

Standard Detail Pack

for

Traffic Signal Schemes



BARNLSLEY
Metropolitan Borough Council

Notes

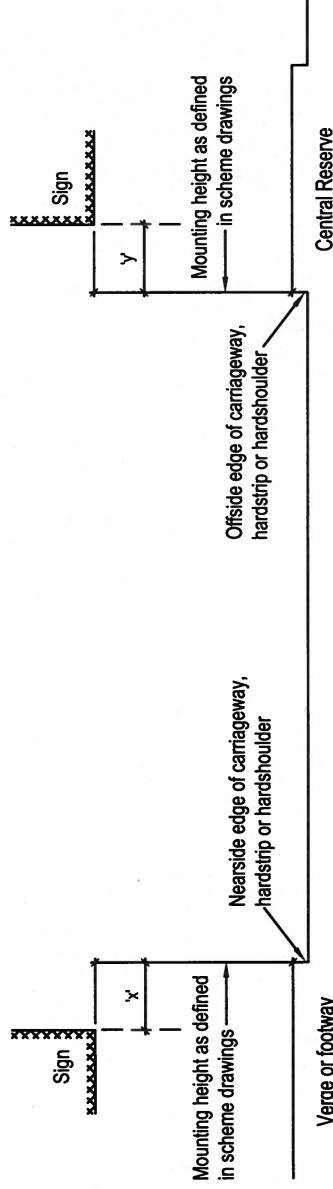
1. The requirements given on this drawing shall be used in conjunction with the individual sign schedules or drawings.
2.
 - 2.a. On carriageways which are kerbed or on which the level of the verge or central reserve steps up at the edge of the carriageway or hardshoulder, the mounting height shall be measured from the top of the adjacent kerb or the level of the verge or central reserve adjacent to the carriageway.
 - 2.b. On kerbed carriageways the mounting height shall be measured from the adjacent edge of the carriageway or hardshoulder.
 - 2.c. For overhead signs, the mounting height shall be measured from the highest point of the carriageway under the sign.
3. Nearside and offside signs shall be set at angles to the carriageway as follows:
 - 3.a. Nearside signs on straight, at 95° to the centerline of the carriageway measured clockwise;
 - 3.b. Offside signs on straight, at 95° to the centerline of the carriageway measured anti-clockwise;
 - 3.c. Nearside signs on a left hand bend, at 95° to a line joining the nearside edge of the carriageway at the sign with a point on the nearside edge of the carriageway, 180m before, measured clockwise;
 - 3.d. Offside signs on a right hand bend, at 95° to a line joining the offside edge of the carriageway at the sign with a point on the offside edge of the carriageway, 180m before, measured anti-clockwise.
 - 3.e. Offside signs on left hand bends and nearside signs on right hand bends normal to the centerline of the carriageway;
 - 3.f. Nearside and offside signs shall be erected with the vertical axis plumb.

4. Overhead sign shall be set at angles to the carriageway as follows:
 - 4.a. Where the carriageway gradient approaching the sign is +2% or greater, the sign shall be positioned so that the vertical axis is plumb and the horizontal axis is at a right angle to the carriageway
 - 4.b. Where the carriageway gradient approaching the sign is less than +2%, the sign shall be positioned so that the horizontal axis is at a right angle to the carriageway and the vertical axis is inclined to face upward at a rate of 1mm per 100mm or vertical sign surface for each 1% that the carriageway gradient differs from +2%.

5. The mounting height for chevrons on roundabouts shall be as shown on the scheme drawings or as directed by the BMBC Traffic Signals Engineer.

6. This drawing is to be read in conjunction with other issued contract drawings.

Carriageway Speed Limit (M.P.H)	Height to top of sign	Where carriageway crossfall is: 'x'	
		away from sign or towards sign, but not steeper than 1 in 40	towards sign and 1 in 40 or steeper than 1 in 40
30	Less than 3m 3m and above	$\left\{ \begin{array}{l} 600\text{mm from edge of hardstrip} \\ 450\text{mm elsewhere} \end{array} \right.$	$\left\{ \begin{array}{l} 600\text{mm minimum} \\ 750\text{mm minimum} \end{array} \right.$
40 and above	Less than 3m 3m and above	1200mm where possible with a minimum of 600mm	$\left\{ \begin{array}{l} 600\text{mm minimum} \\ 1200\text{mm minimum} \end{array} \right.$



General Requirements

1. All posts to be hot dip galvanised to BS EN ISO 1461:2009, with a fusion bonded coating of DuPont Abcite thermoplastic powder coating in standard grey (care must be taken not to damage this coating during transit and installation).
2. All posts to have approved post caps. Top of posts to be level with top of sign plate (except when an external lighting unit is installed in which case the post may extend for a maximum of 75mm above the top of the sign plate).
3. This drawing is to be read in conjunction with other issued contract drawings.

Excavation for Supports

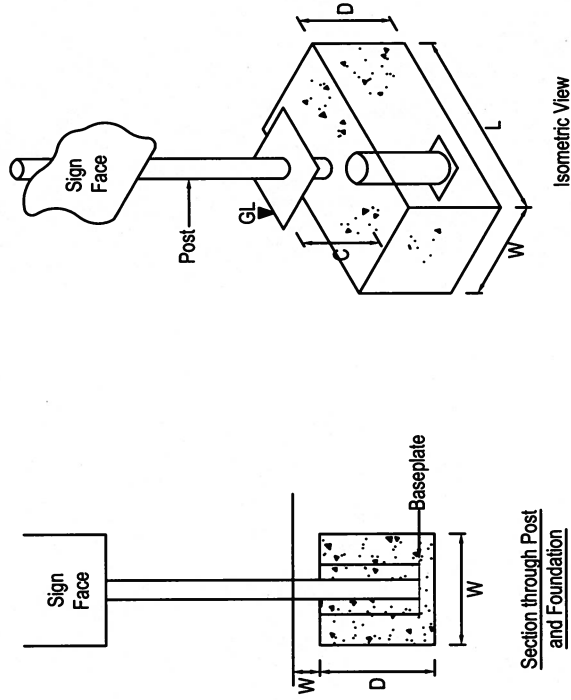
1. When solid rock is encountered, the mass concrete foundations may be dispensed with, subject to approval of the BMBC Traffic Signals Engineer. If approved, holes of the same dimensions as the socket shall be drilled directly.
2. Care shall be taken during excavation to avoid damage or movement to adjacent pipe runs or other services. Split ducts shall be used for protecting services in foundations.

Support Foundations

1. The slab up to the socket base may be cast first. The remainder up to the full socket depth must be cast in one operation.
2. Concrete shall be Clause 2602 of the Specification for Highway Works.
3. Concrete shall be cast against the faces of the excavation.

Erection of Posts

1. Socket to be cleaned out before erection and concreting of bases.
2. 50mm grout to be placed in bottom of socket immediately before erecting post.
3. Post to be erected vertically and groups to be in a straight line with tops level.
4. Posts to be suitably braced for 3 days after sockets have been filled to prevent movement.
5. Surface above post foundation to be top soiled or surfaced to conform to the standard of the surrounding materials.
6. Socket infill to be sand, with the top 100mm layer a sand and grout mix.



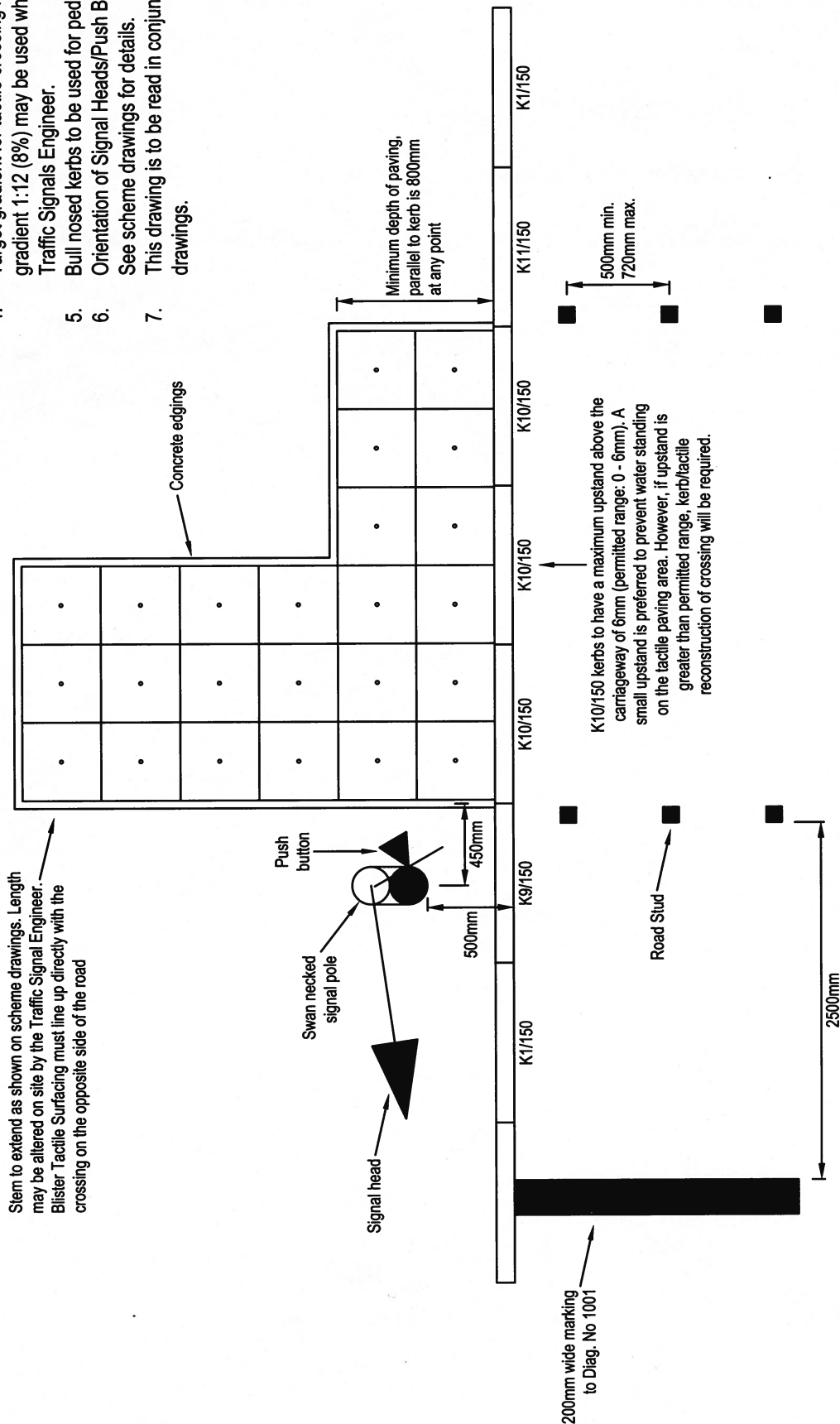
Post sizes and associated foundation sizes
(Where no foundation details are shown on the sign schedules)

Plain or wide based post	Post diameter	Base plate dimensions	Post depth below ground *	Cover to top of foundation 'C'	Socket dimensions		Concrete foundation dimensions		
					Diameter *	Depth 'S' *	Depth 'D' *	Width 'W'	Length 'L'
P	60	120 x 120	600	150	175	450	525	500	500
P	76	150 x 150	750	150	225	600	675	600	600
P	89	175 x 175	900	150	275	750	825	600	800
WB	76	200 x 200	600	150	300	450	525	600	600
WB	89	200 x 200	600	150	300	450	525	600	1000

* Dimensions shown for wide based posts are a minimum

Notes

1. Poles to be positioned half way down kerb taper (approx 450mm).
2. Kerb face to outside diameter of pole to be 500mm on cranked poles and 700mm on straight poles.
3. Paving to be in accordance with latest DfT guidance documents.
4. Target gradient for tactile crossing ramp is 1:20 (5%),. Maximum gradient 1:12 (8%) may be used where approved by the BMBC Traffic Signals Engineer.
5. Bull nosed kerbs to be used for pedestrian crossing areas.
6. Orientation of Signal Heads/Push Button Units are illustrative only. See scheme drawings for details.
7. This drawing is to be read in conjunction with other issued contract drawings.



Drawing

Scale N.T.S

Drawn D. Ellis

Date Feb. 2013

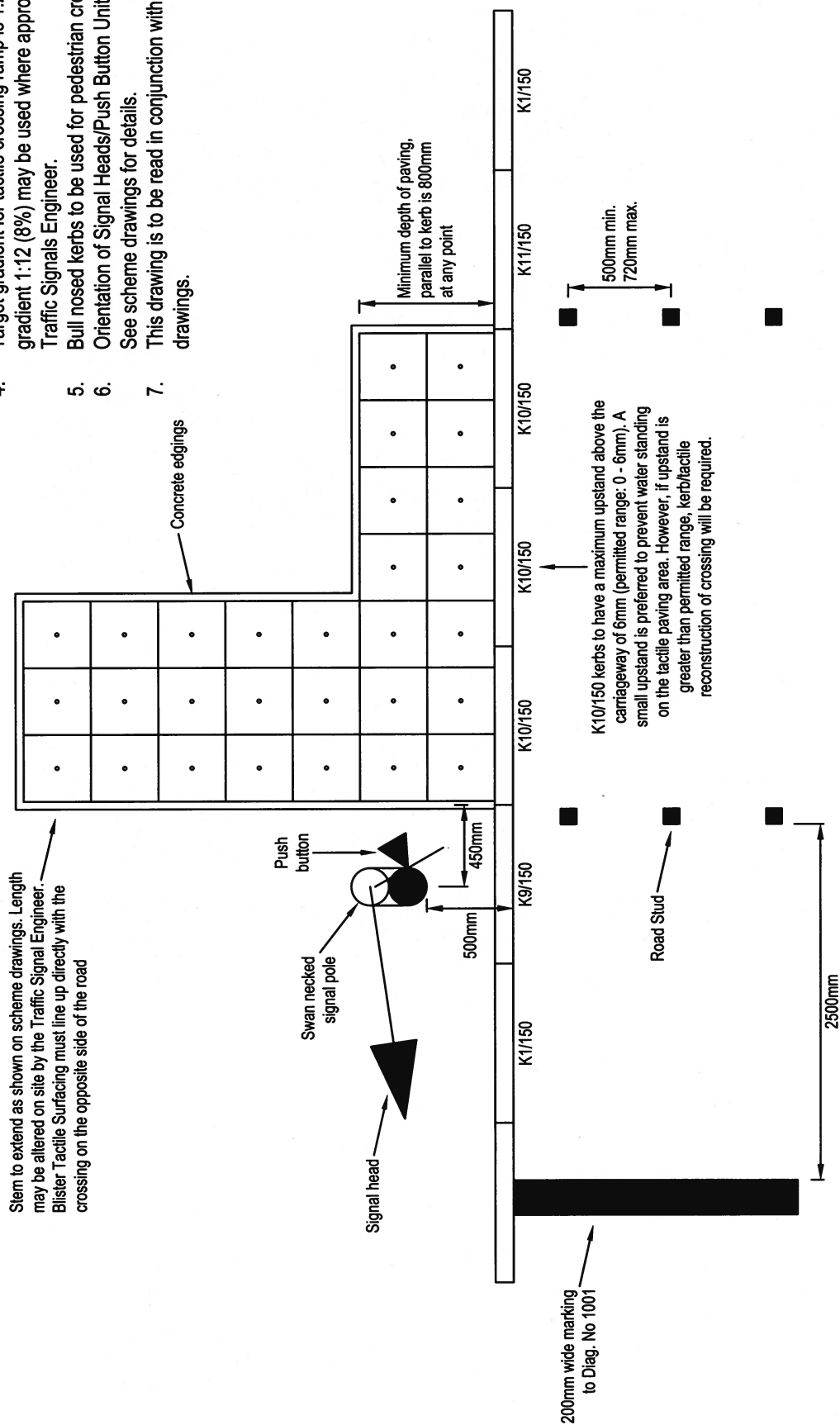
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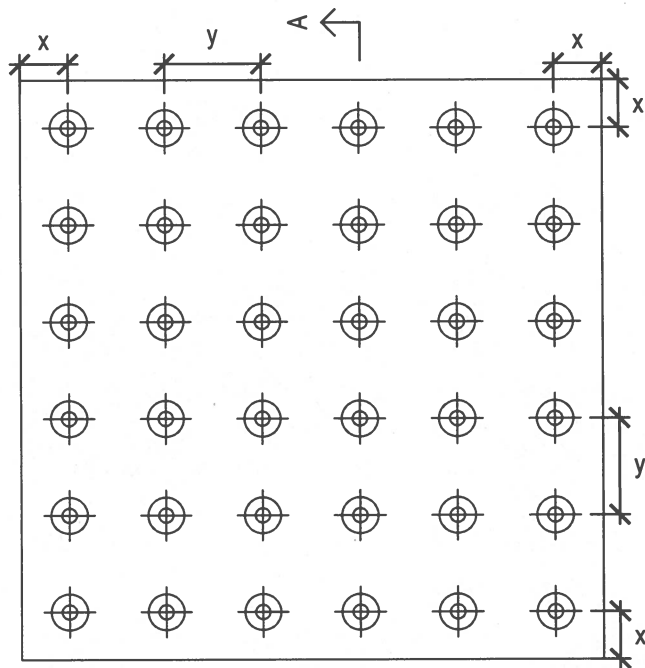
File TM/SD

Drawing No.

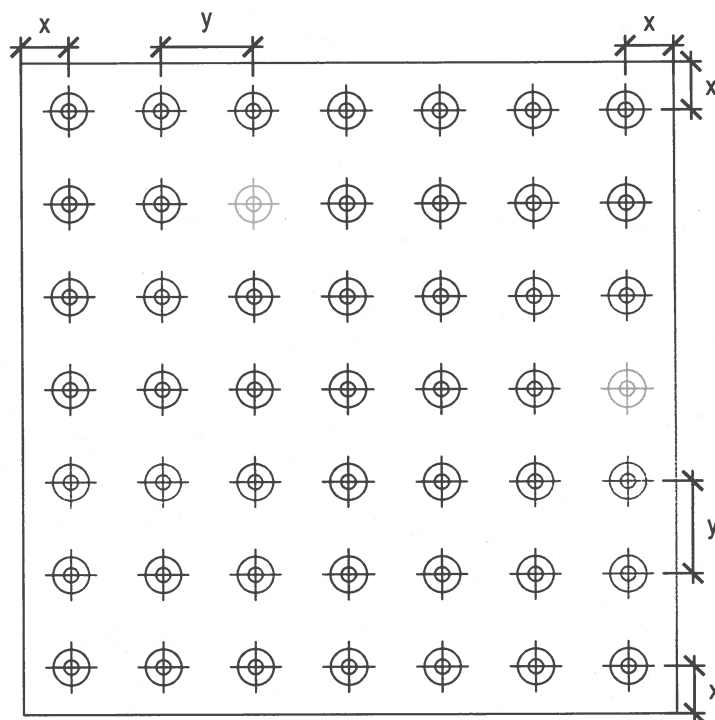
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4. Target gradient for tactile crossing ramp is 1:20 (5%). Maximum gradient 1:12 (8%) may be used where approved by the BMBC Traffic Signals Engineer.
5. Bull nosed kerbs to be used for pedestrian crossing areas.
6. Orientation of Signal Heads/Push Button Units are illustrative only. See scheme drawings for details.
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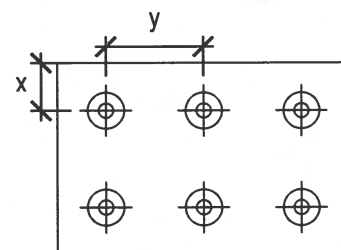


Module Type 'A'

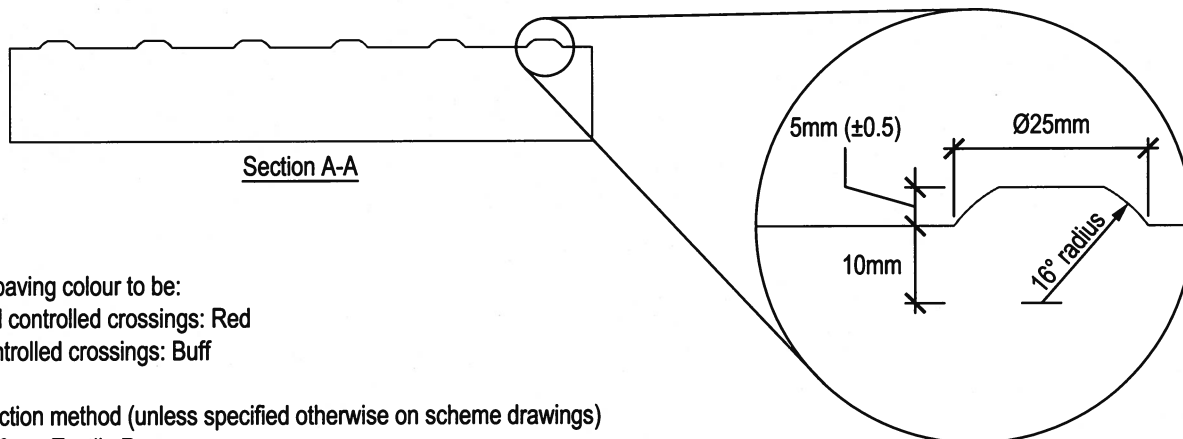


Module Type 'B'

Module type	Size	No. of domes	Dimensions	
			x	y
A	400mm x 400mm	6 x 6 = 36	33mm	66.8mm
B	450mm x 450mm	7 x 7 = 49	33mm	64mm
C	200mm x 133mm	2 x 3 = 6	33mm	67mm



Module Type 'C'



Section A-A

Notes

- Tactile paving colour to be:
 - Signal controlled crossings: Red
 - Uncontrolled crossings: Buff
- Construction method (unless specified otherwise on scheme drawings)
 - 65/70mm Tactile Paver; on
 - 70mm Lean mix concrete to CBM1 (Grade C7) or greater; on
 - 150mm of compacted Type 2 Granular Sub-Base.
- This drawing is to be read in conjunction with other issued contract drawings.



BARNSELEY
Metropolitan Borough Council

Drawing Barnsley Metropolitan Borough Council
Standard Details - Traffic Signals
Blister Tactile Paving - Module Details

Scale

N.T.S

Drawn

D. Ellis

Date

Feb. 2013

Checked

File

TM/SD

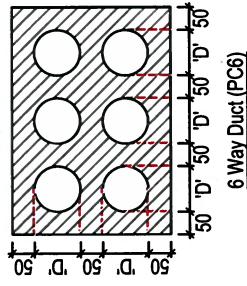
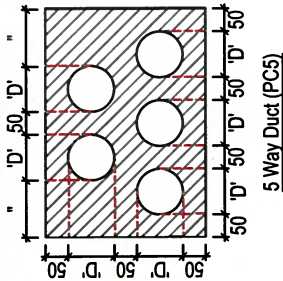
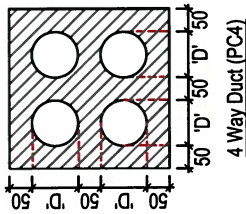
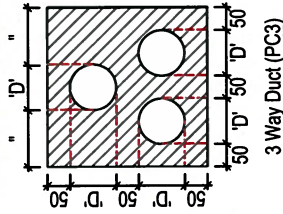
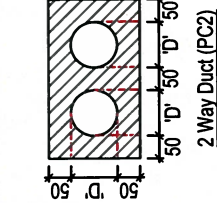
David Finnegan, Interim Assistant Director
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Drawing No.

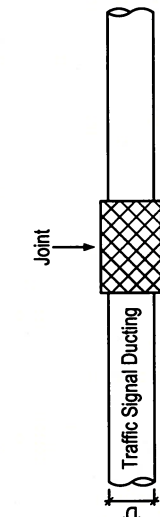
TM/SD/05 Rev. D

Notes

- The duct shall be H.D.P.E, orange in colour, and marked along its length with the legend 'Traffic Signals'.
- Ducting shall be in accordance with BS EN 61386-24:2010. Refer to Appendix 5/2 (Service Ducts and Chambers) for full specification. Only approved manufacturers can be used for ducting.
- Compaction of backfill to be 4 passes of 50kg vibratamped in layers not exceeding 100mm.
- Minimum depth of cover (unless otherwise specified on scheme drawings) to be:
 - 450mm under verges and footways;
 - 750mm under carriageways.
- All ducting which does not meet the required depths must be inspected and approved by the BMBC Traffic Signals Engineer.
- Ducting shall be compatible with access chambers. Ducts to protrude into chambers by 30mm.
- Vertical and horizontal separation of conduits to be 50mm minimum. (Spacers to be used).
- Ducts to be laid straight to ensure easy cable installation and pulling. No sudden changes in direction allowed without the use of a chamber.
- Draw cords (polypropylene, 5kN break) shall be provided in each duct with no knots or joints and will extend into each access chamber by 1.0m.
- All dimensions on this drawing in millimeters.
- This drawing is to be read in conjunction with other issued contract drawings.



