AGRICULTURAL WASTE MANAGEMENT SYSTEM
NATURAL RESOURCES CONSERVATION SERVICE
U. S. DEPARTMENT OF AGRICULTURE

MARTIN SMITH FARM
LUZERNE COUNTY, PENNSYLVANIA
ROOFED DRY STACK MANURE STORAGE FACILITY, EARTHEN LAGOON
DECOMMISSIONING & SUPPORTING PRACTICES

GENERAL NOTES
1. 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. Failure to construct this facility in accordance with design or authorized modifications will result in withdrawal of NRCS technical and financial assistance.
3. It is the duty of the contractor to comply with the PA Act 187 (1998) and all of its revisions before performing any excavation. The PA One Call phone number is 1-800-224-1776.
4. 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. 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. The contractor is responsible for conforming to all applicable NRCS specifications; and shall verify actual field measurements shown on the plans.

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.
5. This structure was designed for NO "enclosed" sides. Enclosing sides will negate this design and may also mean withdrawal of NRCS funding.

AS-BUILT/DESIGN INFORMATION

QUALITY ASSURANCE 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.

ENGINEER STATEMENT

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.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Description</th>
<th>As-Built Quantity (By Inspector)</th>
<th>Inspector (Initials)</th>
<th>Certification (Engineer/IAA Signature)</th>
<th>Date Certified</th>
</tr>
</thead>
<tbody>
<tr>
<td>312</td>
<td>WASTE STORAGE STRUCTURE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>360</td>
<td>WASTE FACILITY CLUSSRE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>367</td>
<td>REEF'S AND COVERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>560</td>
<td>ACCESS ROAD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>620</td>
<td>UNDERGROUND OUTLET</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>802</td>
<td>FENCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>822</td>
<td>OBSTRUCTION REMOVAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>342</td>
<td>CRITICAL AREA PLANTING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>606</td>
<td>SUBSURFACE DRAIN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INDEX OF DRAWINGS

1. Cover Sheet
2. E&S Plan
3. Construction Notes
4. Roof Design and Construction Notes
5. 2D Scale Plan View
6. 2D Scale Topo Plan View
7. Earthen Manure Storage to be Decommissioned 3D Scale Plan View
8. Earthen Manure Storage to be Decommissioned Topo 3D Scale Plan View
9. Profiles A-N & B-G
10. Post and Concrete Layout
11. Truss Layout
12. East Building Section
13. West Building Section
14. North & South Building Sections
15. Post Installation
16. 1 3/4" x 9 1/4" Fastener Requirements
17. 7" x 11 3/4" PUL Fastener Requirements
18. Truss Cross Bracing
19. Truss Cord and Diagonal Bracing
20. Additional Bracing Requirements
21. K Brace Details
22. Roof Runoff
23. 4" High, 8" T-Wall (w/o Surcharge)
24. 4" Wall Corner Details
25. Liquid Tight Slab Joints
26. Access Rill, Rail Curves, Concrete, Protected Outlet, and Perimeter Drain Details

DESIGN PA ONE-CALL
NO EXCAVATOR MAY BEGIN ANY EXCAVATION WITHOUT FIRST NOTIFYING THE ONE-CALL NOTIFICATION CENTER OF THE PROPOSED EXCAVATION AT 1-800-224-1776.
SN: 20161971769 Date: 7/15/2016
1. Prior to ANY earthmoving, install silt fence, on the contour, down hill from all proposed earth disturbance.
2. Construct a temporary diversion directly upslope from the area of disturbance. This will gently slope to the outlet and end at a place which will not cause flooding or other problems. This will be constructed prior to other earth disturbance.
4. Provide temporary or permanent seeding of all disturbed areas immediately.
5. Temporary diversions will be removed after re-establishing permanent vegetation.

SEEDING RECOMMENDATIONS

When grading is finished, apply lime and fertilizer in accordance with soil test recommendations.
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.
Lime and one-half (1/2) the amount of the fertilizer shall be incorporated 4 to 6 inches into the soil.
Work area with chisel plow or similar type equipment, making sure lime and fertilizer are worked well into the soil.
Follow with the balance of fertilizer and seed.
Seeds 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
Tall Fescue 80 lbs/acre PLS

PLUS:

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 bag. 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, these areas must be seeded with a TEMPORARY cover-seeding.

