The Type K Temporary Concrete Barrier System has been crash tested to NCHRP Report 350 TL-3 criteria or structurally evaluated to meet the requirements of NCHRP Report 350 TL-3 criteria for the installation configurations as shown utilizing the types, sizes, lengths, shapes, strengths and grades of the fabrication and installation materials as shown.

In order to maintain crashworthiness of the system, do not substitute different grades, sizes, shapes or types of reinforcing steel for those shown for constructing Type K Barrier Units. Also, do not substitute different type, size, length or material grades, anchor bolts, nuts, washers, adhesives, connector pins, shakers, keeper pins, or guardrail components for installing Type K Barrier Units.

FABRICATOR QUALIFICATION: The Barrier Units shall be made in a prestressed concrete plant that meets the requirements of Specification Section 450 or in a precast plant meeting the requirements of Specification Section 6-8.

CONCRETE: Concrete shall be Class IV in accordance with Specification Section 346. Specification Sections 346-10.2 through 346-10.4 are not applicable. Barrier Units represented by concrete acceptance strength tests which fall below 5000 psi will be rejected.

REINFORCING STEEL: Reinforcing steel shall be ASTM A 416, Grade 60 except for Bars 60L, 60D and 60.3. Bars 60L, 60D and 60.3 shall be ASTM A 500, except that a 2 1/8 diameter pin must be used for the 280 degree bend test. After fabrication, all or part of bars 60L shall be hot dip galvanized in accordance with Specification Section 962 or coated with a cold galvanizing compound in accordance with Specification Section 970. The minimum limit of galvanizing or coating is shown in the Bending Diagrams. At the Fabricator’s option, the entire length of Bars 60 may be galvanized or coated. Install Bars 60 within 5% of the plan dimensions. Correct placement of Bars 60 is critical for proper fit-up and performance of individual Barrier Units.

At the option of the Fabricator, Deformed Welded Wire Fabric in accordance with ASTM A 497 and the details shown on Sheet 2 may be utilized in lieu of Bars 44 and 56.

All dimensions in the Bending Diagrams are out to scale. All reinforcing steel shall have a 2” minimum cover except as noted.

LIFTING SLEEVE ASSEMBLY: Inclusion of the Lifting Sleeve Assembly is optional. Steel pipe sleeve shall be in accordance with ASTM A 53. Hot-dip galvanize the Lifting Sleeve Assemblies after their fabrication in accordance with the Specifications.

SURFACE FINISH: Construct Barrier Units in accordance with Specification Sections 450 and 521. Finish the top and sides of the Barrier Units with a General Surface Finish. Finish the bottom of the Barrier Units to a dense uniform surface by floating in lieu of the General Surface Finish. Use stationary metal forms or stationary timber forms with a form liner.

MARKING: Permanently mark the top left end of each Barrier Unit by the use of an embedded and anchored metallic plate with letters and figures a minimum of 0.5” tall. Ink stamps are not allowed. Permanently mark with the following information:

- Type K
- Fabricator’s name or symbol
- Date of manufacture (day, month and year)

HANDLING: At no time shall the Barrier Units be lifted or moved by use of Bars 60 that extend from the ends of the units. Approximate weight of one unit equals 0.7 tons.

ALTERNATE DESIGN: Manufacturers seeking approval of proprietary concrete or steel barrier systems for inclusion on the Qualified Products List as pre-approved alternate designs must submit application along with design documentation showing the barrier system is crash tested to NCHRP Report 350 Test Level 3 criteria, is accepted by FHWA for use as a temporary concrete or steel barrier in the configurations shown herein, is a minimum of 2-8” tall, has transitions and connections comparable to the standard design and has permanent deflections due to TL-3 crash test impacts not to exceed 3-9” in freestanding configuration, 3.5” in bolted down configuration and 1-6" in spiked down configuration.
CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS

BILL OF REINFORCING STEEL

<table>
<thead>
<tr>
<th>MARK</th>
<th>SIZE</th>
<th>NUMBER</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>4</td>
<td>10</td>
<td>6' - 1&quot;</td>
</tr>
<tr>
<td>A2</td>
<td>4</td>
<td>2</td>
<td>5' - 5&quot;</td>
</tr>
<tr>
<td>B</td>
<td>5</td>
<td>5</td>
<td>12' - 3&quot; (Straight)</td>
</tr>
<tr>
<td>C</td>
<td>6</td>
<td>6</td>
<td>3' - 1&quot;</td>
</tr>
<tr>
<td>D1</td>
<td>6</td>
<td>2</td>
<td>8' - 4&quot;</td>
</tr>
<tr>
<td>D2</td>
<td>6</td>
<td>2</td>
<td>7' - 6&quot;</td>
</tr>
<tr>
<td>D3</td>
<td>6</td>
<td>2</td>
<td>8' - 8&quot;</td>
</tr>
<tr>
<td>E</td>
<td>4</td>
<td>4</td>
<td>2' - 0&quot;</td>
</tr>
</tbody>
</table>

