

Description	Temporary sediment barriers, consisting of biofilter bags, reduce the transport of sediment from a construction site by providing a temporary physical barrier to sediment and reducing runoff velocities. The barriers can be placed in various combinations to construct the required structure. They may also be used as a barrier to divert or direct small amounts of runoff around active work areas or to a slope drain, sediment trap or other filtration/sedimentation BMP. Biofilter bags (plastic mesh bags filled with wood chips) are temporary measures. They have a limited life span and should be regularly inspected and replaced when damaged.								
Applications	<p>The barriers are effective at storm drain inlets, across minor swales and ditches, as diversion dikes and berms, along property lines, and for other applications where the need for a barrier is temporary and structural strength is not required. These are several example applications:</p> <ul style="list-style-type: none"> <li>▪ At the toe of embankment slopes</li> <li>▪ At the outlet of slope drains</li> <li>▪ As filter cores for log check dams</li> <li>▪ In front of silt fences</li> <li>▪ To protect inlets along paved streets</li> </ul>								
Limitations	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Drainage area – N/A</td> <td style="width: 50%;">Maximum slope – 10%</td> </tr> <tr> <td>Minimum bedrock depth - N/A</td> <td>Minimum water table – N/A</td> </tr> <tr> <td>NRCS soil type - ABCD</td> <td>Freeze/thaw – fair</td> </tr> <tr> <td>Drainage/flood control – no</td> <td></td> </tr> </table> <ul style="list-style-type: none"> <li>▪ These types of barriers are only suitable where flow rates are low (475 gal/min or less). They require regular inspections and repair, and periodic replacement (about 3 months maximum usefulness).</li> <li>▪ Even when properly installed, temporary barriers are not usually as effective as silt fences (BMP 36) or gravel berms (BMP 43).</li> </ul>	Drainage area – N/A	Maximum slope – 10%	Minimum bedrock depth - N/A	Minimum water table – N/A	NRCS soil type - ABCD	Freeze/thaw – fair	Drainage/flood control – no	
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Targeted Pollutants	Sediment								
Design Parameters	<ul style="list-style-type: none"> <li>▪ Where slope gradient changes through the drainage area, steepness refers to the steepest slope section contributing to the barrier.</li> <li>▪ The practice may also be used for a single-family lot if the slope is less than 15%. The contributing drainage area in this instance should be less than 1 ac. and the length of slope above the dike should be less than 200 ft.</li> <li>▪ Concentrated flows no greater than 475 gal/min per second.</li> <li>▪ The useful life is 3 months maximum, depending on site conditions.</li> <li>▪ An undisturbed buffer zone of 3 to 6.5 ft is necessary between the barriers and surface waters to allow safe removal of the barrier and of accumulated sediments.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>▪ The barrier should be embedded to a minimum depth of 6 in. and</li> </ul>								

backfilled for the entire length of the barrier. Each bag should be securely anchored with two stakes 2 in. x 2 in. x 3 ft or steel drift pins driven at least 20 in. into the ground.

**Construction Guidelines**

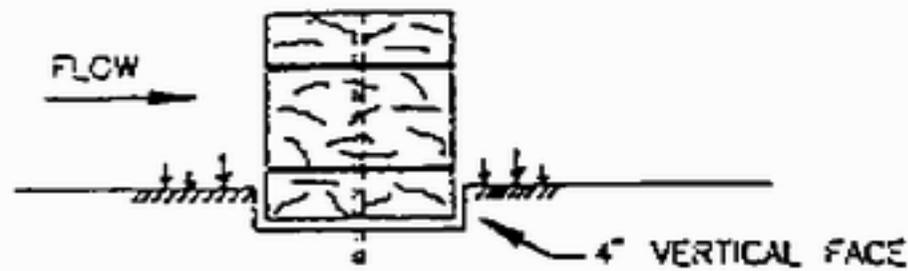
- Barriers used for sediment control at the toe of slopes should be in place prior to disturbing the slope. Install a short distance away from the toe of the slope to increase the effective area but outside of any ditch channel.
- Place the barriers in a single row lengthwise on the contour for sheet flow applications, or perpendicular to the contour in concentrated flow applications. When flows are expected to be high enough to surpass the infiltration capacity of the devices, the center (low point) bales should be wrapped in filter fabric with a 3 ft tail stapled securely and extending from the down gradient side of the barrier to prevent scouring. The ends of the adjacent barriers should tightly abut one another.
- Any gaps between barriers should be filled with tightly wedged straw. For concentrated flow applications, extend the end of the barrier so that the bottoms of the end units are at a higher elevation than the top of the lowest middle unit to assure that sediment-laden water flows through or over the barrier instead of around the ends.

