Standard Construction Details (SCDs) – Series 1000

TII Publications contains Standard Construction Details (SCDs) for use on National Road schemes in Ireland. This composite document brings together all the Series 1000 SCDs from TII Publications current at the date of this document’s publication, into a single location for convenience.

Every effort has been made to keep this composite document updated and available from the TII Publications website (http://www.tiipublications.ie). Please note that the SCD drawings available from the TII Publications website (individually linked below) are the controlled versions for all SCDs.

The SCDs contained in this document are as follows:

Series 1000 Road Pavements – Concrete Material

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<td>CC-SCD-01025</td>
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<td>Concrete Carriageway - Manholes in Continuously Reinforced Concrete Pavement or Reinforced Concrete Base</td>
</tr>
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NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. THE DOWEL BARS SHALL BE PLACED AT 300 CENTRES. THIS SPACING SHALL BE VARYED WHERE NECESSARY SO THAT NO DOWEL BAR IS WITHIN 150 OF A SLAB EDGE OR A JOINT PARALLEL TO THE BARS.

SAWN GROOVE FILLER DETAIL

1. JOINT BEFORE SAWING
2. JOINT AFTER SAWING
3. JOINT SEALED

DOWEL BAR

<table>
<thead>
<tr>
<th>SLAB THICKNESS</th>
<th>DIMENSION 'D'</th>
<th>DIMENSION 'B'</th>
<th>DIMENSION 'C'</th>
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<tbody>
<tr>
<td>150 TO 239</td>
<td>25</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td>240 AND OVER</td>
<td>32</td>
<td>600</td>
<td></td>
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</tbody>
</table>
CONTRACTION JOINT – WITH SAWN GROOVE

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. THE DOWEL BARS SHALL BE PLACED AT 300 CENTERS.
   THIS SPACING SHALL BE VARIED WHERE NECESSARY SO THAT NO DOWEL BAR IS WITHIN 150 OF A JOINT PARALLEL TO THE BARS.
3. WHEN CONCRETE PAVEMENT IS OVERLAI WITH 40MM TO 180MM THICK BITUMINOUS SURFACING, THE OVERLAY SHALL BE SAW-CUT AND SEALED AT THE CONCRETE PAVEMENT JOINT IN ACCORDANCE CLAUSE 713.
4. DOWEL BARS SHALL CONFORM TO CLAUSE 1011.

DOWEL BAR - MIN DIMS.

<table>
<thead>
<tr>
<th>SLAB THICKNESS DIMENSION D</th>
<th>DIMENSION B</th>
<th>DIMENSION C</th>
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<tr>
<td>150 TO 239</td>
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<td>400</td>
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<tr>
<td>240 AND OVER</td>
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<td>600</td>
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SCALE 1:100

TII PUBLICATION NUMBER: CC-SCD-01003
WARPING JOINT - WITH SAWN GROOVE

TIE BAR DIMENSIONS

<table>
<thead>
<tr>
<th>GRADE OF STEEL</th>
<th>B500B OR B500C</th>
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<tbody>
<tr>
<td>TIE BAR DIAMETER</td>
<td>12</td>
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<tr>
<td>TIE BAR LENGTH L</td>
<td>750</td>
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</table>

COVER TO TIE BARS

<table>
<thead>
<tr>
<th>SLAB THICKNESS D</th>
<th>200 &lt; 200</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVER X</td>
<td>30  20</td>
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</tbody>
</table>

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. WARPING JOINTS SHALL BE CONSTRUCTED AND SEALED IN ACCORDANCE WITH THE SPECIFICATION. THE TIE BAR SPACING SHALL BE VARIED WHERE NECESSARY SO THAT NO TIE BAR IS WITHIN 150 OF A SLAB EDGE OR A JOINT PARALLEL TO THE BARS.
3. REINFORCEMENT SHALL CONFORM TO CLAUSE 1008.
NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. WARPING JOINTS SHALL BE CONSTRUCTED AND SEALED IN ACCORDANCE WITH THE
   SPECIFICATION. THE TIE BAR SPACING SHALL BE VARIED WHERE NECESSARY SO THAT NO
   TIE BAR IS WITHIN 150 OF A SLAB EDGE OR A JOINT PARALLEL TO THE BAR.
3. REINFORCEMENT SHALL CONFORM TO CLAUSE 100B.

