<table>
<thead>
<tr>
<th>STANDARD</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1005A</td>
<td>BRIDGE WING ARMORING FOR SLOPE PROTECTION</td>
</tr>
<tr>
<td>1005B</td>
<td>BRIDGE WING ARMORING FOR WATER CROSSINGS</td>
</tr>
<tr>
<td>1006A</td>
<td>CONCRETE SLOPE PROTECTION</td>
</tr>
<tr>
<td>1006B</td>
<td>MACADAM STONE SLOPE PROTECTION - SLIP ARMAMENT</td>
</tr>
<tr>
<td>1006C</td>
<td>MACADAM STONE SLOPE PROTECTION - INTEGRAL ARMAMENT</td>
</tr>
<tr>
<td>1006D</td>
<td>MACADAM STONE SLOPE PROTECTION - INTEGRAL ARMAMENT - 2 SPAN</td>
</tr>
<tr>
<td>1007A</td>
<td>SUBDRAIN DETAILS FOR CONCRETE SLOPE PROTECTION</td>
</tr>
<tr>
<td>1007B</td>
<td>SUBDRAIN DETAILS FOR MACADAM STONE SLOPE PROTECTION</td>
</tr>
<tr>
<td>1007C</td>
<td>SUBDRAIN DETAILS FOR 2 SPAN BRIDGES</td>
</tr>
<tr>
<td>1007D</td>
<td>SUBDRAIN DETAILS FOR WATER CROSSINGS</td>
</tr>
<tr>
<td>1007E</td>
<td>SUBDRAIN DETAILS FOR NON-WING EXTENSION BRIDGES</td>
</tr>
<tr>
<td>1007F</td>
<td>SUBDRAIN DETAILS FOR WING EXTENSION BRIDGES</td>
</tr>
</tbody>
</table>

 INDEX OF FORESLOPE PROTECTION STANDARDS
TOP VIEW OF WING ARMORING

FOOTING
FACE OF ABUTMENT
OUTLET
SUBDRAIN

TOP VIEW OF WING ARMORING WITH WING EXTENSION

OUTLET
SUBDRAIN

PROFILE VIEW OF WING ARMORING

WINGWALL
SUBDRAIN
ENGINEERING FABRIC

PROFILE VIEW OF WING ARMORING WITH WING EXTENSION

WINGWALL EXTENSION
SUBDRAIN
ENGINEERING FABRIC

EDGING DETAILS

4" x 6" TREATED TIMBER

SURFACE OF TREATED TIMBER. VERTICALLY TO $\frac{1}{2}$" BELOW TOP OR REBAR. DRIVE PIN OR REBAR | $\frac{1}{2}$" HOLES FOR $\frac{1}{2}$ x 1'-6 STEEL PIN

SECTION A-A

GENERAL NOTES:

UNIFORM 6" DEPTH AND DENSITY AND PROVIDE UNIFORM SURFACE APPEARANCE. WING AND ABUTMENT FOOTING AS SHOWN IN SECTION A-A. THIS IS IN ACCORDANCE WITH SECTION 4161, OF THE STANDARD SPECIFICATIONS. UNDERLAYED WITH ENGINEERING FABRIC IN ACCORDANCE WITH ARTICLE 4196.01, B, 3, OF THE STANDARD SPECIFICATIONS. THE MACADAM STONE SHALL BE IN ACCORDANCE WITH SECTION 4122, OF THE STANDARD SPECIFICATIONS, COARSE MATERIAL ( NO CHOKE STONE IS ALLOWED`).

STUB ABUTMENT IS OUTSIDE OF BORDER

NOTE: THIS STANDARD IS USED ONLY FOR GRADE SEPARATION ROAD OVER ROAD OR ROAD OVER RR

PAYMENT FOR THE BRIDGE WING ARMORING WILL BE BID PER SQUARE YARD. COST WILL INCLUDE ENGINEERING FABRIC, MACADAM STONE, TREATED TIMBER EDGING, EXCAVATION, SHAPING, AND SHALL BE "BRIDGE WING ARMORING - MACADAM STONE. COMPACTION TO DIMENSIONS SHOWN IN THESE PLANS. BID ITEM UNDERTAKEN BY THE CONTRACTOR. THE RESPECTIVE COST OF THE MATERIALS IS INCLUDED IN THIS BID ITEM. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE CARRIAGE, OFFloading, AND SITE STORAGE OF THE MATERIALS. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF ALL MATERIALS NOT INCLUDED IN THIS BID ITEM. THIS BID ITEM IS FOR THE BRIDGE WING ARMORING WITH WING EXTENSION.

