



# Quick Guide Joint boxes, footways and frames & covers

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openreach

# Modular jointing chambers

The optional approved pre-formed modular chamber system can be used to speed up the installation process and bring significant productivity benefits as there is no need for specialist box building teams.

Modular boxes are not a free stores item from Openreach but can be purchased directly from our two approved suppliers, Radius Systems and Cubis Systems. These suppliers provide modular boxes in both black and grey and are the only approved suppliers for Openreach. A box must only use sections of a single colour – black and grey sections cannot be mixed.

**For purchasing enquiries, please contact either Cubis or Radius using the following details:**

## Radius Systems

<https://radius-cts.com/products/quadbox-jmf/>

### Sandra Davoust McCann

Sandra.DavoustMcCann@radius-systems.com

+44 (0)28 3844 6060

## Cubis Systems

<https://www.cubis-systems.com/uk/products/access-chambers/stakkabox-jmf/>

### Stephen Warke

SWarke@cubis-systems.com

+44 (0)28 3831 3100

Modular boxes can also be sourced from a number of nationwide builders' merchants. This may be more suitable for smaller sites that need smaller quantities.

Joint box modular footways 104 and 106 are the Openreach approved versions (BT specification LN712).

The lightweight high-strength system is supplied as 150mm deep twin wall high-density polyethylene (HDPE) rings to provide maximum flexibility and strength which are simply stacked on a prepared base and backfilled with suitable as-dug or Type 1 material.

**If purchasing a pre-formed chamber please speak to your FBC who can order all associated box furniture.**



# Modular jointing chambers

## Available size range

At least 5 sections are needed to meet the minimum box depth of 750mm.  
At no time must minimum box depth of 750mm be compromised.  
Consult your FBC if minimum depth cannot be achieved

JMF Type	Clear Opening	Depth Per Section
104	915 x 445mm	150mm
106	1310 x 610mm	150mm

## Chamber base

Modular chambers must be installed on a 150 mm concrete base for JMF102/104 and 200mm concrete base for JMF106. Base must be level and clean.



## Duct entries

Duct entries can be cut as and where required using a hole saw mounted on a cordless drill.

The chambers incorporate guides which identify drilling points to ensure correct duct spacing.

A maximum of 4 duct entries can be made into a single wall of the modular box.





# Modular jointing chambers

## Furniture

Cable brackets and steps (where required) are supplied in a bagged kit and easily slot into purpose designed pockets in the chamber. The brackets and steps drop into preformed slots

## Installing the corner step



## Installing the Cable Bearer



## Camber adjustment

If the frame requires levelling to the ground surface, or to a newly raised surface level, rising frame units are available as an option.

These should be used in conjunction with mortar to build the frame up to the required level. Where levels mean that the cover needs raised by more than the 50mm allowable mortar bed, bricks, quarry tiles etc. should not be used to adjust the height of the cover.

A further modular box section should be cut horizontally (minimum depth to be a 40mm wall section), with the voids of the cut chamber filled with C32/C40 concrete or mortar.



## As with brick-built chambers, care should be taken to make sure:

- The box is set at the correct depth and the base/plinth is installed correctly.
- The side wall is not damaged/misshapen due to over compaction.
- The frame is level with the surface and a core drill is used for cutting duct entries.
- The wall bearers are provided by Openreach and can be ordered by your FBC.

# Footway boxes (JBF104/6)

Joint box designs and specifications may vary depending on the duct layout and whether multi-way ducts or major road crossings need to be incorporated into the network design.

Full technical drawings and specifications for all joint and footway boxes can be found at: [openreach.com/fibre-broadband/fibre-for-developers/guides-and-handbooks](https://openreach.com/fibre-broadband/fibre-for-developers/guides-and-handbooks)

## Materials

- **Bricks:** BS EN771-1. Stretcher Bond- JBF 102/104. English Bond- JBF 106
- **Cement:** BS EN197-1:2000 ordinary mix. Three parts sand to one part cement.

