The Contractor shall remove the existing 14'9" bridge beam with multiple timber piles, a steel piling and timber deck (1/6" raised), bridge #000780721906040. All items of the existing structure shall become property of the Contractor and shall be removed from the site.

The Contractor shall excavate the channel of the bridge site to the limits shown prior to construction of the bridge.

The Contractor shall complete the Embankment as shown on the bridge elevation sheet prior to the driving of the abutment piling.

All trees, hedges rows, orchards, and woody shrubs not shown to be removed and located on the bridge site to the limits shown prior to clearing from the Kansas Historical Society, and the Kansas Department of Wildlife and Parks, prior to any excavation.

All borrow areas shall be submitted to the Kansas Historical Society and the Kansas Department of Wildlife and Parks, prior to any excavation.

It shall be the responsibility of the Contractor to restore, used and/or complete all operations noted in the agreement with the landowner, approved by the Engineer, on all disturbed areas used to provide for new areas for Common Elevation (Contractor Funded).
GENERAL NOTE

The Contractor shall provide shop drawings to install W-beam guardrail on the outside beams. Guardrail posts on the bridge shall be steel, and shall be welded to the outside beams. Guardrail posts located off of the bridge shall be wood posts. All labor, materials, and incidentals necessary to install the guardrail shall be subcontracted to the old item "Guardrail, Steel Plate."

Galvanize all steel parts after fabrication.

Lap guardrail splices, including terminal connectors, in the direction of traffic.

Where traffic is temporarily carried in the opposite direction of final configuration, lap guardrail splices, including terminal connectors, in the direction of traffic.

Use galvanized 12 gauge steel rail elements unless otherwise noted. Use galvanized anchor bolts and post rail fittings, see Standard Specifications.

Supply guard rail parts that are interchangeable with similar parts regardless of source of manufacturer.

GUARDRAIL LAYOUT

SUMMARY OF STEEL PLATE GUARDRAIL

<table>
<thead>
<tr>
<th>Location</th>
<th>Width</th>
<th>Length</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge</td>
<td>75'-0&quot;</td>
<td>2</td>
<td>75'-0&quot;</td>
</tr>
<tr>
<td>Bridge</td>
<td>75'-0&quot;</td>
<td>2</td>
<td>75'-0&quot;</td>
</tr>
<tr>
<td>TOTAL</td>
<td>80'-0&quot;</td>
<td>5</td>
<td>80'-0&quot;</td>
</tr>
</tbody>
</table>

NOTE: SRT End Shoe is subsidiary to the old item "Guardrail, Steel Plate."

GUARDRAIL POST SPACING
Dimensions shown at outside face of bridge slab.

SECTION B-B THRU RAIL ELEMENT

TYPICAL W-BEAM

1. BACKGROUND: Complete the excavation of the abutments as shown on the Bridge Excavation sheet prior to driving the abutment piling or coinciding with the abutment footing excavation.

2. BRIDGE: Excavation Elevation 1593.50 shall designate the Excavation Boundary Plane of Class 1 and Class 2 Excavation. Class 1 shall follow the plane below the bottom sheet. See the Bridge Excavation sheet for the limits of pay excavation.

3. BRICKLY, COMPACTION: Compact fill to the abutments. Rockfill shall be placed to the limits shown on the plans.

4. PLUMB: Drive all pilings to or above the design sheet elevation. Grouting shall stop when the specified or the design pressure is reached or when the drives exceed the allowable number of blows.


1. GENERAL NOTES: The Contractor shall remove the existing 3 @ 19' timber bridge with timber piling and timber deck. (See demolition plans to be submitted to the Contract Engineer for approval).

2. REMOVAL OF EXISTING STRUCTURE: The Contractor shall provide drawings showing the connection of the bridge slab to the pile cap for approval by the Engineer. The bridge slabs shall be designed to be cut to the limits shown on the plans. The connection shall be transferred to the slab by a method agreed upon by the Contractor and the Engineer.

3. WELDING: Material, fabrication and construction shall conform to AWS D1.5. Professional Engineer is not required.

4. PRECAST REINFORCED CONCRETE BRIDGE SLABS: The Contractor shall provide drawings showing the connection of the bridge slab to the pile cap for approval by the Engineer. The bridge slab shall be designed to be cut to the limits shown on the plans. The connection shall be transferred to the slab by a method agreed upon by the Contractor and the Engineer.

5. SUMMARY OF PILING:

<table>
<thead>
<tr>
<th>Abutment No. 1</th>
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</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Pile Width</td>
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</table>

<table>
<thead>
<tr>
<th>Abutment No. 1</th>
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</thead>
<tbody>
<tr>
<td>Pile</td>
<td>14</td>
</tr>
<tr>
<td>Pile Cap</td>
<td>3745</td>
</tr>
<tr>
<td>C15x33.9</td>
<td>567</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Abutment No. 1</th>
<th>Abutment No. 2</th>
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</thead>
<tbody>
<tr>
<td>Pile</td>
<td>30</td>
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<tr>
<td>Pile Cap</td>
<td>5120</td>
</tr>
<tr>
<td>C15x33.9</td>
<td>796</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Abutment No. 1</th>
<th>Abutment No. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pile</td>
<td>16</td>
</tr>
<tr>
<td>Pile Cap</td>
<td>1763</td>
</tr>
<tr>
<td>C15x33.9</td>
<td>796</td>
</tr>
</tbody>
</table>

TOTAL: 5289 | 2368 | 2709 | 530 | 530 | 2298

NOTE: Pile lengths may need to be adjusted depending on thickness of the precast reinforced concrete bridge slabs. Pile lengths calculated assuming bridge slab depth of 14'.