REVIEWED 06-14 - ADDED 2 FEET OF LENGTH OF MACADAM STONE IN FRONT OF THE BRIDGE WING.
TOP VIEW OF WING ARMORING

PROFILE VIEW OF WING ARMORING

WINGWALL
SUBDRAIN
ABUTMENT FOOTING
BARRIER RAIL

BRIDGE WING ARMORING - WATER CROSSING

STANDARD SHEET 1005A

TOP VIEW OF WING ARMORING WITH WING EXTENSION

PROFILE VIEW OF WING ARMORING WITH WING EXTENSION

ENGINEERING FABRIC
BERM

A CHECK SHALL BE MADE AT THE SUBDRAIN OUTLET TO ENSURE THAT IT IS DRAINING PROPERLY DURING THE BACKFILL FLOODING PROCESS.

The erosion stone shall be placed along the sides of the bridge wing armorings. The erosion stone shall be deposited, spread, consolidated, and shaped by mechanical or hand methods that will provide uniform 9" depth and density and provide uniform surface appearance.

General Notes:

3'-0 3'-0 3'-0 3'-0 3'-0 3'-0

TYP. BERM TYP. BERM TYP. BERM TYP. BERM TYP. BERM TYP. BERM

DETAILS IN THIS PLAN FOR ELEVATION SEE TOP OF REVETMENT

PAYMENT FOR THE BRIDGE WING ARMORING WILL BE BID PER SQUARE YARD. COST WILL INCLUDE ENGINEERING FABRIC, EROSION STONE, EXCAVATION, SHAPING, AND COMPACTION TO DIMENSIONS ARMORING - EROSION STONE".

The erosion stone at these locations shall be uniformly 9" depth and density and provide uniform surface appearance.

(9" THICKNESS)

4 130, OF THE STANDARD SPECIFICATIONS. MATERIAL PASSING THE 3 INCH SCREEN BUT 100% RETAINED ON A 1 INCH SCREEN MAY BE USED AS CHOKE STONE.

The erosion stone shall be placed along the sides of the bridge wing armorings. The erosion stone shall be deposited, spread, consolidated, and shaped by mechanical or hand methods that will provide uniform surface appearance.

A CHECK SHALL BE MADE AT THE SUBDRAIN OUTLET TO ENSURE THAT IT IS DRAINING PROPERLY DURING THE BACKFILL FLOODING PROCESS.
GENERAL NOTES:

- This plan sheet shows details for placing a Portland cement concrete slope protection under overhead structures.
- The current specifications of the Iowa Department of Transportation shall apply with modifications or additions listed below.

FINISH - CLASS Ill, 1 1/2" topped surface finish, curve - curve as per current specifications. 
CONCRETE - The bridge will be placed in pairs, approximately equal height. Adjacent courses shall be staggered about 1'-0" width in alternate courses. 

JOINING JOINT FILLER

PRE-CAST "A" POINT

SLOPE PROTECTION LAYOUT 0° SKEW

SLOPE PROTECTION LAYOUT 15° SKEW

SLOPE PROTECTION LAYOUT 30° SKEW

SLOPE PROTECTION LAYOUT 45° SKEW

CONCRETE SLOPE PROTECTION

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO.

FILE NO.

PROJECT NUMBER

CONTRACTOR SHALL REPLANT, RESEED AND REMULCH ALL AREAS DESTROYED ADJACENT TO SLOPE PROTECTION AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY PLANT MATERIALS INCLUDED EXCAVATION FROM THE GRADING SURFACES SHOWN. WHERE EXCAVATION CONTROL WORK IS COMPLETED THE CONSTRUCTION OF SLOPE PROTECTION AS SHOWN ON THESE PLANS, THE CONTRACTOR SHALL INSTALL SUBDRAINS AS SHOWN ON THE SUBDRAIN DETAILS SHEET.

THE CAST IN PLACE CONCRETE IS TO BE POURED IN APPROXIMATELY 1' thick courses on one side of the slope until the approximate equal height. Adjacent courses shall be staggered about 1'-0" width in alternate courses. 

PAYMENT FOR "CONCRETE SLOPE PROTECTION" WILL BE MADE ON A SQUARE YARD BASIS FOR SLOPE PROTECTION. THE CONTRACTOR SHALL INSTALL SUBDRAINS AS SHOWN ON THE SUBDRAIN DETAILS SHEET.

