TYPICAL INTERSECTION DETAILS

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</thead>
</table>

GENERAL NOTES

1. Signs shown on the plans, and other signs furnished and installed by the LPA with their own forces and funds will be installed in accordance with the Plan provisions. Public and private utility facilities will be installed by others as noted on the sheets of the new construction unless noted otherwise in the plans or in the proposal.

2. Notes: Where different dimensions and slopes are given in both construction plans and the manual, substitute the maximum dimension in the Typcal Section.

3. Where different dimensions and slopes are given in both construction plans and the manual, substitute the maximum dimension in the Typcal Section.

4. Where different dimensions and slopes are given in both construction plans and the manual, substitute the maximum dimension in the Typcal Section.
The existing 48'T-68' Timber span bridge with timber deck and gussets (ID: 000000000000130) has been destroyed by fire. All remaining items of the existing structure (piling, abutments, etc.) 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 any excavation.

All trees, shrubs not shown to be removed and located between the construction limits and the right-of-way line or easement line shall be removed prior to any excavation.

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

Prior to any excavation, clearance from the Kansas Historical Society and/or other agencies with jurisdiction shall be obtained.

The Contractor shall be responsible for removal of all disturbed areas used to provide borrow areas for common excavation (Contractor furnished).
## ALLOWABLE END TERMINALS

<table>
<thead>
<tr>
<th>Type</th>
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<th>Layout 3</th>
<th>Layout 4</th>
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## SUMMARY OF STEEL PLATE GUARDRAIL

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</tbody>
</table>

## TYPICAL ALIGNMENT OF GUARDRAIL AT CULVERTS & BOX BRIDGES
Install the guardrail end terminals according to the Manufacturer's Installation Manual. The Contractor will furnish a copy of the Manufacturer's Installation Manual to the Engineer prior to the start of the installation. The guardrail end terminal post type is independent of the post type used in the remainder of the installation. However, no mixing of post types is permitted in the remaining w-beam and thrie-beam installation.

The approved polymer (preferred) or wood blockouts provided by the Manufacturer. The thrie-beam installation and 'Guardrail Thrie-Beam Transition Details' Standard Drawings.

Where pavement with a thickness less than or equal to 8" is encountered during installation, use approved polymer (preferred) or wood blockouts provided by the Manufacturer. The guardrail end terminal splices per the Manufacturer's Installation Manual in the direction of permanent traffic, even where temporary traffic may be carried in the opposite direction of the final traffic configuration. Use approved steel (preferred) or wood posts provided by the Manufacturer. The guardrail end terminal blockout size and type may be independent of the blockout size and type used in the remainder of the installation. For blockout size and type remain w-beam and thrie-beam portion of the installation see the details shown on "KDOT's Guardrail Post Details" and "Guardrail Thrie-Beam Transition Details" Standard Drawings.

Apply nonreflective painting to the end terminal posts before initial installation. Tightly fasten all cable anchor assemblies as per the Manufacturer's Installation Manual.

Lay w-beam and thrie-beam guardrail splices in the direction of permanent traffic, even where temporary traffic may be carried in the opposite direction of the final traffic configuration. Use approved polymer (preferred) or wood blockouts provided by the Manufacturer. The guardrail end terminal splices per the Manufacturer's Installation Manual in the direction of permanent traffic, even where temporary traffic may be carried in the opposite direction of the final traffic configuration.

The minimum length of w-beam guardrail required between the thrie-beam transition and the guardrail end terminal is 12'-6" for all installations, unless otherwise stated in the Manufacturer's Installation Manual.

Where pavement with a thickness less than or equal to 8" is encountered during installation, use approved polymer (preferred) or wood blockouts provided by the Manufacturer. The guardrail end terminal splices per the Manufacturer's Installation Manual in the direction of permanent traffic, even where temporary traffic may be carried in the opposite direction of the final traffic configuration. Use approved steel (preferred) or wood posts provided by the Manufacturer. The guardrail end terminal splices per the Manufacturer's Installation Manual in the direction of permanent traffic, even where temporary traffic may be carried in the opposite direction of the final traffic configuration.

End works and materials required for thrie-beam and three-beam guardrail installations are paid for under the appropriate bid item for either CGS or MGS guardrail depending on the type of installation.

End works and materials required for guardrail end terminal installations are paid for under the appropriate bid item for the selected guardrail end terminal. See the table on this sheet for the appropriate end terminal bid item information.