2500 (MIN) TO NEXT PREVIOUS TRANSVERSE JOINT  2500 (MIN) TO NEXT TRANSVERSE JOINT

750 (MIN)

SEE NOTE 2

SEAL

COMPRESSIBLE CAULKING MATERIAL
(WITH APPLIED SEALANTS ONLY)

12mm ø TIE BARS AT 600 CENTRES

PROTECTIVE COATING

SCALE 1:200

TII PUBLICATION NUMBER: CC-SCD-01005

EMERGENCY TRANSVERSE CONSTRUCTION JOINT
(JOINTED REINFORCED SLABS ONLY)
RIGID TO FLEXIBLE CONSTRUCTION (SURFACE SLABS)

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. AT UNDERBRIDGE THE BASE ADJACENT TO THE STRUCTURE SHALL BE 5M (MIN.) OF DENSE ASPHALT CONCRETE
4. AT BURIED STRUCTURES THE BASE AND SUB-BASE SHALL BE CONTINUED OVER THE STRUCTURE. THE SUB-BASE SHALL BE ISOLATED FROM THE STRUCTURE BY NOT LESS THAN 150mm OF GRANULAR FILL.
TIE BARS

<table>
<thead>
<tr>
<th>DIA.</th>
<th>LENGTH L</th>
<th>GRADE</th>
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<tbody>
<tr>
<td>12</td>
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<td>B500B OR B500C</td>
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<td>600</td>
<td>B500B OR B500C</td>
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<tr>
<td>20</td>
<td>500</td>
<td>B500B OR B500C</td>
</tr>
</tbody>
</table>

NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. TIE BARS SHALL CONFORM TO CLAUSE 1012 MILLIMETRES.
TYPE 3
SAWN LONGITUDINAL JOINT FOR UNREINFORCED OR JOINTED REINFORCED SLABS
(MORE THAN ONE LANE WIDTH CONSTRUCTED IN ONE OPERATION)

TIE BARS

<table>
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<tr>
<th>DIA</th>
<th>LENGTH</th>
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<tbody>
<tr>
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<td>750</td>
<td>B500B OR B500C</td>
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</tr>
<tr>
<td>20</td>
<td>500</td>
<td>B500B OR B500C</td>
</tr>
</tbody>
</table>

NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. TIE BARS SHALL CONFORM TO CLAUSE 1012

Scale 1:500
PERMITTED ALTERNATIVE LONGITUDINAL JOINT POSITIONS

PAVEMENT SURFACE SLABS

LONGITUDINAL JOINT POSITIONS

Joints shall be positioned beside or close to edge or lane markings, road studs or their recesses, or in mid-lane so that the maximum slab width is not exceeded (see note 3).

Permitted alternative joint positions are shown by arrows above. Tolerances for alternative joint positions are shown by shadings.

LANE MARKINGS AND REFLECTING ROAD STUDS

Lane and edge markings shall be placed as shown on the drawings. Reflecting road studs shall be placed centrally in lane markings or adjacent to edge markings unless otherwise shown on the drawings.

Minor adjustments to the lane line position of up to 100mm may be made where the joint and lane line would conflict or otherwise fall outside the permitted tolerances, provided that there are no offset discontinuities in the markings.

NOTES

1. All dimensions are in millimetres unless otherwise stated.

2. L = Lane width. For dual carriageways joint position may be at L/2.

3. Maximum slab widths:
   - Aggregate - limestone: all others
     - SRC 5.0m 4.2m
     - JRC 7.5m 6.2m
     - ORC 7.5m 6.0m

4. For transverse joint arrangements in roadstrips see RCD/1000/3

5. Road stud recesses not to be within 150 mm of transverse joints.
NOTES
1. ALL DIMENSIONS ARE IN METRES.
2. J INDICATES LONGITUDINAL JOINT POSITION.
3. DIRECTION OF CROSSFALL IS DEPENDENT ON CURVATURE.
4. CROWNS SHOULD BE ALONG CONSTRUCTION JOINTS.
END OF CLIMBING LANE
REDUCTION TO STANDARD SINGLE CARRIAGEWAY WIDTH

NOTES
1. ALL DIMENSIONS ARE IN METRES.
2. A ---- INDICATES LONGITUDINAL JOINT POSITION.
3. DIRECTION OF CROSS-FALL IS DEPENDENT ON CURVATURE.
4. CROWS SHOULD BE ALONG CONSTRUCTION JOINTS.