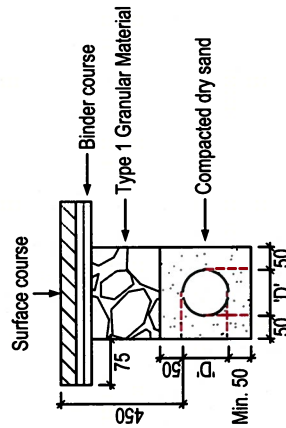
Typical Multiple Way Duct Arrangement



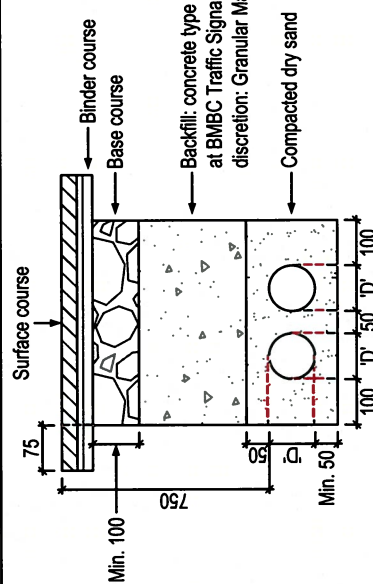
Typical Ducting Referencing

$$\text{Footway} \rightarrow \frac{\text{PC2} / \text{F} / 100}{\text{No. of ducts}} \rightarrow \text{Internal diameter of duct}$$

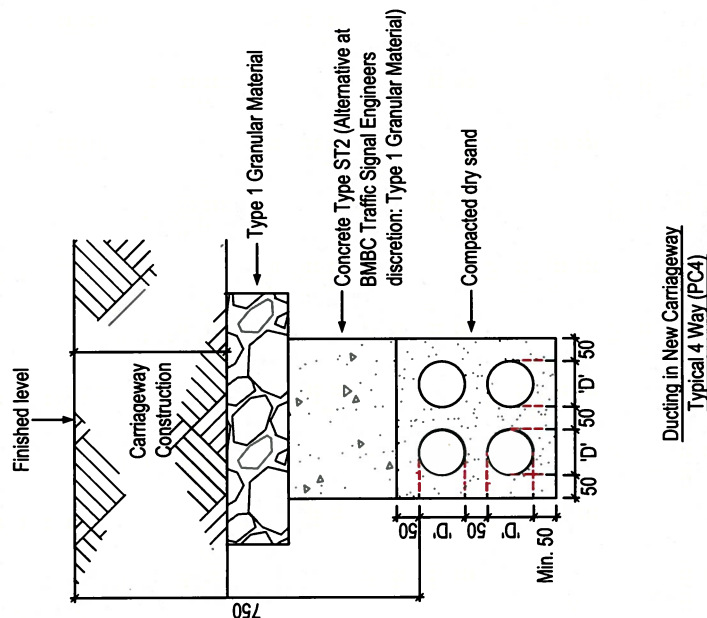
Typical Ducting Joint (PC)



Ducting in Existing Footway (Flexible)
Typical 1 Way (PC1/F)



Ducting in Existing Carriageway
Typical 2 Way (PC2)



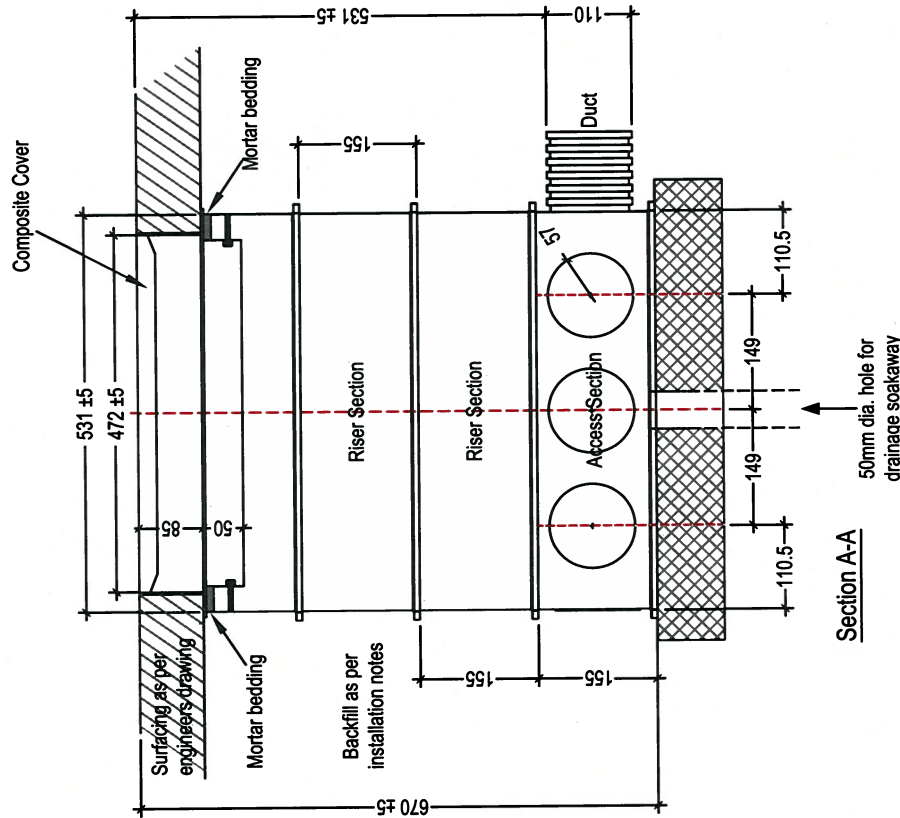
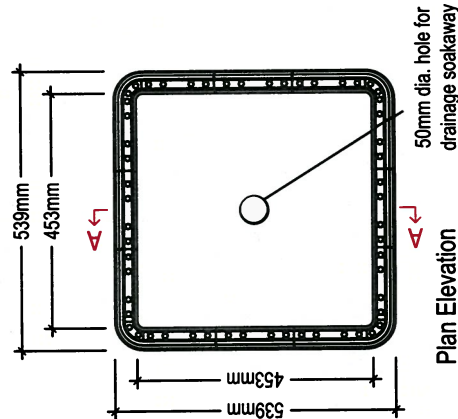
Ducting in New Carriageway
Typical 4 Way (PC4)

Notes

1. Chambers, covers and frames must be of the same approved manufacturer, and must be installed in accordance with the manufacturers instructions.
2. The chamber will meet the Highway Regulation of minimum duct cover in both carriageway and footways as shown on TM/DS06 Rev. C.
3. Refer to Appendix 5/2 (Service Ducts and Chambers) for full specification.
4. Chambers and covers shall not be installed within tactile paved areas (unless approved by the Traffic Signals Engineer).
5. Chambers, when completed, must be internally free from any debris and have a smooth floated base with clear drain hole.
6. Do not make duct entries or cut top chamber section in footway (top 2 sections in carriageway), with the exception of levelling the cover and frame.
7. Chambers will be specified as 'AC/1/Length'. E.g.:

300 x 300mm - AC/1/300
450 x 450mm - AC/1/450
600 x 600mm - AC/1/600
450 x 900mm - AC/1/900

8. This drawing is to be read in conjunction with all other issued contract drawings.



Installation of Frame and Cover

Grass/verge/loose surfaces: Minimum 20mm of high performance two part mortar bedding between underside of frame and top of chamber, with 100mm fillet around the frame to secure.

Footway areas: Minimum 20mm of high performance two part mortar bedding between underside of frame and top of chamber.

Vehicular areas: Minimum 25mm of high performance two part mortar between underside of frame and top of chamber.

Chamber frame to be coach screwed into chamber twin walls in all installations.

Installation of Base

Footway areas: 100mm lean mix concrete.

Vehicular areas: 150mm lean mix concrete reinforced with A393 steel mesh of 150mm (to BS 4483:2005).

Surround

Footway areas: minimum 50mm lean mix concrete, or compacted Type 2 material, or self compacting pea-gravel, or suitable as dug material.

Vehicular areas: 150mm lean mix concrete.

Duct Entry

Use a hole saw of the appropriate size to suit the outside diameter of the duct, ideally 2-6mm larger than the outside diameter. Run the duct directly into the hole and use mortar to point up any gap between the duct and the chamber. Ducting, when fitted, is to extend 30mm inside the chamber.

Drawing



Barnsley Metropolitan Borough Council
Standard Detail - Traffic Signals
Traffic Signal Chamber

Scale N.T.S.

Drawn D. Ellis

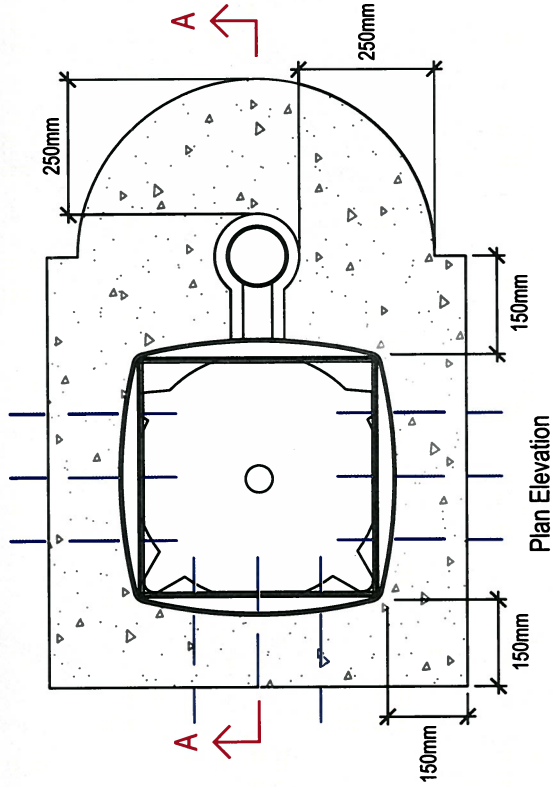
Date Feb. 2013

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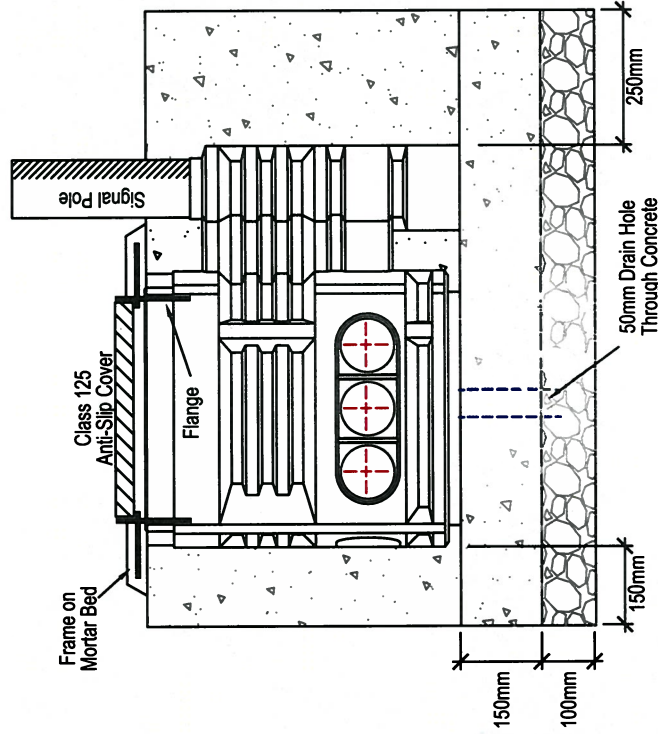
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Drawing No.

TM/SD/07 Rev. E



Plan Elevation



Section A-A

Notes

1. The chamber shall be of solid construction, pre-formed and prevent distortion during backfill process.
2. The chamber will meet the Highway Regulation of minimum duct cover in both the carriageway and footways.
3. The chamber shall have pre-trepanned knockout areas to accept 50mm & 100mm internally dimensioned traffic signal ducts.
4. Ducting is to extend 30mm inside the chamber.
5. The chamber shall be manufactured by rotational moulding of a recycled polyolefin or polyethylene material.
6. The chamber shall have a C15 / ST3 concrete base and surround, 150mm surround and 150mm base bedded on a 100mm Type 1 sub-base with a 50mm drain hole (base to be constructed first and have a smooth floated finish).
7. The covers are to be a non ferrous composite material and fit closely within a ductile iron frame. The cover and frame shall meet the loading requirements of BS EN 124, Class 125. The cover shall be black in colour, be marked with the manufacturers name and the legend "Traffic Signals" and have integral lifting keyholes.
8. The cover must have an integral anti-skid pattern on the upper surface. The frame must be tilt and height adjustable to the finished surface level and must have a flange that maintains the opening size in the chamber, to avoid distortion fit frame before backfilling.
9. The frame must be supported on the concrete surround of the chamber on a bed of mortar. No rocking or movement will be permitted in the frame and cover.
10. The chamber, when installed in it's concrete surround, shall withstand 50kN shear and side wall loadings.
11. Chambers, frames and covers must be of the same manufacturer, installed in accordance with this standard detail and the manufacturers guidelines.
12. Chambers and covers shall not be installed within tactile paved areas (unless approved by BMBC Traffic Signal Engineer).
13. Only approved manufacturers can be used for ducting and chambers.
14. Chambers, when completed, must be internally free from any debris and have a smooth floated base with clear drain hole.
15. This drawing is to be read in conjunction with other issued contract drawings.

For Maintenance Works Only

Traffic Signal Pole Box's are not to be used unless specified by the BMBC Traffic Signals Engineer as part of maintenance works.

Drawing

Product Specification

1. Carriageway loop box to be octagonal in shape with a minimum of 4no. cable entry slots.
2. All cable entry slots must be sealed by blanking plates when not in use.
3. Loop box must be supplied with a ductile iron base and base entry spigot, to accept both 50mm and 100mm twin wall ducts.
4. Base entry spigot must be sealed with plastic plug or similar at all times to prevent debris ingress into ducting.
5. Loop cables must pass through base entry spigot seal to avoid debris entering the connecting duct.

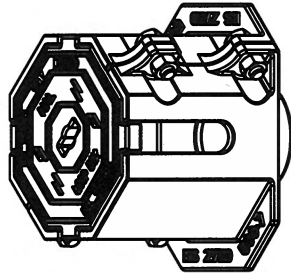
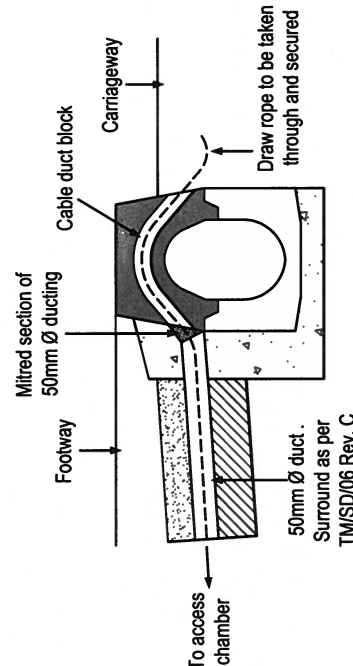
Technical Specification

1. Base and Body: Ductile iron to BS EN 1563:2011 (GGG50 - Din 1693).
2. Cover: One piece ductile iron to BS EN 1563:2011 (GGG50 - Din 1693), BS EN 124, Class D400.
3. Slot cover plate: 0.8mm steel.
4. Assembly Screws: M12, A2, stainless steel. Setscrew: DIN 933.
5. Protective coating to be a smooth finish, in black. The coating shall not flow when exposed to high temperatures and not be so brittle as to chip off at low temperatures.
6. Units to be manufactured to the above specification by NAL Ltd (Worcestershire) (or similar approved by BMBC Traffic Signals Engineer).

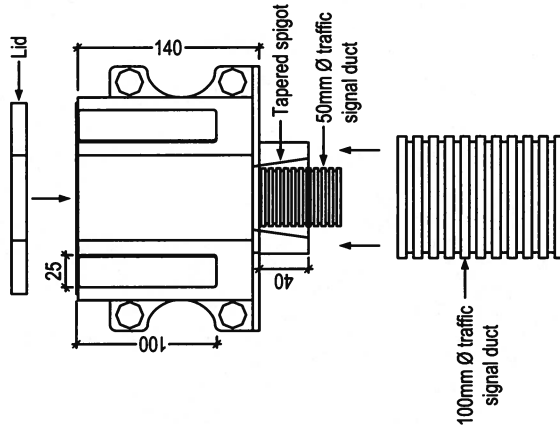
General Notes

1. All measurements in millimetres.
2. Concrete surround to Loop Feeder Box to be a minimum of 150mm.
3. Carriageway Loop Box should be installed as per manufacturers instructions.
4. This drawing is to be read in conjunction with other issued contract drawings.

Combined Drainage and Kerb Block

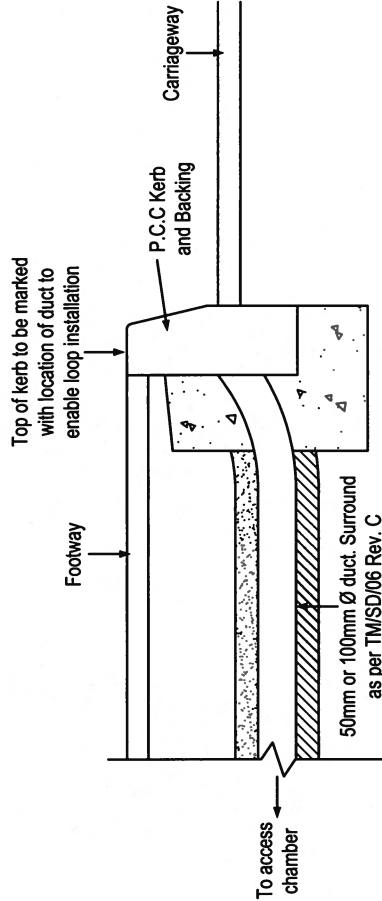


Isometric View

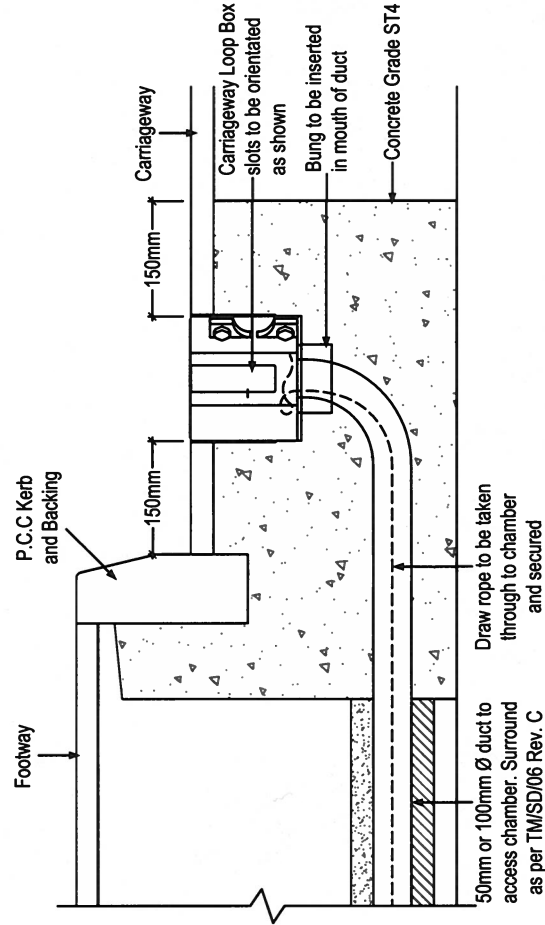


Cross Section through Loop Feeder Box

Carriageway Loop Feeder (Back of Kerb)



Carriageway Loop Feeder Installation



Drawing

Scale N.T.S

Drawn D. Ellis

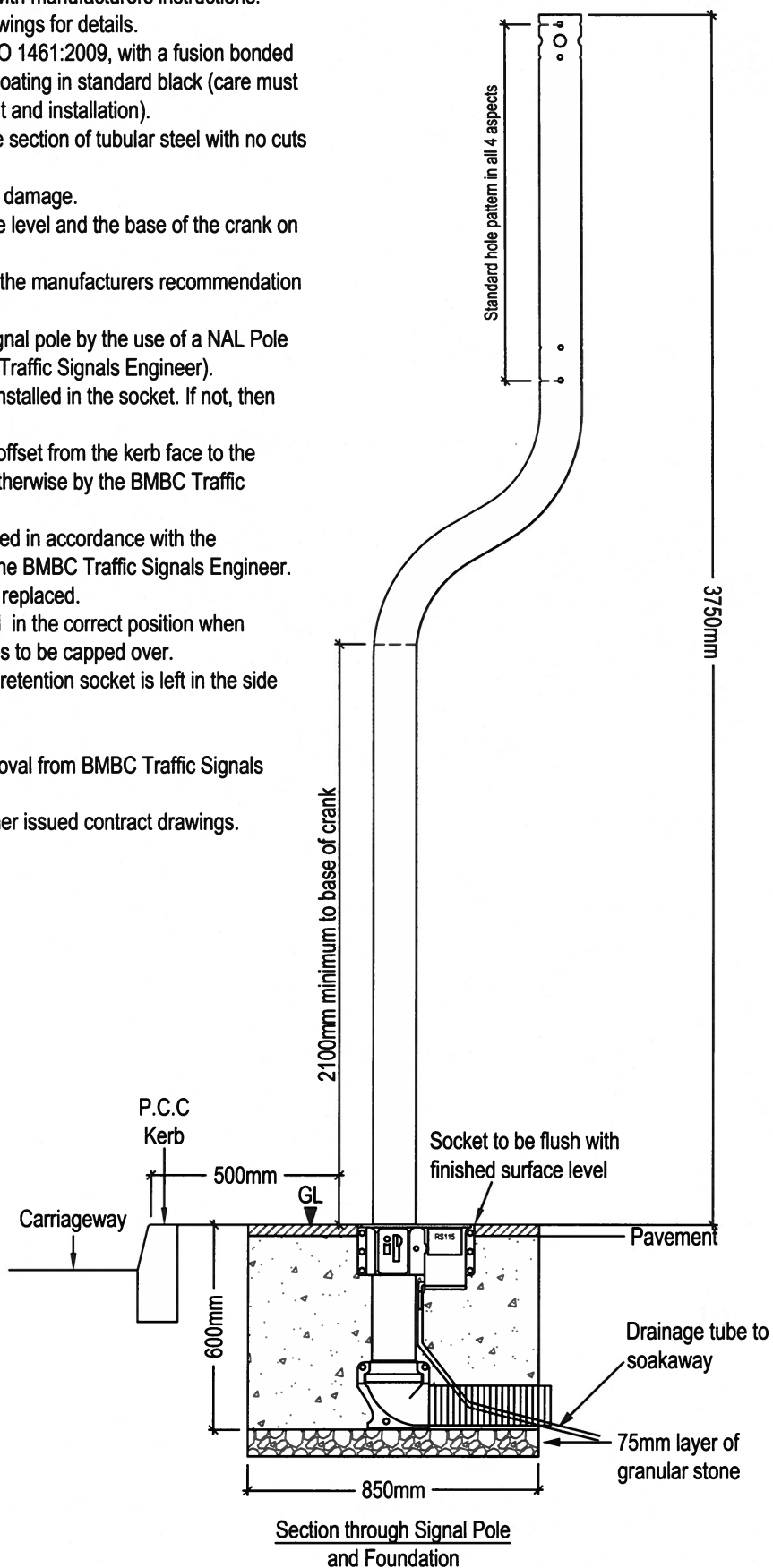
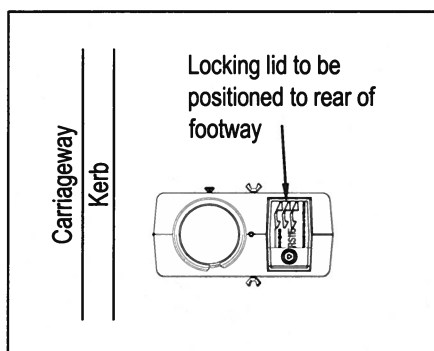
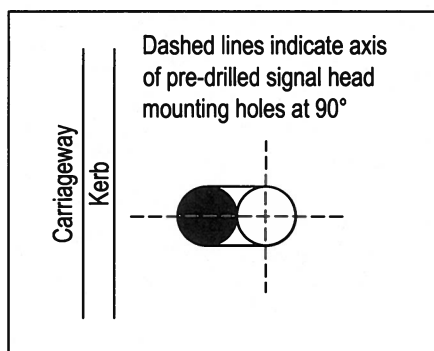
Date Feb. 2013

Checked File TM/SD

Drawing No.