All work and materials required for guardrail end terminal installations are paid for under the appropriate bid item for the selected guardrail end terminal. See the table on this sheet for the appropriate end terminal bid item information.
**W-Beam Post Details**

- Lap guardrail splices, including terminal connector, in the direction of traffic. 
- Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

**Thrie Beam Post Details**

- Lap guardrail splices, including terminal connector, in the direction of traffic. 
- Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

**Steel Posts**

- Lap guardrail splices, including terminal connector, in the direction of traffic. 
- Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

---

**General Notes (Steel Posts)**

- Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.

---

**Variable Size Schedule**

<table>
<thead>
<tr>
<th>BOLT SIZE SCHEDULE</th>
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<tr>
<td>BOLT &amp; NUT DETAILS</td>
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<tr>
<td>B</td>
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<tr>
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</tbody>
</table>

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**Guardrail Post Details**

- Lap guardrail splices, including terminal connector, in the direction of traffic. Where traffic is temporarily carried in the opposite direction of final configuration, lap rail splices in the direction of permanent traffic.
CONSTRUCTION SPECIFICATIONS:


2.01 JPK

Level

STD. BASE FILE:

PLOTTED BY:

FILE:

BR200.dgn

PLOT DATE:

SUMMARY OF QUANTITIES

<table>
<thead>
<tr>
<th>Item</th>
<th>Location</th>
<th>Concrete</th>
<th>Reinforcing Steel</th>
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<td></td>
<td></td>
<td>Grade 40</td>
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<tr>
<td>Abutment No. 1</td>
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<td>Prior No. 1</td>
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<tr>
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<td>Sum Total</td>
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CONCRETE:
- Superstructure concrete is cast as Concrete (Grade 4.0)(AE).
- Substructure concrete is bid as Concrete (Grade 4.0)(AE)(SW).

GENERAL NOTES:
- CONCRETE PLACING SEQUENCE: The sequence of placing concrete in the locations shown, or as directed by the Engineer, may include alternate placements for review.
- CONCRETE PLACING SEQUENCE: The sequence of placing concrete in the locations shown, or as directed by the Engineer, may include alternate placements for review.

DESIGN DATA:
- LFD & LRFR RATING FACTORS:
  - LFD & LRFR RATING FACTORS:
- DESIGN LOADING:
  - UNIT STRESSES:
    - Covers (Grade 4.0): Fc = 4 ksi
    - Covers (Grade 4.0)(AE): Fc = 4 ksi
    - Covers (Grade 4.0)(AE): Fc = 4 ksi
- DESIGN SPECIFICATIONS:
- DESIGN LOADING:
  - UNIT STRESSES:
    - Covers (Grade 4.0): Fc = 4 ksi
    - Covers (Grade 4.0)(AE): Fc = 4 ksi
    - Covers (Grade 4.0)(AE): Fc = 4 ksi
- DESIGN LOADING:
  - UNIT STRESSES:
    - Covers (Grade 4.0): Fc = 4 ksi
    - Covers (Grade 4.0)(AE): Fc = 4 ksi
    - Covers (Grade 4.0)(AE): Fc = 4 ksi
- DESIGN LOADING:
  - UNIT STRESSES:
    - Covers (Grade 4.0): Fc = 4 ksi
    - Covers (Grade 4.0)(AE): Fc = 4 ksi
    - Covers (Grade 4.0)(AE): Fc = 4 ksi
- DESIGN LOADING:
  - UNIT STRESSES:
    - Covers (Grade 4.0): Fc = 4 ksi
    - Covers (Grade 4.0)(AE): Fc = 4 ksi
    - Covers (Grade 4.0)(AE): Fc = 4 ksi
The existing 48"/12" timber span bridge with timber deck and piles (Br. #000000000600130) has been destroyed by fire. All remaining items of the existing structure (piling, guardwalls, etc.) 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 excavation sheet prior to the driving of the abutment piling.

All ditches, berm, guardrails, and Idlyt structures not shown to be removed and located between the construction limits and the right-of-way line or easement line shall be spared unless directed by the Engineer to be removed.
Reinforcing Steel in Top of Abutment

PLAN

Reinforcing Steel in Bottom of Abutment

ELEVATION

(Along & Abutment)

- Top of piling elevations are based on 2'-0" maximum embedment.

**Adjust stirrup to avoid conflict with rail bars.**

Legend

EF = EAD Face

*Top of piling elevations are based on 2'-0" maximum embedment.*

**Note:** Top of piling elevations are based on 2'-0" maximum embedment.
CONCRETE PLACING SEQUENCE DIAGRAM

When long span steel beams having a concrete dead load deflection greater than 1/4" are used or when timber framework with greater than 10' span is used, follow the placing sequence shown. Segments, combined or continuous pours are allowed, but stop a discontinuous pour at a construction joint short of a pier.

