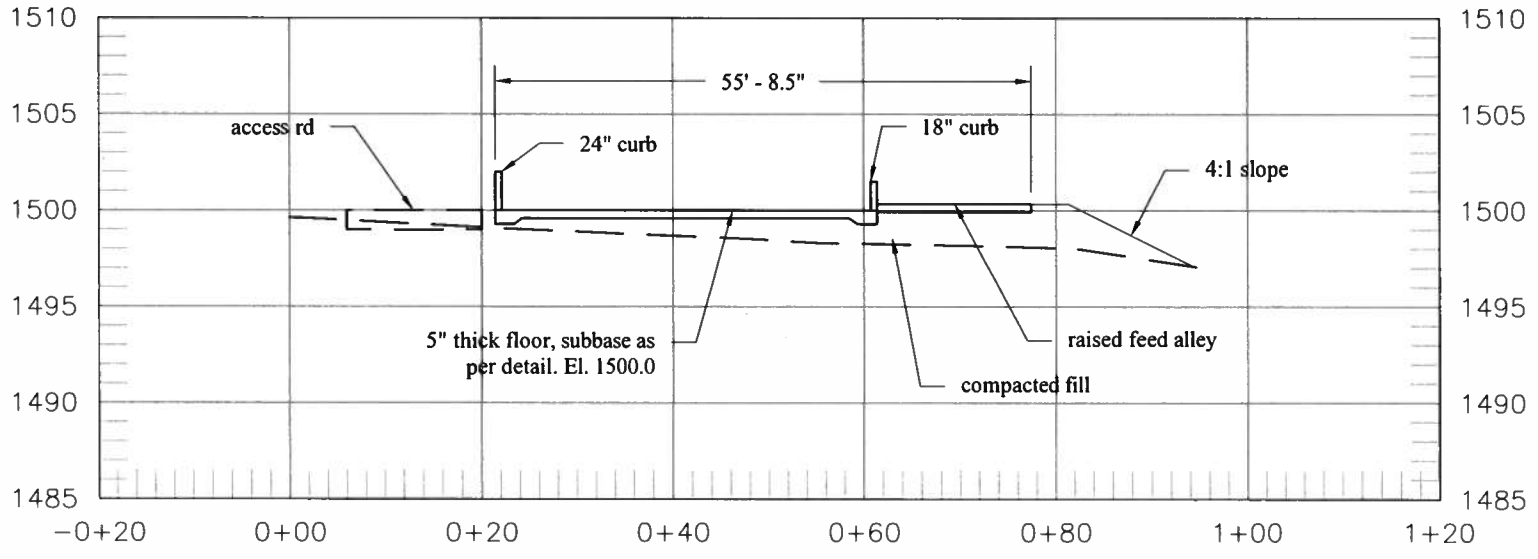
File Name

Sheet No. 19 of 22

Cross-Section A-A



Cross-Section B-B



Scale: 1"=20'

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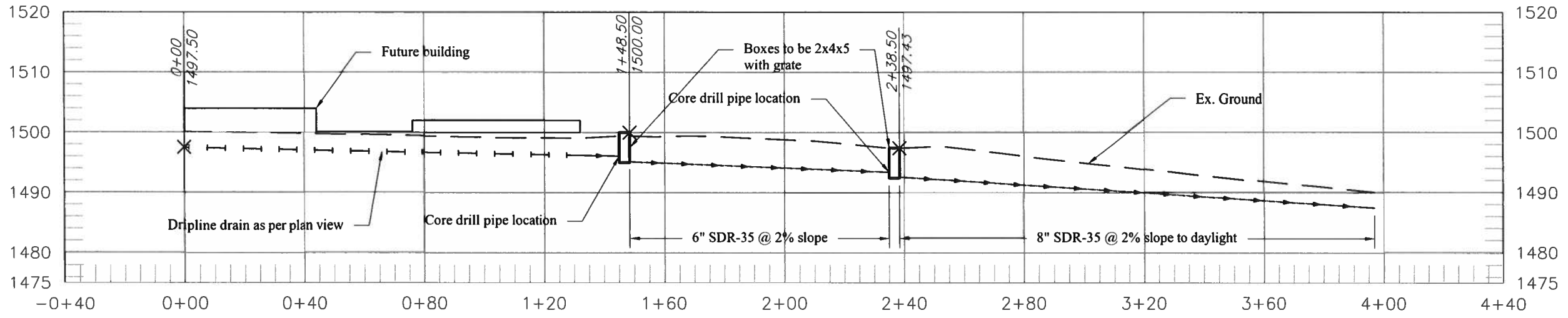
CRAWFORD COUNTY, PENNSYLVANIA
Cross-Section A-A, B-B

