AGRICULTURAL WASTE MANAGEMENT SYSTEM

NATURAL RESOURCES CONSERVATION SERVICE
U. S. DEPARTMENT OF AGRICULTURE

ROB REYAN

SUSQUEHANNA COUNTY, PENNSYLVANIA

ADDRESS: 1730 WILLIAMS ROAD
FRIENSVILLE, PA 18818

NRCS TAKES SAFETY VERY SERIOUSLY, HOWEVER, THE SAFETY COMMITMENT AND THE JOB SITE PRACTICES OF THE CONTRACTOR ARE BEYOND CONTROL OF NRCS. IT IS STRONGLY RECOMMENDED THAT SAFE WORKING CONDITIONS AND ACCIDENT PREVENTION PRACTICES BE THE TOP PRIORITY OF ANY JOB SITE. LOCAL, STATE, AND FEDERAL SAFETY AND HEALTH STANDARDS SHOULD ALWAYS BE FOLLOWED TO HELP INSURE WORKER SAFETY. MAKE CERTAIN ALL EMPLOYEES KNOW THE SAFEST AND MOST PRODUCTIVE WAY OF CONSTRUCTING THE DESIGNED PRACTICES. EMERGENCY PROCEDURES SHOULD BE KNOWN BY ALL EMPLOYEES. DAILY MEETINGS HIGHLIGHTING SAFETY PROCEDURES ARE ALSO RECOMMENDED. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE A SAFE WORK ENVIRONMENT FOR THEIR EMPLOYEES.

CONSTRUCTION NOTES

1. *CLEAR AND GRUB THE ENTIRE AREA WITHIN THE WORK LIMITS.*
2. *ALL FILL MATERIAL MUST NOT CONTAIN FROZEN MATERIAL, SOD, ROOTS, OR OTHER PERISHABLE MATERIAL, OR ROCK LARGER THAN EIGHT INCHES IN DIAMETER.*
3. *SIX INCHES TOPSOIL WILL BE INCORPORATED INTO THE EARTHFILL TO MEET THE NEAT LINES SHOWN ON THE TYPICAL SECTION.*
4. *ALL AREAS TOP-DRESSED WITH TOPSOIL AND DISTURBED DURING CONSTRUCTION WILL BE SEEDED ACCORDING TO NRCS CRITICAL AREA PLANTING SPECIFICATION.*

PROJECT LOCATION:

AS-BUILT/ DESIGN INFORMATION							
QUALITY ASSURANCE STATEMENT					ENGINEER STATEMENT		
To the best of my knowledge, 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.					*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 Code	*CIN*	*Description*	*Planned Amount*	*Inspector (Initials)*	*As-Built Amount (by Inspector)*	*Certification (Engineer/JAA Signature)*	*Date Certified*
313		*MANURE STORAGE*					
367		*ROOF*					
560		*ACCESS ROAD*					
561		*HEAVY USE AREA PROTECTION*					
558		*ROOF RUNOFF*					
620		*UNDERGROUND OUTLET*					
606		*PERIMETER DRAIN*					

GENERAL NOTES

1. *FAILURE TO CONSTRUCT THIS FACILITY IN ACCORDANCE WITH THE NRCS DESIGN OR AUTHORIZED MODIFICATIONS WILL RESULT IN WITHDRAWAL OF NRCS TECHNICAL AND FINANCIAL ASSISTANCE.*
2. *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.*
3. *IT IS THE RESPONSIBILITY OF THE EXCAVATING CONTRACTOR TO COMPLY WITH PA ACT 187 (1996) AND ALL ITS REVISIONS BEFORE PERFORMING ANY EXCAVATION. THE PA ONE-CALL PHONE NUMBER IS 1-(800)-242-1776. THE SERIAL NUMBER FOR DESIGN IS: 20201702434 DATED: 6/18/2020.*
4. *A MEETING BETWEEN THE LANDOWNER, CONTRACTOR, AND NRCS REPRESENTATIVE SHALL BE REQUIRED PRIOR TO ANY EXCAVATION OR CONSTRUCTION WORK.*
5. *A COPY OF THE NRCS SPECIFICATIONS AND DRAWINGS SHALL BE ONSITE DURING ALL PHASES OF CONSTRUCTION. A COPY OF THE DRAWINGS SHALL BE PROVIDED TO THE TRUSS MANUFACTURE.*
6. *OSHA REGULATIONS SHALL BE FOLLOWED AT ALL TIMES.*
7. *THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING ALL MEASURES NECESSARY TO PROTECT WORK IN PROGRESS FROM ENVIRONMENTAL CONDITIONS SUCH AS TEMPERATURE EXTREMES, SURFACE, AND GROUND WATER.*
8. *THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ACTUAL FIELD MEASUREMENTS SHOWN ON THE PLANS.*
9. *IN THE EVENT ROCK, UNSTABLE SOILS, OR SEEPS ARE ENCOUNTERED DURING EXCAVATION, WORK SHALL BE STOPPED AND THE NRCS SHALL DETERMINE HOW TO PROCEED.*
10. *THE CONTRACTOR IS RESPONSIBLE FOR THE SECURITY OF THE JOB SITE UNTIL THE WORK HAS BEEN CERTIFIED BY THE NRCS.*
11. *CERTIFICATION OF CONFORMANCE SHALL CERTIFY THAT ALL WORK WAS PERFORMED TO THE NRCS SPECIFICATIONS.*
12. *THE OWNER IS RESPONSIBLE FOR ENSURING THAT ALL LIVESTOCK ARE REMOVED FROM THE WORK SITE AND THAT LIVESTOCK WILL REMAIN EXCLUDED FROM THE WORK SITE UNTIL THE PROJECT HAS BEEN THROUGH A FINAL CERTIFICATION AND APPROVED FOR USE. TEMPORARY LIVESTOCK CONFINEMENT/EXCLUSION FENCE MAY BE NEEDED TO ENSURE LIVESTOCK ARE NOT ABLE TO ENTER THE WORK SITE.*

INDEX OF DRAWINGS

Date 1/20
Designed BTO STD DWG
Drawn W. Andrew Wodehouse 6/2020
Checked ROS 6/20
Approved Robert G. DeLuca 6/20

COVER SHEET
ROB REYAN

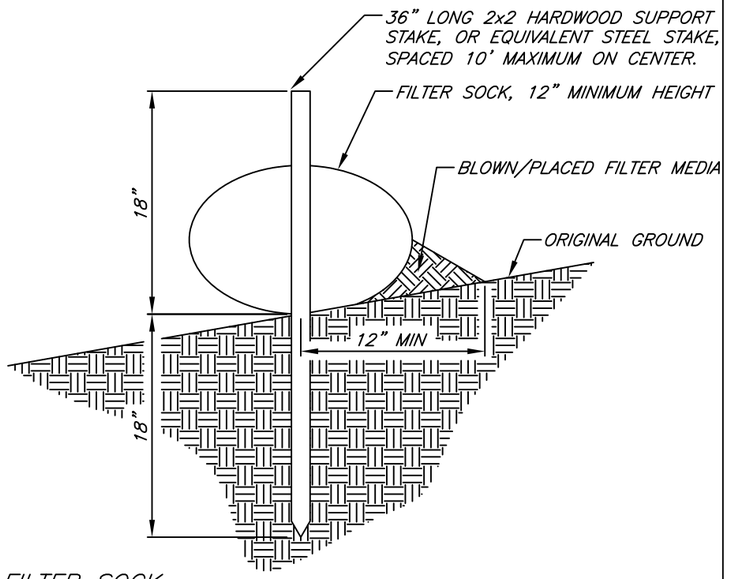
United States Department of Agriculture
Natural Resources Conservation Service

File No.

Drawing No.

Sheet 1 of 27

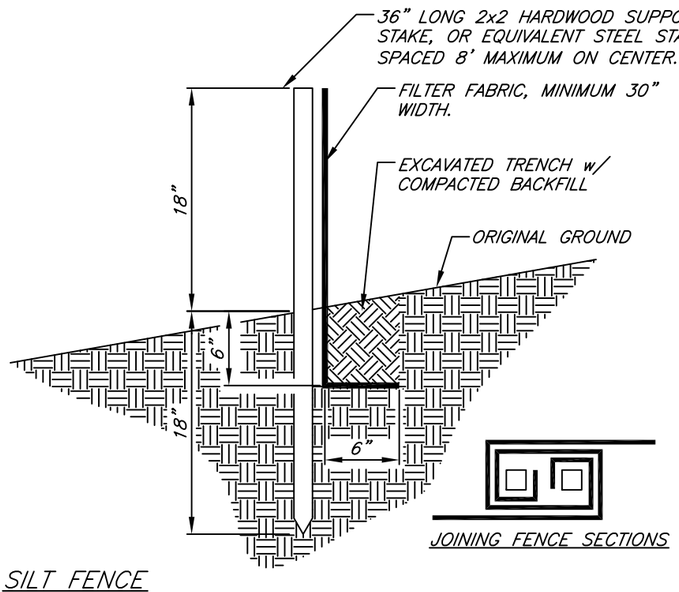
E&S POLLUTION CONTROL PLAN AND FINAL SEEDING RECOMMENDATIONS



FILTER SOCK

NOTES:

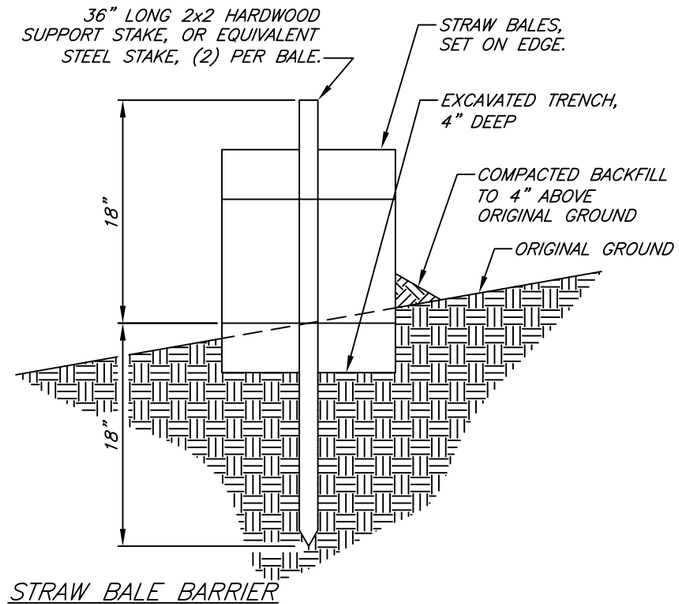
1. FILTER SOCK SHALL BE INSTALLED DOWN SLOPE OF THE DISTURBED AREAS OF THE CONSTRUCTION SITE.
2. TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
3. FILTER SOCK SHALL BE PLACED AT LEVEL EXISTING GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8' UP SLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.
4. STAKES MAY BE INSTALLED IMMEDIATELY DOWN SLOPE OF THE SOCK IF SO SPECIFIED BY THE MANUFACTURER.
5. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVE GROUND HEIGHT OF THE SOCK.
6. SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
7. BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
8. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.
9. ANY SECTION OF SILT FENCE WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.



SILT FENCE

NOTES:

1. SILT FENCE SHALL BE INSTALLED DOWN SLOPE OF THE DISTURBED AREAS OF THE CONSTRUCTION SITE.
2. SILT FENCE SHALL BE PLACED AT LEVEL EXISTING GRADE. BOTH ENDS OF THE FENCE SHALL BE EXTENDED AT LEAST 8' UP SLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.
3. FENCE SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED FENCE SHALL BE REPAIRED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS AND REPLACED WITHIN 24 HOURS OF INSPECTION.
4. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH HALF THE ABOVE GROUND HEIGHT OF THE FENCE.
5. ANY SECTION OF SILT FENCE WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.
6. FENCE SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN TRIBUTARY AREA IS PERMANENTLY STABILIZED.



STRAW BALE BARRIER

NOTES:

1. STRAW BALES SHALL BE INSTALLED ACROSS SWALES, WATERWAYS, AND DIVERSIONS WHERE SEDIMENT LADEN RUNOFF COULD LEAVE THE CONSTRUCTION SITE.
2. STRAW BALE BARRIERS SHALL NOT BE USED FOR PROJECTS EXTENDING MORE THAN 3 MONTHS.
3. STRAW BALE BARRIERS SHALL BE PLACED AT EXISTING LEVEL GRADE WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES. THE FIRST STAKE OF EACH BALE SHALL BE ANGLED TOWARD THE ADJACENT BALE TO DRAW THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE TOP OF THE BALE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8' UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT.
4. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH ONE THIRD THE ABOVE GROUND HEIGHT OF THE BALE. DAMAGED OR DETERIORATED BALES SHALL BE REPLACED IMMEDIATELY UPON INSPECTION.
5. ANY SECTION OF THE STRAW BALE BARRIER WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACES WITH A ROCK FILTER OUTLET.
6. BALES SHALL BE REMOVED WHEN THE TRIBUTARY AREA HAS BEEN PERMANENTLY STABILIZED.

THIS EROSION AND SEDIMENTATION PLAN IS BASED ON THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL, TECHNICAL GUIDANCE NUMBER 363-2134-008, MARCH 2012.

1. When grading is finished, apply lime and fertilizer in accordance with soil test recommendations.
2. If soil test results are not available, apply 4 ton per acre of agricultural grade limestone and fertilize at the rate of 1,000 lbs. Of 10-20-20 or equivalent per acre.
3. Lime and one-half (1/2) the amount of the fertilizer shall be incorporated 4 to 6 inches into the soil.
4. Work area with chisel plow or similar type equipment, making sure lime and fertilizer are worked well into the soil.
5. Follow with the balance of fertilizer and seed.

Seeding Recommendation

6. The seed mixture shall be the following or similar if approved by the NRCS representative.

Nurse Crop (required with every permanent seed application):

Oats	64	lbs/acre PLS
Wheat	90	lbs/acre PLS
Annual Rye	40	lbs/acre PLS

Permanent Stabilization:

Perennial Rye	40	lbs/acre PLS
PLUS		
Tall Fescue	80	lbs/acre PLS

NOTE: This mixture is suitable for frequent mowing. Do not cut shorter than 4".

PLS means pure, live, seed. PLS is the product of the percentage of pure seed times percentage germination divided by 100. For example, to secure the actual planting rate for switchgrass, divide 12 lbs PLS by the PLS percentage shown on the seed tag. Thus, if the PLS content of a given seed lot is 35%, divide by .35 to obtain 34.4 lbs of seed, the amount of seed required to plant 1 acre.

If partial completion of any part of the project is accomplished, and this area will be disturbed again BUT not for a period of 20 days or more, those areas must be seeded with a TEMPORARY cover-seeding.

Temporary Seed and mulch will be applied at the following fates:

Annual Ryegrass	40 lbs/Acre
Winter Rye	3 Bu/Acre
Winter Wheat	3 Bu/Acre
Spring Oats	3 Bu/Acre

Planting Recommendation

Seed can be applied with a drill or broadcast seeder.

Band seeding is not permitted.

If broadcast, harrow or disk lightly to cover seed. Roll with cultipacker or similar roller in same direction as seeding. (Double drilling gives better distribution of seeding and helps to spread the water while plants are small. Drill first lengthwise and then crosswise (in a zig-zag pattern). Optimum planting time is early spring or mid summer.

7. As soon as seeding is finished, mulch with 3 Tons/Acre of hay or straw, making a layer 1 to 1.5 inches deep. Set disk straight and go over mulch to press straw into the soil.

Tackifiers can also be used for anchoring mulch.

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Approved

E&S DETAILS

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OWNER RESPONSIBILITIES

ACCESS

1. The owner is responsible for ensuring that all livestock are removed from the work site and that livestock will remain excluded from the work site until the project has received final certification and is approved for use.
2. The owner is to provide reasonable access to the work site.

EXCAVATION NOTES

GENERAL

1. No excavation shall begin until the excavator has complied with all PA One-Call requirements and any utility company responses.
2. All erosion and sedimentation practices shall be installed prior to beginning excavation.
3. OSHA standards shall be followed for all excavation.
4. Topsoil shall be stripped and stockpiled to be re-distributed when the project is complete.
5. All manure-laden soil shall be removed and spread according to the landowner's nutrient management plan.
6. The site shall be excavated until good, stable soil is encountered.
7. If seeps are encountered during excavation, provide clean 2B-stone backfill up to the seep elevation.
8. When hard material is encountered, over-excavate design subgrade by 1.0' and replace with a compacted impermeable layer (i.e. CL/ML) before installing bedding stone; consult with design engineer before doing so.
9. If rock-refusal is met before the design subgrade, changes in design elevations will require NRCS approval.
10. Excess material shall be disposed of as directed by the landowner and the NRCS inspector.
11. A uniform layer of 2B-stone (AASHTO #57), 3" thick shall be placed above subgrade to bed ALL concrete. Stone depth to be measure after compaction. Stone shall not be placed until earthen subgrade elevation and compaction is approved by NRCS inspector.
12. Allow 1' overlap between adjacent panels of geotextile where applicable.
13. The contractor is responsible for protecting the construction site until the work has been completed and certified by the design engineer. This includes dewatering the site as necessary, as well as preventing upslope runoff from entering the work area. It is strongly recommended that all planned diversions or swales be installed first and all perimeter drain outlets be installed before stone or concrete is placed, if possible.
14. Final grading shall provide positive drainage away from all structures. Swales shall be shaped as necessary along the heavy use area and manure storage to direct stormwater away from the structures.

EARTHFILL

1. Earthen backfill shall be placed in a manner that prevents damage to the structures and allows the structures to assume the loads from the earth backfill gradually and uniformly. The height of the earth backfill adjacent to the structure shall be increased at the same rate on all sides of the structure.
2. Backfill shall be placed in even, horizontal layers. If necessary, over-excavate to an approximately level surface and build subgrade in evenly compacted, horizontal lifts of specified thickness.
3. Backfill shall be placed at optimum moisture content. Backfilled material shall have enough moisture so that when formed into a ball, it will not break if struck sharply with a pencil. Backfilling newly poured walls may not begin until 14-days after the final concrete placement. Compact using the following equipment and lift thickness:
   FOOTINGS AND STRUCTURE FLOOR:
   -(3) passes of sheepsfoot or vibratory roller in 6-inch lifts
   WITHIN 3 FEET OF WALLS:
   -(3) passes by hand compactor or small, manually directed plate vibrator in 6-inch lifts
   BEYOND 3 FEET OF WALLS:
   -(3) passes by track equipment (>4,000 lbs) in 6-inch lifts
   -(4) passes by rubber tired equipment in 6-inch lifts
   -(3) passes of vibratory roller in 6-inch lifts
4. Avoid backfill containing rocks or clods greater than 3" diameter, debris, roots, frozen soil, or other unsuitable material as determined by the NRCS inspector.

PIPES

1. All pipes shall meet minimum material specifications:
   1.1. SCH 40 PVC shall meet ASTM-D1785
   1.2. SDR-35 shall meet ASTM-D3034
   1.3. Corrugated polyethylene tubing shall meet ASTM-F405
2. All fittings shall be pressure-rated, watertight and meet minimum material specifications of pipe.
3. Pipes shall be installed to specified depth and to minimum design grade.
4. Trenches for pipelines shall be free of rocks and sharp-edged materials. A supply of AASHTO #57 bedding, or other suitable granular material, shall be available to bed pipelines in unstable soils or as directed by NRCS inspectors.
5. Pipes shall be backfilled as shown on design details. Any pipe to be placed in a traffic area is to be bedded as per design details and backfilled to the surface with 2A modified or 2RC aggregate. Any pipe not specifically detailed may be backfilled with moist earth, free of large clods or rocks, and hand compacted in 6-inch lifts. DO NOT drive machinery over recently backfilled pipes. Mound backfill 10% of trench depth to allow for settlement.

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GENERAL CONSTRUCTION NOTES

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CONCRETE CONSTRUCTION NOTES

REINFORCEMENT

1. Reinforcing steel is to be Grade 60. Where 6"x6" w2.9xw2.9 (6 gage) is specified; the fabric shall be mats, not rolls, supported on steel chairs. NO CINDER OR CONCRETE BRICKS ARE PERMITTED. Support shall be often enough so reinforcement stays at the required location within the slab or footing. A 5' (MAX) chair spacing is required.
2. Form oil shall not be sprayed on any rebar, waterstops, or concrete.