**Maintenance**

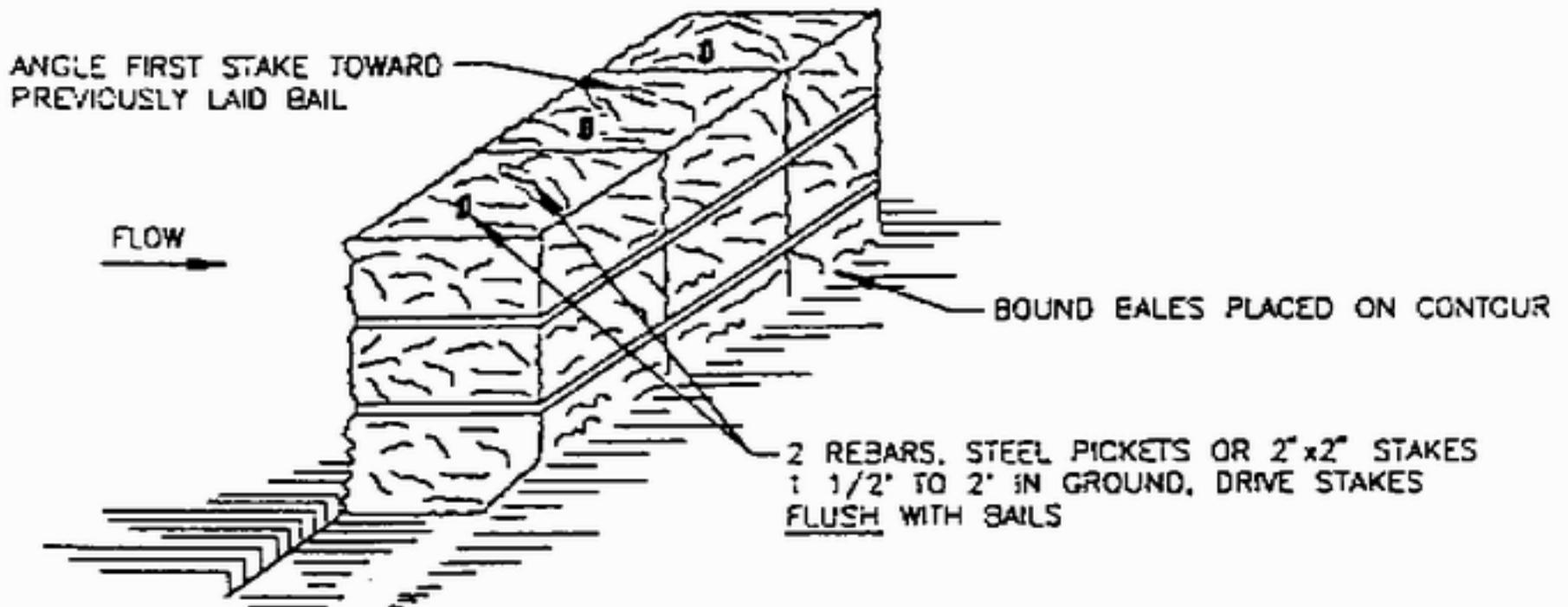
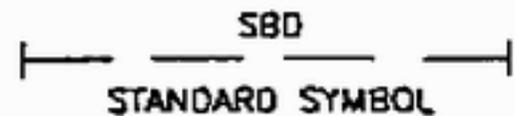
- Perform one inspection during the first runoff-producing event after the installation of the barriers to assure proper functioning. No more than 1 ft depth of sediment should be allowed to accumulate. Damaged barriers, undercutting, or end runs should be repaired immediately.
- If approved, biofilter bags may be used after project completion as mulch.
- Temporary sediment barriers should be removed within 30 days of final stabilization of the site. If rebar is used it should be removed.