Notes

1. Installation should be carried out in accordance with manufacturers instructions. Detail shown is illustrative only. See scheme drawings for details.
2. Signal pole to be hot dip galvanised to BS EN ISO 1461:2009, with a fusion bonded coating of DuPont Abcite thermoplastic powder coating in standard black (care must be taken not to damage this coating during transit and installation).
3. The signal pole is to be constructed from a single section of tubular steel with no cuts or welds.
4. The pole is to be free from sharp edges, burrs or damage.
5. The minimum depth between the finished surface level and the base of the crank on the signal pole is 2100mm.
6. The signal pole size must be in accordance with the manufacturers recommendation for the retention socket.
7. Duct access is to be gained to the base of the signal pole by the use of a NAL Pole Retention Socket (or similar approved by BMBC Traffic Signals Engineer).
8. Ensure the signal pole is straight and true once installed in the socket. If not, then the socket must be recast until correct.
9. When installed adjacent to the carriageway, the offset from the kerb face to the outside of the pole is 500mm (unless specified otherwise by the BMBC Traffic Signals Engineer).
10. Any minor damage to signal poles may be repaired in accordance with the manufacturers instructions, where approved by the BMBC Traffic Signals Engineer. If damage is significant the entire pole should be replaced.
11. Ensure equipment mounting holes are orientated in the correct position when installing pole. Unused equipment mounting holes to be capped over.
12. Ensure the blanking cap from the top of the pole retention socket is left in the side compartment of the socket for future use.
13. Push button holes to be drilled on site.
14. Signal pole not to be cut down without prior approval from BMBC Traffic Signals Engineer.
15. This drawing is to be read in conjunction with other issued contract drawings.



BARNSELEY
Metropolitan Borough Council

Drawing Barnsley Metropolitan Borough Council
Standard Details - Traffic Signals
Swan Necked Signal Pole

Scale

N.T.S

Drawn

D. Ellis

Date

Feb. 2013

Checked

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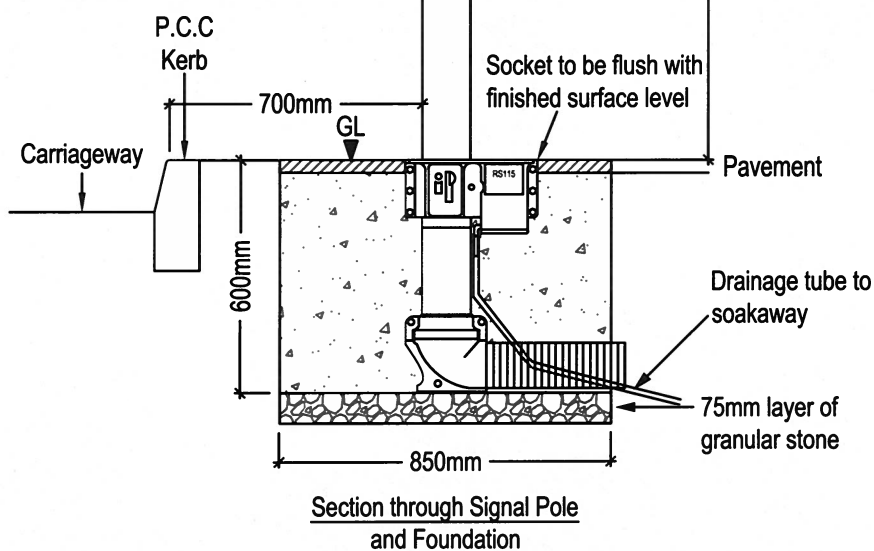
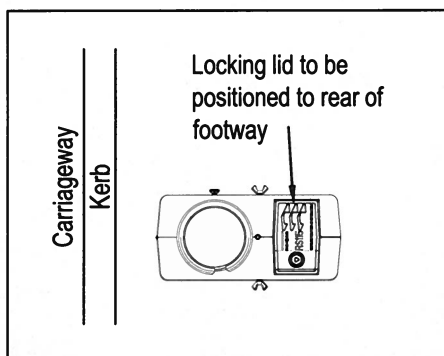
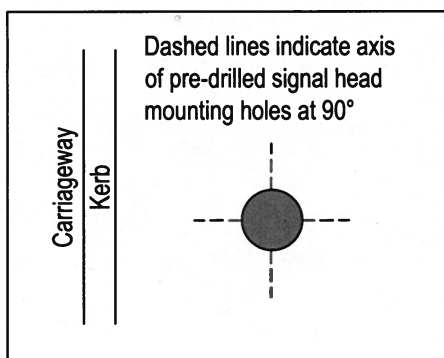
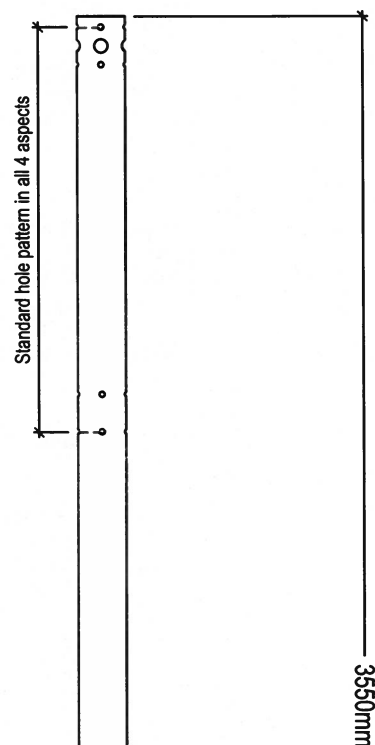
TM/SD

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Drawing No.

TM/SD/10 Rev. E

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3. The signal pole is to be constructed from a single section of tubular steel with no cuts or welds.
4. The pole is to be free from sharp edges, burrs or damage.
5. The signal pole size must be in accordance with the manufacturers recommendation for the retention socket.
6. Duct access is to be gained to the base of the signal pole by the use of a NAL Pole Retention Socket (or similar approved by BMBC Traffic Signals Engineer).
7. Ensure the signal pole is straight and true once installed in the socket. If not, then the socket must be recast until correct.
8. When installed adjacent to the carriageway, the offset from the kerb face to the outside of the pole is 700mm (unless specified otherwise by the BMBC Traffic Signals Engineer).
9. Any minor damage to signal poles may be repaired in accordance with the manufacturers instructions, where approved by the BMBC Traffic Signals Engineer. If damage is significant the entire pole should be replaced.
10. Ensure equipment mounting holes are orientated in the correct position when installing pole. Unused equipment mounting holes to be capped over.
11. Ensure the blanking cap from the top of the pole retention socket is stored in the side compartment of the socket for future use.
12. Push button holes to be drilled in site.
13. Signal poles are not to be cut down without prior approval from BMBC Traffic Signals Engineer.
14. This drawing is to be read in conjunction with other issued contract drawings.



BARNSELEY
Metropolitan Borough Council

Drawing Barnsley Metropolitan Borough Council
Standard Details - Traffic Signals
Straight Signal Pole

Scale

N.T.S

Drawn

D. Ellis

Date

Feb. 2013

Checked

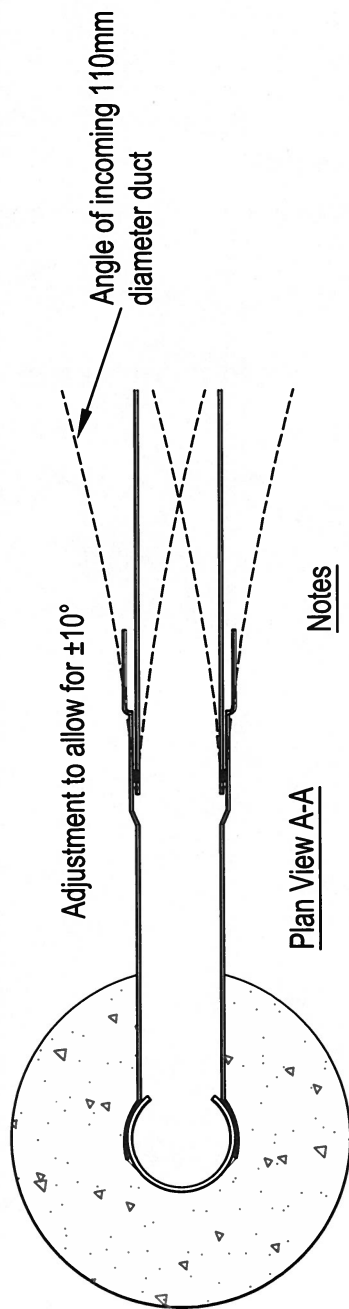
File

TM/SD

David Finnegan, Interim Assistant Director
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Westgate Plaza One, Westgate,
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Tel. (01226) 773555 Fax. (01226) 772110

Drawing No.

TM/SD/11 Rev. E

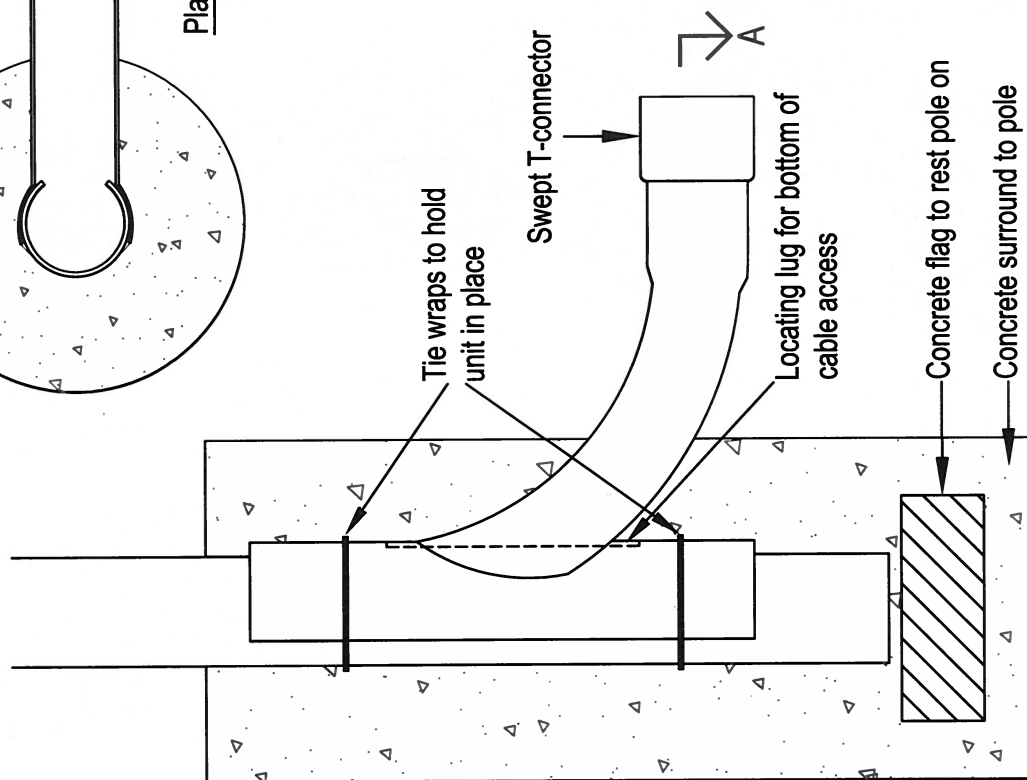


Notes

1. Swept T-connector to be supplied by NAL Ltd., 'Sheffield Spur' (or similar approved by BMBC Traffic Signals Engineer).
2. Pole foundation indicative only. BMBC Traffic Signals Engineer to provide details where necessary.
3. Ensure holes used for mounting sign equipment are orientated correctly when installing signal poles.
4. Cable entry hole into base of pole may require new hole cutting to suit direction of incoming ducting and orientation of spur. Protect any new cable entries with rust inhibitor/metal protector.
5. No bends or elbows permitted on incoming duct.
6. Draw cords to be installed in ducting, spur and signal pole from nearest chamber. 1.0m extra cord to be left at each end.
7. This drawing is to be read in conjunction with other issued contract drawings

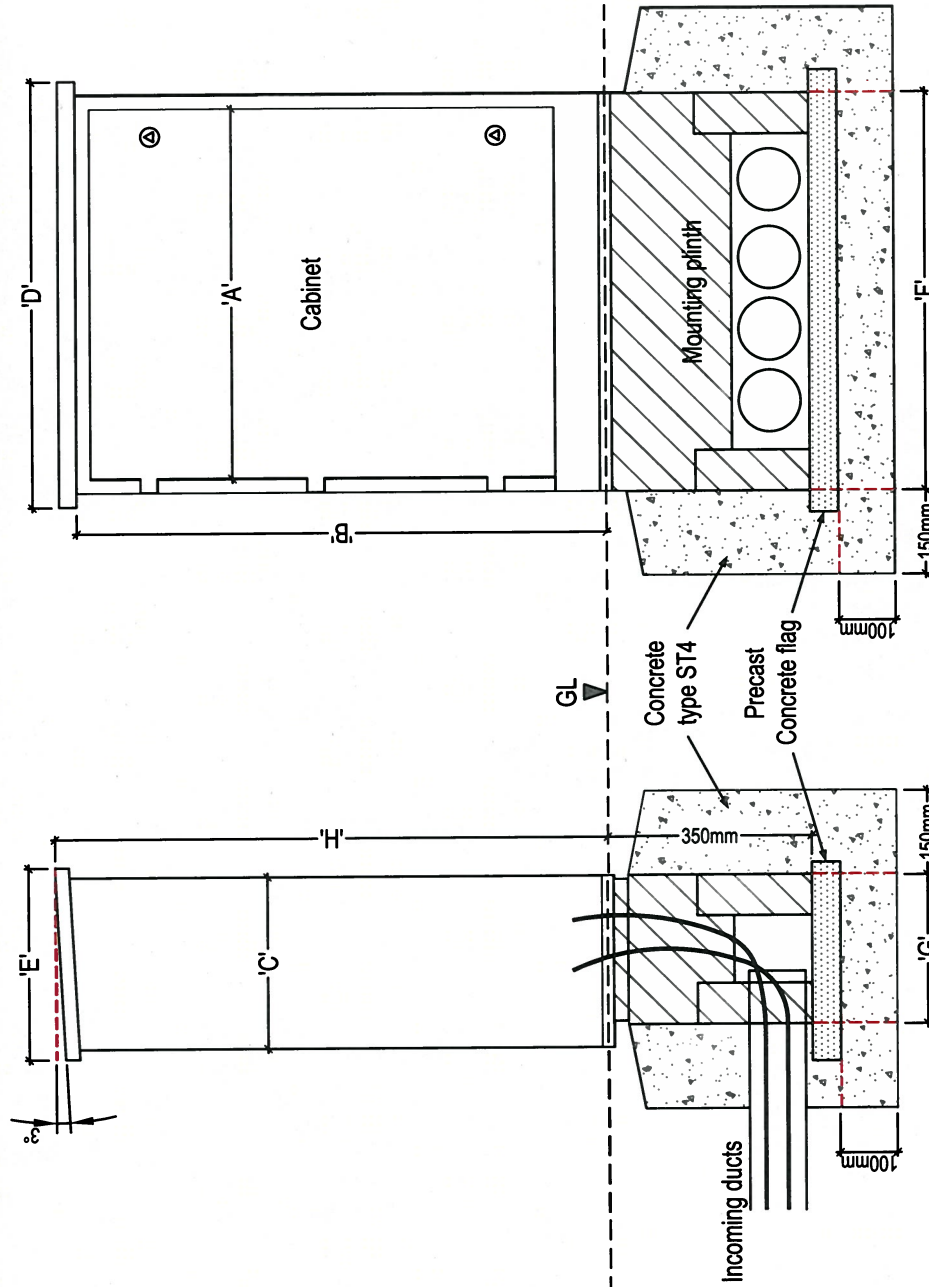
For Maintenance Works Only

'Sheffield Spur' Swept Duct Connector's are not to be used unless specified by the Traffic Signals Engineer as part of maintenance works.



Section

Drawing



Front Elevation (B-B)

Side Elevation (A-A)

Internal dims.			
H	W	D	
700	300	170	
700	500	170	
950	700	270	

Backboard			
H	W		
640	240		
640	470		
870	660		

Dimension ref.										
	A	B	C	D	E	F	G	H		
210	210	694	206	312	227	306	170	770		
410	410	694	206	512	227	506	170	770		
610	610	944	306	712	327	706	270	1020		

All dimensions in millimetres

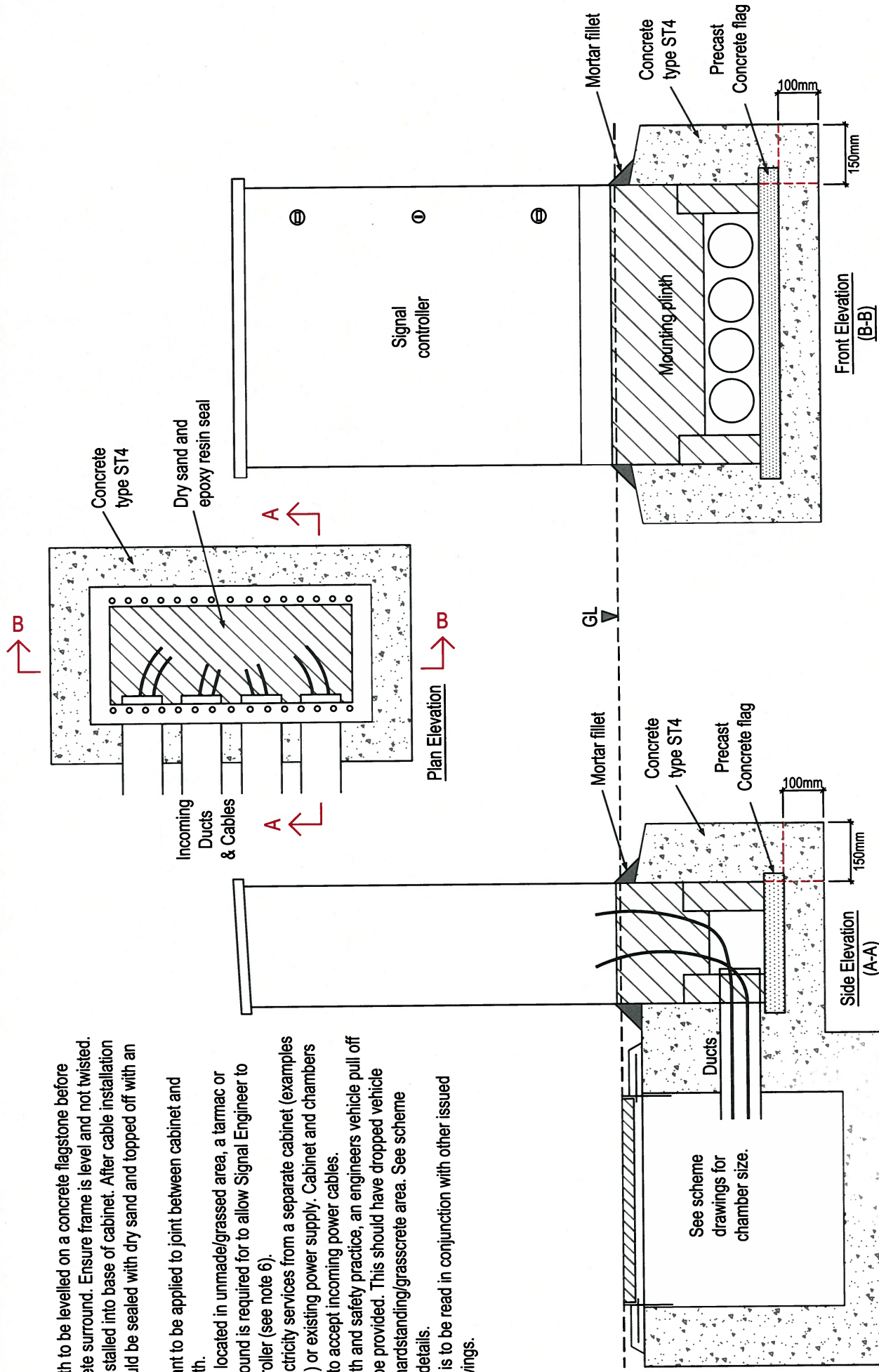
Notes

1. See table for dimensions of cabinets.
2. Cabinets to be manufactured from 3mm mild steel sheet, hot dip galvanised to BS EN ISO 1461:2009 throughout.
3. Stainless steel earth terminal and strap provided between main cabinet and door.
4. Flush fitting door hinges with stainless steel pins and nylon bushes.
5. EDPM door seal 20mm wide x 10mm thick. Door to be positively secured by two tri-locks.
6. Cabinet to have a fuseboard fitted in the back made from 12mm thick external grade plywood.
7. Mounting plinth to be levelled on a precast concrete flag before adding concrete surround.
8. Ducts to be installed into base of cabinet/mounting plinth. After cable installation the base should be sealed with dry sand and topped off with an epoxy resin.
9. Silicone sealant to be applied to joint between cabinet and mounting plinth.
10. Electrical service cabinet to be supplied to the above specification by Haldo Developments Limited (or similar approved by BMBC Traffic Signals Engineer).
11. This drawing is to be read in conjunction with other issued contract drawings

Drawing

Notes

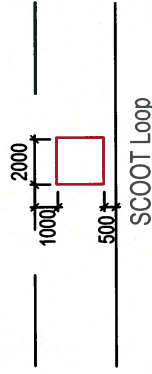
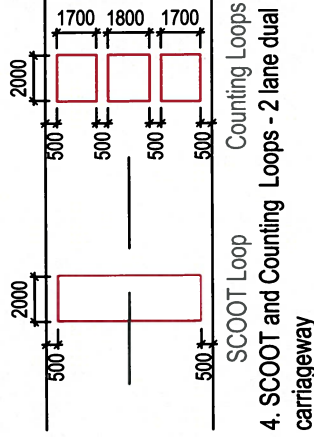
1. Mounting plinth to be levelled on a concrete flagstone before adding concrete surround. Ensure frame is level and not twisted.
2. Ducts to be installed into base of cabinet. After cable installation the base should be sealed with dry sand and topped off with an epoxy resin.
3. Silicone sealant to be applied to joint between cabinet and mounting plinth.
4. If controller is located in unmade/grassed area, a tarmac or concrete surround is required for to allow Signal Engineer to work on controller (see note 6).
5. Controller electricity services from a separate cabinet (examples on TM/SD/13) or existing power supply. Cabinet and chambers to be ducted to accept incoming power cables.
6. As good health and safety practice, an engineers vehicle pull off area should be provided. This should have dropped vehicle kerbs and a hardstanding/grasscrete area. See scheme drawings for details.
7. This drawing is to be read in conjunction with other issued contract drawings.



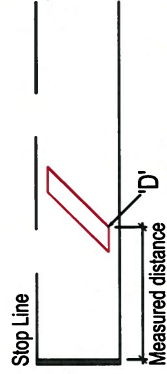
Drawing

Notes

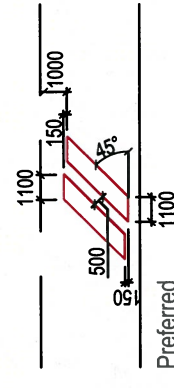
- Standard configuration for new installations unless specified otherwise on scheme drawings.
- No loop to be installed within 1.0m of any ironwork. No loop shall be moved more than 1.0m from the position specified on the scheme drawings without approval from the BMBC Traffic Signals Engineer.
- Loop tails/feeder to be kept to a minimum length where possible. Connection chambers should be installed adjacent to the loop in the footway area.
- Waterproof, reusable bottle style connectors should be used to connect loops to feeder cables.
- All dimensions on this drawing are in millimeters unless stated otherwise.
- All dimensions are $\pm 20\text{mm}$.
- This drawing is to be read in conjunction with other issued contract drawings.