CONCRETE

1. 4,000 psi 28-day compressive strength
2. MAXIMUM water-cement ratio 0.50
3. Air-content 5 to 7%, with air-entrainment
4. Max concrete temperature is 95°
5. Slump shall be 2 to 4 inches prior to addition of superplasticizing admixtures being added, 3 to 6 inches without use of superplasticizers.
6. Slump can be 7.5 inches MAX with the addition of superplasticizing admixtures.
7. Concrete admixtures shall met ASTM-C260 for air entrainment, and ASTM C494 Type A, D, F or G for water-reduction and set-retardation and Types C or E for non-corrosive accelerators.
8. Admixtures shall be included in the design mix. Follow dosages and recommendations of manufacturer.
9. The contractor(s) shall provide a design mix to the NRCS for approval prior to ordering concrete. All load tickets shall be provided to and approved by the inspector on site and shall reflect all materials and quantities including admixtures, amount of water (metered water and free moisture in the aggregate), and total size of the batch. The batch ticket must indicate the amount of water that may be added on-site while maintaining the design requirements or no water may be added.
10. The concrete mix design may contain slag: Not to exceed 20% of the cementitious material.

PLACEMENT

1. Concrete shall only be placed in the presence of an NRCS inspector.
2. Placement during hot or cold weather will require a written plan in advance detailing concrete conditions, placement provisions, and a curing plan.
3. Concrete shall not be placed until the subgrade, forms, and steel reinforcements have been inspected and approved by the NRCS. Notification shall be given far enough in advance to provide time for inspection.
4. No water may be added after a superplasticizer.
5. Concrete shall be conveyed from the mixer to the forms as rapidly as practical by methods that will prevent segregation of the aggregates or loss of mortar. Concrete shall be placed within 1.5 hours after the introduction of cement to the aggregate unless an approved set-retarding admixture is used in the mix; during periods of hot weather, it may be necessary to reduce this time.
6. Concrete shall not be dropped more than 5 feet vertically. Superplasticized concrete shall not be dropped more than 12 feet vertically.
7. Formed walls shall be placed in 2' layers unless superplasticizer is used, in which case the maximum layer shall be 5'. Each layer shall be consolidated to ensure a good bond with the preceding layer.
8. Concrete shall be consolidated by vibrating immediately after placement and extend a minimum of 6" into the previously consolidated layer.
9. Concrete shall be worked into corners, angles, and all around reinforcement and embedded items in a manner that prevents segregation or the formation of "honeycombing".
10. Vibration shall not be used to make concrete flow.
11. If the surface of a previously placed layer of concrete has taken a set to the degree that it will not mix with the preceding layer when vibrated, the contractor shall discontinue placing concrete and form a construction joint to avoid a "cold joint". Vinyl waterstop and form material shall be on site prior to starting the placement of any concrete.
12. The landowner has the option of having grooves floated or cut into the structure floor(s) for added traction for animals and equipment. This decision will be conveyed to the contractor(s) during price solicitation.

CURING

1. Concrete shall be allowed to cure at least 24 hours prior to beginning form or reinforcement placement for adjacent construction.
2. No equipment shall be allowed on concrete slabs or floors until the concrete has cured for a minimum of 7 days. This includes any motorized material handling equipment, pallets of forms, etc. Skid loaders used for transporting concrete into forms shall not be allowed on slabs or floors for a minimum of 14 days.
3. Forms for walls shall not be removed for at least 24 hours after placing the concrete. If forms are removed in less than 7 days, the exposed concrete shall be sprayed with curing compound.
4. Curing compound shall be applied in a uniform layer over all surfaces requiring protection at a rate as designated by the manufacturer. Curing compound shall be reapplied if disturbed within 3 hours after being applied.
5. Walls shall be allowed to cure for a minimum of 7 days before installing "Drill set" post bracket anchors. Walls shall be allowed to cure for a minimum of 3 days before installing posts in/on "Wet set" brackets.
6. All wall ties, honey-combing, and air holes >$\frac{3}{4}$" shall be parged with non-shrink grout.
7. Random cracking in the walls and floor shall be evaluated and determined if the concrete needs to be removed or repaired. Removal and repair shall be the responsibility of the contractor and at no increase in cost.
8. If major repairs are required, the contractor shall prepare a written repair plan with all materials and methods clearly stated and shall be approved by the NRCS engineer of authority before proceeding with the repair.

JOINTS

1. Before new concrete is placed on or against concrete that has set, the surface of construction joints shall be cleaned of all laitance and debris by high-pressure water cutting, washing and wire-brushing, or as approved by the engineer. The surface of the in-place concrete shall be cut to expose clean, sound aggregate, but not so deep to undercut the edges of the large aggregate. All construction joints shall be wetted for at least 1-hour prior to new placement and standing water shall be removed.
2. Slab control joints shall be saw-cut as soon as possible, but no later than 24 hours after placement of the concrete, at the intervals indicated on the drawings. All joints shall be water tight and as shown on the detail drawings. The saw-cuts shall be thoroughly cleaned and dried so the sealant and primer will bond to the concrete.
3. For the joints in the drawings that call for an elastomeric sealant, the sealant shall meet the requirements stated in the Construction Specification, included in this design package, and shall also meet the following: The sealant shall be Type S (Single Componenet), Class 25, and meet the requirement for Type I (Able to be immersed in liquid). Some sealants require a primer to be used before the sealant is applied; primers shall be used no matter if the joint is located in a "submerged" condition or not. It is recommended that the primer is supplied by the same manufacturer as the sealant, this will ensure that the sealant and primer are compatible.

TESTING REQUIREMENTS

1. ~~The contractor is responsible for obtaining a 3rd party ACI Certified Technician for field testing of concrete. The concrete plant cannot test their own concrete. Slump, air entrainment, and concrete temperature shall be taken to ensure the concrete meets NRCS requirements.~~
   - ~~(4) concrete test cylinders shall be taken every 50 cu.yds.~~
   - ~~(3) cylinders to be broken at 28 days and (1) cylinder to be saved for a 56 day break, if necessary.~~ This ~~shall be done for every 50 cu.yds sampled.~~
   - ~~Slump, air entrainment, and concrete temperature shall be recorded for every 50 cu.yds as well.~~
   - ~~All concrete for testing or making cylinders shall be taken from the discharge end of the pump truck.~~
   - ~~All test results shall be provided to the inspector. The ACI technician shall be present from start of concrete placement until the last concrete truck leaves the site.~~
2. The contractor is responsible for ensuring that the concrete meets the design requirements. The contractor shall test the concrete as needed; slump, air entrainment, concrete temperature, and cylinders. All concrete for testing or making cylinders shall be taken from the discharge end of the pump truck. The NRCS, PACD, or Conservation District inspector may test the concrete as they feel the need to do so. The contractor is not to rely on the inspector to provide the testing service.

Date 1/2/20
Designed BTO SID DWG
Drawn
Checked
Approved RGD 1/2/20

CONCRETE CONSTRUCTION NOTES

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Roof Structure Design & Construction Notes

1. Trusses shall be used for this roof. Shop drawings shall be provided to the NRCS design engineer for approval prior to ordering the trusses and "PE" (Professional Engineer) sealed shop drawings shall be supplied by the Truss Plate Institute certified manufacturer at the time of truss delivery. (Truss and stringer configuration shown in the drawings is for illustration purposes only) NRCS does not design roof trusses.

* Make the truss designer aware of knee bracing being used.

2. All nails shall have full heads; Clipped heads are not acceptable.

3. All nails and bolts used with pressure treated wood shall be hot-dip galvanized nails that meet the minimum galvanized coating requirements for the most restrictive wood preservative treatment method. (i.e. CCA treated wood requires a minimum coating rating of G-90 however ACQ treated wood requires a coating rating of G-185. When the wood types are mixed, use the G-185 connectors. Consult with individual fastener, hardware manufacturer for recommendations)

   CAUTION: New wood preservative treatment methods require special fasteners and connectors. All plates and fasteners used with ACQ, CBA or CA treatment formulas must conform to ASTM standards; ASTM A153 for Hot-dip fasteners, and A653 for Hot-dip connector and sheet products. This change increases the galvanized coating requirements to a designation of G-185. Stainless steel fasteners and connections may be used in place of Hot-dip galvanized products.

4. Nails for general framing can be common, full head size 16d or larger, smooth nails. General framing includes purlins, diagonal braces, lateral braces, etc.

5. Bolts, screws, or metal plate connectors may be used instead of nails. Such substitutions shall provide a connection of equal or greater strength and durability, according to the National Forest Products Association's (NFPA) National Design Specification. Alternate connectors must be approved by the design engineer.

6. All wood in contact with the ground or manure shall be pressure treated as per American Wood Preserver's Association Standard (posts shall be treated to 0.6 #/cu.ft. and all other wood shall be treated to 0.4 #/cu.ft.)

7. All structural members which includes; All wye and knee bracing, bearing blocks, truss support blocks, and girders/headers; (excluding microllam girders/headers) shall be SouthernYellow Pine or Douglas Fir-Larch No. 2 Grade (Surface dry, used at 19% maximum moisture content).
   All secondary members such as permanent or continuous bracing shall be (SYP) Southern Pine No. 3, (SPF) Spruce-Pine-Fir No. 2 or better.
   Purlins shall be SYP No. 2, SPF No. 2, or better if spaced at 2' centers
   Purlins shall be SYP No. 3 or better if spaced at 1.5' centers

8a. Posts are to be 4ply 2"x8" Glulam in size & pressure treated, #2 grade SYP (Southern Yellow Pine). Posts are to be fully pressure treated the entire height.
   Post to have the following properties :
   Bending Fb = 2350 psi
   Shear Fc = 2150 psi
   E = 1700000 psi

8b. Girders are to be 1 3/4" x 9 1/4" 2.0E LVL's having the following min. properties: Moment = 6271 ft-lbs., Bending Fb = 2900psi, Shear Fv = 3453lbs. (320psi), Modulus of Elasticity = 2.0 x 10^6 psi.

8c. Header is to be 7" x 11 1/4" 2.0E PSL having the following min. properties: Moment = 35,940 ft-lbs., Bending Fb = 2900psi, Shear Fv = 15,225 lbs. (290psi), Modulus of Elasticity = 2.0 x 10^6 psi.

9. Galvanized angle iron (1/4" thick x 3" wide both ways) can be installed on the corners of the posts at entrance locations. Other means of post protection may be used if approved by the design engineer.

10. Knee and Wye bracing are required for the posts and girders as shown.
    Wye bracing shall be installed AFTER all roof framing is complete.
    No Wye bracing shall be installed on the "inside" of the entrance locations.

11. Permanent continuous lateral bracing is required, according to the truss MFG drawings. Continuous lateral bracing must be installed with staggered side by side overlap connections (no butt to butt connections).
    The ends of the braces must extend fully past the truss and allow a 2-nail connection without using toenails.

12. Permanent diagonal bracing is required at each end of the building and at intervals not to exceed what is shown in the drawings. All bracing shall be installed as Per the Truss Plate Institute BCSI-B3 and the detailed drawing.

13. Roofing material shall be steel or aluminum. Steel shall be; galvanized steel, painted galvanized steel, or painted steel. Type of roofing to be discussed with landowner prior to bid solicitation. Steel roofing material shall be 29 gauge minimum. Aluminum roofing material shall have a minimum nominal thickness of .018 inches. Galvalume roofing is not permitted for use.
    Double stitch the seams of the roof edges. Typical steel roof shall have fasteners on a 9" spacing on the purlins 24" on center.

14. Roof fasteners shall be a combination of zinc coated steel and neoprene washer.

15. End trusses shall be faced with roofing material, as specified above. This shall be discussed with the landowner prior to bid solicitation.

16. Ventilation shall be provided at the ridge or through the openings in the end trusses. Ventilation shall be provided to offer at least 2" of opening per 10' of building width. (9 1/4" min. opening required.

17. The roof support was designed for 4' o.c. roof trusses to carry a combined loading of 40 psf, according to ASCE-7 (Most Conservative Combined Load Formula), on the entire roof surface. The roof was also designed for a uniform uplift of 14.5 psf under the entire roof. This roof is designed for (2) open" sides; major structural changes may be needed if any sides not labeled enclosed are enclosed. Consult with the design engineer if curtains or other means of siding is being considered.

DATE
DESIGNED
DRAWN
CHECKED
APPROVED

ROB REYAN

ROOF DESIGN AND CONSTRUCTION NOTES

SUSQUEHANNA COUNTY, PA

United States Department of Agriculture

USDA Natural Resources Conservation Service

FILE NO.

DRAWING NO.

SHEET 5 OF 27

SILT FENCE

PERIMETER DRAIN/UNDERGROUND OUTLETS

AREA OF DISTURBANCE

General Site Permitting Information

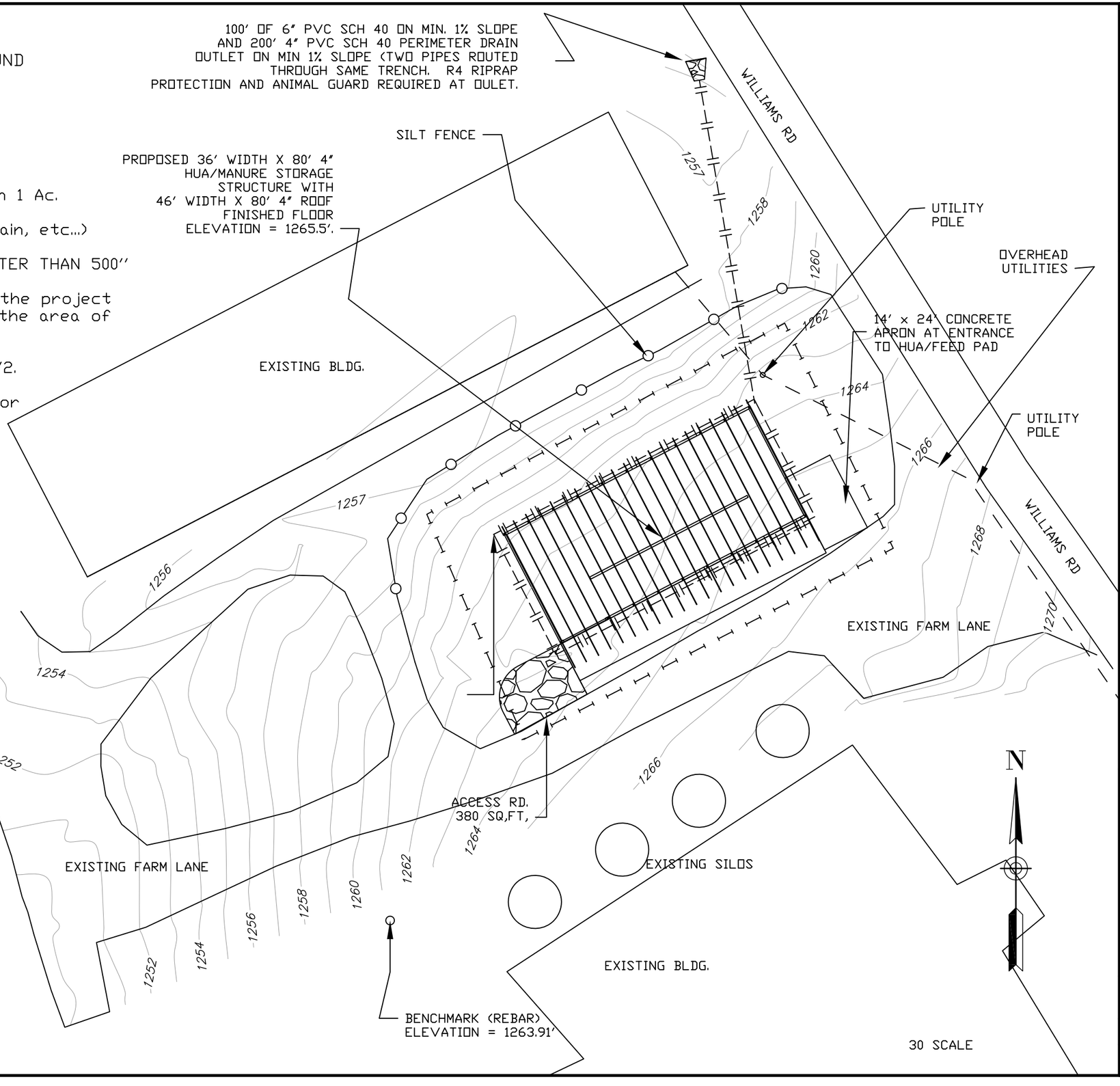
1) Proposed area of disturbance is less than 1 Ac.
YES (8500SQ.FT.)
(Includes excavation, spoil pile, footer drain, etc...)

2) Distance from Work Area to stream: GREATER THAN 500''

3) Are there any apparent wet lands within the project work area and/or receiving runoff from the area of disturbance? NO

4) Soil type(s) in area of disturbance = VcV2.

5) Are there any General Permits required for this project? NO



DATE

DESIGNED

DRAWN

CHECKED

APPROVED

ROB REYAN

30 SCALE PLAN VIEW

SUSQUEHANNA COUNTY, PA

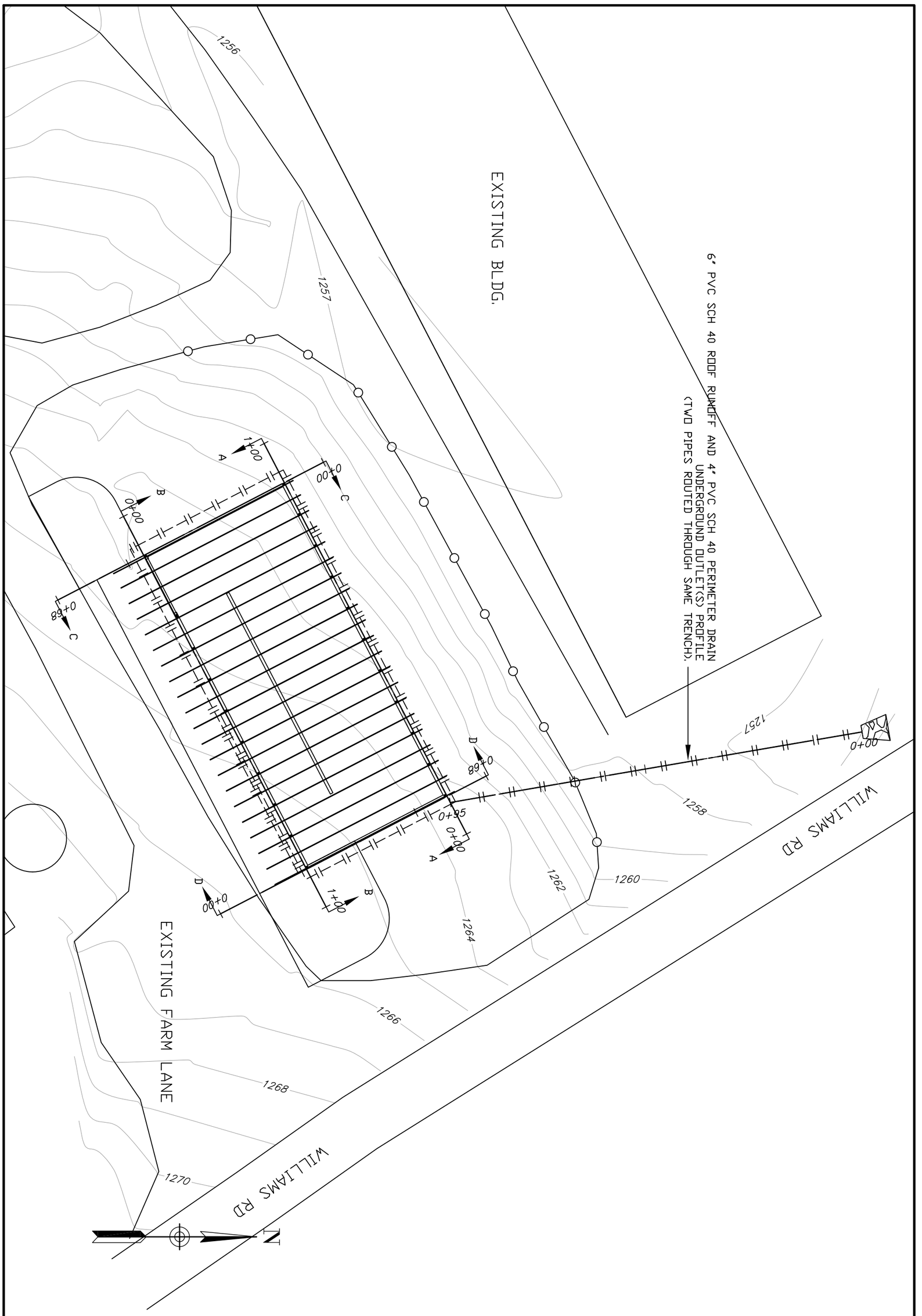
United States Department of Agriculture

Natural Resources Conservation Service

FILE NO.