Table 34-1. Design Parameters

Constructed Slope	Percent Slope	Slope Length Feet
2:1	50	25
2.5:1	40	50
3:1	33	75
3.5:1	30	100
4:1	25	125



BEDDING DETAIL



ANCHORING DETAIL

CONSTRUCTION SPECIFICATIONS

- 1 BALES SHALL BE PLACED AT THE TOE OF A SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
- 2 EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4 INCHES AND PLACED SO THE BINDINGS ARE HORIZONTAL.
- 3 BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
- 4 INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- 5 BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULLNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

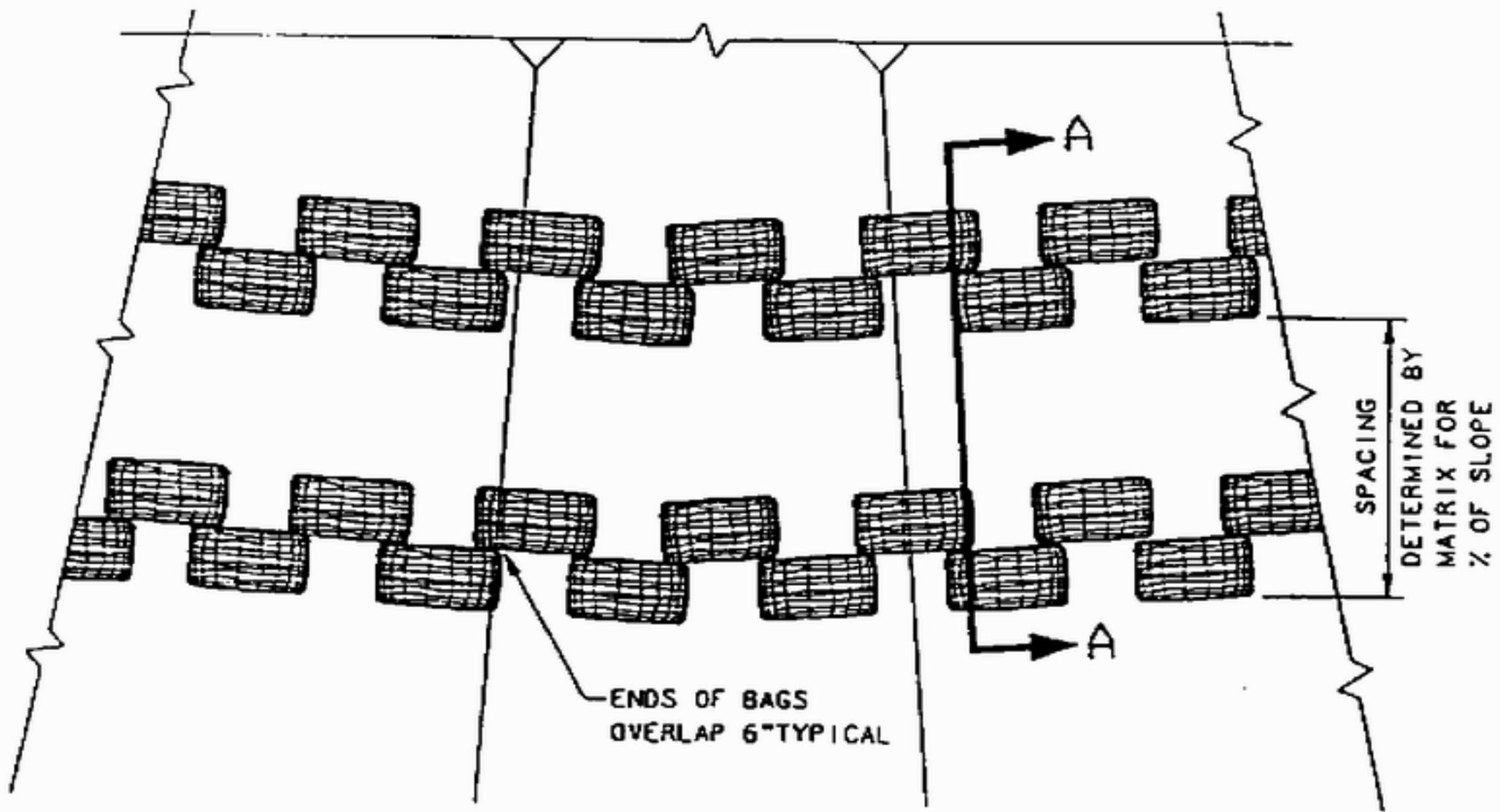
U.S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