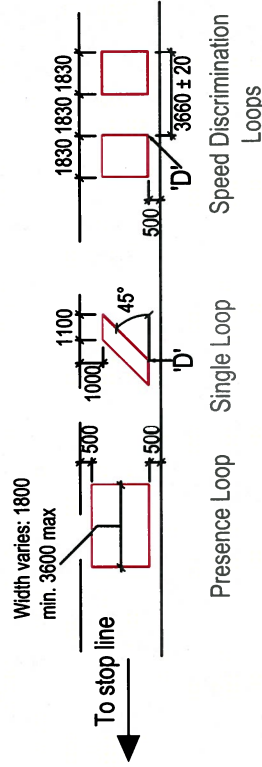
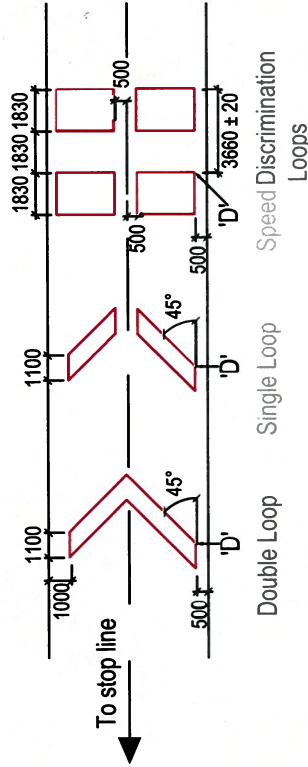
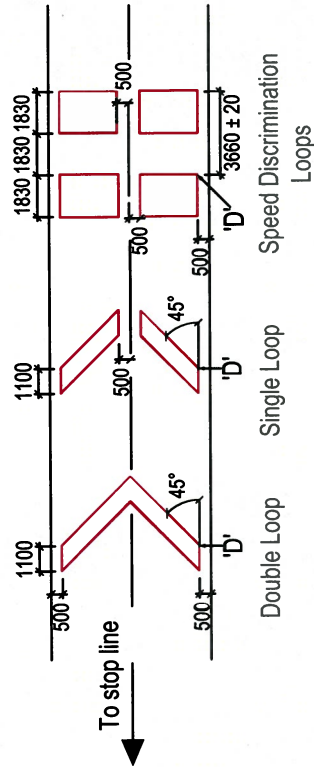
- SCOOT Loop for 2 way carriageway (approach may be marked as two lanes)



- Measured distance to Point 'D'

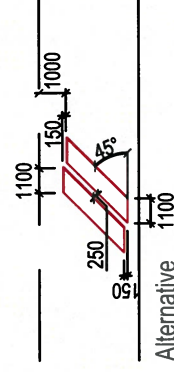


- Uni-directional Loops



Distance from Stop Line to Loop (Point 'D')			
Z	Y	X	Speed Discrimination
12m	25m	39m	79m
7m	18m	30m	-
6m	-	18m	-

Standard Config.		Speed Discrimination		Presence Loop	
Loop perimeter	No. of turns	Loop perimeter	No. of turns	Loop perimeter	No. of turns
< 8m	3	all	3	< 8m	3
> 8m	2	-	-	> 8m	2



Drawing

Scale

N.T.S

Drawn
D. Ellis

Date
Feb. 2013

Checked
File

TM/SD

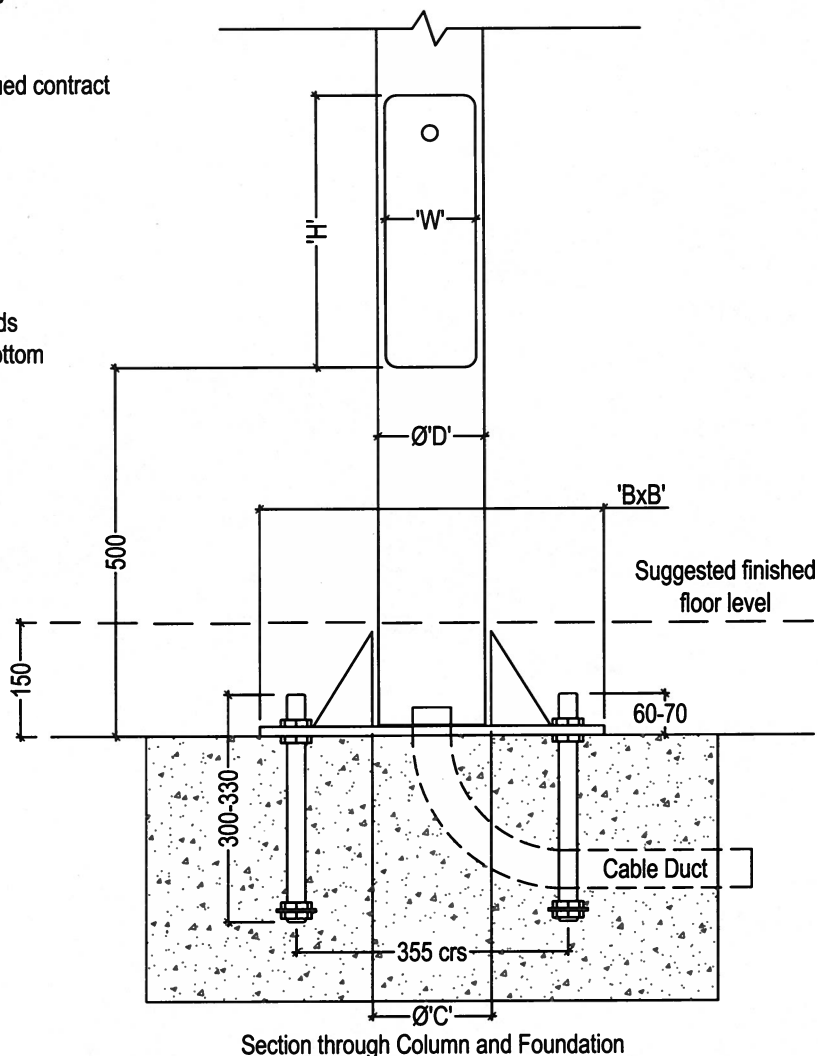
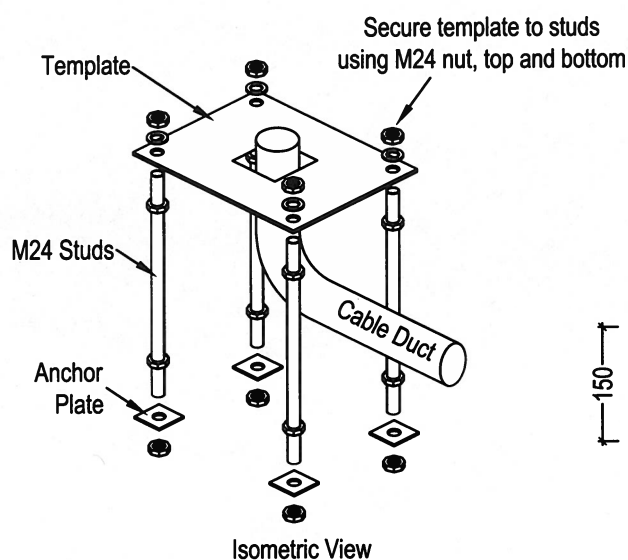
Recommended Installation Method

1. Excavate ground as per recommended area and depth depending on height of column. See table below. Ensure concrete base will have 150mm of earth/surface cover when column erection is complete.
2. Assemble root base as per diagrams below.
3. Insert root base into the hole ensuring that it is level and that the four studs protrude 60-70mm above the concrete foundation.
4. Fit the cable duct for routing via the interior of the column. A plastic pipe, either 50/100mm internal diameter is recommended. Ensure the duct protrudes through the template by a minimum of 50mm.
5. Pour concrete ensuring that it is a C35 mix or stronger. Tamp down well.
6. Fix the setting plate over the four protruding studs, double checking that they are level and that clear access can be gained to the cable duct if it is being used.
7. Leave the concrete to cure for a minimum of 72 hours prior to erecting the column.
8. When fitting the column, ensure that the concrete base is in complete contact with the underside of the column and grout accordingly. Torque the nuts to 230-270Nm (175-200 ft.lb)
9. When the column has been fitted, protect studs with a suitable protective coating. 'Denso' tape or similar is recommended for this.

					Dimension Ref.			
Foundation Sizes					Baseplate size 'BxB'	Cable access hole Ø'C'	Tube diameter Ø'D'	Door aperture 'H' x 'W'
Length		Width	Depth					
Height	6m	1.1m	1.1m	0.55m	450x450	Ø127	Ø139	360 x 90
	8m	1.4m	1.4m	0.7m	450x450	Ø155	Ø168	360 x 118
	10m	1.6m	1.6m	0.8m	450x450	Ø200	Ø219	460 x 118

Notes

1. Installation shown is for illustrative purposes only. Always follow manufacturers guidelines.
2. All dimensions in millimeters unless otherwise stated.
3. This drawing is to be read in conjunction with other issued contract drawings.



BARNSELEY
Metropolitan Borough Council

Drawing Barnsley Metropolitan Borough Council
Standard Details - Traffic Signals
CCTV Column Foundation and Installation

Scale

N.T.S

Drawn

D. Ellis

Date

Feb. 2013

Checked

File

TM/SD

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Drawing No.

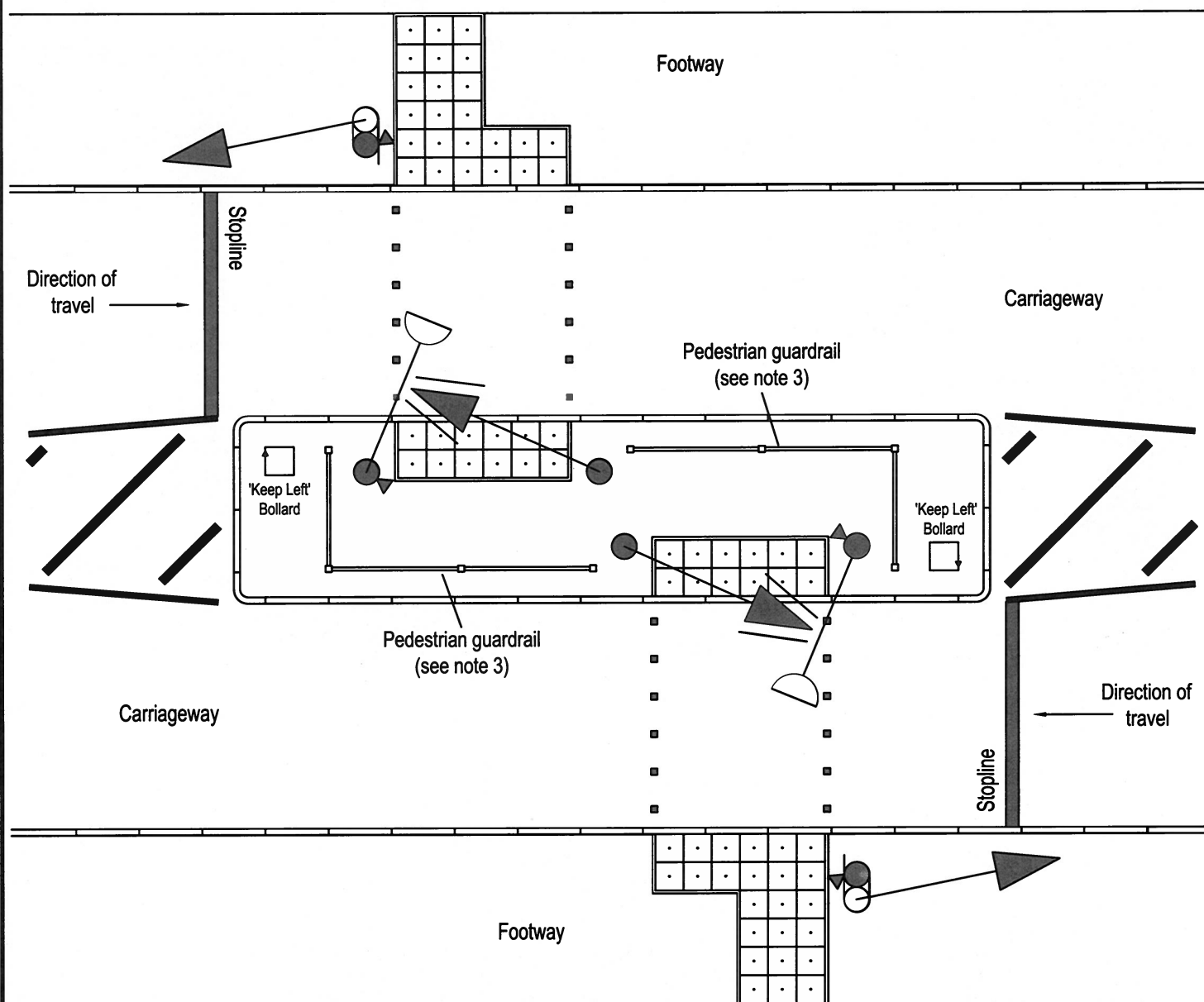
TM/SD/16 Rev. C

Notes

1. Cranked signal pole to be a minimum of 500mm from kerb face to outer edge of pole. straight signal poles to be 700mm, and pedestrian barrier rail to be 450mm.
2. Pedestrian barriers to be Visirail (or similar approved by BMBC Traffic Signal Engineer). Ensure that the angle of the infill bars are in correct orientation from the carriageway to see pedestrians on the island.
3. The area on the island between the barriers is to be free from obstruction to enable clear pedestrian access.
4. Chambers and covers are not to be located in tactile areas.
5. Minimum length of island (kerb face to kerb face) to be 12.0m (See note a). Minimum width of island (kerb face to kerb face) to be 3.0m (See note b).
6. Poles to be positioned half way down kerb taper (approx 450mm)
7. Bull nosed kerbs to be used for pedestrian crossing areas.
8. Lining, street furniture and signal pole/head arrangements are illustrative, see scheme drawings for details.
9. This drawing is to be read in conjunction with other issued contract drawings.

Island Stagger

- a. The length of the island must be able to accommodate the offset between crossing areas. See scheme drawings for details or island dimensions.
- b. The stagger is normally designed to enable pedestrians to walk towards oncoming traffic when using the facility. This may not be true in every case though.



BARNSLEY
Metropolitan Borough Council

Drawing Barnsley Metropolitan Borough Council
Standard Details - Traffic Signals
Typical Layout of Signalised Pedestrian Island

Scale

N.T.S

Drawn

D. Ellis

Date

Feb. 2013

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File

TM/SD

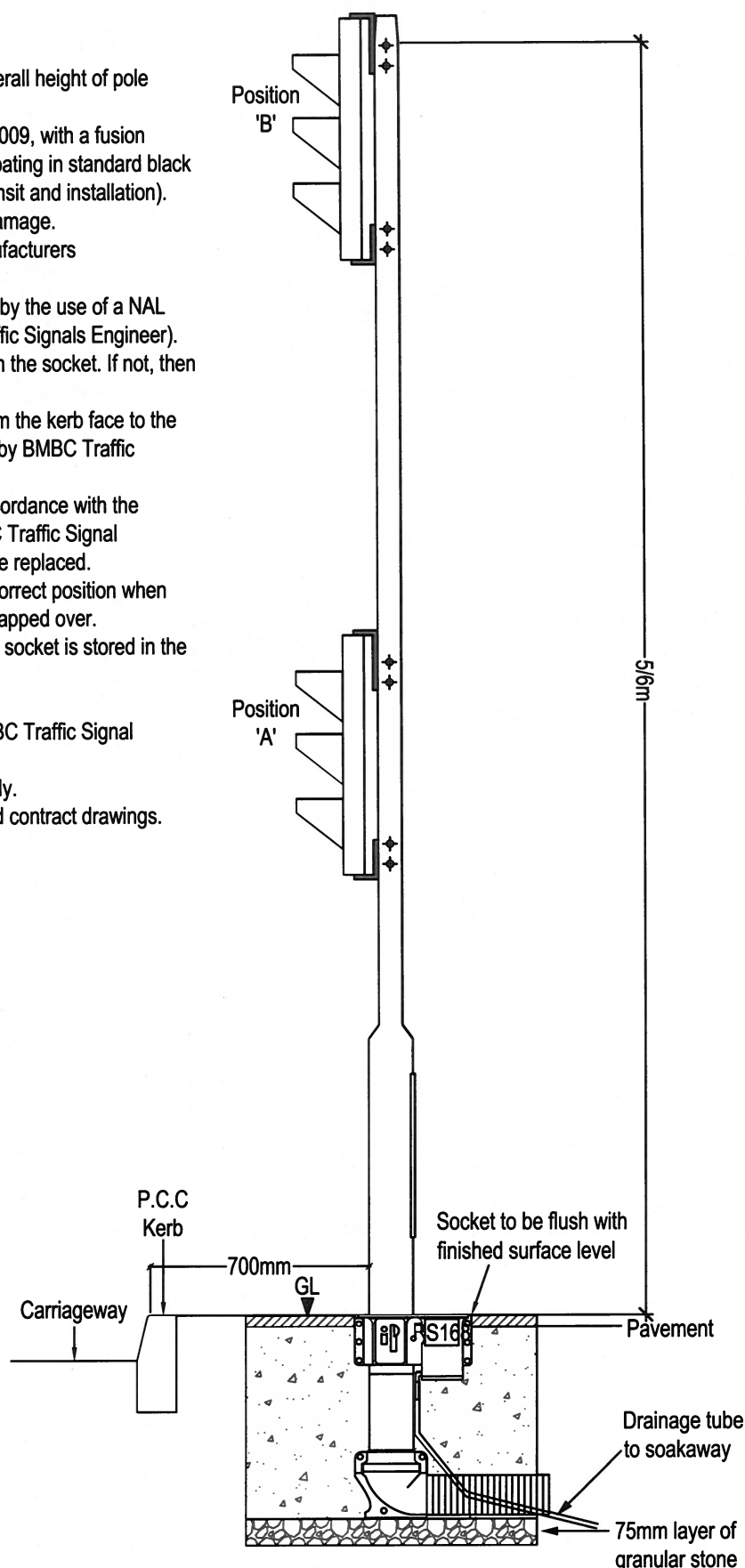
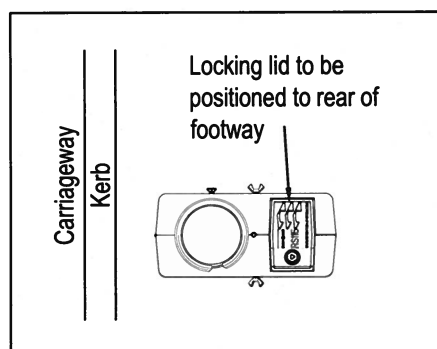
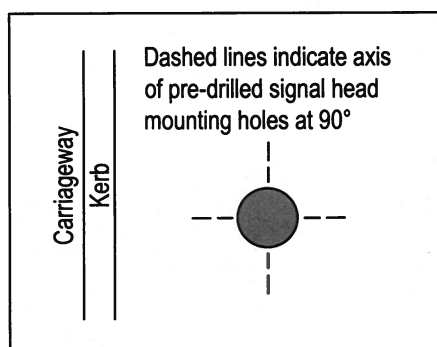
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Drawing No.

TM/SD/17 Rev. D

Notes

1. Pole to be installed as per manufacturers instructions. Overall height of pole (5/6m) to be as shown on scheme drawings.
2. Signal pole to be hot dip galvanised to BS EN ISO 1461:2009, with a fusion bonded coating of DuPont Abcite thermoplastic powder coating in standard black (care must be taken not to damage this coating during transit and installation).
3. The signal pole is to be free from sharp edges, burrs or damage.
4. The signal pole size must be in accordance with the manufacturers recommendation for the retention socket.
5. Duct access is to be gained to the base of the signal pole by the use of a NAL Pole Retention Socket (or similar approved by BMBC Traffic Signals Engineer).
6. Ensure the signal pole is straight and true once installed in the socket. If not, then the socket must be recast until correct.
7. When installed adjacent to the carriageway, the offset from the kerb face to the outside of the pole is 700mm (unless specified otherwise by BMBC Traffic Signals Engineer).
8. Any minor damage to signal poles may be repaired in accordance with the manufacturers instructions, where approved by the BMBC Traffic Signal Engineer. If damage is significant the entire pole should be replaced.
9. Ensure equipment mounting holes are orientated in the correct position when installing pole. Unused equipment mounting holes to be capped over.
10. Ensure the blanking cap from the top of the pole retention socket is stored in the side compartment of the socket for future use.
11. Push button holes to be drilled in site.
12. Signal pole not to be cut down without approval from BMBC Traffic Signal Engineer.
13. Signal head orientation shown for illustrative purposes only.
14. This drawing is to be read in conjunction with other issued contract drawings.



Section through Signal Pole and Foundation



BARNSELEY
Metropolitan Borough Council

Drawing Barnsley Metropolitan Borough Council
Standard Detail - Traffic Signals
Tall Signal Pole Arrangement

Scale

N.T.S

Drawn

D. Ellis

Date

Feb. 2013

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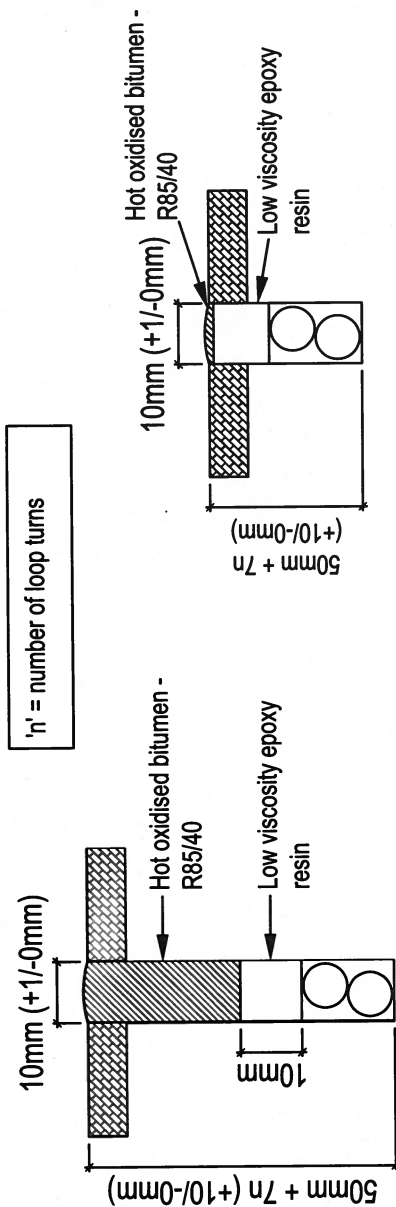
TM/SD

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Drawing No.

