Design
Detail Sheets
### Drainage

<table>
<thead>
<tr>
<th>NO.</th>
<th>DATE</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>500-5</td>
<td>10-20-15</td>
<td>Precast Concrete Drain Extension</td>
</tr>
<tr>
<td>500-6</td>
<td>10-20-15</td>
<td>Median Culvert Extensions with Beveled Pipe and Guard</td>
</tr>
<tr>
<td>500-10</td>
<td>10-17-17</td>
<td>Outlets for Longitudinal, Transverse and Backslope Subdrains</td>
</tr>
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</table>

### Fencing

<table>
<thead>
<tr>
<th>NO.</th>
<th>DATE</th>
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<tbody>
<tr>
<td>510-1</td>
<td>04-20-10</td>
<td>Chain Link Fence on Concrete Retaining Wall</td>
</tr>
<tr>
<td>510-2</td>
<td>03-28-95</td>
<td>Temporary Slope Drain</td>
</tr>
<tr>
<td>510-3</td>
<td>04-20-10</td>
<td>Supplemental Details of Field Fence (Small Animal Barrier)</td>
</tr>
<tr>
<td>510-4</td>
<td>04-21-15</td>
<td>Precast Stock Pass Extension</td>
</tr>
<tr>
<td>510-5</td>
<td>10-19-10</td>
<td>Small Animal Barrier for Gated Entrance</td>
</tr>
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## Traffic Control - Two Lane - Stationary

<table>
<thead>
<tr>
<th>NO.</th>
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<tbody>
<tr>
<td>520-54</td>
<td>10-17-06</td>
<td>Traffic Control Layout for Unpaved On-Site Detour w/ One-Lane Traffic</td>
</tr>
<tr>
<td>520-55</td>
<td>10-17-06</td>
<td>Traffic Control Layout for Unpaved On-Site Detour w/ Two-Way Traffic</td>
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### SECTION 531

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>531-2</td>
<td>04-21-20</td>
<td>Median Crossover at Interchange (50' Median)</td>
</tr>
<tr>
<td>531-3</td>
<td>04-21-20</td>
<td>Median Crossover at Interchange (64' Median)</td>
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### SECTION 533

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>533-1</td>
<td>04-21-20</td>
<td>Parallel Deceleration Taper for 16' Ramp (60MPH Design Speed)</td>
</tr>
<tr>
<td>533-2</td>
<td>04-21-20</td>
<td>Parallel Acceleration Taper for 16' Ramp (60MPH Design Speed)</td>
</tr>
<tr>
<td>533-3</td>
<td>04-21-20</td>
<td>Parallel Deceleration Taper for 18' Exit Loop (60MPH Design Speed)</td>
</tr>
<tr>
<td>533-4</td>
<td>04-21-20</td>
<td>Parallel Deceleration Taper for 24' Exit Loop (60MPH Design Speed)</td>
</tr>
<tr>
<td>533-5</td>
<td>04-21-20</td>
<td>Parallel Acceleration Taper for 24' Ramp (60MPH Design Speed)</td>
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### ROADWAY SHOULDERS

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>535-3</td>
<td>04-16-13</td>
<td>Paved Shoulder Hot Mix Asphalt with 6” Sloped Curb and Gutter Unit</td>
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</table>

### TRAFFIC BARRIERS AND APPURTEANCES

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>540-13</td>
<td>10-19-10</td>
<td>Barricade at Crossover</td>
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### MISCELLANEOUS

<table>
<thead>
<tr>
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<tr>
<td>560-2</td>
<td>03-28-95</td>
<td>Mailbox Turnouts (Granular Surfaced)</td>
</tr>
<tr>
<td>560-3</td>
<td>10-16-12</td>
<td>Grading Blister at Light Pole Footing</td>
</tr>
<tr>
<td>560-4</td>
<td>10-21-14</td>
<td>HMA Wedge for Superelevation</td>
</tr>
<tr>
<td>560-5</td>
<td>04-21-20</td>
<td>Painted Islands</td>
</tr>
<tr>
<td>560-6</td>
<td>10-18-16</td>
<td>Shared-use Trail or Sidewalk Behind Steel Beam Guardrail at Bridge Approach</td>
</tr>
<tr>
<td>560-7</td>
<td>10-15-19</td>
<td>Temporary Barrier Rail (Steel)</td>
</tr>
<tr>
<td>560-8</td>
<td>10-15-19</td>
<td>Water Service Curb Stop Cover Located in Sidewalk</td>
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</table>

### EROSION CONTROL

<table>
<thead>
<tr>
<th>NO.</th>
<th>DATE</th>
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<tbody>
<tr>
<td>570-1</td>
<td>10-18-16</td>
<td>Slash Mulch Berm</td>
</tr>
<tr>
<td>570-5</td>
<td>04-18-17</td>
<td>Erosion Control for Intake or Manhole Well</td>
</tr>
<tr>
<td>570-7</td>
<td>04-21-20</td>
<td>Grate Intake Sediment Filter Bag</td>
</tr>
<tr>
<td>570-8</td>
<td>10-17-17</td>
<td>Temporary Rock Berm for Sediment Control</td>
</tr>
<tr>
<td>570-11</td>
<td>10-15-19</td>
<td>Temporary Sediment Control for Culvert Extension with Exposed Soil</td>
</tr>
<tr>
<td>570-12</td>
<td>10-15-19</td>
<td>Temporary Sediment Control for Shoulder Widening with Exposed Soil</td>
</tr>
</tbody>
</table>
Minimum clear distance of 3 inches from the face of concrete to near reinforcing bar unless noted otherwise.

