### INDEX OF DRAWINGS

<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>DRAWING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Title Sheet</td>
</tr>
<tr>
<td>2</td>
<td>Index of Sheets and Quantities</td>
</tr>
<tr>
<td>3-4</td>
<td>General Notes</td>
</tr>
<tr>
<td>5</td>
<td>Construction Layout</td>
</tr>
<tr>
<td>6-8</td>
<td>Removal Details</td>
</tr>
<tr>
<td>9</td>
<td>Welded Stud Shear Connector Details</td>
</tr>
<tr>
<td>10-14</td>
<td>Expansion Joint Details</td>
</tr>
<tr>
<td>15</td>
<td>Cleaning and Painting Details</td>
</tr>
<tr>
<td>16</td>
<td>Deck Patching Sequence</td>
</tr>
<tr>
<td>17</td>
<td>Deck Patching Details</td>
</tr>
<tr>
<td>18</td>
<td>Patching Details at Abutment No. 1</td>
</tr>
<tr>
<td>19</td>
<td>Approach Slab Repair Details</td>
</tr>
<tr>
<td>20-22</td>
<td>Concrete Pavement (PCCP) Joint and Crack Patching</td>
</tr>
<tr>
<td>23</td>
<td>Bridge Approach Slab Details, Expansion/Pressure Relief Joint</td>
</tr>
<tr>
<td>24</td>
<td>Bill of Reinforcing Steel and Bending Diagrams</td>
</tr>
<tr>
<td>25</td>
<td>Supports and Spacers for Reinforcement</td>
</tr>
<tr>
<td>26</td>
<td>Traffic Control, Pavement Marking Masking, Phase 1 and Phase 2</td>
</tr>
<tr>
<td>27</td>
<td>Traffic Control Details, Construction Sequence at Bridge</td>
</tr>
<tr>
<td>28</td>
<td>Traffic Control Layout, Phase 1 and Phase 2</td>
</tr>
<tr>
<td>29</td>
<td>Traffic Control Layout Near Bridge, Phase 1</td>
</tr>
<tr>
<td>30</td>
<td>Traffic Control Layout Near Bridge, Phase 2</td>
</tr>
<tr>
<td>31</td>
<td>Traffic Control Summary of Devloss &amp; Recap, of Quantities</td>
</tr>
<tr>
<td>32</td>
<td>Inertial Barrier (TL3)</td>
</tr>
<tr>
<td>33-35</td>
<td>Temporary Concrete Safety Barrier Type F3</td>
</tr>
<tr>
<td>36-38</td>
<td>Temporary Concrete Safety Barrier Type F3 Anchorage at Expansion Joint</td>
</tr>
</tbody>
</table>

### SUMMARY OF QUANTITIES

**NORTHBOUND U.S. 169/K-7 OVER POTAWATOMIE CREEK**

**BRIDGE NO. 169-61-9.13 (055)**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNITS</th>
<th>TOTAL QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Removal of Existing Structures</td>
<td>Lump Sum</td>
<td>L.S.</td>
</tr>
<tr>
<td>= Welded Stud Shear Connectors</td>
<td>Each</td>
<td>45</td>
</tr>
<tr>
<td>§ Concrete (Grade 4.0)(AE(15%))</td>
<td>Cu. Yd.</td>
<td>7.6</td>
</tr>
<tr>
<td>△ Reinforcing Steel (Grade 60) (Epoxi Coated)</td>
<td>Lbs.</td>
<td>1,870</td>
</tr>
<tr>
<td>Expansion Joint (Strip Seal Assembly)</td>
<td>Lin. Ft.</td>
<td>47</td>
</tr>
<tr>
<td>Bridge Painting (Organic Zinc w/ Acrylic System)</td>
<td>Lumber Sum</td>
<td>L.S.</td>
</tr>
<tr>
<td>Area Prepared for Patching</td>
<td>Sq. Yd.</td>
<td>10</td>
</tr>
<tr>
<td>Area Prepared for Patching (Full Depth)</td>
<td>Sq. Yd.</td>
<td>6</td>
</tr>
<tr>
<td>Reinforcing Steel (Repair) (Grade 60) (Epoxi)(Set Price)</td>
<td>Lbs.</td>
<td>1</td>
</tr>
<tr>
<td>Expansion Joint (Membrane Sealant)</td>
<td>Lin. Ft.</td>
<td>88</td>
</tr>
<tr>
<td>PCCP Joint and Crack Patching (Partial Depth)</td>
<td>Sq. Yd.</td>
<td>8</td>
</tr>
<tr>
<td>PCCP Joint and Crack Patching (Full Depth)</td>
<td>Sq. Yd.</td>
<td>8</td>
</tr>
<tr>
<td>Mobilization</td>
<td>Lump Sum</td>
<td>L.S.</td>
</tr>
<tr>
<td>Mobilization (DBE)</td>
<td>Lump Sum</td>
<td>L.S.</td>
</tr>
</tbody>
</table>

See Traffic Control Summary of Devices & Recap Of Quantities sheet for traffic control and temporary pavement marking items.

+ Includes removal of concrete from designated portions of the slab, curbs, abutment backwall and wings near the expansion joint at Abutment No. 2.

§ Includes concrete near the expansion joint at Abutment No. 2.

△ Includes reinforcing steel near the expansion joint at Abutment No. 2.
GENERAL NOTES

EXISTING STRUCTURE: Plans of the existing structure are on file and available for inspection by qualified bidders at the State Bridge Office, KDOT, Eisenhower State Office Building, 700 SW Harrison, Topeka, KS.

EXISTING DIMENSION VERIFICATION: Dimensions of the existing structure are based on old plans. Verify, by field measurement, the as-built dimensions of the existing structures and submit such verification in writing to the Engineer. The verification will include sketches, drawings, photographs and descriptions as needed to clearly define the as-built dimensions that will be incorporated in the new construction.

TEMPORARY CONSTRUCTION LOADS: The Contractor will not stock pile construction materials, debris/rubble or place equipment weighing more than 20 tons or greater than bridge posted load limits on the bridge without prior written approval by the KDOT Area Engineer. For bridges with highway traffic on or under the bridge the Contractor will provide plans showing the location, quantity and weight of the proposed materials, debris or equipment weighing more than 20 tons or greater than bridge posted load limit. These plans will bear the Seal of the Contractor's Engineer before approval is granted. The Contractor's Engineer will use AASHTO Specifications for limitations on structural capacities, as the structure is found in the field.

DIMENSIONS: All dimensions shown on the design plans are horizontal dimensions unless otherwise noted. Make necessary allowances for roadway grade and cross slope.

QUANTITIES: Items not listed separately in the Summary of Quantities are subsidiary to other items in the proposal.

BROKEN CONCRETE: Waste the broken concrete from the existing bridge on sites provided by the Contractor and approved by the Engineer. This work shall not be paid for directly but shall be subsidiary to "Removal of Existing Structure".

REMOVAL OF EXISTING STRUCTURE: The bid item "Removal of Existing Structure" per lump sum, includes the removal of designated portions of the slab, abutment backwall, and curbs near the expansion joints at Abutment No. 2, and any other portions designated for removal as shown on the plans. At the concrete removal area clearly mark the location of the existing girder top flanges on top of the existing deck concrete before sawing or removing any concrete. Concrete sawing shall be limited to a maximum depth of 2 inches. Do not use drop-type pavement breakers. Do not use a hoe ram directly above any girder or within 1'-0" of either edge of a girder top flange. Use a jackhammer no heavier than 15 lb. to remove concrete above and within 1'-0" of either side of a girder top flange. Damage to the existing structural steel caused by procedures not conforming to the above recommendations shall be repaired as directed by the Engineer at the Contractor's expense (no cost to the State). Any costs incurred for testing or Engineering evaluations will be included in the Contractor's expense for repair. All materials removed from the existing structure shall become the property of the Contractor and removed from the site.