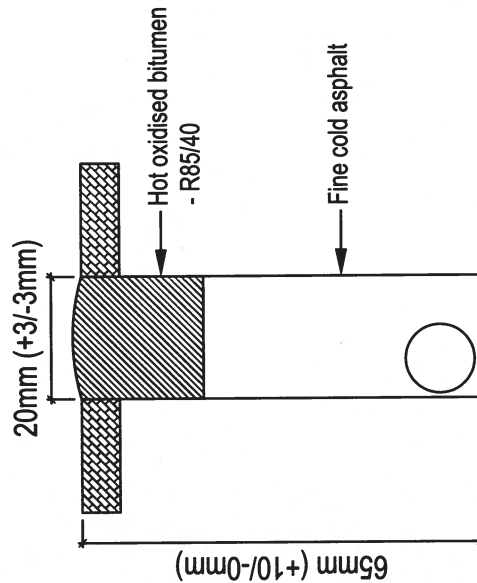
TM/SD/18 Rev. C

Detail of Loop Cable Slot

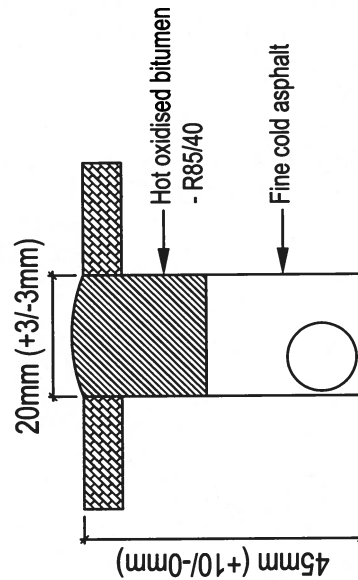


Loop Slot in Bituminous Road Surface

Loop Slot in Concrete Road Surface



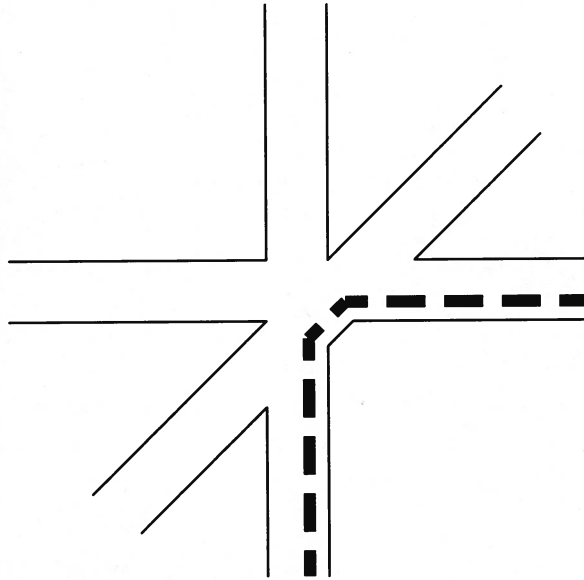
Detail of Feeder Cable Slot



Notes

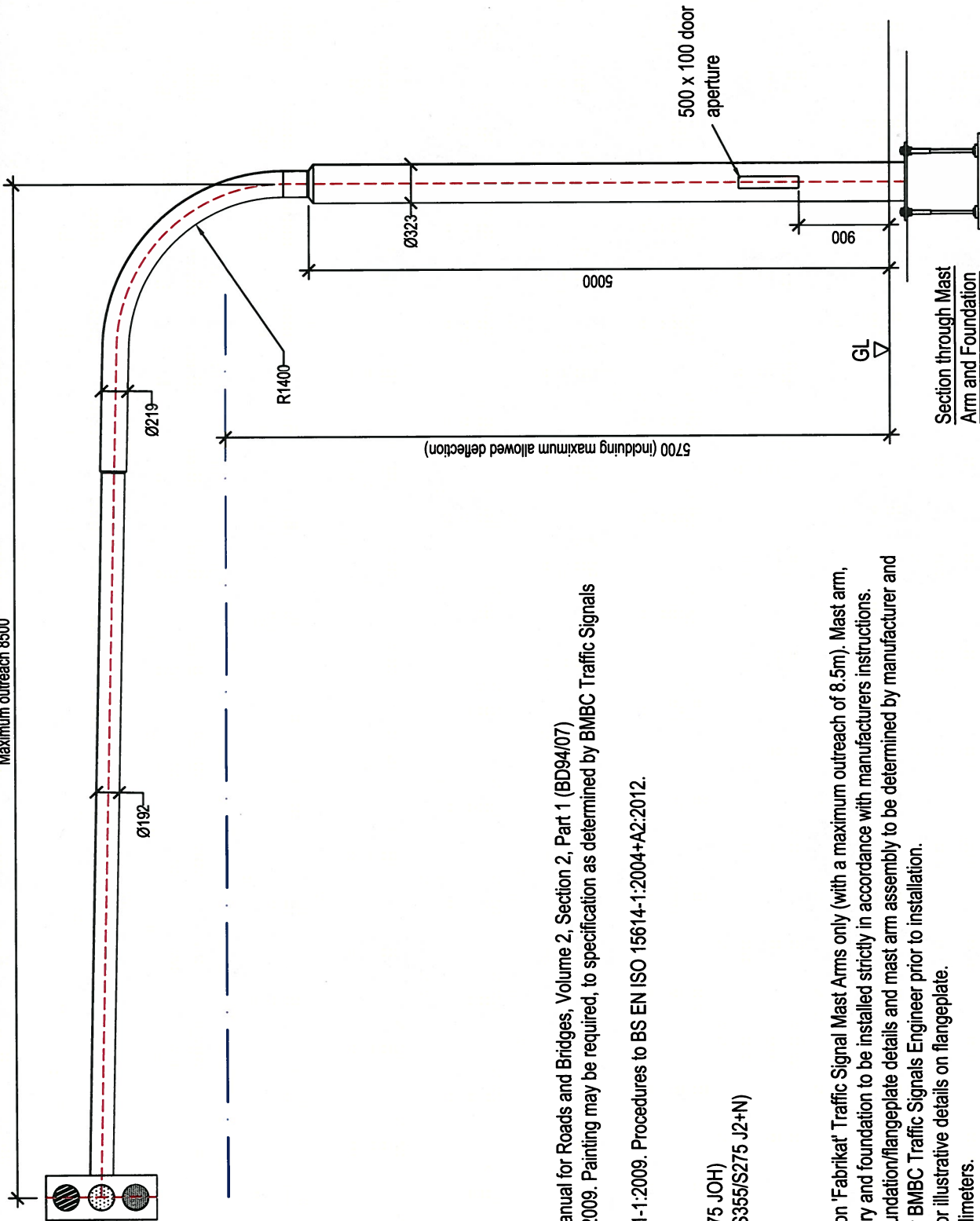
1. Standard configuration for new installations (unless otherwise specified on scheme drawings).
2. One part backfill may be used with approval from BMBC Traffic Signals Engineer.
3. Waterproof, reusable connectors should be used to connect loops to feeder cables.
4. All dimensions on this drawing are in millimetres.
5. This drawing is to be read in conjunction with other issued contract drawings.

Modification of Slot Corners showing Cable Route



Drawing

Maximum outreach 8500

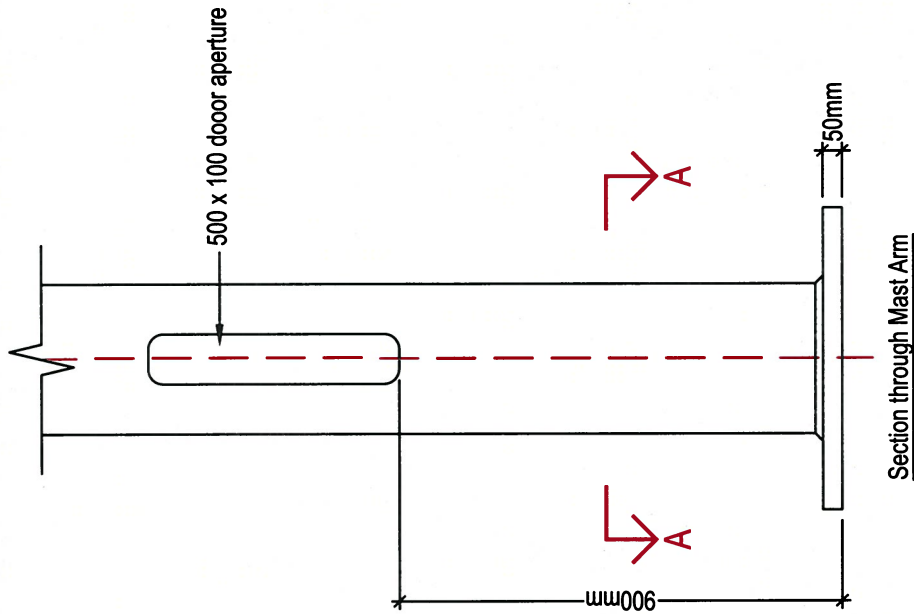


Technical Specification

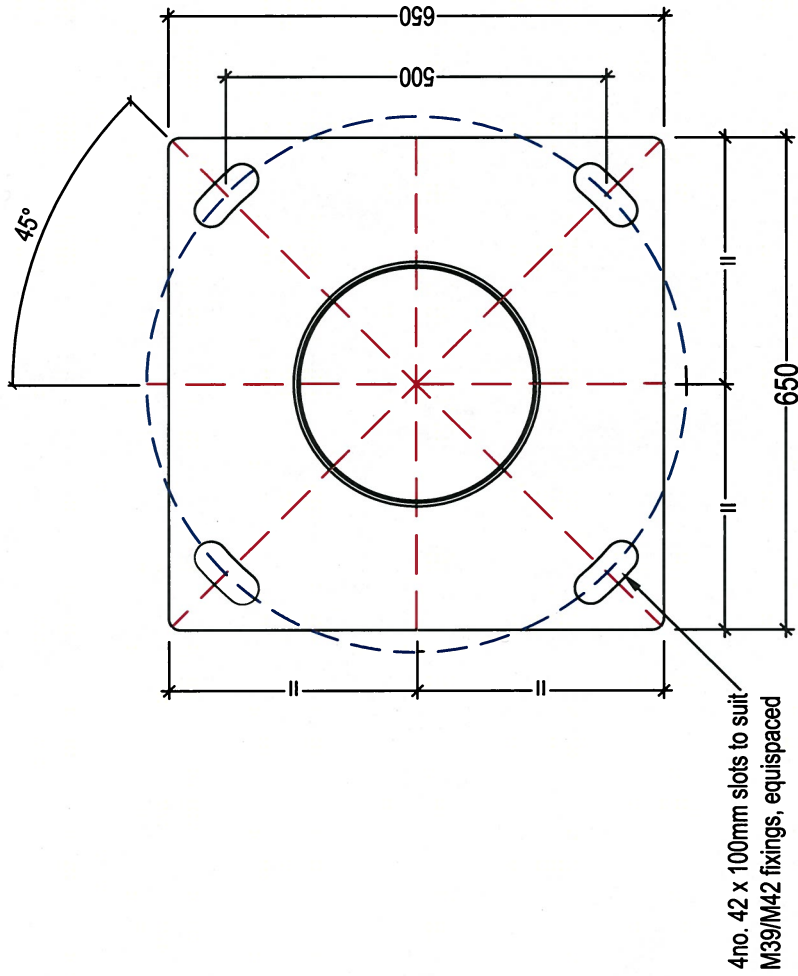
1. Design in accordance with the Design Manual for Roads and Bridges, Volume 2, Section 2, Part 1 (BD94/07)
2. Finish to be Galvanised to BS EN 1461:2009. Painting may be required, to specification as determined by BMBC Traffic Signals Engineer.
3. Welding in accordance with BS EN 1011-1:2009. Procedures to BS EN ISO 15614-1:2004+A2:2012.
4. Welders qualified to BS EN 287-1:2011.
5. Materials:
 - a. BS EN 1000219-1:2006 (S355/S275 JOH)
 - b. BS EN 100025-6:2001+A1:2009 (S355/S275 J2+N)

Notes

1. This general arrangement is to be used on 'Fabrikat' Traffic Signal Mast Arms only (with a maximum outreach of 8.5m). Mast arm, flangeplate, holding down bolt, cable entry and foundation to be installed strictly in accordance with manufacturers instructions.
2. Detail shown is illustrative only. Exact foundation/flangeplate details and mast arm assembly to be determined by manufacturer and structural calculations to be approved by BMBC Traffic Signals Engineer prior to installation.
3. See Standard Detail TM/SD/21 Rev. D for illustrative details on flangeplate.
4. All dimensions on this drawing are in millimeters.
5. This drawing is to be read in conjunction with other issued contract drawings.



Section through Mast Arm



Plan View A-A

Notes

1. This general arrangement is to be used on 'Fabrikat' Traffic Signal Mast Arms only (with a maximum outreach of 8.5m). Mast arm, flangeplate, holding down bolt, cable entry and foundation to be installed strictly in accordance with manufacturers instructions.
2. Detail shown is illustrative only. Exact foundation/flangeplate details and mast arm assembly to be determined by manufacturer and structural calculations to be approved by BMBC Traffic Signal Engineer prior to installation.
3. See Standard Detail TM/SD/20 Rev. D for illustrative details on mast arm.
4. All dimensions on this drawing are in millimeters.
5. This drawing is to be read in conjunction with other issued contract drawings.

Drawing



Barnsley Metropolitan Borough Council
Standard Detail - Traffic Signals
Traffic Signal Mast Flange Plate Detail

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Drawing No. TM/SD/21 Rev. D

Scale N.T.S.
Drawn D. Ellis
Date Feb. 2013
Checked
File TM/SD

Road Marking Specification

1. All road marking references are to the Traffic Signs and General Directions 2002 (or amendments). References may also be made to Chapter 5 of the Traffic Signs Manuals.
2. Road markings to be installed in accordance with BS EN 1871:2006, BS EN 1824:2011, and BS EN 1436:2007+A1:2008.
3. White road markings to be in thermoplastic, with surface applied solid glass beads.
4. Yellow road markings to be in thermoplastic.
5. Markings to be hot applied. Cold applied/preformed thermoplastic road markings must not be used without prior approval from BMBC Traffic Signals Engineer.
6. Where necessary, contact BMBC Traffic Signals Engineer for lining to be marked on site, prior to works commencing.
7. Pedestrian crossing studs to be stainless steel with serrated faces. Studs to be placed at 500mm centres.
8. For additional details, layout, dimensions, etc. refer to the scheme drawings.
9. This drawing is to be read in conjunction with other issued contract drawings.



BARNSELEY
Metropolitan Borough Council

Drawing Barnsley Metropolitan Borough Council
Standard Detail - Traffic Signals
Road Marking Specification

Scale

N.T.S

Drawn

D. Ellis

Date

Feb. 2013

Checked

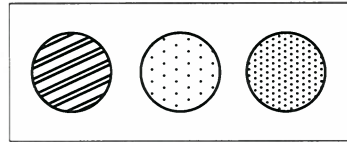
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TM/SD

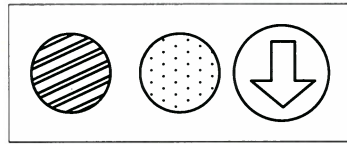
David Finnegan, Interim Assistant Director
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Drawing No.

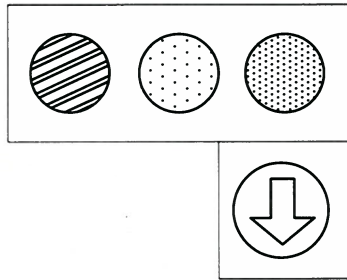
TM/SD/22 Rev. C



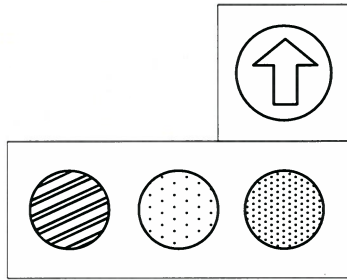
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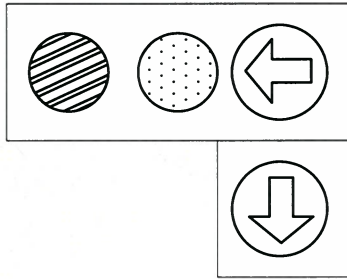
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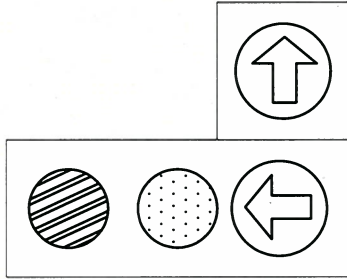
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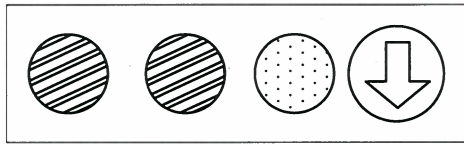
4/*



5/**



6/**



7/*

Key

* - denotes direction of arrow:

A - Ahead

R - Right turn

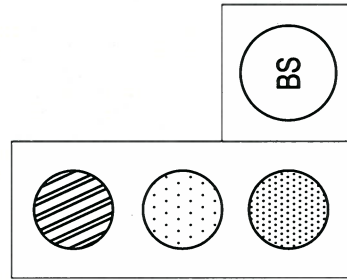
L - Left turn

'BS' - denotes Box Sign within signal head;

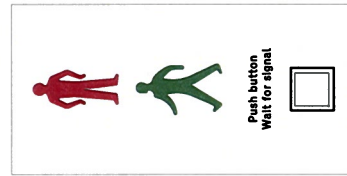
'C' - denotes addition of cycle facilities (see scheme drawings for details).

Notes

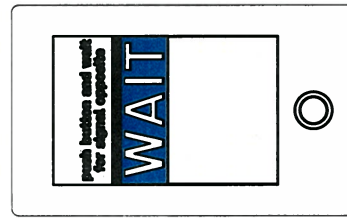
1. Traffic signal configurations shown are not to scale and indicative only.
2. Any other traffic signal head configuration can be used and should be referenced as Type 11 (or greater).
3. Refer to scheme drawings for exact configuration.
4. Signal heads to be in accordance with the Traffic Signs Regulations and General Directions 2002 (or amendments).
5. This drawing is to be read in conjunction with other issued contract drawings.



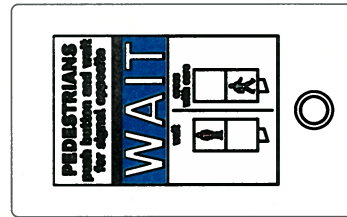
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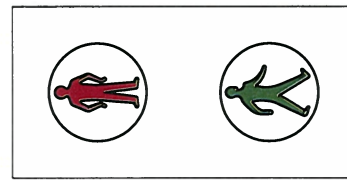
10



9/C



9



8



BARNSELEY
Metropolitan Borough Council

Drawing

Barnsley Metropolitan Borough Council
Standard Details - Traffic Signals
Signal Head Configuration

Scale

N.T.S

Drawn
D. Ellis

Date
Feb. 2013

Checked
File

TM/SD

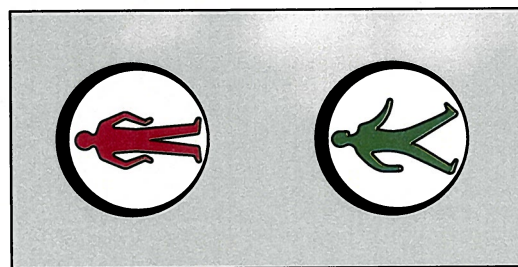
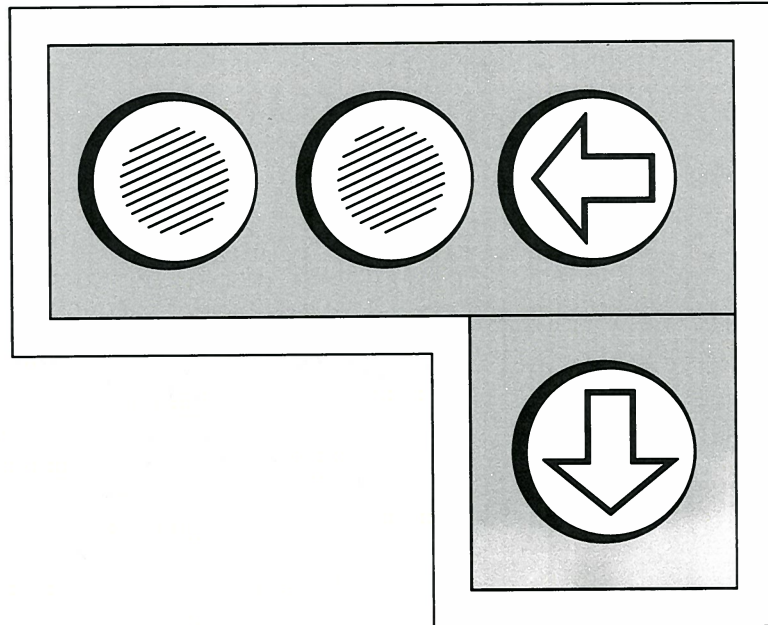
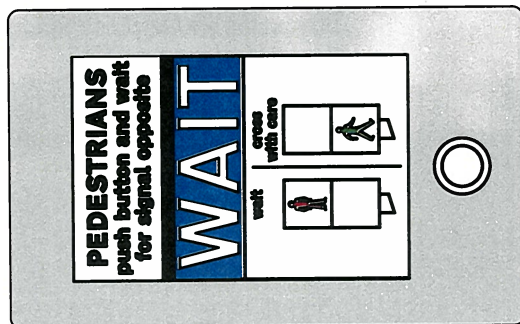
Drawing No.

TM/SD/23 Rev. C

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Notes

1. All signal poles to be vertically level once installed.
2. Poles to be black in colour (unless specified otherwise on scheme drawings).
3. All poles to include pole cap assembly.
4. Pedestrian push button units to be extra low voltage and include extra low voltage tactile units.
5. Push button units to be mounted between 1m and 1.1m from footway level to the centre of the push button.
6. All signal heads to be compliant with EN 12368:2006.
7. Primary and secondary traffic hoods shall be moulded and include an indexing system to ensure that they can be accurately located.
8. The signal head shall have a secure locking mechanism to allow accurate positioning of the head with respect to the signal pole. This should break under minor impact to avoid damage to the signal head.
9. Backing boards for all 3 or 4 aspect in-line signal heads shall be of two piece construction, with no added strips or items which may become detached over time.
10. All backing boards are to be white in colour, composed of fully prismatic retroreflecting material.
11. Where arrow aspects are used they must be achieved by the use of a physical mask which enables the accurate location, in increments not exceeding 12.5°.
12. All optics shall be based on the SIRA lens technology patented by the Highways Agency. Any supplier company shall demonstrate that the appropriate licence fee has been paid for the last 12 months.
13. All signal heads, head arrangements, light aspects, push button units are to be in accordance with The Traffic Signs Regulations & General Directions 2002 (or amendments).
14. All extra low voltage light emitting diode aspects are to be of central light source (CLS) type and allow full lamp monitoring, without the presence of an artificially loaded resistance which simulates lamp loading and wastes energy.
15. This drawing is to be read in conjunction with other issued contract drawings.



 BARNSLEY Metropolitan Borough Council	Drawing		Bamsley Metropolitan Borough Council Standard Details - Traffic Signals Signal Optics and Equipment		Scale N.T.S.	David Finnegan, Interim Assistant Director Environmental Services, Westgate Plaza One, Westgate, Barnsley, S70 2DR Tel: (01226) 773555 Fax: (01226) 772110	
	Drawn D. Ellis	Date Feb. 2013			Checked 	File TM/SD	Drawing No. TM/SD/24 Rev. D

Pedestrian Crossing Road Stud Specification

1. Each stud is to be made from austenitic stainless steel, heat treated to ensure maximum toughness, strength and rust resistance.
2. Must be installed with a shank design which prevents twisting after installation. To assist skid resistance the stud must have a serrated face.

Pedestrian Crossing Road Stud Installation

1. Drill a hole to the correct diameter and depth (to manufacturers guidelines).
2. Clear away dust from interior of hole and surface of the road to be covered by the head of the marker (Note: for concrete surfaces it is necessary to prime the hole and surrounding road surface with bitumen emulsion primer prior to grouting).
3. Fill the hole fully with hot bituminous grout (to specification below) and immediately insert the marker shank.
4. Press the head firmly to the road surface taking care that the marker is properly aligned. If necessary, pressing may be supplemented by light tamping with a wood or rubber head mallet. On no account should the stud be hammered into position.
5. The surplus of bitumen will be forced out of the hole by the ingoing shank to form a bed for the head.
6. Any surplus bitumen beyond the area of the marker should be trimmed off.

Bituminous Grout Specification

Filled bitumen comprising:

- a. 25 - 30% - Bitumen 60/80 penetration;
- b. 70 - 75% - Limestone filler (80 - 90% passing 75 micron sieve).

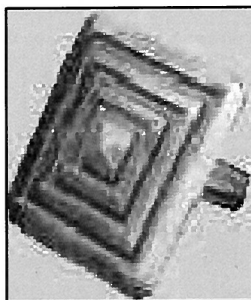
The resultant mixture should have the following properties:-

- a. Penetration at 25°C $23 \pm 5^\circ$;
- b. Softening point (R & B) $85^\circ\text{C} \pm 5^\circ\text{C}$.

The filled bitumen shall be heated in a bitumen heater capable of holding the charge at a constant temperature of 200°C and fitted with a mechanical aggregator to ensure the solids are properly dispersed through pouring material at all times.

Material to be applied to stud cavity at pouring temperature of 190 - 200°C.

Under no circumstances should the grout be heated over 230°C as this will result in hardening and loss of elasticity.



BARNSELEY
Metropolitan Borough Council

Drawing Barnsley Metropolitan Borough Council
Standard Details - Traffic Signals
Pedestrian Crossing Road Studs

Scale

N.T.S

Drawn

D. Ellis

Date

Feb. 2013

Checked

File

TM/SD

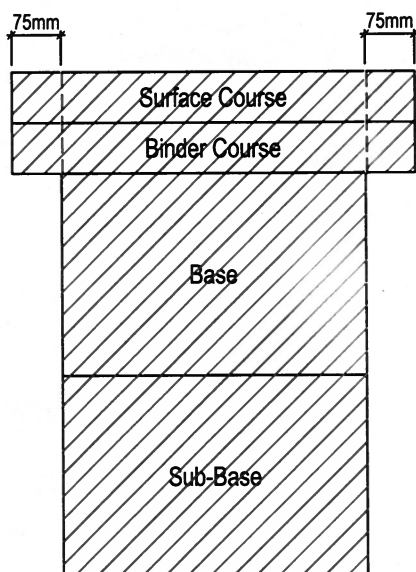
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Westgate Plaza One, Westgate,
Barnsley, S70 2DR
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Drawing No.

