

STEPS FOR DIAPHRAGM INSTALLATION:

1. After the pipe foundation has been cut to grade, excavate trenches 2' deep and 2' wide forming the bottom part of the diaphragm and all of the diaphragm outlet drain. Trenches may be over-excavated up to a maximum width of 3', but payment for drainfill shall be based on the neat lines as shown on sheet 1 of 2.
2. Backfill the trenches with fine drainfill dumped in place. Drainfill placement methods shall be such that they do not result in contamination of the drainfill with deleterious products.
3. Place moist backfill soil over the top of the outlet drain trench and compact to a minimum of 16" above and 2' beyond the sides of the trench. Backfill is to form a continuous layer of compacted soil covering the trench and protecting the fine drainfill from contamination by the water packing mud slurry or other deleterious products. See Step 8 for treatment of outlet end of the drain.
4. Install the principal spillway pipe so that it contacts the drainfill in the bottom part of the diaphragm as shown on Sheet 1 of 2. Cut plywood (or similar product as approved by the Engineer) into strips of sufficient size to cover the exposed drainfill on each side of the pipe. Position the plywood tightly against the sides of the pipe covering the drainfill. Backfill according to Step 3. (In lieu of using plywood, the Contractor may opt to cover the diaphragm with backfill soil and then excavate the upper portion of the diaphragm down to the sand surface and waste some of the drainfill to accomplish a clean sand surface suitable for joining to the upper part of the diaphragm.)
5. Complete the installation of the principal spillway pipe by water packing and backfill to a minimum of 3' above the top of the pipe at the diaphragm location.
6. Excavate the top portion of the diaphragm trench down to the plywood covers. Remove the plywood from the trench and clean the drainfill surface of all significant contaminating material such as clods of dirt or other deleterious products.
7. Backfill the top of the diaphragm trench with fine drainfill dumped in place. Saturate the exposed drainfill with potable water until free water begins to show on the surface. After saturating the diaphragm sand it should settle several inches. Add enough fine drainfill to fill the trench up to the required top grade and cover immediately according to Step 3.
8. Where the outlet drain trench exits on the downstream slope of the dam, the fine drainfill shall be covered with a 7 to 8 ounce, non-woven geotextile. Coverage shall extend a minimum of 3' beyond the exposed edges of the drainfill.
9. Rock riprap shall be placed over the geotextile to a minimum thickness of 18" and to the lateral extent as shown on Sheet 1 of 2. Placement of rock shall be accomplished by equipment capable of controlling the drop. The maximum drop is 1-2 feet. Rock shall not be pushed or rolled over the geotextile.

TRENCH SAFETY:

1. All trench work shall comply with the Occupational Safety and Health Administration (OSHA) regulations.
2. Any trench over four (4) feet deep shall have a means of egress from the trench by a ladder, ramp or other means of egress; and
3. Any trench over five (5) feet deep shall be protected from cave-ins by a sloping, benching or shoring protective system. Benches must be constructed so the overall slope meets the slope required by OSHA regulations.

SAND DIAPHRAGM INSTALLATION

Designed	_____	Date	_____
Drawn	_____		_____
Checked	_____		_____
Approved	_____		_____

DRAFT
NOT FOR
CONSTRUCTION



File Name _____
 Drawing Name
29-N-121