REINFORCING STEEL: All reinforcing steel dimensions are to the centerline of bars unless otherwise noted. All reinforcing steel shall conform to the requirements of ASTM A615, Grade 60. Where non coated bars come in contact with epoxy coated bars, they need not be coated.

REPAIR OF EPOXY COATED REINFORCING STEEL: Replace any epoxy coating that is removed from the reinforcing steel during the concrete removal process. Thoroughly clean damaged areas with a stiff wire brush to remove dirt and damaged coating. Apply an approved patching material in accordance with manufacturer's recommendations. Avoid dripping any patching material onto existing concrete that will have new concrete placed against it. See KDOT Specifications.

CONCRETE: Concrete is bid as Concrete (Grade 4.0)(AE) (SA). Bevel all exposed edges of all concrete with a 7/8" triangular molding, except as otherwise noted on the plans. Concrete mix shall be designed using KDOT prequalified materials and shall attain design strength before the bridge is to be open to traffic.

EPOXY BONDING AGENT: Prepare all existing concrete surfaces which will be in contact with new concrete with an approved Epoxy Bonding Agent in accordance with the manufacturer's recommendations. This is subsidiary to the other items in the contract.


UNIT STRESSES:
Concrete (Grade 4.0) (AE) (SA) \( f_{c} = 4 \text{ ksi} \)
Reinforcing Steel (Grade 60)(Epoxy Coated) \( f_{y} = 60 \text{ ksi} \)

TEMPERATURE: The design temperature for all dimensions is 60°F.

STRIP SEAL: The strip seal extrusions in the bridge deck shall be 'Wabo Type R' steel shape or an approved equivalent. Material for the extrusions shall be solid extruded or hot rolled steel. No weathering steel or aluminum will be allowed. Grips shall be prime-coated with an inorganic zinc primer. The gland cavity shall not be prime-coated. The Strip Seal gland shall be a Model SE-500 capable of 5' total movement. The gland shall accommodate a maximum opening of at least 3½". The gland shall be factory molded for horizontal bends of 15° or more. The pay length for strip seal assembly is based on out to out length of the extrusion.

DEMOLITION PLANS: This is a Category A Demolition. Submit detailed Demolition Plans to the Field Engineer per KDOT Specifications. No Demolition work will begin without approved Demolition Plans. A Licensed Professional Engineer is not required.
GENERAL NOTES

REINFORCING IN BRIDGE DECK: Care should be exercised to prevent cutting, stretching or damaging exposed reinforcing steel. Extreme care should be exercised to avoid breaking the bond between the reinforcing steel and concrete where bars are partially exposed yet remain anchored in sound concrete. Reinforcing steel damaged, cut or deteriorated shall be replaced as directed by the Engineer. Do not wedge chipping hammer bit against reinforcement. See table for replacement bar size and minimum splice length required. Replacement of bars damaged by the Contractor shall be at no cost to the State.

SAW CUTS: All saw cuts shall be subsidiary to other items in the contract.

WELDING: Material, Fabrication and Construction shall conform to KDOT Specifications. On the shop drawings, show a code or symbol in the tail of the weld symbol that refers to an approved, pre-qualified weld procedure.

WELDED STUD SHEAR CONNECTORS: Weld Shear Stud Connectors with automatically timed stud welding equipment connected to a suitable power source. All stud welding shall conform to KDOT Specifications.

Field Work – Blast clean the tops of the girder top flanges to SSPC-SP6 Specifications (latest revision) before the studs are applied. After the studs are applied, blast clean the tops of the girder top flanges and the studs to SSPC-SP6 Specifications and paint with an approved organic zinc primer to a minimum dry film thickness of 3 mils.

PAINTING: Prepare and paint all designated portions of the girders, welded stud shear connectors, diaphragms, and bearing devices at Abutment No. 2 with an approved organic zinc primer and a waterborne acrylic finish coat. The finish coat shall be Kansas Brown. The color shall match Federal Standard 20045.

PAINT SYSTEM ON EXISTING STRUCTURE: Bridge 055 structural steel has a paint history of:
1) Original paint system: Lead-based system. Date: 1975.
Plan Layout

100' - 125' - 125' - 125' - 100' Continuous and Haunched Welded Steel Girder Spans
Pile Bent Abutments and Pedestal Type Piers
44' - 0' Roadway
On 0°50'0" Curve Rt.

Note: Construction shall be phased. One lane of northbound US-169 shall remain open to traffic at all times.
PLAN ABUTMENT NO. 2

**REMOVAL DETAILS**

- **Approach Slab**
- **Bridge Slab**
- **Curb**
- **Bridge**
- **E.W.S.**
- **Exp. Joint**

**Phase 1 Removal**

**Phase 2 Removal**
SECTION C-C

Remove and Salvage Handrail
Remove Concrete Curb
Remove Concrete Deck
Remove Elastomeric Concrete
Remove and Salvage Handrail Anchors

Exist, Long. Bars to Remain
Remove Existing, Vert. Bars

SECTION D-D

Remove and Salvage Handrail
Remove Concrete Sliding Plate (Typ.)
Remove Elastomeric Sliding Plate (Typ.)
Remove Threaded Loop Inserts and Bolts for Sliding Plate
Remove Abut. Wing and Backwall Concrete

Exist, Long. Bars to Remain
Remove Existing, Vert. Bars

Remove and Salvage Handrail Anchors
Remove Concrete Curb

Sliding Plate (Typ.)
Remove and Salvage Handrail Anchors

Handrail

Handrail Anchors

Remove and Salvage

i KANSAS DEPARTMENT OF TRANSPORTATION

PROJ. NO. 169-61 KA-5533-01

MAIMI CO.

M169-61-9,13 (055)
SUMMARY OF QUANTITIES

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welded Stud Shear Connector</td>
<td>45 Each</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>45 Each</strong></td>
</tr>
</tbody>
</table>
PLAN ABUTMENT NO. 2

(All existing longitudinal reinforcing steel to remain)

Note:
Cast all concrete to original lines, unless otherwise noted. Sandblast clean all concrete and reinforcing steel prior to concrete placement. An epoxy bonding agent shall be used at all construction joints.
EXPANSION JOINT DETAILS

SECTION A-A

- Tie one bar to and one bar between each existing longitudinal bar in top of slab. Cant bar as needed.
- Grease the backside of plate to prevent bonding to concrete. This side of joint only.
- Install Sliding Plate

SECTION B-B

(Top and Bottom)

- Left curb is shown, with sliding plate attached to approach side of expansion joint. Right curb is similar except sliding plate is attached to bridge side of expansion joint.
- Black Out for Sliding Plate, 4" @ 60° F

Dimensions

Slab to Existing
Reform Bottom of

See Sheet 13
Detail "A"

Abut. No. 2
1'-6" ⏞
E.W.S.

1'-6/4" ⏞
E.W.S.