PAYMENT IS TO BE INSTALLED BY OTHERS USING STANDARD ROAD PLAN 203 OR 204.
GENERAL NOTES:
- This plan sheet shows details for placing a "Macadam Stone Slope Protection" under overhead structures.
- The bridge area for slope protection shall be compacted and graded as shown on this sheet. Slope grading shall include excavation from the grading surface shown, the grading plans, and as directed by the Engineer. The grading surface shall be firm when the engineering fabric and macadam stone are placed. The engineering fabric shall be in accordance with Article 4196.5, of the Standard Specifications. If the engineering fabric is lapped, the laps shall be a minimum of one foot per lap. Single, lap with Grade A Stone, with up slope lap piece on top and stapled for continuity.
- The macadam stone shall be in accordance with Section 1002 of the Standard Specifications. Coarse material (no choke stone is allowed). The limits of the slope protection shall meet the requirements for a minimum post, sized and shaped, in accordance with Section 2601 of the Standard Specifications. If the limits of the Macadam Stone are not compacted and graded by mechanical or hand methods or will provide uniform depth and density and provide proper drainage (as approved).
- Payment for "Macadam Stone Slope Protection" will be made on a 20% basis for slope protection constructed. The unit price is 20% per square yard shall include all costs for material and labor required to construct the slope protection. A surfacing layer shall be considered incidental to placing the slope protection.
- This plan sheet shows details for placing a "Macadam Stone Slope Protection" under overhead structures. The bridge area for slope protection shall be compacted and graded as shown on this sheet. Slope grading shall include excavation from the grading surface shown, the grading plans, and as directed by the Engineer. The grading surface shall be firm when the engineering fabric and macadam stone are placed. The engineering fabric shall be in accordance with Article 4196.5, of the Standard Specifications. If the engineering fabric is lapped, the laps shall be a minimum of one foot per lap. Single, lap with Grade A Stone, with up slope lap piece on top and stapled for continuity.
- The macadam stone shall be in accordance with Section 1002 of the Standard Specifications. Coarse material (no choke stone is allowed). The limits of the slope protection shall meet the requirements for a minimum post, sized and shaped, in accordance with Section 2601 of the Standard Specifications. If the limits of the Macadam Stone are not compacted and graded by mechanical or hand methods or will provide uniform depth and density and provide proper drainage (as approved).
- Payment for "Macadam Stone Slope Protection" will be made on a 20% basis for slope protection constructed. The unit price is 20% per square yard shall include all costs for material and labor required to construct the slope protection. A surfacing layer shall be considered incidental to placing the slope protection.
- This plan sheet shows details for placing a "Macadam Stone Slope Protection" under overhead structures. The bridge area for slope protection shall be compacted and graded as shown on this sheet. Slope grading shall include excavation from the grading surface shown, the grading plans, and as directed by the Engineer. The grading surface shall be firm when the engineering fabric and macadam stone are placed. The engineering fabric shall be in accordance with Article 4196.5, of the Standard Specifications. If the engineering fabric is lapped, the laps shall be a minimum of one foot per lap. Single, lap with Grade A Stone, with up slope lap piece on top and stapled for continuity.
- The macadam stone shall be in accordance with Section 1002 of the Standard Specifications. Coarse material (no choke stone is allowed). The limits of the slope protection shall meet the requirements for a minimum post, sized and shaped, in accordance with Section 2601 of the Standard Specifications. If the limits of the Macadam Stone are not compacted and graded by mechanical or hand methods or will provide uniform depth and density and provide proper drainage (as approved).
- Payment for "Macadam Stone Slope Protection" will be made on a 20% basis for slope protection constructed. The unit price is 20% per square yard shall include all costs for material and labor required to construct the slope protection. A surfacing layer shall be considered incidental to placing the slope protection.
SUBDRAIN NOTES:

This plan sheet shows details for placing all subdrains and subdrain outlets required for this structure. The subdrains shall be 4" in diameter and shall be in accordance with Article 4143.01, B, of the Standard Specifications. The subdrains shall consist of a 6'-0" length of pipe with a removable rodent guard as detailed on this sheet.

The cost of furnishing and placing subdrain (including excavation, corrugated backfill, porous backfill, and subdrain outlet) is to be included in the prime bid for structural concrete. (Refer to Article 4143.01, B, of the Standard Specifications.) No extra payment will be made for subdrain outlets shown on this plan sheet. The subdrains shown for the proposed subdrains are based on the proposed grading layout. The subdrain outlet elevations are estimated for the proposed subdrains and are subject to change due to field adjustments of the grading layout.

The subdrain outlet shall be capped as approved by the engineer. The porous backfill and subdrain outlet are to be capped around pier columns if the column placement interferes with alignment of subdrain as shown on this sheet.

The subdrain outlet shall consist of a 6'-0" length of pipe with a removable rodent guard as detailed on the subdrain outlet detail sheet.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.

