Standard Construction Details (SCDs) – Series 1500

TII Publications contains Standard Construction Details (SCDs) for use on National Road schemes in Ireland. This composite document brings together all the Series 1500 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 1500 Installation Drawing TCC**

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NOT TO SCALE

NATIONAL ROADS AUTHORITY

ROAD CONSTRUCTION DETAILS

INSTALLATION DRAWING TCC

DUCTS FOR MOTORWAY CABLES AT INTERCHANGE OVERBRIDGES

P1 10/13

TII PUBLICATION NUMBER: CC-SCD-01501

DUCTS FOR MOTORWAY CABLES AT INTERCHANGE OVERBRIDGES

KEY:

- - - - CLUSTER OF 4 DUCTS

- - - - MOTORWAY BOUNDARY (IF APPLICABLE)

NOTES:

1. ALL DUCTS FORMED IN THE BRIDGE STRUCTURE SHALL COMPLY WITH CLAUSE 502 OF THE MCORW.
2. MOTORWAY COMMUNICATIONS NOT FORMED IN THIS BRIDGE STRUCTURE SHALL COMPLY WITH CLAUSE 1530 OF THE MCORW.
3. DUCTS OTHER THAN FOR MOTORWAY COMMUNICATIONS, SHALL COMPLY WITH CLAUSE 501 OF THE MCORW.
4. SEE DRAWING RCD/1500/012 FOR DETAILS OF TRANSVERSE DUCTS FOR MOTORWAY COMMUNICATIONS DUCTING.
5. ALL DUCTS TO BE 100mm INTERNAL DIAMETER.
KEY:

- Cluster of 4 ducts
- Motorway boundary (if applicable)

NOTES:

1. All ducts formed in the bridge structure shall comply with Clause 502 of the MCDW.
2. Motorway communications not formed in this bridge structure shall comply with Clause 1530 of the MCDW.
3. Ducts other than for motorway communications, shall comply with Clause 501 of the MCDW.
4. See drawing RCD/1500/012 for details of transverse ducts for motorway communications ducting.
5. All ducts to be 100mm internal diameter.

TII PUBLICATION NUMBER: CC-SCD-01502
KEY:

--------------------------------- CLUSTER OF 4 DUCTS

--------------------------------- MOTORWAY BOUNDARY (IF APPLICABLE)

NOTES:

1. ALL DUCTS FORMED IN THE BRIDGE STRUCTURE SHALL COMPLY WITH CLAUSE 502 OF THE MCDRW.
2. MOTORWAY COMMUNICATIONS NOT FORMED IN THIS BRIDGE STRUCTURE SHALL COMPLY WITH CLAUSE 1530 OF THE MCDRW.
3. DUCTS OTHER THAN FOR MOTORWAY COMMUNICATIONS, SHALL COMPLY WITH CLAUSE 501 OF THE MCDRW.
4. SEE DRAWING RCD/1500/012 FOR DETAILS OF TRANSVERSE DUCTS FOR MOTORWAY COMMUNICATIONS DUCTING.
5. ALL DUCTS TO BE 100mm INTERNAL DIAMETER.
NOTES:
1. THE CROSS SECTION SHOWN IS TYPICAL ONLY.
2. CABLE DUCTS ARE TO BE LOCATED BEHIND ALL OTHER SERVICES, TYPICALLY AT AN OFFSET OF 2m.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH NRA TO 27 (D&M/R8 6.1.2) "CROSS SECTION AND HEADROOMS".

FLAT VERGE

LONGITUDINAL CABLE DUCTS IN TRENCH AS SHOWN ON DRAWING RCD/1500/010

SEE NOTE 2

MOTORWAY IN CUTTING

MOTORWAY ON EMBANKMENT

NOT TO SCALE

TII PUBLICATION NUMBER: CC-SCD-01504

NETWORK DUCTS SECTIONS

NRA NATIONAL ROADS AUTHORITY

ROAD CONSTRUCTION DETAILS

INSTALLATION DRAWING TCC

Drawing No. RCD/1500/004

P1 10/13 Issue Date
NOT TO SCALE

NATIONAL ROADS AUTHORITY

ROAD CONSTRUCTION DETAILS
INSTALLATION DRAWING TCC

NETWORK DUCTS PLAN VIEW

TII PUBLICATION NUMBER: CC-SCD-01505

NOT TO SCALE

4 X 100mm LONGITUDINAL DUCTS

TRANSVERSE DUCTS

COMMS I CHAMBER

COMMS I OR II CHAMBER:

COMMS II CHAMBER SHOULD BE USED UNLESS THE DEPTH OF TRANSVERSE DUCTS DICTATES THAT THE CHAMBER DEPTH SHOULD BE GREATER THAN 1m, IN WHICH CASE COMMS I CHAMBER SHOULD BE USED

NOTES:

1. INSTALLATION DETAILS:
   - CHAMBERS ON DRAWINGS RCD/1500/015-018,
   - DUCTS ON DRAWINGS RCD/1500/010-014.

2. THE DEPTH OF THE CROSS-CARRIAGEWAY DUCTS ON EXISTING MOTORWAYS SHALL BE SUCH THAT THE INSTALLATION OF THE DUCTS, USING TRENCHLESS TECHNIQUES, DOES NOT AFFECT THE INTEGRITY OF CARRIAGEWAY CONSTRUCTION.

3. THE MAXIMUM DEPTH OF COMMS I CHAMBER IS 2m. WHERE THE DEPTH OF CROSS CARRIAGEWAY DUCTS REQUIRES A DEEPER CHAMBER, THE DETAIL SHOWN ON DRAWING RCD/1500/006 SHALL BE USED.

4. WHERE DUCTS ARE INSTALLED ON EXISTING MOTORWAYS THE NUMBER OF TRANSVERSE DUCTS TO BE PROVIDED SHALL BE DETERMINED BY REQUIREMENTS OF THE SCHEME. THE STANDARD PROVISION IS 4 x 100mm DUCT.
NOT TO SCALE

NETWORK DUCTS
DEEP TRANSVERSE DUCTS

TII PUBLICATION NUMBER: CC-SCD-01506

NOTES:
1. THIS DRAWING IS TO BE USED WHEN THE TRANSVERSE DUCTS ARE TOO DEEP TO BE ACCOMMODATED IN A 2m DEEP CHAMBER.
2. FOR CHAMBER DETAILS SEE DRAWINGS RCD/1500/015-018.
3. WHERE THE TOPOGRAPHY OF THE SITE DICTATES, A SECOND CHAMBER MAY BE REQUIRED IN ORDER TO BRING THE DUCTS INTO THE LINE OF THE LONGITUDINAL DUCT ROUTE. THE TWO CHAMBERS SHALL BE LINKED WITH 4 x 100mm, STRAIGHT DUCTS AT RIGHT ANGLES TO THE LONGITUDINAL CARILE ROUTE.

MIN RADIUS 2.5m

MIN RADIUS 2.5m

MIN RADIUS 2.5m

MIN RADIUS 2.5m

(4 x 100mm) IN OUTER SLEEVE

(4 x 100mm) IN OUTER SLEEVE

(4 x 100mm) IN OUTER SLEEVE

(4 x 100mm) IN OUTER SLEEVE

SECTION A-A

PLAN

END

COMMS 1 OR 11 CHAMBER

HARDSHOULDER

RETAINING WALL/STRUCTURE IF REQUIRED

COMMS 1 OR 11 CHAMBER

HARDSHOULDER

RETAINING WALL/STRUCTURE IF REQUIRED

VERGE

HARDSHOULDER

HARDSHOULDER

VERGE

√A

A√
1. The layouts shown is typical only. Refer to drawings RCD/1500/060 for details of the standard site layout at gantry, cantilever and CCTV camera pole sites.

2. Installation details:
   - Cabinet arrangements: RCD/1500/009,
   - Ducts: RCD/1500/010-014,
   - Chambers: RCD/1500/015-018.

3. The duct layout shown is typical only. Where ducts are reserved for future use duct plugs shall be fitted to each duct in accordance with MCDRW 1530.

4. The final location and layout of the equipment cabinet plinth, chambers, duct layout, earth electrode system and mini-pillar shall be designed to suit local topography.

5. The earth rod and earth inspection chamber are to be installed and tested in accordance not to scale.

6. The earth electrode and earth pit is to be connected to the mini-pillar by a 50mm PVC duct, installed at a minimum 0.5m depth at a minimum distance of 1.5m away from the plinth.

7. Handrail only required on embankment or adjacent to local hazard. Handrail to be 1100mm high in accordance with BS 6180 and BS 5395 Part 3. Footing to be either bolted or rooted. As determined by site conditions. Refer to drawings RCD/1500/022 & 023.

8. The handrail shall be galvanised steel tubes to BS 1387 DN 40 medium series with 90 dia. balls or key clamped sockets either cast into base or bolted down with 2 no. M16 galvanised steel anchor per base plate.

9. The duct in the cabinet shall extend 50mm above the finished level of the concrete plinth and shall be aligned with the duct openings of the equipment cabinet gland plates.

10. Mechanical duct plugs shall be fitted to all ducts following construction of the equipment cabinet plinth in accordance with MCDRW Clause 1530 and drawing RCD/1500/014.

With ETCI regulations, ET101 and BS 7430 "Code of Practice for Earthing".

TII Publication Number: CC-SCD-01508
NOTES:

1. THE ARRANGEMENTS SHOWN ARE TYPICAL ONLY. WHERE CABINET LOCATION DOES NOT COINCIDE WITH COMMS I OR II CHAMBER LOCATIONS REFER TO DRAWING RCD/1500/011.

2. INSTALLATION DETAILS:
   - CABINET ARRANGEMENTS RCD/1500/009
   - DUCTS RCD/1500/010-014
   - CHAMBERS RCD/1500/015-018

3. THE FINAL LOCATION AND LAYOUT OF THE EQUIPMENT CABINET PLINTH, CHAMBERS, DUCTED LAYOUT, EARTH ELECTRODE SYSTEM AND MINI PILLAR TO SUIT LOCAL TOPOGRAPHY. REFER TO DRAWING RCD/1500/008 FOR DETAILS OF THE EARTH ELECTRODE SYSTEM.