TM/SD/25 Rev. C

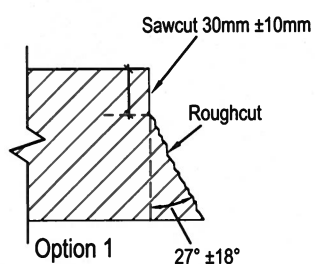
Notes

1. Materials, overall construction and thickness' to be determined by BMBC Traffic Signals Engineer. See scheme drawings for details.
2. All works and materials must be in accordance with Department for Transport document 'Specification for the Reinstatement of Openings in Highways'.
3. This drawing is to be read in conjunction with other issued contract drawings.

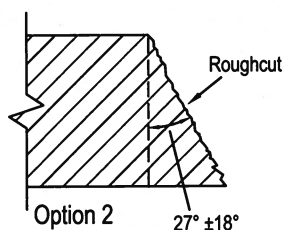


Stepped Joint in Flexible Carriageway

1. The BMBC Traffic Signals Engineer may, at his discretion, increase, decrease or omit the stepping back of any joints.
2. The reinstatement may comprise of the surface course only, or the surface course and other construction layers.



Option 1



Option 2

Concrete Road Slab Edge Taper Options

1. The concrete road slab shall be reinstated using C32/40 concrete mixed in accordance with SHW Clause 1001, with an air entrainment admixture used in at least the top 50mm of the road slab.
2. Where the surface of the road slab is the running surface of the road, the excavation shall be delineated by sawing the pavement to a depth of 30 mm $\pm$ 10 mm. The remainder of the exposed faces should be rough cut, at an angle of 27° $\pm$ 18° to the vertical (see option 1).
3. In all other cases, the exposed faces should be rough cut, at an angle of 27° $\pm$ 18° to the vertical. Delineation by pavement saw, to a depth of 30mm $\pm$ 10mm, may also be applied (See option 2).
4. All expansion, contraction and warping joints removed or otherwise damaged during the excavation must be replaced or reconstructed to a similar design, using equivalent materials, at the time of permanent reinstatement.
5. Cracking within the adjacent road slab, resulting from the excavation operation, shall require the relevant area of the slab to be removed and included within the area to be reinstated.
6. All edges shall be cleaned and wetted prior to the placement of the concrete.
7. Where steel reinforcement within the concrete road slab has been cut, new steel reinforcing of equivalent weight shall be provided.
8. Where the surface of the concrete road slab is overlaid with a bituminous material or surface treatment, a matching thickness of a similar or equivalent material shall be laid.



BARNSELEY
Metropolitan Borough Council

Drawing Barnsley Metropolitan Borough Council
Standard Detail - Traffic Signals
Carriageway Patch Repair

Scale

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Drawn

D. Ellis

Date

Feb. 2013

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File

TM/SD

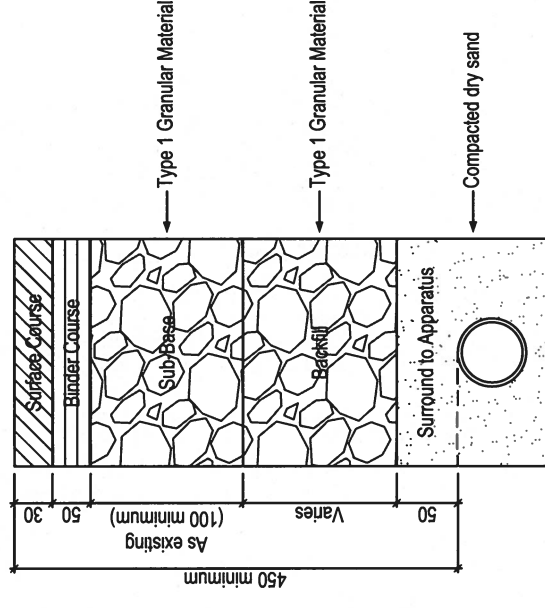
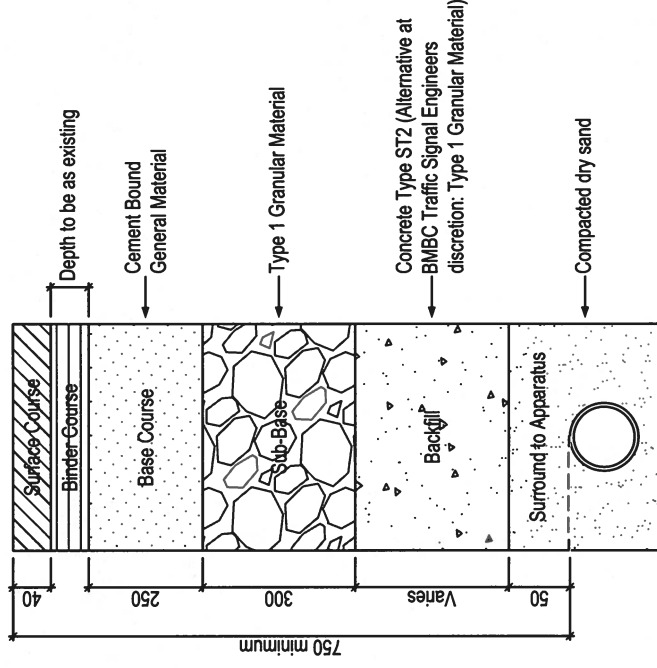
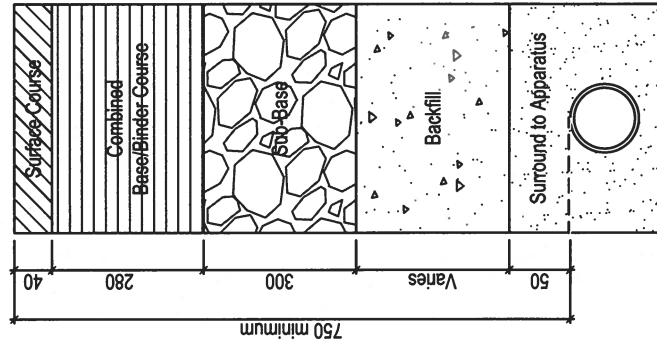
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Drawing No.

TM/SD/26 Rev. C

Notes

1. All excess water and loose material should be removed from the cut faces of the reinstatement.
2. All bound vertical edges must be clean and free from slurry and dust etc. with the stone in the existing layers clearly visible.
3. Base preparation: tack coating materials are generally based on rapid curing anionic or cationic bitumen emulsions to BS 434-1:2011, with approximately 40% bitumen content.
4. Edge preparation: materials are generally based on rapid curing bitumen emulsions to BS EN 13808:2005, typically in the range of 40 to 100 pen and approximately 70% bitumen content. Alternatively, hot bitumen's to BS EN 12591:2009 typically 50 or 70 pen.
5. Base/edge preparation materials to be applied prior to reinstatement of base, binder and surface course. Materials are to be installed as per manufacturers instructions.
6. Grassed areas shall be reinstated using the original turf, replacement turf or an equivalent seed, depending on weather and growing season. In all cases, a reasonable growth shall be established within the following 12 months.
7. Any shrubs, trees or planted areas shall be reinstated with the same species (unless otherwise agreed with BMBC Traffic Signals Engineer) and shall be established within the following 12 months.
8. All works and materials must be in accordance with Department for Transport document 'Specification for the Reinstatement of Openings in Highways'.
9. Details shown below are for illustrative purpose only. Exact dimensions, material and overall construction to be determined by BMBC Traffic Signals Engineer. See scheme drawings for details.
10. This drawing is to be read in conjunction with other issued contract drawings.



Notes

1. All connections in pole caps must be wired neatly and allow cores to be easily identifiable.
2. All spare cores to be neatly stored and tied back, but must have sufficient length for future connections.
3. Spare cores must not have the insulation stripped back within the pole cap, but should be connected back to an earth point within the controller.
4. To avoid the risk of electrical shock or short circuiting, insulation around the copper cores should be stripped back to a minimum.
5. No exposed copper core should be evident after wiring to the terminal connector.
6. All cables, at each end, must have identification attached as to it's origin, i.e. pole numbers, phases, controllers etc.

Black in low voltage cables is always neutral. All other colour's may be live.

When using Extra Low Voltage (ELV) equipment for installations, all cable thickness' and lengths must be calculated in accordance with the manufactures handbooks.

Multi-core Cable

20 CORE	1. Red
16 CORE	2. Yellow
12 CORE	3. Green
8 CORE	4. Black
	5. Blue
	6. White
	7. Orange
	8. Brown
	9. Purple
	10. Grey
	11. Red / White
	12. Red / Blue
	13. Red / Black
	14. Red / Yellow
	15. Red / Grey
	16. Red / Brown
	17. Red / Purple
	18. Red / Green
	19. Red / Orange
	20. White / Blue

Loop Feeder Cable

1No. Pair Feeder	Red Black	Loop Tails
2No. Pair Feeder	Red Blue	X Loop Tails
	Yellow Black	YZ Loop Tails

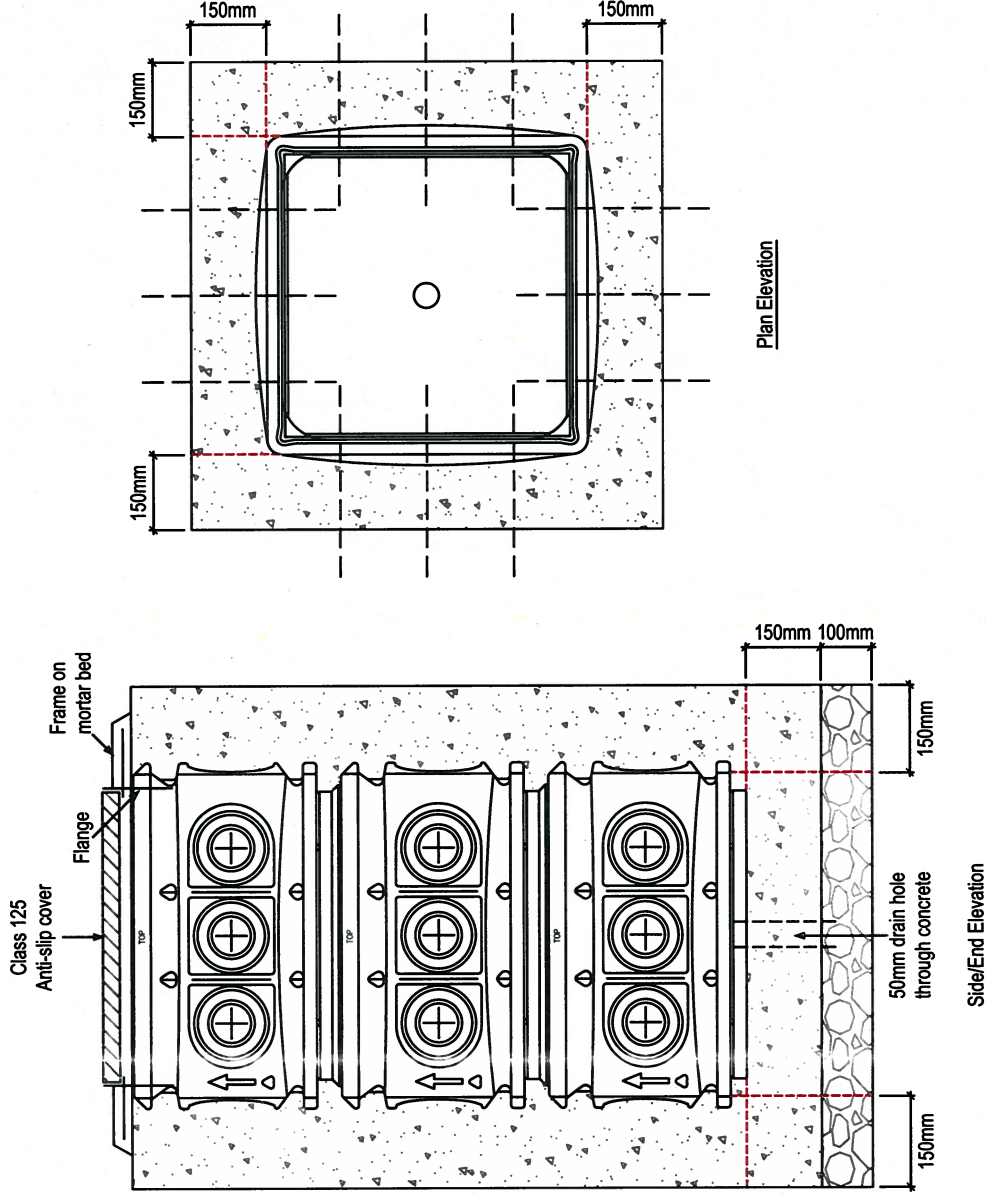
Drawing

Notes

1. The chamber shall be of solid constructions of single, double or triple height pre-formed sections (triple shown) and prevent distortion during back fill process.
2. The chamber will meet the Highway Regulation of minimum duct cover in both carriageway and footways as shown on TM/SD/06 Rev. C.
3. The chamber shall have pre-cut knockout areas to accept 50mm and 100mm internally dimensioned traffic signal ducting.
4. The chamber shall be manufactured by the rotational moulding of a recycled polyolefin or polyethylene material.
5. The chamber shall have a 150mm thick concrete base and 150mm thick concrete base using ST4 concrete. To be bedded on a Type 1 Sub-base, 100mm thick, with a 50mm drain hole (base to be construction first and have a smooth floated finish).
6. The covers are to be a non-ferrous composite material and fit closely within a ductile iron frame. The cover and frame shall meet the loading requirements of BS EN 124: 1994 Class B125. The cover shall be black in colour and marked with the manufacturers name and legend 'Traffic Signals'.
7. The cover must have an integral anti-skid/slip pattern on the upper surface.
8. The frame must be tilt and height adjustable to the finished surface level and must have a flange that maintains the opening size of the chamber. To avoid distortion, fit frame before backfilling. The frame must be supported on the concrete surround of the chamber on a bed of mortar. No rocking or movement will be permitted in the frame of the cover.
9. The chamber, when installed in its concrete surround, shall withstand 50kN sheer and side wall loadings.
10. Chambers, frames and covers must be of the same approved manufacturer, and installed in accordance with this standard detail and the manufacturers guidelines.
11. Chambers and covers shall not be installed within tactile paved areas.
12. Chambers, when completed, must be internally free from any debris.
13. Chambers will be specified as 'AC/1/Length'. E.g.:
290 x 275 - AC/1/290
450 x 450 - AC/1/450
600 x 600 - AC/1/600
450 x 900 - AC/1/900
14. This drawing is to be read in conjunction with other issued contract drawings.

For Maintenance Works Only

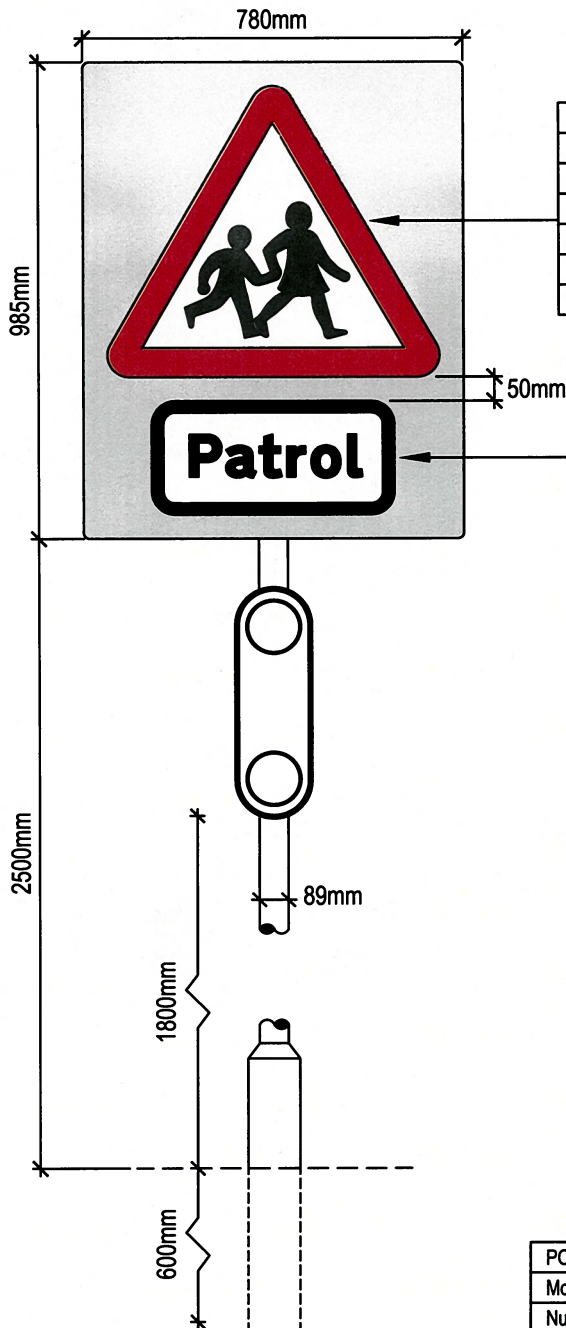
This type of Traffic Signal Chamber is not to be used unless specified by the BMBC Traffic Signals Engineer as part of maintenance works.



Drawing

Note

1. All signing to be in accordance with the Traffic Signs Regulations and General Directions 2002 and its amendments. If any more details required, working drawings may also be of use. Copies are available from the Department for Transport website or contact the BMBC Traffic Signals Engineer.
2. Flashing Amber Warning Light to be of high vandal resistance, fitted with LED aspects and operative via an automatic 'Microtimer' device (or similar approved by BMBC Traffic Signals Engineer)
3. 'Patrol' text to Diag. No. 547.1 may be amended to 'School' text (Diag. No. 546) at BMBC Traffic Signal Engineers discretion. Refer to scheme drawings for details.
4. The distance between the edge of the carriageway and sign face to be a minimum of 500mm.
5. All signs face materials to comply with BS EN 12899-1:2007.



SIGN PLATE DETAILS			
Scheme Ref.:	Standard Detail		
Sign Ref.:	Diag. No. 545	x-height:	N/A
Letter/Symbol:	Black	SIGN PLATE SIZE	
Background:	White	Width:	670 mm
Border:	Red	Height:	600 mm
Material:	Class R3A + Protective Overlay Film		
		Area:	0.40 sq.m

Sign Detail (Diag. no. 547.1):	
Text:	Black
Background:	White
Border:	Black
x -height:	62.5mm
Material:	Class R3A + Protective Overlay Film

SIGN PLATE DETAILS			
Scheme Ref.:	Standard Detail		
Sign Ref.:	Backing Board	x-height:	N/A
Letter/Symbol:	N/A	SIGN PLATE SIZE	
Background:	Grey	Width:	780 mm
Border:	N/A	Height:	985 mm
Material:	Non-reflective + Protective Overlay Film		
		Area:	0.77 sq.m

POST(S) & FOUNDATION DETAILS			
Mounting Height:	2500 mm	Bases:	Individual
Number:	1	Base Width:	1000 mm
Size:	88.9 x 4.0 CHS	Base Length:	1000 mm
Length:	4235 mm	Base Depth:	600 mm
Centres:	N/A	Base Vol.:	0.60 m3
Illumination:	Yes	Earth Cover:	150 mm



BARNSLEY
Metropolitan Borough Council

Drawing Barnsley Metropolitan Borough Council
Standard Detail - Traffic Signals
FAWL and Patrol Sign Arrangement

Scale

N.T.S

Drawn

D. Ellis

Date

Feb. 2013

Checked

File

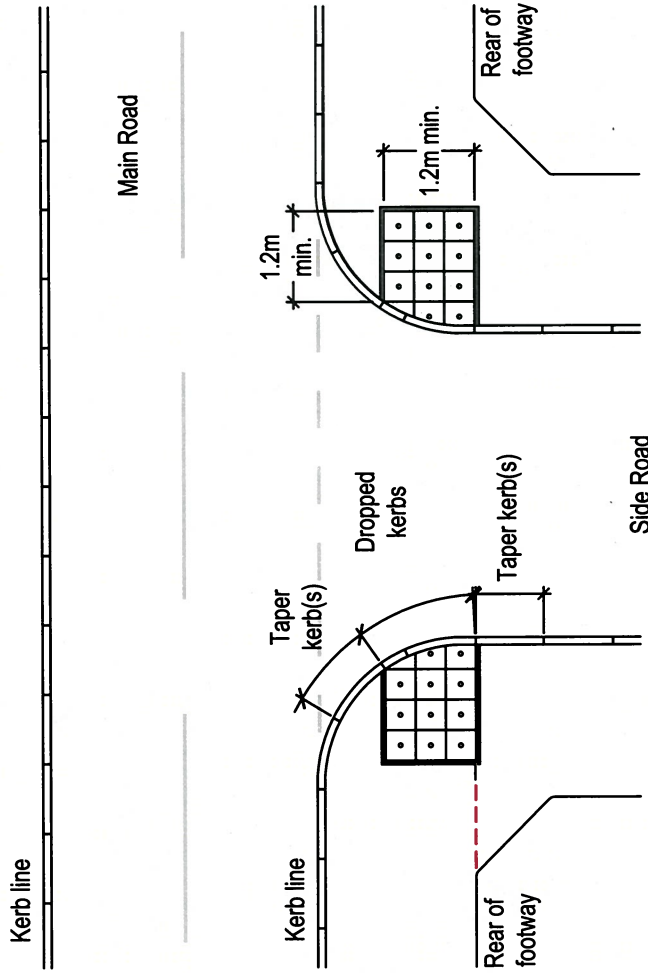
TM/SD

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Drawing No.

TM/SD/30 Rev. C

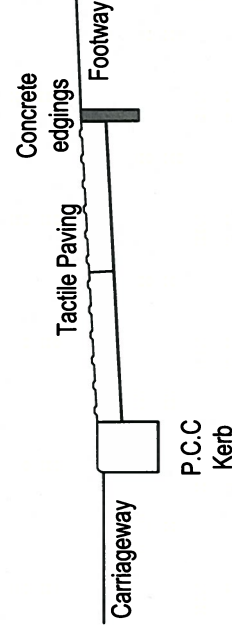
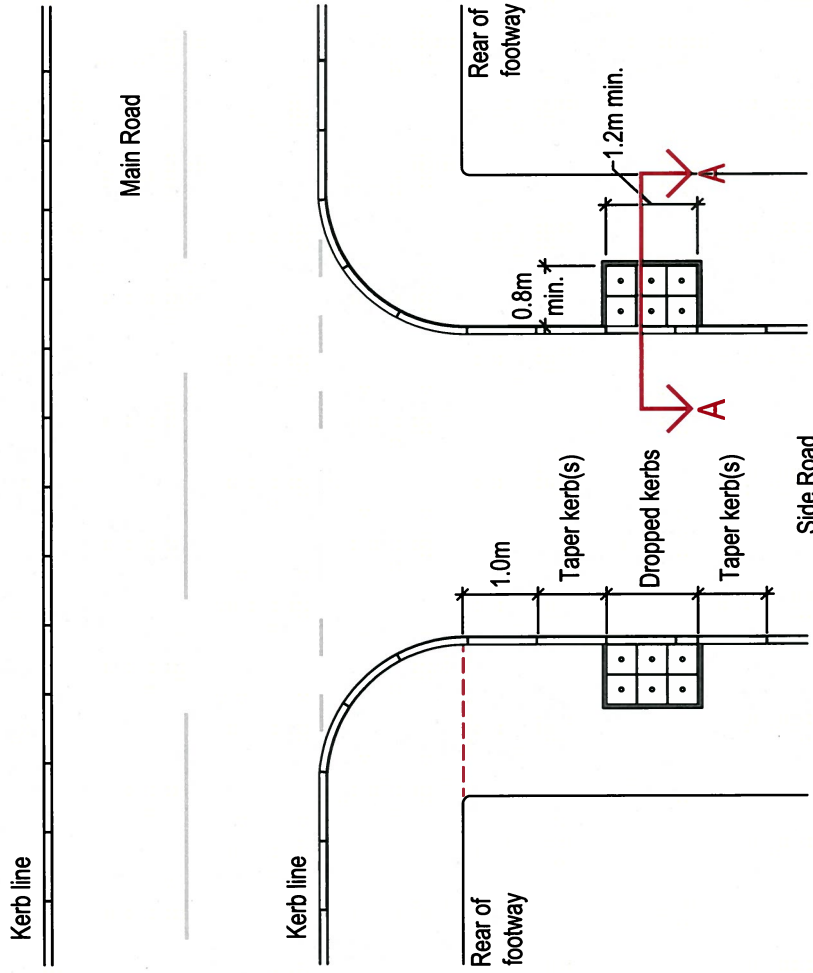
Typical In-line Uncontrolled Crossing Point



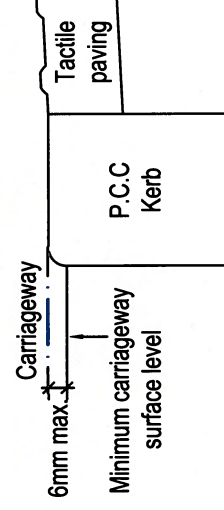
Notes

1. Paving to be in accordance with latest DfT guidance documents.
2. Target gradient for tactile crossing ramp is 1:20 (5%),. Maximum gradient 1:12 (8%) may be used (only where approved by the BMBC Traffic Signals Engineer).
3. Bull nosed kerbs to be used for pedestrian crossing areas.
4. The carriageway surface level must not be more than 6mm below the level to the top of the kerbs.
5. Where utility covers are within the tactile areas, resin-based tactile tiles should be applied to the covers to keep continuity of the tactile area. Paving to be buff in colour. Refer to scheme drawings for details.
6. This drawing is to be read in conjunction with other issued contract drawings.

