1. See dowel assemblies for fabrication details.
2. See Bar Size Table for Contraction Joints on Sheet 2.
3. Locate "DW" joint at a mid-panel location between future 'C' or 'CD' joints. Place no closer than 5 feet to a 'C' or 'CD' joint.
4. Place bars within the limits shown under dowel assemblies.
5. Edge with 1/8 inch tool for length of joint. For HT joint, remove header block and board when second slab is placed.
6. Unless specified otherwise, use 'CD' transverse contraction joints in mainline pavement when 'CD' is greater or equal to 8 inches. Use 'C' joints when 'CD' is less than 8 inches.
7. 'RT' joint may be used in lieu of 'DW' joint at the end of the days work. Remove any pavement damaged due to the drilling at no additional cost to the Contracting Authority.

See Bar Size Table for Contraction Joints on Sheet 2.
See dowel assemblies for fabrication details.

**LEGEND**

- **Existing Pavement**
- **Proposed Pavement**

---

**PLAIN JOINT**
(Abutting Pavement Slabs)

**CONTRACTION JOINT**

**DOWELED CONTRACTION JOINT**

**TIED CONTRACTION JOINT**

**DAY'S WORK JOINT**
(Non-working)

**HEADER JOINT**
(End Rigid Pavement)

**ABUTTING PAVEMENT JOINT**

**CURB AND GUTTER UNIT**

**TRANVERSE CONTRACTION**

**RIGID TIE**
BAR PLACEMENT
(Appplies to all joints unless otherwise detailed.)

DETAIL A
(Saw cut formed by conventional concrete sawing equipment.)

DETAIL B
(Saw cut formed by approved early concrete sawing equipment.)

DETAIL C

BAR SIZE TABLE FOR CONTRACTION JOINTS

<table>
<thead>
<tr>
<th>Size</th>
<th>Solid Dowel Diameter</th>
<th>Tubular Dowel Diameter</th>
<th>Tie Bar Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 8&quot;</td>
<td>3/4</td>
<td>7/8</td>
<td>#6</td>
</tr>
<tr>
<td>≥ 8&quot; but &lt; 10&quot;</td>
<td>1 1/4</td>
<td>1 3/8</td>
<td>#10</td>
</tr>
<tr>
<td>≥ 10&quot;</td>
<td>1 1/4</td>
<td>1 5/8</td>
<td>#11</td>
</tr>
</tbody>
</table>

Tubular Dowel Bars will not be allowed for RD joints.

LEGEND

<table>
<thead>
<tr>
<th></th>
<th>Existing Pavement</th>
<th>Proposed Pavement</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV-101</td>
<td>HDOT</td>
<td>SUDAS</td>
</tr>
</tbody>
</table>

SECTION A-A
(Detail at Edge of Pavement)

TRANSVERSE CONTRACTION

Saw 'CD' joint to a depth of T/3 ± 1/4"; saw 'C' joint to a depth of T/4 ± 1/4".

When tying into old pavement, represents the depth of sound PCC.

JOINTS

FIGURE 7010.101
STANDARD ROAD PLAN

SUDAS DIRECTOR
DESIGN METHODS ENGINEER

REVISIONS:
Renumbered Joint Assemblies on Sheets 6 and 7 to eliminate reference to SUDAS.

SUDAS ENGINEER
SUDAS PERFORMANCE

PV-101
SHEET 2 OF 8
FIGURE 7010.101

**PLAIN JOINT**
(Abutting Pavement Slabs)

**ABUTTING PAVEMENT JOINT - RIGID TIE**

<table>
<thead>
<tr>
<th>Joint</th>
<th>Bars</th>
<th>Bar Length and Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 8&quot;</td>
<td>'BT-1'</td>
<td>#4 36&quot; Long at 30&quot; Centers</td>
</tr>
<tr>
<td>≥ 8&quot;</td>
<td>'BT-2'</td>
<td>#5 36&quot; Long at 30&quot; Centers</td>
</tr>
</tbody>
</table>

**ABUTTING PAVEMENT JOINT - RIGID TIE (Drilled)**

<table>
<thead>
<tr>
<th>Joint</th>
<th>Bars</th>
<th>Bar Length and Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 8&quot;</td>
<td>'BT-5'</td>
<td>#4 24&quot; Long at 30&quot; Centers</td>
</tr>
<tr>
<td>≥ 8&quot;</td>
<td>'BT-3'</td>
<td>#5 24&quot; Long at 30&quot; Centers</td>
</tr>
<tr>
<td></td>
<td>'BT-4'</td>
<td>24&quot; Long at 15&quot; Centers</td>
</tr>
</tbody>
</table>

**ABUTTING PAVEMENT JOINT - KEYWAY TIE**

See Detail E

**KEYED JOINT FOR ADJACENT SLABS**
(Where T is 8" or more)

**Contraction Joint**

See Detail D-1, D-2, or D-3

**JOINTS**

See Detail E

**LEGEND**

- Existing Pavement
- Proposed Pavement

**REV/ED**

10 04-21-20

**SHEET 3 of 8**
TIE BAR PLACEMENT
(Appplies to all joints unless otherwise detailed.)

DETAIL D-1
(Required when specified in the contract documents.)