4. HANDRAIL ONLY REQUIRED ON EMBANKMENT OR ADJACENT TO LOCAL HAZARD. HANDRAIL TO BE 1100mm HIGH IN ACCORDANCE WITH BS 6180 AND BS 5395 PART 3. FOOTING TO BE EITHER BOLTED OR ROOTED, AS DETERMINED BY SITE CONDITIONS. REFER TO DRAWINGS RCD/1500/022 & 023

5. THE CONCRETE EQUIPMENT CABINET IS 200mm THICK C40 CONCRETE SLAB WITH A358 MESH AT TOP WITH A 50mm COVER. THE CONCRETE SLAB SHALL BE PLACED ON 250mm COMPACTED CLAUSE 804.
LONGITUDINAL DUCTS ONLY

LONGITUDINAL AND LOCAL DUCTS

NOTES:

2. CABLE MARKER TAPE IN ACCORDANCE WITH MCDRW CLAUSE 1531 SHALL BE INSTALLED AS SHOWN.
3. FOR DETAILS OF STRAPPING AND SPACER REFER TO DRAWING RCD/1500/013.
4. TRENCHES SHALL BE BACKFILLED IN ACCORDANCE WITH MCDRW CLAUSE 1531.
NOT TO SCALE

NATIONAL ROADS AUTHORITY

ROAD CONSTRUCTION DETAILS

INSTALLATION DRAWING TCC

DUCT INSTALLATION LOCAL DUCTS

SURFACE REINSTATED AS DESCRIBED IN MCDRW APPENDIX 15/2

FINISHED GROUND LEVEL

MARKER TAPE

CLASS B MATERIAL IN ACCORDANCE WITH MCDRW CLAUSE 602 AND TABLE 6/1

GRANULAR MATERIAL TO MCDRW CLAUSE 593.3(b)

1 LOCAL DUCT IN TRENCH
(100mm OR 50mm DIA)

2 LOCAL DUCTS IN TRENCH
(100mm OR 50mm DIA)

NOTES:
1. DIMENSION Y IS THE EXTERNAL DIMENSION OF 1 DUCT.
2. DIMENSION Z IS THE EXTERNAL DIMENSION OF 2 DUCTS LAID WITH A 20mm SEPARATION.
3. CABLE MARKER TYPE IN ACCORDANCE WITH MCDRW CLAUSE 1531 SHALL BE INSTALLED AS SHOWN.
4. REFER TO DRAWING RCD/1500/012 FOR DETAILS OF LOCAL DUCTS INSTALLED BENEATH CARRIAGeways.
5. TRENCHES SHALL BE BACKFILLED IN ACCORDANCE WITH MCDRW CLAUSE 1531.

TII PUBLICATION NUMBER: CC-SCD-01511
NOTES:
1. TYPES A AND B APPLY TO DUCTS INSTALLED DURING CONSTRUCTION OR RECONSTRUCTION OR MAJOR MAINTENANCE OF THE ROAD.
2. TYPE C DUCTS INSTALLED BENEATH EXISTING CARRIAGEWAYS SHALL BE INSTALLED USING TRENCHLESS TECHNIQUES WITH AT LEAST 300mm CLEARANCE BETWEEN THE DUCTS AND THE ROAD CONSTRUCTION AND SHALL COMprise OF 4 NO. 100mm ducts WITHIN A SLEEVE. ALTERNATIVELY A FOUR DUCT BUNDLE WITHOUT A SLEEVE USING DIRECTIONAL DRILLING MAY BE USED SUBJECT TO THE APPROVAL OF THE ROAD AUTHORITY.
3. THE DEPTH OF CROSS CARRIAGEWAY DUCTS WILL BE DEPENDANT UPON THE LOCATION OF DRAINAGE PIPES, AS DRAINAGE PIPES ARE INSTALLED TO STRICTLY DEFINED LEVELS, THIS WILL GENERALLY RESULT IN DUCTS BEING INSTALLED DEEPER THAN THE DRAINAGE PIPES. ON EXISTING MOTORWAYS A LINE AND LEVEL SURVEY OF EXISTING DRAINAGE SHOULD BE UNDERTAKEN BEFORE THE DEPTH OF DUCTS IS DECIDED.
4. BACKFILLING SHALL BE IN ACCORDANCE WITH MCDRW CLAUSE 505.

TII PUBLICATION NUMBER: CC-SCD-01512

DUCT INSTALLATION TRANSVERSE DUCTS
NOT TO SCALE

SECTION THROUGH
LONGITUDINAL DUCT
ARRANGEMENT

ELEVATION ON
LONGITUDINAL DUCT
ARRANGEMENT

NOTES:

1. DUCT MATERIALS, SPACERS AND STRAPPING ARE SPECIFIED IN MCDRW
   CLAUSE 1530.

2. JOINTING COLLARS SHALL BE INSTALLED TO AXIALLY ALIGN AND FIRMLY HOLD
   CONSECUTIVE LENGTHS OF DUCT. THEY SHALL BE DESIGNED, MADE AND
   INSTALLED TO ENSURE THAT A WATER AND AIR TIGHT SEAL IS ACHIEVED
   BETWEEN ADJACENT DUCT LENGTHS. THE EFFICACY OF THE SEAL SHALL BE
   TESTED IN ACCORDANCE WITH MCDRW CLAUSE 1533. COLD SHRINK SEALS
   MAY BE USED TO SUPPLEMENT THE SEALING PERFORMANCE OF THE
   JOINTING COLLAR. COLD SHRINK SEALS SHALL NOT BE USED ON THEIR OWN.

3. DUCTS SHALL BE SEPARATED BY MEANS OF A PURPOSE MADE SPACER. THE
   SPACER SHALL ENSURE THAT THERE IS SUFFICIENT ROOM FOR JOINTING
   COLLARS – NOMINALLY 20mm SEPARATION. SPACERS ARE PROVIDED TO
   ENSURE THAT THE SEPARATION BETWEEN DUCTS REMAINS CONSTANT ALONG
   THE LENGTH OF DUCTS DURING INSTALLATION, BACKFILLING AND IN SERVICE.
   SPACERS SHALL NOT CAUSE DAMAGE TO THE DUCTS EITHER DURING
   INSTALLATION OR IN SERVICE.

4. THE STRAPPING IS TO BE PURPOSE MADE AND SPACED AT INTERVALS TO
   ENSURE THAT THE DUCT AND SPACER ARRANGEMENT SHOWN IN THE
   SECTIONAL DETAIL IS NOT DISTURBED DURING INSTALLATION, BACKFILLING
   AND IN SERVICE. THE STRAPPING WOULD TYPICALLY BE INSTALLED AT
   1000 INTERVALS.

5. A PURPOSE MADE, COMBINED, SPACER/CLIP ARRANGEMENT MAY BE USED AS
   AN ALTERNATIVE TO SEPARATE SPACER AND STRAPPING, PROVIDED THAT THE
   CONTRACTOR CAN DEMONSTRATE THAT THE SPACER/CLIP IS CAPABLE OF
   RETAINING DUCTS IN PLACE DURING INSTALLATION AND SERVICE.

TII PUBLICATION NUMBER: CC-SCD-01513

DUCT INSTALLATION
SPACER AND STRAPPING
END VIEW OF MECHANICAL DUCT PLUG  
(100mm DUCT)  

SECTION THROUGH DUCT AND DUCT PLUG  
(100mm DUCT)  

NOTES:

1. THE MECHANICAL DUCT PLUG SHOWN IS TYPICAL.
2. THE MECHANICAL DUCT PLUG SHALL BE IN ACCORDANCE WITH THE MCDRW CLAUSE 1533.
3. THE CONTRACTOR SHALL PROVIDE AND INSTALL A MECHANICAL DUCT PLUG INTO THE END OF EVERY DUCT AT EVERY CHAMBER AND EVERY CABINET.
4. THE CONTRACTOR SHALL PROVIDE AND INSTALL A BLANKING INSERT FOR EACH CABLE PORT.
5. FOR THE 100mm DIAMETER MECHANICAL DUCT PLUG, THE CONTRACTOR SHALL PROVIDE INSERTS TO FIT IN THE CABLE PORTS SO THAT EACH CABLE PORT IS CAPABLE OF ACCOMMODATING THE FOLLOWING CABLES:
   i) 1 x 40 PAIR, OR
   ii) 1 x 96 FIBRE CABLE, OR
   iii) UP TO 4 x QUAD CABLE, OR
   iv) UP TO 2 x POWER CABLE (10mm² AND 25mm²), OR
   v) UP TO 2 x COAXIAL CABLES.
6. THE BLEED VALVE MAY BE INCORPORATED EITHER IN A CABLE PORT OR WITHIN THE MECHANICAL DUCT PLUG ITSELF. THE PURPOSE OF THE BLEED VALVE IS TO ALLOW THE AIR PRESSURE TEST DESCRIBED IN MCDRW CLAUSE 1533, AND ALSO TO ALLOW FOR GAS TESTING OF THE DUCT.
7. THE MECHANICAL DUCT PLUG SHALL NOT HOLD CABLES CAPTIVE. THIS MAY BE ACHIEVED BY THE MECHANICAL DUCT PLUG HAVING SPLIT COMPRESSION GASKET. CABLE PORT INSERT BUSHING SLEEVES SHALL BE SPLIT.

TII PUBLICATION NUMBER: CC-SCD-01514
NOTES:
1. CHAMBER WALLS SHALL BE 225MM THICK AND SHALL BE CONSTRUCTED AS SPECIFIED IN MCDRW CLAUSE 1532.
2. TO ACCOMMODATE THE FORM OF CONSTRUCTION USED FOR THE CHAMBER, THE SPACING BETWEEN LOCAL DUCTS MAY VARY BETWEEN 0 AND 100mm.
3. COVER(S) AND FRAME SHALL COMPLY WITH IS EN 124 AND SHALL BE AS DESCRIBED IN APPENDIX 15/2.
4. IN-SITU BASE SLAB TO BE CAST WITH A MINIMUM FALL OF 1:20 TOWARDS THE SUMP. POSITIVE DRAINAGE IN THE FORM OF SOAKAWAY TO SUIT LOCAL GROUND CONDITIONS OR CONNECTION TO THE HIGHWAY DRAINAGE NETWORK IS REQUIRED.
5. THE CHAMBER WALLS SHALL BE CHAMFERED AROUND THE DUCT ENTRY POINTS TO PROVIDE A SMOOTH SURFACE FOR CABLE INSTALLATION.
6. THE OVERALL DEPTH OF CHAMBER SHALL BE AS SPECIFIED IN THE CHAMBER SCHEDULE OF APPENDIX 15/2.
7. STEPS SHALL COMPLY WITH MCDRW CLAUSE 1532.
8. JOINTING CHAMBERS SHALL HAVE A MINIMUM DEPTH OF 900mm MEASURED FROM THE UNDERSIDE OF THE COVER SLAB TO THE BASE OF A CHAMBER.
10. JOINTING CHAMBERS SHALL BE PROVIDED WITH CABLE SUPPORTS AS DETAILED ON DRAWING RCD/1500/016.
11. FOR DUCT INSTALLATION DETAILS SEE DRAWINGS RCD/1500/019-014.
12. CHAMBER MARKING SHALL BE IN ACCORDANCE WITH MCDRW CLAUSE 1532.
13. THE CONTRACTOR SHALL SUPPLY AND INSTALL A MECHANICAL DUCT PLUG INTO EVERY DUCT ENTERING A CHAMBER (SEE DRAWING RCD/1500/014) IN ACCORDANCE WITH MCDRW CLAUSE 1530.
14. AN AREA WITH A SHALLOW SLOPE AS SHOWN ON THE PLAN VIEW SHALL BE CONSTRUCTED FOR MAINTENANCE ACCESS. IT SHALL BE FORMED FROM A 150 MIN. DEEP LAYER OF ST4 CONCRETE TO MCDRW CLAUSE 2602 WITH A U2 SURFACE FINISH. FOR CHAMBERS IN EQUIPMENT CABINETS PLINTHS SEE DRAWING RCD/1500/008.
NOTES:

1. The installed cable bearer system shall be capable of withstanding a point load of 3.5kN applied at the end of the longest bracket on each wall bearer.

