STANDARD JOINT SPACING

TRANSVERSE CONSTRUCTION JOINT
NOTE: TO BE USED ONLY WHERE SPECIFIED & AT END OF DAYS POUR

DUMMY TYPE CONTRACTION JOINT

NOTE: SEE STANDARD SHEET P-1 FOR DETAILS OF DOWELLED LONGITUDINAL CONSTRUCTION JOINT & OPTINAL DOWELLED LONGITUDINAL SAW CUT JOINT. SAW CUT JOINT USE OR SAW CUT JOINT MUST BE APPROVED BY DIRECTOR BASED ON MAINTENANCE OF THE SLAB.
### General Classification

#### Granular Materials (35% or less passing a No. 200 sieve)

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<th>A-3</th>
<th>A-4</th>
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#### Sieve Analysis

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#### Group Index

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### Structural Boring Data

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### Method of Placing Boring Data on Plan and Profile Sheets

- **Offset Left or Right to Scale**
- **Scale of String 3 to be used on Plan**
  - "Y" or Vertical Scale - 1"=5'-0"
  - "O" or Horizontal Scale - 1"=10' on R=50'-0" Scale

#### Scale of Survey

**Survey Datum**

**Placement on Plan Sheet**

**Rocks Classification**

- 443
- 444
- 445
**TEMPORARY DIVERSION DIKE (DRAINAGE AREAS LESS THAN 5 ACRES)**

A ridge of compacted soil with a general life expectancy of one year or less, constructed immediately above a cut or fill slope, shall intercept and divert all high drainage water directly away from exposed slopes to a stabilized outlet. Used to prevent excessive erosion until the permanent storm drainage features are installed and the slopes are stabilized.

**SECTION A-A**

1. All dikes shall be machine compacted.
2. The slope formed by the upper toe of the dike must have positive drainage (minimum of 0.15% grade) to the outlet. This design does not apply when the grade of the slope is greater than 10%.  
3. Where the slope of the cut or fill is less than 2%, stabilization may not be required, but should be added if periodic inspection reveals developing drainage problems. Where the slope is 2% to 5%, the channel (flow area) shall be stabilized using Section 725, "Erosion Control".  
4. Runoff diverted from a protected or stabilized area shall outlet directly to an undisturbed stabilized area, into a levee, or to an erosion stabilization structure. Runoff diversions from a stabilized area shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin, or to an area that is protected by any of these practices.
5. Diversion dikes must be constructed with Section 725, "Erosion Control", Section 723, "Temporary Erosion Control", and Section 722, "Chemical Erosion Control", as applicable immediately after construction.
6. Periodic inspection and required maintenance shall be provided.

**TEMPORARY INTERCEPTOR DIKE (DRAINAGE AREAS LESS THAN 5 ACRES)**

A ridge of compacted soil, to remain for a period of usually less than one year, constructed across disturbed areas of high runoff and adjacent similar slopes. Used to temporarily stabilize the length of exposed slopes thereby reducing the potential for erosion by intercepting the storm runoff and diverting it to stabilized outlets until permanent stabilization of the slopes is established.

**SECTION B-B**

1. All dikes shall be machine compacted.
2. The interceptor dikes must have positive drainage to an outlet. The grade of the dike, formed at the upper toe of the dike, shall be from 0.5% to 1.0%.
3. The top width may be wider and side slopes may be flatter if desired to facilitate construction by contractors.  
4. Runoff coming in at the toe of the dike shall be intercepted using Section 725, "Erosion Control", and Section 723, "Chemical Erosion Control", or "Stone Stabilization".  
5. The spacing of the interceptor dikes along the graded slope shall be as follows:
   - Maximum slope of area above dike: 10% to 20%  15% (distance between interceptor dike 100 ft, 300 ft, 500 ft)
   - Field location may be adjusted as needed in order to stabilize a stabilized area.
6. Interceptor dikes must have an outlet that functions with a minimum of erosion. Runoff shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin, or to an area that is protected by any of these practices.
7. Diversion dikes must be constructed with Section 725, "Erosion Control", Section 723, "Temporary Erosion Control", and Section 722, "Chemical Erosion Control", as applicable immediately after construction.
8. Periodic inspection and required maintenance shall be provided.