## Specifications

- **Base:** Concrete, clean and level. 150mm-JBF 102/104. 200mm - JBF 106
- **Brickwork:** Keyed in at the corners and pointed.
- **Frame and cover:** Set on a mortar bed and fitted squarely to the box structure. Lifting keys for the covers can be purchased from TW Engineering Co Ltd at [www.twtools.co.uk](http://www.twtools.co.uk) (tel: 0115 932 3223).
- **Duct entries:** Must not enter through corners and be no less than 75mm from the side wall. Duct to enter wall at a minimum depth of 250mm from the top of the frame, cut flush and clear the base by a minimum of 100mm.
- **Bolts:** Must be fitted in each box to allow ironwork to be installed by the developer.
- **Step(s):** One step is required in all boxes deeper than 700mm.
- **JBF104(C):** 915mm(L) x 445mm(W) x 750mm(D).
- **JBF104(D):** 915mm(L) x 445mm(W) x 900mm(D) the minimum depth for boxes either side of road crossings.
- **JBF106(C):** 1310mm(L) x 610(W) x 750(D).
- **JBF106(D):** 1310mm(L) x 610(W) x 900(D) the minimum depth for boxes either side of road crossings.
- **All backfill material** to be class 6N type.
- **Workmanship, materials and method of construction** are to comply with all current relevant contract documents, British Standards and codes of practice for the construction industry.
- **Concrete:** Grade C35/45 with a water cement ratio 0.4 minimum. Cement content 380kg/m. Aggregate maximum size 20mm. All in accordance with BS8500.
- **All ducts** shown are based on maximum recommended values for Duct Type 54D.
- **End ducts** to be inline.
- **Ducts** to be positioned not less than 75mm from a side wall.
- **Mesh:** only required on 106 box bases
- **Short lengths of Duct 54D 90mm** to be used on non-ducted routes. Appropriate duct to be used on ducted routes.
- Where instructed to do so drill one set of three holes using a 12mm masonry drill bit to a depth of 80mm for future fitting of equipment mounting bracket.
- For details and specs on using corbelling visit the link at the top of this page.