When timber framework with 12' span is used, the Contractor, subject to the approval of the Engineer, may use a continuous pour or may discontinue the pour at any construction joint shown.

The Contractor may grade the crown rail continuously from one end of the bridge to the other.

DEAD LOAD CAMBER DIAGRAM AT TENTH POINTS
Long Term Deflections = Initial Deflections x 3.5
(Initial Defections based on E = 3.644 x 10^6 p.s.i.)

SUPERSTRUCTURE DETAILS
Note: See longitudinal section for traverse reinforcing steel.
EXCAVATION DETAILS FOR REINFORCED CONCRETE BOX CULVERT

Note: Excavation for culverts less than bridge length and the additional excavation for "Settled Structure" shall be paid for as Class III Excavation, but shall be subsidiary to Grade 4.0 Concrete.

EXCAVATION DETAILS FOR ABUTMENTS WITH FLARED WINGWALLS

Note: Any sheeting required beyond this line shall be subsidiary to the bid item for Excavation.

DRILLED SHAFT DETAILS

Note: Drilled shafts shall be extended to the "Excavation Boundary Plane", within the limits specified for measurement. This may include water or air.

CLASS I EXCAVATION QUANTITIES

See Detail when rock or shale (rock) is encountered.

CLASS II EXCAVATION QUANTITIES

See Detail when rock or shale (rock) is encountered.

CLASS III EXCAVATION QUANTITIES

Note: All bridge excavations shall be computed on the basis of the cross-bench areas and boundary lines indicated on this sheet and the Excavation Boundary Plane on the Construction Layout.

Note: Bridge Contractor shall finish the embankment and berms after the construction of the embankment to this profile and beyond this line and berm after the completion in accordance with the limits of the Excavation Boundary Plane on the Construction Layout.
PRESTRESSED PILES: Fail-safe prestressed concrete pile splices to occur in accordance with the manufacturer's recommendations submitted to the approval of the Engineer.

Method of attachment of pile to build-up may be by any of the methods given in the notes on Alternate Methods. If mild reinforcing steel is used for attachment, the area shall be not less than that used in the build-up.

ALTERNATE METHODS: Method of attachment of a pile to build-up may be by any of the following methods:
1. Set one foot of pile and expose a minimum of 2'-0" of strand.
2. Cast in place or grout bars (stressed) into pile head. All bars shall be stressed at least 15 ksi and project from pile head a minimum of 2'-0".
3. Install piles in pile head (precast or cast-in-place) installed if grouted below bars of same size and length in 2. 4. For pile core or holes, the pile shall be installed as specified and approved by the Engineer.

TEST PILES: Drive test piles where called for on the bridge plans. Test piles located within the limits of the substructure will be part of the bridge pile system.

MEASUREMENT AND PAYMENT: Measurement and payment for all piles shall comply with the Standard Specifications.

The following items are covered in Division 1000 of the Standard Specifications.

REINFORCEMENT: Use reinforcing steel conforming to ASTM A615, Grade 60. Hoops and splices may be either plain or deformed bars. Prestressed Steel: Use smooth or rebar stress relieved or otherwise prestressing strand conforming to ASTM A416-85.

SPECIFICATIONS: Standard Specifications for Steel Road and Bridge Construction as currently used by the Florida Department of Transportation. The following items are covered in Division 1000 of the Standard Specifications.

CONCRETE: Concrete for cast-in-place shall be F'c = 5,500 PSI. Concrete for prestressed shall be F'c = 5,000 PSI.

WELDING: All field welding shall meet the requirements of the Standard Specifications.

Use only AWS-METAL-A arc welding SMAW: Stick welding for pile splices.

Use only high hydrogen E71T-1 or E71T-5 series welding rod for all welding applications during pile driving. See General Notes or proper storage of welding rod, welding filler metal, and cleaning of the surface of the electrode. Welding is not to be performed for more than 4 hours or more than 4 hours after field welding.

When electrodes are removed from the hermetically sealed container or storage tank and exposed to the atmosphere for less than 4 hours, the stack shall be left for at least 4 hours before removing and storing for use.