**TEMPORARY PERIMETER DIKE (DRAINAGE AREAS LESS THAN 5 ACRES)**

A ridge of compacted soil, life expectancy of one year or less, constructed at the perimeter of the disturbed or subsurface area that is used to divert sediment laden runoff onto an erodible material to slow down runoff and allow sediment to settle out. A stabilized upland area away from the construction area. These dikes shall remain in place until the construction site is permanently stabilized.

**SECTION C-C**

1. All dikes shall be machine compacted.
2. The design of the swale forms a terrace from the toe or crest of the dike. The toe shall be at least 6" above the land surface.
3. When the slope of the swale is less than 5%, stabilization may not be required, however, it should be added where periodic inspection reveals developing drainage problems. When the slope is 5% or greater, stabilization shall be required. See Note 8 for Temporary Perimeter Dike for details.  
4. Runoff directed from a protected or stabilized area shall outlet directly to an undisturbed stabilized area, into a levee, or to a stabilized structure. Runoff directed from a disturbed or exposed upland area shall be conveyed to a sediment trapping device such as a sediment basin, sediment trap, or gravel outlet structure.
5. The outlet of the swale shall be located far enough away from the disturbed area to permit machine grading and cleanup.
6. Section 725, Erosion Control, Section 723, or Section 722 shall be applied immediately after construction to protect the dike from erosion.
7. Periodic inspection and required maintenance shall be provided.

**TEMPORARY STRAIN (or HAY) BALE DIKE**

(DRAINAGE AREAS LESS THAN 5 ACRES)

A barrier consisting of hay, straw, or other textiles, to retain soil on the top of a slope or to control soil erosion on the top of a slope. They may be used for any application where soil erosion control is needed to prevent soil erosion.  

**ANCHORING DETAIL**

1. Bales shall be placed in a row with ends tightly abutting the adjacent bales.  
2. Each bale shall be embedded in the soil a minimum of 4 ft.  
3. Bales shall not be secured with ties or stakes.  
4. Inspection shall be frequent and repair or replacement shall be made promptly as needed.
5. Bales shall be removed when they have served their usefulness in order to prevent the blocking or impeding of storm flow or drainage.
TEMPORARY INTERCEPTOR SWALE

A temporary excavated drainageway located along the periphery of the site or disturbed areas, that is used to prevent runoff of storm water from entering the construction site or disturbed areas. The swale shall remain in place until the disturbed areas are permanently stabilized.

SECTION D-1 DRAINAGE AREAS LESS THAN 5 ACRES

PLAN VIEW

SECTION E-F

STONE OUTLET STRUCTURE

A temporary crushed stone dike installed in conjunction with and as a part of a diversion dike, interceptor swale, or perimeter swale. It is used to provide a protected outlet for the dike. They apply to any point of discharge constructions on roadways or perimeter swales in order to facilitate concentrated flow for the duration of the period of construction. Stone outlet structures also allow the area behind the dikes to drain.

NOTES:

1. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of on a set to interfere with the proper functioning of the swale.
2. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of on a set to interfere with the proper functioning of the swale.
3. The width of all swales shall be at least 4 feet in width.
4. Runoff diverted from a protected or stabilized upslope area shall outlet directly to an undisturbed stabilized area, into a level spreader, or into a graded stabilization structure. Runoff diverted from a drained or protected upslope area shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin.
5. When it is deemed necessary by the periodic inspections, the flow area of the swale shall be stabilized using "Stone Stabilization" which consists of a three-inch-thick layer of stone (Delaware Standard Gradation Size N# 100) that is poured into the soil. The soil is then watered and the area is stabilized.
6. All points where several or more vehicles crossing per day will be made, the side slopes may be made to allow construction traffic to cross.
7. The entire swale area in the vicinity of the crossing shall be stabilized using "Stone Stabilization" consisting of stone that meets Delaware Standard Gradation Size N# 100, that is placed in two separate layers each three inches thick. Each layer is compacted into the soil after placement.
8. Periodic inspection and required maintenance shall be provided.