5. PRECAST REINFORCED CONCRETE BRIDGE SLABS: The Contractor shall provide drawings showing the connection of the bridge slab to the pile cap for approval by the Engineer. The bridge slab shall be designed to be cut to the limits shown on the plans. The connection shall be transferred to the slab by a method agreed upon by the Contractor and the Engineer.

6. DRIVING LOAD: Load and Resistance Factor Design.

<table>
<thead>
<tr>
<th>Load and Type</th>
<th>110% of Pile Driving Load</th>
</tr>
</thead>
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<tr>
<td>HS-20</td>
<td>520</td>
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<tr>
<td>HL-93</td>
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7. GENERAL NOTES AND QUANTITIES:

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<tbody>
<tr>
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</tr>
<tr>
<td>2.</td>
<td>Pier caps</td>
<td>5</td>
</tr>
<tr>
<td>3.</td>
<td>Pile caps</td>
<td>11</td>
</tr>
<tr>
<td>4.</td>
<td>Pile</td>
<td>567</td>
</tr>
<tr>
<td>5.</td>
<td>Cross beams</td>
<td>796</td>
</tr>
<tr>
<td>6.</td>
<td>Whalers</td>
<td>796</td>
</tr>
<tr>
<td>7.</td>
<td>Pile cap</td>
<td>1763</td>
</tr>
<tr>
<td>8.</td>
<td>Concrete</td>
<td>5120</td>
</tr>
<tr>
<td>9.</td>
<td>C15x33.9</td>
<td>48 Tons</td>
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<tr>
<td>10.</td>
<td>Reinforcing Steel (Grade 60)</td>
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<tr>
<td>11.</td>
<td>Concrete (Grade 4.0)</td>
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8. SUMMARY OF STRUCTURAL STEEL (A709) (Grade 50):

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<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Abutments</td>
<td>16</td>
</tr>
<tr>
<td>2.</td>
<td>Pier caps</td>
<td>5</td>
</tr>
<tr>
<td>3.</td>
<td>Pile caps</td>
<td>11</td>
</tr>
<tr>
<td>4.</td>
<td>Pile</td>
<td>567</td>
</tr>
<tr>
<td>5.</td>
<td>Cross beams</td>
<td>796</td>
</tr>
<tr>
<td>6.</td>
<td>Whalers</td>
<td>796</td>
</tr>
<tr>
<td>7.</td>
<td>Pile cap</td>
<td>1763</td>
</tr>
<tr>
<td>8.</td>
<td>Concrete</td>
<td>5120</td>
</tr>
</tbody>
</table>

9. PRECAST REINFORCED CONCRETE BRIDGE SLABS: The Contractor shall provide drawings showing the connection of the bridge slab to the pile cap for approval by the Engineer. The bridge slab shall be designed to be cut to the limits shown on the plans. The connection shall be transferred to the slab by a method agreed upon by the Contractor and the Engineer.

10. SUMMARY OF STEEL SHEET PILING:

    | Item | Description | Quantity |
    |-----|-------------|----------|
    | 1. | Abutments | 16 |
    | 2. | Pier caps | 5 |
    | 3. | Pile caps | 11 |
    | 4. | Pile | 567 |
    | 5. | Cross beams | 796 |
    | 6. | Whalers | 796 |
    | 7. | Pile cap | 1763 |
    | 8. | Concrete | 5120 |

11. REMOVAL OF EXISTING STRUCTURE: The Contractor shall provide drawings showing the connection of the bridge slab to the pile cap for approval by the Engineer. The bridge slab shall be designed to be cut to the limits shown on the plans. The connection shall be transferred to the slab by a method agreed upon by the Contractor and the Engineer.

12. GENERAL NOTES AND QUANTITIES:

    | Item | Description | Quantity |
    |-----|-------------|----------|
    | 1. | Abutments | 16 |
    | 2. | Pier caps | 5 |
    | 3. | Pile caps | 11 |
    | 4. | Pile | 567 |
    | 5. | Cross beams | 796 |
    | 6. | Whalers | 796 |
    | 7. | Pile cap | 1763 |
    | 8. | Concrete | 5120 |

13. GENERAL NOTES AND QUANTITIES:

    | Item | Description | Quantity |
    |-----|-------------|----------|
    | 1. | Abutments | 16 |
    | 2. | Pier caps | 5 |
    | 3. | Pile caps | 11 |
    | 4. | Pile | 567 |
    | 5. | Cross beams | 796 |
    | 6. | Whalers | 796 |
    | 7. | Pile cap | 1763 |
    | 8. | Concrete | 5120 |
The Contractor shall excavate the channel at the bridge site to the limits shown prior to construction of the bridge.

All items of the existing structure shall become property of the Contractor and shall be removed from the site.

All trees, hedge rows, shelterbelts, and woody shrubs not shown to be removed and located between the construction limits and the right-of-way line or easement lines shall be spared unless directed by the Engineer to be removed.

The Contractor shall remove the existing 3@19' Timber Beam Bridge with timber piling and timber deck (19.8' roadway).

All items of the existing structure shall become property of the Contractor and shall be removed from the site.

The Contractor shall complete the Embankment as shown on the bridge excavation sheet prior to the driving of the downstream piling.

The Contractor shall excavate the channel at the bridge site to the limits shown prior to construction of the bridge.

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LEGEND

- Fill
- Lean Clay
- Lean Clay/Fat Clay
- Lean Clay with Sand
- Clayey Sand with Gravel
- Fat Clay with Sand
- Highly Weathered Shale
- Moderately Weathered Shale
- Sandy Lean Clay with Gravel

Water Level Reading at time of drilling.