NOTES:
Place No. 5 Bars (2'-3" long) in bottom of Welded Wire Reinforcement cage as shown.
D 17.2 spacing shall match spacings for Bars 44 shown in Elevation View, Sheet 2.
Field trim D 19.7 to clear drain slots by 2".

NOTE:
Provide 1/2" chamfer at top and bottom corners of Barrier.

SECTION A-A (SHOWN) (SECTION B-B SIMILAR)

SECTION C-C (BARS 60 not shown for clarity)
TYPICAL SECTION (BRIDGE DECK SHOWN, APPROACH SLAB OR RIGID PAVEMENT SIMILAR; INSTALLATION ADJACENT TO DROP-OFF SHOWN, MEDIAN TRANSITION INSTALLATION SIMILAR)

NOTES FOR BOLTED DOWN BRIDGE, APPROACH SLAB, ROADWAY AND TRANSITION INSTALLATIONS:

LIMITATION OF USE: This installation technique can only be used on rigid pavement and concrete bridge decks as shown. Barrier units shall not be bolted down on bridge superstructures that contain post-tensioned tendons within the concrete deck (top flange of concrete box girder) or on bridge superstructures consisting of longitudinally prestressed, transversely post-tensioned, solid or voided concrete slab units. Anchor Bolt units must not be installed on both sides of the Barrier Units. Do not bolt down Barrier Units across bridge finger or modular expansion joints.

ANCHOR BOLTS, NUTS AND WASHERS: Adhesive-Bonded Anchor Bolts shall be fully threaded rods in accordance with ASTM F 1554 Grade 36. Anchor Bolts for through bolting shall be in accordance with ASTM A 327 or ASTM F 1554 Grade 36. Nuts shall be in accordance with ASTM A 563 or ASTM A 194. Nut Washers shall be in accordance with ASTM F 436 and Plate Washers shall be in accordance with ASTM A 36 or ASTM A 709 Grade 36.

Install three (3) Anchor Bolts per Barrier Unit on the traffic side of the Barrier Units as shown, except for Transition Installations. For the number and positions of Anchor Bolts required in Transition Installations see Sheets B and C and Index No. 415. Drilling through deck reinforcing steel to install Anchor Bolts is permitted. Unless otherwise shown in the Plans, the Contractor’s option Barrier Units may be installed by through bolting (where geometrically possible) or by the use of Adhesive-Bonded Anchor Bolts. Do not drift bolts or otherwise damage the tops of supporting beams or girders, bridge deck expansion joints or deck or in the field. Anchor Bolts and Nuts so that the maximum extension beyond the end of the Barrier Units is 1/2”. Snug Tighten the Nuts on the Anchor Bolts. For through bolted installations, snug tighten the double Nuts on the underside of the deck against each other to minimize the potential for loosening.

Unit one (1) Anchor Bolt within a single Barrier Unit if a conflict exists between the Anchor Bolt location and a bridge expansion joint or drain. The adjacent Barrier Unit shall be installed with the standard three (3) Anchor Bolts.

Unit one (1) Anchor Bolt within a single Barrier Unit as shown in the Treatment at Bridge Deck Expansion Joint Schematic if the Barrier Unit straddles a bridge deck expansion joint. The adjacent Barrier Units must each be installed with the standard three (3) Anchor Bolts.

ADHESIVE-BONDING MATERIAL SYSTEMS: Adhesive Bonding Material Systems for Anchor Bolts shall be Type HSMV in accordance with Specification Section 9.37 and shall be installed in accordance with Specification Section 4.16. Prior to installation of the Barrier Units the Plan location(s), install a demonstration Barrier Unit using the proposed production installation method, at a location approved by the Engineer, in lieu of the production test requirements of Specification Section 4.16. If the demonstration Barrier Unit meets the Anchor Bolt with a 25,000 pound tensile prestress load. Install and test additional demonstration Barrier Units as requested by the Engineer. Remove the demonstration Barrier Unit prior to testing the Anchor Bolt units. Remove the test Anchor Bolt units after testing as directed by the Engineer.