2. All cable bearer components shall be fabricated from steel hot dip galvanised after fabrication in accordance with McPaw Clause 1909.

3. Wall brackets shall be fixed to the wall of the chamber by resin bonded M12 galvanised steel studs with an average tensile failure load of 25kN.

4. Arrangement shown is for a chamber which houses 2 No. CJEs where 3 No. CJEs are to be accommodated a third CJ&E support bar shall be provided.

5. The proposed method of securing the CJ&E support bar to the cable bearer bracket shall be submitted to the overseeing organisation for approval.

6. Standard depth accommodates up to three CJEs. If more CJEs are required then a second chamber adjacent to may be relaxed to allow two small size CJEs to be accommodated on the same CJ&E support bar.

7. Cables and CJEs shall be installed in accordance with drawings RCD/1500/020 and 021.
NOT TO SCALE

SECTION A-A

SECTION B-B

NOTES:

1. Chamber walls shall be 225mm thick and shall be constructed as specified in MCDRW clause 1532.
2. To accommodate the form of construction used for the chamber, the spacing between local ducts may vary between 0 and 100mm.
3. Cover and frame shall comply with IS EN 124 and shall be as described in Appendix 15/2.
4. In-situ base slab to be cast with a minimum fall of 1:20 towards the sump. Positive drainage in the form of soakaway to suit local ground conditions or connection to the highway drainage network is required.
5. The chamber walls shall be chamfered around the duct entry points to provide a smooth surface for cable installation.
6. Where the depth of chamber exceeds 900mm, step irons complying with MCDRW clause 1532 shall be installed.
7. Refer to drawings RCD/1500/010-014 for duct installation details.
8. Chamber markings shall be in accordance with MCDRW clause 1532.
9. Longitudinal ducts shall be continuous through the chamber where access to the cables within is not required.
10. An area with a shallow slope as shown on the plan view shall be constructed for maintenance access. It shall be formed from a 150 mm deep layer of ST4 concrete to MCDRW clause 2602 with a u2 surface finish. For chambers in equipment cabinet plinths, see drawing RCD/1500/008.
11. The external buried surfaces of the chamber shall be waterproofed with two coats of cut-back bitumen complying with MCDRW clause 2004.
12. Where cables greater than 70mm are used to supply local ducts a type COMMS I chamber shall be used.
13. Maximum depth of the chamber shall be 1300. Where transverse ducts are constructed at a greater depth refer to drawing RCD/1500/008.
NOT TO SCALE

NATIONAL ROADS AUTHORITY

ROAD CONSTRUCTION DETAILS

INSTALLATION DRAWING TCC

COMMS III CHAMBERS

TII PUBLICATION NUMBER: CC-SCD-01518

CAST IN-SITU ST4 CONCRETE TO MCDRW CLAUSE 2602 OR PRECAST CHAMBER TO COMPLY WITH BS EN 5911-3 AND BS EN 1917 OR PLASTIC UNITS OR OTHER UNITS IN EQUIVALENT MATERIAL IF DEPTH NOT EXCEEDING 1300 (MEASURED FROM TOP OF COVER TO TOP OF FLOOR LEVEL). SEE MCDRW SUB-CLAUSE 1532.7

NOTES:
1. CHAMBER WALLS SHALL BE 225MM THICK AND SHALL BE AS SPECIFIED IN MCDRW CLAUSE 1532.
2. TO ACCOMMODATE THE FORM OF CONSTRUCTION USED FOR THE CHAMBER THE SPACING OF THE LOCAL DUCTS MAY VARY BETWEEN 0 AND 100mm.
3. COVER AND FRAME SHALL COMPLY WITH IS EN 124 AND SHALL BE AS DESCRIBED IN APPENDIX 15/9.
4. THE CHAMBER WALLS SHALL BE CHAMFERED AROUND THE DUCT ENTRY POINTS TO PROVIDE SMOOTH SURFACE FOR CABLE INSTALLATION.
5. REFER TO DRAWINGS BELOW FOR INSTALLATION DETAILS:
   - DUCTS: RCD/1500/010-014
   - CABINETS: RCD/1500/009.
6. POSITIVE DRAINAGE IN THE FORM OF SOAKAWAY TO SUIT LOCAL GROUND CONDITIONS OF CONNECTION TO THE HIGHWAY DRAINAGE NETWORK IS REQUIRED.

PLAN

FOR EQUIPMENT CABINET PLINTH ARRANGEMENT SEE DRAWING RCD/1500/008 & 009

SECTION A-A

SECTION B-B

DUCT RADIUS TO SUIT MINI-PILLAR POSITION

SEE NOTE 3

FINISHED GROUND LEVEL

Soakaway

See Note 6

IN-SITU ST4 CONCRETE TO MCDRW CLAUSE 2602

2 NO 100 DIA LOCAL DUCTS

IN-SITU ST4 CONCRETE TO MCDRW CLAUSE 2602

3 NO 100 DIA LOCAL DUCTS

100 DIA DRAIN HOLE
NOT TO SCALE

CABLE TIE

TAG
(SUITABLE TO HOLD 12 MARKERS)

MARKERS

CABLE TIE

CABLE MARKERS

TYPICAL METHOD OF MARKING CABLES

NOTES:
1. ALL CABLES SHALL BE CLEARLY AND UNAMBIGUOUSLY MARKED TO SHOW DETAILS OF CABLE ROUTES AND DESTINATIONS.
2. AT CABLE JOINT ENCLOSURES (CJE) THE CABLE SHALL BE MARKED IMMEDIATELY ADJACENT TO THE CJE OVER THE HEAT SHRINK MATERIAL.
3. THE ROAD AUTHORITY SHALL BE CONSULTED TO AGREE UPON CABLE MARKER LETTERS AND/OR NUMERALS TO BE FITTED BY THE CABLE CONTRACTOR.
4. EACH END OF EVERY CABLE SHALL FITTED WITH AN IDENTIFICATION TAG ADJACENT TO THE CABLE ISLAND SHROUD.
5. IDENTIFICATION TAG TEXT SHALL BE INDELIBILE AND SHALL BE FASTENED SECURELY USING CABLE TIES. HAND WRITTEN, SELF-ADHESIVE PLASTIC LABELS SHALL NOT BE ACCEPTED AS A PERMANENT MEANS OF IDENTIFICATION.
NOTES:

1. CABLE AND CABLE JOINT ENCLOSURES (CJE) SHALL BE INSTALLED IN JOINTING CHAMBERS (RCD/1500/015) AS SHOWN. JOINTING CHAMBERS ARE PROVIDED WITH SUPPORTS AS SHOWN ON DRAWING RCD/1500/016.

2. THE SITUATION SHOWN IS TYPICAL WHERE THE ACTUAL CASING ARRANGEMENT DIFFERS, THE PRINCIPLES SHOWN INCLUDING THE SECURING OF CJEs AND CABLE, SHALL BE ADHERED TO, WHERE CJEs ARE MOUNTED VERTICALLY, THEY SHALL BE SECURED USING PROPRIETARY MADE BRACKETS.

3. LONGITUDINAL CABLES HAVE BEEN OMITTED FROM THE PLAN VIEW FOR CLARITY, LOCAL CABLES HAVE ALSO BEEN OMITTED FROM THE FRONT ELEVATION FOR CLARITY.

4. THE METHOD OF SECURING CABLES TO THE CHAMBER WALL IS TO BE AGREED WITH THE ROAD AUTHORITY. CABLE TRAY OR CABLE BEARING CLIPS OF THE RE-ENTERABLE TYPE MAY BE USED.

5. MINIMUM BENDING RADII OF THE CABLES (12 x DIAMETER) SHALL BE ADHERED TO.

6. CJEs SHALL BE SECURED TO SUPPORTS USING CABLE TIES, CJEs SHALL BE LAID ON A PAD OF NEOPRENE OR SIMILAR FLEXIBLE MATERIAL TO ENSURE THAT THEY LAY HORIZONTALLY.