When electrodes are removed from the atmosphere for 4 hours or more, or for 9 hours for moisture releasable electrodes, it shall be checked for air pressure after the removal is completed and the moisture is removed. When the moisture is removed, the container shall be resealed and taken to the job at all times prior to and during the filling of the pile.
### Drainage Structures

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<th>Drain</th>
<th>Cover</th>
<th>Street</th>
<th>Base</th>
<th>Road</th>
<th>Embankment</th>
<th>Earthwork</th>
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<th>Street</th>
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**Removal of Existing Structures**

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**Earthwork**

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**Recapitulation of Bridge Quantities**

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<th>Quantity</th>
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**Recapitulation of Road Quantities**

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</thead>
<tbody>
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</table>

**Summary of Quantities**

- See General Notes.
- Subassembly (see General Notes).

**Notes**

- For Summary of Guardrail See Sheet No. 4
- For Drainage & Pavement Quantities See Sheet No. 23
- For Traffic Control & Quantities See Sheet No. 36

**For Traffic Control**

- See General Notes.
Temporary seeding to be combined with permanent seeding and seeded at the same time.

<table>
<thead>
<tr>
<th>SUMMARY OF SEEDING / EROSION CONTROL QUANTITIES</th>
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<tr>
<th>BID ITEM</th>
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<tr>
<td>Temporary Sediment Basin</td>
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<tr>
<td>Temporary Ditch Check (Rock)</td>
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<td>Temporary Berm (Set Price)</td>
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<td>Temporary Seed (Sterile Wheatgrass)</td>
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<tr>
<td>Temporary Fertilizer (16-20-0)</td>
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**GENERAL NOTES**

The entire disturbed area, excepting the paved or surfaced areas, steep rocky slopes and areas of undisturbed native sod or other desirable vegetation, shall be fertilized timmed 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 on the entire project, permanent seeding shall be done during the normal seeding season.

**MULCHING** Mulch shall be spread uniformly over all disturbed areas and punched in the soil unless otherwise noted on the plans. The rate of application per acre, thickness in place, for the mulching materials is generally as follows:

- 1½ - 2½ Tons per Acre + 1½” base depth spread uniformly per acre.

Agricultural products, such as pine straw and hay, used for mulching and erosion control practices, excluding wood-based mulch, shall meet the North American Wheat Fines Grade Standards.

Other vegetative mulches are acceptable only with the Engineer's concurrence. The above rate is a guide, it will be at the discretion of the Engineer to determine what rate is sufficient for adequate protection of newly seeded areas.

**SOIL EROSION MIX**

The Soil Erosion Mix is to be placed under the Class I and/or Class II erosion control materials.

The Soil Erosion Mix consists of the Shoulder Area of the Permanent Seed Mix used on the project.
**Temporary Inlet Sediment Barrier (Silt Fence Method)**

**Plan Section A - A**

- **Main Flowline of Ditch**: 4' maximum spacing
- **Cross Pieces**: As per Notes
- **Silt Fence Fabric over Chicken Wire Building**: As per Notes
- **Drop Inlet Protection**: 3'-6" to 3'-8" diameter

**Plan Section B - B**

- **Top of Ditch Beyond Inlet**: 6'' to 8" gap
- **Rocker**: Approximately 1" to 2" diameter

**Plan Section C - C**

- **Silt Fence**: 1'-6" to 1'-8" diameter log
- **Drop Inlet Protection**
  - Bags = synthetic net 6.5mm mesh or burlap bags
  - Rock = approximately 1" to 2" diameter
- **Material Requirements**
  - *Log Mesh*: Use mesh with 1" openings or larger, which must allow water infiltration but also hold fill material in place.
  - *Soil or Gravel Backfill*: Soil or gravel backfill in Anchor Trench, as needed.
  - *Anchor Trenches*: Stake every 4' as Filter Sock.

**Temporary Erosion and Pollution Control**

- **Drop Inlet Protection**: 3'-6" to 3'-8" diameter
- **Silt Fence**: Attach fabric securely on 6" centers (max). Tightly overlap ends.
- **Bag Placement**: Use gravel bags such as the "Gutter Buddy". Products must be approved by the Engineer.

**Material Requirements**

- *Soft Base File*: La 852C,dgn 28-JAN-2020
- *Plot Location*: 2
- *Date*: 3/01/15
- *Designated*: SHS
- *Revised Standard*: Revised Standard
- *Plot Date*: 3/01/13
- *File*: 28
- *Project No.*: SHS
- *Date Revised*: 6/01/13
- *File Location*: S
- *Rev.*: Bridge and Structures
- *Engineer*: Scott H. Shields

**General Instructions**

1. No compost or fines.
2. No hay or straw.
3. Water infiltration.
4. Do not use material which prohibits water infiltration.
5. Log Mesh: Use mesh with 1" openings or larger, which must allow water infiltration but also hold fill material in place.
TYPICAL ELEVATION

SILT FENCE

Silt Fence Fabric

Soil or Gravel
Backfill in Anchor Trench

Groundline at
Silt Fence

Stake

SECTION A - A

6'' long x 1'' wide

Wire Staples:

Revised Standard

Standards.