Typical Inset (Indented) Uncontrolled Crossing Point



Footway Profile (Section A-A)



Flush Kerb Detail

Drawing

Barnsley Metropolitan Borough Council
Standard Detail - Traffic Signals
Uncontrolled Tactile Crossing Layout



Scale N.T.S

Drawn D. Ellis

Date Feb. 2013

Checked TM/SD

File

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Drawing No.

TM/SD/31 Rev. B

Recommended Installation for NAL RS115DFx600 Retention Socket (or similar approved by BMBC Traffic Signals Engineer). For other pole retention sockets, the depths/foundation size may vary. In all cases, always follow manufacturers installation guidelines

1. Excavate hole as shown below, 75mm deeper than the overall height of the retention socket.
2. Compact a 75mm layer of granular stone in the base of the excavation.
3. Place the retention socket in the required location, ensuring that there is at least 200mm clearance to the surround. Insert drainage tube to soak away ensuring it is not pinched or obstructed.
4. Connect the traffic signal ducting from chamber to swivel bend on retention socket.
5. Leave draw cord in base of socket bend.
6. Ensure the two stainless steel bolts do not obstruct the traffic signal pole from entering the socket.
7. Lubricate the Stainless Steel Sleeve prior to placing the levelling pole into the socket and tighten the two stainless steel bolts against the pole. Ensure the pole is vertical in both planes, using a post style spirit level.
8. Cast concrete with the lid locked in position and compact using a vibrating poker. Fill the concrete to a level to allow for the surrounding surfacing to be completed in the appropriate material (paving should be bedded on mortar). The concrete should be at least ST4/C25 mix or stronger. Re-check post is vertical and finish.
9. Once the concrete has begun to cure, carefully remove the levelling pole and replace the pedestrian plug.
10. The socket should be left for the Electrical contractors with the stainless steel sleeve in position.

Notes

1. Where the required depth for the retention socket cannot be achieved, units can be shortened on site by removing the bottom bend only and cutting the connecting shaft. Approval must be obtained from BMBC Traffic Signals Engineer prior to making any changes on site.
2. This drawing is to be read in conjunction with other issued contract drawings.

Product Specification

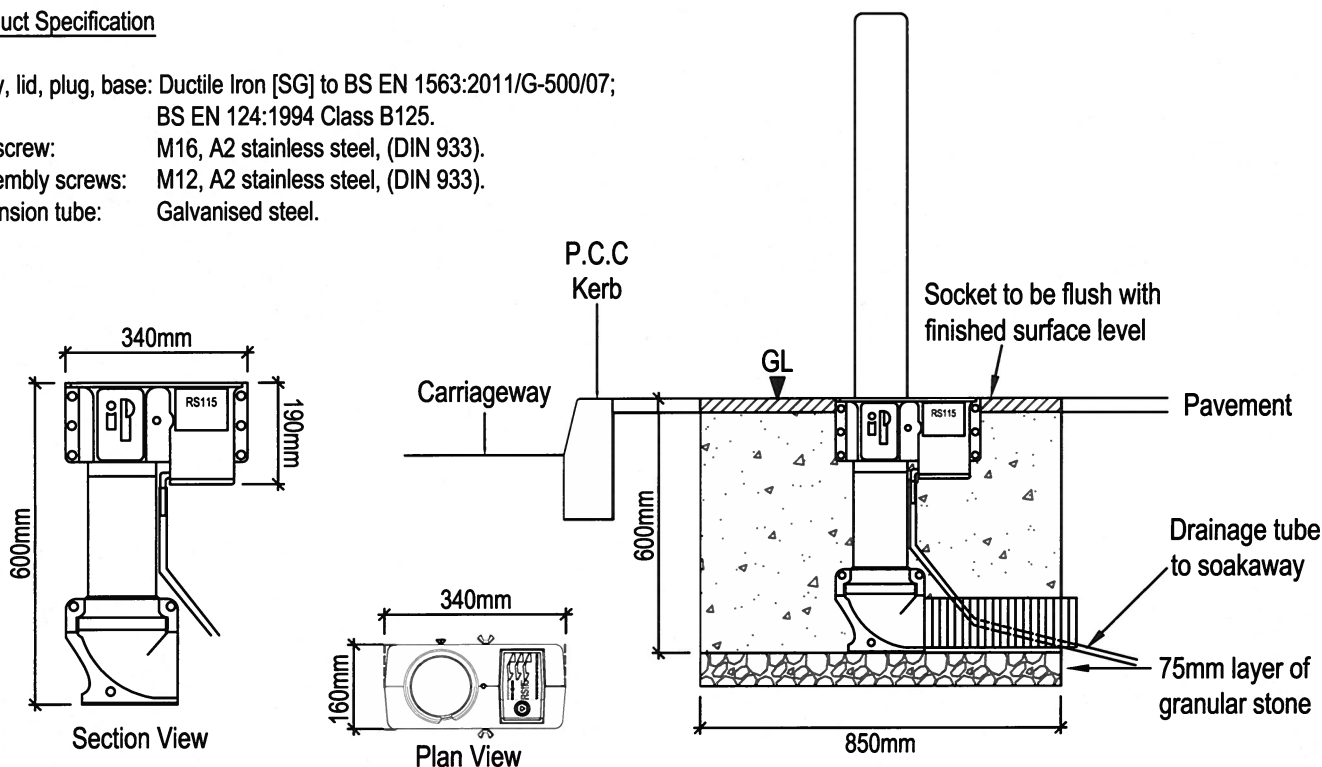
Body, lid, plug, base: Ductile Iron [SG] to BS EN 1563:2011/G-500/07;

BS EN 124:1994 Class B125.

Set screw: M16, A2 stainless steel, (DIN 933).

Assembly screws: M12, A2 stainless steel, (DIN 933).

Extension tube: Galvanised steel.



BARNSLEY
Metropolitan Borough Council

Drawing Barnsley Metropolitan Borough Council
Standard Detail - Traffic Signals
Installation of Pole Retention Socket

Scale

N.T.S

Drawn

D. Ellis

Date

Feb. 2013

Checked

File

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Drawing No.

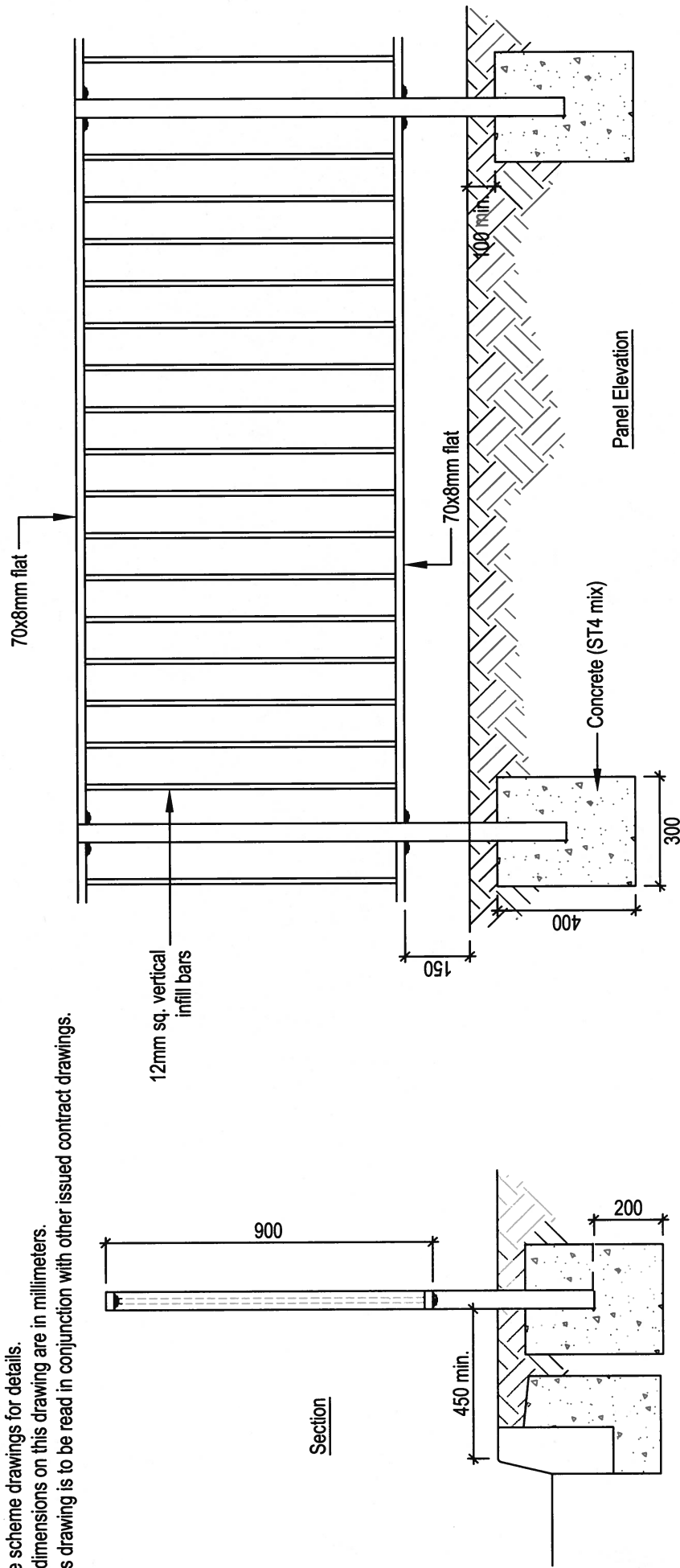
TM/SD/32 Rev. B

Notes

1. Pedestrian guardrail shall comply with BS 7818:1995. Guardrail (including all fixings) to be hot dip galvanised to BS EN ISO 1461:2009.
2. Specifically designed posts and corner posts are to be used. All guardrail components to be pre-fabricated.
3. Top and bottom rails to be bolted to adjacent posts for ease of replacement. Infill bars are to be placed at equally spaced intervals.
4. The offset from the kerb face to the outside of the guardrail is to be a minimum of 450mm.
5. Details shown are for illustrative purposes only. Guardrail must be installed in accordance with the manufacturers instructions.
6. Colour and panel layout of guardrail to be determined by BMBC Traffic Signals Engineer. See scheme drawings for details.
7. All dimensions on this drawing are in millimeters.
8. This drawing is to be read in conjunction with other issued contract drawings.

Infill Rows	Panel Layout	Optimum Sight Angle	Typical Uses
2		2.5° to 5°	Straight roads, moderate to high speeds.
4		5° to 14°	Straight roads, low to moderate speeds. Curves.
8		Greater than 14°	Curves less than 15m radius e.g. bellmouths

Plan Sections

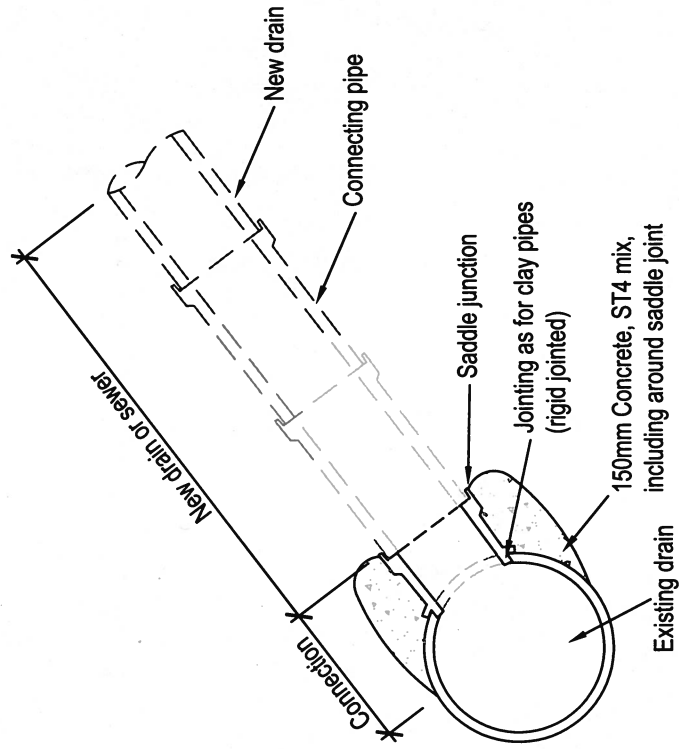


Drawing

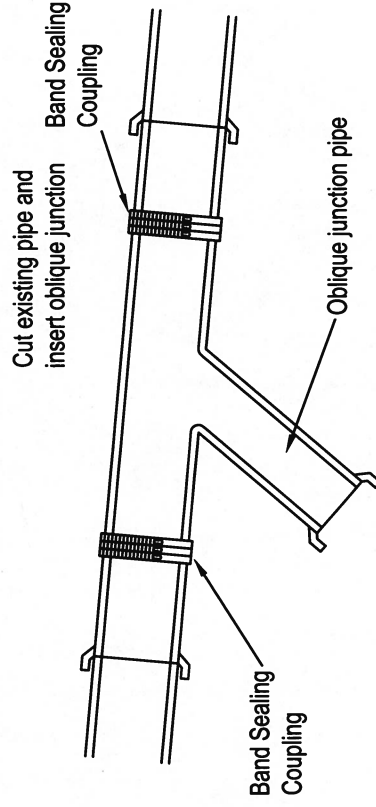
Notes

1. Propriety couplings shall be fitted in accordance with manufacturers instructions.
2. Clamping bands shall be manufactured from 300 Series austenitic stainless steel.
3. This drawing is to be read in conjunction with other issued contract drawings.

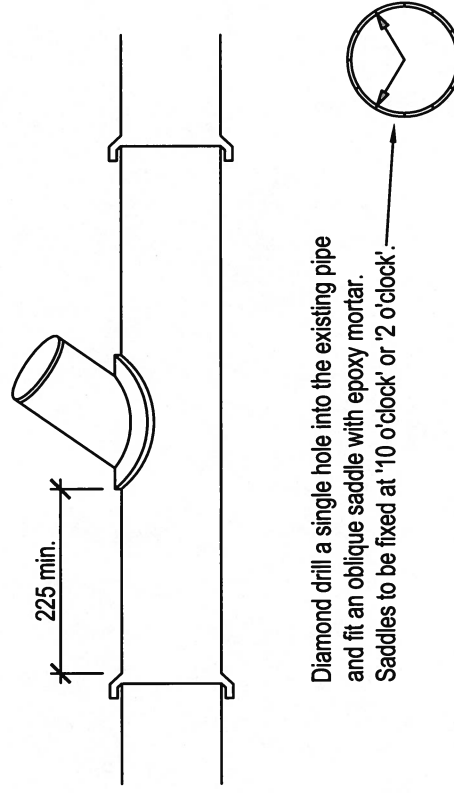
Saddle Connection



Oblique Junction Connection/Band Sealing Coupling Existing pipe diameter (225-300mm)

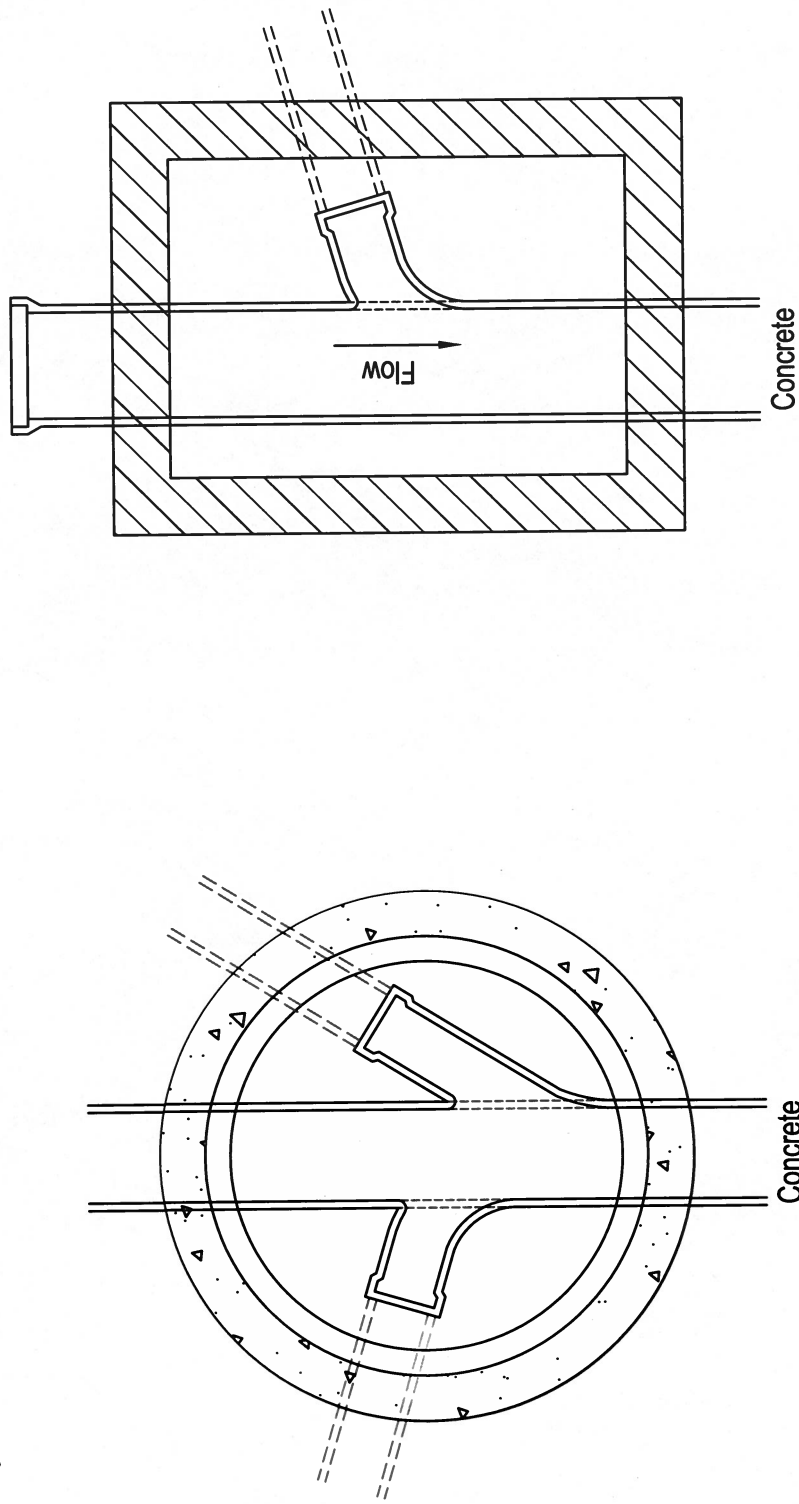


Oblique Saddle Pipe diameter (375-750mm)



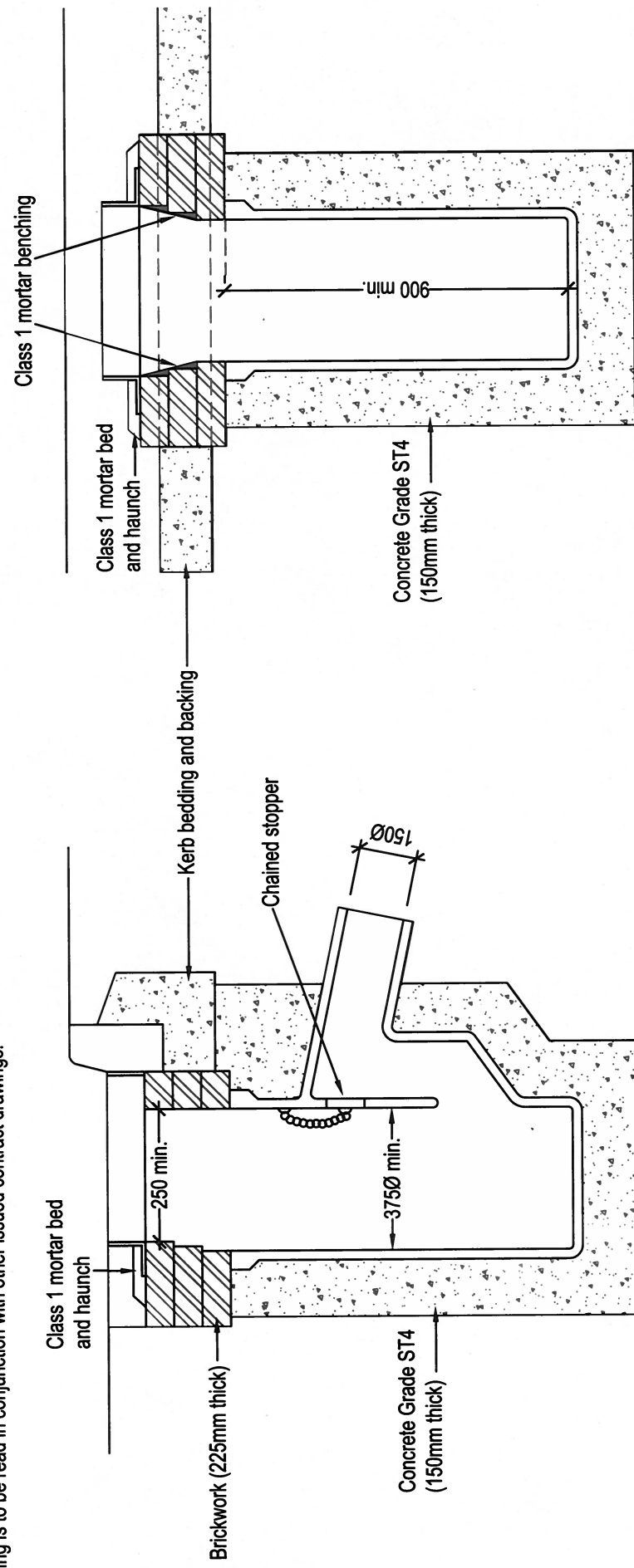
Notes

1. Main and side channels to be cut away and trimmed as required.
2. Connection at 0-45° to main flow to be executed as straight channel.
3. Connection over 45° to main flow to be executed as bend.
4. All connections to include additional trimming of pipes and benching
5. Unless otherwise required by the Contract, soffit of side connection(s) to be level with soffit of main inlet pipe.
6. Benching to be carried vertically up to level of top of pipes and all exposed surfaces forced smooth with 20mm thick sand/Class 1 cement mortar.
7. This drawing is to be read in conjunction with other issued contract drawings.



Notes

1. Gully gratings, kerb type gully's and frames shall conform to BS EN 124:1994 Class D400.
2. Brickwork shall conform to sub-clause 507.3 of the Specification for Highway Works.
3. Frames shall be bedded on a mortar complying to sub-clause 507.16 of the Specification for Highway Works.
4. All gratings and frames to be supplied with a suitable hinge arrangement or anti-theft device to prevent lifting out.
5. The minimum depth from the top of the gully grating to the top of the gully outlet is to be 750mm when the connecting pipe is under a carriageway or a hard shoulder. Depth to 600mm elsewhere.
6. Gully grating and frame are to be set 6mm below the designed finished road level.
7. Gully grating and frame to be located centrally over the gully pot.
8. All dimensions on this drawing are in millimeters.
9. This drawing is to be read in conjunction with other issued contract drawings.