WOTHMAN-ORTON ENGINEERING COMPANY  
BOISE, IDAHO      McCALL, IDAHO

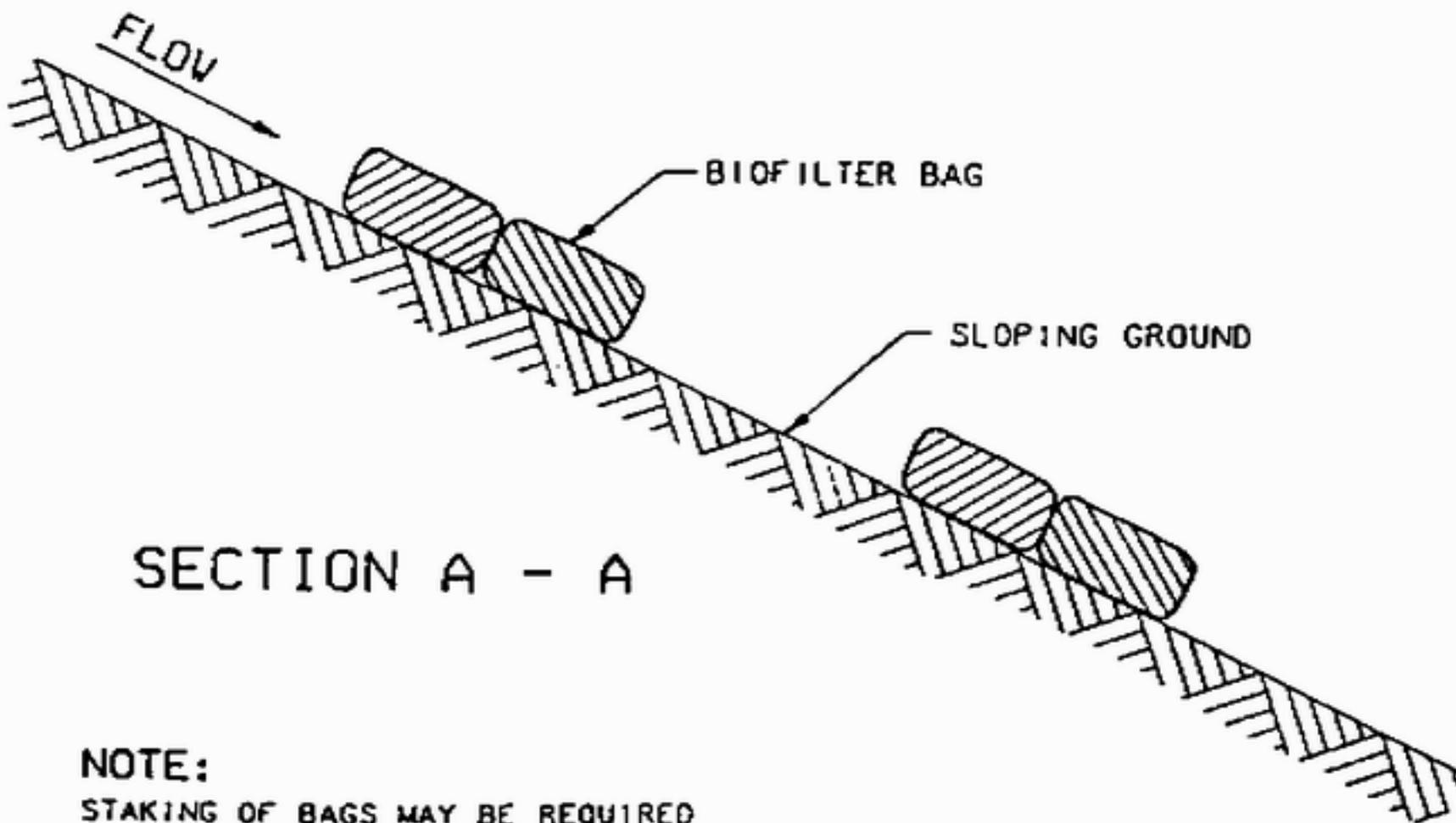
STRAW BALE DIKE

STANDARD  
DRAWING

SBD-1



PLAN VIEW