6-#6S1, #6S2, or #6D1 @ 6" ctrs.
(Top and Bottom)

6-#6S1, #6S2, or #6D1 @ 6" ctrs.
(Top and Bottom)

Abut. No. 2
3'-0" ⏞
E.W.S.

E.W.S.

Grease the backside of plate to prevent bonding to concrete. This side of joint only.

Abut. Wing

Reinstall Sliding Plate↑

- #6C1 Spaced with A Bars
- #5A3

- #5S3

- 6-#6S1, #6S2, or #6D1 @ 6" ctrs.
- 3-#6A1, #6A2, or #6D1

(Top and Bottom)

(Top and Bottom)

(Handrail not shown for clarity)
**SECTION C-C**

Note: Clean and touch up any damaged galvanized areas on sliding plates or handrail anchor bolts with an approved zinc rich paint prior to reinstallation. This work shall be subsidiary to the bid item "Expansion Joint (Strip Seal Assembly)."

**SECTION D-D**

△ Furnish and Install 9-7/8" Threaded Loop Inserts and 9-7/8" Bolts with Countersunk Slotted Heads for each Sliding Plate. Loop inserts and Bolts shall be galvanized. This work shall be subsidiary to the bid item "Expansion Joint (Strip Seal Assembly)."
**EXTRUSION ELEVATION AT ABUTMENT NO. 2**

(Looking North)

- Form 1/4" recess to the back face at the bottom of the rounded edge of the strip seal extrusions. After concrete has cured, thoroughly clean valley area that has been created and fill with a silicone based sealant (or as directed by the Engineer) for the entire roadway width of the strip seal extrusions. Materials and labor shall be subsidiary to Concrete (Grade A01A/EKSA).
EXPANSION JOINT DETAILS

PLAN OF STRIP SEAL ERECTION ANGLE

SECTION A-A

SECTION THRU EXTRUSION

TYPICAL SECTION SHOWING ERECTION ANGLE

**EXPANSION JOINT GAP TABLE**

(Perpendicular to & Expansion Joint)

<table>
<thead>
<tr>
<th>Temperature °F</th>
<th>Abut. No. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>3/16&quot;</td>
</tr>
<tr>
<td>30</td>
<td>3/16&quot;</td>
</tr>
<tr>
<td>40</td>
<td>3/16&quot;</td>
</tr>
<tr>
<td>50</td>
<td>3/16&quot;</td>
</tr>
<tr>
<td>60</td>
<td>3/16&quot;</td>
</tr>
<tr>
<td>70</td>
<td>3/16&quot;</td>
</tr>
<tr>
<td>80</td>
<td>3/16&quot;</td>
</tr>
<tr>
<td>90</td>
<td>1/16&quot;</td>
</tr>
<tr>
<td>100</td>
<td>1/16&quot;</td>
</tr>
</tbody>
</table>

* Based on average ambient air temperature for the previous 24 hours.

NOTE:

The strip seal extrusion shall be a "Wabo" Type "R" steel shape or approved equivalent as shown in the details. All items shown on the Expansion Joint Details sheets are included in the bid item "Expansion Joint (Strip Seal Assembly)". All welds on the extrusion shall be 1/4" continuous fillet welds, unless otherwise noted.

**NOTE:**

Immediately prior to placing the concrete (Grade 4.0)(AE)(SA) around the Strip Seal Extrusion, the existing concrete surface of the concrete removal line shall be cleaned and roughened. The erection angles shall be securely bolted to the extrusion. The extrusion shall be in the same plane and recessed 1/4" below the top of the roadway. The erection angles shall be removed as soon as the new concrete will support the assembly without allowing any settlement or tilting. Following the removal of the erection angles, remove the stud bolts on the extrusions and grind flush. The stud bolts, nuts and washers, and erection angles, labor and materials used to install and remove the erection angles shall be subsidiary to the bid item "Expansion Joint (Strip Seal Assembly)."
PAINTING: The last 5' of girder ends at Abutment No. 2 shall be blast cleaned to the standards of SSPC-SP6 (latest Revision). The limits of preparation are shown on the plans. Prior to placing concrete for expansion device, paint with an approved organic zinc primer to a minimum dry film thickness of 3 mils. After placing concrete, apply a water-borne acrylic finish coat to the exposed section of prepared steel. The finish coat shall be Kansas Brown. The color shall match Federal Standard #20045. Areas included (but not limited to) for painting are girders, cross-frames, stiffeners, bearing devices, and masonry plates.

Blast clean, prime, and paint cross frames, stiffeners, bearing devices, and masonry plates.

Blast clean, prime, and paint girder ends (Typ. all 5 girders).

Clean all dirt and debris off the top of the bearing seat at Abutment No. 2 and Abutment No. 1. This work shall be subsidiary to the bid item "Removal of Existing Structures".
**TYPICAL SECTION**

(Phase 1 shown, Phase 2 similar)

- The type of traffic delineator to be used is found in the traffic control sheets.

- See "Traffic Control, Construction Sequence at Bridge" sheet for traffic lane and roadway widths.

- Girder Spacing 1/4 or as directed by the Engineer.

**PATCHING SEQUENCE:** When large areas of full depth patches are needed, they shall be patched in segments. If full depth patches intrude into this effective flange width area, the segments shall be a maximum of 8'-0" in length parallel to the centerline of bridge with a minimum of 8'-0" parallel to the centerline of bridge between segments. After the initial patches have cured, the areas between the initial segments shall be patched. The segmental patching will not be required if adequate shoring is provided to support the deck, curbs and beams. (See "SEQUENCE DETAIL" on this sheet).

**SUMMARY OF QUANTITIES**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNITS</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area Prepared for Patching</td>
<td>Sq. Yd.</td>
<td>10</td>
</tr>
<tr>
<td>Area Prepared for Patching (Full Depth)</td>
<td>Sq. Yd.</td>
<td>6</td>
</tr>
<tr>
<td>Reinforcing Steel (Repair) (Grade 60) (Epoxy) (Set Price)</td>
<td>Lbs.</td>
<td>1</td>
</tr>
</tbody>
</table>

**SEQUENCE DETAIL**
The intent of this project is to patch only open spalls or areas previously filled with asphalt patches, using the patch areas shown on the Construction Layout sheet as a guideline. The intent of this project is not to sound for and patch all areas of debonding on the existing concrete overlay.

**PARTIAL DEPTH PATCHING**

NOTE: Cure the patch surface using wet burlap and polyethylene sheets for a minimum of 72 hours.

**FULL DEPTH PATCHING**

NOTE: Cure the patch surface using wet burlap and polyethylene sheets for a minimum of 72 hours.

---

**AREA PREPARED FOR PATCHING:** This item shall consist of removing unsound concrete and asphalt patches from the bridge deck, cleaning reinforcing bars, and filling the removed patched areas with concrete. Quantity shown is an estimate of the areas involved. The exact areas shall be determined by tapping, before, during and after chipping operation around spalled areas only. See KDOT Specifications.

**FULL DEPTH PATCHING:** Forms shall be provided to enable placement of the concrete in areas of full depth removal of bridge slab. The forms may be suspended from existing reinforcing bars by wire ties or a method approved by the Engineer. See KDOT Specifications for method of measurement and basis of payment.