All reinforcing steel Grade 60

Concrete $f_c = 4.0$ ksi

1. Galvanize 8a1 and 8a2 bars after bending. Ensure the 8a1 and 8a2 bars bear against each other during placement.

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Concrete (Miscellaneous)</td>
<td>cu yd</td>
<td>0.64</td>
</tr>
<tr>
<td>Reinforcing Steel, Epoxy Coated</td>
<td>lbs</td>
<td>101</td>
</tr>
<tr>
<td>Reinforcing Steel, Galvanized</td>
<td>lbs</td>
<td>67</td>
</tr>
</tbody>
</table>

Reinforcing Bar List

<table>
<thead>
<tr>
<th>Bar</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8a1 Drain Cover Bars - Top Layer</td>
<td>2</td>
</tr>
<tr>
<td>8a2 Drain Cover Bars - Bottom Layer</td>
<td>2</td>
</tr>
</tbody>
</table>

Circular Tie Bars - Outside Face

<table>
<thead>
<tr>
<th>9b1</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>16'-0&quot;</td>
</tr>
</tbody>
</table>

Circular Tie Bars - Inside Face

<table>
<thead>
<tr>
<th>9b2</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>13'-2&quot;</td>
</tr>
</tbody>
</table>

Tie Bars - Vertical

<table>
<thead>
<tr>
<th>9b3</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>0'-6&quot;</td>
</tr>
</tbody>
</table>

Reinforcing Steel, Epoxy Coated - Total (lbs.) | 607 lbs

Reinforcing Steel, Galvanized - Total (lbs.) | 34 lbs

Concrete to near reinforcing bar unless noted otherwise.
CASE 'A'
Guardrail Installation between Dual Bridges

Construct the extension by placing the appropriate size of Unclassified Pipe into the existing culvert and apron. After the Unclassified pipe has been assembled at the proper angle and placed into the culvert, some adjusting may be required by rotating the Unclassified Pipe to fit the new flow line. Seal the area between the existing apron and Unclassified Pipe with concrete.

Construct the extension using Class 'C' concrete.

Excavating silt for pipe placement is incidental to pipe items.

Place a silt fence ditch check immediately upstream from the inlet of the culvert. See EC-201 for construction details.

CASE 'B'
Maintenance Turnaround

CASE 'C'
Median Culvert

Contract Items:
- Unclassified Roadway Pipe
- Beveled Pipe and Guard

For details of Beveled Pipe and Guard, see DR-212.

SECTION A-A

SECTION B-B

For details of Beveled Pipe and Guard, see DR-212.
1. Perforated Subdrain (Polyethylene Corrugated Tubing).
2. On projects where existing shoulder material is removed, replace the shoulder material according to Article 2502.03, C of the Standard Specifications.
3. "Y" or "T" connection will not be allowed. Place subdrain on 1 foot minimum radius.
4. Direction of flow.
5. 6 inch minimum drop in elevation between longitudinal subdrain and outlet. 12 inch minimum drop for projects using recycled PCC subbase.
6. Corrugated metal pipe outlet 2 inches larger than subdrain pipe or corrugated double-walled PE or PVC pipe of the same diameter as the existing subdrain pipe with an appropriate coupler. If metal pipe is used, the pipes should be coupled in one of the following ways: (1) Use an inside fit reducer coupler. If metal pipe is used, the pipes should be coupled in one of the following ways: (1) Use an inside fit reducer coupler; (2) Insert 1 inch of the 4 inch subdrain into the 6 inch metal outlet pipe, then fully seal the entire opening with grout.
7. Bevel the trench to provide a minimum of 3 inches of porous backfill surrounding all portions of subdrain pipe.
8. Corrugated metal pipe outlet 2 inches larger than existing subdrain pipe, or corrugated double-walled PE or PVC pipe of the same diameter as the existing subdrain pipe.
9. Place class 'A' crushed stone or Special Backfill over outlet and carefully compact to avoid damaging outlet pipe.

Possible Contract Item:
Subdrain Outlet, 500-10

Possible Tabulations:
104-6C
104-6
TABLE OF QUANTITIES

<table>
<thead>
<tr>
<th>Standard Road Plan No</th>
<th>PV-501</th>
<th>PV-504</th>
<th>PV-507</th>
<th>PV-502</th>
<th>PV-505</th>
<th>PV-508</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Width</td>
<td>50.0'</td>
<td>64.0'</td>
<td>16.0'</td>
<td>16.0'</td>
<td>50.0'</td>
<td>64.0'</td>
</tr>
<tr>
<td>Crossover Pavement Width</td>
<td>28.0'</td>
<td>28.0'</td>
<td>28.0'</td>
<td>28.0'</td>
<td>28.0'</td>
<td>28.0'</td>
</tr>
</tbody>
</table>

Possible Contract Items:
- Beveled Pipe and Guard
- Culvert, Unclassified Entrance Pipe, 18'' Dia.
- Embankment-In-Place
- Excavation, Class 10, Roadway and Borrow
- Special Backfill

Possible Tabulation:
- d. 18'' dia. Unclassified Entrance Pipe Culvert

Possible Design Items:
- Median ditch flow line.
- Beveled pipe with guard. See Standard Road Plan DR-212.
- Requires approximately 7 degree elbow.
- Bevel the top edge of beveled pipe and guard at a point where the distance between the edges of the shoulders are approximately 22 feet apart.
- Median ditch flow line.

REVISED: Changed reference from RF-27 to DR-212 in circle note 1.
GENERAL NOTES:

Details indicated herein are for the installation of a temporary slope drain on the foreslopes of the roadway fill. The intent of this temporary slope drain is to prevent eolian erosion during construction and to relieve the water pollution which might be caused by salination from the project.

At the completion of each day's grading, a temporary bench will be constructed on both sides of the subgrades. At points a maximum of 900 feet apart, of low points of vertical curve, and as determined by the engineer, temporary intersecting wing dikes shall be graded and wing dikes installed. All such grading work shall be considered incidental to other grading work on the project.

Forelopes with a vertical height of ten feet or less shall not have temporary slope drains installed.

The temporary slope drain shall consist of a length of pipe capable of extending to the top of foreslopes when all grading has been completed. The pipe shall be moved up the foreslope to the new top of slope barn after the completion of each day's work. The pipe shall be Solid Tubing complying with all requirements of ASTM F 496, Standard Duty Tubing.

Method of measurement shall be along the centerline of pipe in its final position.

The price bid for "Temporary Slope Drain, As Per Plan", measured in linear feet, shall be considered full compensation for the construction of all required temporary tops of slope barns and for installing and maintaining the slope drain for the duration of the contract.

1. Slope depth less than 10' shall be protected.
2. Slope may be backfilling before 10' minimum, as determined by the engineer.
Small Animal Barrier is used for preventing small animals, rodents and amphibians from migrating onto the highway right of way.