DETAIL D-2
(Required when the Department of Transportation is not the Contracting Authority, or when specified in the contract documents)

DETAIL E

KEYWAY DIMENSIONS

<table>
<thead>
<tr>
<th>Keyway Type</th>
<th>Pavement Thickness</th>
<th>T</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>8&quot; or greater</td>
<td>1</td>
<td>3/4</td>
<td>2</td>
</tr>
<tr>
<td>Narrow</td>
<td>Less than 8&quot;</td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

LEGEND
- Existing Pavement
- Proposed Pavement

When tying into old pavement, T represents the depth of sound PCC.
Sealant or cleaning not required.

JOINTS

LONGITUDINAL CONTRACTION
**Dowel Placement**

(Applies to all joints unless otherwise detailed.)

**'CF' Joint**

- Width (See table below)

<table>
<thead>
<tr>
<th>TYPE</th>
<th>WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF-1</td>
<td>2&quot;</td>
</tr>
<tr>
<td>CF-2</td>
<td>2-1/2</td>
</tr>
<tr>
<td>CF-3</td>
<td>3&quot;</td>
</tr>
<tr>
<td>CF-4</td>
<td>3-1/2</td>
</tr>
</tbody>
</table>

See Detail H

**'E' Joint**

- Top of Curb
- Resilient Joint Filler

- Top of Slab

1" Nominal

See Detail F

**'EE' Joint**

- Top of Curb
- Flexible Foam Joint Filler

- Top of Slab

2" Nominal

See Detail F

**'ES' Joint**

- Top of Curb
- 1" Thru Curb
- Resilient Joint Filler

- Top of Slab

1" Nominal

See Detail G

**Joint Filler**

- Match 'E' Joint in Pavement

**'E', 1" Expansion Joint**

- Resilient Joint Filler

**E' Joint in Curb**

- View at Back of Curb

- Top of Slab

- Top of Curb

1" Nominal

See Detail F or Detail G

(See Bar Size Table for Doweled Expansion Joints)

**ED, EE, EF Joint**

- Joint Filler Material

- See Bar Size Table for Doweled Expansion Joints

**'E', 2" Expansion Joint**

- 18" Long Dowel at 12" Centers

- Width (See Doweled Expansion Joints Table)

**Joint Sealant**

- (See Detail H)

**DETAIL F**

- 1/4 Joint Sealant Material

- Flexible Foam Material

**DETAIL G**

- 1/4 Joint Sealant Material

- Flexible Foam Material

**DETAIL H**

- Joint Sealant Material

**DETAIL B-B**

- Top of Slab

- Top of Curb

- Joint Filler

- Flexible Foam

**SECTION B-B**

**Doweled Expansion Joints**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>WIDTH</th>
<th>FILLER MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED</td>
<td>1&quot;</td>
<td>Resilient (Detail F)</td>
</tr>
<tr>
<td>EE</td>
<td>2&quot;</td>
<td>Flexible Foam (Detail F)</td>
</tr>
<tr>
<td>EF</td>
<td>3-1/2</td>
<td>Flexible Foam (Detail G)</td>
</tr>
</tbody>
</table>

**Bar Size Table for Doweled Expansion Joints**

<table>
<thead>
<tr>
<th>Diameter</th>
<th>&lt; 8&quot;</th>
<th>≥ 8&quot; but &lt; 10&quot;</th>
<th>≥ 10&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dowel</td>
<td>3/4</td>
<td>1-1/4</td>
<td>1-3/4</td>
</tr>
</tbody>
</table>

Tubular Dowel Bars will not be allowed for expansion joints.

**Legend**

Existing Pavement

Proposed Pavement

**14** See Bar Size Table for Doweled Expansion Joints.

**15** Edge with 1/4 inch tool for length of joint indicated if formed; edging not required when cut with diamond blade saw.

**16** See Dowel Assemblies for fabrication details and placement limits. Coat the free end of dowel bar to prevent bond with pavement. At intake locations, dowel bars may be cast-in-place.

**17** Predrill or preform holes in joint material for appropriate dowel size.

**18** Compact tire buffings by spading with a square-nose shovel.
CONTRACTION JOINTS

Sides of lower side rail + 1/4 inch.

Details apply to both transverse contraction and expansion joints.

Weld alternately throughout.

0.306 inch diameter wire. Wire sizes shown are the minimum required.

Maximum 0.177 inch diameter wire, welded or friction fit to upper side rail, both sides.

Measured from the centerline of dowel bar to bottom of lower side rail + 1/4 inch.

Per lane width, install a minimum of 8 anchor pins evenly spaced (4 per side), to prevent movement of assembly during construction. Anchor assemblies placed on pavement or PCC base with devices approved by the Engineer.