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

Annual Ryegrass 40 lbs/acre
Winter Rye 3 lbs/acre
Winter Wheat 3 lbs/acre
Spring Oats 3 lbs/acre

Seed can be applied with a drill or broadcast seeder. Band seeding is not permitted.

If broadcast, narrow 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.

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.

FILTER FABRIC FENCE

Filter Fabric Fence must be placed at level existing grade. Both ends of the barrier must be extended at least 8 feet up slope at 45 degrees to the main barrier alignment.
Sediment must be removed when accumulations reach 1/2 the above ground height of the fence.

Any section of Filter Fabric Fence which has been undermined or topped must be immediately replaced with a Rock Filter Outlet.
The inspector will provide a detail of the Rock Filter Outlet at that time.
Install filter fence down slope of construction site.

OPTIONAL STRAW BALES BARRIER (NOT TO SCALE)

STRAW BALES SHOULD NOT BE USED FOR MORE THAN 3 MONTHS

* COMPOST OR MULCH FILLED GEOTEXTILE TUBES CAN ALSO BE USED INSTEAD OF THE STRAW BALES.

2" x 2" x 36" Stokes

2" x 2" x 36" Stakes

Sediment Laden Runoff

Compacted Soil to Prevent Piping (Anchor Toe)

Filtered Runoff

Staked and Entrenched Straw Bale

Binding Wire or Twine
GENERAL CONSTRUCTION NOTES

1. All erosion and sedimentation practices shall be installed prior to beginning excavation.

2. OSHA STANDARDS shall be followed for all excavation and construction.

3. All manure-laden soil shall be striped from the work site and disposed of as directed by the NRCs inspector and landowner.

4. Topsoil shall be stripped 1’ deep to meet next lines and stockpiled to be re-distributed when the project is complete.

5. Final grading shall provide positive drainage away from all structures. Swales shall be shaped as necessary along the structure to direct storm water around the structure.

6. Excess material shall be disposed of as directed by the landowner and in approved NRCs locations.

7. The site shall be excavated until, good, stable soil is encountered.

8. The sub-grade shall be approved by the NRCs inspector.

9. Fill material shall be compacted with at least (6) passes of the compaction equipment specified in the table below. NRCs shall be shown a sample of the fill material, desired to be used, and shall approve of the material before it is used.

<table>
<thead>
<tr>
<th>Type</th>
<th>Base material (AASHTO #57)</th>
<th>Sheepsfoot roller</th>
<th>Vibratory roller</th>
<th>Backfilling within 4’ of walls</th>
<th>Backfilling beyond 4’ of walls</th>
<th>Track equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness</td>
<td>Plate Vibrator</td>
<td>6” maximum loose lifts</td>
<td>6” maximum loose lifts</td>
<td>4” maximum loose lifts</td>
<td>6” maximum loose lifts</td>
<td>6” maximum loose lifts</td>
</tr>
</tbody>
</table>

10. A uniform layer of washed 2b stone (AASHTO #57) 3” thick shall be set by the excavator where concrete is to be placed.

11. Stone depth to be measured after compaction.

12. Allow 1” overlap between adjacent panels of geotextile where applicable.

13. No backfill shall be placed earlier than 14 days after concrete placement.

CONCRETE CONSTRUCTION NOTES

1. All steel shall have a tensile yield strength of 60 ksi (grade 60). Slab reinforcement for the structure shall be 6”x6’x.w2.9x2,9 (gage 6) welded wire fabric supported on steel chairs. Support shall be sufficient to allow concrete placement without significant deflection of the reinforcement.

2. Concrete mix shall be sprayed on any rebar, waterproof, or concrete.

3. Vinyl waterstop will be used at all curb/wall and slab joints. Curing compound shall not be sprayed at locations where a waterstop is required.

4. Concrete shall not be placed until the sub-grade, forms, and steel reinforcements have been inspected and approved by the NRCs. Notification shall be given for enough in advance to provide time for inspection.

5. The contractor(s) shall provide a design mix to the NRCs to review before being placed on-sites. All test tickets shall be provided to and approved by the inspector on site and shall be reflective and consistent with the specifications and requirements of the project. All work shall be reviewed and approved by the NRCs.

6. All concrete shall have a minimum 28-day compressive strength of 4000 psi and a maximum water-cement ratio of 0.50.

7. slump shall be 3 to 6 inches (without superplasticizers, if any), the air content shall be 5-7% of the volume of the concrete. Admixtures such as superplasticizers, water-reducers and set-retarders may be used if approved by the NRCs prior to concrete placement and are used in accordance with the manufacturer’s recommendations. Superplasticizers (ASTM C494, type F or G) may be added to concrete that has a slump of 4 inches slump before the addition, and that is not warmer than 92°F. The slump shall not exceed 7 inches with the addition of superplasticizer.