CROSS SECTION - STANDARD SINGLE CARRIAGEWAY
1.0 MIN IF SIDE ROAD IS CONCRETE

JUNCTION BAY

CROSSFALLS

CONSTRUCTION JOINT

SLAB WIDTHS

LANE WIDTHS

LANE WIDTHS

CROSSFALL TO ONE SIDE, DIRECTION DEPENDING ON CURVATURE

JUNCTION BAY

3.0 3.75 3.75 3.0

NOTES
1. ALL DIMENSIONS ARE IN METRES.
2. ________ J ________ INDICATES LONGITUDINAL JOINT POSITION.
3. CROSSFALLS WILL DEPEND ON CURVATURE.
4. CROWNS SHOULD BE ALONG CONSTRUCTION JOINTS.
NOTES
1. ALL DIMENSIONS ARE IN METRES.
2. — — — — — J — — — —
   INDICATES LONGITUDINAL
   JOINT POSITION.
3. CROSSFALLS WILL DEPEND ON
   CURVATURE.
4. CROWNS SHOULD BE ALONG
   CONSTRUCTION JOINTS.

TYPICAL JOINT POSITIONS
DIAGRAMMATIC ONLY. NOT TO SCALE
SECTION A-A
WIDE SINGLE CARRIAGEWAY

CLIMBING LANE

SECTION B-B
START OF CLIMBING LANE

PLAN OF JOINT LAYOUT
FOR THE START OF CLIMBING LANE.

NOTES
1. ALL DIMENSIONS ARE IN METRES.
2. -- J -- DENOTES LONGITUDINAL JOINT POSITION.
3. CROSSFALLS WILL DEPEND ON CURVATURE.
4. CROWNS SHOULD BE ALONG CONSTRUCTION JOINTS.
1. All dimensions are in metres.
2. Crossfalls will depend on curvature.
3. Crowns should be along construction joints.

Junction layouts with joint spacing for climbing lane. Diagrammatic only. Not to scale.
GULLIES WITHIN THE PAVEMENT

1. **Fig. 1 Joint within Gully Dimension (Preferred Position)**
   - **Grating & Frame**
   - **In-situ Concrete Surround (Note 3)**
   - **80mm Cover**
   - **Φ12 Stirrup** (Note 5)

2. **Fig. 2 Joint Adjacent to Gully**
   - **See Fig. 1**
   - **Omit Tie Bars from Longitudinal Joint**
   - **Warping Joint**

3. **Fig. 3 Extra Joint at Gully Position**
   - **See Fig. 1**

Notes:
1. All dimensions are in millimetres unless stated otherwise.
2. The overall dimensions of the recess may vary in accordance with the type of grating used.
3. Concrete surround to be grade C32/40.
4. All reinforcement to be grade 250 bars to IS EN 10080 and 4449, and firmly fixed at all bar intersections. Cover to bars to be 60+10 vertically and horizontally.
5. The Φ12 Stirrup shall be cut and bent to such dimensions as allow it to be placed centrally within the surround. An overlap of 450 shall be provided in closing the Stirrup.
6. Normal joint positions may be adjusted by up to 1m so that the gully is astride or adjacent to the joint. If this is impossible, an extra joint shall be formed in the lane at the gully position, and shall be a tied warping joint.
7. The gully slab shall be isolated from the pavement at all joints by joint filler board for the full depth of the slab and joints shall be sealed.
8. For details of drainage see 500 Series Drawings.
FIG. 1 JOINT WITHIN MANHOLE DIMENSION