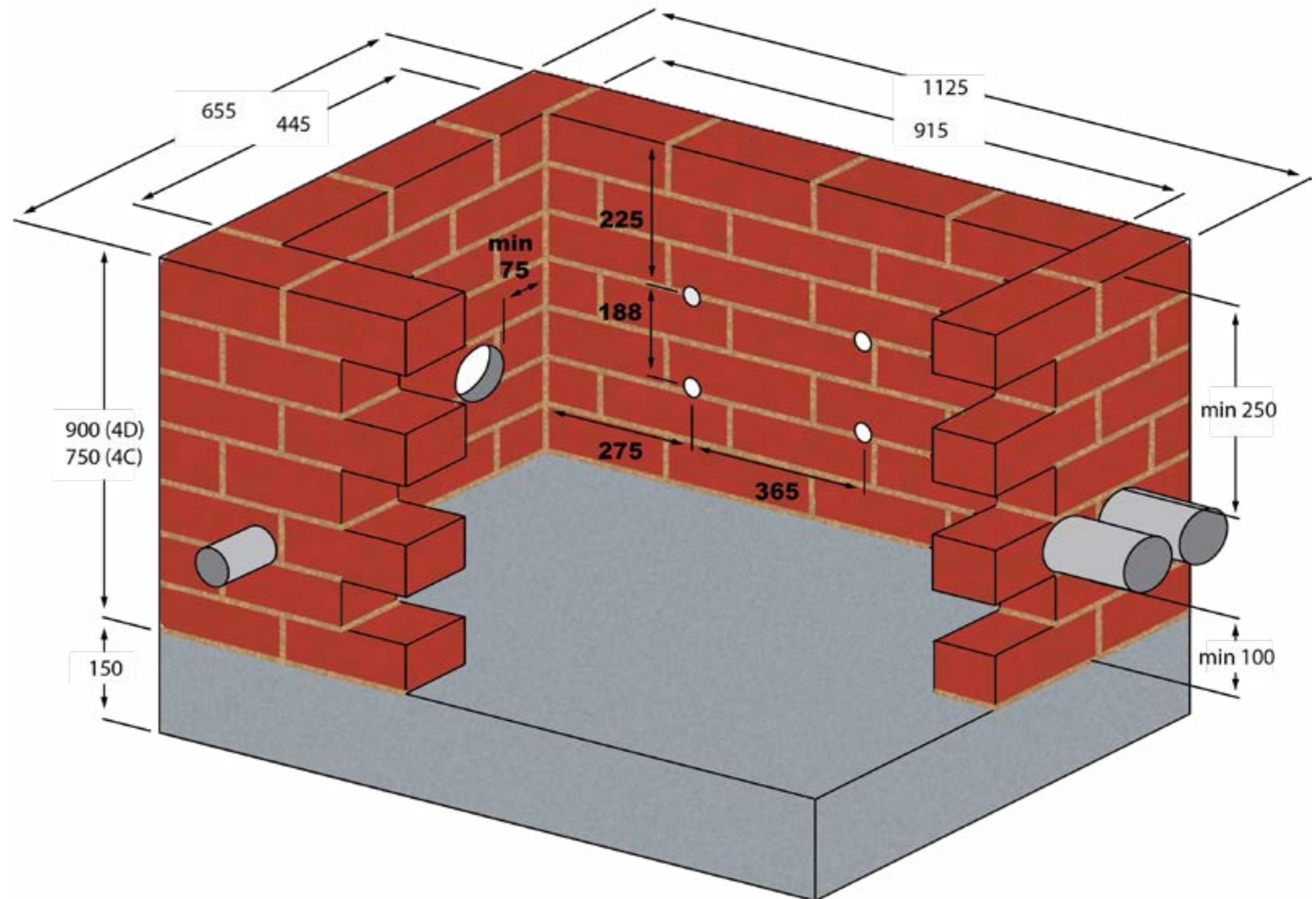
# Joint Box Footway 104

– the preferred option

## Internal dimensions. Brickwork Stretcher Bond.

Dimensions in mm (not to scale)