Contract Item "Small Animal Barrier" includes chain link fence fabric, galvanized tie wire, 12 inch trench excavation, backfill and compaction around fence fabric, all materials, tools and labor required to construct barrier as detailed.

Contract Item "Small Animal Barrier" using 44 gauge Galvanized Wire Tie and #6-12 gauge galvanized wire for Standard Specification Section 4184 and installed fencing per the Contract Documents.

Stretch Small Animal Barrier and mount on Field Fence using galvanized Wire Tie and as specified in Standard Specification Section 4184. Lay the bottom 12 inches of the barrier below the finished grade to prevent damaging under the barrier. Do not damage or detach the fence fabric when backfilling and compounding trench material around the fabric. Overlap the ends of the barrier fabric a minimum of 6 inches and tie both ends to the Field Fence, leaving no gap between the fabric ends.

Measurement will be in linear feet of installed Small Animal Barrier and paid for at the contract unit price per linear foot.

(1) Place galvanized Tie Wire at the following three vertical locations: top of chain link fence fabric, bottom of field fence, approximate mid-point between the top and bottom line. Repeat attachment locations at 1'-6" intervals along the length of the barrier.

Possible Contract Items:
- Field Fence
- Field Fence Beacon Panel
- Small Animal Barrier

Possible Tabulation:

Iowa Department of Transportation
Highway Division

DETAIL SHEET 510-3

SUPPLEMENTAL DETAIL 8
OF FIELD FENCE
(SMALL ANIMAL BARRIER)
Furnish Precast Stock Pass complying with Section 2415 of the Standard Specifications. Install according to Section 2416 of the Standard Specifications.

Seal joints and install joint ties according to the manufacturer’s recommendations.

Details indicated are typical. Alternate designs or methods may be submitted to the Engineer for approval.

Payment is full compensation for furnishing and installing stock pass and apron.

Perform excavation below ground line using a template conforming to the shape of the stock pass.

Possible Contract Items:
- Stock Pass Apron, 4’ x 6’ Precast Concrete
- Stock Pass Apron, 5’ x 7’ Precast Concrete
- Stock Pass, 4’ x 6’ Precast Concrete
- Stock Pass, 5’ x 7’ Precast Concrete

Furnish Precast Stock Pass complying with Section 2415 of the Standard Specifications. Install according to Section 2416 of the Standard Specifications.

Seal joints and install joint ties according to the manufacturer’s recommendations.

Details indicated are typical. Alternate designs or methods may be submitted to the Engineer for approval.

Payment is full compensation for furnishing and installing stock pass and apron.

Perform excavation below ground line using a template conforming to the shape of the stock pass.

Possible Contract Items:
- Stock Pass Apron, 4’ x 6’ Precast Concrete
- Stock Pass Apron, 5’ x 7’ Precast Concrete
- Stock Pass, 4’ x 6’ Precast Concrete
- Stock Pass, 5’ x 7’ Precast Concrete

Table:

<table>
<thead>
<tr>
<th>Structure</th>
<th>DIMENSIONS FOR APRON</th>
</tr>
</thead>
<tbody>
<tr>
<td>4’ x 6’</td>
<td>4’ 6’ 2’ 2’ 7’ 7’ 2.11’</td>
</tr>
<tr>
<td>5’ x 7’</td>
<td>5’ 7’ 2.6’ 1.9’ 7’ 5’ 3.6’</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Structure</th>
<th>DIMENSIONS FOR INTERMEDIATE UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4’ x 6’</td>
<td>4’ 6’ 2’ 4’ x 6’</td>
</tr>
<tr>
<td>5’ x 7’</td>
<td>5’ 7’ 2.6’ 4’ x 6’</td>
</tr>
</tbody>
</table>

Furnish Precast Stock Pass complying with Section 2415 of the Standard Specifications. Install according to Section 2416 of the Standard Specifications.

Seal joints and install joint ties according to the manufacturer’s recommendations.

Details indicated are typical. Alternate designs or methods may be submitted to the Engineer for approval.

Payment is full compensation for furnishing and installing stock pass and apron.

Perform excavation below ground line using a template conforming to the shape of the stock pass.

Possible Contract Items:
- Stock Pass Apron, 4’ x 6’ Precast Concrete
- Stock Pass Apron, 5’ x 7’ Precast Concrete
- Stock Pass, 4’ x 6’ Precast Concrete
- Stock Pass, 5’ x 7’ Precast Concrete

Table:

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</thead>
<tbody>
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<tr>
<td>5’ x 7’</td>
<td>5’ 7’ 2.6’ 1.9’ 7’ 5’ 3.6’</td>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>4’ x 6’</td>
<td>4’ 6’ 2’ 4’ x 6’</td>
</tr>
<tr>
<td>5’ x 7’</td>
<td>5’ 7’ 2.6’ 4’ x 6’</td>
</tr>
</tbody>
</table>
Construct "Small Animal Barrier at Gated Entrance" at specified location to provide access through the "Small Animal Barrier".

Place "Portland Cement Concrete Driveway" to elevation specified on the plans.

Each "Small Animal Barrier for Gated Entrance" correctly installed will be counted for payment.

Payment will be the contract unit price for each "Small Animal Barrier for Gated Entrance" installed correctly.

Payment includes all materials, tools and labor required to construct "Small Animal Barrier for Gated Entrance" as detailed.

1. P.C. Concrete Driveway: 6" thick + 12 inches by 4'-0" along centerline of entrance by 8 inches INDC.

2. Rubber Filling: 12 inches wide by 1 inch thick (in.)

3. Transition into natural ground.

Possible Contract Items:
- Small Animal Barrier for Gated Entrance
- Driveway Surfacing, Class B Crushed Stone
- Driveway Surfacing, Class A Crushed Stone
- Portland Cement Concrete Driveway, 6 inch
- Reinforced Concrete Driveway, 6 inch
- Reinforced Rubber Filling
- Special Reinforcement

Possible Transition Items:
- 101-T

Iowa Department of Transportation
Highway Division
DETAIL SHEET 510-5

SMALL ANIMAL BARRIER
FOR GATED ENTRANCE
The Contractor shall be responsible for the placement and removal of temporary white delineator, 34-inch solid lines and yellow "No Passing" lines. The Contractor shall also be responsible for removal and replacement of the existing dashed yellow centerline and white edge line as required by the TIAO Paving Layout.