FIG. 2 JOINT ADJACENT TO MANHOLE SLAB

FIG. 3 EXTRA JOINT AT MANHOLE POSITION TO BE A WARPING JOINT

NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
2. THE OVERALL DIMENSIONS OF THE RECESS MAY VARY IN ACCORDANCE WITH THE TYPE OF MANHOLE AND COVER USED.
3. CONCRETE SURROUND TO BE GRADE C40.
4. ALL REINFORCEMENT TO BE 250 BARS TO BS 4449 AND FIRMLY FIXED AT ALL BAR INTERSECTIONS OR FABRIC TO BS 4463. COVER TO BARS TO BE 60 ± 10 VERTICALLY AND 80 ± 10 HORIZONTALLY.
5. NORMAL joint spacings may be adjusted by up to 1m so that the manhole is astreis or adjacent to the joint as shown in Fig 5.1 & 2. If this is not possible an extra joint shall be formed in that lane at the manhole position as in Fig 3, and that joint shall be a warping joint.
6. THE MANHOLE SLAB SHALL BE ISOLATED FROM THE PAVEMENT BY JOINT FILLER BOARD AT ALL JOINTS, WITHOUT DOWELS OR TIE BARS, AND THE JOINT SHALL BE SEALED.
7. FOR MANHOLE DETAILS SEE 500 SERIES DRAWINGS.
CONCRETE HARD SHOULDER

CONCRETE CARRIAGEWAY

SLIP ROAD OR LINK ROAD

4.2M MAX. FOR URC
6.0M MAX. FOR JRC

(5.0M FOR LIMESTONE)
(7.3M FOR AGGREGATE)

CONCRETE TAPER
FLEXIBLE OR RIGID PAVEMENT

LONGITUDINAL CONSTRUCTION

JOINT TYPE 1

A

B

NOSE DRAIN CONSTRUCTED SEPARATELY

TYPICAL JOINT LAYOUT - TAPER CONSTRUCTED SEPARATELY
HARDSHOULDER OR HARDSTRIP OMITTED BETWEEN A AND B

EDGE OF PAVEMENT
EDGELINE SHOWN DOTTED
MINIMUM 1M

EXTRA WARPING JOINTS FOR URC OR REINFORCEMENT
(SEE NOTE 2)

LONGITUDINAL CONSTRUCTION

JOINT TYPE 1

NOSE DRAIN CONSTRUCTED SEPARATELY

TYPICAL JOINT LAYOUT - TAPER ADDED TO STANDARD WIDTH PAVEMENT

NOTES
1. TYPICAL LAYOUT ONLY.
SEE THE DRAWINGS FOR DIMENSIONED LAYOUT.
2. TAPERS SHALL BE OF THE SAME THICKNESS AS THE CONCRETE CARRIAGEWAY. IF UNREINFORCED, SLABS WITH AN ASPECT RATIO OF >2.5 (3.0 FOR LIMESTONE) SHALL BE REINFORCED AS IN RCD/1000/13.
4. TRANSVERSE JOINT SPACINGS ARE SHOWN AS FOR URC. IF THE CARRIAGEWAY IS JRC OR CRC THE TAPER SHALL BE JRC, WITH APPROPRIATE JOINT SPACINGS. IF CARRIAGEWAY HAS CRCB, THE TAPER SHALL HAVE CRCB.

SCALE 1:25

NATIONAL ROADS AUTHORITY

ROAD CONSTRUCTION DETAILS

CONCRETE PAVEMENTS

P2 11/10
P1 03/00

TAPER CONSTRUCTION AND JOINT LAYOUT

Drawing No.
RCD/1000/18
TII PUBLICATION NUMBER: CC-SCD-01019

ROAD CONSTRUCTION DETAILS

CONCRETE PAVEMENTS

JOINT LAYOUT FOR HARDSHOULDERs, HARDSTRIPS AND LAY-BYS

NOTE:
1. All dimensions are in millimeters.
2. Hardshoulders, hardstrips, lay-bys and tapers shall be of the same thickness as the concrete carriageway. Surface slabs with an aspect ratio >2.5 (3.0 for limestone) shall be reinforced with the same reinforcement as main slab. If not, minimum reinforcement shall be standard mesh 63/63, to BS 4483.
3. Transverse joints at normal positions shall be expansion or contraction joints. Extra joints to reduce slab length shall be weakening joints.
4. See the drawings for dimensions for tapers, lay-bys, etc.
DIRECTION OF PAVING