Maximum depth 900mm

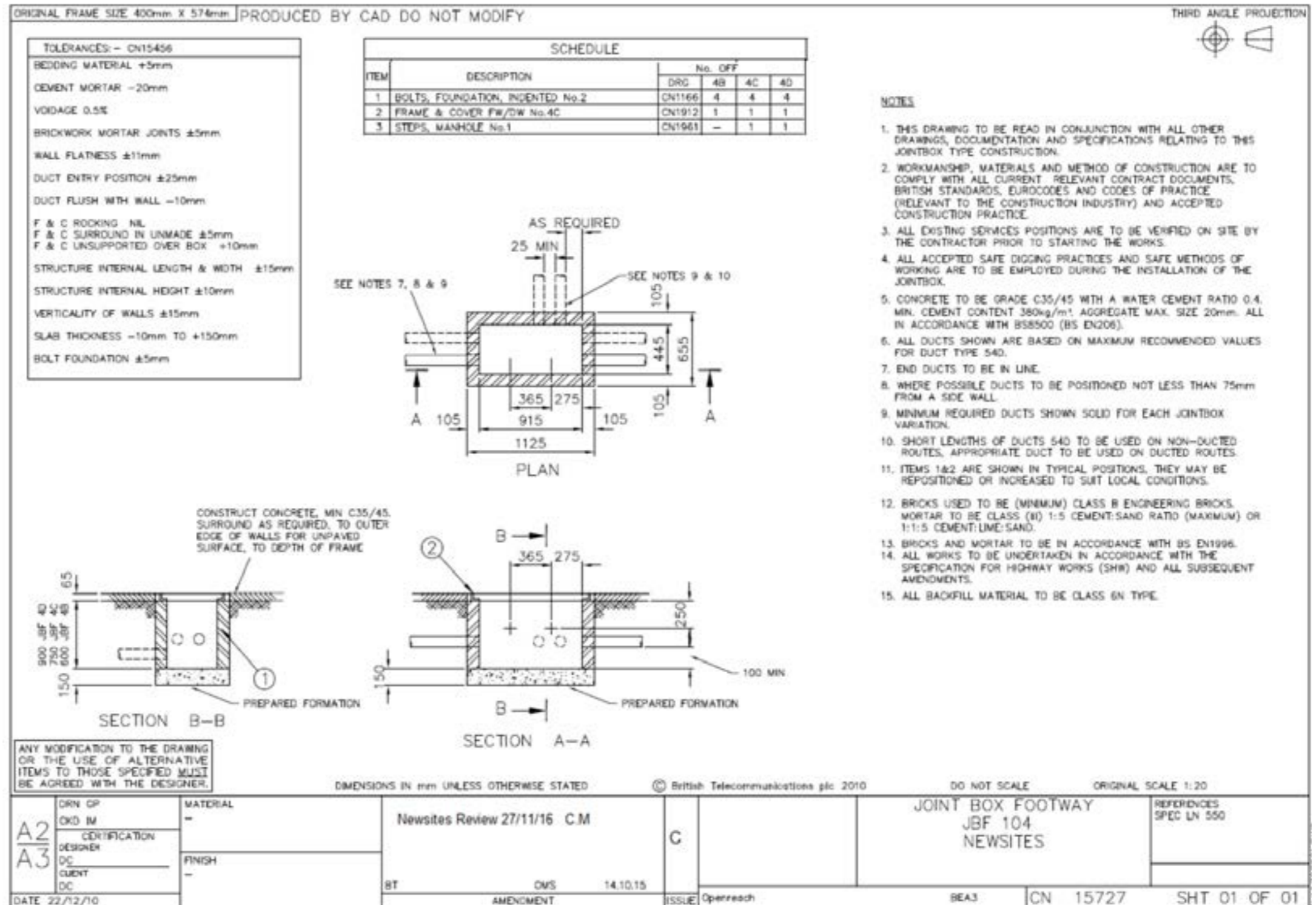


# Joint Box Footway 104

– the preferred option

Full size drawings  
can be found at:

[openreach.com/fibre-broadband/fibre-for-developers/guides-and-handbooks](http://openreach.com/fibre-broadband/fibre-for-developers/guides-and-handbooks)