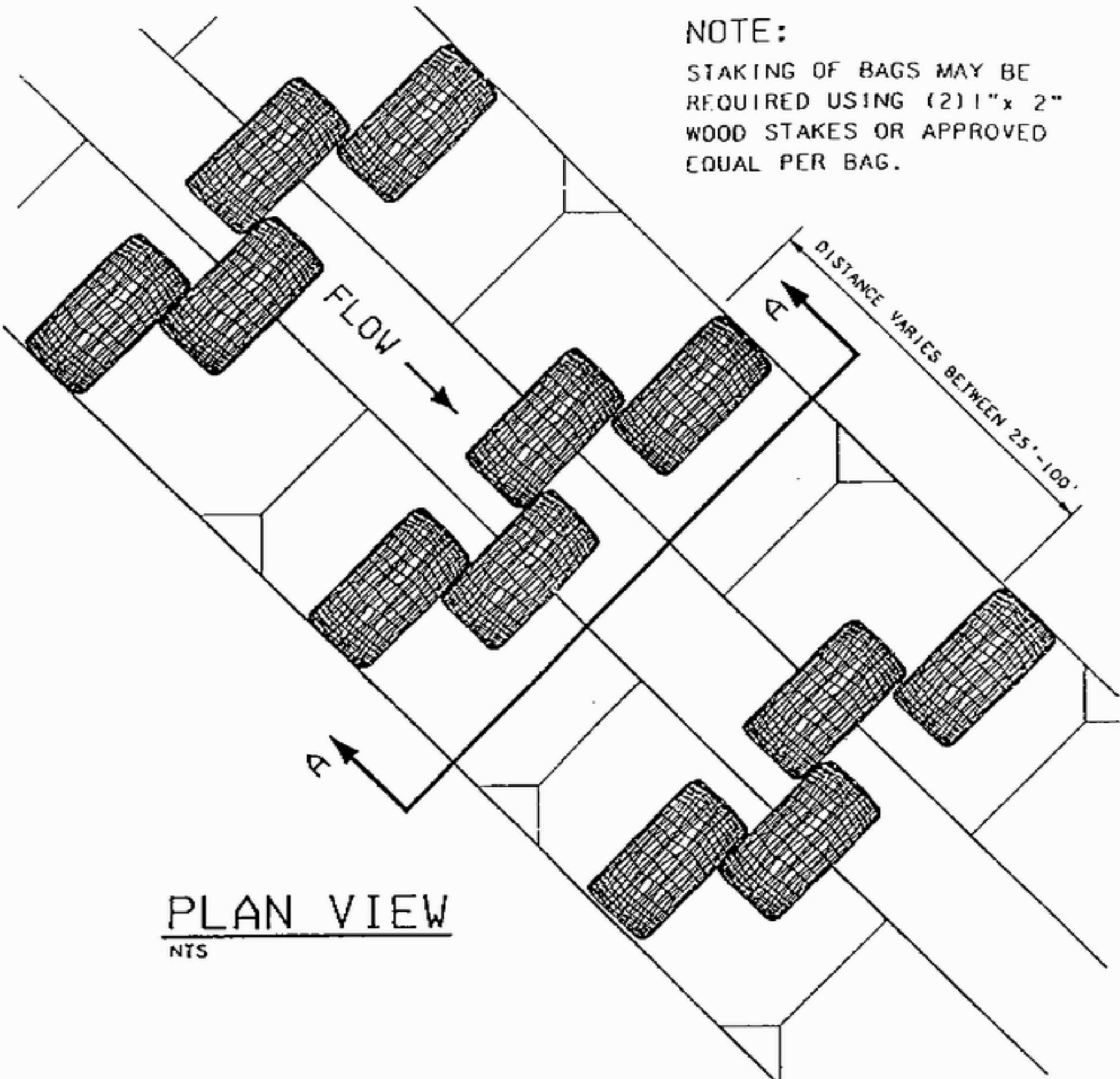
SECTION A - A

**NOTE:**

STAKING OF BAGS MAY BE REQUIRED WITH EITHER METHOD. USING (2) 1" x 2" WOOD STAKES OR APPROVED EQUAL PER BAG.