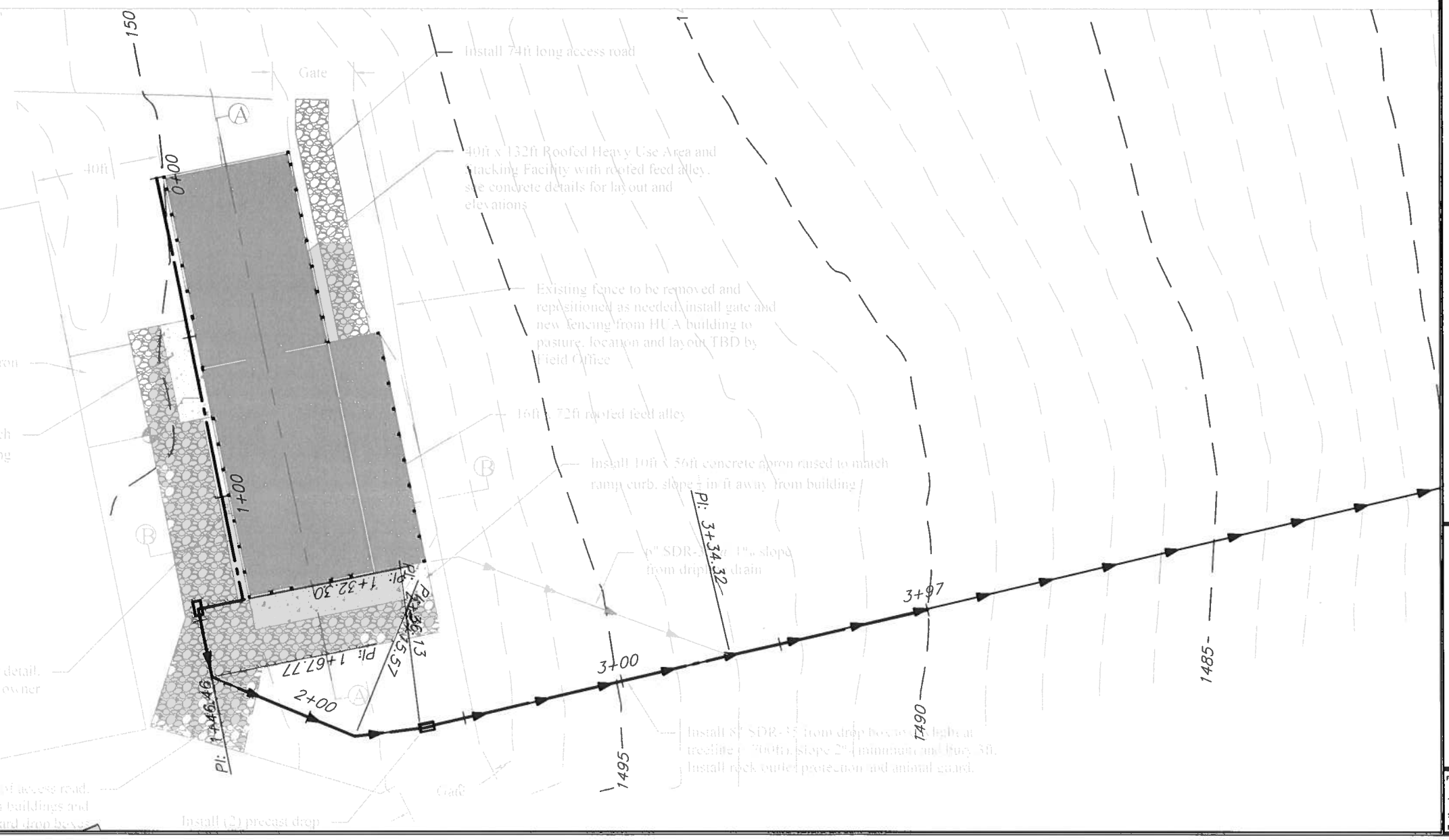
United States Department of Agriculture

Approved by / Title / Title
Date 5/2025
Designed 2D/SL
Drawn
Revised
Checked JSG 5.25
File None
Sheet No. 20 of 22