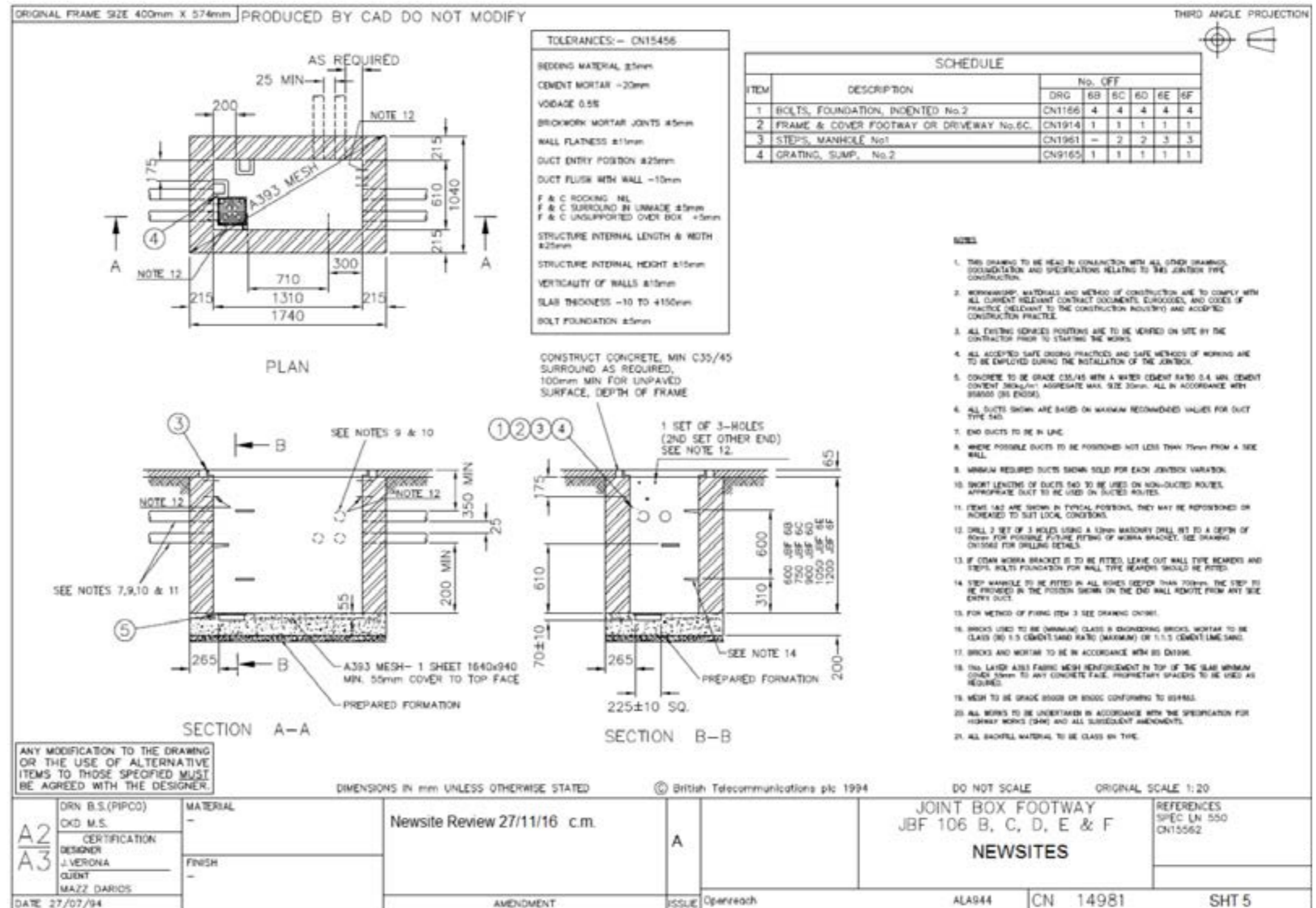




# Joint Box Footway 106

Full size drawings can be found at:

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# Carriageway boxes - JBC2/4

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## Specifications

### Materials

- Bricks: Minimum Class B Engineering Bricks, BS EN1996
- Cement: BS12:1996 – Specification for Portland cement
- Concrete: C35/45, BS EN206
- Mortar: Class (iii), 1:5 CEMENT:SAND ratio (max) or 1:1:5 CEMENT:LIME:SAND

### Base

- Cement: BS12:1996 – Specification for Portland cement
- Concrete: 1 layer of A393 mesh to top face of base slab.  
Minimum 55mm cover to any face. B500B or B500C, BS4483

### Brickwork

English bond, flush pointed

### Frame and cover

- Frame cover to be installed to HAPAS approved DMRB CD534 installation practices

### Lifting keys

- Key Joint Box Lifter should be used to lift the cover and can be purchased from TW Engineering Co Ltd at [www.twtools.co.uk](http://www.twtools.co.uk) (tel: 0115 932 3223) or similar supplier of your choosing

