Navy Dairy Farm Field 1C
410 GRADE STABILIZATION STRUCTURE
378 EXCAVATED POND
Anne Arundel Soil Conservation District

SITE DETAILS:

- 82,764 sq ft
- 1.9 ac

PROJECT MEETS NRCS STANDARDS AND SPECIFICATIONS

OWNER/CONTRACTOR STATEMENT

I CERTIFY THAT THIS DESIGN HAS BEEN DRAWN AND APPROVED BY THE NRCS NATIONAL ENGINEER, AND THAT ALL CONSTRUCTION WILL BE UNDER THE RESPONSIBILITY OF THE OWNER/CONTRACTOR.

INSPECTION OF THIS OFFICE.

THE MARYLAND DEPARTMENT OF ENVIRONMENT. THE CONTRACTOR IS RESPONSIBLE FOR THIS CONTRACT DISTRICT.

IN ACCORDANCE WITH THE COOPERATIVE AGREEMENT AND ALL DRAWINGS, SPECIFICATIONS AND QUANTITIES ESTIMATES SHALL BE IMMEDIATELY RETURNED TO THE LOCAL NRCS OFFICE.

MDESIGN CHANGES WITHOUT NRCS CONCORCE.

NOTIFICATION PRIOR TO COMMENCING CONSTRUCTION.

THE CONSOLIDATED STATEWIDE CONSERVATION DISTRICTS OF THE STATE OF MARYLAND, including the Anne Arundel Soil Conservation District, at least 72 hours prior to the start of construction to schedule a pre-construction meeting between the contractor, the funding agency, the owner and the Anne Arundel Soil Conservation District.

PROCEDURES TO BE FOLLOWED

1. It is the owner’s responsibility to obtain all state, county and local permits that may be required.

SAFETY REGULATIONS

6. All erosion control measures must be in place prior to beginning construction.

INSTRUCTIONS TO TECHNICIAN

8. The following is a list of all items that must be checked and verified by the AASCD technician:

- Pre-construction meeting
- Erosion control measures
- Obstruction removal
- Spill placement
- Layout survey
- Job site safety plan
- Control section elevation
- Rock chute X-Sections & Details, Hay Bale Dike Detail
- Cellular Confinement System, Fencing Details
- Post-construction Site Stabilization & Seeding Plans

FINISHED PROJECT

The Soil Conservation District makes no representation as to the workmanship or performance of any contractor and the contractor is responsible for the workmanship and performance of the work. The contractor is responsible for compliance with all related regulations.

MAYBE REQUIRED.

SAFETY REGULATIONS

All excavations and methods of construction shall be in accordance with the Maryland OSHA and Maryland MSHA standards as set forth in the latest version of the code of Maryland regulations.

NOTE: Excluding the pipe in the pond area, all pipes and drain tile encountered during excavation of the project area must be replaced/repaired in order to continue proper functioning.
Proposed Pond Bottom El. 46.0

Auger Refusal due to Existing Ground

Soil Pit
Sandstone of unknown thickness

CURRENT EDGE CROP
SM Loamy Sand

SOIL PIT
82"
Sandstone

PROPOSED SILT FENCE, ~135'

NOTE:
PROPOSED LIMITS OF DISTURBANCE, ~ 1.9 ac

PROPOSED CELLULAR CONFINEMENT SYSTEM ROCK CROSSING, ~ 0.22 ac

ML  Silt Loam

ML  Silt Loam

0" 0" 0"

NOTE:
PROPOSED FENCE, ~217' x 2 = ~434'

NOTE:
PROPOSED CLASS II RIP RAP ROCK CHUTE, 0.07 ac

NOTE:
2.5' Deep bed filled with 2" angular stone

NOTE:
Infiltration Pit A
Exh. 46.90

7.21% Rock Chute Slope

LEVEL SECTION OUTLET X-SECTION: LSO-LSO'

POND X-SECTION OUTLET: C-C'

Proposed Pond Maximum El. 49.0

Proposed Pond Maximum & &

Excavated Pond Design Data

- Drainage Area: 233 A
- Pond Max Length: -242 ft
- Pond Max Width: -52 ft
- Pond Max Design Depth: 3' 11"
- Area @ El 48: ~0.2 Ac
- Volume @ El 49: 0.2 Ac FT
- SS @ F. Assisted & Above Blowout
- SS Min: 3' 1" Below Blowout