West pipeline and drop box Profile



Scale: 1"=40'



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West Pipeline Profile

USDA

United States Department of Agriculture

Date 5/2025 | Designed ZW/JS | Drawn | Revised | Checked JSG | 5-25

Approved by | Title | Title

File Name

Sheet No. 12 of 22

E&S PLAN

The contractor is responsible for meeting the E&S requirements for this project. This plan is a minimum, if more requirements are necessary the local Conservation District shall be contacted .

1. Prior to any earth moving, install silt fence on the contour, down slope from all proposed earth disturbances. DEP E&S Control Manual shall be followed for silt fence installation.
2. Construct a temporary diversion immediately upslope from the area of disturbance. Gently slope this to an outlet that will not cause flooding or future erosion problems. Construct this prior to all other earth disturbances.
3. Install the proposed conservation practices shown in the design.
4. Provide temporary or permanent seeding of all disturbed areas immediately. Temporary seeding requirements are listed below.
5. Upon completion of the conservation practices and successful establishment of permanent vegetation any temporary diversion and sediment traps shall be removed and reseeded.

TEMPORARY SEEDING REQUIREMENTS

1. Temporary seeding is required when the period of soil exposure without permanent seeding will be more than two months but less than 12 months. Temporary seeding requirements are shown below. Information on permanent seeding is located in the additional conditions section of this design and must be done on all disturbed areas as a result of the installation of the conservation practices.
2. Prior to seeding the topsoil shall be amended with lime and fertilizer according to the soil tests or at the rates listed below. Amendments shall be incorporated into the soil at a depth of 4 to 6 inches.

   Lime: 6 tons/acre
   Fertilizer: 10-10-20 at 1000 lbs/acre
3. After rough grading, temporary seeding shall be applied with a broadcast seeder or drilled. Choose one of the species listed below and plant at the rates shown:

   Annual Rygrass - 40 lbs/acre (PLS*)
   Winter Rye Grain - 168 lbs/acre (PLS)
   Winter Wheat - 180 lbs/acre (PLS)
4. After seeding the site it shall be mulched with 3/tons per acre of hay or straw and provide 70% ground cover.

**Seeding rates are stated as pounds per acres (lbs/acre) of pure live seed (PLS). PLS is the product of the percentage of pure seed times the percentage of germination divided by 100. (e.g. [85% pure seed x 72% germination] ÷ 100 = 61% PLS). Seed should not be used later than one year after the test date that appears on the label. Use of seed older than one year could result in less than satisfactory vegetative coverage and the need to re-seed the disturbed areas.*

PERMIT REQUIREMENTS

1. All required construction permits for this project are the responsibility of the landowner.
2. If the disturbed area exceeds 1 acre, the project may be subject to NPDES permitting. It is recommended to contact the local Conservation District to ensure that all permitting requirements are met.
3. NRCS is unable to provide technical assistance in the development of any NPDES or stormwater management permitting requirements. It is recommended to work with the local Conservation District or a Private Engineer for this.

PERMANENT SEEDING REQUIREMENTS

1. Permanent seeding must be done on all disturbed areas as a result of the installation of the conservation practices. Permanent seeding follows the requirements of conservation practice standard, Critical Area Planting, PA-342
2. Prior to seeding the topsoil shall be amended with lime and fertilizer according to the soil tests or at the rates listed below. Amendments shall be incorporated into the soil at a depth of 4 to 6 inches.