The subdrain outlet at the ditch slope shall be constructed as follows:

1. Use a reducer for reduced coupler. The reducer must be inserted a minimum of 1'-0" into pipe.
2. Insert a cap of the 4" subdrain into the 6" metal outlet pipe. This fully seals the entire opening with a removable rodent guard. See materials I.M. 443.01, A.4, for guard details.
**SUBDRAIN NOTES:**

This plan sheet shows details for placing all subdrains and subdrain outlets required for this structure. The subdrains shall be 4" in diameter and shall be in accordance with Article 4143.01, B, of the Standard Specifications. The subdrain outlet shall consist of a 6'-0 length of pipe with a removable rodent guard as detailed on this sheet.

The cost of furnishing and placing subdrain (including excavation, granular backfill, porous backfill, and subdrain outlet) is to be included in the price bid for structural concrete (Bridge). No extra payment will be made for subdrain outlets. The dimensions shown for the proposed subdrains are based on the proposed grading layout. Dimensions shown for estimating subdrain length are for estimating only and are subject to change due to field adjustments of the grading layout.

The small end of the perforated subdrain at the toe of slope protection shall be capped as approved by the engineer. The porous backfill and subdrain are to be carried around pier columns if the column placement interferes with alignment of subdrain as shown on this sheet.

The porous backfill and subdrain are to be carried around foundation piles in the manner described in the Standard Specifications. The subdrain outlet shall be sloped downward from the capped end and outlet into the side ditch as indicated, rate of slope shall not be flatter than 1%.

**SUBDRAIN OUTLET ELEVATIONS**

<table>
<thead>
<tr>
<th>Location</th>
<th>Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>777 Abutment</td>
<td>1'-0</td>
</tr>
<tr>
<td>Toe of 777 Abutment</td>
<td>1'-0</td>
</tr>
<tr>
<td>Toe of 777 Abutment</td>
<td>1'-0</td>
</tr>
</tbody>
</table>

**SUBDRAIN DETAILS**

**OUTLET DETAILS**

6" Corrugated metal pipe outlet of 6" Corrugated double-walled PE or PVC pipe outlet with an appropriate coupler. If metal pipe is used, the pipes shall be coupled in one of the following ways:

1. Use an inside fit reducer coupler. The coupler must be inserted a minimum of 6" into each pipe. The 6" metal outlet pipe is fully sealed at the open end with 4" perforated subdrain. The 6" perforated subdrain is capped with a removable rodent guard.

2. Insert 1'-0 of the 4" perforated subdrain into the capped end of the metal outlet pipe, then fully seal the entire opening with grout.

**ENGINEERING FABRIC DETAILS**

The engineering fabric ends are to be sealed with 4" perforated subdrain to prevent undermining of the slope protection and outlet as indicated. Rate of slope shall not be flatter than 1%.

**SUBDRAIN OUTLET AT DITCH SLOPE**

The 6" metal outlet pipe is fully sealed at the open end with 4" perforated subdrain. The 4" perforated subdrain is capped with a removable rodent guard.

**SUBDRAIN OUTLET AT BERM SLOPE**

The 6" metal outlet pipe is fully sealed at the open end with 4" perforated subdrain. The 4" perforated subdrain is capped with a removable rodent guard.

**SUBDRAIN OUTLET AT ABUTMENT FACE**

The 4" perforated subdrain is capped with a removable rodent guard.
**SUBDRAIN DETAILS FOR YOUR STRUCTURE**

**SUBDRAIN LENGTH**
For your specific structure, provide a situation plan with the exact length of subdrains required. This plan should illustrate the locations of the subdrains along the bridge.

**ENGINEERING FABRIC**
- Ends of the fabric are to be cut at a 45° angle to prevent undercutting.
- The fabric is intended for subdrain protection and backing.

**STONE SLOPE PROTECTION**
- Footing bottom level is 1'-0 or as shown on the plan.
- Stone slope protection is 3'-0.
- Foreplane as shown.

**SUBDRAIN OUTLET**
- Drainage surface is 4'-0.
- Outlet subdrain is 2'-1 (normal).
- Porous backfill, granular subbase, and subdrain outlet is included in the price bid for structural concrete. No extra payment will be made.

**SUBDRAIN NOTES**
The proposed subdrains are based on the proposed grading layout of the bridge. The dimensions shown are for estimating only.