8. No water in excess of the amount called for by the job design mix shall be added to the concrete. No water may be added after a superplasticizer.

9. Concrete shall not be dropped more than 5 feet vertically. Superplasticized concrete shall not be dropped more than 12 feet vertically.

10. Forms shall be placed in 2 foot layers unless superplasticizer is used, in which case the maximum layer shall be 5 feet. Each layer shall be consolidated to ensure a good bond with the preceding layer.

11. Concrete shall be consolidated by vibrating immediately after placement. Concrete shall be worked into corners and angles and around all reinforcement and embedded items in a manner that prevents segregation or the formation of "honeycombing." Excessive vibration will result in segregation of materials.

12. Curing compound shall be applied in a uniform layer over all surfaces requiring protection at a rate of not less than one gallon per 150 square feet of surface. Curing compound shall be reapplied if disturbed within 3 hours after being applied.

13. Concrete shall be allowed to cure at least 24 hours prior to beginning forms or reinforcement placement for adjacent construction.

14. 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.

15. "Dry-set" brackets for attaching the posts to the walls are specified in this design. "Dry-set" brackets can not be anchored to the top of the concrete walls unless the concrete has been allowed to cure for at least 7 days.

16. The landowner has the option of having grooves floated into the stacking structure floor for added traction. This decision will be conveyed to the contractor(s) during price solicitation.

17. 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, not to exceed 30’ in any direction. All joints shall be water tight and as shown on the detail drawings. The saw-cuts shall be thoroughly cleaned so the sealant can bond to the concrete. Some sealants require that a primer be used before the sealant is installed.

18. All wall ties, honeycombing, and air holes 3/4” shall be parged with non-shrink grout.

19. Random cracking in the walls and floor shall be evaluated and determined if the concrete needs removed or repaired. Removal and repair shall be the responsibility of the contractor at no increase in cost. The contractor shall consult with the building design engineer to decide on a remedy.
1. Trusses shall be used for this roof. Shop drawings shall be provided to the NEC 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) NEC does not design roof trusses.
   - Make the truss designer aware of knee bracing being used
   - Make the truss designer aware trusses shall be designed for partially enclosed bldg.
   - Make the truss designer aware the bearing area is 12.5" (post with girders) North location.
   - Make the truss designer aware the bearing area is 8.75" (post with girders) South location.

2. All nails used for structural connections shall be ring, spiral, or screw shank hardened nails Full head size 16d or larger.

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 preservation treatment method. i.e. CGA 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 connection.
   (Consult with individual fastener, hardware manufacturer for recommendations)

CAUTION: New wood preservation treatment methods require special fasteners and connectors. All plates and fasteners used with ACQ, CBA or CA treatment formulas must conform to ASTM A353 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 masonry shall be pressure treated as per American Wood Preserver's Association Standard (posts shall be treated to 0.6% cuft. and all other wood shall be treated to 0.4% cuft.)

7. All structural members which includes: All knee and knee bracing, bearing blocks, truss support blocks, and girders/headers (excluding microlam girders/headers) shall be Southern Yellow Pine or Douglas Fir-

8. All posts are to be fully pressure treated.
   Posts shall be 4x4, 3" x 6", and 4x4, 2" x 8" GLU-LAM
   HAVING THE FOLLOWING MIN. PROPERTIES:
   Bending Fb = 2300 psi
   Shear Fv = 1250 psi
   E = 17,000,000 psi

9. Galvanized angle iron (3/4" 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. Girders and Headers:
    (Girders are to be (2) 1 3/4" x 9 1/4" 20.0 EYVL'5' attached to each side of post having the following min. properties:
        Bending Fb = 2900 psi
        Moment = 6271 ft-lbs
        Shear Fv = 345 lbs (300psf)
        E = 2,000,000 psi
    Headers are to be 7' 11" 7/8" 2.0E PSL
    having the following min. properties:
        Bending Fb = 2900 psi
        Moment = 39,920 ft-lbs
        Shear Fv = 16,670 lbs (120psf)
        E = 2,000,000 psi

11. 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.

12. 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.

13. 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 TBC-83 and the detailed drawing.