If dowel basket assemblies are required for curbed pavements, the assembly length is based on the jointing layout. See PV-101, sheet 8.

Ensure dowel basket assembly centerline is within 2 inches of the intended joint location longitudinally and has no more than 1/4 inch horizontal skew from end of basket to end of basket.

Use 18 inch long dowel bars with a tolerance of ± 1/8 inch. Ensure the centerlines of individual dowels are parallel to the other dowels in the assembly within ± 1/8 inch.

Use wires with a minimum tensile strength of 50 ksi.

Details apply to both transverse contraction and expansion joints.

Weld alternately throughout.

0.306 inch diameter wire. Wire sizes shown are the minimum required.

Maximum 0.177 inch diameter wire, welded or friction fit to upper side rail, both sides.

Measured from the centerline of dowel bar to bottom of lower side rail + 1/4 inch.

Per lane width, install a minimum of 8 anchor pins evenly spaced (4 per side), to prevent movement of assembly during construction. Anchor assemblies placed on pavement or PCC base with devices approved by the Engineer.

If dowel basket assemblies are required for curbed pavements, the assembly length is based on the jointing layout. See PV-101, sheet 8.

Ensure dowel basket assembly centerline is within 2 inches of the intended joint location longitudinally and has no more than 1/4 inch horizontal skew from end of basket to end of basket.

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Use wires with a minimum tensile strength of 50 ksi.

Details apply to both transverse contraction and expansion joints.

Weld alternately throughout.

0.306 inch diameter wire. Wire sizes shown are the minimum required.

Maximum 0.177 inch diameter wire, welded or friction fit to upper side rail, both sides.

Measured from the centerline of dowel bar to bottom of lower side rail + 1/4 inch.

Per lane width, install a minimum of 8 anchor pins evenly spaced (4 per side), to prevent movement of assembly during construction. Anchor assemblies placed on pavement or PCC base with devices approved by the Engineer.

If dowel basket assemblies are required for curbed pavements, the assembly length is based on the jointing layout. See PV-101, sheet 8.

Ensure dowel basket assembly centerline is within 2 inches of the intended joint location longitudinally and has no more than 1/4 inch horizontal skew from end of basket to end of basket.
Spaces between dowel bars are nominal dimensions with a $\frac{1}{4}$ allowable tolerance.

Dowel Assemblies

<table>
<thead>
<tr>
<th>Joint Opening and Expansion Tube Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint Type</td>
</tr>
<tr>
<td>&quot;ED&quot;</td>
</tr>
<tr>
<td>&quot;EE&quot;</td>
</tr>
<tr>
<td>&quot;EF&quot;</td>
</tr>
</tbody>
</table>

FIGURE 7010.101

Use 18 inch long dowel bars with a tolerance of $\pm \frac{1}{8}$ inch. Ensure the centerlines of individual dowels are parallel to the other dowels in the assembly within $\pm \frac{1}{8}$ inch.

Use wires with a minimum tensile strength of 50 ksi.

Details apply to both transverse contraction and expansion joints.

Weld alternately throughout.

0.306 inch diameter wire. Wire sizes shown are the minimum required.

Maximum 0.177 inch diameter wire, welded or friction fit to upper side rail, both sides.

Measured from the centerline of dowel bar to bottom of lower side rail + 1/4 inch.

Per lane width, install a minimum of 8 anchor pins evenly spaced (4 per side), to prevent movement of assembly during construction. Anchor assemblies placed on pavement or PCC base with devices approved by the Engineer.

If dowel basket assemblies are required for curbed pavements, the assembly length is based on the jointing layout. See PV-101, sheet 8.

Ensure dowel basket assembly centerline is within 2 inches of the intended joint location longitudinally and has no more than 1/4 inch horizontal skew from end of basket to end of basket.

Clip and remove center portion of tie during field assembly.

1/4 inch diameter wire.
FIGURE 7010.101

OPTIONAL LEG SHAPES

ANCHOR PIN

#1/0 Gauge Wire
(0.306" diameter)

1. Use 18 inch long dowel bars with a tolerance of ± 1/8 inch. Ensure the centerlines of individual dowels are parallel to the other dowels in the assembly within ± 1/8 inch.

2. Use wires with a minimum tensile strength of 50 ksi.

3. Details apply to both transverse contraction and expansion joints.

4. Diameter of bend around dowel is dowel diameter + 1/8 to 3/16 inches.

5. For uniform lane widths: 3" - 6". For taper and variable width pavements: 3" - 12".

PLACEMENT LIMITS
(Rural Section)

BEND AROUND DOWEL

D + 1/8" max.

PLACEMENT LIMITS
(Curb and Gutter - Gutterline Jointing)

PLACEMENT LIMITS
(Curb and Gutter - 1/4 or 1/3 Point Jointing)

DOWEL ASSEMBLIES

REVISIONS:
14' pavements.
Modified Dowel Assemblies on Sheets 6 and 7 to eliminate reference to 14' Sections.