**SUBDRAIN OUTLET ELEVATIONS**
- Location: STA.
- Elevation: STA.

**ABUTMENT**
- Subdrain outlet elevations for your structure are shown on the sheet.

**TYPICAL SECTION OF SUBDRAIN OUTLET**
- Corrugated metal pipe outlet of 6" corrugated double-walled PE or PVC pipe is used, the pipes should be coupled in the two following ways:
  1. Use an inside fit reducer coupler.
  2. Insert 1'-0 of 4" subdrain pipe into the 6" metal outlet pipe and fully seal the entire opening with a rodent guard.

**REMOVABLE RODENT GUARD DETAILS**
- Removable rodent guard details are shown on this sheet.
FOR YOUR STRUCTURE PROVIDE SITUATION PLAN AND FROM THE ABUTMENT FACE OF ROADWAY AND OUTLET AS INDICATED.

SUBDRAIN NOTES:

SUBDRAIN OUTLET ELEVATIONS

| THE SUBDRAIN OUTLET SHALL CONSIST OF A LENGTH OF PIPE WITH A REMOVABLE RODENT GUARD. |

SUBDRAIN OUTLET PIPE LENGTH

| NOTE: WHEN OUTLET CONDITIONS WARRANT SHOWING 2 SUBDRAIN OUTLET CONDITIONS PENETRATING THE BERM SLOPES, SHOW BOTH CONDITIONS ON THIS SHEET, THEN SHOW THE SUBDRAIN LOCATION SITUATION PLAN ON A SEPARATE SHEET. |

SUBDRAIN DETAILS

| SITATION PLAN |

OUTLET TO INSURE THAT THE SUBDRAIN IS NOT DAMAGED AND IS DRAINING PROPERLY.
ABUTMENT BACKFILL PROCESS

The back of the subdrain outlet near the abutment is to be sloped downward 2% from the approach roadway.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.

The subdrain shall slope downward 2% from the approach roadway when connecting to the subgrade.
ABUTMENT BACKFILL DETAILS

ABUTMENT BACKFILL DETAILS AS SHOWN ON THIS SHEET WHICH ARE PERTINENT TO
ABUTMENT BACKFILL DETAILS (WING EXTENSION ABUTMENTS)

ABUTMENT BACKFILL PROCESS:

1. After the subgrade has been shaped, the geotextile fabric shall be installed in accordance with the details shown. The fabric is intended to be installed at one end of the abutment.

2. The fabric shall be attached to the abutment by using lath folded in the fabric approximately 1 to 2 foot higher than the height of the porous backfill backwall, abutment wing walls, and excavation face to a height that will be measured separately for payment.

3. The remaining work involves backfilling with floodable backfill, surface flooded, and compacted with vibratory compaction. The floodable backfill material shall be placed in individual lifts, surface flooded, and compacted with vibratory compaction. The remaining work involves backfilling with floodable backfill, surface flooded, and compacted with vibratory compaction.

4. When the fabric is in place, the subdrain shall be installed directly on the fabric near the end of the abutment.

5. The subdrain shall be attached to the abutment by using lath folded in the fabric at one end of the abutment.

6. The fabric shall be lapped the laps shall be a minimum of one foot in length, shingle fashion with up slope lap piece on top and measured separately for payment.

7. Note: Geotextile fabric will be attached between wings.

PARTICIPANTS:

CPSR B & WPG BRIDGES

COUNTY

PPC & WPG BRIDGES

C CS BRIDGES

NOTE:

The use of the flooding process described in the subdrain is to be used only in combination with the use of geotextile fabric. The use of the subdrain with geotextile fabric is intended to provide uniform drainage in accordance with the details shown. The fabric shall be installed in accordance with the details shown. The fabric shall be attached to the abutment by using lath folded in the fabric approximately 1 to 2 foot higher than the height of the porous backfill backwall, abutment wing walls, and excavation face to a height that will be measured separately for payment.

NOTE:

The use of the flooding process described in the subdrain is to be used only in combination with the use of geotextile fabric. The use of the subdrain with geotextile fabric is intended to provide uniform drainage in accordance with the details shown. The fabric shall be installed in accordance with the details shown. The fabric shall be attached to the abutment by using lath folded in the fabric approximately 1 to 2 foot higher than the height of the porous backfill backwall, abutment wing walls, and excavation face to a height that will be measured separately for payment.

NOTE:

The use of the flooding process described in the subdrain is to be used only in combination with the use of geotextile fabric. The use of the subdrain with geotextile fabric is intended to provide uniform drainage in accordance with the details shown. The fabric shall be installed in accordance with the details shown. The fabric shall be attached to the abutment by using lath folded in the fabric approximately 1 to 2 foot higher than the height of the porous backfill backwall, abutment wing walls, and excavation face to a height that will be measured separately for payment.