**REINFORCING IN BRIDGE DECK:** Care should be exercised to prevent cutting, stretching or damaging exposed reinforcing steel. Extreme care should be exercised to avoid breaking the bond between the reinforcing steel and concrete where bars are partially exposed yet remain anchored in sound concrete. Reinforcing steel damaged, cut or deteriorated shall be replaced as directed by the Engineer. Do not wedge chipping hammer bit against reinforcement. See table for replacement bar size and minimum splice length required. Replacement of bars damaged by the Contractor shall be at no cost to the State.

**REPAIR OF EPOXY COATED REINFORCING STEEL:** Replace any epoxy coating damaged or removed from the reinforcing steel during the concrete removal process. Thoroughly clean damaged areas with a stiff wire brush to remove dirt and damaged coating. Apply an approved patching material in accordance with the manufacturer’s recommendations. Avoid dripping any patching material onto the existing concrete. See KDOT Specifications.

**FULL DEPTH PATCHING:**

<table>
<thead>
<tr>
<th>Minimum Rebar Splice Lengths</th>
<th>Gr. 40</th>
<th>Gr. 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>#4</td>
<td>12&quot;</td>
<td>16&quot;</td>
</tr>
<tr>
<td>#5</td>
<td>13&quot;</td>
<td>17&quot;</td>
</tr>
<tr>
<td>#6</td>
<td>16&quot;</td>
<td>24&quot;</td>
</tr>
<tr>
<td>#7</td>
<td>20&quot;</td>
<td>33&quot;</td>
</tr>
<tr>
<td>#8</td>
<td>26&quot;</td>
<td>50&quot;</td>
</tr>
<tr>
<td>#9</td>
<td>33&quot;</td>
<td>49&quot;</td>
</tr>
<tr>
<td>#10</td>
<td>42&quot;</td>
<td>62&quot;</td>
</tr>
<tr>
<td>#11</td>
<td>51&quot;</td>
<td>77&quot;</td>
</tr>
</tbody>
</table>

Note: If splicing epoxy coated reinforcing steel, increase the above splice lengths by 20%.
PLAN ABUTMENT NO. 1

SECTION A-A

Repair Top of Backwall (Area Prepared for Patching (Full Depth))

Repair Concrete Bridge Deck (Area Prepared for Patching)

Exist. Finger Plate To Remain

E.W.S. 7"
PLAN APPROACH SLAB AT ABUTMENT NO. 2

- Seal 1" Gap between Wing & Approach Slab (Typ.)
- Remove and Replace Expansion Joint (Membrane Sealant) See RD712 *
- Reseal E.W.S.

PLAN APPROACH SLAB AT ABUTMENT NO. 1

- Seal 1" Gap between Wing & Approach Slab (Typ.)
- Remove and Replace Expansion Joint (Membrane Sealant) See RD712 *
- Reseal E.W.S.

SECTION A-A

- The removal of the existing membrane sealant shall be subsidiary to the bid item "Expansion Joint (Membrane Sealant)".

- This work shall be considered subsidiary to the bid item "Expansion Joint (Membrane Sealant)".

- Reseal the Joint at the End of Wearing Surface. Use hot pour Joint filler or other approved material. This work shall be subsidiary to the bid item "Expansion Joint (Membrane Sealant)".
GENERAL NOTES:

After concrete placement saw cut joint/crack or remove compression relief material and fill with specified sealant. Final saw cutting, use of compression relief material and crack sealant not required for surface (high steel) patches.

If patch will be overlaid use ¾" saw-cut or compression relief material for full depth of patch, do not seal.

All work and materials for concrete pavement partial joint and crack patching to be paid for as square yards "PCCP Joint and Crack Patching (Partial Depth)". See Standard Specifications for additional information.
GENERAL NOTES:
If patch will be overlaid use ⅛" x ⅜" deep saw-cut or compression relief material, do not seal.
All work and materials for concrete pavement full joint and crack patching to be paid for as square yards "PCCP Joint and Crack Patching (Full Depth)". See Standard Specifications for additional information.
SAW-CUT OR FORMED JOINT DETAIL

PROFILE VIEW EXISTING DETERIORATED JOINT

FULL DEPTH JOINT PATCHING

LEGEND

Sand

Spalled area

Area to be removed

GENERAL NOTES:

All work and materials for concrete pavement full joint patching to be paid for as square yards "PCCP Joint and Crack Patching (Full Depth)". See Standard Specifications for additional information.
GENERAL NOTES

EXPANSION/PRESSURE RELIEF JOINTS

- See Approach Slab Repair Details sheet for location of pressure relief joints.
- Remove the existing joint material in the approach slab. Clean and construct the joint only after the concrete in the approach slab has cured for a minimum of 7 days.
- Thoroughly clean the joint by sandblasting and by high pressure air blast to remove all laitance and contaminants from the joint. When any joint is shaped by saw cutting in lieu of forming, blast the joint with water prior to sandblasting and air cleaning.
- Accomplish sandblasting in two passes to clean each face of the joint (one pass for each face). Hold the nozzle 1 to 2 inches from the joint face at an angle to the joint face.
- Remove any contaminants such as oil, curing compound, etc. by sandblasting to the satisfaction of the Engineer. Solvents, wire brushing, or grinding are not permitted.
- Air blast the joint just prior to installing the Membrane Sealant. Equip the air compressor used to clean the joint with trap devices capable of providing moisture-free and oil-free air at a recommended pressure of 90 psi. Spot check the joint to verify any residual dust or dirt has been removed. The Engineer is required to inspect the joint immediately prior to installing the joint material.
- See KDOT Standard Specifications for Membrane Sealant, Bonding Adhesive and Splice Adhesive.
- Do not allow traffic on the joint for a minimum of 3 hours unless otherwise directed by the Engineer.
- Use splice materials and methods recommended by the Manufacturer.
- All work and materials for the preparation, construction, and installation of the joint will be subsidiary to the concrete approach pavement.

* The existing pressure relief joint width is 2 1/2" based on the 2001 approach slab plans. Prior to ordering the new membrane sealant, the Contractor shall measure the existing pressure relief joint widths and submit such measurements in writing to the Engineer. The nominal width of the new membrane sealant shall be 1/2" greater than the existing pressure relief joint width.

<table>
<thead>
<tr>
<th>NO.</th>
<th>DATE</th>
<th>DRAWING NAME</th>
<th>REV.</th>
<th>BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>1-26-13</td>
<td>Revised General Note SWK, J.O.B.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4-13</td>
<td>Rev. Joint Wsh Det. Table SWK, J.O.B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>7-12-09</td>
<td>Adjust. Expansion Joint Cost SWK, J.O.B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**KANSAS DEPARTMENT OF TRANSPORTATION**

**BRIDGE APPROACH SLAB DETAILS**

**EXPANSION/PRESSURE RELIEF JOINT/BRIDGE APPROACH SLAB FOOTING**

**KANSAS DEPARTMENT OF TRANSPORTATION**

**LEGAL STAMP**

**SET DATE**

**ROD# 12**

**DESIGNER**

**DRAWER**

**CHECKER**

**DRAFTSMAN**

**PROJECT MANAGER**

**CONTRACTOR**

**SUBMITTER**

**LOCATION**
ABUTMENT NO. 2
BILL OF REINFORCING STEEL
Grade 60 (Epoxy Coated)

<table>
<thead>
<tr>
<th>Straight Bars</th>
<th>Bent Bars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark</td>
<td>Size</td>
</tr>
<tr>
<td>S1</td>
<td>*</td>
</tr>
<tr>
<td>S2</td>
<td>6</td>
</tr>
<tr>
<td>A1</td>
<td>*</td>
</tr>
<tr>
<td>A2</td>
<td>6</td>
</tr>
</tbody>
</table>

* See Coupled Rebar Table

BENDING DIAGRAMS
All dimensions are out of bars.