The Engineer may change the advisory speed if deemed appropriate. If reduced below 35 mph, the Roadway Curves signs shall be changed to Roadside Turn signs (W-33-LA or W-33-MA).

This layout is not appropriate when ADT (Average Daily Traffic) exceeds 4,000 vehicles or when the distance between stop lines exceeds 1,100 feet.

Legend:
- Traffic Signs
  - Type III Barricade
  - Orange Plastic Safety Fence
  - Traffic Signal
  - Single White Delineator (mount back to back)
  - Temporary Floodlighting
  - Type A: Low-Intensity Flashing Warning Light
  - Type B: High-Intensity Flashing Warning Light

A detection area shall be located near the stop line with the downstream edge positioned from the stop line. A second detection area shall be located 150 to 175 feet in advance of the stop line. The size of the detection area shall be approximately 8 x 10. A simple above-ground detector may be used to provide detection for both areas.
The Contractor shall be responsible for the placement and removal of temporary white delineators and yellow "No Passing" lines. The Contractor shall also be responsible for the removal and replacement of the existing dashed yellow centerline and white delineators as required by the Traffic Control Layout.

The Engineer may change the advisory speed if deemed appropriate. If reduced below 35 mph, the Reverse Curve signs shall be changed to Reverse Turn signs (WS-3LA or WS-3RA).

LEGEND
- Traffic Sign
- Drum
- Type III Bollards
- Orange Plastic Safety Fense
- Traffic Signal
- Single white delineators (mount back to back)
- Temporary Floodlighting
- Type 3 Low-Intensity Flasching Warning Light
- Type B High-Intensity Flasching Warning Light
The intent of this plan is to show the construction requirements for a median crossover where the median width is 50' and located adjacent to ramp tapers.

The Engineer will determine the header location to accommodate the required staging activities.

Price bid for contract items shall be considered full compensation for furnishing all necessary materials and labor to construct the median crossover as detailed herein.

Possible Contract Items:
- Removal of pavement
- Special Backfill
- Detour Pavement
- 18'' Unclassified

The removal of subbase material is considered incidental to the removal of pavement.

** Quantities are based on the assumption that the existing median ditch is 4' deep and foreslopes are 4:1.

The table shows the possible contract items and their quantities:

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removal of pavement</td>
<td>Sq. Yds.</td>
<td>753</td>
</tr>
<tr>
<td>Special Backfill</td>
<td>Tons</td>
<td>1740</td>
</tr>
<tr>
<td>Detour Pavement</td>
<td>Sq. Yds.</td>
<td>2384</td>
</tr>
<tr>
<td>18'' Unclassified Roadway Pipe</td>
<td>Lin. Ft.</td>
<td>332</td>
</tr>
</tbody>
</table>

Possible location of staging header:

- 8' PCC Pavement, Class 'C', with required joints, or 10' HMA Pavement, HMA mixture [5,000,000 ESAL]
- Intermediate Course 3/8" mix, with PG64-22 binder and Class 1B compaction. The surface lift requires L-4 friction.
- 8' Joint required
**Revision**

**Road Design Detail**

**531-3**

**Sheet 1 of 1**

**Median Crossover at Interchange**

(64' Median)

**Location Station**

The Engineer will determine the header location to accommodate the required staging activities.

1. Possible location of staging header
2. 8" PCC Detour Pavement or 10" HMA Detour Pavement. Refer to Section 2304 of the Standard Specifications.
3. "B" Joint.
4. Slotted drain for median crossover. See DR-502

Possible Contract Items:

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Unit</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removal of Pavement*</td>
<td>Sq. Yds.</td>
<td>1720</td>
</tr>
<tr>
<td>Special Backfill</td>
<td>Tons</td>
<td>2287***</td>
</tr>
<tr>
<td>Detour Pavement</td>
<td>Sq. Yds.</td>
<td>4638***</td>
</tr>
<tr>
<td>18 inch Unclassified</td>
<td>Linear Ft.</td>
<td>332***</td>
</tr>
<tr>
<td>Roadway Pipe</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The removal of subbase material is incidental to the removal of pavement.

**Quantities are based on the assumption the existing median ditch is 4 feet deep and foreslopes are 4:1.

***Quantities are based on the assumption the median crossover is 300' in length.
**Shoulder**

**Mainline**

**Edge of Pavement**

**Line 'A'**

**Line 'B'**

**Ramp Shoulder**

For joint detail, see mainline pavement.

Construct ramp exit pavement the same thickness as **PV-101**.

Construct subbase for ramp exit pavement the same thickness as mainline subbase.

For header construction detail at the end of taper, see Typical 7101 or Typical 7102.

Refer to plans for length of deceleration lane.

**Drop**

**Subbase**

**Shoal Shoulder**

**Subbase**

**Details**

**Plan**

**Profile**

**Table of offsets and drops for 16' ramp taper**

<table>
<thead>
<tr>
<th>Dist @ (Ft.)</th>
<th>420</th>
<th>400</th>
<th>300</th>
<th>280</th>
<th>260</th>
<th>240</th>
<th>220</th>
<th>200</th>
<th>180</th>
<th>160</th>
<th>140</th>
<th>120</th>
<th>100</th>
<th>80</th>
<th>60</th>
<th>40</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taper +0.94''</td>
<td>12.00</td>
<td>11.91</td>
<td>11.82</td>
<td>11.72</td>
<td>11.62</td>
<td>11.51</td>
<td>11.45</td>
<td>11.35</td>
<td>11.23</td>
<td>11.10</td>
<td>10.95</td>
<td>10.80</td>
<td>10.65</td>
<td>10.50</td>
<td>10.35</td>
<td>10.20</td>
<td>10.05</td>
</tr>
<tr>
<td>Drop (Ft.)</td>
<td>0.38</td>
<td>0.40</td>
<td>0.42</td>
<td>0.45</td>
<td>0.48</td>
<td>0.50</td>
<td>0.53</td>
<td>0.56</td>
<td>0.59</td>
<td>0.61</td>
<td>0.64</td>
<td>0.66</td>
<td>0.68</td>
<td>0.70</td>
<td>0.72</td>
<td>0.74</td>
<td>0.76</td>
</tr>
</tbody>
</table>

Note: The algebraic difference between the profile grade for ramp base line at and relative profile grade of mainline at is 0.02%.