DRAWING NO.

SHEET 6 OF 27



SHEET 7 OF 27

DRAWING NO.

FILE NO.

USDA United States Department of Agriculture

Natural Resources Conservation Service

ROB REYAN

PROFILE LOCATIONS

20 SCALE PLAN VIEW

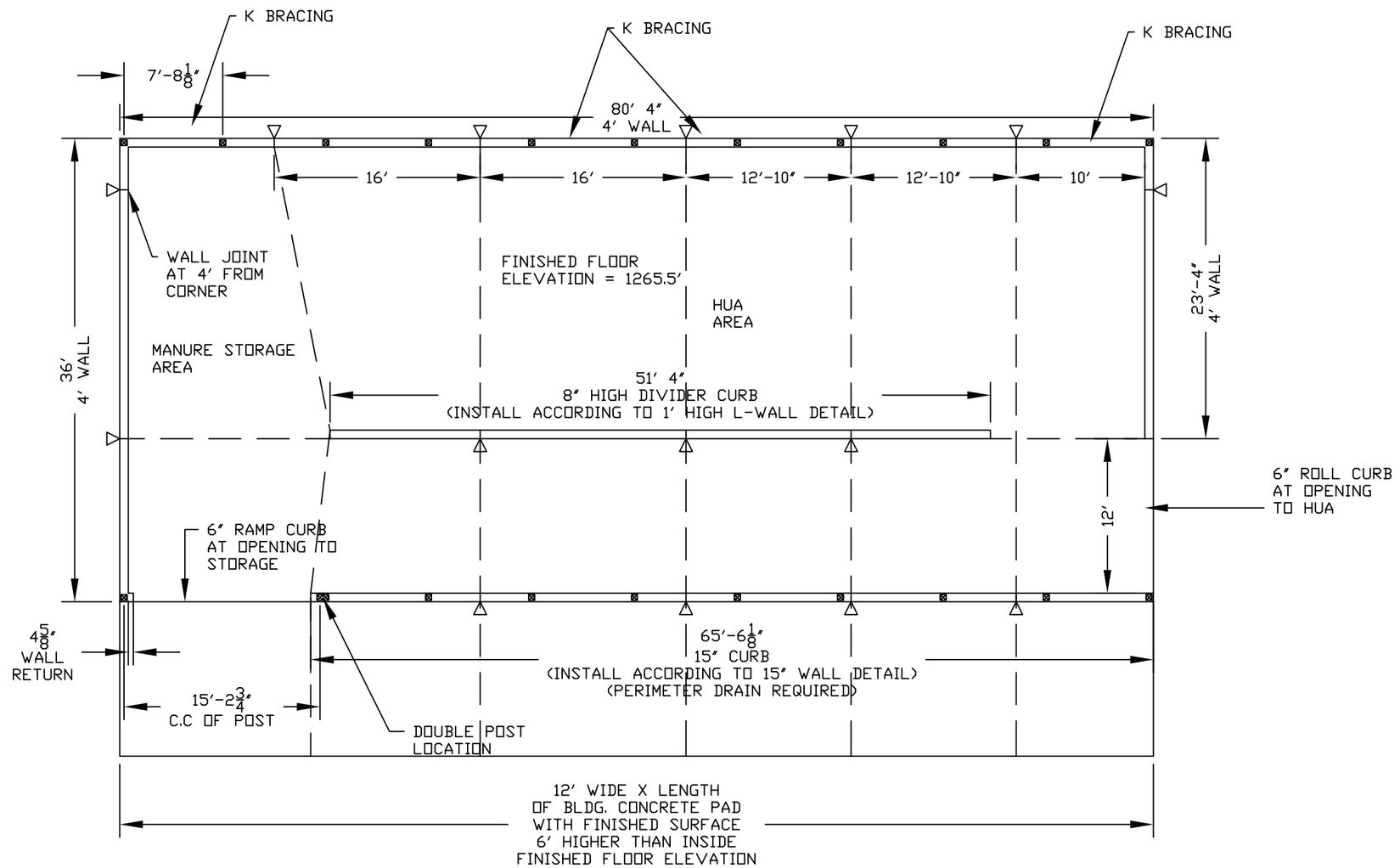
SUSQUEHANNA COUNTY, PA

		DATE
DESIGNED		
DRAWN		
CHECKED		
APPROVED		

— — — — FLOOR CONTROL JOINT

▽ WALL CONTROL JOINT

WALL JOINTS SHALL NOT LINE UP WITH
POST LOCATIONS.
ALL POST ARE TO BE 4PLY 2" X 8" GLULAM
8' O.C. UNLESS OTHERWISE NOTED.
POST ARE TO BE CENTERED ON WALLS AND CORNERS.
SEE: 4' HIGH X 8" T-WALL W/O SURCHARGE, 4' HIGH X 8" WALL CORNER W/O SURCHARGE,
AND 1' HIGH X 8" L-WALL W/O SURCHARGE DETAIL SHEETS.



DATE
DESIGNED
DRAWN
CHECKED
APPROVED

ROB REYAN
10 SCALE CONCRETE
AND POST LAYOUT
SUSQUEHANNA COUNTY, PA

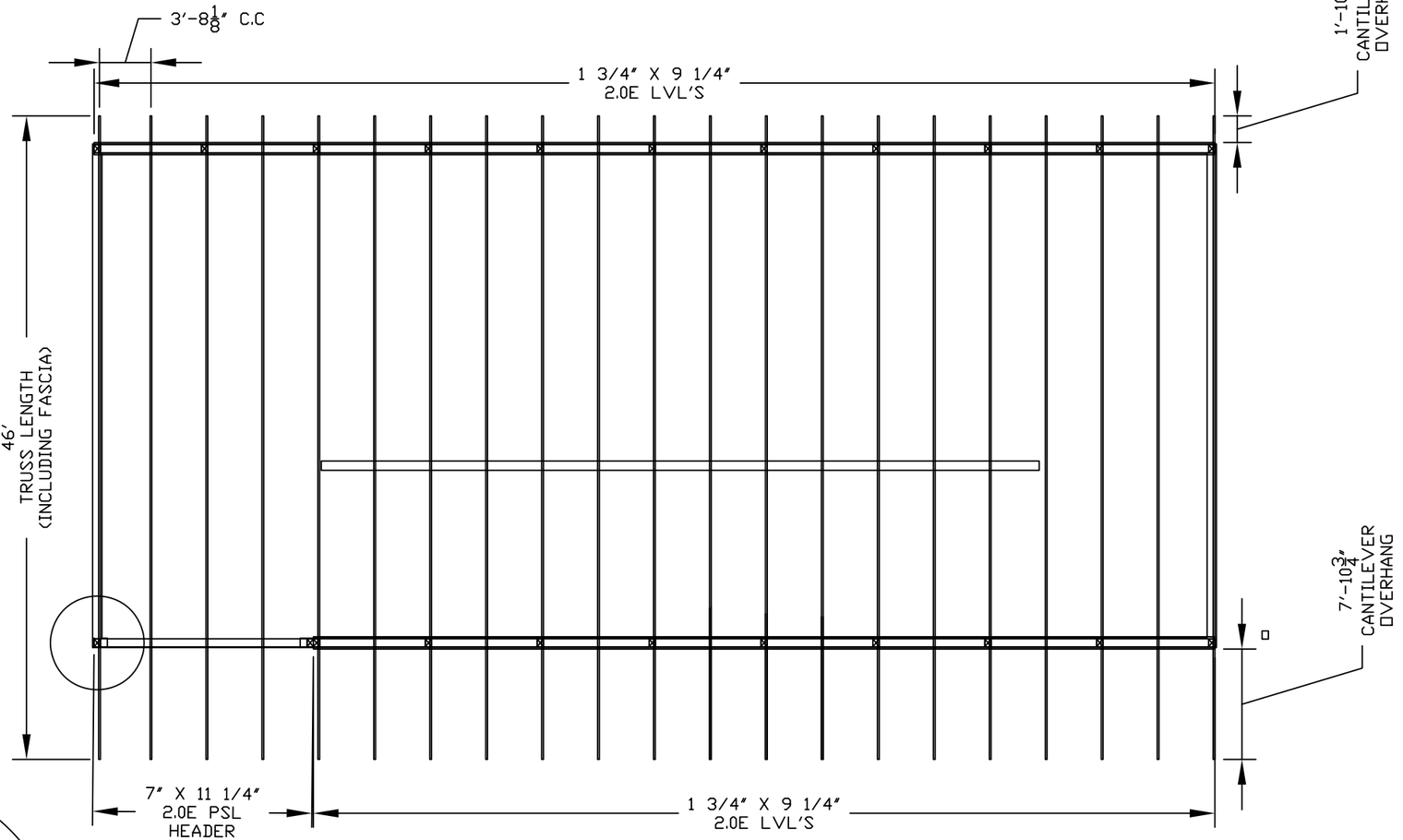
United States Department of Agriculture
Natural Resources Conservation Service

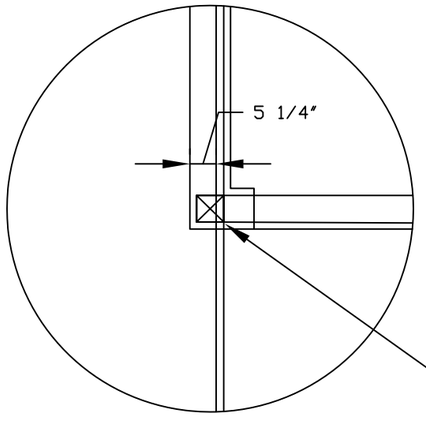
FILE NO.

DRAWING NO.

SHEET 8 OF 27

ALL TRUSS 4' O.C. UNLESS OTHERWISE NOTED.
TRUSSES ARE TO BE DESIGNED FOR 40 PSF COMBINED LOADING,
CAT II IMPORTANCE FACTOR, PARTIALLY ENCLOSED.





TRUSS IS POSITIONED ON THE INSIDE OF END POST
TO ALLOW FOR USE OF H10A HURRICANE TIE
FOR TRUSS TO HEADER CONNECTION. EXTEND PURLINS
5 1/4" TO COVER OUTSIDE OF WALL.

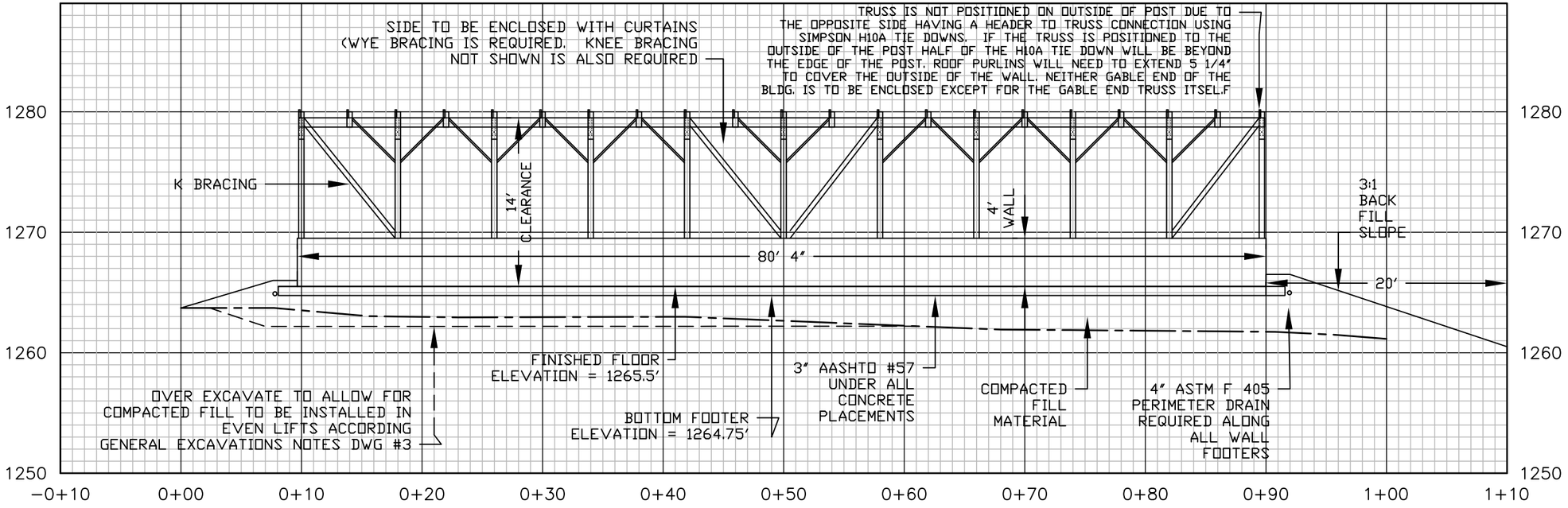
10 SCALE

DATE
DESIGNED
DRAWN
CHECKED
APPROVED

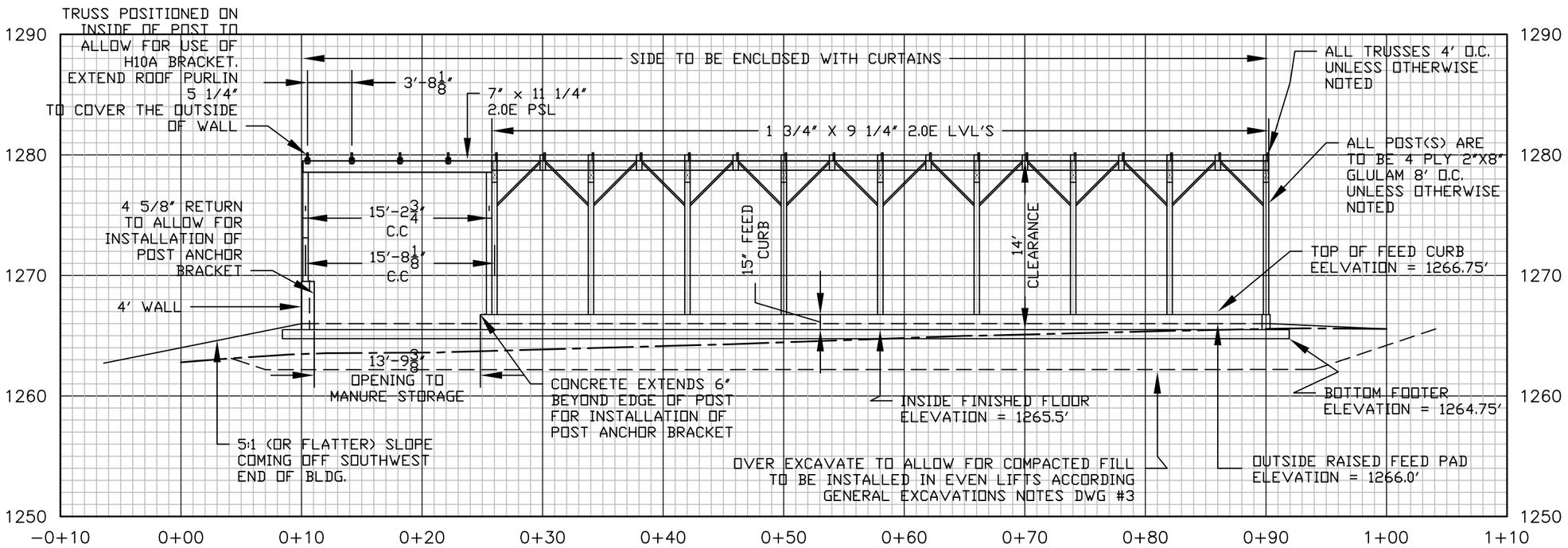
ROB REYAN
10 SCALE TRUSS, GIRDER,
AND HEADER LAYOUT
SUSQUEHANNA COUNTY, PA

United States Department of Agriculture
Natural Resources Conservation Service

FILE NO.
DRAWING NO.
SHEET 9 OF 27



A–A PROFILE



B–B PROFILE

DATE

DESIGNED | DRAWN | CHECKED | APPROVED

ROB REYAN

PROFILES A–A & B–B

SUSQUEHANNA COUNTY, PA

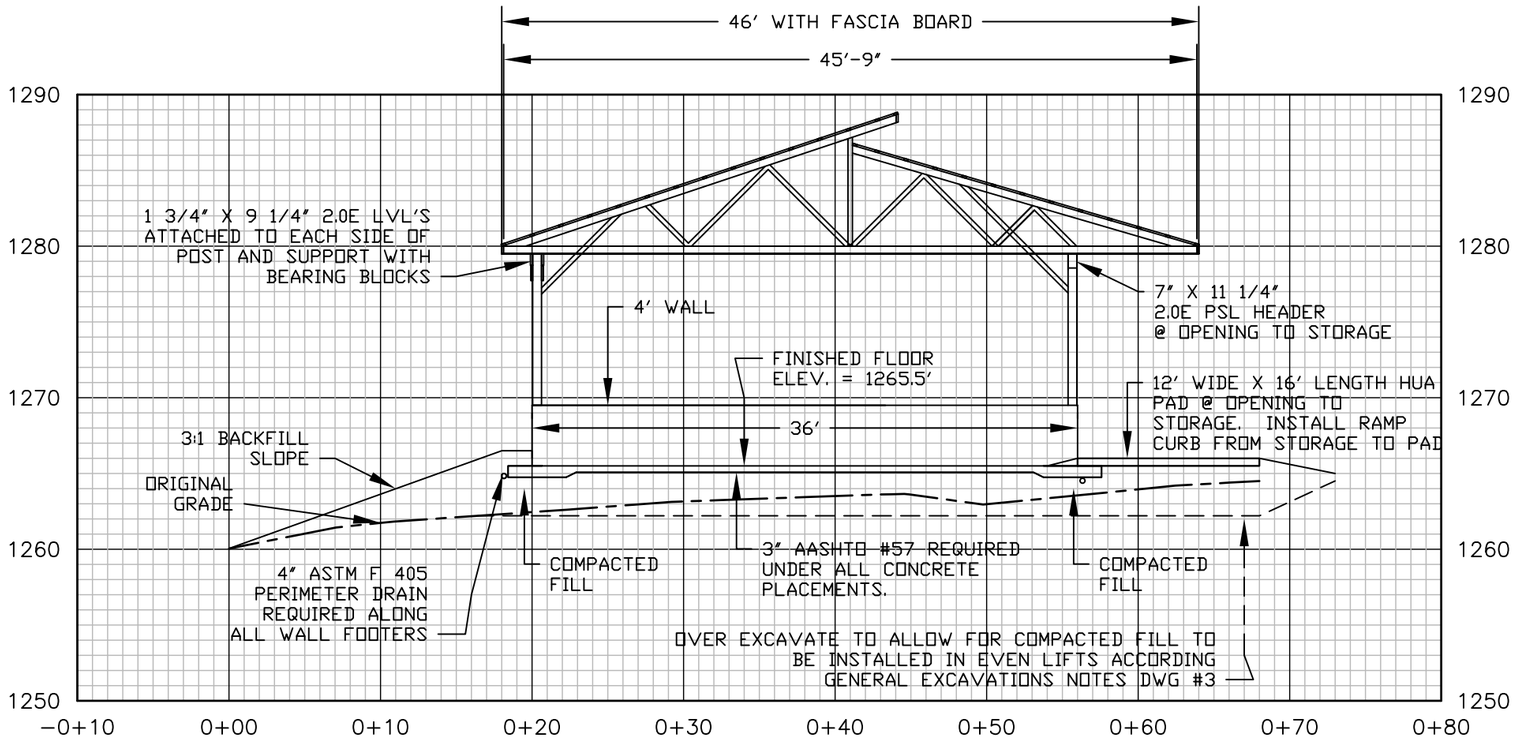
United States Department of Agriculture

Natural Resources Conservation Service

FILE NO.