7. WHERE TWO OR MORE CABLES ARE INSTALLED INTO A CJE THEY SHALL BE BOUND SECURELY TOGETHER FOR A LENGTH OF 500mm USING CABLE TIES AT 150mm (MAX) INTERVALS.
CABLE MANAGEMENT IN
COMMS II AND III CHAMBERS
(PLAN VIEW)

NOTES:
1. CABLES SHALL BE INSTALLED IN CHAMBERS AS SHOWN ON
   THESE DETAILS. THE SITUATIONS SHOWN ARE TYPICAL
   WHERE THE ACTUAL CABLE ARRANGEMENT DIFFERS THE
   PRINCIPLE SHOWN SHALL BE ADHERED TO.
2. THE METHOD OF SECURING CABLES TO THE CHAMBER WALL
   IS TO BE AGREED WITH THE ROAD AUTHORITY. CABLE TRAY
   OR CABLE BEARING CLIPS OF THE RE-ENTERABLE TYPE
   MAY BE USED.
3. MINIMUM BENDING RADIUS OF THE CABLES SHALL BE
   ADHERED TO (12 x DIAMETER).
52 x 175 EDGING LAD AT SLOPE OF BATTER WITH TOP EDGE APPROX. 50 BELOW GENERAL GROUND LEVEL, BEDDED AND BACKED WITH ST2 CONCRETE TOP EDGE 50 MM ABOVE TOE TREADS

600 x 600 x 50 TEXTURED OR NON SLP PAVING SLAB ON 10 MM MORTAR BED WITH FORWARD FALL OF 1 IN 50 (DEPTH OF TREAD DEPENDANT UPON SLOPE OF BATTER AND SLAB CUT TO SUIT)

BACKFILLING ST2 CONCRETE LEVELLED TO TOP OF BRICKS

75 COMPACTED THICKNESS CLASS 1 MATERIAL ON COMPACTED SUB SOIL CUT TO PROFILE OF STEPS

2 x STANDARD 215 x 102.5 x 65 CLASS B ENGINEERING BRICKS ON 10 MORTAR BED, OR 150 x 125 x 915 PRECAST CONCRETE KERBSTONE ON 17 MORTAR BED DESIGNATION (x) FOR 210 Riser, OR 1 x STANDARD ENGINEERING BRICK ON 10 MORTAR FOR 135 Riser

NOTE: PRECAST OPTION IS NOT SHOWN FOR CLARITY – IF USED ANY RESULTING GAPS TO BE FILLED WITH BEDDING MORTAR

SECTION A–A

15 TO 25 OVERHANG OF TREAD ON BRICK RISER

EDGING KERB WITH CONCRETE BACKING

NOTES:

1. IT IS THE RESPONSIBILITY OF THE SCHEME DESIGNER TO ASSESS THE NEED FOR STEPS (AND HANDRAILS) TO ENABLE THE SAFE ACCESS TO AND EGRESS FROM ANY CABINET SITE.

2. THIS DRAWING SHOWS TYPICAL CONSTRUCTION DETAILS FOR STEPS. THE SCHEME DESIGNER SHALL PROVIDE DRAWINGS OF STEP DETAILS FOR GRADIENTS WHERE THIS DRAWING IS INAPPROPRIATE.

3. CLASSES AND GRADES OF MATERIALS ARE DETAILLED IN THE MCDR/W.

4. STEPS WHERE PAVING SLABS HAVE AN OVERHANG GREATER THAN THAT SHOWN OR ARE CRACKED WILL NOT BE ACCEPTED.

5. THE DESIGN AND CONSTRUCTION OF THE STEPS, INCLUDING LANDING, HANDRAILS AND OTHER STEP AND STAIRWAY ELEMENTS SHALL COMPLY WITH THE RECOMMENDATIONS OF BS 5395 PART 3.

TII PUBLICATION NUMBER: CC-SCD-01522-01

NOT TO SCALE

NATIONAL ROADS AUTHORITY

ROAD CONSTRUCTION DETAILS

INSTALLATION DRAWING TCC

TYPICAL ACCESS STEPS

P1 10/13

Issue Date

RCD/1500/022
NOTES:

X TO BE 300 MAX.
X + Y TO BE 1000 MAX.

A

CABINET

BALLS OF STANDARDS FITTED
WITH GRUB SCREWS TO PREVENT
MOVEMENT OF HANDRAIL

MINI-PILAR

BASE TYPE AS REQUIRED

A

MAX SPACING
OF STANDARDS

HANDRAILS JOINTED WITHIN
BALLS OF STANDARDS

TOP HANDRAIL
NOTE: WHERE RETURN BENDS (U BENDS)
ARE FITTED AT THE END OF A LENGTH OF
HANDRAIL THEY SHALL NOT EXCEED MORE
THAN 300MM BEYOND THE HANDRAIL
STANDARD AND ANY JOINT SHALL BE WITHIN
THE BALL OF THE STANDARD

LOWER (KNEE) RAIL MAY BE
DEEMED UNNECESSARY

TYPICAL ARRANGEMENT OF HANDRAILS FOR
STEPS AND CONCRETE CABINET BASES

NOTES:

1. THE DESIGN AND CONSTRUCTION OF THE STEPS, INCLUDING LANDING, HANDRAILS
   AND OTHER STEP AND STAIRWAY ELEMENTS SHALL COMPLY WITH THE
   RECOMMENDATION OF BS 5395 PART 3.
2. HANDRAILS REQUIRED WHERE THERE IS A POTENTIAL ‘FALLING’ HAZARD TO SITE
   OPERATIVES eg. CABINETS AT THE TOP OF EMBANKMENTS, SLOPES OR DITCHES.
3. THE HANDRAIL SHALL BE GALVANISED STEEL TUBES TO BS 1387 DN 40 MEDIUM
   SERIES WITH 300MM O/A, BALLS OR KEY CLAMPED SOCKETS EITHER CAST INTO
   BASE OR BOLTED DOWN WITH 2 NO. M16 GALVANISED STEEL ANCHORS PER
   BASEPLATE.

TII PUBLICATION NUMBER: CC-SCD-01523

NOT TO SCALE

NATIONAL ROADS AUTHORITY

ROAD CONSTRUCTION DETAILS

INSTALLATION DRAWING TCC

P1 10/13

TYPICAL SAFETY HANDRAIL DETAILS

RCD/1500/023
PERMEABLE CELLULAR TYPE PAVING SYSTEM ALLOWING GRASS GROWTH THROUGH THE SURFACE INCLUDING BEDDING LAYER AND SEED MIXTURE SUITABLE FOR TRAFFICKED AREAS, FREE DRAINING SUB-BASE, COMPOSITE DRAINAGE SEPARATION MEMBRANE/GEOTEXTILE FABRIC AND SUB-GRADE SOIL. MAINTENANCE VEHICLE LAY-BY AREA SHALL BE PROVIDED IN ACCORDANCE WITH NRA TO 69.

PLAN OF TYPICAL MAINTENANCE VEHICLE LAY-BY AREA
Scale 1:200

NOTES:
1. WHERE SAFETY BARRIER IS REQUIRED AS PER NRA TO 19 IN THE VICINTY OF THE MAINTENANCE LAY-BY, A SAFE MEANS OF ACCESS FOR MAINTENANCE PERSONNEL SHALL BE PROVIDED BETWEEN THE MAINTENANCE LAY-BY AND THE EQUIPMENT CABINET PLINTH.
2. THE INTEGRITY OF THE MAINLINE DRAINAGE SYSTEM SHALL BE MAINTAINED.
FOR LOOPS LAID IN REINFORCED CONCRETE CONSTRUCTION TYPE S1

FOR LOOPS LAID IN NON-REINFORCED CONCRETE CONSTRUCTION TYPE S2

FOR LOOPS LAID IN FLEXIBLE CONSTRUCTION TYPE S3

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. n = NUMBER OF CABLES IN THE SLOT.
3. * = UNLESS OTHERWISE SPECIFIED TO BE 80 FOR MOTORWAY APPLICATIONS AND 65 FOR ALL-PURPOSE ROADS.
4. HOT POURED COMPOUND SHALL BE OXIDISED GRADE BITUMEN TO IS EN 13304 AND IS EN 12591 GRADE S85/40 OR GRADE S85/25.
5. LOOP TAIL SLOT WIDTH SHALL BE 16 (+/-0) WHERE TWISTED LOOP TAIL PAIRS OCCUPY THE SLOT.
6. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND ALL PURPOSE DUAL CARRIAGEWAYS TO DMRB HD 20.

NOT TO SCALE

TII PUBLICATION NUMBER: CC-SCD-01525

DETECTOR LOOP SLOT DETAILS SHEET 1

NATIONAL ROADS AUTHORITY
ROAD CONSTRUCTION DETAILS
INSTALLATION DRAWING TCC

RCD/1500/025

Drawing No.
Issue Date
P1 10/13
1. All dimensions are in millimetres.
2. For the installation of detector loops on motorways and all purpose dual carriageways to DMRB HD 20.

NOT TO SCALE
NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND ALL PURPOSE DUAL CARRIAGEWAYS TO DMRB HD 20.
## Installation Test Certificate for Inductive Loop Detectors

### Site Address/Reference

### Contractor

### Drawing Number

### Weather Conditions

### Temperature

### Loop Tests

<table>
<thead>
<tr>
<th>Designation</th>
<th>Loop Tail Length</th>
<th>Test 1 Series Resistance Measured into Loop Tails</th>
<th>Test 2 Resistance to Earth of Loop Tails Measured at 500V DC with All Conductors Connected Together</th>
<th>Test 3 Inductance Measured into Loop Tails</th>
<th>Calculated Inductance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Reading</td>
<td>Pass/Fail</td>
<td>Reading</td>
<td>Pass/Fail</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Max. 5 Ohms</td>
<td>Min. 100 Megohms</td>
<td>pH</td>
<td>pH</td>
</tr>
</tbody>
</table>

### Complete Circuit Tests

<table>
<thead>
<tr>
<th>Designation</th>
<th>Feeder Length</th>
<th>Test 1 Series Resistance Measured into Feeder and Loop Tails</th>
<th>Test 2 Resistance to Earth of Cable Armouring (Armouring Not Connected)</th>
<th>Test 3 Resistance to Earth of Cable Armouring (Armouring Connected at Detector Housing)</th>
<th>Test 4 Resistance to Earth of Feeder and Loop Tails Measured at 500V DC with All Conductors Connected Together</th>
<th>Test 5 Inductance Measured into Feeder and Loop Tails</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Reading</td>
<td>Pass/Fail</td>
<td>Reading</td>
<td>Pass/Fail</td>
<td>Reading</td>
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<tr>
<td></td>
<td></td>
<td>Max. 5 Ohms</td>
<td>Min. 100 Megohms</td>
<td>Max. 5 Ohms</td>
<td>Min. 100 Megohms</td>
<td>pH</td>
</tr>
</tbody>
</table>

## Loop Dimensions

### Test Equipment Used

### Resistance Make

### Type

### Inductance Make

### Type

I certify that this equipment has been installed and tested in accordance with specification DMRB HD 20.

Signed on behalf of the Contractor ....................................................... Company ....................................................... Date .......................................................
NOTES:

1. ALL DIMENSIONS ARE IN MILLIQUARTERS.
2. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND NATIONAL ROADS REFER TO DMBR HD 20.
3. THE ELBOW DUCT CONNECTION SHALL BE FITTED WITH A MECHANICAL DUCT PLUG IN ACCORDANCE WITH MCDW 1530 AND DRAWING RCD/1500/014.