- Proposed Improvement

SCALE 1"=10'

GEOLOGY SHEET
NOTE: Bridge slabs are assumed to be 1'-6" thick. The Contractor shall adjust the top of pile elevations for the final design bridge slab thickness.

ABUTMENT PILING LAYOUT

Install C15x33.9 cross brace on each side of the pier piling with channel web against piling.

NOTE: Bridge slabs are assumed to be 1'-6" thick. The Contractor shall adjust the top of pile elevations for the final design bridge slab thickness.

ABUTMENT PILING LAYOUT

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ABUTMENT PILING LAYOUT

Install C15x33.9 cross brace on each side of the pier piling with channel web against piling.

NOTE: Bridge slabs are assumed to be 1'-6" thick. The Contractor shall adjust the top of pile elevations for the final design bridge slab thickness.
MINIMUM FILLET WELD SIZES

<table>
<thead>
<tr>
<th>Material thickness of thicker part joined</th>
<th>Minimum size of fillet weld</th>
</tr>
</thead>
<tbody>
<tr>
<td>To be included</td>
<td>Over 2&quot;</td>
</tr>
<tr>
<td>Over 2&quot;</td>
<td>1/8&quot;</td>
</tr>
</tbody>
</table>

Note: Minimum fillet weld size need not exceed the thickness of the thinner part joined.

BRIDGE DETAILS

GUARDRAIL, STEEL PLATE: The Contractor shall provide shop drawings to detail installation of the guardrail on the outside beams. Guardrail posts shall be steel and shall be welded to the outside beams. Blocks will not be required between the steel posts and the guardrail. All labor, materials, and incidentals necessary to install the guardrail shall be subsidiary to the bid item “Guardrail, Steel Plate.”
GENERAL NOTES
1. Line posts shall be steel "T" posts.
2. Corner and end post assemblies shall use steel pipe posts.
3. All posts for channel crossings shall be steel "T" posts.
4. Temporary fence shall be barbed wire constructed with either steel "T" posts.

Temp. Fence = 35' ò Ü
Temp. Fence = 35' ò Ü
Temp. Fence = 80' ò Ü
Temp. Fence = 80' ò Ü

NOTE: Use Barbed Wire Fence Steel Post Alternate
be shown on Standard Drawing RD670B. Line posts
shall be studed T posts. End, corner and pull posts
shall be steel pipe posts.

LEGEND
© Corner Post
® End Post
— Existing Fence
— Proposed Fence

SCALE 1"=20'

FENCING PLAN
ALTERNATE CHAIN LINK DETAILS

FENCE DETAILS
AT DRAINAGE STRUCTURES

Type A, Barbed, or Barbed wire fence.

Maximum spacing 10'-0"

3' std. galvanized pipe, 22" Max. length secured to post by tack weld, or ½" U-clamp.

1½" std. galvanized pipe 12' Max. length secured to post with 5 wraps of 22 ga. galvanized wire.

3" x 3" x 3/16" C.S. 4'-0" long, placed on upstream side of grate.

TYPE I FLOODGATE

Concrete footing

Install one end post assembly

TYPICAL INSTALLATION DIAGRAM

Note: Right of Way fence shall generally be set parallel to and 6" to 12" clear from the Right of Way line.
The alignment layouts as shown are typical, but are not representative of all field conditions and/or as directed by the Engineer.
The access control fence shall be attached to the private fence and post assembly by using ladder wires or straps.

FENCE ALIGNMENT
AT UNDERPASS OR BOX DRAINAGE STRUCTURE

Alternate alignment may be used at deep underfill culverts, as directed by the Engineer.

FENCE ALIGNMENT AT BRIDGE ABUTMENTS

Fence posts may be used in lieu of wood posts as shown above.

SMALL CHANNEL CROSSING

The above sketch is typical only and can be varied to fit existing conditions.
Small channel crossings shall be included in lin. ft. of fence. All extra materials and labor within the small channel crossing shall be subsurface to lin. ft. of fence.

GATE DETAILS
AT HINGE & SPECIFICATIONS

For Barbed & Woven fence

Maximum opening 10'-0"

3" x 3" x 3/16" C.S. 4'-0" long, placed on upstream side of grate.

TYPE II FLOODGATE

Concrete footing

Extra length posts to obtain 3'-6" min. embedment

SMALL CHANNEL CROSSING

The above sketch is typical only and can be varied to fit existing conditions.
Small channel crossings shall be included in lin. ft. of fence. All extra materials and labor within the small channel crossing shall be subsurface to lin. ft. of fence.

A line post shall be used at each private cross fence, and the contractor shall make a temporary connection.

This work shall be subsurface to other bid items.

In general, where FLOODGATE, use small channel crossing as shown. Type I and Type II FLOODGATES will be used very seldom.

BARBED WIRE FENCE
STEEL POST (ALTERNATE)

Steel posts may be used in lieu of wood posts as shown above.

ALTERNATE CHAIN LINK DETAILS

Typical only and can be varied to fit existing conditions.
Alternate design utilizing diagonal bracing within the clear zone, horizontal bracing at the corner posts will not be permitted. An alternate design utilizing diagonal bracing shall be provided.

FENCE DETAILS
AT BRIDGE ABUTMENTS

(Use appropriate post and brace for fence type, dimensions are common for all fence types.)

Note: See Standard Drawing RD670A for steel post requirements.