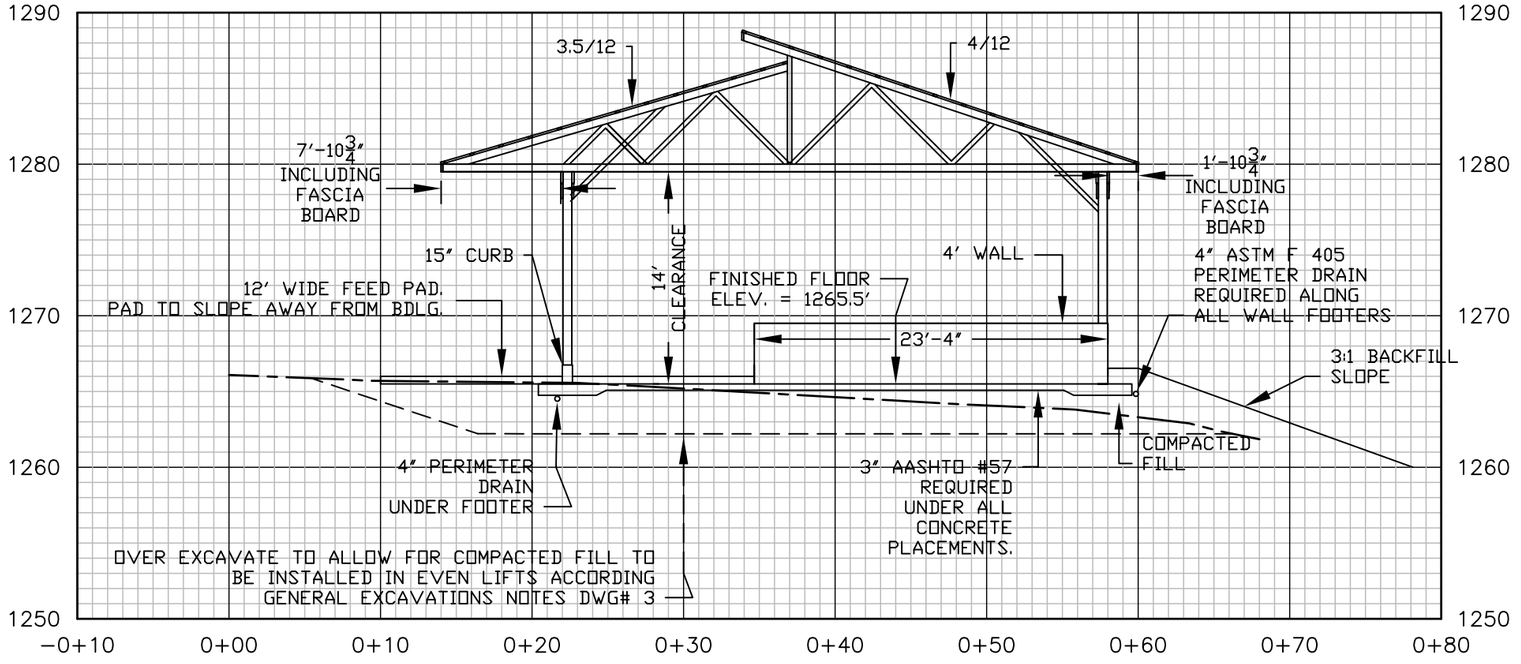
DRAWING NO.

SHEET 10 OF 27



C–C PROFILE

NOTE: ROOF RUNOFF DOWNSPOUT RISERS (NOT SHOWN) ARE ROUTED THROUGH THE FOOTER ON THE FEED PAD SIDE OF BLDG. THE PERIMETER DRAIN IS TO BE INSTALLED UNDER THE FOOTER ON THE FEED PAD SIDE OF THE BLDG.



D–D PROFILE

DATE

DESIGNED | DRAWN | CHECKED | APPROVED

ROB REYAN

PROFILES C–C & D–D

SUSQUEHANNA COUNTY, PA

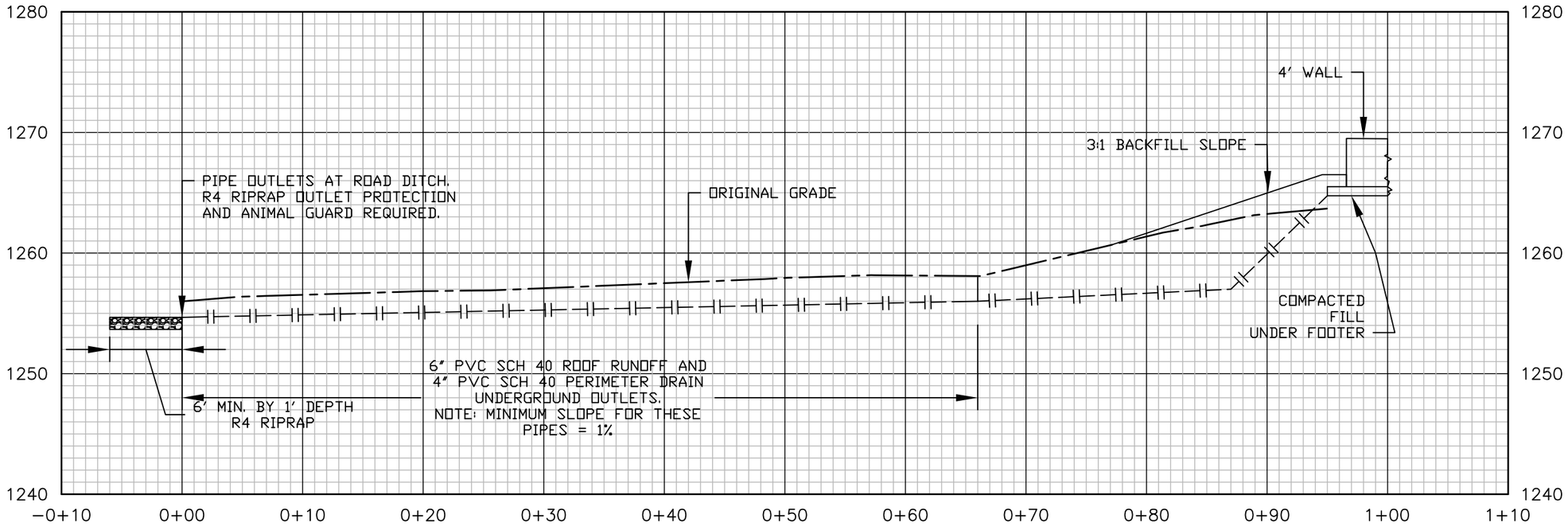
United States Department of Agriculture

Natural Resources Conservation Service

FILE NO.

DRAWING NO.

SHEET 11 OF 27



UNDERGROUND OUTLET PROFILE

DATE

DESIGNED | DRAWN | CHECKED | APPROVED

ROB REYAN

UNDERGROUND OUTLET(S) PROFILE

SUSQUEHANNA COUNTY, PA

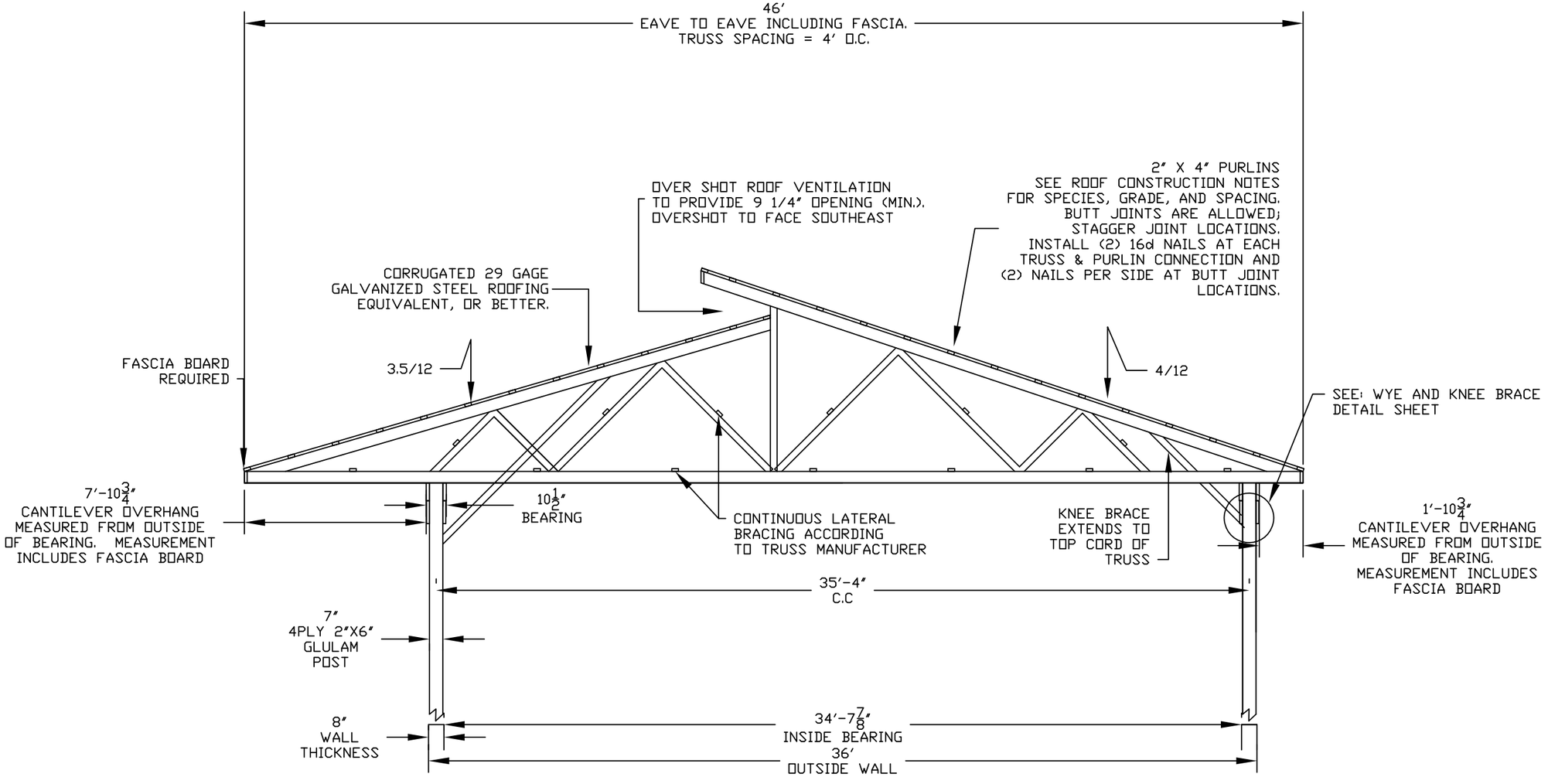
United States Department of Agriculture

Natural Resources Conservation Service

FILE NO.

DRAWING NO.

SHEET 12 OF 27



GENERAL NOTES:

1. TRUSS SHOP DRAWINGS SHALL BE PROVIDED TO THE NRCS DESIGN ENGINEER FOR APPROVAL PRIOR TO THE TRUSSES BEING MADE.

2. TRUSS SHALL BE DESIGNED WITH WITH THE FOLLOWING PARAMETERS:

   A. IMPORTANCE FACTOR: CAT. II (I=1.00)
   B. BUILDING CLASSIFICATION: PARTIALLY ENCLOSED
   C. UNBALANCED SNOW LOAD SHALL BE INCLUDED
   D. GRAVITY REACTIONS MUST YIELD A MINIMUM OF: 40 PSF (TCLL + TCDL + BCDL) COMBINED LOADING
   E. UPLIFT REACTIONS MUST YIELD A MINIMUM OF: 14.5 PSF UNIFORM UPLIFT

DATE
DESIGNED
DRAWN
CHECKED
APPROVED

ROB REYAN

BLDG. SECTION FOR TRUSS MANUFACTURER

SUSQUEHANNA COUNTY, PA

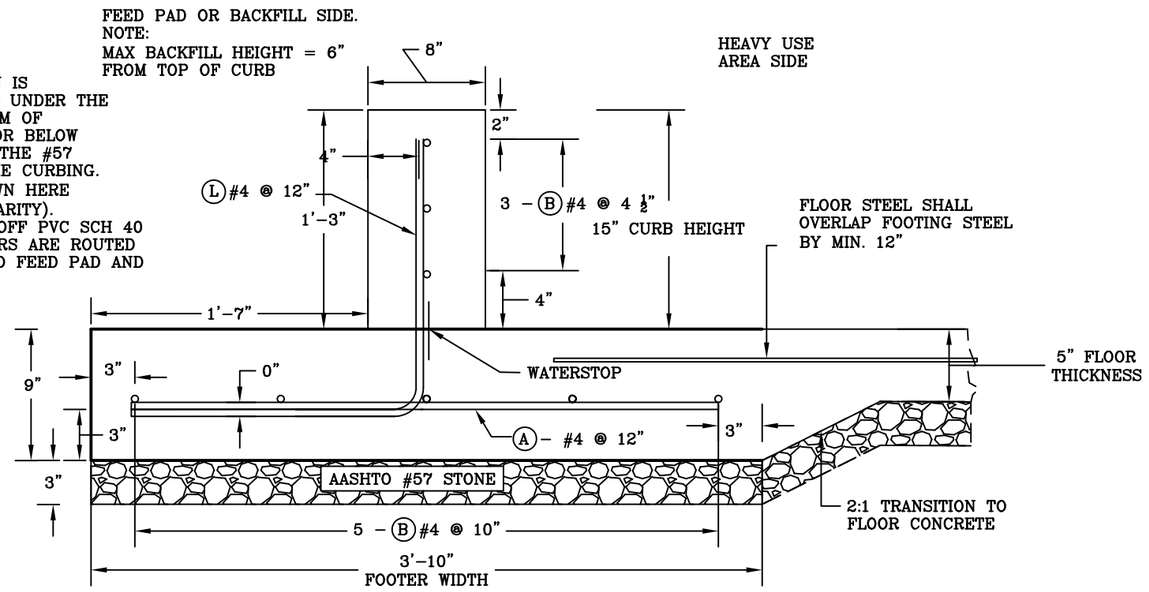
United States Department of Agriculture

Natural Resources Conservation Service

FILE NO.

DRAWING NO.

SHEET 13 OF 27



C.J. = CONSTRUCTION JOINT

LIQUID TIGHT JOINT X YES __ NO

LIQUID-TIGHT JOINT OPTIONS
= PVC 4" VINYL WATERSTOP

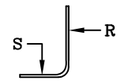
CONSTRUCTION JOINT OPTIONS

1. IF SLAB AND WALL ARE POURED SEPARATELY, THE SLAB SURFACE MUST BE THOROUGHLY CLEANED WITH WATER AND A WIRE BRUSH. THE SURFACE OF THE JOINT SHALL BE KEPT MOIST FOR AT LEAST 1 HOUR PRIOR TO PLACEMENT OF NEW CONCRETE.

2. THE SLAB AND WALL MAY BE POURED AT THE SAME TIME ELIMINATING THE NEED FOR A CONSTRUCTION JOINT.

STEEL SCHEDULE				
MARK	SIZE	R	S	LENGTH
A	#4	–	–	3' 4"
B	#4	–	–	
C	#4	2'	2'	4'
L	#4	1' 7"	1' 8"	3' 6"

MIN. SPLICE LENGTH FOR ALL #4 BARS IS 16"
UNLESS OTHERWISE NOTED
LENGTHS SHOWN DO NOT INCLUDE BEND RADIUS

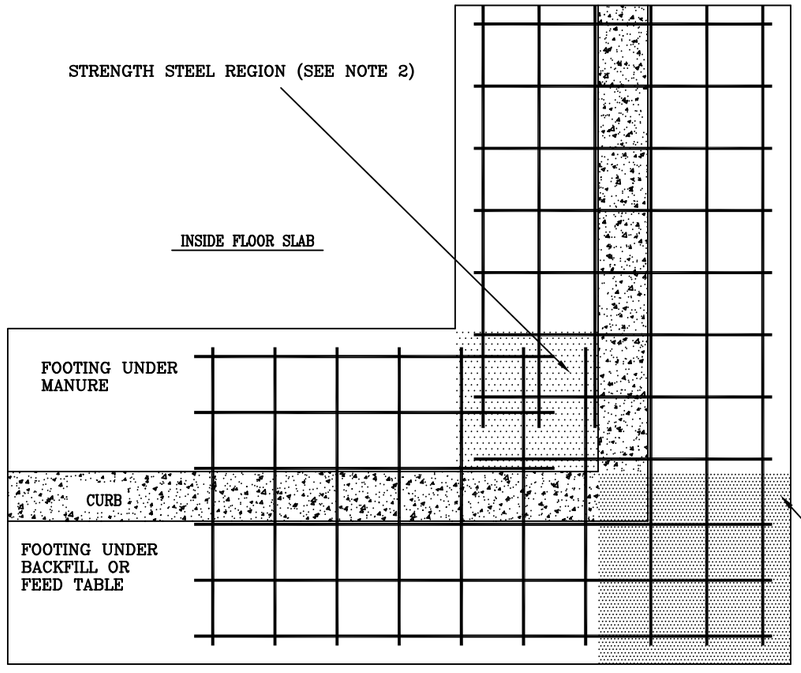


GENERAL DESIGN NOTES:
DRAINAGE SHALL BE AWAY FROM THE CURB.

DESIGN STRENGTHS:
CONCRETE = 4000 psi STEEL = GRADE 60

WATER TABLE MUST BE BELOW THE FOOTING ELEVATION

MIN. 3" AASHTO #57 (CLEAN STONE) REQUIRED UNDER FOOTING



NOTE:
HOOK BARS USED FOR WALL SUPPORT NOT SHOWN IN THIS VIEW.

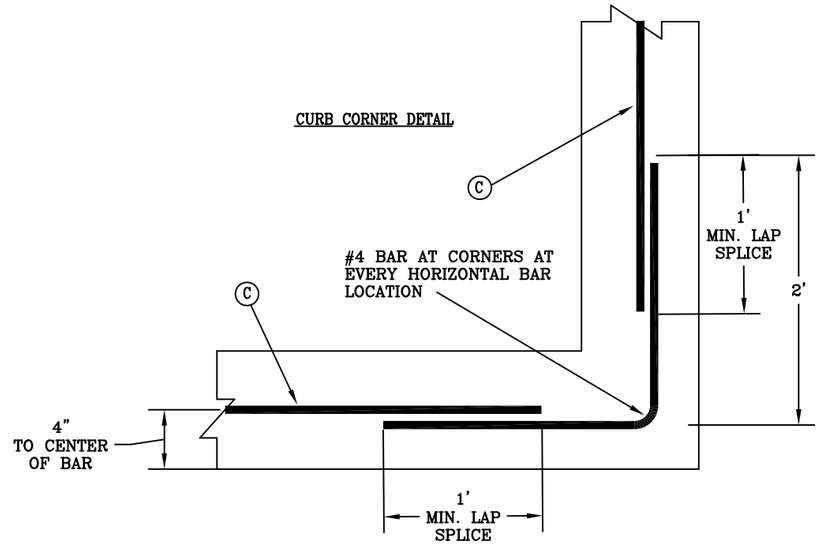
NOTES FOR FOOTING STEEL PLACEMENT

1.) FOOTING TEMPERATURE AND SHRINKAGE STEEL (T&S) TO BE EXTENDED INTO THIS REGION FROM BOTH SIDES OF CORNER. REGION IS OUTSIDE EXTENSION OF WALLS INCLUDING WALL THICKNESS.