TII PUBLICATION NUMBER: CC-SCD-01531
SECTIONAL ELEVATION OF CENTRAL RESERVE CHAMBER

NOTES:
1. THIS ARRANGEMENT MAY NOT BE SUITABLE FOR ALL SITE CONDITIONS. THE SCHEME DESIGNER SHALL TAILOR OTHER ARRANGEMENTS TO SUIT INDIVIDUAL LOCATIONS.
2. CABLE IDENTIFICATION SHALL BE FITTED DURING INSTALLATION.
3. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND NATIONAL ROADS REFER DMRB HD 20.
CENTRAL RESERVATION
CARRIAGEWAY MARKING
LANE 1
CARRIAGEWAY MARKING
HARDSHOULDER

LOOP SLOTS TYPE S3
(SEE RCD/1500/025)

1 LANE AND HARDSHOULDER IN FLEXIBLE CONSTRUCTION

NOTES:
1. ALL DIMENSIONS ARE IN METRES.
2. ALL LOOPS TO BE 3 TURNS.
3. LOOP TAILS TO BE IDENTIFIED WITH LOOP REFERENCE SHOWN USING PREPRINTED DURABLE PLASTIC SLEEVE.
4. THIS IS A GENERAL DRAWING. LOOP WIDTHS WILL VARY ACCORDING TO LANE WIDTHS.
5. CONSULT WITH DETECTOR MANUFACTURER ON FREQUENCY OF CHANNEL ALLOCATION.
6. QUAD ARMoured FEEDER CABLE IS REQUIRED FOR SPEED LOOPS IN EACH LANE AND HARDSHOULDER.
7. TOLERANCE ±0.02 METRES UNLESS OTHERWISE STATED.
8. LOOP SLOT TYPES S1 TO S3 ARE SHOWN ON DRAWING RCD/1500/025.
9. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND NATIONAL ROADS REFER TO DMRB HD 20.

NOT TO SCALE

TII PUBLICATION NUMBER: CC-SCD-01533

NATIONAL ROADS AUTHORITY
ROAD CONSTRUCTION DETAILS
INSTALLATION DRAWING TCC


P1 10/13
Issue Date

DRAWING NO. RCD/1500/033

2 LANE FLEXIBLE CONSTRUCTION
NOTES:
1. ALL DIMENSIONS ARE IN METRES.
2. ALL LOOP SLOTS TO BE 3 TURNS.
3. LOOP TAILS TO BE IDENTIFIED WITH LOOP REFERENCE SHOWN USING PREPRINTED DURABLE PLASTIC SLEEVE.
4. THIS IS A GENERAL DRAWING. LOOP WIDTHS WILL VARY ACCORDING TO LANE WIDTHS.
5. CONSULT WITH DETECTOR MANUFACTURER ON FREQUENCY OF CHANNEL ALLOCATION.
6. QUAD ARMoured FEEDER CABLE IS REQUIRED FOR SPEED LOOPS IN EACH LANE AND HARDSHOULDER.
7. TOLERANCE ±0.02 METRES UNLESS OTHERWISE STATED.
8. LOOP SLOT TYPES S1 TO S3 ARE SHOWN ON DRAWING RCD/1500/025.
9. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND NATIONAL ROADS REFER TO DMRB HD 20.

NOT TO SCALE

TII PUBLICATION NUMBER: CC-SCD-01534

NATIONAL ROADS AUTHORITY
ROAD CONSTRUCTION DETAILS
INSTALLATION DRAWING TCC

DETECTOR LOOP LAYOUT – SHEET 2

DRAWING NO. RCD/1500/034

DATE 10/13
3 LANE CONCRETE WITH FLEXIBLE CONSTRUCTION HARDSHOULDER

NOTES:
1. ALL DIMENSIONS ARE IN METRES.
2. ALL LOOPS TO BE 3 TURNS.
3. LOOP TAILS TO BE IDENTIFIED WITH LOOP REFERENCE SHOWN USING PREPRINTED DURABLE PLASTIC SLEEVE.
4. THIS IS A GENERAL DRAWING, LOOP WIDTHS WILL VARY ACCORDING TO LANE WIDTHS.
5. CONSULT WITH DETECTOR MANUFACTURER ON FREQUENCY OF CHANNEL ALLOCATION.
6. QUAD ARMOURED FEEDER CABLE IS REQUIRED FOR SPEED LOOPS IN EACH LANE AND HARDSHOULDER.
7. TOLERANCE ±0.02 METRES UNLESS OTHERWISE STATED.
8. DETAILS X2 AND X3 ARE SHOWN ON DRAWING RCD/1500/027.
9. LOOP SLOT TYPES S1 TO S3 ARE SHOWN ON DRAWING RCD/1500/025.
10. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND NATIONAL ROADS REFER TO DMRB HD 20.

TII PUBLICATION NUMBER: CC-SCD-01535

3 LANE CONCRETE WITH FLEXIBLE CONSTRUCTION HARDSHOULDER

NOT TO SCALE

NATIONAL ROADS AUTHORITY
ROAD CONSTRUCTION DETAILS
INSTALLATION DRAWING TCC

DRAWING NO. RCD/1500/035
2 LANE AND HARDSHOULDER IN CONCRETE CONTINUOUS REINFORCED CONCRETE

3 LANE CONTINUOUS REINFORCED CONCRETE WITH CONTINUOUS REINFORCED OR CONCRETE HARDSHOULDER

NOTES:
1. ALL DIMENSIONS ARE IN METRES.
2. ALL LOOPS TO BE 3 TURNS.
3. LOOP TAILS TO BE IDENTIFIED WITH LOOP REFERENCE SHOWN USING PREPRINTED DURABLE PLASTIC SLEEVE.
4. THIS IS A GENERAL DRAWING. LOOP WIDTHS WILL VARY ACCORDING TO LANE WIDTHS.
5. CONSULT WITH DETECTOR MANUFACTURER ON FREQUENCY OF CHANNEL ALLOCATION.
6. SINGLE PAIR ARMoured FEEDER CABLE IS REQUIRED FOR SPEED LOOPS IN EACH LANE.
7. TOLERANCE ±0.02 METRES UNLESS OTHERWISE STATED.
8. DETAILS X1, X2 AND X3 ARE SHOWN ON DRAWING RCD/1500/027.
9. LOOP SLOT TYPES S1 TO S3 ARE SHOWN ON DRAWING RCD/1500/025.
10. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND NATIONAL ROADS REFER TO DMIRD HD 20.
NOT TO SCALE
4 LANE CONTINUOUS REINFORCED CONCRETE WITH CONTINUOUS REINFORCED OR CONCRETE HARDSHOULDER

TII PUBLICATION NUMBER: CC-SCD-01537

NOTES:
1. ALL DIMENSIONS ARE IN METRES.
2. ALL LOOPS TO BE 3 TURNS.
3. LOOP TAILS TO BE IDENTIFIED WITH LOOP REFERENCE SHOWN USING PREPRINTED DURABLE PLASTIC SLEEVE.
4. THIS IS A GENERAL DRAWING. LOOP WIDTHS WILL VARY ACCORDING TO LANE WIDTHS.
5. CONSULT WITH DETECTOR MANUFACTURER ON FREQUENCY OF CHANNEL ALLOCATION.
6. SINGLE PAR ARMoured FEEDER CABLE IS REQUIRED FOR SPEED LOOPS IN EACH LANE.
7. TOLERANCE ±0.02 METRES UNLESS OTHERWISE STATED.
8. DETAILS X1 TO X4 ARE SHOWN ON DRAWING RCD/1500/027.
9. LOOP SLOT TYPES S1 TO S3 ARE SHOWN ON DRAWING RCD/1500/025.
10. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND NATIONAL ROADS REFER TO DMRG HD 29.
CONCRETE ROAD SURFACE

BITUMINOUS ROAD SURFACE

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND NATIONAL ROADS REFER TO DMERB HD 20.

TII PUBLICATION NUMBER: CC-SCD-01538
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. FOR OPTION 3 SEE DRAWING RCD/1500/040.
3. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND NATIONAL ROADS REFER TO DMRB HD 20.

NOT TO SCALE

TII PUBLICATION NUMBER: CC-SCD-01539

LOOP (INDUCTIVE) – ALL PURPOSE ROADS
DETAIL OF CABLE ENTRY TO THE FOOTWAY
ISOMETRIC SKETCH

OPTION 3

PLAN

SECTION

CARRIAGEWAY CHAMBER FOR DETECTOR LOOP TAILS (L.B.)

END OF DUCT TO BE BELOW THE SLOTS
BASE TO BE ABLE TO DRAIN
SLOTS TO BE PARALLEL TO KERB LINE

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. FOR OPTION 1 AND 2 SEE DRAWING RCD/1500/039.
3. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND NATIONAL ROADS REFER TO DMR1 HD 20.
NOT TO SCALE

PLAN SECTION B-B

PLAN SHOWING CONCRETE PIPE

COVER AND FRAME
(SEE NOTE 2)

GL/FOOTWAY LEVEL

100 HD CLASS B ENGINEERING
BRICKWORK (SEE NOTE 5)

OR

300 DIA CONCRETE PIPE

OR PREFORMED OR CAST CONCRETE

CHAMBER (SEE NOTE 7)

OR PLASTIC UNITS (SEE NOTE 7)

BACKFILL (SEE NOTE 4)

100 DIA DUCT TO CLAUSE 1530

IN SITU ST4 CONCRETE BASE SLAB

TO CLAUSE 2602

SOAKAWAY (SEE NOTE 6)

SECTION A-A

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. COVER IS 300 x 300 x 100 1/2, INSPECTION COVER AND FRAME TO
   IS EN 124 CLASS B (OR AS DESCRIBED IN APPENDIX 15/2) BEDDED
   ON TO MINIMUM MORTAR BED DESIGNATED (i) TO CLAUSE 2404.
3. RECOMMENDED DEPTH OF DUCT IN FOOTWAY IS 450 MINIMUM 700
   MAXIMUM
4. MODIFY TABLE 6/1 OR WITH ST2 CONCRETE TO CLAUSE 2602 WHERE
   MECHANICAL COMPACTING IS IMPRACTICAL.
5. 100 HD CLASS B ENGINEERING BRICKWORK TO CLAUSE 2406 ON 10
   MINIMUM MORTAR BED DESIGNATED (i) TO CLAUSE 2404.
6. IN SITU BASE SLAB TO BE CAST WITH A MINIMUM FALL OF 1:20
   TOWARDS THE SUMP, POSITIVE DRAINAGE IN THE FORM OF A SOAKAWAY
   OR CONNECTION TO THE HIGHWAY DRAINAGE NETWORK IS REQUIRED.
7. PREFAB CHAMBER TO COMPLY WITH BS 9911-3 AND BS EN 1917 OR
   PLASTIC UNITS OR OTHER UNITS IN EQUIVALENT MATERIAL.
8. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND
   NATIONAL ROADS REFER TO DBRID HD 22.