**Profile Grade**

**Stationing and Base Line**

**Line 'A'**

**Line 'B'**

**Line 'C'**

**Line 'D'**

**Taper ratio**

**Taper Angle = 2° 17' 26.20''**

**Profile Grade = 3° 48' 59.67''**

**Drop**

**Subbase**

**Details**

**Plan**

**Profile**

**Table of shoulder transition lengths with 6' shoulder on ramp**

<table>
<thead>
<tr>
<th>Shoulder Width beyond Edge of Mainline Pavement</th>
<th>12''</th>
<th>12''</th>
</tr>
</thead>
<tbody>
<tr>
<td>12''</td>
<td>NA</td>
<td>12''</td>
</tr>
</tbody>
</table>

**533-01**

**ROAD DESIGN DETAIL**

**PARALLEL DECELERATION TAPER**

**FOR 16' RAMP**

**(60 MPH DESIGN SPEED)**

**Note:** W is the width of the outside lane to the Edge of Pavement.
16' EXIT RAMP WITH PARALLEL DECELERATION LANE

1. 'CD' Joints at 17' spacing.
2. 'BT-2' or 'KT-2' Joint.
3. 'C' Joint.
4. 'B' Joint. 2' minimum, 4' maximum.
5. 'L-2' Joint.
6. 'B' or 'C' Joint. 2 minimum, 4' maximum.
7. 10' minimum or equal to mainline shoulder width.
8. 'B' or 'C' Joint. 2 minimum, 4' maximum.
For joint detail, see mainline pavement. Construct ramp exit pavement the same thickness as mainline subbase.

NOTE: The algebraic difference between ramp profile grade at point F and relative profile grade of mainline at point H is 0.62%

TABLE OF OFFSETS AND DROPS FOR 16' RAMP TAPER

<table>
<thead>
<tr>
<th>DISTANCE FROM POINT E ALONG LINE A (Ft)</th>
<th>0</th>
<th>100</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>350</th>
<th>400</th>
<th>450</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Line A To Line B</td>
<td>OFFSET (Ft)</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td></td>
<td>SLOPE (%)</td>
<td>Constant 1% Drop</td>
<td>0.86</td>
<td>0.86</td>
<td>0.86</td>
<td>0.86</td>
<td>0.86</td>
<td>0.86</td>
<td>0.86</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td>DROP (Ft)</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
</tr>
<tr>
<td>From Line A To Line C</td>
<td>OFFSET (Ft)</td>
<td>17.63</td>
<td>17.63</td>
<td>17.63</td>
<td>17.63</td>
<td>17.63</td>
<td>17.63</td>
<td>17.63</td>
<td>17.63</td>
<td>17.63</td>
</tr>
<tr>
<td></td>
<td>SLOPE (%)</td>
<td>Constant 1% Drop</td>
<td>0.46</td>
<td>0.46</td>
<td>0.46</td>
<td>0.46</td>
<td>0.46</td>
<td>0.46</td>
<td>0.46</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td>DROP (Ft)</td>
<td>1.66</td>
<td>1.66</td>
<td>1.66</td>
<td>1.66</td>
<td>1.66</td>
<td>1.66</td>
<td>1.66</td>
<td>1.66</td>
<td>1.66</td>
</tr>
</tbody>
</table>

LICENSE: The algebraic difference between ramp profile grade at point F and relative profile grade of mainline at point H is 0.62%

SECTION A-A

SECTION B-B

SECTION C-C

SECTION D-D

Construct ramp exit pavement the same thickness as mainline pavement.

For joint detail, see PV-101.

1) For header construction detail at the end of taper, see Typical 7101 or Typical 7102.

2) Construct subbase for ramp exit pavement the same thickness as mainline subbase.
Transverse Joints Perpendicular to Mainline Pavement

'CD' Joints at 15' Max Spacing along Mainline

1000' min (12' wide) Refer to plans for length of acceleration lane

Reference point for 15' joint spacing

Transverse Joints Perpendicular to Ramp Baseline

533-02

ROAD DESIGN DETAIL

FOR 16' RAMP
(60 MPH DESIGN SPEED)

(REVISIONS: Removed MODIFIED from the detail.)
'B' or 'C' Joint. 2' minimum. 4' maximum.
10' minimum or equal to mainline shoulder width.

'L-2' Joint.

'B' Joint. 2' minimum, 4' maximum.

'C' Joint.

'BT-2' or 'KT-2' Joint.

'CD' Joints at 17' spacing.

Reference Point for 15' Joint Spacing

Transverse Joints Perpendicular to Mainline Pavement

Transverse Joints Perpendicular to Loop Baseline

Transverse Joints Perpendicular to Mainline Pavement

300' Taper

Reference Point for 15' Joint Spacing

'CD' Joints at 15' Max. Spacing along Mainline

'CD' Joints at 15' Max. Spacing along Ramp

18' EXIT LOOP WITH PARALLEL DECELERATION LANE

1 ‘CD’ Joints at 17" spacing.
2 ‘BT-2’ or ‘KT-2’ Joint.
3 ‘C’ Joint.
4 ‘B’ Joint. 2’ minimum, 4’ maximum.
5 ‘L-2’ Joint.
6 10’ minimum or equal to mainline shoulder width.
7 ‘B’ or ‘C’ Joint. 2 minimum, 4’ maximum.
For joint detail, see PV-101.

For header construction detail at the end of taper See Typical 7101 or Typical 7102.

Construct subbase for ramp exit pavement the same thickness as mainline subbase.

Note: The algebraic difference between the profile grade for ramp base line at and relative profile grade of mainline at \( C \) is 0.20%.

PROFILE
24' EXIT RAMP WITH PARALLEL DECELERATION LANE

- 'CD' Joints at 17" spacing.
- 'BT-2' or 'KT-2' Joint.
- 'C' Joint.
- 'B' Joint. 2' minimum, 4' maximum.
- 'L-2' Joint.
- Construct transverse joints on the exit ramp taper perpendicular to the ramp baseline where the gore area is 4 feet or greater.
- 'C' Joint parallel to mainline pavement.
- 10' minimum or equal to mainline shoulder width.
- 'B' or 'C' Joint. 2' minimum, 4' maximum.