SECTION F-1 LEVEL SPREADER

A swale which is constructed at zero percent grade across the slope where concentrations run off may be discharges at non-critical velocities only an undisturbed area that is stabilized by grassy vegetation. This is to con- tract a concentrated flow of sediment-free storm runoff into sheet flow and to outlet it into areas that are stabilized by existing vegetation in a manner that does not cause erosion. Should be used only under those situa- tions where the spreader can be constructed on undisturbed soil, where the area directly below the spreader is stabilized by existing vegetation and where the water will not be concentrated immediately below the point of discharge.

NOTES:

1. Level spreaders shall be constructed under the direct supervision of the Engineer.
2. Construct level spreader on zero percent grade to ensure uniform spreading of sediment-free runoff (conveying channel flow to sheet flow).
3. Level spreader shall be constructed on undisturbed soil (not on fill).
4. The minimum spreader shall be a 25' level grade at least 50 feet before entering the spreader.
5. Spread runoff collected to sheet flow shall outlet into stabilized areas.
6. Spread water shall not be concentrated immediately below the point of discharge.
7. Spread length will be determined by calculating $Q_s$ (storm seepage) frequency of occurrence -- using the following equation:
   
   $Q_s = \frac{\text{Design} \times \text{Maximum Length}}{(\text{Up to} \times 10) + (\text{11 to 20} \times 15) + (\text{21 to} \times 20) + \ldots}$

8. Periodic inspection and required maintenance shall be provided.
GRADE STABILIZATION STRUCTURE
RIGID PIPE SLOPE DRAINS
(DRAINAGE AREA: 5 ACRES OR LESS)

A rigid pipe with a prefabricated fillet entrance section, temporarily placed from the top to the bottom of a slope, used to convey surface runoff safely down the slope without causing erosion. Pipe slope drains are to be used wherever concentrated lines of surface runoff are to be conveyed down a cut or fill slope in order to prevent erosion.

GRADE STABILIZATION STRUCTURE
FLEXIBLE PIPE SLOPE DRAINS
(DRAINAGE AREA: 5 ACRES OR LESS)

A flexible tunneling with a rigid pipe and prefabricated fillet entrance section, temporarily placed from the top to the bottom of a slope, used to convey surface runoff safely down the slope without causing erosion. Pipe slope drains are to be used wherever concentrated lines of surface runoff are to be conveyed down a cut or fill slope in order to prevent erosion.

GRADE STABILIZATION STRUCTURE
PAVED CHUTE OR FLUME
(DRAINAGE AREA: 10 ACRES OR LESS)

A temporary channel lined with bituminous concrete, Portland cement concrete, or other similar material, constructed from the top of a slope to the bottom of a slope, that is used to convey concentrated flows of surface runoff down the slope in a manner that will not cause erosion.

EROSION PLAN SYMBOL

- Example: EPD-18 - Flexible Pipe Slop Drain with 90° C. Pipe

NOTES:

1. The structure shall be placed on undisturbed soil or on well-compacted fill.
2. The cut or fill slope shall not be shallower than 1:6 and shall not be flatter than 1:40.
3. The top of the earth pipe shall be at the top of the earth pipe, and shall be placed on the ground auger to the bottom of the earth pipe.
4. The pipe shall not be raised any higher than 12 in. above the ground auger to the bottom of the earth pipe.
5. Pipe slope drains are to be sized in accordance with the following table:

   | Minimum Drain Area (acres) | 0.5 | 1.5 | 2.5 | 5.0 |
---|---|---|---|---|
| Minimum Pipe Diameter (inches) | 15 | 18 | 21 | 24 |

6. Follow-up inspection and any needed maintenance shall be performed after each storm event.