TII PUBLICATION NUMBER: CC-SCD-01541
NOTES:
1. ALL DIMENSIONS ARE IN METRES.
2. ALL LOOPS TO BE 3 TURNS.
3. C OF C INDICATES CENTRE OF CARRIAGEWAY.
4. SEE DRAWING RCD/1500/029 FOR DETAILS OF CROSS-CUT OF CORNERS OF LOOP SLOT.
5. LOOP CONFIGURATIONS SHOWN ON THIS DRAWING ARE FOR CONTROL OF TRAFFIC SIGNALS.
6. DISTANCE FROM STOP LINES ARE CONTAINED IN UK HA MCE 0108 SITING OF INDUCTIVE LOOPS FOR VEHICLE DETECTING EQUIPMENTS AT PERMANENT ROAD TRAFFIC SIGNAL INSTALLATIONS SPECIFICATION.
7. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND NATIONAL ROADS REFER TO DM90 HD 29.

TII PUBLICATION NUMBER: CC-SCD-01542
NOTES:
1. ALL DIMENSIONS ARE IN METRES.
2. ALL LOOPS TO BE 3 TURNS.
3. C OF C INDICATES CENTRE OF CARRIAGEWAY.
4. REFER TO DETECTOR MANUFACTURER FOR MAXIMUM FEEDER LENGTH.
5. SEE DRAWING RCS/1500/029 FOR DETAIL OF CROSS-CUT OF CORNERS OF LOOP SLOT.
6. FEEDER CABLE 1 CONNECTED TO LOOPS IN LEFT HAND LANE.
7. FEEDER CABLE 2 CONNECTED TO LOOPS IN RIGHT HAND LANE.
8. DISTANCE FROM STOP LINE 1 ARE CONTAINED IN UK HA NICE D108 STRING INDUCTION LOOP FOR VEHICLE DETECTING EQUIPMENTS.
9. AT PERMANENT ROAD SIGNAL INSTALLATION SPECIFICATION.
10. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND NATIONAL ROADS REFER TO DMRB HD 20.

TII PUBLICATION NUMBER: CC-SCD-01544
NOTES:

1. ALL DIMENSIONS ARE IN METRES.
2. ALL LOOPS TO BE 3 TURNS.
3. C OF C INDICATES CENTRE OF CARRIAGEWAY.
4. SEE RCD/1500/029 FOR DETAIL OF CROSS-CUT OF CORNERS OF LOOP SLOT.
5. LOOP CONFIGURATION SHOWN ON THIS DRAWING ARE FOR CONTROL OF TRAFFIC SIGNALS.
6. DISTANCE FROM STOP LINES ARE CONTAINED IN UK HA MCE 0108 SITING OF INDUCTIVE LOOP FOR VEHICLE DETECTING EQUIPMENTS AT PERMANENT ROAD TRAFFIC SIGNAL INSTALLATION SPECIFICATION.
7. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND NATIONAL ROADS REFER TO DM03 HD 20.

ROADS WITH REINFORCED MESH
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL LOOPS TO BE 3 TURNS.
3. REFER TO DETECTOR MANUFACTURER FOR MAXIMUM FEEDER LENGTH.
4. SEE DRAWING RCD/1500/029 FOR DETAILS OF CROSS-CUT OF CORNERS OF LOOP SLOT.
5. LOOP CONFIGURATIONS SHOWN ON THIS DRAWING ARE FOR CONTROL OF TRAFFIC SIGNALS.
6. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND NATIONAL ROADS REFER TO DMRB HD 20.

TII PUBLICATION NUMBER: CC-SCD-01546
NOTES:
1. ALL DIMENSIONS ARE IN METRES.
2. ALL LOOPS TO BE 3 TURNS.
3. *DENOTES WHERE THERE IS A CENTRAL RESERVE THE DIMENSION MAY BE REDUCED TO 0.4m.
4. SEE DRAWING RCD/1500/029 FOR DETAILS OF CROSS-CUT OF SLOT.
5. EACH PAIR OF LOOP TAILS TO BE TWISTED TOGETHER.
6. FOR THE INSTALLATION OF DETECTOR LOOPS ON MOTORWAYS AND NATIONAL ROADS REFER TO DM 98HD 20.

TII PUBLICATION NUMBER: CC-SCD-01547

NOT TO SCALE

NATIONAL ROADS AUTHORITY
ROAD CONSTRUCTION DETAILS

INSTALLATION DRAWING TCC

LOOP (INDUCTIVE) ALL-PURPOSE ROAD MOVA LOOPS

DRAWING NO.
RCD/1500/047

P1 10/13 Issue Date
NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. BRACKET FOR PADLOCK CAN BE INCORPORATED INTO THE DOOR HANDLE MECHANISM.
3. DOOR HANDLES SHALL INCORPORATE A KEY LOCK; THE DOOR LOCK TYPES AND BARREL NUMBER TO BE PROVIDED BY THE ROAD AUTHORITY.
4. ALL DOORS FITTED WITH GAS PRESSURE STRUT TO HOLD DOOR IN OPEN POSITION.
5. DOCUMENT POCKET TO BE PROVIDED ON INTERNAL SIDE OF FRONT RIGHT HAND SIDE DOORS.
6. CONSTRUCTION:
   3mm GALVANIZED STEEL EQUIPMENT
   COMPARTMENT SINGLE SKINNED FINISH POWDER COATED (COLOUR PAL GREY RAL 7035) INGRESS PROTECTION IP-45 IMPACT RATING JK-10 FOR USE ON GREENFIELD & ROADSIDE LOCATIONS.
ISO VIEW 1 WITH DOORS REMOVED
ISO VIEW 2 WITH DOORS REMOVED

ISO VIEW OF PLINTH/BASE

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS
2. ALL DOORS FITTED WITH GAS PRESSURE GAS STRUT TO HOLD DOOR IN OPEN POSITION.

TII PUBLICATION NUMBER: CC-SCD-01549

NOT TO SCALE
NOT TO SCALE

NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETERS
2. BRACKET FOR PADLOCK CAN BE INCORPORATED INTO THE DOOR HANDLE MECHANISM.
3. DOOR HANDLES SHALL INCORPORATE A KEY LOCK, THE DOOR LOCK TYPES AND BARREL NUMBER TO BE PROVIDED BY THE ROAD AUTHORITY.
4. ALL DOORS FITTED WITH GAS PRESSURE STRUT TO HOLD DOOR IN OPEN POSITION.
5. DOCUMENT POCKET TO BE PROVIDED ON INTERNAL SIDE OF FRONT RIGHT HAND SIDE DOORS.
6. CONSTRUCTION:
   3mm GALVANISED STEEL EQUIPMENT COMPARTMENT SINGLE SKINNED FINISH POWDER COATED (COLOUR PAL GREY RAL 7035) INGRESS PROTECTION P-45 IMPACT RATING IK-10 FOR USE ON GREENFIELD & ROADSIDE LOCATIONS.
ISO VIEW 1 WITH DOORS REMOVED

ISO VIEW 2 WITH DOORS REMOVED

ISO VIEW OF PLINTH/BASE

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. ALL DOORS FITTED WITH GAS PRESSURE GAS STRUT TO HOLD DOOR IN OPEN POSITION.
REAR

FIBRE TERMINATIONS

CABLE MANAGEMENT

TRANSMISSION EQUIPMENT

TRANSMISSION EQUIPMENT

POWER DISTRIBUTION BOARD

FIXED SHELVING
NOT TO SCALE

TII PUBLICATION NUMBER: CC-SCD-01559

NATIONAL ROADS AUTHORITY

ROAD CONSTRUCTION DETAILS

INSTALLATION DRAWING TCC

TYPICAL OUTSTATION LAYOUT
(GANTRY SIGNALS)

NOTES:
1. THIS DRAWING DEPICTS A TYPICAL OUTSTATION LAYOUT FOR A DUCTED COMMUNICATIONS NETWORK.
2. SAFETY BARRIERS AND HIGHWAY BOUNDARY FENCE OMMITTED FOR CLARITY.
3. LOCAL 150mm DUCT FROM COMMS I, II OR III CHAMBER TO GANTRY PROVIDED FOR CLARITY. REFER TO DRAWING RCD/1500/068 FOR DETAILS OF CABINETS AT GANTRY SITES.
4. HANDRAILS OMITTED FOR CLARITY, REFER TO RCD/1500/022 AND RCD/1500/023.
5. FOR FURTHER TELEPHONE INSTALLATION DETAILS REFER TO:
   • DRAWING RCD/1500/068 FOR TELEPHONE INSTALLATION WITHOUT SAFETY BARRIER
   • DRAWING RCD/1500/061 FOR TELEPHONE INSTALLATION WITH DUCTING/CHAMBER DETAILS
   • DRAWING RCD/1500/062 FOR TELEPHONE INSTALLATION BEHIND SAFETY BARRIER
   • DRAWING RCD/1500/063 FOR BLISTER SURFACE PAVING SLAB
   • NRA MCDR 1500 SERIES.
NOTES:

1. NOT TO SCALE. ALL DIMENSIONS IN MILLIMETRES.
2. THE EMERGENCY ROADSIDE TELEPHONE SHALL BE SET IN A 600x600x200mm ST2 CONCRETE BASE TO CLAUSE 2602.
3. ALL TOPSOIL AND/OR ORGANIC MATERIAL SHALL BE REMOVED. A PLATFORM SHALL BE PREPARED OF SIMILAR STANDARD TO THE SUB-FORMATION OF THE ADJACENT CARRIAGEWAY.
4. ALL PAVING SLABS SHALL BE LAID ON 150mm SUB-BASE COMPLYING WITH CLAUSE 804 AND COMPACTED IN ACCORDANCE WITH CLAUSE 802.
5. HANDRAIL ONLY REQUIRED ON EMBANKMENT OR ADJACENT TO LOCAL HAZARD. HANDRAIL TO BE 1100mm HIGH IN ACCORDANCE WITH BS 6180 AND BS 5395 PART 3. FOOTING TO BE EITHER BOLTED OR ROOTED, AS DETERMINED BY SITE CONDITIONS. REFER TO DRAWINGS RCD/1500/022 & 023.
6. WHERE A FILTER DRAIN IS INCLUDED IN THE VERGE, THE FILTER DRAIN SHALL EXTEND TO THE Underside OF THE HARDSTANDING AND BE SEPERATED FROM THE HARDSTANDING BY A GEOTEXTILE MEMBRANE.
7. THE 50mm DUCT THROUGH THE CONCRETE BASE SHALL BE LEFT 100mm PROUD OF THE SURFACE OF THE BASE.
8. THE DISTANCE FROM THE CENTRE OF THE EMERGENCY TELEPHONE TO THE EDGE OF HARDSHOULDER SHALL NOT BE LESS THAN 1500mm.
9. THE PAVING SLAB/ERT HARDSTANDING AREA SHALL BE LEVEL AND CONTINUOUS WITH THE HARD SHOULDER IN FRONT OF EACH ERT LOCATION. ANY GAPS BETWEEN THE PAVING SLAB/ERT HARDSTANDING AREA SHALL BE FILLED WITH BITUMINOUS MATERIAL.
10. FOR FURTHER TELEPHONE INSTALLATION DETAILS REFER TO:

- DRAWING RCD/1500/061 FOR TELEPHONE INSTALLATION WITH DUCTING/CHAMBER DETAILS
- DRAWING RCD/1500/062 FOR TELEPHONE INSTALLATION BEHIND SAFETY BARRIER
- DRAWING RCD/1500/063 FOR BLISTER SURFACE PAVING SLAB
- MCDRW 1500 SERIES.