Coupled Bars
(Place in Phase 1 Const.)

Coupled Bars
(Place in Phase 2 Const.)

The mechanically fastened bar lengths are calculated to the center of the coupling device. The mechanical splice system shall meet the requirements of KDOT Specifications. The additional material and labor for the mechanical splices shall be subsidiary to "Reinforcing Steel (Grade 60)" (Epoxy Coated).
Reference is made to the latest edition of the CRSI 'Manual of Standard Practice' for recommended industry practices concerning reinforcing steel.

Use only the following types of bar supports:

1) Wire Bar Supports:
   a) Epoxy coated reinforcing: Class 1 Protection
   b) Non-epoxy coated reinforcing: Class 1, 2, or 3 Protection

2) Plastic Bar Supports

3) Supplementary bars

When securing epoxy coated reinforcement, use tie wires or metal clips that are epoxy or plastic coated.

Do not weld reinforcing steel to bar supports or to other reinforcing steel. Shop weld spacer frames for haunched slabs.

Tie bars at all intersections around the perimeter of each mat and at not less than 2'-0" centers or at every intersection, whichever is greater.

Where more than one length of bar support is required, lap the end legs so they are locked or tied together.

Use proper height supports to maintain the distance between the reinforcing and the formed surface or the top surface of deck slabs within 1/4" of that indicated on the plans.

Spacings shown are maximums. Use sufficient supports, as determined by the Engineer, to retain the reinforcing steel in position.

Construct any platforms, required for the support of workers and/or equipment during concrete placement, directly on the forms and not on the reinforcing steel.

Designs and arrangements of Supports or Spacers other than as shown on this sheet, may be used with the permission of the Engineer.
Existing Pavement

Mark Existing Solid White

Mark Existing Broken White

Mark Existing Solid Yellow

Pavement Marking Line

Mask Existing Solid White

Mask Existing Broken White

Mask Existing Solid Yellow

Pavement Marking Line

US-169 (NORTHBOUND)

BR. NO. 055

3965'

1375'

305'

Plot File: I:\KAC\PRJ\00000\705800\00MSHEETS\26_Br 055_TC Pavement Masking.dgn

PROJ. NO. 169-61 KA-553-01
BRIDGE NO. 169-61-9.13 (055)
KANSAS DEPARTMENT OF TRANSPORTATION
MIAMI CO.

LOT 055

PROJ. NO. 169-61-KA-553-01
BRIDGE NO. 169-61-9.13 (055)
KANSAS DEPARTMENT OF TRANSPORTATION
MIAMI CO.

LOT 055
See Traffic Control Layout sheet for details

Existing Pavement Marking to Remain

Type 3 Barricade

250'

125'

50'

645'

Area of Concern

4" Solid Yellow Edge Line (Temp.)

4" Solid White Edge Line (Temp.)

14/1 Flare Rate

250'

1000' of Concrete Safety Barrier
(Type F3)(Temporary)

Deck Patching Work Area

US-169 NORTHBOUND

BR. NO. 055

Work Area

Install 25 Lin. Ft. of Anchored Temporary Safety Barrier at & Brg. Abut. No. 1
(See RD622C)

10' Shed.

12' Lane

55'

Shifting Taper

125'

50'

250'

Shifting Taper

25'

25'

25'

PHASE 1 CONSTRUCTION

LEGEND

Directional Arrow
Channelizing Devices
Work Area
Temporary Barrier
Type 3 Barricade
Inertial Barrier System

PHASE 1
TRAFFIC CONTROL LAYOUT NEAR BRIDGE.

KANSAS DEPARTMENT OF TRANSPORTATION
MIAMI CO.

PROJ. NO. 169-61-9.13 (055)
BRIDGE NO. 169-61-9.13 (055)

I:\KAC\PRJ\00000/0705801\00NSHEETS\29 Br 055_TC Layout Near Bridge Phase 1.dgn

PROJ. NO. 169-61 KA-5533-01

16105 W. 113th Street
Suite 107
Lenexa, KS 66219

KANSAS DEPARTMENT OF TRANSPORTATION
MIAMI CO.

PROJ. NO. 169-61-9.13 (055)
BRIDGE NO. 169-61-9.13 (055)

I:\KAC\PRJ\00000/0705801\00NSHEETS\29 Br 055_TC Layout Near Bridge Phase 1.dgn

PROJ. NO. 169-61 KA-5533-01

16105 W. 113th Street
Suite 107
Lenexa, KS 66219
### SUMMARY OF TRAFFIC CONTROL DEVICES (EACH PER DAY)

* Quantity most used on the project at any one time

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Zone Sign (Special)</td>
<td>140</td>
<td>Each Per Day</td>
</tr>
<tr>
<td>Work Zone Sign (0 to 9.25 Sq.Ft.)</td>
<td>140</td>
<td>Each Per Day</td>
</tr>
<tr>
<td>Work Zone Sign (9.26 to 16.25 Sq.Ft.)</td>
<td>170</td>
<td>Each Per Day</td>
</tr>
<tr>
<td>Work Zone Sign (16.26 Sq.Ft. &amp; Over)</td>
<td>230</td>
<td>Each Per Day</td>
</tr>
<tr>
<td>Work Zone Barricades (Type 3 - 4' to 12')</td>
<td>50</td>
<td>Each Per Day</td>
</tr>
<tr>
<td>Work Zone Barricades (Pedestrian)</td>
<td>50</td>
<td>Each Per Day</td>
</tr>
<tr>
<td>Channelizer (Portable)</td>
<td>2,610</td>
<td>Each Per Day</td>
</tr>
<tr>
<td>Channelizer (Pedestrian)</td>
<td>1,950</td>
<td>Each Per Day</td>
</tr>
<tr>
<td>Work Zone Warning Light (Type 'A' Low Intensity)</td>
<td>270</td>
<td>Each Per Day</td>
</tr>
<tr>
<td>Work Zone Warning Light (Red Type 'B' High Intensity)</td>
<td>270</td>
<td>Each Per Day</td>
</tr>
<tr>
<td>Arrow Display</td>
<td>50</td>
<td>Each Per Day</td>
</tr>
<tr>
<td>Portable Changeable Message Sign</td>
<td>50</td>
<td>Each Per Day</td>
</tr>
<tr>
<td>Pavement Marking (Temporary)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Solid (Type I)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Solid (Type II)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Broken (6.0') (Type I)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Broken (6.0') (Type II)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Broken (3.0') (Type I)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Broken (3.0') (Type II)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Dotted Extension (Type I)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Dotted Extension (Type II)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>Solid (Line Masking Tape)</td>
<td>27.5</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>Broken (Line Masking Tape)</td>
<td>9.9</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>Symbol (Type I)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Symbol (Type II)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (4' Broken (8.0'))</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (4' Broken (3.0'))</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Pavement Marking Removal</td>
<td>1</td>
<td>Lin. Ft.</td>
</tr>
<tr>
<td>Concrete Safety Barrier (Type F3)(Temporary)</td>
<td>1000</td>
<td>Lin. Ft.</td>
</tr>
<tr>
<td>Concrete Safety Barrier (Type F3)(Temporary - Relocate)</td>
<td>1000</td>
<td>Lin. Ft.</td>
</tr>
<tr>
<td>Inertial Barrier System (TL-2)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Inertial Barrier System (TL-3)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Replacement Modules (IBS)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Work Zone Sign (Special) (16.25 Sq. Ft. &amp; Less)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Work Zone Sign (Special) (16.26 Sq. Ft. &amp; More)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Rigid Raised Pavement Marker (Type I)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Rigid Raised Pavement Marker (Type II)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Traffic Signal Installation (Temporary)</td>
<td>1</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Traffic Control (Initial Set Up)</td>
<td>1</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Traffic Control</td>
<td>1</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Flagger (Set Price)</td>
<td>1</td>
<td>Hour</td>
</tr>
</tbody>
</table>