2.) STRENGTH STEEL IS EXTENDED INTO THIS REGION FROM BOTH SIDES OF CORNER. REGION IS INSIDE EXTENSION OF THE WALLS. MIN. LAP SPLICE OF REBAR IS 16".

3.) IN BOTH CORNER REGIONS, STRENGTH STEEL AND T&S STEEL WILL REQUIRE SWITCHING POSITIONS FROM TOP TO BOTTOM AND VICE VERSA.

SLAB FOOTING CORNER DETAIL



DRAWING ADAPTED FROM PA STANDARD DRAWINGS# 018D, 020D, & 023 FOR POSTS ON CURB DESIGN

DATE
DESIGNED
DRAWN
CHECKED
APPROVED

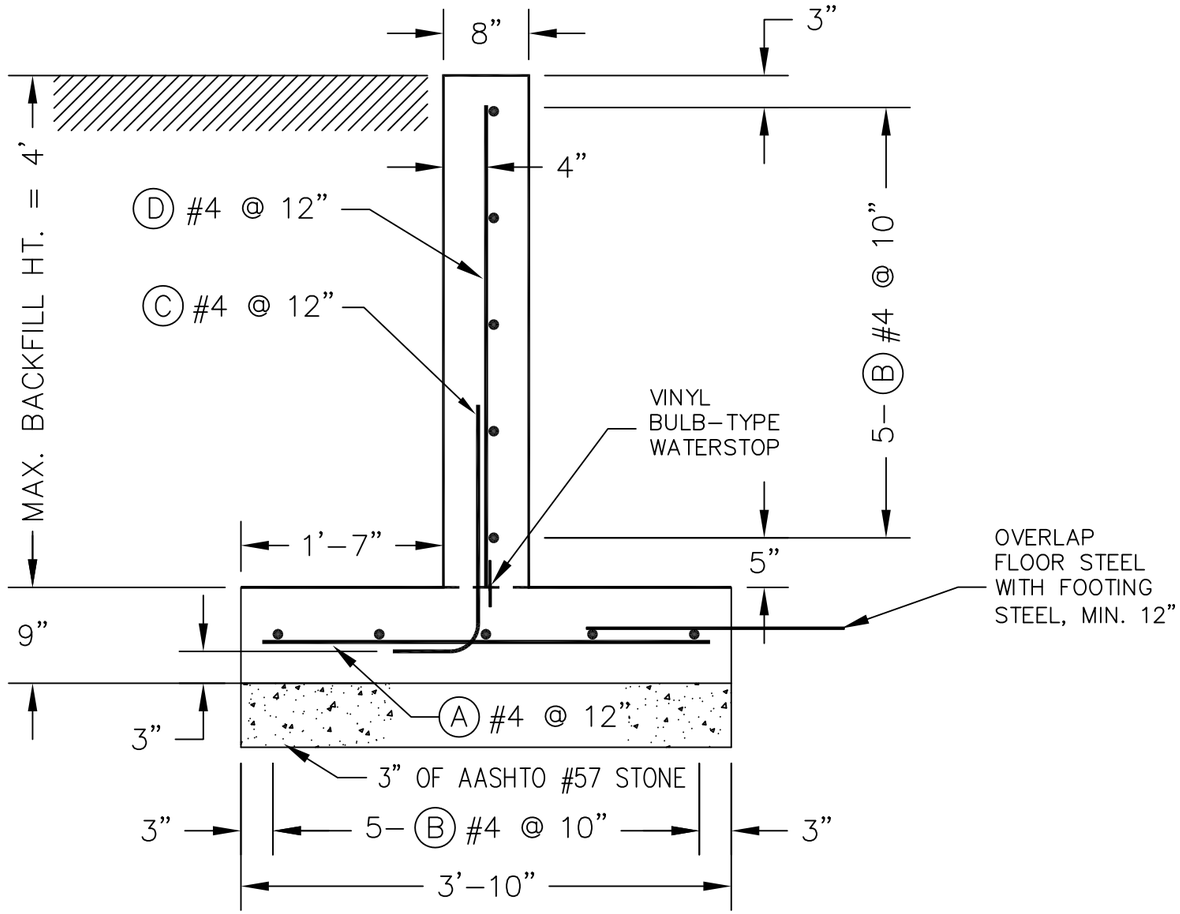
POST ON 15" CURB DETAIL

United States Department of Agriculture
Natural Resources Conservation Service

FILE NO.

DRAWING NO.

SHEET 14 OF 27



GENERAL DESIGN NOTES:

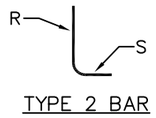
- DRAINAGE SHALL BE AWAY FROM THE WALL.
- THE MINIMUM TOP WIDTH OF THE BACKFILL AGAINST THE WALL SHALL BE EQUAL TO OR GREATER THAN THE BACKFILL HEIGHT.
- MAXIMUM FOOTING CONTACT PRESSURE IS 900 psf/ft.

DESIGN STRENGTHS: WORKING STRESS DESIGN

CONCRETE f_c = 4,000 psi STEEL f_s = 24,000 psi (GRADE 60)

WALL DESIGN LOADING: 313 STANDARD – LATERAL EARTH PRESSURE VALUES, SEE SECTION IV OF THE FIELD OFFICE TECHNICAL GUIDE.

- MANURE LOAD INSIDE = 65 psf/ft.
- SOIL BACKFILL LOAD OUTSIDE = 60 psf/ft. AND 85 psf/ft.
- NO HORIZONTAL SURCHARGE ADDED.
- SOIL BACKFILL DENSITY = 110 pcf.
- WATER TABLE MUST BE BELOW THE FOOTING ELEVATION



TYPE 2 BAR

STEEL SCHEDULE

MARK	SIZE	TYPE	R	S	LENGTH
A	4	STR	---	---	3'–6"
B	4	STR	---	---	
*C	4	2	2'–0"	9"	2'–9"
*D	4	STR	---	---	3'–9"
L	4	2	2'–0"	9"	2'–9"
L1	4	STR	---	---	3'–9"

* MARK C & D BARS MAY BE COMBINED TO AVOID SPLICE. THEN MARK C BAR IS 4'–3" x 9".

ESTIMATED QUANTITIES

CONCRETE	(0.21 CU.YDS./LIN.FT.) _____	CU. YDS.
STEEL	(20.67 FT./LIN. FT.) _____	FT.
STEEL	(35.0 FT./CORNER) _____	FT.

- CONCRETE SHALL MEET PA 313 OR 561 SPECIFICATION REQUIREMENTS.
- MINIMUM SPLICE LENGTH FOR ALL #4 BARS IS 16".
- STEEL QUANTITY DOES NOT INCLUDE SPLICE LENGTHS.
- REBAR SHALL BE GRADE 60.

NOTES:

1. FOR FROST PROTECTION, A 2–FOOT BACKFILL IS REQUIRED.
2. DIMENSIONS ARE TO THE REINFORCING BAR SURFACE.

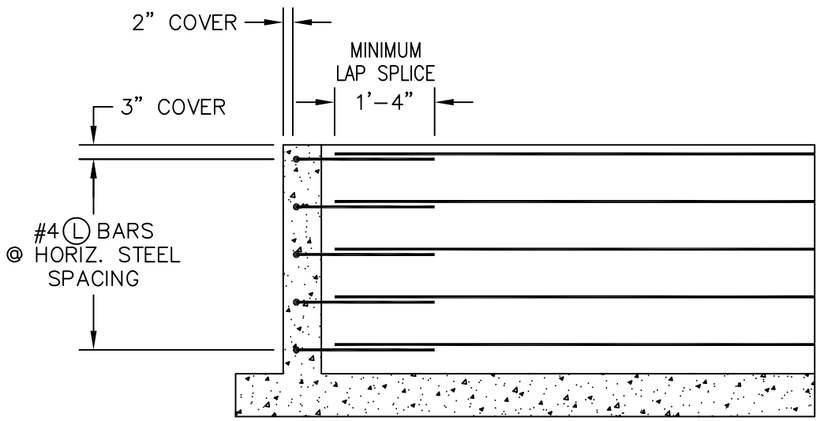
ADAPTED AND MODIFIED FROM STANDARD DRAWING # PA–020D

Date 11/2018
Designed
Drawn BTO
Checked
Approved by

4' HIGH, T–WALL (W/O SURCHARGE)

NRCS Natural Resources Conservation Service United States Department of Agriculture

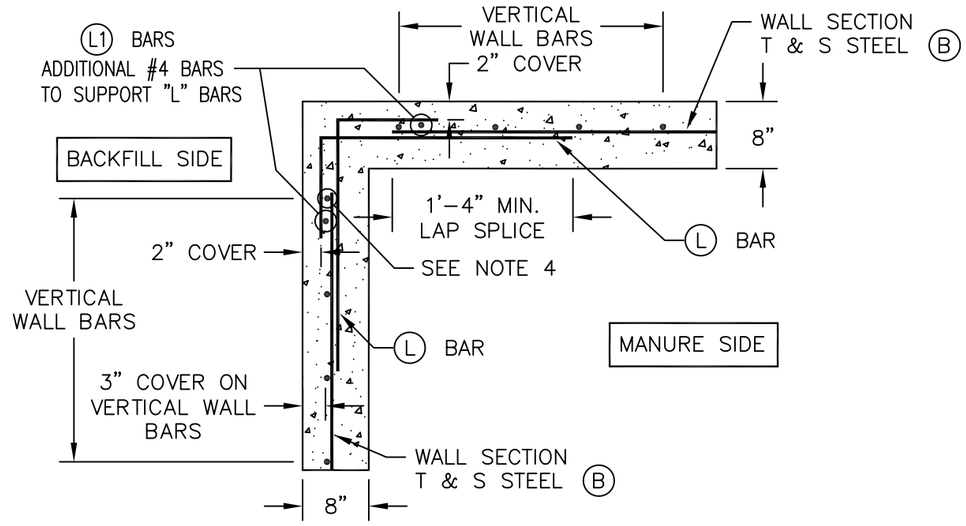
File No.
Drawing No.
Sheet 15 of 27



NOTES:

1. TIE LONG LEG OF MARK (L) CORNER BAR TO WALL SECTION T&S MARK (B) BAR AS SHOWN.
2. SHORT LEG OF MARK (L) BARS SHALL BE SUPPORTED WITH VERTICAL WALL SUPPORT BAR (L1).
3. 10 MARK (L) BARS PER CORNER. SEE APPROPRIATE WALL DRAWING FOR BAR DIMENSIONS AND QUANTITIES.
4. PLACE FIRST VERTICAL BAR (SEE PLAN VIEW) AT WALL CORNER, OR NO FARTHER THAN ONE-HALF THE VERTICAL BAR SPACING FROM THE CORNER.

ADAPTED AND MODIFIED FROM STANDARD DRAWING # PA-025



PLAN VIEW
WALL CORNER DETAIL

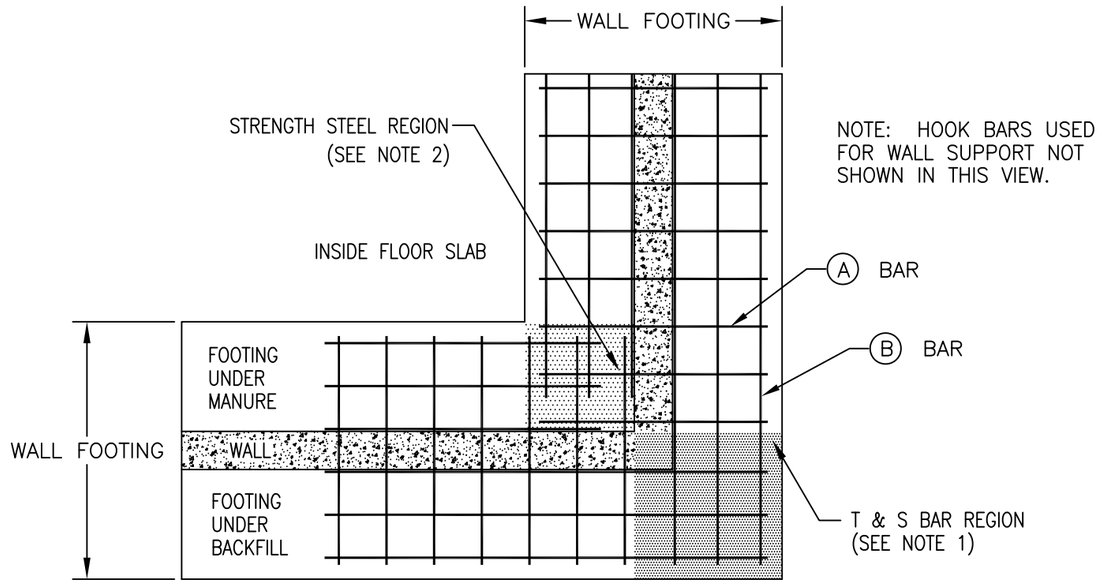
ADAPTED AND MODIFIED FROM STANDARD DRAWING # PA-023

NOTES FOR FOOTING STEEL PLACEMENT

1.) FOOTING TEMPERATURE AND SHRINKAGE STEEL (T&S) TO BE EXTENDED INTO THIS REGION FROM BOTH SIDES OF CORNER. REGION IS OUTSIDE EXTENSION OF WALLS INCLUDING WALL THICKNESS.

2.) STRENGTH STEEL IS EXTENDED INTO THIS REGION FROM BOTH SIDES OF CORNER. REGION IS INSIDE EXTENSION OF THE WALLS. FOOTING SLAB T&S STEEL OUTSIDE THE CORNER REGION TO LAP SPLICE WITH THE STRENGTH STEEL 16 INCHES.

3.) IN BOTH CORNER REGIONS, STRENGTH STEEL AND T&S STEEL WILL REQUIRE SWITCHING POSITIONS FROM TOP TO BOTTOM AND VICE VERSA.



SLAB FOOTING CORNER DETAIL

Date 1/1/2018
Designed
Drawn RYD
Checked
Approved by

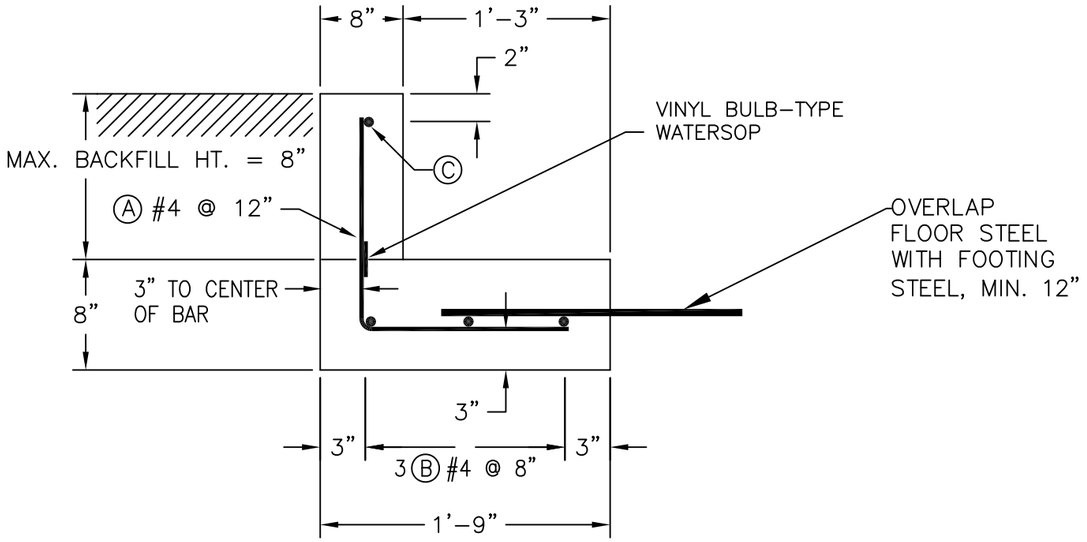
4' WALL CORNER AND WALL FOOTING CORNER DETAILS

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

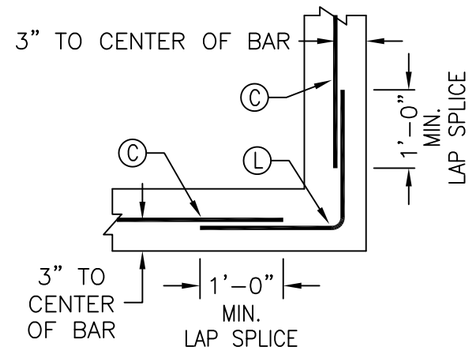
File No.

Drawing No.

Sheet 16 of 27



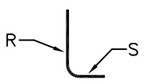
WALL CORNER DETAIL (PLAN VIEW)



ESTIMATED QUANTITIES

CONCRETE	(0.0617 CU.YDS./LIN.FT.)	_____CU.YDS.
STEEL #4	(0.668 LBS./FT)	_____LBS.

- CONCRETE SHALL MEET PA 313 OR 561 SPECIFICATION REQUIREMENTS.
- REBAR SHALL BE GRADE 60.
- MINIMUM SPLICE LENGTH FOR MARK Ⓑ AND Ⓒ BARS IS 12"
- STEEL QUANTITY DOES NOT INCLUDE SPLICE LENGTHS.



TYPE 2 BAR

STEEL SCHEDULE

MARK	SIZE	TYPE	R	S	LENGTH
A	4	2	11"	1'–3"	2'–6"
B	4	STR	---	---	
C	4	STR	---	---	
L	4	2	2'–6"	2'–6"	5'–8"

NOTES:

1. DIMENSIONS ARE TO THE REINFORCING BAR SURFACE UNLESS OTHERWISE NOTED.
2. BACKFILL TO THE TOP OF THE WALL IS RECOMMENDED FOR FROST PROTECTION.

GENERAL DESIGN NOTES:

- DRAINAGE SHALL BE AWAY FROM THE WALL.
- THE MINIMUM WIDTH OF THE BACKFILL AGAINST THE WALL SHALL BE EQUAL TO OR GREATER THAN THE BACKFILL HEIGHT.
- MAXIMUM FOOTING CONTACT PRESSURE IS 340 psf/ft.

DESIGN STRENGTHS: WORKING STRESS DESIGN

- CONCRETE f_c = 4,000 psi
- STEEL f_s = 24,000 psi (GRADE 60)

WALL DESIGN LOADING: 313 STANDARD – LATERAL EARTH PRESSURE VALUES, SEE SECTION IV OF THE FIELD OFFICE TECHNICAL GUIDE.

MANURE LOAD INSIDE = 65 psf/ft.
SOIL BACKFILL LOAD OUTSIDE = 75 psf/ft.
NO SURCHARGE LOAD
SOIL BACKFILL DENSITY = 110 pcf.
WATER TABLE MUST BE BELOW THE FOOTING ELEVATION

ADAPTED AND MODIFIED FROM STANDARD DRAWING # PA–017B

Date 11/2018
Designed
Drawn BTO
Checked
Approved by

8" HIGH, 8" L-WALL (W/O SURCHARGE)

NRCS Natural Resources Conservation Service United States Department of Agriculture

File No. PA-017B.dwg
Drawing No. PA-017B
Sheet 17 of 27

LIQUID TIGHT SLAB JOINTS
CROSS SECTIONS

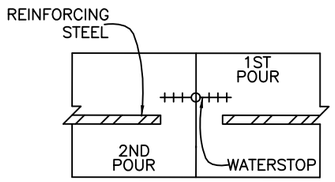
(NOT TO SCALE)

LIQUID TIGHT SLAB/FLOOR JOINTS

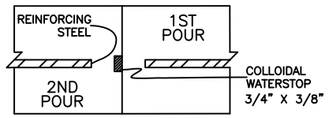
GENERAL NOTES:

1. BACKER ROD SHALL BE A LARGER WIDTH THAN THE WIDTH OF THE SAW CUT.
2. SAW CUT OR JOINT FORMER IS ACCEPTABLE FOR JOINT 2.
3. SEALANT DEPTH SHALL BE 1/4" OR SLIGHTLY LESS THAN JOINT WIDTH, WHICHEVER IS LESS.
4. CUT 50% OF THE REINFORCING STEEL DIRECTLY UNDER THE JOINT.
5. USE JOINT 1 OR 2 FOR TWO POURS AND JOINT 3 FOR CONTINUOUS POURS.