14. Roof fasteners shall be a combination of zinc coated steel and neoprene washer.
    Double stitch the seams of the roof edges. Typical aluminum roof shall have fasteners on a 9" spacing on the purlins 24" on center. Aluminum roofing shall have nominal thickness of 0.081 inches and coated steel of a 29 gauge minimum on better. Resolute panels may also be used as the roofing material. Fasteners for the Resolute panels shall be as recommended by the manufacturer.

15. End trusses shall be faced with 3/4" structural plywood, corrugated 29 gauge galvanized steel roofing, an equivalent or better. Resolute panels may also be used.
    The grade of Resolute panels shall be approved by the design engineer before ordering.

16. Ventilation shall be provide by an overhang style ridge.
    Ventilation shall be provide to offer at least 3' of opening per 10' of building width.

17. Earth backfill around posts shall be placed in compacted 8" lifts.

18. Put 1/8" thick expansion joint material or 2 layers of felt paper between the post/permacolon and flaps.

19. The roof area was designed to carry a combined loading of 40 psf.
    "GLUE + LIVE LOAD" on the entire roof surface and a uniform uplift of 14 1/4 psf under the entire roof.
    "LIVE LOAD" is the ground snow load after reduction factors have been applied + wind load.
    This roof is designed for no enclosed sides. Sides shall remain "open", major structural changes may be needed if any of "open" sides are enclosed. Trusses shall be design for partial enclosure. Consult with the design engineer if curtains or other means of slidding is being considered.
PERIODICALLY WATER FLOWS THROUGH THIS AREA OF THE ACCESS ROAD. EXCAVATE 12" AND INSTALL ACCESS ROAD MATERIAL ACCORDING TO DETAIL SHEET. FINAL GRADE SHALL MIMIC THE ORIGINAL SITE CONDITIONS / ELEVATIONS ALLOWING WATER TO PASS OVER THE ACCESS ROAD AND INTO THE EXISTING DRAINAGE WAY.

EXISTING TREE LINE

60' WIDTH X 49' 5 3/8' LENGTH ROOFED MANURE STORAGE. NOTE: TRUSS LENGTH = 64'

FORM A SWALE UP SLOPE OF THE STRUCTURE TO DIVERT UP SLOPE RUN OFF AWAY FROM STRUCTURE.

NOTE:
BENCHMARK NOT SHOWN ON PLAN VIEW. BENCHMARK IS LOCATED TO THE NORTH EAST ON TOP OF AN EXISTING WELL CASING NEAR THE EXISTING DAIRY BARN WHICH IS DUE NORTH OF THE EARTHEN MANURE STORAGE. BENCHMARK ELEVATION = 934.96'

ALL EXISTING CONCRETE IS TO BE REMOVED AND USED AS FILL IN THE EARTHEN LAGOON THAT IS BE DECOMMISSIONED.
PERIODICALLY WATER FLOWS THROUGH THIS AREA OF THE ACCESS ROAD. EXCAVATE 12" AND INSTALL ACCESS ROAD MATERIAL ACCORDING TO DETAIL SHEET. FINAL GRADE SHALL MIMIC THE ORIGINAL SITE CONDITIONS / ELEVATIONS ALLOWING WATER TO PASS OVER THE ACCESS ROAD AND INTO THE EXISTING DRAINAGE WAY.

EXISTING TREE LINE

60' WIDTH X 49' 5 3/8' LENGTH ROOFED MANURE STORAGE. NOTE: TRUSS LENGTH = 64'

FORM A SWALE UP SLOPE OF THE STRUCTURE TO DIVERT UP SLOPE RUN OFF AWAY FROM STRUCTURE.

BENCHMARK NOT SHOWN ON PLAN VIEW. BENCHMARK IS LOCATED TO THE NORTH EAST ON TOP OF AN EXISTING WELL CASING NEAR THE EXISTING DAIRY BARN WHICH IS DUE NORTH OF THE EARTHEN MANURE STORAGE. BENCHMARK ELEVATION = 934.96'

ALL EXISTING CONCRETE IS TO BE REMOVED AND USED AS FILL IN THE EARTHEN LAGOON THAT IS BE DECOMMISSIONED.
EXISTING 4FT DIAMETER PRECAST MANHOLE RISERS WITH LIDS. ACCORDING TO THE OWNER THE STRUCTURES SHALL BE EXCAVATED TO AN EXTENT THAT ALLOWS FOR LIDS AND ONE 4FT RISER SECTION TO BE REMOVED. ONE STRUCTURE SHALL THEN BE FULLY BACKFILLED TO EXISTING GRADE. THE OTHER SHALL HAVE IT'S LID REINSTALLED AND BROUGHT TO GRADE WITH FILM. REMOVED CONCRETE SHALL BE FRACURED AND BURIED IN THE EARTHEN MANURE STORAGE THAT IS TO BE DECOMMISSIONED OR DISPOSED OF ACCORDING TO OWNER. FINAL GRADE SHALL BE DETERMINED BY THE OWNER.