REMOVAL OF ANCHOR BOLTS: Upon removal of a relocation of Barrier Units, remove all Anchor Bolts and completely fill the remaining holes in bridge decks, approach slabs and roadway rigid pavements that are to remain with Magnesium Ammonium Phosphate Concrete in accordance with Specification Section 9.38 or with an Epoxy Resin Compound, Type I or II, in accordance with Specification Section 9.2. If a flexible pavement overlay is present and is to remain, completely fill the remaining holes in the flexible pavement with hot or cold patch asphalt material.

BOLTED DOWN BRIDGE, APPROACH SLAB, ROADWAY AND TRANSITION INSTALLATIONS

2010 FDOT Design Standards

TYPE K TEMPORARY CONCRETE BARRIER SYSTEM
NOTES FOR STAKED DOWN ROADWAY AND TRANSITION INSTALLATIONS:

LIMITATION OF USE: This installation technique can only be used on flexible pavement or an Asphalt Pad as shown. Stakes must not be installed on both sides of the Barrier Units.

ASPHALT PAD: Where existing flexible pavement is not present, construct the Asphalt Pad using Miscellaneous Asphalt Pavement in accordance with Specification Section 339 with the exception that the use of a pre-emergent herbicide is not required. No separate payment will be made for the Asphalt Pad.

STAKES: Provide steel for Stake assemblies in accordance with ASTM A 36 or ASTM A 709 Grade 36. All welding shall be in accordance with the American Welding Society Structural Welding Code (Steel) ANSI/AWS D1.1 (current edition). Weld metal shall be E60XX or E70XX. Nondestructive testing of welds is not required.

Install three (3) Stakes on the traffic side of the Barrier Units as shown, except for Transition Installations. See the number and locations of stakes required in Transition Installations, see Sheets B and C and Index No. 415. Install Stakes so that the Stop Plate is snug against the bottom of the Anchor Blockout.

BURIED UTILITIES: Prior to installation of Stakes verify locations of all adjacent buried utilities, drainage structures, pipes, etc. It conflicts between Stake locations and buried elements exist, a maximum of two (2) Stakes within a single Barrier Unit may be omitted if the adjacent Barrier Units are installed with the standard three (3) Stakes.

REMOVAL OF STAKES: Upon removal or relocation of Barrier Units, completely remove all Stakes and completely fill the remaining holes in flexible pavement that is to remain with hot or cold patch asphalt material.

REUSE OF STAKES: Stakes may be reused if they have the structural integrity of new stakes.

TYPICAL SECTION (BRIDGE DECK SHOWN, APPROACH SLAB SIMILAR)

NOTES FOR FREE STANDING BRIDGE OR APPROACH SLAB INSTALLATIONS:

KEEPER PINS: Keeper Pins shall be 5/8" diameter, smooth steel bar in accordance with ASTM A 36 or ASTM A 709 Grade 36. As directed by the Engineer in order to limit vibration induced translation of the Barrier Units, install one (1) Keeper Pin per Barrier Unit on the traffic side of the Barrier Units as shown. Do not drill into or otherwise damage bridge deck expansion joints or drains.

REMOVAL OF KEEPER PINS: Upon removal or relocation of Barrier Units, remove all Keeper Pins and completely fill the remaining holes in bridge decks and approach slabs that are to remain with Magnesium Ammonium Phosphate Concrete in accordance with Specification Section 930 or with a Epoxy Resin Compound, Type I or G, in accordance with Specification Section 926. It is flexible pavement overlay is present and is to remain, completely fill the remaining holes in the flexible pavement with hot or cold patch asphalt material.

FREESTANDING ROADWAY INSTALLATION

NOTES FOR FREE STANDING ROADWAY INSTALLATION:

LIMITATION OF USE: This installation technique can only be used on flexible or rigid pavement or on an Asphalt Pad as shown.

ASPHALT PAD: Where existing pavement is not present, construct the Asphalt Pad using Miscellaneous Asphalt Pavement in accordance with Specification Section 339 with the exception that the use of a pre-emergent herbicide is not required. No separate payment will be made for the Asphalt Pad.

FREESTANDING ROADWAY INSTALLATION
TYPICAL SECTION

NOTES FOR FREE STANDING ROADWAY MEDIAN INSTALLATION:

LIMITATION OF USE: This installation technique can only be used on flexible or rigid pavement or on an asphalt Pad as shown.