LEGEND

EXISTING TOPO (1 FT INTERVALS)
PROPOSED TOPO
EXISTING FENCE, ~185' 1/2 ~ 1860'
PROPOSED FENCE, ~217 '1/2 ~ 243'
PROPOSED CLASS II RIP RAP ROCK CHUTE, 0.07 ac
MAXIMUM PROPOSED POOL AREA, 0.23 ac.
PROPOSED BUFFER, ~0.5 ac
PROPOSED CELLULAR CONFINEMENT SYSTEM ROCK CROSSING, ~ 0.22 ac
PROPOSED LIMITS OF DISTURBANCE, ~ 1.9 ac
PROPOSED EROSION CONTROL MATTING, ~6000 sq ft

NOTE:
Band and shape cellular confinement system and rock chute to accept drainage from side grounded waterway. C10 & C14.
Ensure rock chute entry meets same slope as cellular confinement for transition before changes change slope. 15 min. (avoid change in slope at same location as a change in surface materials).

NOTE:
Consider setting rip rap to armor upper end of excavated pond to ensure slope integrity and stability. Maintain design slope of 7:1.

NOTE: SANDSTONE OF VARYING DEPTH & INDURATION OCCURS AT VARYING DEPTHS AS SEEN IN SOIL LOGS.
ROCK CHUTE DESIGN

Bottom Width: 28'
Top Width: 28'
Side Slopes: 2:1
Class II Rip Rap Depth: 2.5'
Depth: 2'
Grade: 0.072'
Length: 10'
Slope: 2:1
Overall Chute Length: 90'
Exit Point: Minimum Length: 10'
Slope: 0%

SEDIMENT CONTROL

Sediment control practices shall be installed prior to construction so as to prevent sediment from leaving the site as a result of the disturbance of soil from the construction of the pond.

Spoil from the excavation of the pond shall be placed in such a way as to have a minimum impact on the surrounding environment. No spoil shall be placed in wetlands. During the construction, sediment control measures such as silt fences or silt sheets shall be installed before the spoil area. Once construction has ceased, the spoil shall be stabilized within 7 days. Stabilization may be accomplished by seeding or mulching.

EARTH FILL

Areas on which fill will be placed shall be scarped prior to placement of fill. Fill material shall be placed in maximum 8 inch thick layers (before compaction) which are to be continuous over the entire length of the fill.

The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by at least four complete passes of a sheepfoot, rubber tire, or vibratory roller.

The most permeable borrow material shall be placed in the downstream portions of the constructed landscape.

Stepped topsoil shall be used to top off all fill areas to allow vegetative stabilization of the constructed landscape.

Allow 10% for settlement in constructed landscape to meet design elevations.

EXCAVATED PONDS

SIDE SLOPES

Side slopes of excavated ponds shall be such that they will be stable and shall be no steeper than 1 horizontal to 1 vertical. Flatter slopes are to be utilized where safety for children, livestock watering, etc. is a design factor.

PERMEABILITY FORM

When the structure is used for recreation or is located in high public view, the perimeter or edge should be shaped to another with the smaller rocks and spalls filling the voids between the larger rocks. Some hand placing may be required to provide a neat and uniform surface.

The rock riprap shall be delivered and placed in a manner that ensures the riprap in place is reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks and spalls filling the voids between the larger rocks. Some hand placing may be required to provide a neat and uniform surface.

INLET PROTECTION

The subgrade surface on which the rock riprap and bedding stone shall be placed until the foundation preparation is completed and the subgrade surface has been inspected and approved.

OUTLET PROTECTION

An excavated pond shall be designated to ensure a stable outfall for the 10-year, 24-hour frequency storm.

PLACEMENT OF EXCAVATED MATERIAL

The material excavated from the pond shall be placed in one of the following ways so as to let weight will not endanger the stability of the pond side slopes and where it will not be washed back into the pond by rain:

1. Used for fill as per proposed design.
2. Stored temporarily at the agreed upon "Composting Site" and, if unused at the time of project completion, hauled away to an appropriate site, off farm.
STANDARD CELLULAR CONFINEMENT SECTION DIMENSIONS

Required:
60 Sections Laid as per Plan

TYPICAL SECTION

STAPLED END CONNECTION DETAILS

GW20V

TYPICAL FABRICATED STAKE DETAILS

NOTE: May use fabricated stakes or ATRA Anchor

MARYLAND STANDARDS FOR AGRICULTURAL BMPS DETAIL

NOTE: May use fabricated stakes or ATRA Anchor

STAPLED END CONNECTION DETAILS

HIGH TENSILE SMOOTH WIRE FENCE - ELECTRIC (6 STRANDS OR MORE)

SPACING FOR BRACE ASSEMBLIES

1. Use single span brace assemblies for runs of fence that are less than 700 feet between corner, end, and/or gate posts.