REINFORCEMENT OVERLAP

BITUMINOUS OVERLAY WHERE SPECIFIED IN APPENDIX 7/1

8m LONG BARS SPLICED TO TIE BARS OR TIE BARS EXTENDED TO 8m. IF CONSTRUCTION IS NOT CONTINUED WITHIN 5 DAYS

BASE

SURFACE SLAB OR BASE

D/2 ± 25

LONGITUDINAL SECTION

ADDITIONAL REINFORCEMENT 1.5m LONG OF SAME DIAMETER AS LONGITUDINAL BARS (FIXED BETWEEN ALTERNATE MAIN BARS) POSITIONED EQUALLY ABOUT THE JOINT ± 50

NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
REINFORCMENT

MINIMUM 1.0m
MAXIMUM 1.5m

SEE NOTE 5

SURFACE COURSE
BINDER COURSE

MINIMUM 5m
(SEE NOTE 2)

SEE NOTE 5

SUB-BASE

MINIMUM 3m
FOR TRANSITION LENGTH

21.0m ANCHORAGE
AS DETAILED ON RCD/1000/25

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. AT UNDERBRIDGES WHERE THE LEVEL OF THE BRIDGE DECK IS APPROXIMATELY IN LINE WITH THE ROAD SURFACE, THE BASE ADJACENT TO THE STRUCTURE SHALL BE A MINIMUM OF 5m OF FLEXIBLE BASE. WHERE THE UNDERBRIDGES ARE BURIED UNDERBRIDGES SUCH AS BOX CULVERTS, THE CRCB CAN BE LAID CONTINUOUSLY OVER THE TOP.
3. THE DEPTH D OF TRANSITION LENGTH SHALL NOT BE LESS THAN 200. IF NECESSARY THE THICKNESS OF THE FLEXIBLE CONSTRUCTION BASE SHALL BE TAPERED TO MATCH, SO THAT THE SUB-BASE SURFACE LEVEL IS CONTINUOUS WITHOUT STEPS.

TII PUBLICATION NUMBER: CC-SCD-01021

NRA NATIONAL ROADS AUTHORITY

ROAD CONSTRUCTION DETAILS

CONCRETE CARRIAGEWAY

TRANSVERSE FROM RIGID CRCB TO FLEXIBLE CONSTRUCTION

Drawing No.
RCD/1000/21
1. All dimensions are in millimetres unless otherwise stated.
2. At underbridges where the level of the bridge deck is approximately in line with the road surface, the base adjacent to the structure shall be a minimum of 5m of flexible base. Where the underbridges are buried underbridges such as box culverts, the CRCB can be laid continuously over the top.
3. The depth of transition length shall not be less than 200. If necessary the thickness of the end section of the CRCB shall be tapered to match, so that the sub-base surface level is continuous without steps.
FORMED LONGITUDINAL JOINT FOR CRCP OR CRCB
(CONSTRUCTED IN MORE THAN ONE
LANE WIDTH IN ONE OPERATION)

REINFORCEMENT TO TERMINATE
AT THESE POINTS

CRCP OR CRCB
BUTT TYPE CONSTRUCTION JOINT
(BETWEEN SEPARATELY CONSTRUCTED SLABS)

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES
   UNLESS OTHERWISE STATED.
2. TIE BARS SHALL BE PLACED AROUND
   THE JOINT ± 50 AT THE SAME
   SPACINGS AS AND ADJACENT TO
   THE TRANSVERSE REINFORCEMENT.
   PROTECTIVE COATING TO BE APPLIED
   TO THE CENTRE 150 (MN) OF TIE
   BARS.
3. REINFORCEMENT SHALL CONFORM
   TO CLAUSE 1008.

<table>
<thead>
<tr>
<th>TIE BARS</th>
<th></th>
<th>GRADE</th>
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<tbody>
<tr>
<td>DIA</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>750</td>
<td>B500B OR B500C</td>
</tr>
<tr>
<td>16</td>
<td>600</td>
<td>B500B OR B500C</td>
</tr>
<tr>
<td>20</td>
<td>500</td>
<td>B500B OR B500C</td>
</tr>
</tbody>
</table>
SAWN LONGITUDINAL JOINT FOR CRCP OR CRCB
(CONSTRUCTED IN MORE THAN ONE LANE WIDTH IN ONE OPERATION)

TRANSVERSE STEEL TO BE CONTINUOUS ACROSS THE JOINT

SEALING STRIP

5 MIN

100, 100 MIN MIN

NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. TIE BARS SHALL BE PLACED ABOUT THE JOINT ± 50 AT THE SAME SPACINGS AS AND ADJACENT TO THE TRANSVERSE REINFORCEMENT. PROTECTIVE COATING TO BE APPLIED TO THE CENTRE 150 (MIN) OF TIE BARS.
3. REINFORCEMENT SHALL CONFORM TO CLAUSE 1008.