### SUMMARY OF TRAFFIC CONTROL DEVICES (EACH)

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Zone Sign (Special)</td>
<td>140</td>
<td>Each</td>
</tr>
<tr>
<td>Work Zone Sign (0 to 9.25 Sq.Ft.)</td>
<td>140</td>
<td>Each</td>
</tr>
<tr>
<td>Work Zone Sign (9.26 to 16.25 Sq.Ft.)</td>
<td>170</td>
<td>Each</td>
</tr>
<tr>
<td>Work Zone Sign (16.26 Sq.Ft. &amp; Over)</td>
<td>230</td>
<td>Each</td>
</tr>
<tr>
<td>Work Zone Barricades (Type 3 - 4' to 12')</td>
<td>50</td>
<td>Each</td>
</tr>
<tr>
<td>Work Zone Barricades (Pedestrian)</td>
<td>50</td>
<td>Each</td>
</tr>
<tr>
<td>Channelizer (Portable)</td>
<td>2,610</td>
<td>Each</td>
</tr>
<tr>
<td>Channelizer (Pedestrian)</td>
<td>1,950</td>
<td>Each</td>
</tr>
<tr>
<td>Work Zone Warning Light (Type 'A' Low Intensity)</td>
<td>270</td>
<td>Each</td>
</tr>
<tr>
<td>Work Zone Warning Light (Red Type 'B' High Intensity)</td>
<td>270</td>
<td>Each</td>
</tr>
<tr>
<td>Arrow Display</td>
<td>50</td>
<td>Each</td>
</tr>
<tr>
<td>Portable Changeable Message Sign</td>
<td>50</td>
<td>Each</td>
</tr>
<tr>
<td>Pavement Marking (Temporary)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Solid (Type I)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Solid (Type II)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Broken (6.0') (Type I)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Broken (6.0') (Type II)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Broken (3.0') (Type I)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Broken (3.0') (Type II)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Dotted Extension (Type I)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>4&quot; Dotted Extension (Type II)</td>
<td>88.8</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>Solid (Line Masking Tape)</td>
<td>27.5</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>Broken (Line Masking Tape)</td>
<td>9.9</td>
<td>Sta./Line</td>
</tr>
<tr>
<td>Symbol (Type I)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Symbol (Type II)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (4' Broken (8.0'))</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Flexible Raised Pavement Marker (4' Broken (3.0'))</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Pavement Marking Removal</td>
<td>1</td>
<td>Lin. Ft.</td>
</tr>
<tr>
<td>Concrete Safety Barrier (Type F3)(Temporary)</td>
<td>1000</td>
<td>Lin. Ft.</td>
</tr>
<tr>
<td>Concrete Safety Barrier (Type F3)(Temporary - Relocate)</td>
<td>1000</td>
<td>Lin. Ft.</td>
</tr>
<tr>
<td>Inertial Barrier System (TL-2)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Inertial Barrier System (TL-3)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Replacement Modules (IBS)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Work Zone Sign (Special) (16.25 Sq. Ft. &amp; Less)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Work Zone Sign (Special) (16.26 Sq. Ft. &amp; More)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Rigid Raised Pavement Marker (Type I)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Rigid Raised Pavement Marker (Type II)</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td>Traffic Signal Installation (Temporary)</td>
<td>1</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Traffic Control (Initial Set Up)</td>
<td>1</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Traffic Control</td>
<td>1</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Flagger (Set Price)</td>
<td>1</td>
<td>Hour</td>
</tr>
</tbody>
</table>
### INERTIAL BARRIER SYSTEM

<table>
<thead>
<tr>
<th>Station</th>
<th>Side</th>
<th>Design Speed</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>US-169 Hwy.</td>
<td>Lt.</td>
<td>60 MPH</td>
<td>Phase 1, SE Quad</td>
</tr>
<tr>
<td>US-169 Hwy.</td>
<td>Rt.</td>
<td>60 MPH</td>
<td>Phase 2, SW Quad</td>
</tr>
</tbody>
</table>

### GENERAL NOTE

This drawing details general configurations for Inertial Barrier Systems. Some project specific conditions may require variations which are designed to meet prevailing criteria.

- Use Inertial Barrier System consisting of the units as shown for the specified design speed, all hardware and attachments.
- Install Inertial Barrier System on a flat, stable base with cross-slope no steeper than 10:1. See Manufacturer's recommendations for module materials and method of installation.
- See standard specifications for mixture to fill modules requirements.
- Provide a 6" spacing between modules and one foot between the end of concrete barrier or other rigid object.
- When installed as part of project traffic control, the bid item "Inertial Barrier" includes the original installation and required relocations.
- Keep available replacement modules to replace any size module used on site, Engineer's direction.
- Inertial Barrier System modules damaged by the Contractor during relocation of Inertial Barrier System are replaced at the Contractor's expense.
- Module weights shown are in pounds.
- Install 270 square inches of Type II High Performance (vertical, rectangular or diamond shape) reflective sheeting on first module of Inertial Barrier System facing traffic.
- Where sufficient space is available the Inertial Barrier System may be aligned at an angle, not to exceed 10°, in the direction of approach traffic.
- No portion of the system shall encroach into the approach traffic lane.

#### HIGH SPEED TL-3

(V > 45 MPH)

**TYPICAL PLAN of INERTIAL BARRIER**

When two-way traffic is adjacent to only one side of Concrete Barrier or Obstacle, these additional modules will be placed on the Traffic Side of Concrete Barrier or Obstacle. Traffic adjacent to both sides of the Concrete Barrier or Obstacle requires an additional set of modules each side if approach traffic is exposed to the back portion of the Inertial Barrier. These additional modules are not required along the sides of Concrete Barrier or Obstacle when it's location is outside the Clear Zone or one-way directional traffic.

### PLAN - CLEAR AREA

- Fill module to correct weight for its position in array.
- Keep available replacement modules to replace any size module used on site, Engineer's direction.

---

**INERTIAL BARRIER**

(Phase 1, SE Quad US-169 Hwy.)

**Revised General Note**

Revised General Note

---

**PLAN Replacement Module**

**INERTIAL BARRIER**

(Phase 2, SW Quad US-169 Hwy.)

**KANSAS DEPARTMENT OF TRANSPORTATION**

**PROJ. NO. 169-61 KA-5533-01**

**MIAI. DEPARTMENT OF TRANSPORTATION**

**BRIDGE NO. 169-61-9.13 (055)**
**ELEVATION (SECTION)**

- Marked End
- V Notch is optional
- 4" diameter - 11 gauge steel round mechanical tubing sleeve. These holes are optional.
- 3 3/8" ± 3/8" measured from face of rail to outside edge of loop bar

**PLAN (SECTION)**

- a1 bars
- a2 bars (in pairs)
- b1 bars
- b2 bars
- b3 bars
- a2 bars
- d1 bar

**NOTE:** At no time shall the barriers be lifted, moved, etc.

by use of the loop bars: d1, d2 or d3.