2. Use double span brace assemblies for runs of fence that are 700 to 1300 feet between corner, end, and/or gate posts.

3. Use line braces to divide fence lengths where runs of fence are more than 1300 feet long.

4. On uneven terrain, locate line braces at the top and bottom of each hill.

FILTER CLOTH SPECIFICATIONS

To be placed under cellular confinement system

Risk not to scale. Standardized drawing must be adapted to the specific site.

STAPLED END CONNECTION DETAILS

HIGH TENSILE SMOOTH WIRE FENCE - ELECTRIC (6 STRANDS OR MORE)

SPACING FOR BRACE ASSEMBLIES

1. Use single span brace assemblies for runs of fence that are less than 700 feet between corner, end, and/or gate posts.

2. Use double span brace assemblies for runs of fence that are 700 to 1300 feet between corner, end, and/or gate posts.

3. Use line braces to divide fence lengths where runs of fence are more than 1300 feet long.

4. On uneven terrain, locate line braces at the top and bottom of each hill.

FILTER CLOTH SPECIFICATIONS

To be placed under cellular confinement system

Risk not to scale. Standardized drawing must be adapted to the specific site.
**VEGETATIVE STABILIZATION**

An alternate method of erosion control is temporarily stabilized with surface mulch or straw.

1) **SEED PREPARATION**

Apply soil amendments as per soil test or as included in the plans. Mix soil amendments into the top 3" of soil by disk or other suitable means. The area should be rolled to smooth the surface, remove large objects like stones and branches and ready the area for seed application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be treated by a slower leaving the soil in an irregular condition with-edges running parallel to the contour of the slope. The top 3" of soil should be loose and friable. Seedbed tilling may not be necessary on newly-disturbed land.

2) **SEEDING METHODS**

A. **DRIED SEEDS**

This includes the use of conventional drop or broadcast spreaders. Seed spread dry should be incorporated into the subsoil as the rate prescribed on the plan. If the seed is applied to a deep mulch, the seed shall be rolled with a weighted roller to provide good seed to soil contact. Where practical, seed should be applied in two directions perpendicular to each other. Apply the seed rate in each situation.

B. **DRILL OR CULTIPACKER**

Cultipacker seeders are required to bury the seed in such a manner as to provide at least 1" of soil covering. The seed must be firm after planting.

Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seed rate in each direction.

3) **MULCHING**

Mulch shall be applied to all seeded areas immediately after seeding. Mulch shall be spread over all seeded areas at a rate of 2 tons per acre. Mulch shall be spread over all seeded areas at a rate of 2-3 tons per acre. Mulch shall be spread over all seeded areas at a rate of 2-3 tons per acre. The includes the use of conventional drop or broadcast spreaders. Mulch shall be applied to a loose depth of 1" to 2".

When straw mulch is used, it shall be spread over all seeded areas at a rate of 2-3 tons per acre. Mulch shall be applied to a loose depth of 1" to 2". Mulch applied shall achieve a uniform distribution depth so that the soil surface is not exposed. When using commercial erosion control nettings, installation shall be by the manufacturer or installation instructions.

4) **MAINTENANCE**

If the stand of vegetation is inadequate for erosion control, overseed and fertilize using half the rates originally applied. If the stand is over 60% damaged, reestablish following the original rates and procedures.

**NOTE:**
Due to soil variables and fluctuating water levels both surface and subsurface, the Anne Arundel Soil Conservation District makes no guarantee to the ability of this structure to maintain water levels at maximum design elevations throughout the year.

**SEEDING DATES**

- 2/15 - 4/30
- 8/15 - 11/30

**LANDOWNER**

<table>
<thead>
<tr>
<th>TOTAL AREA</th>
<th>AREA 1</th>
<th>AREA 2</th>
<th>AREA 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.9 ac</td>
<td>1.4 ac</td>
<td>0.5 ac</td>
<td>0.0 ac</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>RATE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDF</td>
<td>1.4</td>
<td>410</td>
</tr>
<tr>
<td>CELLS</td>
<td>1.9</td>
<td>708</td>
</tr>
<tr>
<td>AMENDMENTS</td>
<td>500LBS/AC</td>
<td>2.8 TONS/AC</td>
</tr>
</tbody>
</table>