TII PUBLICATION NUMBER: CC-SCD-01560
NOTES:
1. NOT TO SCALE. ALL DIMENSIONS IN MILLIMETRES.
2. THE LAYOUT SHOWN IS INDICATIVE ONLY.
3. THE DUCT AND CHAMBER LAYOUT WILL REMAIN THE SAME FOR TELEPHONES WITHOUT SAFETY BARRIER AND TELEPHONES LOCATED BEHIND SAFETY BARRIER.
4. COVER(S) AND FRAME SHALL COMPLY WITH EN 124 AND SHALL BE AS DESCRIBED IN APPENDIX 15/2.
5. THE EMERGENCY ROADSIDE TELEPHONE SHALL BE SET IN A 600x600x200mm ST2 CONCRETE BASE TO CLAUSE 2802.
6. 1x50mm duct to be connected from the COMMS III CHAMBER to the nearest COMMS I or II CHAMBER on LONGITUDINAL DUCT NETWORK.
7. THE PAVING SLAB/ERT HARDSTANDING AREA SHALL BE LEVEL AND CONTINUOUS WITH THE HARD SHOULDER IN FRONT OF EACH ERT LOCATION. ANY CAPS BETWEEN THE PAVING SLAB/ERT HARDSTANDING AREA SHALL BE FILLED WITH BITUMINOUS MATERIAL.
8. FOR FURTHER TELEPHONE INSTALLATION DETAILS REFER TO:
   • DRAWING RCD/1500/060 FOR TELEPHONE INSTALLATION WITHOUT SAFETY BARRIER
   • DRAWING RCD/1500/062 FOR TELEPHONE INSTALLATION BEHIND SAFETY BARRIER
   • DRAWING RCD/1500/063 FOR ELUSIER SURFACE PAVING SLAB
   • MCDW 1500 SERIES.

TII PUBLICATION NUMBER: CC-SCD-01561

NOT TO SCALE
NOTES:

1. NOT TO SCALE. ALL DIMENSIONS IN MILLIMETRES.
2. THE EMERGENCY ROADSIDE TELEPHONE SHALL BE SET IN A 600x600x200mm ST2 CONCRETE BASE TO CLAUSE 2802.
3. ALL TOPSOIL AND/OR ORGANIC MATERIAL SHALL BE REMOVED. A PLATFORM SHALL BE PREPARED OF SIMILAR STANDARD TO THE SUB-FORMATION OF THE ADJACENT CARRIAGeway.
4. ALL PAVING SLABS SHALL BE LAYED ON 150mm SUB-BASE COMPLYING WITH CLAUSE 804 AND COMPACTED IN ACCORDANCE WITH CLAUSE 802.
5. AS INSTALLED CLEARANCE OF 50-150mm (50 PREFERRED) SHALL BE PROVIDED BETWEEN THE BACK OF THE SAFETY BARRIER AND THE TELEPHONE HOUSING. NO SECTION OF THE TELEPHONE HOUSING SHALL BE INSTALLED OVER THE SAFETY BARRIER.
6. WHERE A FILTER DRAIN IS INCLUDED IN THE VERGE, THE FILTER DRAIN SHALL EXTEND TO THE UNDERSIDE OF THE HARDSTANDING AND BE SEPARATED FROM THE HARDSTANDING BY ITS GEOTEXTILE MEMBRANE.
7. THE 50mm DUCT THROUGH THE CONCRETE BASE SHALL BE LEFT 100mm PROUD OF THE SURFACE OF THE BASE.
8. THE PAVING SLAB/ERT HARDSTANDING AREA SHALL BE LEVEL AND CONTINUOUS WITH THE HARD SHOULDER IN FRONT OF EACH ERT LOCATION. ANY GAPS BETWEEN THE PAVING SLAB/ERT HARDSTANDING AREA SHALL BE FILLED WITH BITUMINOUS MATERIAL.
9. FOR FURTHER TELEPHONE INSTALLATION DETAILS REFER TO:
   • DRAWING RCD/1500/060 FOR TELEPHONE INSTALLATION WITHOUT SAFETY BARRIER
   • DRAWING RCD/1500/061 FOR TELEPHONE INSTALLATION IN CONJUNCTION WITH LONGITUDINAL DUCTING/CHAMBERS
   • DRAWING RCD/1500/063 FOR BLUSTER SURFACE PAVING SLAB
   • MCDRW 1500 SERIES.
NOTES:
1. NOT TO SCALE. ALL DIMENSIONS IN MILLIMETRES.
2. FOR FURTHER TELEPHONE INSTALLATION DETAILS REFER TO:
   • DRAWING RCD/1500/060 FOR TELEPHONE INSTALLATION WITHOUT SAFETY BARRIER
   • DRAWING RCD/1500/061 FOR TELEPHONE INSTALLATION WITH DUCTING/CHAMBER DETAILS
   • DRAWING RCD/1500/062 FOR TELEPHONE INSTALLATION BEHIND SAFETY BARRIER
   • DRAWING RCD/1500/063 FOR BLUSTER SURFACE PAVING SLAB
   • MCDRW 1500 SERIES.
Scheme Ref. | Sign Ref | X-height | Width
--- | --- | --- | ---
 | ERT | 25mm | 65mm
Letter colour | SIGN FACE | 
Background | WHITE | 
Border | n/a | 
Material | SELF ADHESIVE VINYL | 
Drawing file | 

**Dimensions in mm**
- M08
- A202

**Dimensions in Stroke Widths**
- M08
- A202

**ERT Unique Identification Number Description**
- **M**
- **08**
- **A202**

**Road Category**

**Route Number**

**Direction of Travel**

**Unique Identifier Based On Approx. Chainage**

**The Unit of Measurement Is The Stroke Width (sw)**

**Which Is Equal To One Quarter Of The 'X'-Height**

**X-Height = 4 Stroke Widths**

**Transport Heavy Font**

TII Publication Number: CC-SCD-01565

NATIONAL ROADS AUTHORITY

ROAD CONSTRUCTION DETAILS

INSTALLATION DRAWING TCC

ERT UNIQUE IDENTIFICATION NUMBER - LABEL

NOT TO SCALE

Drawing No. RCD/1500/065
**Apply 80% Condensing Factor**

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<th>Sign Ref.</th>
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<th>50mm</th>
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**The unit of measurement is the stroke width (sw) which is equal to one quarter of the "x"-height**

**X-HEIGHT = 4 STROKE WIDTHS**

**Transport Heavy Font**

**TII Publication Number:** CC-SCD-01566

**ERT Unique Identification Number - Label Small**
NOT TO SCALE

ELECTRONIC SIGNALING EQUIPMENT TO BE BONDED TO STRUCTURAL STEELWORK

EACH WALKWAY PANEL TO BE BONDED TO STRUCTURAL STEELWORK

ACCESS GATE TO BE BONDED ACROSS HINGE

EARTH BONDING BETWEEN SECTIONS OF GANTRY SPLICE ON ONE SIDE ONLY

EARTH CONNECTION BETWEEN LEG AND STRUCTURE

4 NO. 5mm DIAMETER HOLES IN STIFFENERS FOR SIGNAL EQUIPMENT CG

LADDER TO BE BONDED TO MAIN GANTRY STEELWORK

LEG SPLICE SECTIONS TO BE BONDED ON ONE SIDE OF GANTRY ONLY

LIGHTNING PROTECTION EARTH CONNECTION, IF REQUIRED, COMPRISING 25X0.3MM COPPER TAPE FROM TEST CLAMP ON GANTRY LEG TO EARTH- ELEETRICE CONNECTION WITHIN STANDARD TEST PIT. SEE NOTE 9.

NOTES:

GENERAL

1. GANTRY STRUCTURAL STEELWORK SHALL BE ELECTRICALLY CONTINUOUS THROUGHOUT.

2. NEW GANTRIES ARE PROVIDED WITH FACILITIES FOR THE TERMINATION OF ELECTRICAL EARTH AND LIGHTING PROTECTION BONDING TO AVOID DAMAGE TO GANTRY PROTECTIVE FINISH BY THE LATER PROVISION OF TERMINATION LUGS FOR EXAMPLE.

3. ALL METALLIC EQUIPMENT MOUNTED ON THE GANTRY SHALL BE BONDED TO THE GANTRY STRUCTURE. THEY SHOULD BE BONDED TO THE STRUCTURE TO ENSURE COMMON POTENTIAL.

4. BONDING DETAILS SHOWN ON DIAGRAM ARE TYPICAL ONLY.

ELECTRICAL EARTHING

5. ELECTRICAL EARTH BONDING SHALL BE UTILIZE 6mm² (MINIMUM) PVC INSULATED STRANDED COPPER EARTHING CONDUCTOR.

6. EARTHING CABLE SHALL BE PROVIDED WITH TERMINAL LUGS AND SHALL BE BONDED TO STRUCTURE (AT PREPROVIDED BONDING POINTS) WITH SUITABLE NUT, BOLT AND LOCKING WASHER ARRANGEMENT. SAFETY EARTH LABELS "SAFETY ELECTRICAL EARTH DO NOT REMOVE" SHALL BE PROVIDED AT EACH BOND TO THE STRUCTURE.