GENERAL NOTE

Do not connect
### Earthwork

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Station to Station</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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### Recapitulation of Bridge Quantities

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<tr>
<th>Item Description</th>
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<th>Quantity</th>
<th>Unit</th>
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<tbody>
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### Recapitulation of Road Quantities

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<th>Quantity</th>
<th>Unit</th>
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<tbody>
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### Removal of Existing Structures

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### Fence (Removal of Existing)

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<th>Length</th>
<th>Remarks</th>
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</tr>
</tbody>
</table>

### Fence (Barbed Wire)

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Station to Station</th>
<th>Length</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Fence (Barbed Wire: Temporary)

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Station to Station</th>
<th>Length</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Fertilize, Seed & Mulch

1. **NAME**: SHS
2. **YEAR**: 2020
3. **BY**: SHS

**FERTILIZER**: A ratio and application rate that equals or exceeds the required minimum rate per acre of N, P2O5, K2O (as listed in Summary of Quantities) will be acceptable.

- **N** = Nitrogen Rate of Application
- **P2O5** = Phosphorous Rate of Application
- **K2O** = Potassium Rate of Application

The Contractor shall be required to finish areas of excavation, borrow, and embankment in accordance with the specifications. Areas that require installation or construction of temporary water protection cover shall be finished in recognizable courses conforming to the alignment, grade, and cross section shown on the plans or as established by the Engineer.

**GENERAL NOTES**

The entire disturbed area, excepting the paved or surfaced areas, steep rocky slopes and areas of unpaved natural soil or other desirable vegetation area shall be fertilized timely when required, seeded, and mulched. Soil preparation shall conform to the Standard Specifications.

Temporary seeding shall be done during any time of the year that the soil can be cultivated. After the temporary seeding has been completed, the entire project, permanent seeding, shall be done during the normal seeding season.

**SOIL EROSION MIX**

The Soil Erosion Mix is to be placed under the Class 1 and/or Class 2 erosion control material.

The Soil Erosion Mix consists of the Shoulder Area of the Permanent Seed Mix used on the project.

**SUMMARY OF SEEDING / EROSION CONTROL QUANTITIES**

<table>
<thead>
<tr>
<th>BID ITEM</th>
<th>QUANTITY</th>
<th>LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary Seed (Sterile Wheatgrass)</td>
<td>1,500 cu yd</td>
<td>1</td>
</tr>
<tr>
<td>Temporary Seed (Grain Oats)</td>
<td>2,000 cu yd</td>
<td>1</td>
</tr>
<tr>
<td>Mulch Tacking Slurry</td>
<td>2,500 lb</td>
<td>1</td>
</tr>
<tr>
<td>Total (lb)</td>
<td>6,000</td>
<td>1</td>
</tr>
</tbody>
</table>

**NOTES**

Projects less than 1 acre shall be bid as "Seeding" by the lump sum. See Permanent Seeding Summary of Seeding Quantities sheet LA850 for further details.

Geotextile (Erosion Control) shall be removed prior to placement of permanent slope protection.

Regreen and Quick Guard are the approved sterile wheatgrass products.

Temporary Seed (Sterile Wheatgrass) and mulch shall be placed at the discretion of the Engineer to determine what rate is sufficient for adequate protection of newly seeded areas.
TYPICAL PROFILE OF TEMPORARY SLOPE DRAIN

Pipe size may vary

1) Temporary Slope Drain and Temporary Berm may be used on either project
   Forecrops or project backslopes.
2) Discharge of Slope Drains shall be pre-constructed ditches or areas or into
   Sediment Basins.
3) Pipe shall be secured in place as approved by Engineer.
4) Temporary Berms under 2,000 feet shall be bid by SW PA.

Pipe size may vary

1) Temporary Slope Drain and Temporary Berm may be used on either project
   Forecrops or project backslopes.
2) Discharge of Slope Drains shall be pre-constructed ditches or areas or into
   Sediment Basins.
3) Pipe shall be secured in place as approved by Engineer.
4) Temporary Berms under 2,000 feet shall be bid by SW PA.

DATA:
**Temporary Inlet Sediment Barrier**

**Method**

- **TEMPORARY INLET SEDIMENT BARRIER** (SILT FENCE METHOD)
- **TEMPORARY INLET SEDIMENT BARRIER** (TRIANGULAR SILT DIKE METHOD)

**Material Requirements**

1. **SILT FENCE**:
   - **Shoals** shall be 4' (min.) long and of one of the following materials:
     - **Hardwood** - 1" x 1"; or
     - **Southern Pine (No. 2)** - 2" x 2";
     - **Steel U, T, L, or C Section** - .95 lbs. per lineal ft.;
     - **Synthetic** - same strength as wood stakes.
   - Cross pieces shall be of same material as stakes.
   - Attach fence fabric securely on 6" centers (max).
   - Note: 25% of log shall be Tightly overlapped ends.
   - Wire Staples: 6" long

2. **Drop inlet protection** will be measured and paid for approved by the Engineer.

3. Alternative products may be used other than gravel bags such as the "Gutter Buddy". Products must be Bio-degradable or non-compost biodegradable material.

4. Use of high flow material is acceptable.

5. **Use of high flow material is acceptable.**

6. **Logs** shall be 1'-0"; or 2'-0" (max.) in diameter. Log mesh:
   - Use mesh with 1/4" openings or larger. Must show thorough penetration but must not fill material in place.

7. **Bags** shall be synthetic net 1.5mm mesh or burlap bags such as the "Gutter Buddy". Products must be Bio-degradable or non-compost biodegradable material.

8. Use of high flow material is acceptable.

9. **Soil or Gravel** backfill in Anchor Trench.