Biodegradable Log or Filter Sock

Installation Notes

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 plan sheets to estimate length of biodegradable log and filter sock required.
4. Each log or sock (except compact filter socks) should be keyed into the ground at a minimum of 25% of its height. Compact filter socks should be placed on an smooth prepared ground with no gaps between the sock and soil.
5. Length of stakes should be 2 times the height of the log at a minimum ground embedment equal to the height of the log / sock.

Biodegradable Log or Filter Sock Slope Interruptions

Biodegradable Log Section

18'' (min.) diameter

Biodegradable Log Section

Dowstream Apron

(Comfort)

Biodegradable Log Section

Dowstream Apron

(Comfort)

Biodegradable Log Section

Dowstream Apron

(Comfort)

Dowel Ties:

3/01/15

18''-20''

Straw/Compost

Straw/Compost

Straw/Compost

Excelsior / Wood Chips / Coconut Fiber

Excelsior / Wood Chips / Coconut Fiber

Excelsior / Wood Chips / Coconut Fiber

BIODEGRADABLE LOG / SILT FENCE

SLOPE INTERRUPTIONS

Biodegradable Log or Filter Sock Slope Interruptions

Decisions should be approved by the Field Engineer.

GENERAL NOTES

1) Slope interruptions shall be placed along contour lines, with a short section turned up or down at each end of the barrier.
2) The maximum length of the slope interruptions shall not exceed 250 feet, and the barrier ends need to be staggered.
3) Interruptions 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 erosion control purposes, excluding straw based mulches, shall 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.
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.
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 over excavated soil to ditch grade.
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 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 1/10th their length.
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) as 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 at 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.

TEMPORARY ROCK DITCH CHECK SPACING

<table>
<thead>
<tr>
<th>Ditch Area</th>
<th>Slope</th>
<th>Ditch Width</th>
<th>Ditch Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>6</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>14</td>
<td>12</td>
</tr>
</tbody>
</table>

No to use this spacing for rock ditch checks.
Sediment Storage Basin (Plan)

CROSS SECTION (EMERGENCY SPILLWAY)

Concrete Anti-seep Collar

Sediment Storage Basin (Elevation)

NOTES:
1) Temporary Sediment Basins shall be constructed at locations as directed by the Engineer or as approved in the SWPPP 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.

4. Other skimmer designs maybe used that dewater the pond outlet structure with water-tight connections.

Principal spillway

Orifice

Inlet pipe should be 6" to 12" from bottom of riser.

Must be water tight. Flange and coupler assemblies.

Orifice

4" (typ.)

48"

4" (typ.)

Sediment Storage

Emergency Spillway (shot rock)

Anti-seep collar (6" conc.)

3 :1 or flatter

6'-0" Top (min.)

Embankment stabilized with vegetation

Existing ground line

Steel Base File: la852h.dgn

28-JAN-2020 14:33

jbeckman
1) Design Speed: Those items delegated to temporary traffic control should be designed and installed using the post-award speed of the roadway prior to work starting.

2) Minimum Lane Width: Lane widths shall be a minimum of 11' (measured between centers 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 that 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 midblock locations) so that pedestrians are not confronted with midblock work sites that will induce them to attempt skipping the work site or making a midblock crossing.

4) When existing pedestrian facilities are discontinued, 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 mate approach.

6) Alternative temporary rumble strip options may be available. Please contact the Temporary Traffic Control Unit for more information at 785-296-1179 or 785-296-1183.