**SECTION A-A**

- Typical Section (Stirrup Placement)

**SECTION B-B**

- Typical Section (Stirrup Placement)

**LIFTING SLOT DETAIL**

(1" Chamfer to prevent spalling)
**DETAILS OF BARRIER CONNECTION**

**LOOP ASSEMBLY**

Per 12'-6" Barrier Section

Concrete Quantity = 1.3 C.Y.

(Dimensions are out to out of bars unless otherwise noted.)

---

**REINFORCING A615 Gr. 60**

<table>
<thead>
<tr>
<th>Bar</th>
<th>Bar Size</th>
<th>Shape</th>
<th>No. of Bars</th>
<th>Length Ft.</th>
<th>Weight Lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a₁</td>
<td>#4</td>
<td></td>
<td>12</td>
<td>6'-0&quot;</td>
<td>48.1</td>
</tr>
<tr>
<td>a₂</td>
<td>#6</td>
<td></td>
<td>5</td>
<td>2'-11&quot;</td>
<td>26.3</td>
</tr>
<tr>
<td>b₁</td>
<td>#5</td>
<td></td>
<td>7</td>
<td>12'-2&quot;</td>
<td>88.8</td>
</tr>
</tbody>
</table>

**LOOP ASSEMBLY**

| d₁  | #6       |       | 2           | 8'-5"      | 25.3        |
| d₂  | #6       |       | 2           | 7'-7"      | 22.8        |
| d₃  | #6       |       | 2           | 8'-6"      | 25.5        |

---

**DETAIL A**

**CONNECTION PIN**

(As6 Steel) 10.9 lbs. each

* ⅜" ø hole for retainer bolt. The retainer bolt & nut are installed at Contractor's option.

Note: Retainer bolt & nut required with Tie Down Strap.

---

**TEMPORARY CONCRETE SAFETY BARRIER**

**TYPE F3**

PROJ. NO. 169-61 KA-5533-01  
BRIDGE NO. 169-61-9.13 (055)  
MIAMI CO. 34

KANSAS DEPARTMENT OF TRANSPORTATION

---

**PLAN**

**LOOP BAR ASSEMBLY**

(Material as stated in General Notes)
GENERAL NOTES:

MATERIAL: Use ASTM A615, Grade 60 reinforcing bars, except for the loop bars \( (d_1, d_2, \text{ and } d_3) \).

The loop bars \( (d_1, d_2, \text{ and } d_3) \) shall be \( \frac{3}{4} " \) smooth steel bars with a minimum yield of 60 ksi, a tensile strength of not less than 1.25 times the yield strength but a minimum of 80 ksi, a minimum 14% elongation in 8 inches, and passing a 180 degree bend test using a 3.5 D pin bend diameter. The loops shall be installed within \( \frac{1}{3} " \) of the plan dimensions.

Use air-entrained concrete with \( f'c = 5,000 \text{ p.s.i.} \).

SECTION: The section furnished must generally comply with dimensions shown. Requests for minor variations in section geometry and attachments may be submitted to the Engineer for approval.

LIFTING SLOTS: Lifting slots shall be constructed where specified on the plans to facilitate the drainage of water after installation on the roadway.

TEMPORARY CONCRETE SAFETY BARRIER: Furnishing and placing of all materials when required and all labor and equipment required to position the temporary barrier shall be included in the Contract unit price bid for "Concrete Safety Barrier (Type F3)(Temporary)". Any relocation of the barrier required for the project shall be paid in accordance with the Special Provisions under the bid item "Concrete Safety Barrier (Type F3)(Temporary-Relocate)". Unless otherwise noted on the Plans, the Temporary Concrete Safety Barrier shall become the property of the Contractor and shall be removed from the site upon acceptance of the completed project.

Approximate weight of one unit equals 2.7 tons.

PLACEMENT: Barrier shall be placed on a paved surface. All loose dirt and sand shall be removed from the roadway surface just prior to placement of the barrier.

After the barrier is placed and the connection pin is inserted, tension or pull the barrier such that the installation is taut and the connection pin cannot freely move vertically. If the connection pin or loop bar assembly are damaged during the tensioning process, it is the responsibility of the Contractor to repair the damaged area or replace the temporary barrier section.

MARKING: The left end (\( \Delta \)) of each barrier shall be permanently marked by stamping or forming into the barrier the following information:
- Type F3
- Manufacturer code (as specified by KDOT Bureau of Const. & Maint.)
- Date manufactured (month and year)

DELINEATION: Delineators shall be placed on 50' centers, except through curves where they shall be placed on 25' centers. See Standard Drawing RD610 for additional details.

The delineation shall be mounted on the side of the Temporary Concrete Safety Barrier with two delineators at each location. Each delineator shall have a minimum height-to-width ratio of 1.75, and a minimum reflective surface area of 7 sq. in. The delineators shall be affixed to the Temporary Concrete Safety Barrier as recommended by the manufacturer.

Delineators shall be attached to bridge rail or other structures in construction zones when roadway is narrowed and traffic is adjacent to the structure. The method and location of placement shall be similar to permanent barrier delineation.

When traffic flow is in one direction, the delineators shall be yellow when used on the left, white when used on the right. When traffic flow is in both directions delineators shall be placed back-to-back, and shall correspond to the color of the edge line.

The work and materials required for the installation of delineators as mentioned shall be subsidiary to the bid item "Concrete Safety Barrier (Type F3)(Temporary)".

If necessary, include Standard Drawing RD622A for Taper Section, Standard drawing RD622B for anchor and tie down details, Standard Drawing RD622C for Bridges with thermal expansion of \( 1\frac{1}{2} " \) or greater and Standard Drawing RD622D for Barrier Layouts.

The Contractor shall be responsible for maintaining a clear area, shown as dimension "A" on Standard Drawing RD622B. The clear area is located behind the Temporary Concrete Safety Barrier and shall be kept free of any equipment, material stockpiles or other obstacles.

For non-anchored roadway applications, dimension "A" shall be a minimum of 2'-0".

DELINEATOR DETAILS

Flexible Delineators

Type F3 barrier

END VIEW
TEMPORARY CONCRETE SAFETY BARRIER TYPE F3 ANCHORAGE AT EXPANSION JOINT SCHEMATIC

ELEVATION

(Left and Right Barrier Section needed for each Bridge Expansion Joint, see details.)

PLAN (SECTION)

12'-6"

F3 Barrier Unit

(See Std. RD622)

1'-6" x 1'-9" x 1'-9" barrier recess to accommodate
1/2" Steel Cap Plate (Typical).

36" x 48" Exp. Jt. Steel cap (1/4" plate)

(See Steel Cap Connector detail)

GENERAL NOTES

Installation of F3 Barrier with Steel Cap Plate is for thermal expansion joint with ≥ 1-1/2".

This two barrier system (25'-0") is reversible to match with regular F3 Barrier layout. The Cap Plate sections are installed with no greater than 4" gap and pinned as shown in Expansion Jt. schematic. Install Cap Plate flush to recess on Traffic Approach side and bolt in place front and back of barrier with attachment types shown.

See Standard Drawing RD622 for reinforcing bending diagrams and additional details not shown on this sheet.