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<td>500</td>
<td>B500B OR B500C</td>
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</table>
LONGITUDINAL SECTION OF ANCHORAGE
(GROUND BEAMS ARE TO BE CONSTRUCTED ACROSS THE FULL WIDTH OF THE PAVEMENT)

PLAN OF ANCHORAGE AND ADJACENT SLABS

NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ANCHORAGES ARE REQUIRED AT
   (a) EACH END OF A CRCP CARRIAGEWAY.
   (b) CLOSE TO BOTH SIDES OF UNDERBRIDGES WHERE THE LEVEL OF THE BRIDGE DECK IS APPROXIMATELY IN LINE WITH THE ROAD SURFACE. ANCHORAGE ARE NOT REQUIRED ADJACENT TO BURIED UNDERBRIDGES SUCH AS BOX CULVERTS, WHERE THE CRCP CAN BE LAYED OVER THE TOP.
3. WHERE ANCHORAGES ARE PROVIDED CLOSE TO UNDERBRIDGES, THE BASE ADJACENT TO THE STRUCTURE SHALL BE A MINIMUM OF 5m OF FLEXIBLE BASE.
4. FOR DETAILS OF GROUND BEAMS SEE RCD/1000/26.
5. WHERE A KERB IS REQUIRED ALONG THE ANCHORAGE THE ADDITIONAL WIDTH MAY BE UNREINFORCED IF TIED TO THE CRCP SLAB.
6. WHEN CONCRETE PAVEMENT IS OVERLAI WITH 40mm TO 180mm THICK BITUMINOUS SURFACING, THE OVERLAY SHALL BE SAW-CUT AND SEALED AT THE CONCRETE PAVEMENT JOINT IN ACCORDANCE WITH RCD/100/2 AT EXPANSION JOINTS AND RCD/1000/3 AT CONTRACTION JOINTS.
BAR SCHEDULE FOR REINFORCEMENT

<table>
<thead>
<tr>
<th>MEMBER</th>
<th>BAR Mk</th>
<th>TYPE &amp; SIZE</th>
<th>NO. OF Mbrs</th>
<th>NO. IN EACH</th>
<th>TOTAL NO.</th>
<th>LENGTH OF EACH #</th>
<th>SHAPE CODE</th>
<th>A*</th>
<th>B*</th>
<th>C*</th>
<th>D*</th>
<th>E*</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEAMS</td>
<td>01</td>
<td>H16</td>
<td>4</td>
<td>**</td>
<td>**</td>
<td>3900</td>
<td>44</td>
<td>400</td>
<td>1375</td>
<td>480</td>
<td>1375</td>
<td>–</td>
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<tr>
<td>BEAMS</td>
<td>02</td>
<td>H16</td>
<td>4</td>
<td>4</td>
<td>16</td>
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<td>00</td>
<td>**</td>
<td>–</td>
<td>–</td>
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</tr>
</tbody>
</table>

** Varies with width of anchorage
* Specified to nearest 5mm
# Specified to nearest 25mm

NOTES

1. All dimensions are in millimetres unless otherwise stated.
2. Concrete in ground beams to be strength class C25/30 cast in trench below formation level or sub-base surface.
3. Reinforcement shall conform to clause 1068.
4. Beam reinforcement cover to be 60 ± 10.
1. All dimensions are in millimetres unless otherwise stated.
2. This type of anchorage is an alternative to the ground beam anchorage (see RCD/1000/25 and RCD/1000/26) for CRCP surface slabs only.
3. Minimum cover to sleeper beam reinforcement to be 50.
4. Anchorage is required at (a) each end of a CRCP carriageway.
   (b) close to both sides of underbridges where the level of the bridge deck is approximately in line with the road surface. Anchorage are not required adjacent to buried underbridges such as box culverts, where the CRCP can be laid over the top.
5. Where anchors are provided close to underbridges, the base adjacent to the structure shall be a minimum of 5m of flexible base.
6. Reinforcement shall conform to Clause 1008.