EXISTING EARTHEN MANURE STORAGE SAFETY FENCE TO BE REMOVED AND DISPOSED OF ACCORDING TO OWNER.

EXISTING EARTHEN MANURE STORAGE WITH CONCRETE RAMP AND BASE TO BE DECOMMISSIONED. ALL CONCRETE SHALL BE FRACURED SUFFICIENT ENOUGH (MAX. 6FT X 6FT PIECE) SO THAT GROUND WATER DOES NOT POND ON TOP OF THE CONCRETE AND SHALL BE LEFT IN PLACE AND BURIED. CONCRETE REMOVED FROM THE EXISTING MANURE STACKING STRUCTURE WILL ALSO BE BURIED IN THE LAGOON. THE LAGOON EMBANKMENTS WILL BE USED FOR THE REMAINING FILM MATERIAL. EXISTING EMBANKMENTS ARE EXPECTED TO PROVIDE ENOUGH FILM MATERIAL TO COMPLETELY FILL THE LAGOON BACK TO A FINAL GRADE THAT CLOSELY MIMICS THE ORIGINAL SITE CONDITIONS AND OWNER PREFERENCES. COMPACT MATERIAL IN 6" LIFTS WITH EXCAVATION EQUIPMENT (3 PASS). STRIP AND SAVE TOPSOIL TO BE USED AS SURFACE MATERIAL. ONCE FINAL GRADE IS ACHIEVED THE AREA SHALL BE SEEDED AS FOLLOWS:

NURSE CROP (REQUIRED WITH EVERY PERMANENT SEED APPLICATION):
- DATS 64 LBS/ACRE PLG
- WHEAT 90 LBS/ACRE PLG
- ANNUAL RYE 40 LBS/ACRE

PERMANENT STABILIZATION:
- PERENNIAL RYE 40 LBS/ACRE
- PLUS TALL FESCUE 80 LBS/ACRE

APPROXIMATE ACRES OF SEEDING = 1.0
EXISTING 4FT DIAMETER PRECAST MANHOLE RISERS WITH LIDS. ACCORDING TO THE OWNER THE STRUCTURES SHALL BE EXCAVATED TO AN EXTENT THAT ALLOWS FOR LIDS AND ONE 4FT RISER SECTION TO BE REMOVED. ONE STRUCTURE SHALL THEN BE FULLY BACKFILLED TO EXISTING GRADE. THE OTHER SHALL HAVE ITS LID REINSTALLED AND BROUGHT TO GRADE WITH FILL. REMOVED CONCRETE SHALL BE FRACURED AND BURIED IN THE EXISTING MANURE STORAGE THAT IS TO BE RECOMMISIONED OR DISPOSED OF ACCORDING TO OWNER. FINAL GRADE SHALL BE DETERMINED BY THE OWNER.

EXISTING EARTHEN MANURE STORAGE SAFETY FENCE TO BE REMOVED AND DISPOSED OF ACCORDING TO OWNER.

EXISTING EARTHEN MANURE STORAGE WITH CONCRETE RAMP AND BASE TO BE RECOMMISIONED. ALL CONCRETE SHALL BE FRACURED SUFFICIENT ENOUGH (MAX. 3FT X 3FT PIECE) SO THAT GROUND WATER DOES NOT FLOOD ON TOP OF THE CONCRETE AND SHALL BE LEFT IN PLACE AND BURIED. CONCRETE REMOVED FROM THE EXISTING MANURE STACKING STRUCTURE WILL ALSO BE BURIED IN THE LAGOON. THE LAGOON EMBANKMENTS WILL BE USED FOR THE REMAINING FILL MATERIAL. EXISTING EMBANKMENTS ARE EXPECTED TO PROVIDE ENOUGH FILL MATERIAL TO COMPLETELY FILL THE LAGOON BACK TO A FINAL GRADE THAT CLOSELY MIMICS THE ORIGINAL SITE CONDITIONS AND OWNER PREFERENCE. COMPACT MATERIAL IN 6" LIFTS WITH EXCAVATION EQUIPMENT (3 PASSED). STRIP AND SAVE TOPSOIL TO BE USED AS SURFACE MATERIAL. ONCE FINAL GRADE IS ACHIEVED THE AREA SHALL BE SEEDED AS FOLLOWS:

NURSE CROP (REQUIRED WITH EVERY PERMANENT SEED APPLICATION):

DATS 64 LBS/ACRE PLS
WHEAT 90 LBS/ACRE PLS
ANNUAL RYE 40 LBS/ACRE

PERMANENT STABILIZATION:
PERENNIAL RYE 40 LBS/ACRE
PLUS
TALL FESCUE 80 LBS/ACRE
APPROXIMATE ACRES OF SEEDING = 1.0

30 SCALE
WALL EXTENDED 6' BEYOND POST; FLOOR JOINT LINES UP WITH END OF 4' WALL

6' ROLL CURB REQUIRED AT OPENING

POST FLUSH WITH INSIDE OF WALL, THESE POST ARE IN GROUND
ON PC840GL PERMA COLUMNS

CONCRETE FLOOR TO BE Poured FLUSH WITH EXISTING CONCRETE FLOOR SLAB.
Bentonite strip required between existing floor slab and new concrete.

WALL AND FLOOR JOINT LOCATION LINE, FLOOR JOINT UP WITH END OF T-WALL OR ORTHO SITE OF PAGE AS SHOWN

ALL POST ARE 4 PLY 2" X 8" GLULAM ATTACHED TO TOP OF 4" X 8" T-WALLS USING STURDI WALL SW84GL SERIES BRACKETS UNLESS OTHERWISE NOTED
ALL POST ARE 4 PLY 2" X 8" GLULAM

WEST SECTION VIEW

OVER SHOT ROOF VENTILATION TO PROVIDE 3" OPENING PER 10" OF BUILDING WIDTH

2" X 4" PURULINS INSTALL (2) 16d NAILS AT EACH TRUSS SEE ROOF CONSTRUCTION NOTES FOR SPACING

APPROVED TRUSS @ 4' CC SEE ROOF CONSTRUCTION NOTES

CORRUGATED 29 GAGE GALVANIZED STEEL ROOFING EQUIVALENT, OR BETTER.

1 3/4" x 9 1/4" 2DE LVL GIRDER SUPPORTED BY BEARING BLOCKS

CONTINUOUS LATERAL BRACING AS PER TRUSS MANUFACTURER

59' 11" OUTSIDE POST 60' OUTSIDE CONCRETE WALLS

SEE WYE AND KNEE BRACE DETAIL SHEET

PCB400GL PERMA COLUMN

SEE POST INSTALLATION SHEET FOR DETAILS

3" AASHTO #57 UNDER ALL FOOTERS AND FLOOR SLAB WALL AND FLOOR JOINT LOCATION

FINISHED FLOOR ELEVATION = 930.5'

WALL JOINT LOCATION 4' FROM CORNER

4' CORRUGATED PERFORATED DRAIN TUBING ALONG 4' WALL

NO SCALE
POST ON WALL INSTALLATION

NOTE: DRILL SET BRACKETS CANNOT BE ATTACHED TO WALL UNTIL WALLS HAVE CURED FOR A MINIMUM OF (7) DAYS. WET SET BRACKETS ARE NOT PERMITTED FOR USE.

STURDi-WALL SW84GL DRILL SET OR EQUIVALENT BRACKET SHALL BE USED FOR 4PLY 2" X 8" GLULAM POSTS ATTACHED TO 4" WALLS

AN EXTERIOR GRADE FILLER BOARD MAY BE REQUIRED BETWEEN THE POST AND THE BRACKET. FOLLOW MANUFACTURES RECOMMENDATION FOR FILLER BOARD INSTALLATION (GLUE AND NAILS MAY BE REQUIRED).

5/8" EPOXY OR SCREW TYPE ANCHORS RECOMMENDED FOR DRY SET INSTALLATION. EXPANSION TYPE ANCHORS ARE NOT PERMITTED.

END WALL POST INSTALLATION. WALL SHALL BE EXTENDED MINIMUM OF 6" TO ALLOW FOR INSTALLATION OF STRUDI-WALL SW84GL OR SW84GL BRACKET OR EQUIVALENT.