10. **Bags** include fill material in place. Bags must be installed in such a way that no gaps are evident.

11. **Note**: 25% of log shall be Tightly overlapped ends.

**Section A - A**

- **Main Flowline of Ditch**
- **Apron** (Type)
- **Cross Pieces** (see Notes)
- **Curb Inlet Protection**
- **Silt Fence Fabric** over Chicken Wire Backing

**Section B - B**

- **Main Flowline of Ditch**
- **Wire Shaped-6" Ring** at 1'-0" (max.) on 6" centers (max.)
- **Shoals** shall be 4' (min.) long and of one of the following materials:
  - **Hardwood** - 1" x 1";
  - **Southern Pine (No. 2)** - 2" x 2";
  - **Steel U, T, L, or C Section** - .95 lbs. per lineal ft.;
  - **Synthetic** - same strength as wood stakes.

**Section C - C**

- **Main Flowline of Ditch**
- **Cross Pieces** (see Notes)
- **Silt Fence Fabric** over Chicken Wire Backing

**Material Requirements**

- **Material Requirements**
  - **Soil or Gravel** backfill in Anchor Trench.
  - **Wire Shaped-6" Ring** at 1'-0" (max.) on 6" centers (max.)
  - **Stakes** and **Cross Pieces** and Chicken Wire along Anchor Trench.
  - **Attach Fence Fabric** securely on 6" centers (max).
  - **Wire Staples**: 6" long

**Temporary Erosion and Pollution Control**

- **Drop inlet use 1'-0" to 1'-3" diameter log**
- **Bio-degradable Log Filter Sock**
- **Drop Filter Protection**
Typical Elevation

Silt Fence Fabric

GENERAL NOTES

1. Stakes shall be 4' (min.) long and of one of the following materials:
   a. Hardwood - 1 3/8" x 1 3/8".
   b. Southern Pine No. 2 - 2" x 2".
   c. Steel U, T, L, or C Section - 36 lbs. per lineal ft.
   d. Synthetic - same strength as wood stakes.

2. Attach fence fabric with 3 zip ties within the top 8" of the fence.

INSTALLATION NOTES

3. Use of high flow material is acceptable.

4. Refer to plans sheets to estimate length of silt fence required.

BIODEGRADABLE LOG OR FILTER SOCK

1. Place biodegradable logs or filter sock tightly together minimum overlap of 18".

2. Wood stakes shall be 2" x 2" (nom.).

3. Refer to plans sheets to estimate length of biodegradable log and filter sock required.

4. Each log or sock (except compost filter socks) should be keyed into the ground at a minimum of 30" of its height. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.

5. Length of stakes shall be 2 times the height of the log at a minimum with minimum ground embedment equal to the height of the log / sock.

Biodegradable Log or Filter Sock Slope Intermittents

<table>
<thead>
<tr>
<th>Log Material</th>
<th>Low Flow</th>
<th>High Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straw/Compost</td>
<td>30</td>
<td>45</td>
</tr>
<tr>
<td>Excelsior / Wood Chips / Coconut Fiber</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

Decisions should be approved by the Field Engineer.

GEOLOGICAL NOTES

1. Slope Intermittents shall be placed along contour lines, with a short section turned up grade at each end of the barrier.

2. The maximum length of the slope Intermittents shall not exceed 250 feet, and the barrier area need to be staggered.

3. Intermittents damaged by Contractor’s negligence, including improper maintenance or lack of maintenance, shall be repaired immediately by Contractor at no additional cost to KDOT.

4. Agricultural products, such as native prairie hay, used for mulching and erosion control practices, excluding wood based mulch, must meet the North American Weed Free Forage Standards.
**GENERAL NOTES**

1. The choice of ditch check methods is at the option of the Contractor.

2. Use only rock checks in situations where the ditch slope is 6 percent or greater.

3. Ditch checks damaged by Contractor’s negligence, including improper maintenance or lack of maintenance, shall be repaired by Contractor at no extra cost to KDOT.

4. Use this spacing for all Except Rock Ditch Checks.

5. Use this spacing for all except Rock Ditch Checks.

6. Use this spacing for all except Rock Ditch Checks.
ROCK DITCH CHECK NOTES

1. Rock shall be clean aggregate, D50 = 6''.
2. Place rock in such manner that water will flow over, not around ditch check.
3. Do not use rock ditch checks in clear zone.

Excavation: The ditch area shall be reshaped to fill any eroded areas. Prior to placement of the rock, the ditch shall be excavated to the dimensions of the Rock Ditch Check and to a minimum depth of 6'' (150mm). After placement of the rock, backfill and compact any eroded soil to ditch grades.

4. Excavation: The ditch area shall be reshaped to fill any eroded areas. Prior to placement of the rock, the ditch shall be excavated to the dimensions of the Rock Ditch Check and to a minimum depth of 6'' (150mm). After placement of the rock, backfill and compact any eroded soil to ditch grades.

5. Aggregate excavated on site may be used as an alternate to the 6'' rock, if approved by the Engineer.
6. The Engineer may approve the use of larger aggregates for the downstream portion of the check when conditions warrant their use.
7. When the use of larger rock is approved, the upstream portion of the check should be constructed of D50 = 6'' or smaller.

Biodegradable Log Section
18'' (min.) diameter

OR Filter Sock Ditch Check

LIVING

POLLUTION CONTROL

DITCH CHECKS

ROCK DITCH CHECKS

BIOREGRADABLE DITCH CHECK NOTES

1. Use as many biodegradable log sections as necessary to ensure water does not flow around end of ditch check.
2. Overlap sections a minimum of 1/3.