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

<table>
<thead>
<tr>
<th>SPEED (MPH)</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>URBAN (40 MPH OR LOWER)</td>
<td>100</td>
<td>100</td>
<td>150</td>
</tr>
<tr>
<td>URBAN (40 MPH OR HIGHER)</td>
<td>350</td>
<td>350</td>
<td>350</td>
</tr>
<tr>
<td>RURAL (55 MPH OR LOWER)</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>RURAL (60 MPH OR HIGHER)</td>
<td>750</td>
<td>750</td>
<td>750</td>
</tr>
<tr>
<td>EXPRESSWAY/FREeway</td>
<td>1000</td>
<td>1000</td>
<td>2840</td>
</tr>
</tbody>
</table>

#### Taper Formulas

1. L = \( \frac{S}{2} \) if posted speed limit in feet equal to \( \frac{1}{2} \) less than 100'

2. L = WS for speeds of 45 MPH or more

3. L = WS for speeds of 40 MPH or less

4. Where:

   - \( S \) = Numerical value of posted speed
   - \( W \) = Width in offset feet

5. Shifting Taper=1/3 L

### Channelizer Placement

1. The spacing between devices in transition area (taper) should not exceed a distance in feet equal to 1/2 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 bermades 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.

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

- Minimum advance warning sign spacing shall be no less than 100', unless directed by the engineer.

- The spacing between signs may be increased beyond the minimum values in the table above as approved by the engineer in order to maximize visibility.

### Buffer Space

- Neither work activity nor storage of equipment, vehicles, or material should occur in the buffer space.

- When a work zone component is placed in advance of the work zone space, the only space upstream of the vehicle constitutes the buffer space.

- If temporary concrete safety barrier system is used to separate approaching traffic from the work space, the barrier system shall be considered part of the activity area. A full lane width shall be available throughout the length of the buffer space. See typical work zone components above.
### TRAFFIC CONTROL

#### CHANNELIZING DEVICES

**KANSAS DEPARTMENT OF TRANSPORTATION**

**TE702**

**36" APPROX.**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Portable</th>
<th>Fixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drums</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Conical Delineator</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Vertical Panel</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Drum</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Conical Delineator</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Vertical Panel</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Drum</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Conical Delineator</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Vertical Panel</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Traffic Cones</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Type 2 Barricade</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Vertical Panel</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Tubular Markers</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Vertical Panel</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

1. Support device 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 pathways 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.

#### THINGS TO CONSIDER

1. Not allowed on centerline delineation along freeways or expressways.
2. The stripes shall slope downward to the traffic side for channelization.
3. May be used upon the approval of the engineer.
4. Daytime operations only.

#### Diagrams

- **Drum**
- **Conical Delineator**
- **Tubular Marker**
- **Type 2 Barricade**
- **Vertical Panel**
- **Direction Indicator Barricade**
- **Traffic Cone**
- **Pedestrian Channelizer**

**Notes:**

- 36" APPROX.
- ORANGE
- WHITE
- 6" MIN.
- 12" MAX.
- 24" MIN.
- 36" MIN.
- 24" MIN.
- 12" MIN.
- 36"
- 12"
- 8"
- 4"
- 3" MIN.
- 42"
- 2" MIN.
- 3" MIN.
- 2" MAX.
- 6" TO 8" MAX.
- 6" TO 8" MIN.
- 36" APPROX.
- MIN.
- MAX.
- 24" MIN.
- 12"
- 6" MIN.
- 12" MAX.
- PEDESTRIAN CHANNELIZER
- ORANGE
- WHITE
- 6" MIN.
- 12" MAX.
- HAND TRAILING EDGE
- SUPPORT DEVICE
- 6" MIN.
- HEIGHT

**Diagram Details:**

- **Location:**
  - Conventional
  - Diverging
  - Tangent
  - Tapers
  - Ramps
  - Head
  - Hoofly
  - Cross-overs
  - Diversions
  - Gores

**Sh. No. 32**
Note: Signs shown for one approach to work zone.

Complete closure
Type 3 barricades

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

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

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

Complete closure
Type 3 barricades

FIGURE 2: TYPICAL SIGNING FOR SIDE ROAD OPEN
**SUMMARY OF TRAFFIC CONTROL DEVICES (EACH)**

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**Recapitulation of Quantities**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Zone Sign (16.25 Sq. Ft. &amp; Less)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Zone Sign (16.26 Sq. Ft. &amp; Over)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Zone Barriers (Type 3-4.5 to 12')</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channelizer (Fixed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channelizer (Pedestrian)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Zone Warning Light (Type &quot;A&quot; Low Intensity)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Zone Warning Light (Red Type &quot;B&quot; High Intensity)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrow Display</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portable Changeable Message Sign</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lighted Devices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Zone Warning Light (Type &quot;A&quot; Low Intensity)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Zone Warning Light (Red Type &quot;B&quot; High Intensity)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arrow Display</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portable Changeable Message Sign</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Note: Traffic to be carried on shoo-fly during construction. Removal the Type III Barricades to close the shoo-fly during removal of the existing shoo-fly after the new bridge and roadway is open to traffic.