1500' min. (12' wide) Refer to plans for length of deceleration lane.

300' Taper to Ramp Baseline

400' min. (24' wide) Refer to plans for length of deceleration lane.

Transverse Joints Perpendicular to Mainline Pavement

Transverse Joints Perpendicular to Ramp Baseline

ROAD DESIGN DETAIL

FOR 24' RAMP

(60 MPH DESIGN SPEED)
For joint detail, see mainline pavement. Construct ramp entrance pavement the same thickness as mainline subbase. Construct subbase for ramp entrance pavement the same thickness as mainline subbase.

### TABLE OF OFFSETS AND DROPS FOR 1/8 RAMP TAPER

<table>
<thead>
<tr>
<th>DISTANCE FROM POINT</th>
<th>ALONG LINE 'A' (Ft.)</th>
<th>OFFSET (%)</th>
<th>SLOPE (%)</th>
<th>DROP (Ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Line 'A' To Line 'B'</td>
<td>24.55</td>
<td>22.19</td>
<td>20.83</td>
<td>19.47</td>
</tr>
<tr>
<td>From Line 'B' To Line 'C'</td>
<td>5.40</td>
<td>5.40</td>
<td>5.40</td>
<td>5.40</td>
</tr>
</tbody>
</table>

**NOTE:** The algebraic difference between ramp profile grade at point F and relative profile grade of mainline at point E is 0.91%.

### TABLE OF SHOULDER TRANSITION LENGTHS WITH 6' SHOULDER ON RAMP

<table>
<thead>
<tr>
<th>DISTANCE FROM POINT</th>
<th>ALONG LINE 'C' (Ft.)</th>
<th>TABLE OF SHOULDER TRANSITION LENGTHS WITH 6' SHOULDER ON RAMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>310.8</td>
<td>300</td>
<td>275</td>
</tr>
</tbody>
</table>

**NOTE:** W is the width of the outside lane to the Edge of Pavement.

**For joint detail, see:** PV-101.

1. For header/shoulder detail at the end of taper see Typical 7F01 or Typical 7F02.
2. Construct subbase for ramp entrance pavement the same thickness as mainline subbase.

### TABLE OF OFFSETS AND DROPS FOR 1/8 RAMP TAPER

<table>
<thead>
<tr>
<th>DISTANCE FROM POINT</th>
<th>ALONG LINE 'B' (Ft.)</th>
<th>OFFSET (%)</th>
<th>SLOPE (%)</th>
<th>DROP (Ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Line 'A' To Line 'B'</td>
<td>24.55</td>
<td>22.19</td>
<td>20.83</td>
<td>19.47</td>
</tr>
<tr>
<td>From Line 'B' To Line 'C'</td>
<td>5.40</td>
<td>5.40</td>
<td>5.40</td>
<td>5.40</td>
</tr>
</tbody>
</table>

**NOTE:** The algebraic difference between ramp profile grade at point F and relative profile grade of mainline at point E is 0.91%.
Transverse Joints Perpendicular to Mainline Pavement

600' min. (24' wide) refer to plans for length of acceleration lane.

Refer to plans for length 700' min. (12' wide) of acceleration lane.

310.8' 600' Taper 500' Taper

Transverse Joints Perpendicular to Ramp Baseline

Transverse Joints Perpendicular to Mainline Pavement

123° Joints at 17" spacing.
1 BT-2' or KT-2' Joint.
2 'C' Joint.
3 'B' Joint, 2' minimum, 4' maximum.
4 'L-2' Joint.
5 Construct transverse joints through the gore perpendicular to mainline pavement.
6 1-2' Joint.
7 'C' Joint parallel to mainline pavement.
8 'B' or 'C' Joint, 2' minimum, 4' maximum.

REVISIONS: Removed MODIFIED from the detail.
ROAD DESIGN DETAIL
PARALLEL ACCELERATION TAPER
FOR 24' RAMP
(60 MPH DESIGN SPEED)
Slopes, dimensions, and quantities indicated hereon are for a normal section as shown and are for design purposes. Shoulder construction details may be modified through superelevated curves or other areas specifically designated by the Engineer. Refer to Typical Cross Sections and Standard Road Plans for superelevation.

Accomplish any special shaping of subgrade necessary, prior to construction of paved shoulders, as directed by the Engineer. Dispose of material removed due to this special shaping as directed by the Engineer.

Payment for special backfill will be based on a nominal 6 inch thickness. The thickness may be exceeded at the Contractor's option. However, the Contractor will not be compensated for any additional amount.

1. Quantities shown are for one shoulder per station. Rates of application may be adjusted at the time of construction if so directed by the Engineer.

2. Quantities shown are based on a design weight of 145 lbs / cu ft for Hot Mix Asphalt Mixture (1,000,000 ESAL), Base Course, 3/4" mix, with an asphalt content of 6 percent.

3. Includes quantities for tack coating vertical face of adjacent pavement prior to placement of any base material. Tack cost estimated at one (1) application at 0.05 gal per sq yd.

Typical Section
HOT MIX ASPHALT PAVED SHOULDER
WITH 6" SLOPED CURB AND GUTTER UNIT

**Design Quantity Table**

<table>
<thead>
<tr>
<th>Station</th>
<th>Hot Mix Asphalt</th>
<th>P. C. Concrete Curb And Gutter Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>6</td>
<td>44.44</td>
</tr>
<tr>
<td>8</td>
<td>68.67</td>
<td>29.00</td>
</tr>
<tr>
<td>10</td>
<td>88.89</td>
<td>38.67</td>
</tr>
</tbody>
</table>

Iowa Department of Transportation
Highway Division

DETAIL SHEET 535-3

PAVED SHOULDER
HOT MIX ASPHALT WITH
6" SLOPED CURB AND GUTTER UNIT
GENERAL NOTES:


Mailbox turnouts shall be full shoulder width with a minimum width of 8 feet. On shoulders less than 8 feet, build fillets to obtain a minimum width of 8 feet.