3. Stakes shall be wood or steel according to Section 2114 of the Standard Specifications. Length of stakes shall be a minimum of 2 x the diameter of the log.
4. Use Erosion Control (Class I) (Type C) on the downstream apron when required.
5. A downstream apron is required when directed by the Engineer. Apron material will be paid at the contract unit price.
6. Each log or sock (except compost filter socks) should be keyed into the ground to a minimum of 25% of its height. Compost filter socks should be placed on smooth prepared ground with no gaps between the sock and soil.
1. All P.V.C. pipes are to be schedule 40.
2. HDPE flexible drain pipe is to be attached to the pond outlet structure with water-tight connections.
3. The orifice shall be sized to provide drawdown time to 2 to 5 days and approved by the engineer.
4. Other skimmer designs maybe used that dewater pond outlet structure with water-tight connections.

Sediment Storage Basin Locations

<table>
<thead>
<tr>
<th>STATION TO STATION</th>
<th>SIDE</th>
<th>REQUIRED STORAGE CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

NOTES:
1) Temporary Sediment Basins shall be constructed at locations as directed by the Engineer or as approved in the KSPPPP Schedule. All work and materials necessary, including but not limited to, the fill material, compaction, drainage pipes, aggregates and all other incidentals necessary to construct the basin, shall be paid as "Temporary Sediment Basin".
2) Lengths and top dimensions shall be determined in the field by the Engineer.
3) Skimmer dewatering device required and must be used regardless the size of the drainage area.
**NATIVE WILDFLOWER MIX 1**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Common Milkweed</td>
</tr>
<tr>
<td>02</td>
<td>Butterfly Milkweed</td>
</tr>
<tr>
<td>03</td>
<td>White Prairie Clover</td>
</tr>
<tr>
<td>04</td>
<td>Showy Partridge Pea</td>
</tr>
<tr>
<td>05</td>
<td>Roundhead Lespedeza</td>
</tr>
<tr>
<td>06</td>
<td>Purple Prairie Clover</td>
</tr>
<tr>
<td>07</td>
<td>Hoary Verbena</td>
</tr>
<tr>
<td>08</td>
<td>Common Evening Primrose</td>
</tr>
<tr>
<td>09</td>
<td>Illinois Bundleflower</td>
</tr>
<tr>
<td>10</td>
<td>Wild Bergamot</td>
</tr>
<tr>
<td>11</td>
<td>Pitcher Sage</td>
</tr>
<tr>
<td>12</td>
<td>Dames Rocket</td>
</tr>
<tr>
<td>13</td>
<td>Plains Coreopsis</td>
</tr>
<tr>
<td>14</td>
<td>New England Aster</td>
</tr>
<tr>
<td>15</td>
<td>Maximilian Sunflower</td>
</tr>
</tbody>
</table>

**NATIVE WILDFLOWER MIX 2**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Common Evening Primrose</td>
</tr>
<tr>
<td>02</td>
<td>Wild Bergamot</td>
</tr>
<tr>
<td>03</td>
<td>Pitcher Sage</td>
</tr>
<tr>
<td>04</td>
<td>Dames Rocket</td>
</tr>
<tr>
<td>05</td>
<td>Plains Coreopsis</td>
</tr>
<tr>
<td>06</td>
<td>New England Aster</td>
</tr>
<tr>
<td>07</td>
<td>Maximilian Sunflower</td>
</tr>
</tbody>
</table>

**FERTILIZER**

- A ratio of N : P : K = 1 : 1 : 0.5 is recommended for the application rate per acre of N, P and K required to achieve a minimum yield of 5000 lbs. of hay per acre. 

**SUMMARY OF SEEDING QUANTITIES**

<table>
<thead>
<tr>
<th>Plant</th>
<th>BID ITEM</th>
<th>LBS.</th>
<th>ACRES</th>
<th>TONS PER ACRE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**GENERAL NOTES**

- The active disturbed areas, consisting of the paved or surfaced areas, shall be treated with a cover of disturbed areas. The area may be seeded with a mixture of native or non-native species depending on the location and use. 

- The bid item for mulching shall be paid for according to the North American Weed Free Forage Standards.

- Additional areas shown on the plans are to be specified and seeded. However, the location in the area of each project shall be determined on a case-by-case basis. 

- The total mulch required shall be determined in the field. The bid item for mulching shall be paid for according to the North American Weed Free Forage Standards.

- Additional areas shown on the plans are to be specified and seeded. However, the location in the area of each project shall be determined on a case-by-case basis.
1. **Design Speed**: Those items delegated to temporary traffic control should be designed and installed using the posted/legal speed of the roadway prior to work starting.

2. **Minimum Lane Width**: Lane widths shall be a minimum of 11' (measured between centerlines of pavement markings) or as shown on the plans, or as directed by the engineer. A lane width less than 11' may require restricted roadway width signing.

3. **Consideration** should be made to separate pedestrian and, if needed, bicycle movements from both work site activity and vehicular traffic. Unless a reasonable safe route does not involve crossing the roadway can be provided, pedestrians should be appropriately directed with advance signing that encourages them to cross to the opposite side of the roadway. In urban and suburban areas with high vehicular traffic volumes, these signs should be placed at intersections (other than mid-block locations) so that pedestrians are not confronted with midblock work sites that will induce them to attempt skirting the work site or exiting a midblock crossing.