JOINT 1

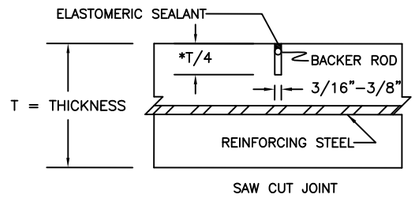


JOINT 2



CONSTRUCTION CONTROL

JOINT 3



LIQUID TIGHT WALL JOINTS
PLAN VIEW

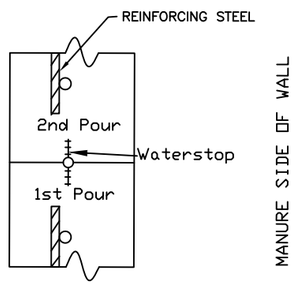
(NOT TO SCALE)

LIQUID TIGHT WALL JOINTS

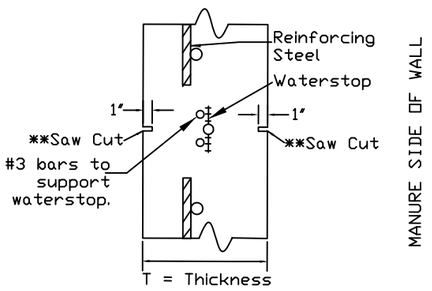
GENERAL NOTES:

1. BE SURE TO CUT EVERY OTHER HORIZONTAL REINFORCING STEEL REBAR DIRECTLY AT THE JOINT.
2. SEALANT DEPTH SHALL BE 1/4" OR SLIGHTLY LESS THAN JOINT WIDTH, WHICHEVER IS LESS.
3. USE JOINT 4 FOR TWO POURS AND JOINTS 5 OR 6 FOR CONTINUOUS POURS.

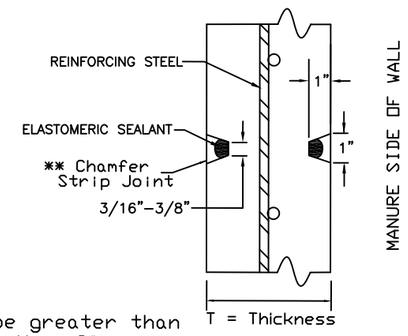
JOINT 4



JOINT 5



JOINT 6



* Saw cut need not be greater than 1" for walls thicker than 8".

** Joint former or chamfer strip optional, Backer Rod and Elastomeric sealant needed in a saw cut joint or if a joint former is used.. Elastomeric sealant needed if a chamfer strip is used. Cut and/or joint former or chamfer shall be on both sides of wall and across the top.

DATE

DESIGNED | DRAWN | CHECKED | APPROVED

ROB REYAN

LIQUID TIGHT JOINT OPTIONS

SUSQUEHANNA COUNTY, PA

United States Department of Agriculture

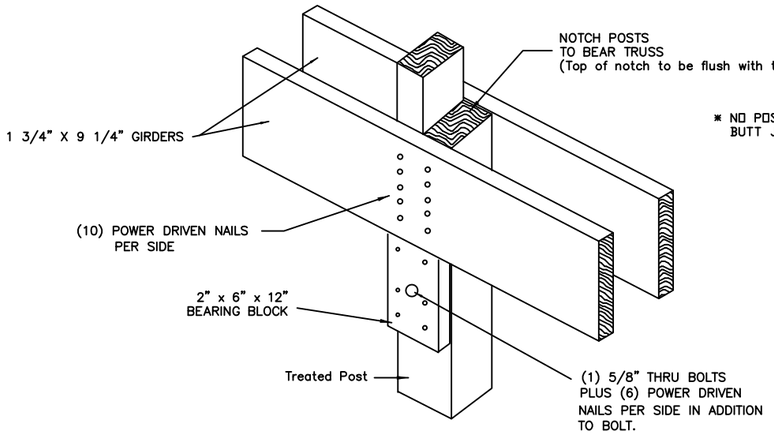
Natural Resources Conservation Service

FILE NO.

DRAWING NO.

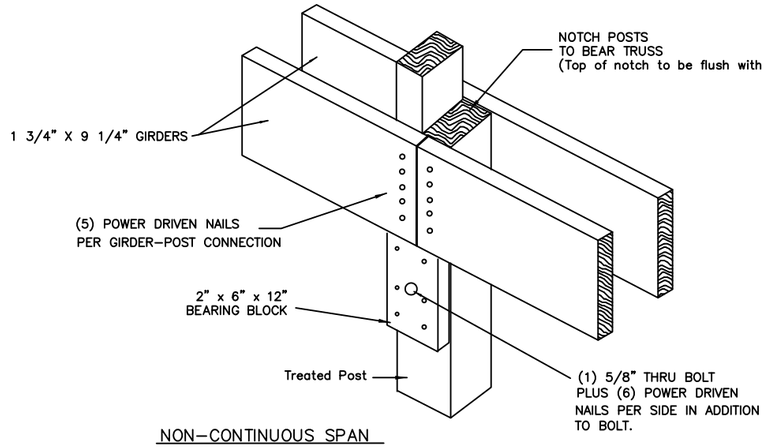
SHEET 18 OF 27

FASTENER REQUIREMENTS AT GIRDER & POST CONNECTIONS



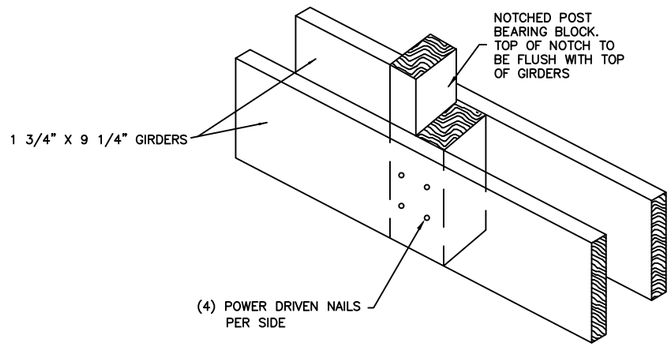
* NO POST SHALL HAVE A GIRDER BUTT JOINT ON BOTH SIDES

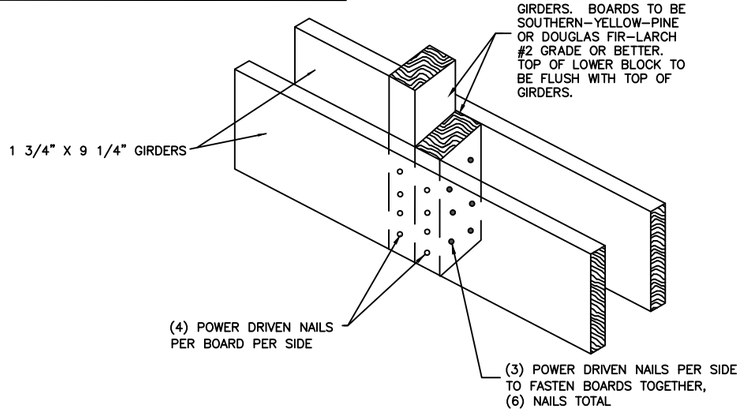
CONTINUOUS SPAN



NON-CONTINUOUS SPAN

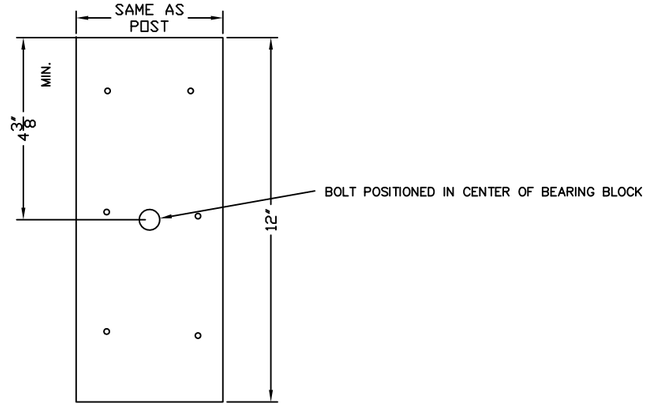
OPTIONS FOR TRUSS CONNECTION BETWEEN POSTS





CONSTRUCTION NOTES

1. Bolts shall be installed in the middle of the girder and support block.
2. All nails shall be .131" Diameter x 3.25" Long (Min.).
3. LVL's need to be supported every 2' as per the LVL Manufacturer; A single block, ripped to fit, between the LVL's will suffice. Install (4) power driven nails per side from LVL into the blocking.



BEARING BLOCK DETAIL

DATE
DESIGNED
DRAWN
CHECKED
APPROVED

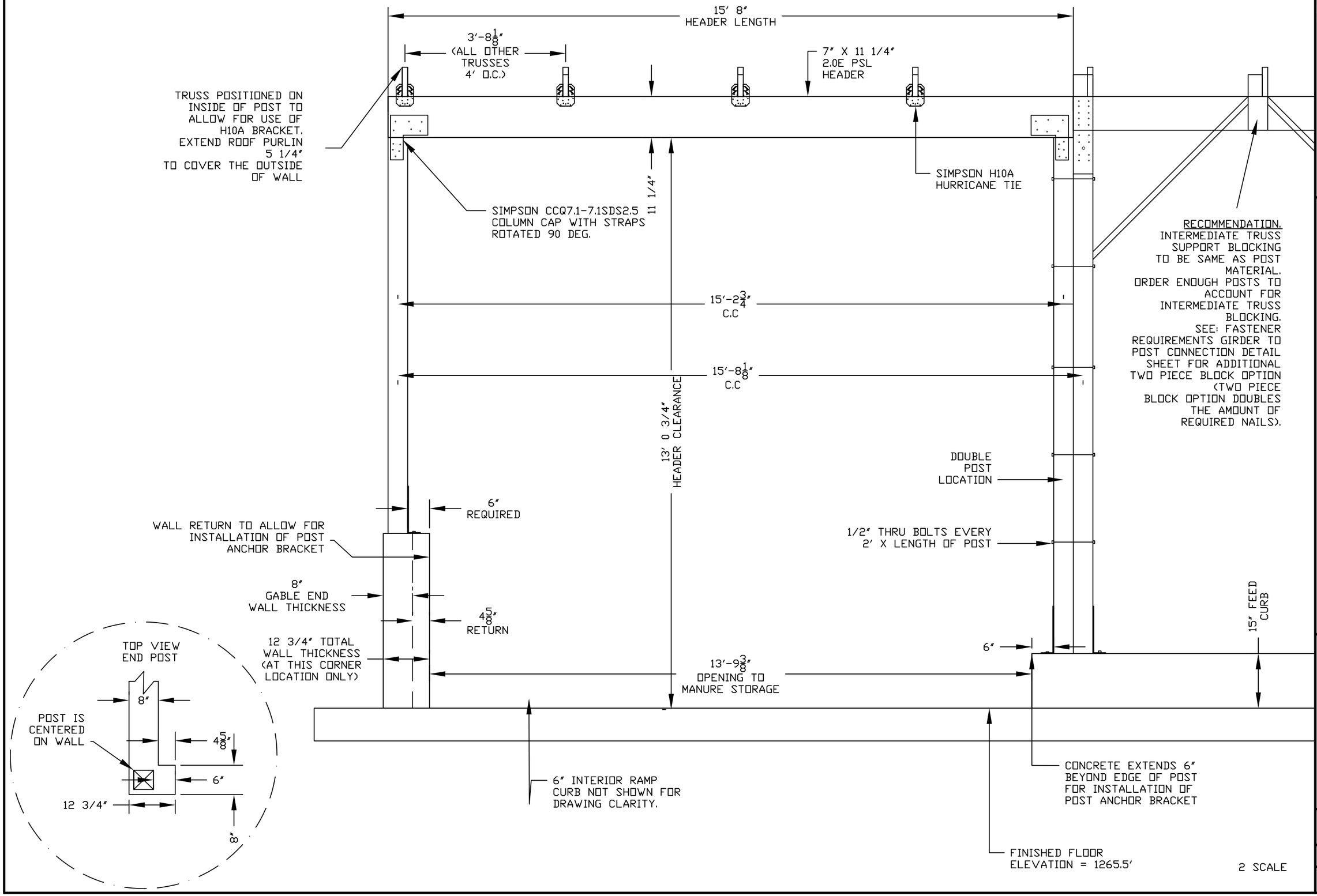
ROB REYAN
FASTENER REQUIREMENTS
GIRDER TO POST CONNECTION
SUSQUEHANNA COUNTY, PA

United States Department of Agriculture
Natural Resources Conservation Service

FILE NO.

DRAWING NO.

SHEET 19 OF 27



DATE

DESIGNED | DRAWN | CHECKED | APPROVED

ROB REYAN

OPENING DETAIL

SUSQUEHANNA COUNTY, PA

United States Department of Agriculture

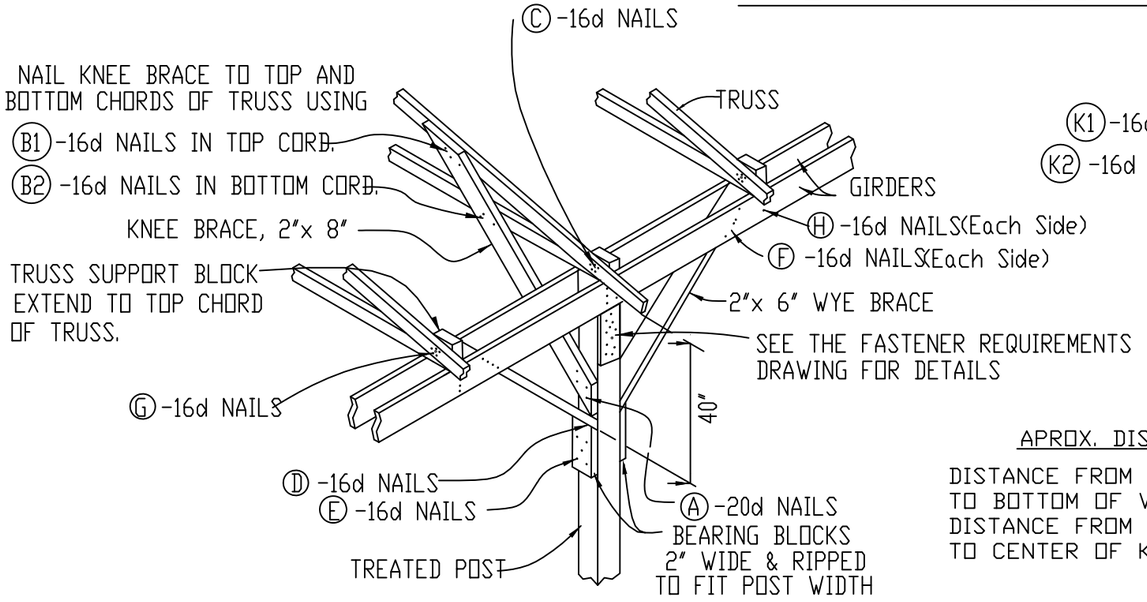
Natural Resources Conservation Service

FILE NO.

DRAWING NO.

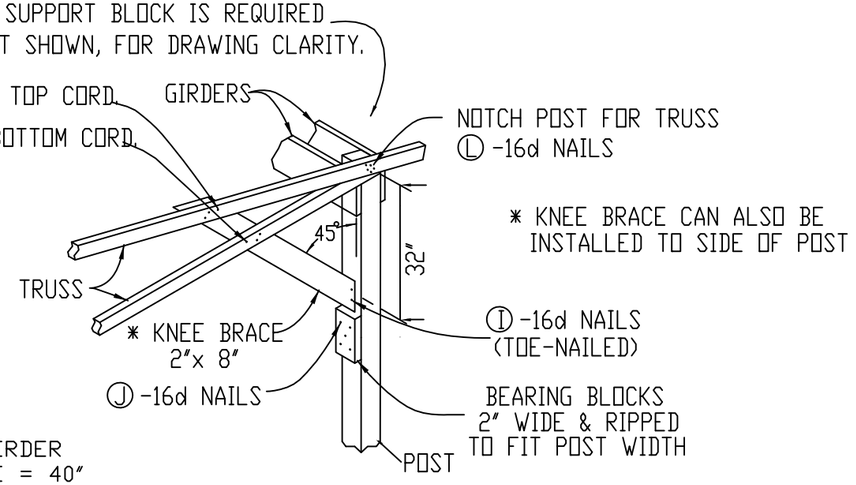
SHEET 20 OF 27

WYE AND KNEE BRACE DETAILS



BRACING DETAIL

GIRDER SUPPORT BLOCK IS REQUIRED BUT NOT SHOWN, FOR DRAWING CLARITY.



BRACING AT END OF BUILDING

APROX. DISTANCES:

DISTANCE FROM TOP OF GIRDER TO BOTTOM OF WYE BRACE = 40"
DISTANCE FROM TOP OF GIRDER TO CENTER OF KNEE BRACE = 32"

TABLE 1

	*NUMBER OF NAILS REQUIRED			
	BASED ON THE 'LENGTH' OF ROOF CONTRIBUTING TO THAT CONNECTION			
	JOINT	22.5' MAX (TRIBUTARY LENGTH)	27.5' MAX (TRIBUTARY LENGTH)	38' MAX (TRIBUTARY LENGTH)
Hand Driven 20d	A	6	8	9
Hand Driven 16d	B1	5	6	8
Hand Driven 16d	B2	5	6	8
Power Driven 16d	C	6	7	7
Power Driven 16d	D	2	3	4
Power Driven 16d	E	5	6	6
Power Driven 16d	F	4	5	5
Power Driven 16d	G	6	7	7
Power Driven 16d *See Note #3*	H	4	4	4
Power Driven 16d	I	2	3	3
Power Driven 16d	J	5	6	7
Hand Driven 16d	K1	5	6	8
Hand Driven 16d	K2	5	6	8
Power Driven 16d	L	6	7	7

NOTES:

1. Posts shall be notched to accommodate trusses. The notch shall be cut flush with the top of the girder so the trusses sit on the notch and on top of both girders equally. Only notch the post 1.5" for the truss. Notch the side of the post, not the center.
2. The truss support blocks at locations between posts can be notched sections of posts or 2x boards. Notches shall be cut and the block positioned in the same fashion as the notches in the posts (described above).
3. JOINT H; If two boards are used instead of a post section then each board shall have (4) nails per side. The boards shall also be nailed together with (6) nails. All nails for this connection can be Power Driven 16d. All blocks shall be either Southern Yellow Pine or Douglas Fir-Larch #2 or better.
4. Hurricane (Tie Down) Straps can also be used to anchor trusses to girders. There shall be a strap(s) installed to anchor the trusses to each girder. If this option is chosen, discuss with the design engineer in advance.
5. The wye and knee braces shall be installed at a 45 degree angle from the treated post. Install the wye braces after the trusses are set.
6. Drill pilot holes as needed to prevent splitting. Nails in split holes do not count toward connection.
7. Nails in contact with pressure-treated wood shall be galvanized.