ASPHALT PAD: Where existing pavement is not present, construct the Asphal Pad using miscellaneous asphal pavement in accordance with Specification Section 339 with the exception that the use of a pre-emergent herbicide is not required. No separate payment will be made for the asphal Pad.

FREESTANDING ROADWAY MEDIAN INSTALLATION

TRAFFIC SIDE

Retaining Wall Face

Geotextile Fabric

Back Fill

TYPICAL SECTION ADJACENT TO RETAINING WALL

TYPICAL SECTION

NOTES FOR BACK FILLED ROADWAY INSTALLATIONS:

BACK FILL MATERIAL: Provide back fill material consisting of any available clean soil, compact back fill material until the soil mass is firm and unyielding. Provide erosion controls specified in the Plans. If none is specified in the Plans, provide erosion controls as required to maintain the integrity of the back fill embankment.

GEOTEXTILE FABRIC: Provide Type D-3 Geotextile fabric in accordance with index No. 198 to contain back fill material behind barrier units. Geotextile fabric may be continuous over the length and height of the installation or may be individual pieces as required to cover the lift / drain slits and open vertical joints between barrier units.

TYPICAL SECTION

NOTES FOR FREE STANDING BRIDGE OR APPROACH SLAB MEDIAN INSTALLATION:

KEEPER PINS: Keeper pins shall be 2½ inches in diameter, smooth steel bar in accordance with ASTM A 36 or ASTM A 709 Grade 36.

As directed by the Engineer in order to limit vibration induced translation of the barrier units, install one (1) keeper pin per barrier unit as shown. Alternate keeper pin locations from side to side of barrier units along the length of the installation, do not drill or otherwise damage bridge deck expansion joints or drain.

REMOVAL OF KEEPER PINS: Upon removal or relocation of barrier units, remove all keeper pins and completely fill the remaining holes in bridge decks and approach slabs that are to remain with magnesium ammonium phosphate concrete in accordance with Specification Section 936 or with an epoxy resin compound, Type I or Type II, in accordance with Specification Section 936. If a flexible pavement overlay is present and is to remain, completely fill the remaining holes in the flexible pavement with hot or cold patch asphalt material.

TYPICAL SECTION

TRAFFIC SIDE

Geotextile Fabric

Back Fill

Traffic on Both Sides

Design Speed 45 MPH or Less

0" Min.

2"-0" Preferred

Edge of Travel Way

Design Speed 50 MPH and Greater

0" Min.

2"-0" Preferred

Edge of Travel Way

Design Speed 50 MPH and Greater

2"-0" Minimum

Asphalt Overlay if present

Bridge Deck or Approach Slab

Traffic on Both Sides

Design Speed 45 MPH or Less

0" Min.

2"-0" Preferred

Edge of Travel Way

Design Speed 50 MPH and Greater

0" Min.

Asphalt Overlay if present

Bridge Deck or Approach Slab

Traffic on Both Sides

Design Speed 45 MPH or Less

0" Min.

2"-0" Preferred

Edge of Travel Way

Design Speed 50 MPH and Greater

0" Min.

2"-0" Preferred

Edge of Travel Way

Design Speed 50 MPH and Greater

2"-0" Minimum

Asphalt Overlay if present

Bridge Deck or Approach Slab

Traffic on Both Sides

Design Speed 45 MPH or Less

0" Min.

2"-0" Preferred

Edge of Travel Way

Design Speed 50 MPH and Greater

0" Min.

2"-0" Preferred

Edge of Travel Way

Design Speed 50 MPH and Greater

2"-0" Minimum

Asphalt Overlay if present

Bridge Deck or Approach Slab
**Type K Temporary Concrete Barrier System**

**Approach Transition from Freestanding to Bolted or Staked Down**

- Freestanding Units (13 Units Min.)
- Transition Units (4 Units)
- Bolted or Staked Units
- Transition Units (4 Units)
- Freestanding Units (13 Units Min.)*

*NOTE: Where barrier is located within Clear Zone of opposing traffic, Approach Transition is required.