<table>
<thead>
<tr>
<th>CRCP Slab Depth (d)</th>
<th>Min. SLEEPER Beam Depth (a)</th>
<th>BS4 Universal Beam Size</th>
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<tr>
<td>200</td>
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II Publica ION NUMBER: CC-SCD-01027

NATIONAL ROADS AUTHORITY
HIGHWAY CONSTRUCTION DETAILS
CONCRETE CARRIAGEWAY
CONTINUOUSLY REINFORCED CONCRETE PAVEMENT SURFACE SLABS
UNIVERSAL STEEL BEAM ANCHORAGE

Drawing No. RCD/1000/27
NOT TO SCALE

NATIONAL ROADS AUTHORITY
ROAD CONSTRUCTION DETAILS
CONCRETE CARRIAGEWAY

GULLIES IN CONTINUOUSLY REINFORCED CONCRETE PAVEMENT OR REINFORCED CONCRETE BASE

NOTES:
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. THE OVERALL DIMENSIONS OF THE OPENING MAY VARY IN ACCORDANCE WITH THE TYPE OF GULLY GRATING USED.
3. CONCRETE SURROUND TO BE STRENGTH CLASS C32/40.
4. NORMAL TRANSVERSE REINFORCEMENT NEAR OPENING TO BE STRENGTHENED BY ADDITIONAL 3/8 BAR PLACED CENTRALLY BETWEEN THE TRANSVERSE BARS.
5. REINFORCEMENT SHALL CONFORM TO CLAUSE 1008.
6. THE #12 STIRRUP SHALL BE CUT AND BENT TO SUCH DIMENSIONS AS ALLOW IT TO BE LOCATED CENTRALLY WITHIN THE SURROUND. 450 OVERLAP SHALL BE PROVIDED IN CLOSING THE STIRRUP.
7. FOR GULLY DETAILS SEE 500 SERIES DRAWINGS.
LONGITUDINAL REINFORCEMENT ADJACENT TO OPENING (DETAILS ① AND ②)

HARDSHOULDER 3300

CRCP/CRCB REINFORCEMENT

2NO. #20 LACING BARS
1300 LONG & 2NO.
Ø20 LACING BARS 2000
LONG ARRANGED AS SHOWN
ABOVE CRCP/CRCB
REINFORCEMENT

EDGE OF SLAB

EDGE OF 'BOXED OUT' SECTION

A

200

1070 (SEE NOTE 3)

A

4NO. Ø16 BARS LAID
BELOW NORMAL
LONGITUDINAL BARS

1070

500 MIN

16 NO. Ø8 BARS
PLACED BETWEEN MAIN
TRANSVERSE REINFORCEMENT

CRCP/CRCB REINFORCEMENT

JOINT SEAL

150 MIN

IN SITU CONCRETE
SURROUND

SECTION A-A

4NO. Ø16 BARS LAID
BELOW NORMAL
LONGITUDINAL BARS

PREFORMED JOINT
FILLER 20mm
THICK

NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. THE DIMENSIONS OF THE SEALING GROOVE AND THE METHOD OF SEALING SHALL COMPLY WITH THE SPECIFICATION.
3. THE OVERALL DIMENSIONS IN THE OPENING MAY VARY IN ACCORDANCE WITH THE TYPE OF MANHOLE AND COVER USED.
4. CONCRETE TO BE PAVEMENT QUALITY CONCRETE STRENGTH CLASS C32/40.
5. NORMAL TRANSVERSE REINFORCEMENT NEAR OPENING TO BE STRENGTHENED BY ADDITIONAL Ø8 BARS PLACED CENTRALLY BETWEEN THE TRANSVERSE BARS.
6. REINFORCEMENT SHALL CONFORM TO CLAUSE 1008.
7. FOR MANHOLE DETAILS SEE SERIES 500 RCD’S

DETAILS OF MANHOLE RECESS & CRCP/CRCB REINFORCEMENT

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NATIONAL ROADS AUTHORITY

ROAD CONSTRUCTION DETAILS

CONCRETE CARRIAGeway

MANHOLES IN CONTINUOUSLY REINFORCED CONCRETE PAVEMENT OR REINFORCED CONCRETE BASE

Drawing No. RCD/ 1000/29