EMBEDDED POST DOUBLE POST INSTALLATION

PLY'S TO FACE THE OUTSIDE OF THE BLDG. (PLY'S RUN PARALLEL WITH THE TRUSSES)

FASTENERS INSTALLED AS PER PERMACOLUMN RECOMMENDATIONS

WALL NOT SHOWN FOR BRAVING CLARITY

FINISHED FLOOR

X 1/2" (4#) REBAR THRU PRECAST HOLE IN PERMACOLUMN

NO SCALE
FASTENER REQUIREMENTS AT GIRDER & POST CONNECTIONS

1.75” X 9.25” 2.0E LVL GIRDERS

STAGGER BUTT JOINTS; NO POST SHALL HAVE A GIRDER BUTT JOINT ON BOTH SIDES

ALL POWER DRIVEN NAILS SHALL BE .131” DIAMETER X 3.5” LONG. SMALLER NAILS ARE NOT ALLOWED TO BE USED. HAND DRIVEN NAILS CAN BE SUBSTITUTED IN THIS SIZE POWER DRIVEN NAIL CAN NOT BE INSTALLED.

POSITION BOLTS IN THE CENTER OF THE BEARING BLOCK

TRUSS CONNECTION BETWEEN POSTS
7" X 11 7/8" 2.0E
FASTENER REQUIREMENTS

SIMPSON H 14 HURRICANE TIE
ALL LOCATIONS

SIMPSON ECC 7 1/8 X 7 1/8
COLUMN CAP Rot. 90deg
ALL LOCATIONS

15' 1 1/4"
16'

1/2" BOLTS EVERY 2'
6" MIN.

4 PLY 2" X 8' GLULAM
POST ALL LOCATIONS

SEE LVL FASTENER REQUIREMENTS SHEET

11 7/8" PSL

11 7/8" PSL

K BRACE

15' 1 1/4"
16'

1/2" BOLTS EVERY 2'
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

- 2X4X12 BLOCK UNDER OUTSIDE BRACE

- AT JOINT LOCATION, INSTALL LATERAL BRACE TO EXTEND PART WAY INTO TRUSS WEB MEMBER TO ENABLE A (3) NAIL CONNECTION TO THE WEB MEMBER

- THE INSIDE CROSS BRACE SHALL CONNECT (3) OR (4) TRUSSES.
- THE OUTSIDE CROSS BRACE SHALL CONNECT (3) TRUSSES MINIMUM. ONLY (2) SHOWN HERE FOR DRAWING CLARITY.
- 0-16d NAILS # EACH MEMBER/BLOCK

NOTE: THIS BRACE LOCATION IS SHOWN ON THE TRUSS DESIGN.

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

- 2X4X12 BLOCK UNDER OUTSIDE BRACE

- AT JOINT LOCATION, INSTALL LATERAL BRACE TO EXTEND PART WAY INTO TRUSS WEB MEMBER TO ENABLE A (3) NAIL CONNECTION TO THE WEB MEMBER

- THE CROSS BRACE SHALL CONNECT AT LEAST (3) TRUSSES.
- 0-16d NAILS # EACH MEMBER/BLOCK

NOTE: THIS BRACE LOCATION IS SHOWN ON THE TRUSS DESIGN.

CROSS BRACING IS REQUIRED ON TRUSS WEBS THAT DO NOT HAVE A CONTINUOUS LATERAL BRACE, AT LOCATIONS SHOWN IN THE DRAWINGS.

OPTION #4}

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

- CROSS BRACING ON BOTH SIDES OF TRUSS WEB AT LOCATIONS SHOWN WHERE THERE IS NOT A LATERAL BRACE (PEN ROP) LOCATED IN A TRUSS WEB MEMBER, SPECIFIED BY THE BUILDING DESIGN ENGINEER.
- THE CROSS BRACE SHALL CONNECT AT LEAST (3) TRUSSES.
- 0-16d NAILS # EACH MEMBER/BLOCK
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)
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"
"K" BRACING DETAIL
(DIAGONAL BRACE FOR POSTS ON TOP OF CONCRETE WALL)

Option 1
2" wide x 1/4" thick x 24" long strap coated steel plate (Each side)
1/8" thru bolts

Option 2
2" x 6" nailed slab plate
16d Power-Driven Nails Can be used.
Number of nails shall be determined by the design engineer.