* THE 16d POWER DRIVEN NAILS ARE BASED ON 0.131 DIAMETER X 3.25" LONG

* THE 16d HAND DRIVEN NAILS ARE BASED ON 0.162 DIAMETER X 3.5" LONG

* THE 20d HAND DRIVEN NAILS ARE BASED ON 0.192 DIAMETER X 4" LONG

	Date
Designed BTO STD DRAWING	1/2020
Drawn	1/2020
Checked RGD	
Approved RGD	1/2020

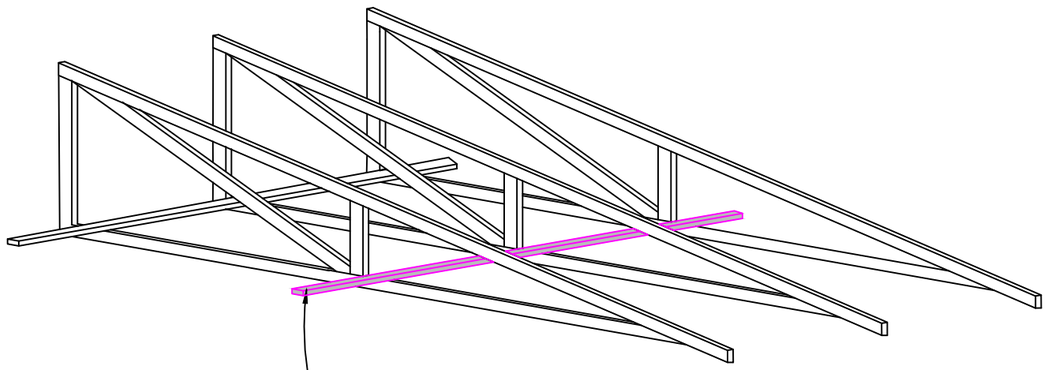
WYE & KNEE BRACE DETAILS

United States Department of Agriculture
USDA Natural Resources Conservation Service

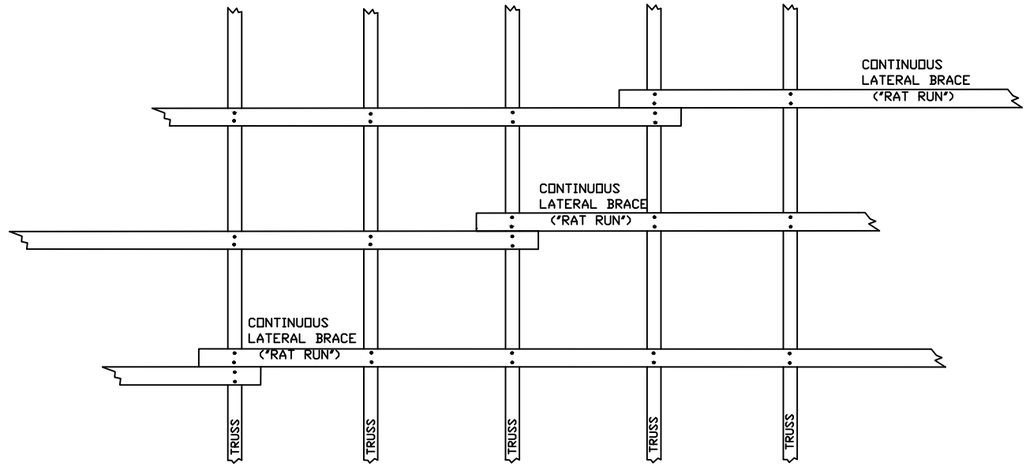
File No.

Drawing No.

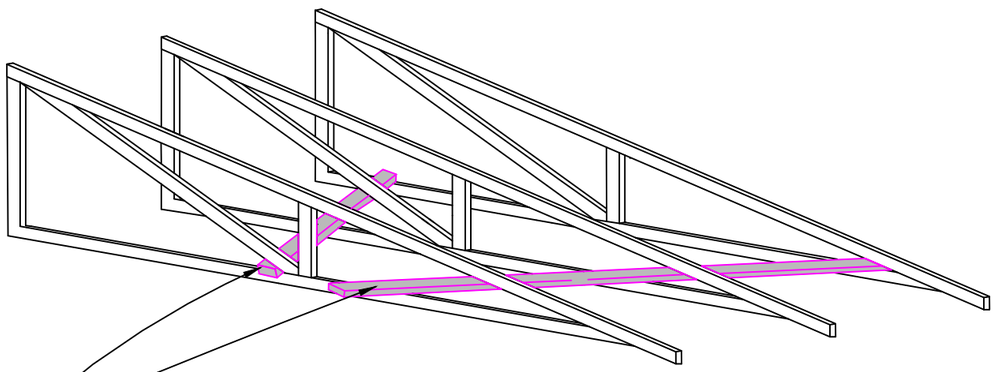
CORD AND DIAGONAL BRACING



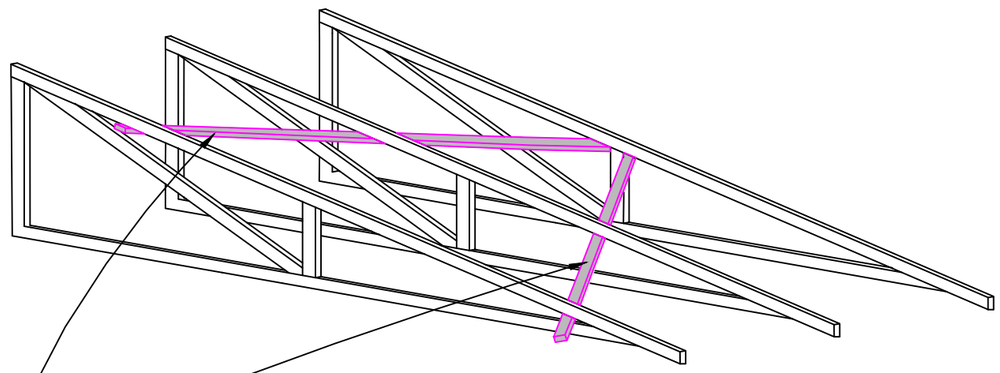
CONTINUOUS LATERAL BRACING ("RAT RUNS")
(2-16d NAILS @ EACH BRACE / TRUSS CONNECTION)



JOINTS IN CONTINUOUS LATERAL BRACES SHALL BE STAGGERED,
SO THEY DO NOT LINE UP WITH THE NEXT TRUSS.
AT A JOINT, EACH BOARD SHALL EXTEND FULLY PAST THE TRUSS,
TO ALLOW FOR A TWO NAIL CONNECTION.
THESE BRACES ARE AS PER TRUSS MFG. REQUIREMENTS,
SHOWN ON THE TRUSS DESIGN.



DIAGONAL BRACING ON TOP SIDE OF BOTTOM CHORD
AT LOCATIONS SHOWN IN DRAWINGS
(2-16d NAILS @ EACH BRACE TRUSS CONNECTION)



DIAGONAL BRACING ON BOTTOM SIDE OF TOP CHORD
AT LOCATIONS SHOWN IN DRAWINGS
(2-16d NAILS @ EACH BRACE TRUSS CONNECTION)

Designed	BTO STD DRAWING	Date 1/2020
Drawn	RGD	1/2020
Checked	RGD	1/2020
Approved		

CORD & DIAGONAL BRACING DETAILS

United States Department of Agriculture
Natural Resources Conservation Service

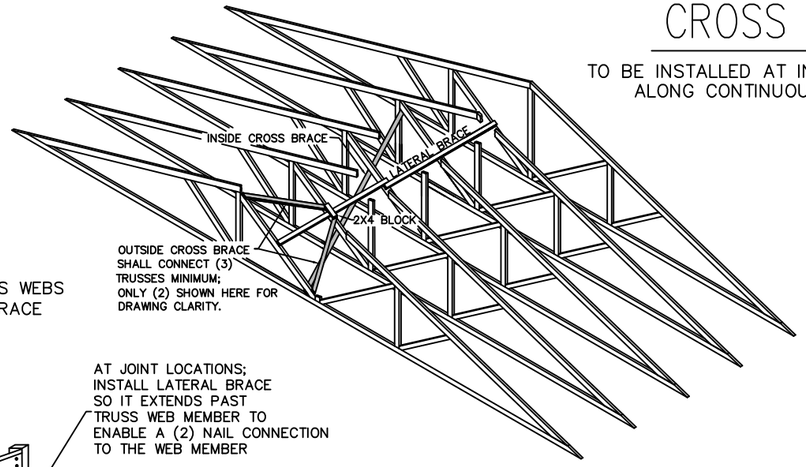
File No.

Drawing No.

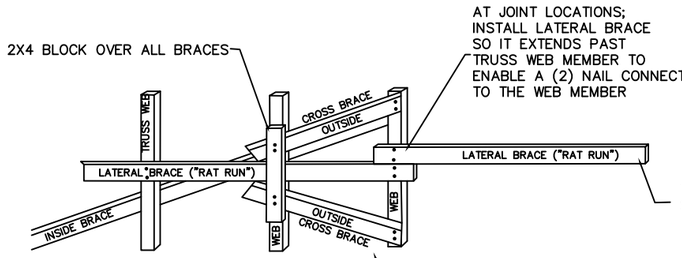
Sheet 22 of 27

CROSS BRACING

TO BE INSTALLED AT INTERVALS NOT TO EXCEED 20'
ALONG CONTINUOUS LATERAL BRACING

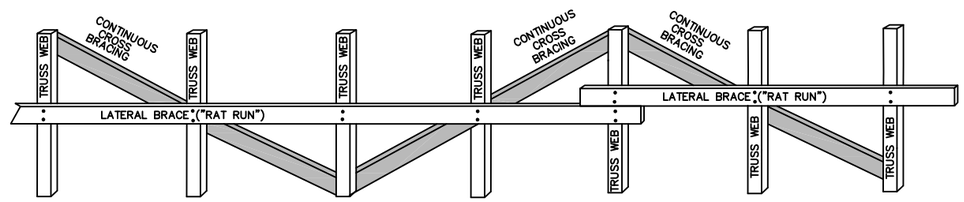


CROSS BRACING IS REQUIRED ON TRUSS WEBS
THAT HAVE A CONTINUOUS LATERAL BRACE
OPTION #1



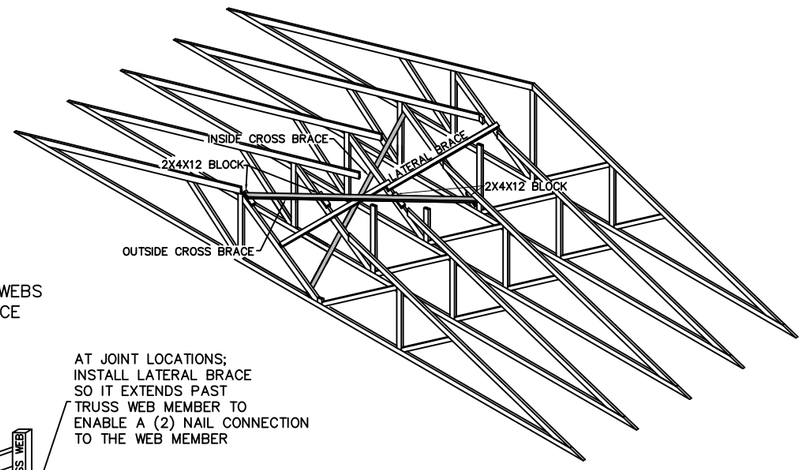
* ALL CROSS BRACES SHALL BE INSTALLED AT LESS THAN OR EQUAL TO 45 DEGREE ANGLES

CROSS BRACING IS REQUIRED ON TRUSS WEBS
THAT HAVE A CONTIINUOUS LATERAL BRACE
OPTION #3

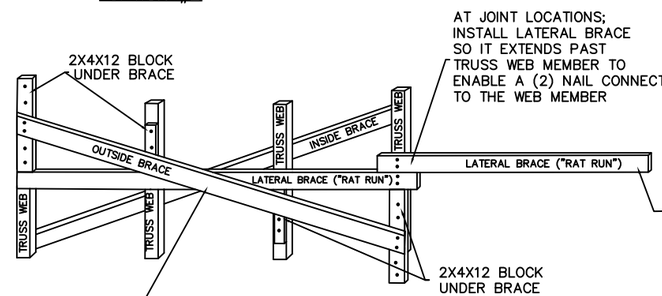


INSTALL "CONTINUOUS" CROSS BRACING ON THE OPPOSITE SIDE OF THE TRUSS WEB MEMBER AS THE LATERAL BRACE. THE CROSS BRACING MUST RUN THE ENTIRE LENGTH OF THE BUILDING ON THOSE WEB MEMBERS WITH LATERAL BRACING SPECIFIED IN THE TRUSS DESIGN AND AT OTHER LOCATIONS DICTATED BY THE BUILDING DESIGN ENGINEER.
(2-16d NAILS @ EACH MEMBER)

* ALL CROSS BRACES SHALL BE INSTALLED AT LESS THAN OR EQUAL TO 45 DEGREE ANGLES



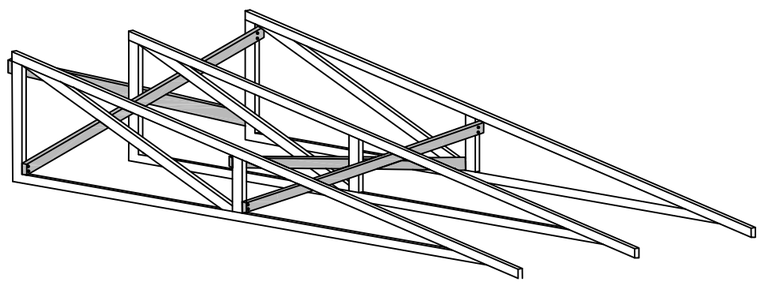
CROSS BRACING IS REQUIRED ON TRUSS WEBS
THAT HAVE A CONTINUOUS LATERAL BRACE
OPTION #2



* ALL CROSS BRACES SHALL BE INSTALLED AT LESS THAN OR EQUAL TO 45 DEGREE ANGLES

WHEN THE TRUSS DESIGN DOES NOT SHOW ANY CONTINUOUS LATERAL BRACES (RAT RUNS) WITHIN THE TRUSS WEBS, THIS OPTION OF CROSS BRACING SHALL BE USED.

OPTION #4



CROSS BRACING SHALL BE LOCATED ON BOTH SIDES OF ALL VERTICAL WEB MEMBERS AS WELL AS ADDITIONAL LOCATIONS AS DETERMINED BY THE BUILDING DESIGN ENGINEER.

THE CROSS BRACE SHALL CONNECT AT LEAST (3) TRUSSES,
(2-16d NAILS @ EACH MEMBER/BLOCK)

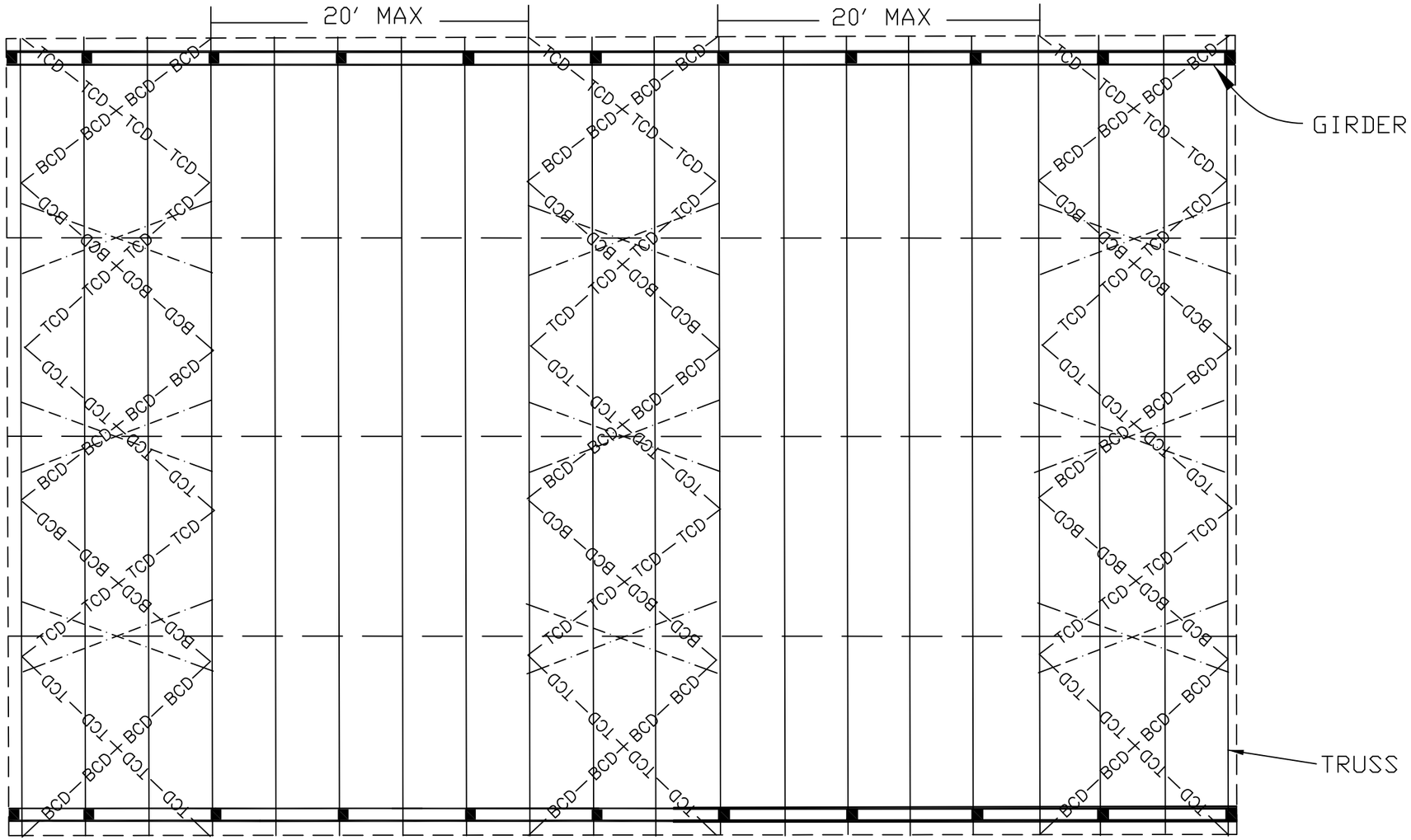
* ALL CROSS BRACES SHALL BE INSTALLED AT LESS THAN OR EQUAL TO 45 DEGREE ANGLES

Date 5/20
Designed BTO STD. DWG
Drawn
Checked RGD 5/20
Approved by

CROSS BRACING

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

File No.
Drawing No.



CONTINUOUS LATERAL BRACING
AS PER TRUSS MFG. RECOMMENDATIONS

— TCD — TCD — TCD — TOP CHORD DIAGONAL BRACING

— BCD — BCD — BCD — BOTTOM CHORD DIAGONAL BRACING

WEB MEMBER CROSS BRACING

NOTES:

1. CONTINUOUS LATERAL BRACING SHOWN IS FOR A VISUAL REPRESENTATION ONLY; CONTINUOUS LATERAL BRACING LOCATIONS & SPACING ARE REQUIRED BY THE TRUSS MFG & SHOWN ON THE TRUSS DESIGN DRAWING.
2. ALL BRACING IS 2" X 4" GRADE MARKED LUMBER.
3. ALL CONNECTIONS SHOULD BE MADE WITH 2 - 16d NAILS. 2-16d NAILS. NO BUTT JOINTS.

"DRAWING IS NOT TO SCALE"

Date 7/10
Designed RGD
Drawn RGD
Checked
Approved by

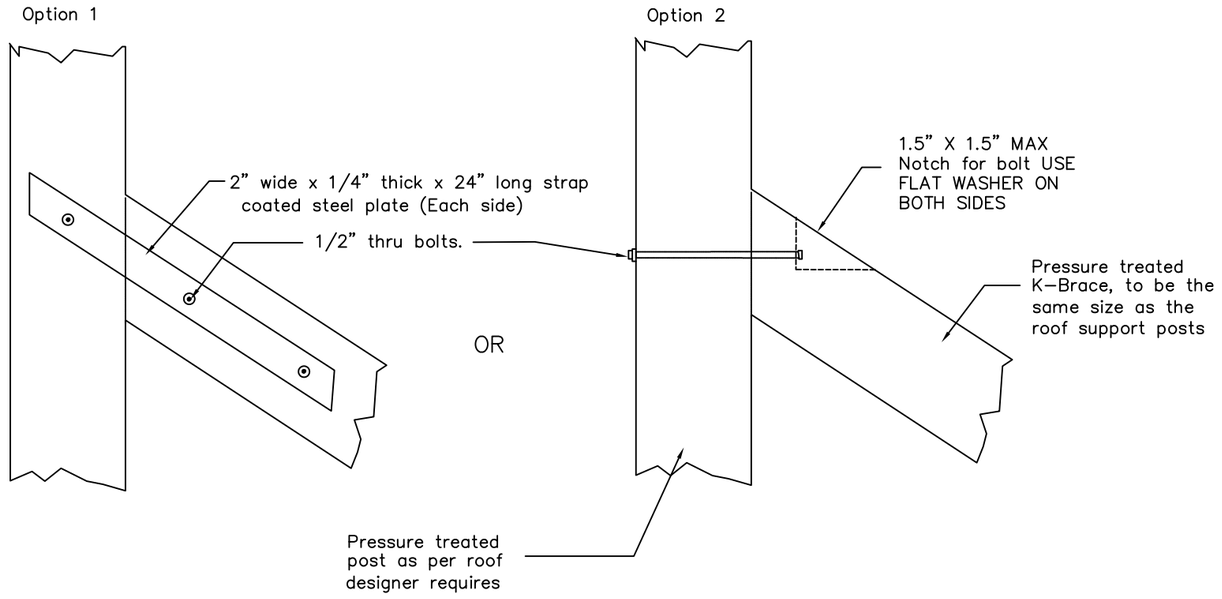
ADDITIONAL BRACING REQUIREMENTS

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

File No.
Drawing No.
Sheet 24 of 27

"K" BRACING DETAIL

(FOR POSTS ON TOP OF CONCRETE WALL)



NOTES:

1). "K" braceing is needed when posts are anchored to top of walls.