For multiple mailbox installations in one turnout, the taper dimensions will remain the same. The dimensions from centerline of mailbox located on either end will remain the same. A 12-foot setback will be allowed for each mailbox in the installation.

When the mailbox owner's driveway is on the right-hand side of the road, the mailbox should be placed near the driveway as shown on this sheet. When there is only one driveway, the driveway will serve as part of the mailbox turnout.

Requirements by the property owner for the location of mailbox turnouts other than at driveways shall be approved by the Engineer in charge of construction and the U.S. Postal Authority.

Mailboxes shall be installed with the face (door) no closer to the roadway than the shoulder line. Support post shall be in the roadway with the inside edge of box one (1) foot outward from the shoulder line.

SURFACING QUANTITY

Surfacing of mailbox turnouts is based on a 5-inch design depth (base material) which will, under normal conditions, compact to 3.5 to 4-inch actual depth. A width of 8 feet will require approximately 113 cubic yards and 10 feet width will require approximately 18 cubic yards of surfacing. Quantities are given for a single mailbox installation 275 to 340 feet in length. Where multiple installations or installations of driveways are encountered, quantities will vary as directed by the Engineer.

Payment for construction of mailbox turnouts will be as specified elsewhere in the contract documents.

1) Gravel, 2) Surfacing, 3) Mailboxes, 4) Mailbox post (U.S. Postal standard 48/" above ground and not to exceed 84/"")

Project Development Division

DETAIL SHEET 560-2

DETAILED OF
MAILBOX TURNOUTS
(Granular Surfaced)
GRADING BLISTER AT LIGHT POLE FOOTING

UNDIVIDED ROADWAY

DIVIDED ROADWAY

EXISTING SHOULDER

EXISTING SLOPE

LIGHT POLE FOOTING

SECTION A-A
Refer to curve data contained in the project plans for tangent curve length (m), rotation width (w), total thickness of wedge and surface mat (Y), normal cross-slope (g), existing cross slope at PC/PT (E), and full superelevation (e).

If the existing cross slope at the PC/PT exceeds 70% of the proposed e, determine the value of m using the following formula:

\[ m = L \times \frac{0.7 \times e}{(e + w)} \]

m = 30% of Runoff Length (L), if the existing cross slope at the PC/PT exceeds 70% of the proposed 'e', determine the value of 'm' using the following formula:

\[ m = L - \frac{(L) \times (e)}{(0.7)} \]
For pavement marking line types, see PM-110.
For stop line information, see PM-120.

Possible Contract Item:
Pavement Marking Line Items

Possible Tabulations:
101-10
108-22
Refer to table below for minimum distance between face of guardrail and edge of Shared-use Trail or Sidewalk.

<table>
<thead>
<tr>
<th>Posted Speed Limit (mph)</th>
<th>Minimum Distance (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;45</td>
<td>4</td>
</tr>
<tr>
<td>45 or greater</td>
<td>5</td>
</tr>
</tbody>
</table>

End of Bridge Wing

10:1 taper

Extension of Bridge Rail (length varies)

Steel Beam Guardrail

2'-0" min.
Use steel meeting the requirements of ASTM A36.

Use an Iowa DOT Construction Specification mix or a commercial ready-mix with a minimum f'c = 2500 psi. Deposit by a method approved by the Engineer. Limits of the fill shown are approximate and may be rough or slumped depending on the method of bulkheading.

Provide for an approved monitoring schedule with a person on call and available 24 hours a day, each day of the week, to realign barrier which has been struck. Initiate within one hour of notification of need.

Unless stated otherwise, the barrier rail sections remain the property of the Contractor. Remove from the site upon completion of work.

Anchorage for use on bridge decks or PCC pavement only. When installed in one-way traffic situations use and install anchorage on traffic side of barrier only. Anchorage consisting of a washer plate as shown, a 3/4" dia. x 1 3/4" long ASTM A397 Grade B heavy hex bolt, and a 3/4" Red Head Multi-Set II drop-in anchor (or approved equivalent). Following removal of anchorage, fill all holes with an approved non-shrink grout. The cost of anchorage, when required, is to be in the price bid for "Temporary Barrier Rail, Steel."

Furnish and install Barrier Markers. Place Markers as shown on this sheet and attach to the barrier in a manner approved by the manufacturer. Place Markers to face oncoming traffic. Use a color to match the adjacent edge line. Maintain the markers and promptly repair or replace damaged or missing units. Include all costs for furnishing, installing and maintaining markers in the price bid for "Temporary Barrier Rail, Steel."
**TABLE A: ANCHORAGE REQUIREMENTS**

<table>
<thead>
<tr>
<th>Obstacle</th>
<th>Dropoff Depth</th>
<th>Min. offset where TSR is anchored</th>
<th>Min. offset where TB is anchored</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropoff from pavement</td>
<td>≤ 24&quot;</td>
<td>10&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>Dropoff from bridge</td>
<td>&gt; 24&quot;</td>
<td>18&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>Fixed vertical object</td>
<td>≤ 2&quot;</td>
<td>1&quot;</td>
<td>N/A</td>
</tr>
<tr>
<td>Fixed vertical object</td>
<td>&gt; 2&quot;</td>
<td>18&quot;</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* A dropoff is a slope of 2H:1V or steeper

**Notes:**
- TSR: Temporary Safety Rail
- TB: Temporary Barrier
- U-Bolt: Used for connection
- I.D. Bend: Used for bending

**Connection Rod Assembly**
- Connection Rod
- Splice Plate
- Washer Plate
- Top Plate

**Barrier Connection**
- Top Section
- Side Section

**Dimensions:**
- Top Plate: 3" dia.
- Dia. Hole: 3/4"
- U-Bolt: 4" I.D. Bend
- Dia. Hole: 2"
- Top Plate: 20" long
- Washer Plate: 6" long
- Splice Plate: 6" long
- Connection Rod: 10' long

---

**Anchorage Requirements:**
- Min. offset where TSR is anchored
- Min. offset where TB is anchored
- Dropoff from pavement
- Dropoff from bridge
- Fixed vertical object

---

**Road Design Detail**
- Sheet 2 of 2
- Iowa DOT
- Revision: 560-07
- 10-15-19
For a double curb stop cover, use the same cover shown.