4. **When existing pedestrian facilities are disrupted, closed, or relocated, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.**

5. **When the driving surface open to traffic is milled or is a temporary surface made of loose material, or when directed by the engineer a W8-15 (Grooved Pavement) or W8-7 (Loose Gravel) sign shall be used on mainline approaches.**

6. **This sign should be placed a "C" distance after the W20-1 (Road Work Ahead) or W8-7 (Loose Gravel) sign shall be used on mainline approaches.**

7. **When existing pedestrian facilities are disrupted, closed, or relocated, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.**

8. **When existing pedestrian facilities are disrupted, closed, or relocated, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.**

9. **Consideration should be made to separate pedestrian and, if needed, bicycle movements from both work site activity and vehicular traffic. Unless a reasonable safe route does not involve crossing the roadway can be provided, pedestrians should be appropriately directed with advance signing that encourages them to cross to the opposite side of the roadway. In urban and suburban areas with high vehicular traffic volumes, these signs should be placed at intersections (other than mid-block locations) so that pedestrians are not confronted with midblock work sites that will induce them to attempt skirting the work site or exiting a midblock crossing.**

10. **When existing pedestrian facilities are disrupted, closed, or relocated, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.**

11. **When existing pedestrian facilities are disrupted, closed, or relocated, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.**

12. **Consideration should be made to separate pedestrian and, if needed, bicycle movements from both work site activity and vehicular traffic. Unless a reasonable safe route does not involve crossing the roadway can be provided, pedestrians should be appropriately directed with advance signing that encourages them to cross to the opposite side of the roadway. In urban and suburban areas with high vehicular traffic volumes, these signs should be placed at intersections (other than mid-block locations) so that pedestrians are not confronted with midblock work sites that will induce them to attempt skirting the work site or exiting a midblock crossing.**

13. **When existing pedestrian facilities are disrupted, closed, or relocated, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.**

14. **Consideration should be made to separate pedestrian and, if needed, bicycle movements from both work site activity and vehicular traffic. Unless a reasonable safe route does not involve crossing the roadway can be provided, pedestrians should be appropriately directed with advance signing that encourages them to cross to the opposite side of the roadway. In urban and suburban areas with high vehicular traffic volumes, these signs should be placed at intersections (other than mid-block locations) so that pedestrians are not confronted with midblock work sites that will induce them to attempt skirting the work site or exiting a midblock crossing.**

---

### TYPICAL WORK ZONE COMPONENTS

- When concrete barrier system is used, portable channelizing devices are not needed along the tangent barrier section.

#### Minimum advance warning sign spacing (in feet):

| SPEED (MPH) | URBAN (40 MPH OR LOWER) | URBAN (45 MPH OR HIGHER) | RURAL (55 MPH OR LOWER) | RURAL (60 MPH OR HIGHER) | EXPRESSIONWAY/RECREATION |
|-------------|--------------------------|---------------------------|--------------------------|--------------------------|----------------|---|
| **A**       | 100                      | 100                       | 500                      | 750                      | 1000           | 1300 |
| **B**       | 700                      | 350                       | 500                      | 750                      | 1600           | 2840 |
| **C**       | 700                      | 350                       | 500                      | 750                      | 1600           | 2840 |

<table>
<thead>
<tr>
<th>Posted speed prior to work starting</th>
</tr>
</thead>
<tbody>
<tr>
<td>The minimum spacing between signs shall be no less than 100', unless directed by the engineer. The spacing between any signs may be increased beyond the minimum values in the table above as approved by the engineer in order to maximize visibility.</td>
</tr>
</tbody>
</table>

**Taper Formulas:**

L = WS for speeds of 45 MPH or more

L = WS/20 for speeds of 40 MPH or less

Where: W = Minimum length of taper in feet

S = Numerical value of posted speed

L = Lane width in feet

W = Width in offset feet

**Channelizer Placement:**

1. The spacing between devices in transition area (taper) should not exceed a distance in feet equal to 0.5 the posted speed limit in mph prior to work starting.

2. The spacing between devices in the advanced warning area and the activity area should not exceed a distance in feet equal to two times the posted speed limit in mph prior to work starting.

3. Channelizing devices shall be placed for optimum visibility, normally at right angles to the traffic flow.

4. Place directional indicator barricades in series to direct traffic onto the new path. The arrow sign should not be visible to opposing traffic.

5. Alternating diagonal orange and white striping must slope downward in the direction traffic is expected to pass.

---

### WORK ZONE COMPONENTS

- **Work Space**
- **Activity Area**
- **Buffer Space**
- **Shoulder Area**
- **Transition Area**
- **Advanced Warning Area**
- **Termination Area**
- **Buffer Space**
- **Safety Barrier System**
- **Pedestrian Barrier System**
- **Concrete Safety Barrier System**
- **Channelizing Devices**
- **Pavement Marking (Temporary)**
1. Support devices shall not project beyond the detection plate into the pathway.
2. Hand trailing edges and detection plates are optional for continuous walls.
3. Interconnect pedestrian channelizers to prevent displacement and to provide continuous guidance through or around work.
4. Alternate pathways shall be firm, stable, and slip resistant.
5. Treat height differentials > 1/2" in the surfaces of alternate paths with a firm, stable, and slip resistant temporary ramp having a slope of 12:1 or flatter and having a width equal to the alternate path.
6. Use alternating orange/white on interconnected devices.
FIGURE 1: TYPICAL SIGNING FOR ROAD CLOSURE (MAINLINE OR SIDE ROAD)

Note: Signs shown for one approach to work zone.

Complete closure Type 3 barricades

Type 3 barricades (winged position)

Type 3 barricade

NOTE: The R11-3A and R11-4 signs should be accompanied with appropriate contour signing, as shown on project traffic control plans.