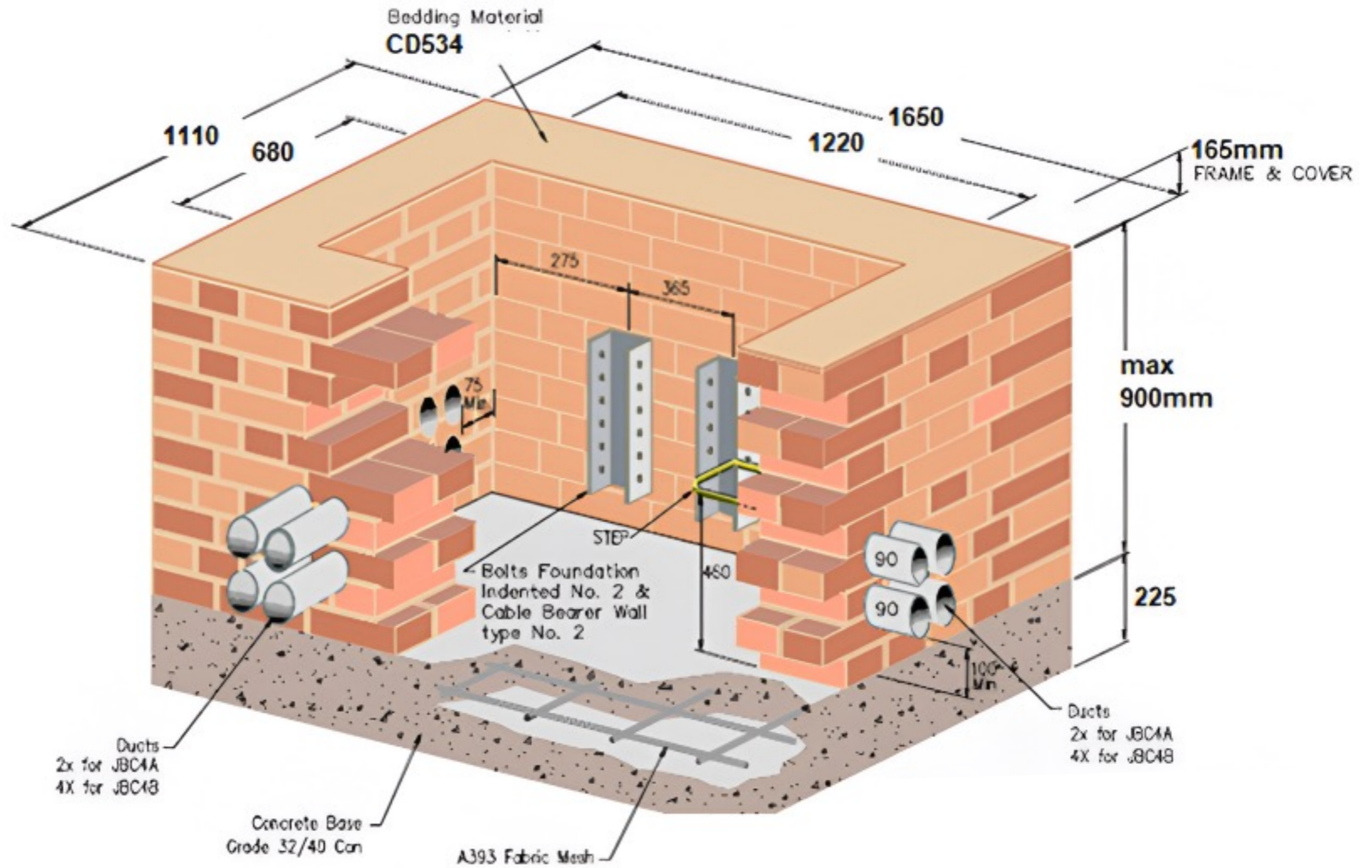
### Ducting

- Duct to be cut flush to the internal box wall
- Duct must not enter through corners and be no less than 75mm from the side wall
- Duct to enter wall no less than 450mm from the top of the frame





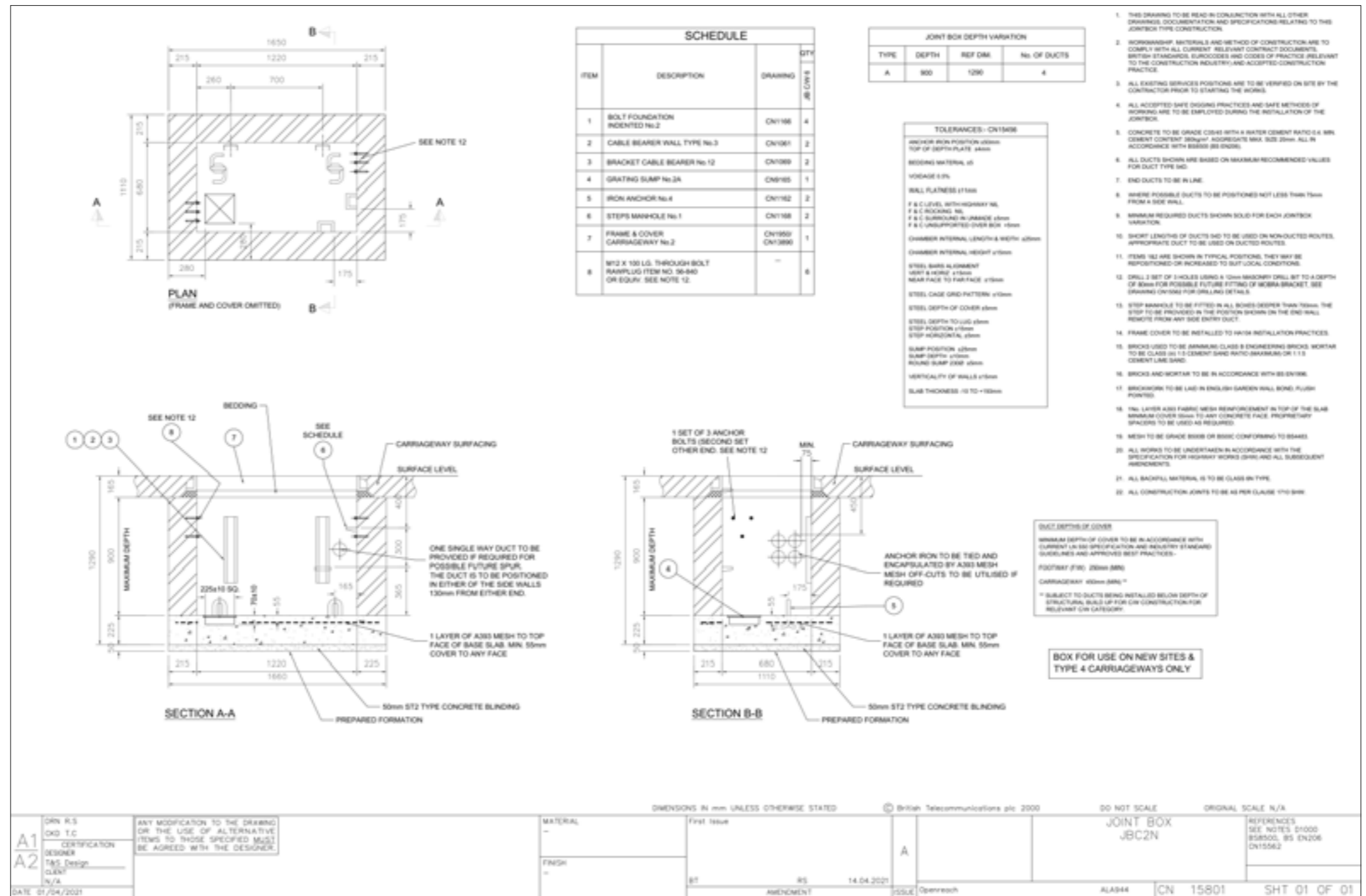
# Carriageway boxes - JBC2(N)