The elevation of the shut-off cover may need to be staggered in order to pass heads through the lower flange or supporting seat.

Sawcut Standard Valve Box
Covers 2" +/- Below Bottom of Sidewalk

Possible Contract Item:
Water Service Curb Stop, Cover Only
Slash mulch consists of waste material from clearing and grubbing. Use material with a maximum length of 20 inches and maximum width of 3 inches for individual pieces. Material will be accepted based on visual inspection.

Dispose of the slash mulch berm material off the project unless the Engineer approves a suitable site within the project limits.
**Tube Riser**

- **TUBE RISER**
- **Overlap Joint**
- **DETAIL 'A'**
- **2' min.**
- **See Detail 'A' (Typ.)**
- **Sediment Control Device**
- **Perimeter and Slope**

**Steel Plate**

- **Steel Cover**
  - **1" Thick (min.)**
- **Polyethylene**
  - **6" Diameter**
  - **2" Diameter Holes**
- **Fabric Sock**

**ISOMETRIC VIEW**

- **Intake or Manhole**
- **Thick (min.) Steel Plate**
- **Fabric Sock**
- **Temporary Sealer**

**SECTION VIEW**

**TUBE RISER**

- **Thickness (min.) Steel Plate**
- **9" Diameter Polyethylene**
- **2" Diameter Holes**

**PERIMETER AND SLOPE SEDIMENT CONTROL**

- **Temporary Intake or Manhole Sediment Control Device**
  - **Manhole Cover Assembly**
- **Sealer**
- **Temporary Intake or Manhole Cover Assembly**

**Possible Contract Items:**
- Temporary Intake or Manhole Cover Assembly
- Maintenance of Temporary Intake or Manhole Cover Assembly
- Removal of Temporary Intake or Manhole Cover Assembly

**Possible Tabulations:**
- 100-11
- 100-19

**Method of Measurement for Temporary Intake or Manhole Cover Assembly** will be by count.

**Basis of Payment for Temporary Intake or Manhole Cover Assembly** will be at the contract unit price for each device installed.

**Method of Measurement for Maintenance of Temporary Intake or Manhole Cover Assembly** will be by count.

**Basis of Payment for Maintenance of Temporary Intake or Manhole Cover Assembly** will be at the contract unit price for each occurrence. Payment is full compensation for inspecting fabric sock and replacing when flow capacity has been reduced to 50%.

**Method of Measurement for Removal of Temporary Intake or Manhole Cover Assembly** will be by count.

**Basis of Payment for Removal of Temporary Intake or Manhole Cover Assembly** will be at the contract unit price for each device removed.

1. Wrap fabric sock around tube riser. Use fabric complying with Article 4196.01, § 1 with a minimum flow rate of 90 gallons per minute per square foot. Ensure top of sock is below form grade elevation.
2. Tube riser may be such that it can be pushed down and pulled up.
3. Place Perimeter and Slope Sediment Control Devices around all intake or manhole wells. Use 20 inch diameter device.
4. Extra material required to install overlaps will not be included in the installation length.
Use sediment filter bag consisting of woven material meeting the requirements of Table 4196.01-1 of the Standard Specifications, except a maximum apparent opening size of US Sieve No. 10 and a minimum flow rate of 145 gallons per minute per square foot. Sediment filter bags without steel grame and clamping bands will be allowed if overflow is provided.

Remove sediment filter bag upon stabilization of sediment sources.

Measurement for Grate Intake Sediment Filter Bag will be by count.

Basis of Payment for Grate Intake Sediment Filter Bag will be at the contract unit price for each device installed.

Payment is full compensation for furnishing all equipment, labor, and materials required to install the Grate Intake Sediment Filter Bag as shown.

Method of Measurement for Maintenance of Grate Intake Sediment Filter Bag will be by count.

Basis of Payment for Maintenance of Grate Intake Sediment Filter Bag will be at the contract unit price for each occurrence. Payment is full compensation for clean out and disposal of material when capacity reaches 50%, and for any other repair needed during the project.

Measurement for Removal of Grate Intake Sediment Filter Bag will be by count.

Basis of Payment for Removal of Grate Intake Sediment Filter Bag will be at the contract unit price for each device removed. Payment is full compensation for all labor and equipment required for removal.

Possible Contract Items:
- Grate Intake Sediment Filter Bag
- Maintenance of Grate Intake Sediment Filter Bag
- Removal of Grate Intake Sediment Filter Bag

Possible Tabulation:
100-37
Place Erosion Stone as near to the five year high water mark as possible while not allowing it to enter the stream bed. Remove Erosion Stone after project completion.

End Station

Begin Station

Erosion Stone

Temporary Rock Berm

BRIDGE ABUTMENT, CULVERT EXTENSION, TEMPORARY FILL OR WORK AREA

Five Year High Water Mark

Erosion Stone

Stream Bed

Possible Contract Item:
Erosion Stone

Possible Tabulation:
100-23

WORK AREA

TEMPORARY FILL OR CULVERT EXTENSION, BRIDGE ABUTMENT, WORK AREA
For Culvert Extension with Exposed Soil

Possible Contract Items:
- Silt Fence for Ditch Check
- Silt Fence
- Perimeter and Slope Sediment Control Device
- Erosion Stone
- Class E Revetment
- Engineering Fabric

Possible Tabulations:
- 100-15
- 100-17
- 100-19
- 100-23
- 100-34

Silt Fence for Ditch Check may be substituted at no additional cost to the Contracting Authority.

See Standard Road Plans EC-201, EC-204, and EC-301 for installation details.
See Standard Road Plans EC-201 and EC-204 for installation details.

Silt Fence for Ditch Check may be substituted at no additional cost to the Contracting Authority.

Possible Contract Items:
- Silt Fence for Ditch Check
- Silt Fence
- Perimeter and Slope Sediment Control Device

Possible Tabulations:
- 100-15
- 100-17
- 100-19
- 100-34

NON-CONTINUOUS FLOW CULVERT
TEMPORARY SEDIMENT CONTROL FOR SHOULDER WIDENING WITH EXPOSED SOIL

CONTINUOUS FLOW CULVERT

Silt Fence for Ditch Check may be substituted at no additional cost to the Contracting Authority.