Option 3
5/8" thru bolt
Notch for bolt

Pressure treated post as per roof designer requires

NOTES:
1. "K" bracing 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.
4. K brace same size as support post.

TYPICAL "K" BRACE LOCATION

"Not To Scale"
**OVERLAP FOOTER STEEL WITH FLOOR STEEL MINIMUM 1 FOOT**

**STEEL SCHEDULE**

<table>
<thead>
<tr>
<th>MARK</th>
<th>SIZE</th>
<th>QUAN</th>
<th>TYPE</th>
<th>R</th>
<th>S</th>
<th>LENGTH</th>
<th>TOTAL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
<td>STR</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>3'-6&quot;</td>
<td>3'-6&quot;</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
<td>STR</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+C</td>
<td>4</td>
<td>2</td>
<td>7'-0&quot;</td>
<td>9&quot;</td>
<td>2'-9&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+D</td>
<td>4</td>
<td>STR</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>3'-9&quot;</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>4</td>
<td>2</td>
<td>7'-0&quot;</td>
<td>9&quot;</td>
<td>2'-9&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1</td>
<td>4</td>
<td>STR</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>3'-9&quot;</td>
<td></td>
</tr>
</tbody>
</table>

* #4 BARS, TOTAL LENGTH

**NOTES:**
1. FOR FROST PROTECTION, A 2-FOOT BACKFILL IS RECOMMENDED.
2. DIMENSIONS ARE TO THE REINFORCING BAR SURFACE.

**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 psi/ft.

**DESIGN STRENGTHS:** WORKING STRESS DESIGN
- CONCRETE: $f_c = 4,000$ psi
- STEEL: $f_y = 60,000$ 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 psi/ft.
- SOIL BACKFILL LOAD OUTSIDE = 60 psi/ft. AND 85 psi/ft.
- NO HORIZONTAL SURCHARGE ADDED.
- SOIL BACKFILL DENSITY = 110pcf.
- WATER TABLE MUST BE BELOW THE FOOTING ELEVATION.
- CONCRETE SHALL MEET PA 313 OR 561 SPECIFICATION REQUIREMENTS.
- MINIMUM SPlice LENGTH FOR ALL #4 BARS IS 16".

**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.
WALL ELEVATION
SHOWING CORNER DETAIL

NOTES:
1. TIE LONG LEG OF MARK ① CORNER BAR TO WALL SECTION T & S MARK ③ BAR AS SHOWN.
2. SHORT LEG OF MARK ③ BARS SHALL BE SUPPORTED WITH VERTICAL WALL SUPPORT BAR ①.
3. 10 MARK ① 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)
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.

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.

CONSTRUCTION CONTROL

LIQUID TIGHT WALL JOINTS
PLAN VIEW
(NOT TO SCALE)

** Joint Former or chanfer 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 chanfer strip is used. Cut and/or joint former or chanfer shall be on both sides of wall and across the top.
**REINFORCED CONCRETE DETAIL**

6" x 6" - W2.9 x W2.9
WELDED WIRE FABRIC, PLACED 2" FROM TOP OF SLAB.

NOT TO SCALE

Concrete

STEEL CHAIRS CONCRETE NOTES:
1. CONCRETE SHALL BE 4000 PSI.
2. STEEL SHALL BE GRADE 60.

**Access Road Detail**
(Typical)

<table>
<thead>
<tr>
<th>2A MODIFIED</th>
</tr>
</thead>
<tbody>
<tr>
<td>AASHTO RL</td>
</tr>
</tbody>
</table>

Notes:
1. Geotextile shall be Class IV, 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.

**Perimeter Drain Detail**

NOT TO SCALE

16" Min. Mound for settlement (10% of trench depth)

Native Soil

Backfill

AASHTO #57

4" Diameter Drainage Tubing
Semi-Circular bedding groove with depth = 1/3 pipe diameter.

Note:
1) Pipe used for drainage tubing shall be perforated corrugated polyethylene, ASTM 405. The pipe will outlet into solid sch40 PVC ASTM D-1785 w/ min. of 1% slope.
2) Bedding groove may be substituted with a 2" depth of AASHTO #57 beneath the pipe.

**OUTLET DETAIL**

Stone Headwall

Cut

Fill

6" PVC SCH 40
ASTM D-1785 Outlet Pipe

R3 RIPRAP

Flap Gate
Animal Guard
Required at Outlet