The State Bridge Office will review shop details before fabrication begins.

All materials, labor and equipment needed for (Type F3) (25' Expansion Joint Unit) shall be bid as "Concrete Safety Barrier (Type F3) (Temporary)".

The State Bridge Office will review shop details before fabrication begins.

Approach Traffic

Bridge Deck

Temporary Concrete Safety Barrier Type F3 Anchorage at Expansion Joint

KANSAS DEPARTMENT OF TRANSPORTATION

PROJ. NO. 169-6I KA-5533-01

Bridge No. 169-6I-9.13 (055)

Miaml CO.

36
11 Gauge 4" Ø steel tubing sleeve (additional lifting) are optional.

3½" ± ¼" measured from face of rail to outside edge of loop bar

Approach traffic side

Approach Rigid Pavement

if two or more Anchor Bolts are omitted, then add an additional cable.

Bridge expansion joint to be located at or near center of 25'-0' Cap Plate Barrier sections.

Install Cap Plate with ½" gap or less to recess edge on approach traffic side.

TREATMENT AT BRIDGE DECK EXPANSION JOINT SCHEMATIC

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.

4'-6" Exp. Jt. Steel cap (½ plate)

(See Steel Cap Connector detail)

F3 Barrier Unit

(See Std. RD622)

F3 Barrier Unit (Traffic Side)

Right Barrier Unit

Approach Traffic

Approach Rigid Pavement

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.

4'-6" Exp. Jt. Steel cap (½ plate)

(See Steel Cap Connector detail)

F3 Barrier Unit

(See Std. RD622)

F3 Barrier Unit (Traffic Side)

Right Barrier Unit

Approach Traffic

Approach Rigid Pavement

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.

4'-6" Exp. Jt. Steel cap (½ plate)

(See Steel Cap Connector detail)

F3 Barrier Unit

(See Std. RD622)

F3 Barrier Unit (Traffic Side)

Right Barrier Unit

Approach Traffic

Approach Rigid Pavement

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.

4'-6" Exp. Jt. Steel cap (½ plate)

(See Steel Cap Connector detail)

F3 Barrier Unit

(See Std. RD622)

F3 Barrier Unit (Traffic Side)

Right Barrier Unit

Approach Traffic

Approach Rigid Pavement

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.

4'-6" Exp. Jt. Steel cap (½ plate)

(See Steel Cap Connector detail)

F3 Barrier Unit

(See Std. RD622)

F3 Barrier Unit (Traffic Side)

Right Barrier Unit

Approach Traffic

Approach Rigid Pavement

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.

4'-6" Exp. Jt. Steel cap (½ plate)

(See Steel Cap Connector detail)

F3 Barrier Unit

(See Std. RD622)

F3 Barrier Unit (Traffic Side)

Right Barrier Unit

Approach Traffic

Approach Rigid Pavement

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.

4'-6" Exp. Jt. Steel cap (½ plate)

(See Steel Cap Connector detail)

F3 Barrier Unit

(See Std. RD622)

F3 Barrier Unit (Traffic Side)

Right Barrier Unit

Approach Traffic

Approach Rigid Pavement

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.

4'-6" Exp. Jt. Steel cap (½ plate)

(See Steel Cap Connector detail)

F3 Barrier Unit

(See Std. RD622)

F3 Barrier Unit (Traffic Side)

Right Barrier Unit

Approach Traffic

Approach Rigid Pavement

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.

4'-6" Exp. Jt. Steel cap (½ plate)

(See Steel Cap Connector detail)

F3 Barrier Unit

(See Std. RD622)

F3 Barrier Unit (Traffic Side)

Right Barrier Unit

Approach Traffic

Approach Rigid Pavement

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.

4'-6" Exp. Jt. Steel cap (½ plate)

(See Steel Cap Connector detail)

F3 Barrier Unit

(See Std. RD622)

F3 Barrier Unit (Traffic Side)

Right Barrier Unit

Approach Traffic

Approach Rigid Pavement

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.

4'-6" Exp. Jt. Steel cap (½ plate)

(See Steel Cap Connector detail)

F3 Barrier Unit

(See Std. RD622)

F3 Barrier Unit (Traffic Side)

Right Barrier Unit

Approach Traffic

Approach Rigid Pavement

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.

4'-6" Exp. Jt. Steel cap (½ plate)

(See Steel Cap Connector detail)

F3 Barrier Unit

(See Std. RD622)

F3 Barrier Unit (Traffic Side)

Right Barrier Unit

Approach Traffic

Approach Rigid Pavement

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.

4'-6" Exp. Jt. Steel cap (½ plate)

(See Steel Cap Connector detail)

F3 Barrier Unit

(See Std. RD622)

F3 Barrier Unit (Traffic Side)

Right Barrier Unit

Approach Traffic

Approach Rigid Pavement

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.

4'-6" Exp. Jt. Steel cap (½ plate)

(See Steel Cap Connector detail)

F3 Barrier Unit

(See Std. RD622)

F3 Barrier Unit (Traffic Side)

Right Barrier Unit

Approach Traffic

Approach Rigid Pavement

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.

4'-6" Exp. Jt. Steel cap (½ plate)

(See Steel Cap Connector detail)

F3 Barrier Unit

(See Std. RD622)

F3 Barrier Unit (Traffic Side)

Right Barrier Unit

Approach Traffic

Approach Rigid Pavement

D=2½'

D=2½'

3'-2'

5½'

ELEVATION

PLAN

4' Bridge Expansion Joint

2'-0"

4'-3"

10'-6"

10'-6"

15' Typ.

15' Typ.
Insert Wire Rope thru 4" ø Galvanized Pipe and secured with Connection Pin.

DETAIL "A" (Wire Rope)

SECTION A-A
TYPICAL SECTION
(Left Barrier Stirrup Placement)

REINFORCING A615 Gr. 60

<table>
<thead>
<tr>
<th>Bar</th>
<th>Bar Size</th>
<th>Shape</th>
<th>No. of Bars</th>
<th>Length Ft.</th>
<th>Weight Lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a1</td>
<td>#4</td>
<td></td>
<td>16</td>
<td>6'-0&quot;</td>
<td>64.1</td>
</tr>
<tr>
<td>a2</td>
<td>#6</td>
<td></td>
<td>6</td>
<td>2'-11&quot;</td>
<td>26.3</td>
</tr>
<tr>
<td>b1</td>
<td>#5</td>
<td></td>
<td>9</td>
<td>12'-2&quot;</td>
<td>114.2</td>
</tr>
</tbody>
</table>

LOOP ASSEMBLY

- 3½" Drop Forged Cable Clamps
- (Clamp as shown only)

WIRE ROPE CLAMP DETAIL

Per 12'-6" Barrier Section

Concrete Quantity = 1.3 C.Y.

(Dimensions are out to out of bars unless otherwise noted.)

Reinf., Struct. and Concrete quantities are for "Information Only".

SECTION B-B
TYPICAL SECTION
(Right Barrier Stirrup Placement)

SECTION C-C
TYPICAL SECTION

DETAIL OF F3 BARRIER & EXP. JT. F3 BARRIER
WIRE ROPE CONNECTION

END VIEW
STEEL CAP PLATE

PLAN (STEEL CAP PLATE)

TEMPORARY CONCRETE SAFETY BARRIER TYPE F3 ANCHORAGE AT EXPANSION JOINT

KANSAS DEPARTMENT OF TRANSPORTATION