2). Will need a "K" brace at the corners of the building.
A "K" brace should also be considered on both sides of openings.

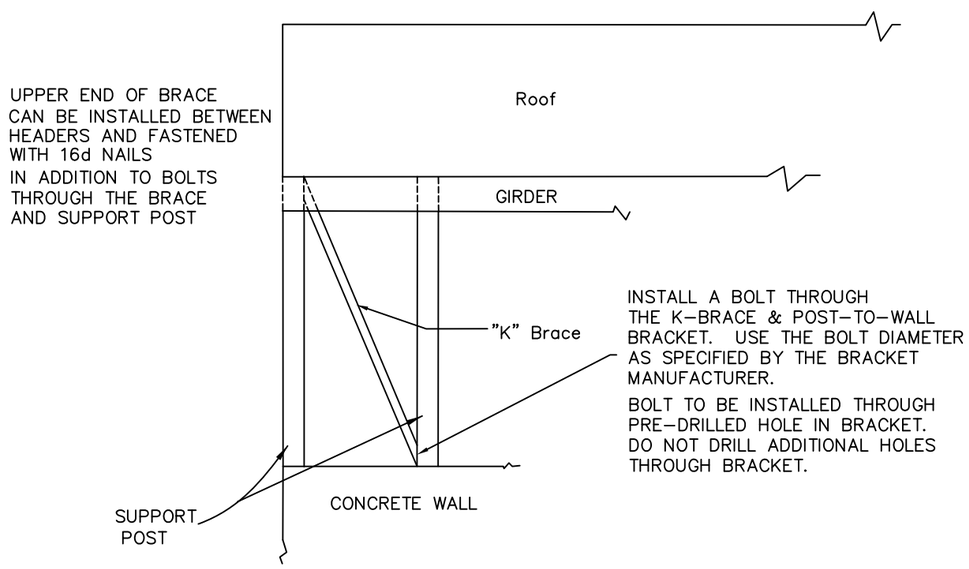
3). Other "K" brace configurations may be used if approved by the designer.

** IF THE ENCLOSED SIDES ARE ENCLOSED WITH STEEL PANELS THEN "K" BRACES ARE NOT REQUIRED.
IF THE ENCLOSED SIDES ARE ENCLOSED WITH CURTAINS THEN "K" BRACES ARE REQUIRED.
IF ALL SIDES ARE LEFT OPEN THEN "K" BRACES ARE REQUIRED.

K–BRACE SHALL BE THE SAME SIZE AS THE SUPPORT POSTS. ORDER ENOUGH POSTS FOR K–BRACING.

"Not To Scale"

TYPICAL "K" BRACE LOCATION

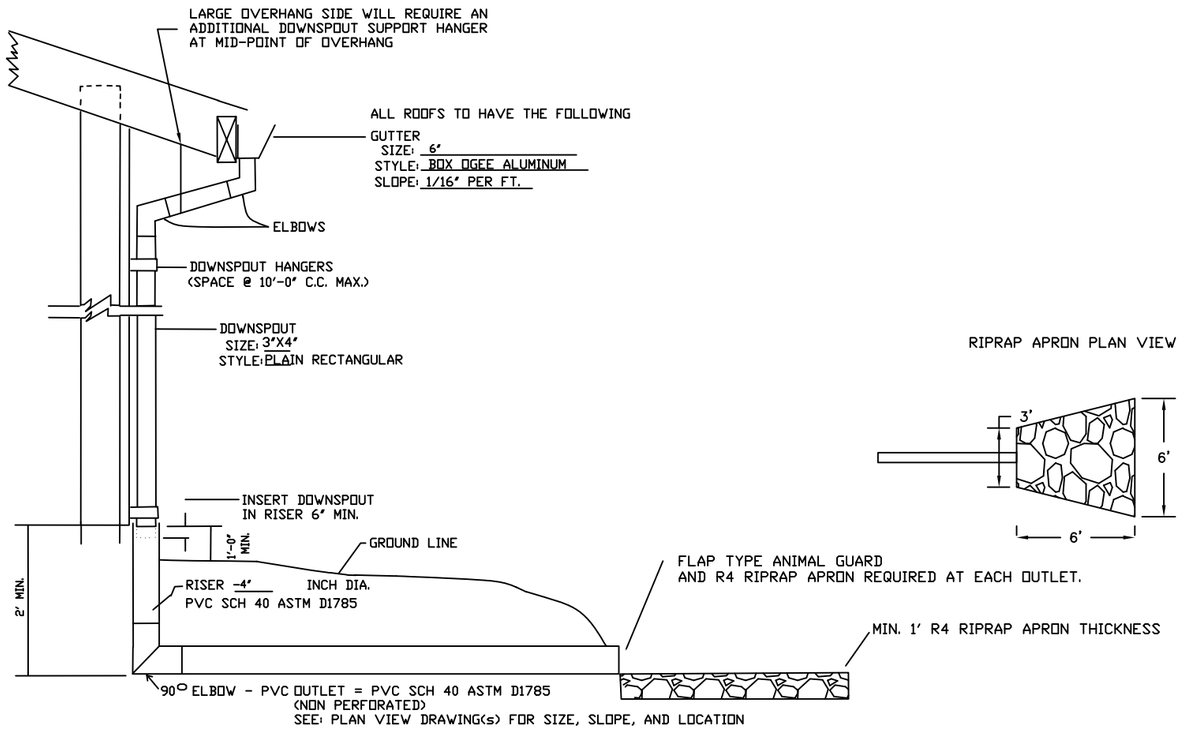


Date 7/10 1/19
Designed RGD
Drawn RGD (REVISED)
Checked
Approved by

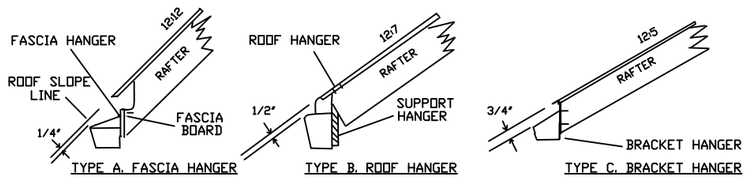
K-BRACE DETAIL

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

File No.
Drawing No.
Sheet 25 of 27



RIPRAP APRON PLAN VIEW



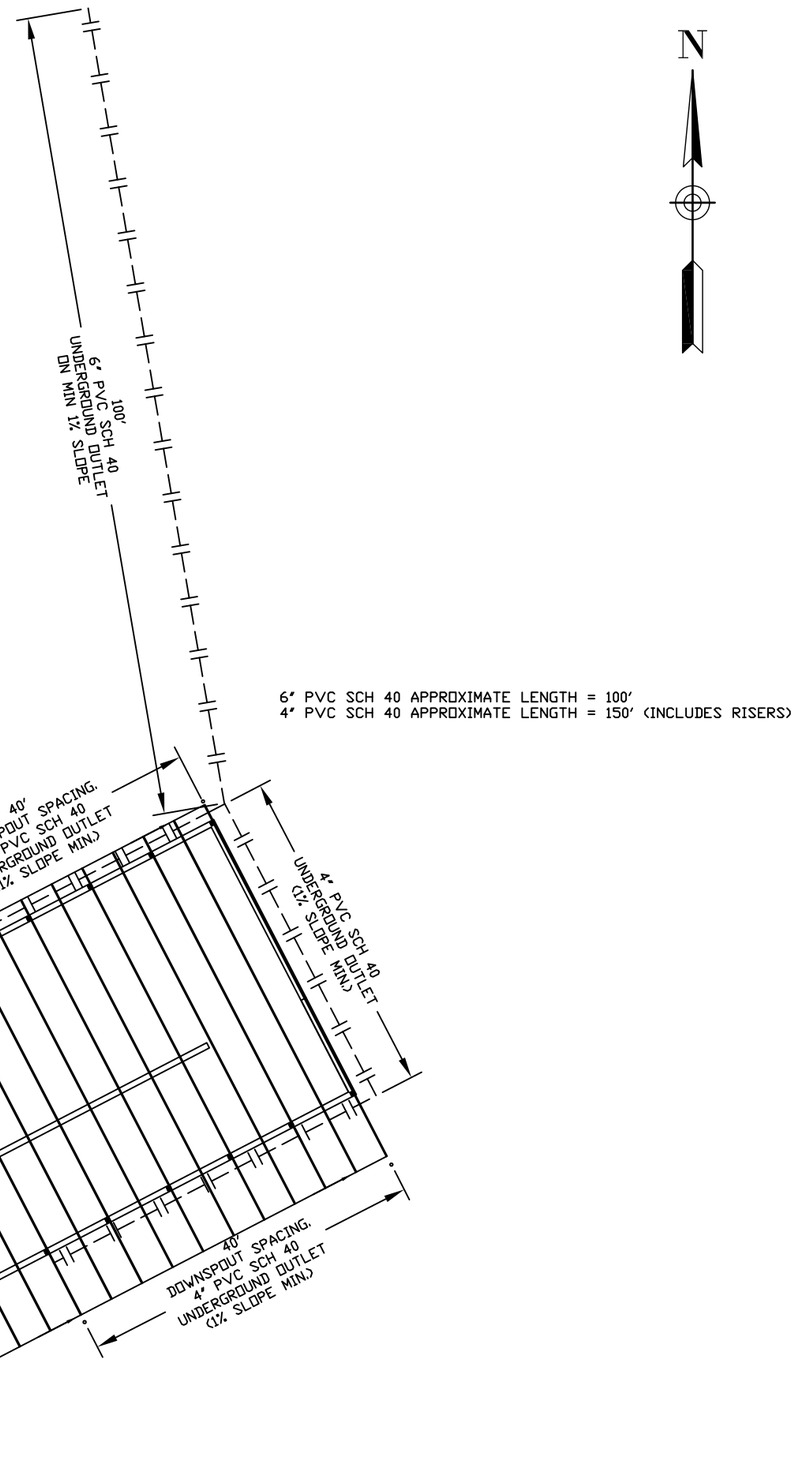
GUTTER HANGING DETAILS

(Clearances shown are guides for typical roof slopes,) (regardless of hanger type.)

NOTES

1) GUTTER HANGERS SHALL BE NAILED TO FASCIA BOARD OR ROOF SHEATHING AT RAFTER LOCATIONS.
2) EXPANSION JOINTS SHALL BE INSTALLED EVERY 40' IF NOT FREE-FLOATING.
3) GUTTERS SHALL BE PLACED BELOW ROOF SLOPE LINE SO ICE AND SNOW CAN SLIDE CLEAR. STEEPER PITCH REQUIRES LESS CLEARANCE. (SEE DETAIL)
4) GUTTERS, TRANSFER LINES, AND OUTLETS SHALL BE PLACED AT THE MINIMUM SLOPES INDICATED IN THE PLAN VIEW.
6) MAXIMUM GUTTER SUPPORT SPACING 1.5 FT.
7) MAXIMUM DOWNSPOUT SUPPORT SPACING UNDER OVERHANGS = 3 FT.

NOTE :
PERIMETER DRAIN MAY OUTLET IN SAME TRENCH AS ROOF RUNOFF OUTLETS. (2) PIPES IN ONE TRENCH. ALL PERIMETER DRAINS ARE TO BE 4" CORRUGATED PERFORATED PLASTIC DRAIN TUBING ASTM F-405 AND SHALL TRANSITION TO SOLID PVC SCH 40 ASTM D1785 ONCE BEYOND THE FOOTER. MINIMUM SLOPE ON PERIMETER DRAINS = 1%



DATE
DESIGNED
DRAWN
CHECKED
APPROVED

ROB REYAN

GUTTER AND ROOF RUNOFF DETAIL *SUSQUEHANNA COUNTY, PA*

United States Department of Agriculture
Natural Resources Conservation Service

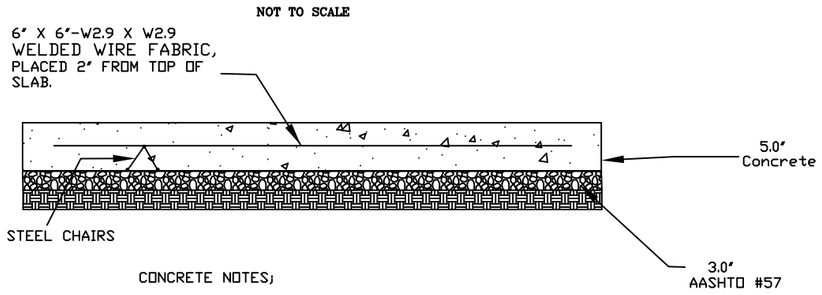
FILE NO.

DRAWING NO.

SHEET 26 OF 27

REINFORCED CONCRETE DETAIL

NOT TO SCALE

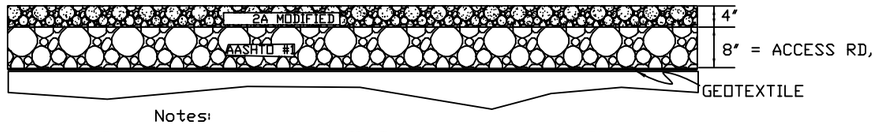


CONCRETE NOTES;

1. CONCRETE SHALL BE 4000 PSI.
2. STEEL SHALL BE GRADE 60.

Access Road / ANIMAL WALKWAY Detail

(Typical)

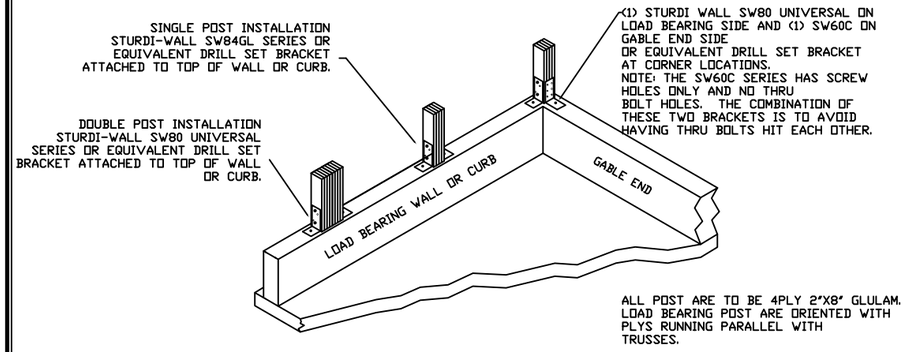


Notes:

1. Geotextile shall be Class II, Type A. Non- woven. Placement shall provide a one-foot (1') overlap between adjacent panels.
2. Stone depth shall be measured after compaction.
3. All stone shall be compacted with a smooth drum, vibratory roller.
4. Surfacing material will be 2A modified.

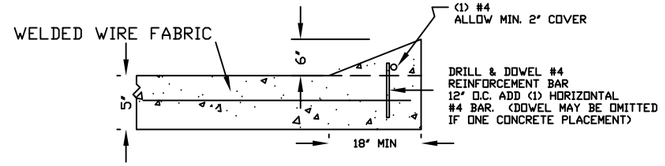
SINGLE OR DOUBLE POST ON WALL OR CURB INSTALLATION

ALL BRACKETS ARE TO BE ATTACHED TO TOP OF WALL OR CURB USING ⅝" DIA. X MIN. 4 ½" LENGTH SCREW TYPE ANCHORS. EXPANSION BOLTS ARE NOT PERMITTED.



NOTE: BRACKETS, ANCHORS, AND POSTS CAN NOT BE INSTALLED UNTIL WALL OR CURB HAS CURED FOR MINIMUM OF 7 DAYS

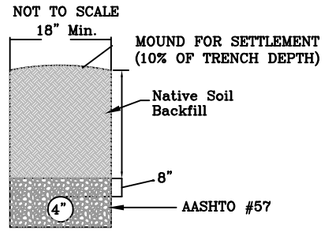
RAMP CURB DETAIL (POURED WITH SLAB)



NOTES:

1. CONCRETE TO BE 4000 PSI.
2. DESIGN ADOPTED FROM PA-038.

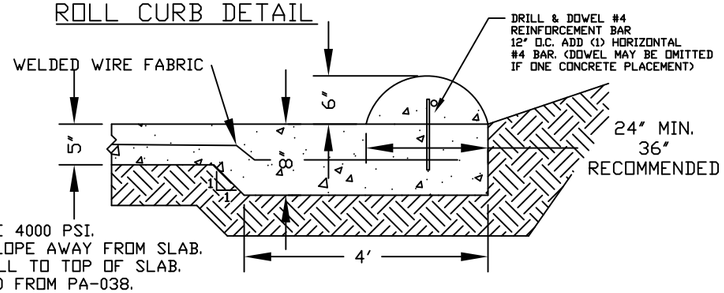
Perimeter Drain Detail



4" DIAMETER DRAINAGE TUBING WITH A 2" DEPTH OF AASHTO #57 BEDDING BENEATH PIPE.

PIPE USED FOR DRAINAGE TUBING SHALL BE PERFORATED CORRUGATED POLYETHYLENE, ASTM 405F. THE PIPE WILL OUTLET INTO SOLID SCH40 PVC ASTM D-1758 W/ MIN. OF 1% SLOPE.

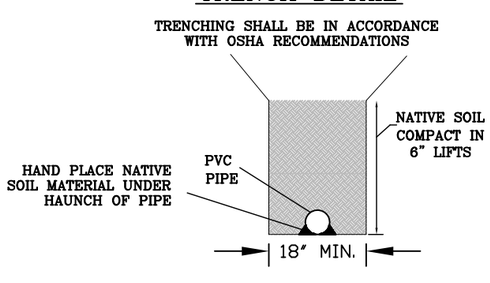
ROLL CURB DETAIL



NOTES:

1. CONCRETE TO BE 4000 PSI.
2. BACKFILL TO SLOPE AWAY FROM SLAB.
3. MINIMUM BACKFILL TO TOP OF SLAB.
4. DESIGN ADOPTED FROM PA-038.

TRENCH DETAIL



NOTES:

1. MATERIAL USED FOR INITIAL BACKFILL AND HAUNCHING SHALL HAVE A MAXIMUM SIZE OF 1.5 INCHES.
2. INSTALL PIPE TO MANUFACTURES RECOMMENDATIONS.
3. COMPACT BACKFILL WITH VIBRATORY COMPACTOR WHEN IN VEHICULAR TRAFFIC AREAS.
4. MAINTAIN A MINIMUM OF 30" OF COVER OVER TOP OF PIPE.
5. BACKFILL TRENCH DAILY AND SLIGHTLY MOUND AT SURFACE TO ALLOW FOR SETTLEMENT. SEED WITH COVER CROP ASAP. DIRECT ANY POSSIBLE SURFACE WATER AWAY FROM THE WORK AREA.

DATE

DESIGNED | DRAWN | CHECKED | APPROVED

ROB REYAN

DETAILS

SUSQUEHANNA COUNTY, PA

United States Department of Agriculture

USDA

Natural Resources Conservation Service

FILE NO.

DRAWING NO.

SHEET 27 OF 27