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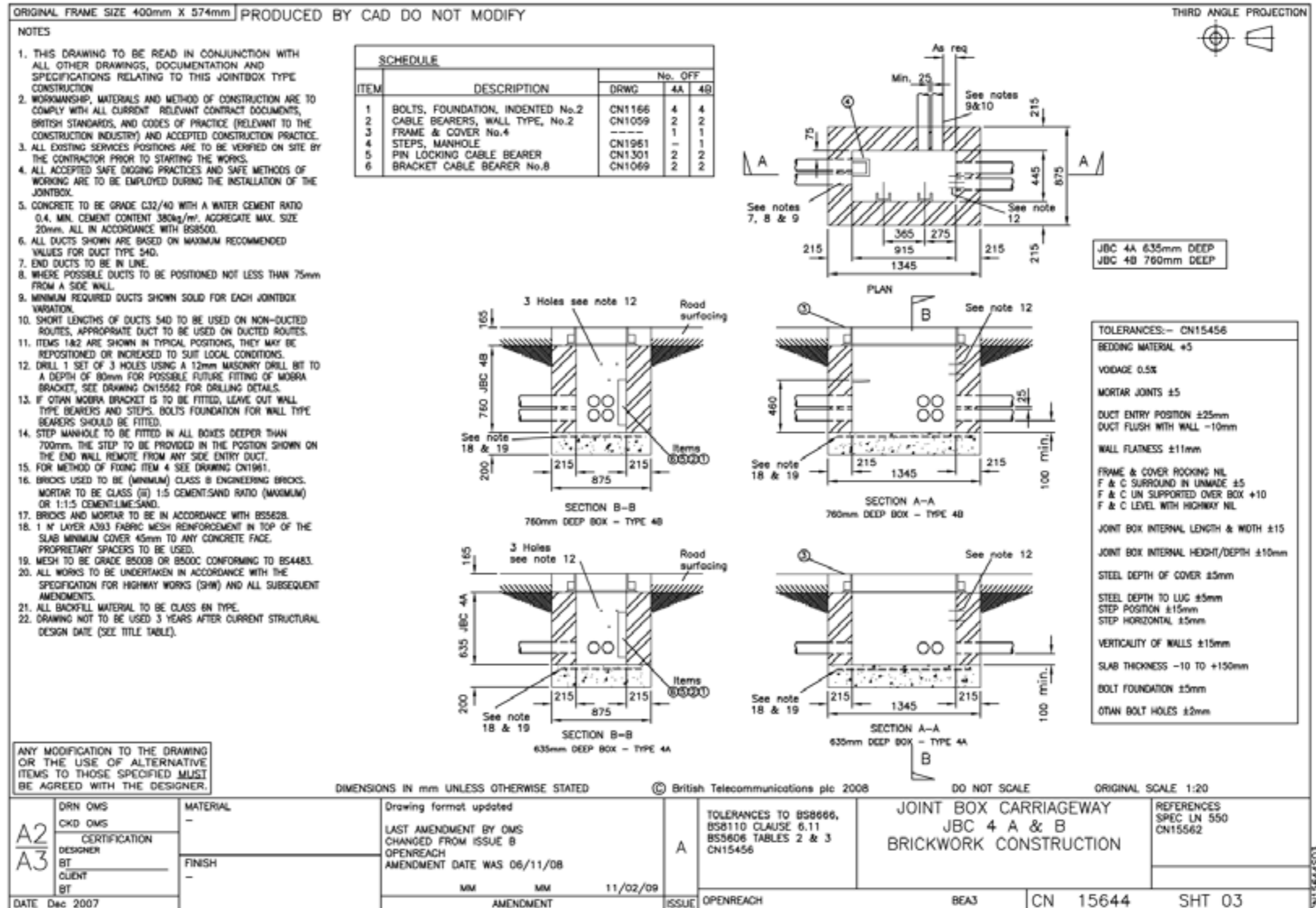