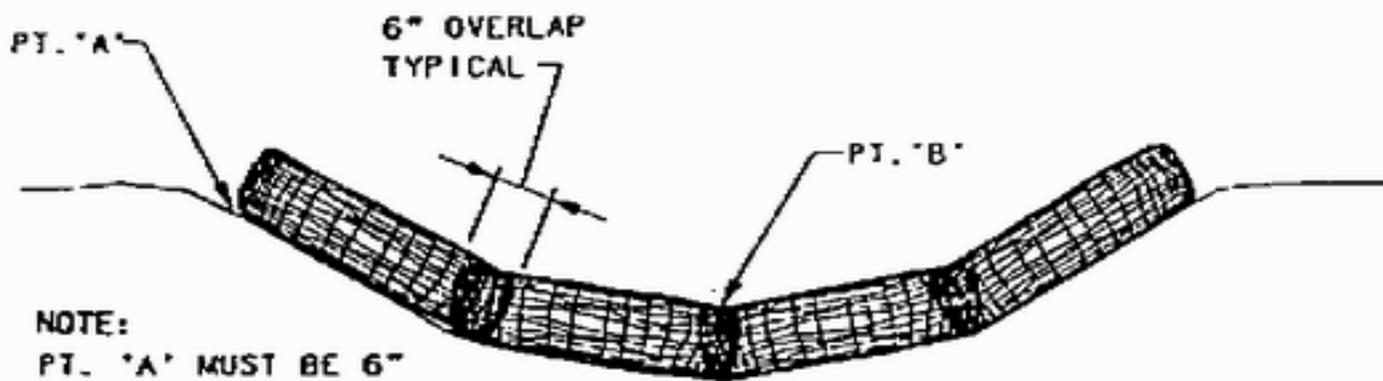
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**PLAN VIEW**

NTS



**NOTE:**

PT. 'A' MUST BE 6" MIN. HIGHER THAN PT. 'B'

**SECTION A-A**

NTS