LIGHTNING PROTECTION

7. THE GANTRY STRUCTURE WHEN ELECTRICALLY CONTINUOUS MAY BE CONSIDERED TO BE SELF PROTECTING, PROVIDED THE RESISTANCE TO EARTH DOES NOT EXCEED 10 OHMS.

8. PRIOR TO THE INSTALLATION OF THE GANTRY, SOIL RESISTIVITY TESTS SHALL BE CARRIED OUT TO DETERMINE THE NEED FOR THE PROVISION OF A LIGHTNING PROTECTION SYSTEM WHERE THE RESISTANCE TO EARTH EXCEEDS 10 OHMS, AN APPROPRIATE EARTH ELECTRODE SYSTEM FROM THE GANTRY LEGS SHALL BE PROVIDED IN ACCORDANCE WITH IESN 62305.

9. EARTH ELECTRODES / TEST PITS (AS SHOWN ON RCD/1500/68 SHOULD BE PROVIDED AS CLOSE AS PRACTICAL TO GANTRY LEGS.

10. TESTS SHALL BE CARRIED OUT AFTER INSTALLATION OF GANTRIES TO ENSURE THAT THE RESISTANCE TO EARTH DOES NOT EXCEED 10 OHMS.
NOT TO SCALE

NOTES:

1. DETAILS SHOWN ARE FOR CANTILEVER OR CANTILEVER LEG.

2. AT EACH STRUCTURE THE MINIMUM REQUIREMENTS AS SHOWN SHALL BE INSTALLED AND TESTS CARRIED OUT TO ASCERTAIN THE STRUCTURE TO EARTH RESISTIVELY. TESTS SHALL BE CARRIED OUT IN ACCORDANCE WITH IS EN 61331. TEST RESULTS TOGETHER WITH TEST WEATHER CONDITIONS SHALL BE RECORDED IN TIDAL FORM AND FORWARDED TO THE OVERSEEING ORGANISATION.

3. FOR THE TESTS IT IS REQUIRED THAT ALL LIVE SUPPLY CONDUCTORS, POWER CABLE, EARTH CONDUCTORS AND THE ARMOURING OF ALL POWER AND COMMUNICATIONS CABLE BE TEMPORARILY DISCONNECTED FROM THE STRUCTURE. EARTHING CONDUCTORS/ARMOURING SHALL BE DISCONNECTED ONLY AFTER DISCONNECTION OF LIVE CONDUCTORS AND UPON COMPLETION OF TESTING, SHALL BE RECONNECTED BEFORE RECONNECTION OF THE LIVE CONDUCTORS. IT SHOULD BE NOTED THAT NEUTRAL CONDUCTORS CONSTITUTE LIVE CONDUCTORS.

4. THE CANTILEVER STRUCTURE WHEN ELECTRICALLY CONTINUOUS MAY BE CONSIDERED TO BE SELF-PROTECTING. PROVIDED THE RESISTANCE TO EARTH DOES NOT EXCEED 10 OHMS, WHERE THE RESISTANCE TO EARTH EXCEEDS 10 OHMS AN APPROPRIATE EARTH ELECTRODE SYSTEM FROM THE CANTILEVER LEGS SHALL BE PROVIDED IN ACCORDANCE WITH IS EN 62305.

5. AT CANTILEVER SITE ELECTRIC PROTECTION SHALL BE PROVIDED TO EACH LEG OF THE STRUCTURE WITH IDENTICAL INSTALLATIONS AS SHOWN ON RCD/1500/67.

6. AT CANTILEVER SITE THE INFRASTRUCTURE CONTRACTOR SHALL SUPPLY COPPER TAPE ONE METER LONGER THAN REQUIRED FOR THE TEST CONNECTION TO HOLDING DOWN BOLTS. AFTER TESTING THE TEST PLATE SHALL BE UNSOLDERED AND THE SPARE COPPER TAPE COILED UP, PROTECTED WITH A POLYTHENE BAG AND BURIED IN THE GROUND ADJACENT TO THE CANTILEVER FOUNDATION.

7. IF GROUND CONDITION PROHIBITS THE DRIVING OF EARTH RODS, A SUITABLE EARTH PLATE SYSTEM MAY BE SUBSTITUTED FOLLOWING APPROVAL BY THE OVERSEEING ORGANISATION.
NOTES:

1. THE LAYOUTS SHOWN IS TYPICAL ONLY. REFER TO DRAWING RCD/1500/008 FOR DETAILS OF THE STANDARD EQUIPMENT CABINET PLINTH.

2. THE RETENTION SOCKET FOUNDATION SHALL BE INCORPORATED AND CAST IN THE EQUIPMENT CABINET PLINTH. CONCRETE RETENTION SOCKET FOUNDATION INSTALLATION DETAILS:
   - CONCRETE SHALL COMPLY WITH I.S. EN 206–1
   - MINIMUM CONCRETE STRENGTH CLASS: C30/37
   - MINIMUM SLUMP CLASS: S2
   - MAXIMUM WATER/CEMENT RATIO: 0.50
   - MINIMUM CEMENT CONTENT: 320 KG/M³
   - CEMENT TYPE: SULPHATE–RESISTING CEMENT
   - MAXIMUM AGGRESSIVE CHEMICAL ENVIRONMENT: XA2. FOR INSTALLATIONS IN A MORE CHEMICAL AGGRESSIVE ENVIRONMENT, REFER TO I.S. EN 206–1:2002 FOR ADDITIONAL REQUIREMENTS.

3. THE PLANT DEPTH SHALL BE DETERMINED BY THE EQUIPMENT TYPE AND MOUNTING HEIGHT AS PER TABLE 15/1 IN SERIES 1500.


5. POLES WITH POWER AND/OR COMMUNICATIONS CABLES SHALL HAVE ACCESS DOORS AND SHALL BE CONNECTED TO THE EQUIPMENT CABINET WITH 1 NO 100mm DIA DUCT VIA A RETENTION SOCKET WITH A DUCT–FOOT BASE.

6. PASSIVELY SAFE POLES WITH POWER AND/OR COMMUNICATIONS CABLES SHALL BE FITTED WITH A SUITABLE ELECTRICAL DISCONNECT SYSTEM AS PER NA.8 OF THE NATIONAL ANNEX TO I.S. EN 12767.
NOTES:

1. THE LAYOUTS SHOWN IS TYPICAL ONLY. REFER TO DRAWING RCD/1500/008 FOR DETAILS OF THE STANDARD EQUIPMENT CABINET PLINTH.

2. THE RETENTION SOCKET FOUNDATION SHALL BE INCORPORATED AND CAST IN THE EQUIPMENT CABINET PLINTH. CONCRETE RETENTION SOCKET FOUNDATION INSTALLATION DETAILS:
   - CONCRETE SHALL COMPLY WITH I.S. EN 206-1
   - MINIMUM CONCRETE STRENGTH CLASS: C30/37
   - MINIMUM SLUMP CLASS: S2
   - MAXIMUM WATER/CEMENT RATIO: 0.50
   - MINIMUM CEMENT CONTENT: 320 KG/M3
   - CEMENT TYPE: SULPHATE-RESISTING CEMENT
   - MAXIMUM AGGRESSIVE CHEMICAL ENVIRONMENT: XA2. FOR INSTALLATIONS IN A MORE CHEMICAL AGGRESSIVE ENVIRONMENT, REFER TO I.S.EN 206-1:2002 FOR ADDITIONAL REQUIREMENTS.

3. THE PLANT DEPTH SHALL BE DETERMINED BY THE EQUIPMENT TYPE AND MOUNTING HEIGHT AS PER TABLE 15/1 IN SERIES 1500.

4. POLES CARRYING POWER AND/OR COMMUNICATIONS CABLES SHALL HAVE ACCESS DOORS AND SHALL BE CONNECTED TO THE EQUIPMENT CABINET WITH 1 NO 100mm DIA DUCT (A RETENTION SOCKET WITH A DUCT-Foot BASE. ALL OTHER ADDITIONAL POLES SHALL BE INSTALLED IN FLAT BASE RETENTION SOCKETS.

5. MOTORWAY SIGNS SHALL BE INSTALLED ON MULTIPLE POLES AND SHALL BE ACCOMPANIED BY SAFETY BARRIER. SAFETY BARRIER SHALL BE PROVIDED IN ACCORDANCE WITH NRA TO 19.

6. PASSIVELY SAFE POLES WITH POWER AND/OR COMMUNICATION CABLES SHALL BE FITTED WITH A SUITABLE ELECTRICAL DISCONNECT SYSTEM AS PER NA.8 OF THE NATIONAL ANNEX TO I.S. EN 12767.
NOTES:

1. THE LAYOUTS SHOWN IS TYPICAL ONLY. REFER TO DRAWING RCD/1500/008 FOR DETAILS OF THE STANDARD EQUIPMENT CABINET PLINTH.

2. THE RETENTION SOCKET FOUNDATION SHALL BE INCORPORATED AND CAST IN THE EQUIPMENT CABINET PLINTH. CONCRETE RETENTION SOCKET FOUNDATION INSTALLATION DETAILS:
   - CONCRETE SHALL COMPLY WITH I.S. EN 206-1
   - MINIMUM CONCRETE STRENGTH CLASS: C30/37
   - MINIMUM SLUMP CLASS: S2
   - MAXIMUM WATER/CEMENT RATIO: 0.50
   - MINIMUM CEMENT CONTENT: 320 KG/M3
   - CEMENT TYPE: SULPHATE-RESISTING CEMENT
   - MAXIMUM AGGRESSIVE CHEMICAL ENVIRONMENT: XA2. FOR INSTALLATIONS IN A MORE CHEMICAL AGGRESSIVE ENVIRONMENT, REFER TO I.S. EN 206-1:2002 FOR ADDITIONAL REQUIREMENTS.

3. THE PLANT DEPTH SHALL BE DETERMINED BY THE EQUIPMENT TYPE AND MOUNTING HEIGHT AS PER TABLE 15/1 IN SERIES 1500.


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NATIONAL ROADS AUTHORITY
ROAD CONSTRUCTION DETAILS
INSTALLATION DRAWING TCC
POLE INSTALLATION WITHOUT CABINET TYPICAL PLINTH LAYOUT

Drawing No.
RCD/1500/071

P1 06/15 Issue Date