# Carriageway boxes - JBC4(N)

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# Frames and covers

Cubis Systems and Radius Systems are the only suppliers of these Openreach approved products.

Only approved frames and covers should be fitted on your site. They are identifiable by the following markings; 'EN24 B125' the British Standards kitemark the Manufacturer Mark (RADIUS or CUBIS) the year of manufacture and the BT identifier.

The 'standard frames and covers' are supplied by Openreach. They consist of a galvanised steel fabricated frame, fitted with unfilled galvanised steel fabricated cover trays and cross-beams.

All covers can be fitted to modular or brick-built Chambers

## Please note

Where there's evidence or high risk of vehicles using the soft verge e.g. as an undertaking area opposite a T-Junction, a passing point on a narrow road or a parking area, it will be necessary to install a 'carriageway chamber, frame and cover'. There is also an optional 'recessed frame and cover'



## Recessed frames and covers

These can be purchased by the installer as an option to the 'standard frame and cover'.

Each cover tray has two key-hole fittings (in the centre of the short side) one of which carries a BT identity mark and the manufacturers' three letter identification 'SID'. The other key-hole fitting displays EN124 and B125 together with the BSI Kite mark certifying the covers to BS EN124: 1994.

Recessed frames and covers will accommodate infill blocks to a maximum depth of 60mm. If you're planning to install frames and covers that aren't supplied by Openreach e.g. for block paving, or you have any doubts about what frames and covers to use, please speak to your FBC.



# Frames and covers

## Precinct lids

Precinct lids are footway box lids used in high streets or retail areas where developer what to blend in their footway lids with the block paving or resin.

Openreach do not provide these lids, but if sourced externally they must be BT approved and have 3 markings – EN124, BS125 and the kitemark.

## Installation

All frames and covers must be levelled to the final running surface.

Where a box is located within grass, soft or unmade surfaces, the frame must be surrounded with a 100mm wide strip of minimum grade C25/30 concrete, to the full depth of the frame, finished level with the top edge of the frame and the outside edge. It must be straight and parallel to the frame.

## Unapproved frames and covers

Unapproved frames and covers must not be fitted.

Openreach will take any necessary action against any developer who fits unapproved frames and covers within the network, including any potential claim for damages and costs, with possible

delayed Service On Demand (SOD) payments. If you're unsure how to specify approved covers, please contact your FBC.

## Dropped kerb and shared surface chamber boxes

If your site has shared surfaces for roads and footways, please ensure the correct joint box is installed based on the following guidelines.

There must be a defined kerb line between the road and footway to install a footway spec box or modular box in the footway area

If no defined kerb line is present, a carriageway spec box must be installed as regular traffic could pass over these areas

Driveways attached to houses and entrances to service areas do not require a carriageway spec box, so footway and modular box can be used for these areas







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