**Approach Transition from Freestanding to Back Filled**

- Freestanding Units (13 Units Min.)
- Transition Units (4 Units)
- Back Filled Units
- Transition Units (4 Units)
- Freestanding Units (13 Units Min.)*

**Trailing End Transition from Bolted or Staked Down**

- Freestanding Units

**Trailing End Transition from Back Filled**

- Freestanding Units

Legend:

- Dot indicates number and position of Bots or Stakes
TRANSITION FROM FREESTANDING TYPE K TEMPORARY CONCRETE BARRIERS TO BRIDGE MEDIAN TRAFFIC RAILING OR ROADWAY MEDIAN CONCRETE BARRIER WALL

*NOTE:
Where barrier is located within clear zone of opposing traffic, approach transition is required.

TRANSITION FROM FREESTANDING TYPE K TEMPORARY CONCRETE BARRIERS TO BRIDGE TRAFFIC RAILING OR ROADWAY CONCRETE BARRIER WALL

TRANSITION FROM BOLTED OR STAKED DOWN TYPE K TEMPORARY CONCRETE BARRIERS TO BRIDGE TRAFFIC RAILING OR ROADWAY CONCRETE BARRIER WALL

LEGEND:

Legend indicates number and position of Bolts or Stakes
**PARTIAL PLAN VIEW AT MEDIAN TRAFFIC RAILING**

32" F Shape Traffic Railing (shown). 32"
New Jersey Shape and 42" F Shape Traffic Railing & 8' or 14' Railing / Sound Barriers (similar)

**PARTIAL PLAN VIEW AT SHOULDER TRAFFIC RAILING**

32" F Shape Traffic Railing (shown). 32"
New Jersey Shape and 42" F Shape Traffic Railing & 8' or 14' Railing / Sound Barriers (similar)

**PARTIAL ELEVATION VIEW - FLORIDA CORRAL TRAFFIC RAILING**

42" Vertical Shape Traffic Railing (shown). 32"
Vertical Shape Traffic Railing (similar)

**PARTIAL ELEVATION VIEW - VERTICAL SHAPE TRAFFIC RAILINGS**

**APPROACH TRANSITION SPLICE DETAIL**

For F and New Jersey Shape Traffic Railing & 8' & 14'
Traffic Railing / Sound Barriers (Concrete Barrier Wall Similar)
32" F Shape Traffic Railing (shown); 32" New Jersey Shape and 42" F Shape Traffic Railings and 8' or 14' Traffic Railing / Sound Barriers (similar)

Align Top of Type K Barrier Unit with Traffic Railing at its end

# Thrie-Beam Guardrail Splice
Offset Block bolted to Guardrail

Pit tapered toe if present (shown hatched) with concrete, see Note on Sheet 4

PARTIAL PLAN VIEW

Cross References:
See Sheet 13 for Section 6-A,
Section 8-B and Section 1-C.
Trailing End Splice Detail
For 32" F and New Jersey Shape Traffic Railings
With Railing Transition and End Post

32" F or New Jersey Shape Traffic Railing, Railing Transition & End Post (Beam or Girder Bridge shown, Flat Slab Bridge similar)
SECTION A-A
32" F Shape Median Traffic Railing (shown),
Median Concrete Barrier Wall (similar)

SECTION A-A
32" F Shape Traffic Railing (shown),
42" Traffic Railing and 8" & 14" Traffic
Railing / Sound Barriers (similar)

SECTION A-A
32" New Jersey Shape Concrete Barrier
Wall (shown), 32" New Jersey Shape Traffic
Railing & other Narrow Traffic Railings (similar)

SECTION A-A
32" & 42" Vertical Shape Traffic
Railing (shown), Florida Corral
Traffic Railing (similar)

SECTION B-B
Adjacent to Shoulder Traffic Railings

SECTION C-C
Adjacent to 32" F or New Jersey Shape
Median Traffic Railing or
Median Concrete Barrier Wall

SECTION C-C
Adjacent to Shoulder Traffic Railings

SECTION D-D
32" F or New Jersey Shape Traffic
Railing, Railing Transition & End Post

SECTION E-E
32" New Jersey Shape Traffic Railing
(shown), 32" F Shape Traffic
Railing (similar)

THREE-BEAM GUARDRAIL POSITIONING DETAIL
Approach transition from freestanding proprietary temporary barriers to bolted or staked down type K temporary concrete barriers

Legend:
■ Dot indicates number and position of bolts or stakes

Trailing end transition from bolted or staked down type K temporary concrete barriers to freestanding proprietary temporary barriers

Approach and trailing end transitions from freestanding type K temporary concrete barriers to freestanding proprietary temporary barriers

Type K—proprietary temporary concrete barrier transitions

Type K temporary concrete barrier system