   Lime - 6 tons/acre
   Fertilizer (10-10-20) - 1000 lbs/acre
3. After finish grading, permanent seeding shall be applied with a broadcast seeder or drilled. The following species and rates shall be followed and shall incorporated a nurse crop:

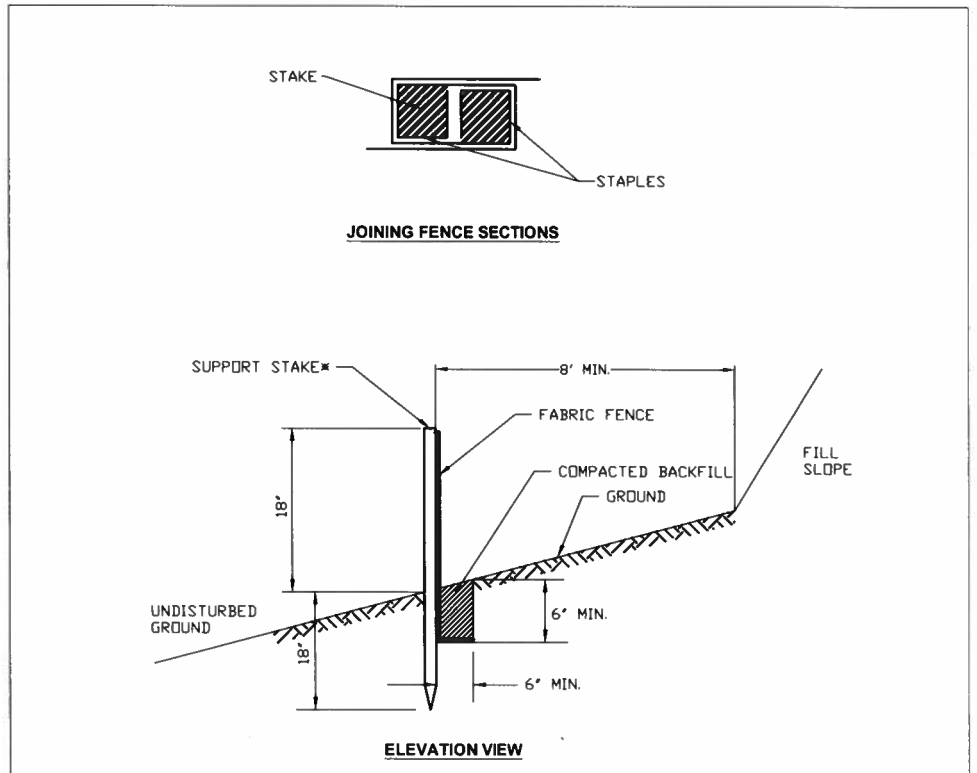
   Nurse Crop (choose one)
   a. Oats - 48 lbs/acre
   b. Annual Ryegrass - 20 lbs/acre
   c. Wheat - 90 lbs/acre

   Seed Mixture
   a. Perennial Ryegrass - 30 lbs/acre
   b. Tall Fescue (35 lbs/acre) OR Kentucky Bluegrass (20 lbs/acre)
4. After seeding the site shall be mulched with 3/tons per acre of hay or straw and provide 70% ground cover.
5. Other seed rates are available, contact the local District Conservationist for guidance on selecting an alternative mixture.

**Seeding rates are stated as pounds per acres (lbs/acre) of pure live seed (PLS). PLS is the product of the percentage of pure seed times the percentage of germination divided by 100. (e.g. [85% pure seed x 72% germination] ÷ 100 = 61% PLS). Seed should not be used later than one year after the test date that appears on the label. Use of seed older than one year could result in less than satisfactory vegetative coverage and the need to re-seed the disturbed areas.*

SILT FENCE DETAILS

(drawing obtained from DEP E&S Manual)



1. Fabric shall be 30" minimum and stakes shall be hardwood or equivalent steel stakes.
2. Silt fence shall be placed at level existing grade. Both ends of the fence shall be extended at least 8ft up slope at 45 degrees to the main fence alignment.
3. Sediment shall be removed when accumulations reach half the above ground height of the fence.
4. Any section of silt fence which has been undermined or topped shall be immediately replaced with a rock filter outlet, see DEP E&S Manual.
5. Fence shall be removed and properly disposed of when tributary area is permanently stabilized.
6. Sediment filter logs can be used in Lieu of the silt fence, the log size and installation shall be determined from the DEP E&S Manual.

Date 5/13
Approved by
Title
Title

Date 1/2020
Designed
Drawn ZW/DS
Revised
Checked JSG 5.25

Maloney
CRAWFORD COUNTY, PENNSYLVANIA
E&S DETAILS

USDA
United States Department of Agriculture

File Name

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