FIGURE 3: TYPICAL SIGNING FOR ROAD CLOSURE - LOCAL TRAFFIC ACCESS

Note: Signs shown for one approach to work zone.

Complete closure Type 3 barricades

Type 3 barricades (winged position)

Type 3 barricade

NOTE: The R11-3A and R11-4 signs should be accompanied with appropriate contour signing, as shown on project traffic control plans.

Note: Signs shown for one approach to intersection (work zone).

Complete Closure Type 3 barricades

Type 3 barricade

FIGURE 2: TYPICAL SIGNING FOR SIDE ROAD OPEN

Note: Signs shown for one approach to work zone.

Complete closure Type 3 barricades

Type 3 barricade

FIGURE 4: TYPICAL SIGNING FOR SIDEWALK CLOSED WITH OPPOSITE SIDEWALK AVAILABLE

Audible device location when used

Type "A" low intensity warning light mounted to the vertical post (top)

TYPE 3 BARRICADE WITH LIGHTS

Approved signs mounted on Type 3 barricades should not cover more than 50% of the top two rails or 33% of the total area of the three rails.

When barricades are placed end-to-end or staggered, a Type "A" low intensity warning light shall be mounted to the vertical post near each outside corner of the end barricades.

ROAD CLOSED GENERAL NOTES

As shown in Figure 1, at the point where thru traffic must detour and local traffic can proceed to the location where the roadway is completely closed, the R11-3a (ROAD CLOSED # MILES AHEAD LOCAL TRAFFIC ONLY) or R11-4 (ROAD CLOSED LOCAL TRAFFIC ONLY or ROAD CLOSED TO THRU TRAFFIC) sign shall be used with Type 3 barricades (winged position), placed on the shoulders of the roadway.

As shown in Figure 3, when local traffic must be allowed access into the work zone, Type 3 barricades shall be longitudinally staggered to maintain the appearance of a closed roadway. A second line of end-to-end Type 3 barricades shall be placed just beyond the last access point in the work zone, to completely close the roadway.

The R11-4 (ROAD CLOSED TO THRU TRAFFIC) or R11-4 (ROAD CLOSED LOCAL TRAFFIC ONLY) sign shall be used when the distance to the point of complete closure of the roadway is less than 1 mile.

The R11-3a (ROAD CLOSED # MILES AHEAD LOCAL TRAFFIC ONLY) sign shall be used when the distance to the point of complete closure of the roadway is 1 mile or greater.

The words "BRIDGE OUT" (or BRIDGE CLOSED) may be substituted for the words "ROAD CLOSED" on the R11-3a or R11-4 sign where applicable.
### SIGN LAYOUT INFORMATION

#### END ROAD WORK
- **KG20-2**
- **EXPWY/FREeway**
- **STD. SIZE**
- **EXPWY/FREeway**
- **6" C**
- **24" x 6"**
- **W-15**
- **INTERIM**
- **EXPWY/FREeway**
- **6" C**
- **24" x 6"**
- **W-15**

#### WAIT FOR PILOT CAR
- **KG20-5**
- **EXPWY/FREeway**
- **STD. SIZE**
- **EXPWY/FREeway**
- **6" C**
- **48" x 24"**
- **W-15**

#### LOOSE GRAVEL
- **KMH-20**
- **EXPWY/FREeway**
- **STD. SIZE**
- **EXPWY/FREeway**
- **8" D**
- **48" x 48"**
- **W-17**

#### UNEVEN LANES
- **W-7-15p**
- **EXPWY/FREeway**
- **STD. SIZE**
- **EXPWY/FREeway**
- **8" D**
- **48" x 48"**
- **W-11**

#### SHOULDER DROP-OFF
- **W-7-17p**
- **OPTIONAL**

#### NB US-75 CLOSED FOLLOW DETOUR
- **SP-01**
- **SPECIAL SIGN**
- **STD. SIZE**
- **EXPWY/FREeway**
- **6" C**
- **10" D**

#### US-75 CLOSED NORTH OF Topeka FOLLOW DETOUR
- **SP-02**
- **SPECIAL SIGN**
- **STD. SIZE**
- **EXPWY/FREeway**
- **UPPERCASE: 6" C**
- **UPPERCASE: 10" D**
- **LOWERCASE: 4.5" C**
- **LOWERCASE: 8" D**

### SIGN NUMBER
- **KI-104a**
- **FINES DOUBLE IN WORK ZONES**

### DIMENSIONS IN INCHES

<table>
<thead>
<tr>
<th>LETTER SPACINGS</th>
<th>SPACING</th>
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<tbody>
<tr>
<td>LETTER A</td>
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<tr>
<td>LETTER B</td>
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<td>LETTER C</td>
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<td>LETTER D</td>
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<td>LETTER E</td>
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<tr>
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<tr>
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<tr>
<td>LETTER M</td>
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<tr>
<td>LETTER Z</td>
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</tbody>
</table>

Notes:
- Typically, there are two sets of informational signs installed per project: one for each direction of traffic.
- Install signs a minimum of 500' in advance of the road work ahead sign. The engineer may designate a more appropriate location if conditions dictate.

The informational signs are not to interfere with the traffic control signs for the project.
Perforated square steel tube (P.S.S.T.) post setup

Wood post setup

3 lb/f U-Channel setup

Notes:
- Place two bolts at both ends of the splice through the holes nearest the ends of the splice.
- Use manufacturer recommended spacers over the bolts between the spliced pieces of U-Channel.

Details for 2", 2 1/4", or 2 1/2" sign posts:
Place bolts in the same corner along each sign post.