 BARNSLEY Metropolitan Borough Council		Bamsley Metropolitan Borough Council Standard Detail - Traffic Signals Typical Gully Installation (Permitted Design Group 1)		David Finnegan, Interim Assistant Director Environmental Services, Westgate Plaza One, Westgate, Barnsley, S70 2DR Tel: (01226) 773555 Fax: (01226) 772110	
		Scale N.T.S.	Date Mar. 2013	Drawn D. Ellis	Checked TM/SD
		Drawing No.		BCD/530 Rev. F	

Precast Concrete Kerb, Channel, Quadrant and Edging Specification

1. Precast concrete kerbs, channels, quadrants and edgings shall comply to with Clause 1101 of the Specification for Highway Works. They shall be laid and bedded in accordance with BS 7533-6 on a mortar bed on a concrete pavement slab, a base or ST4 in accordance with BS 8500-2:2006+A1:2012.
2. Kerbs, edgings and quadrants shall be laid with their tops horizontal in a transverse direction. Channels, the underside of their foundation and the underside of kerb foundations shall be laid to the same crossfall as the adjacent pavement. The depth 'D' of foundations shall be measured to the face of the kerbs.
3. Unless shown on the scheme drawings, kerbs, channels and quadrants shall be laid with open joints having a width equal to the thickness of a trowel blade. Joints on curves or on cut lengths, which are wider than specified, shall be filled with Class 1 mortar and flush pointed.
4. Where channels are laid against a curved kerb, any gaps between the channels and kerbs and between the channel joints shall be filled with Class 1 mortar and flush pointed.
5. Cut lengths of kerb, channel or edging shall not be less than 300mm long. The use of in-situ concrete to make up lengths of kerb, channel or edging shall not be permitted.
6. The height of the kerbs above the finished carriageway surface level shall be 125mm, unless shown otherwise on the scheme drawings.
7. At drop crossings the difference in level of the kerbs cannot be accommodated by standard drop kerbs, the drop kerbs specified on the scheme drawings shall have their ends sawn to an angle with enables them to be laid so as to effect the transition in height and maintain the standard joint width.
8. Where flexible surfacing, precast concrete flags or blocks abut kerbs, channels, edging or quadrants, the dimension of 50mm to the top of the backing shall be increased by the amount which:
 - 8.a. the thickness of the flexible surfacing exceeds 60mm; or
 - 8.b. the thickness of the precast concrete flags exceeds 35mm
9. Those parts of concrete kerbs, channels and quadrants which will be in contact with the wearing course shall be painted with a tack coat of 200 pen. bitumen.
10. This drawing is to be read in conjunction with other issued contract drawings.



BARNSLEY
Metropolitan Borough Council

Scale

N.T.S

Drawn

D. Ellis

Date

Feb. 2013

Checked

File

TM/SD

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Barnsley, S70 2DR
Tel. (01226) 773555 Fax. (01226) 772110

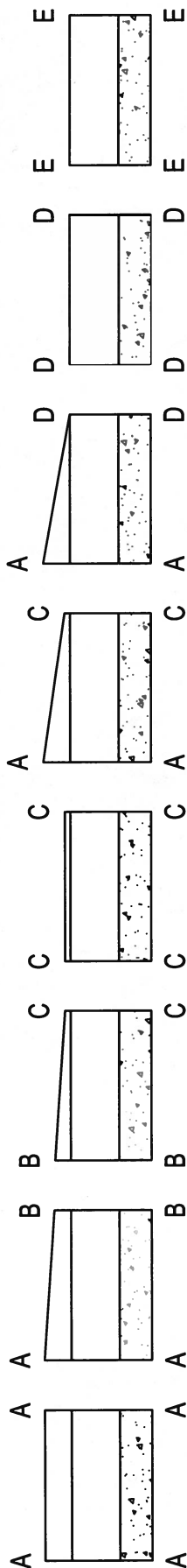
Drawing No.

BCD/1100 Rev. F

Drawing Barnsley Metropolitan Borough Council

Standard Detail - Traffic Signals

Precast Concrete Kerb, Channel, Quadrant and Edging Specification



K12/D'

K10/D'

K9/D'

K7/D'

K4/D'

K3/D'

K2/D'

K1/D'

Opposite
hand: K11

Opposite
hand: K8

Opposite
hand: K5

Opposite
hand: K6

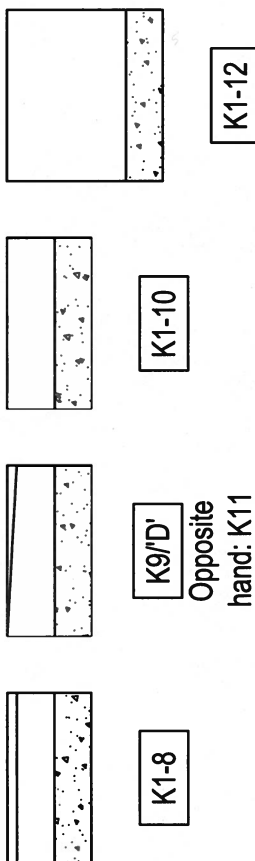
Front Elevation

Notes

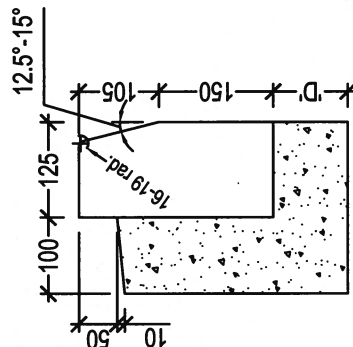
1. All dimensions on this drawing are in millimeters
2. This drawing is to be read in conjunction with other issued contract drawings



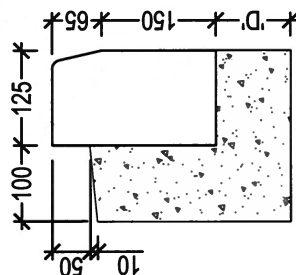
Concrete bedding
and backing



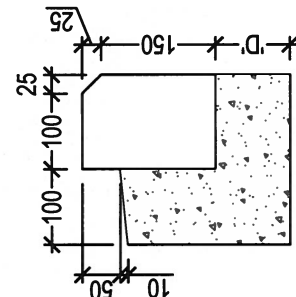
Plan View



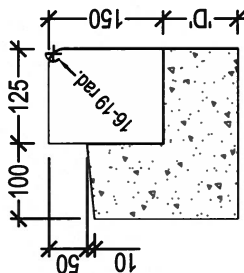
Section A-A



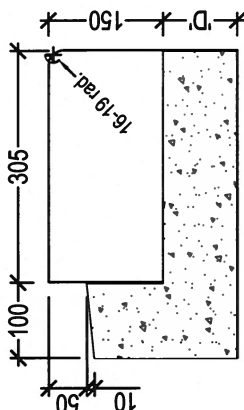
Section B-B



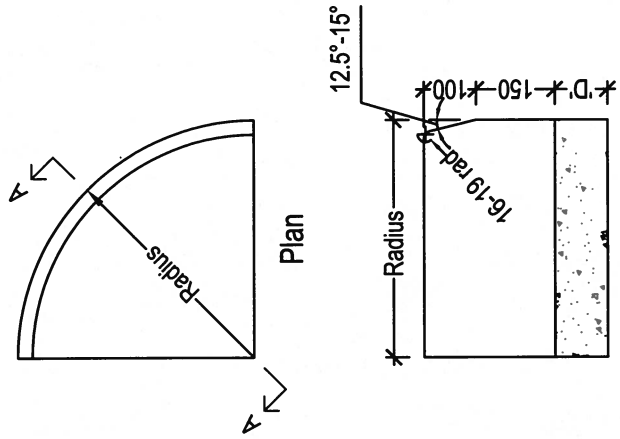
Section C-C



Section D-D

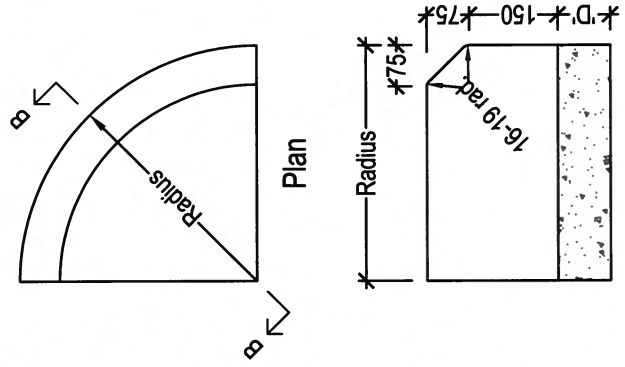


Section E-E



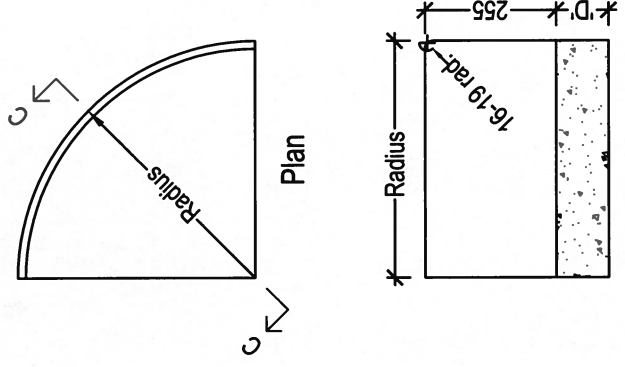
K51/'D' - 305mm radius quadrant

K52/'D' - 455mm radius quadrant



K53/'D' - 305mm radius quadrant

K54/'D' - 455mm radius quadrant



K55/'D' - 305mm radius quadrant

K56/'D' - 455mm radius quadrant

Notes

1. All dimensions on this drawing are in millimeters
2. This drawing is to be read in conjunction with other issued contract drawings



Concrete bedding
and backing



BARNSELEY
Metropolitan Borough Council

Drawing

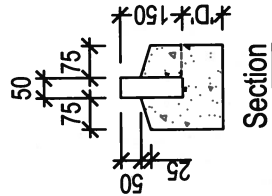
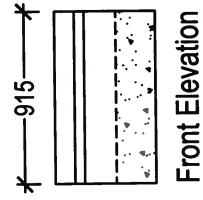
Barnsley Metropolitan Borough Council
Standard Detail - Traffic Signals

Quadrants

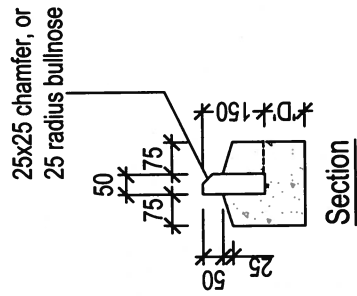
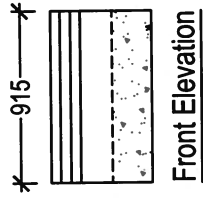
David Finnegan, Interim Assistant Director
Environmental Services,
Westgate Plaza One, Westgate,
Barnsley, S70 2DR
Tel. (01226) 773555 Fax. (01226) 772110

Scale N.T.S.
Drawn D. Ellis
Date Mar. 2013
Checked
File TM/SD
Drawing No.

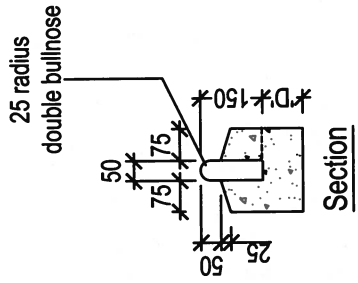
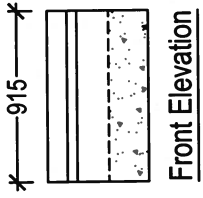
BCD/1104 Rev. E



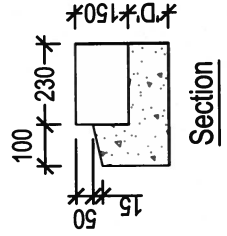
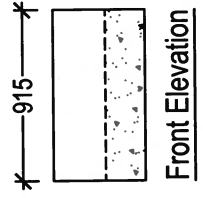
E1/D'



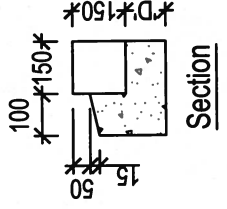
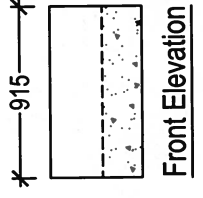
E2/D'



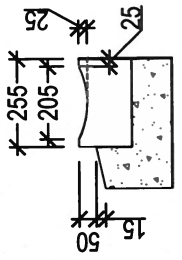
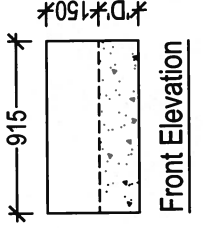
E3/D'



C1/D'



C3/D'



C3/D'

Notes

1. All dimensions on this drawing are in millimeters
2. This drawing is to be read in conjunction with other issued contract drawings



Concrete bedding
and backing



BARNLSLEY
Metropolitan Borough Council

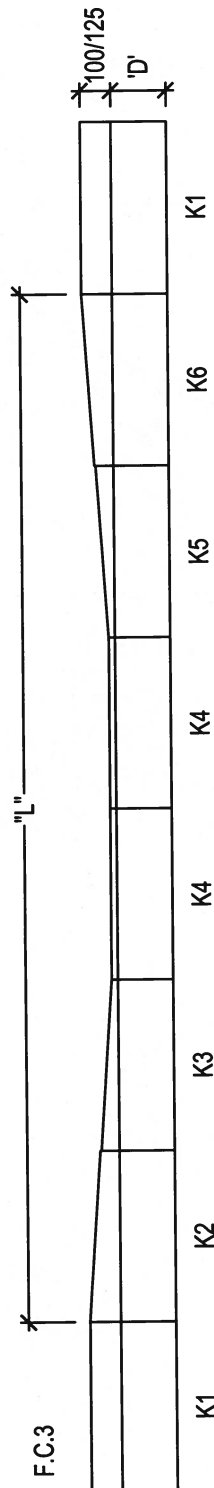
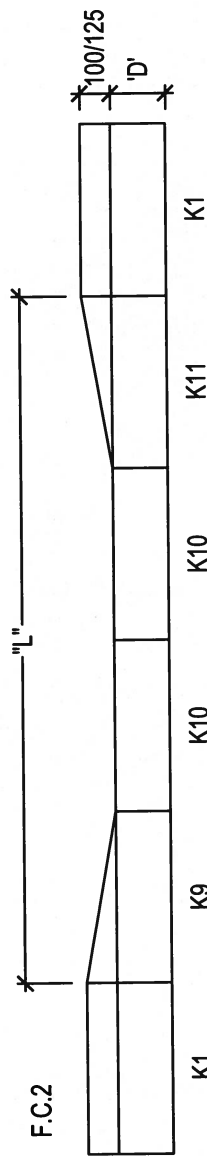
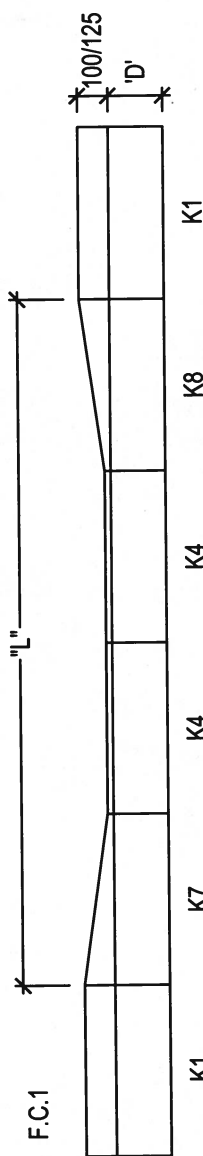
Drawing

Barnsley Metropolitan Borough Council
Standard Detail - Traffic Signals
Channelling and Edgings

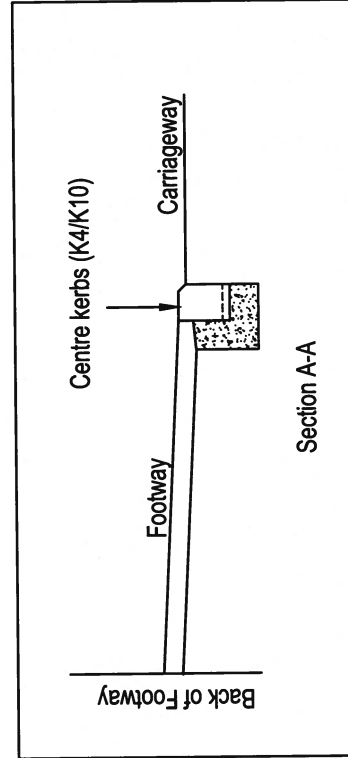
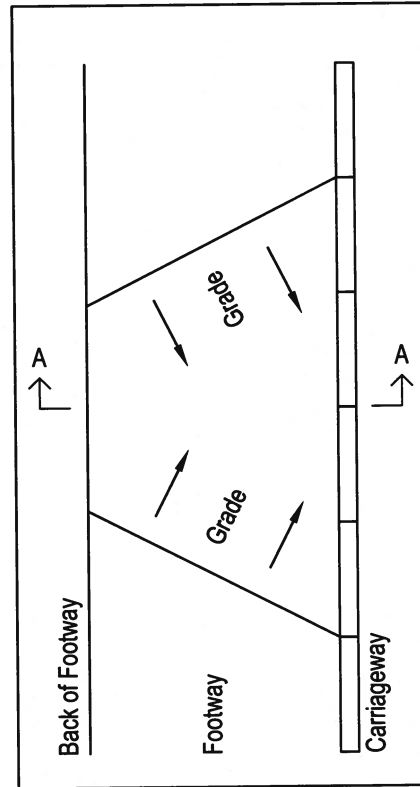
Scale N.T.S.		David Finnegan, Interim Assistant Director Environmental Services, Westgate Plaza One, Westgate, Barnsley, S70 2DR Tel. (01226) 735555 Fax. (01226) 772110	
Drawn D. Ellis	Date Mar. 2013	Drawing No. BCD/1105 Rev. D	
Checked	File TM/SD		

Notes

- Flags to be cut as required to achieve required gradient.
- Transition kerbs shall be cut at each end to form parallel sided joints with adjacent kerbs.
- Where crossings are situated on a radius, kerbs shall be cut into 2 or 3 equal lengths as required.
- Where the kerb radius is less than 4 meters, FC/2 with 1no. K10 shall be used.
- Kerb upstand of center kerbs shall be:
 - K4 - 25mm;
 - K10 - 6mm (maximum) when used with Tactile Paving.
- Kerb upstand of K1 kerbs to be 100mm or 125mm.
- Footway crossings are represented as:
F.C. 'Ref. No.' / 'Kerb foundation depth' ('D') / 'Length' ('L')
- All dimensions on this drawing are in millimeters
- This drawing is to be read in conjunction with other issued contract drawings



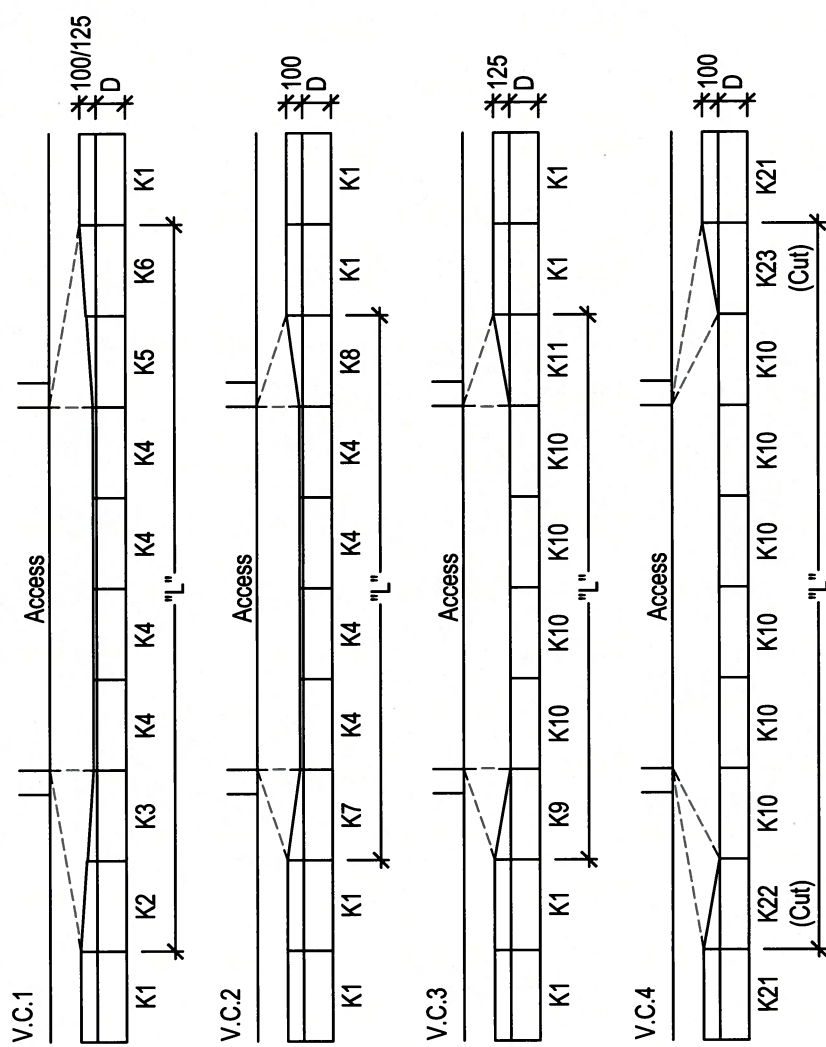
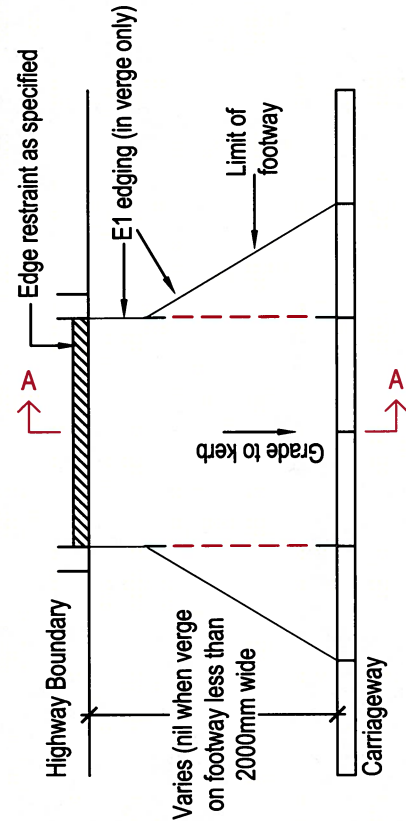
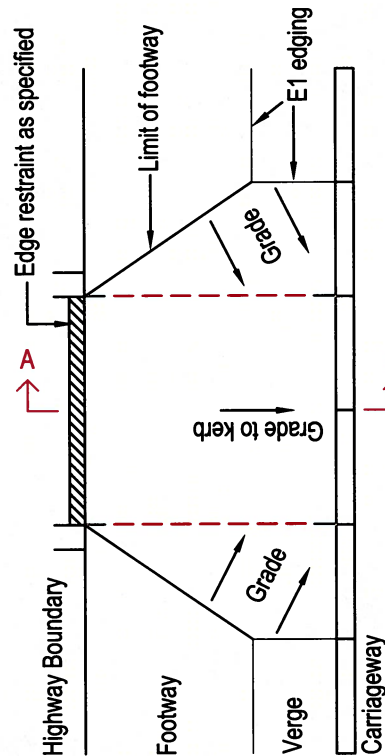
Front Elevation



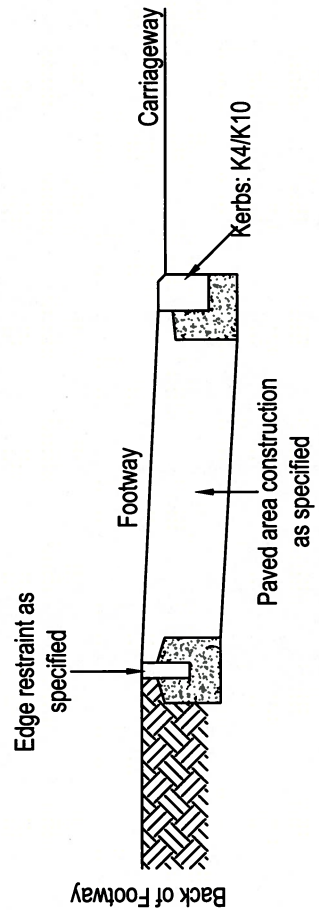
Section A-A

Notes

1. Full length kerbs units shall be used in dropped sections.
2. Dropped sections shall be symmetrical about centre of access.
3. Kerb upstand of center kerbs shall be:
 - 3.1. K4 - 25mm;
 - 3.2. K10 - 6mm (maximum) when used with Tacile Paving.
4. Kerb upstand of K1 kerbs to be 100mm or 125mm.
5. Vehicular crossings are referenced as:
V.C. 'Ref. No.' / 'Kerb foundation depth' / 'Length' ('L')
6. All dimensions on this drawing are in millimeters
7. This drawing is to be read in conjunction with other issued contract drawings



Front Elevation



Barnsley Metropolitan Borough Council
Standard Detail - Traffic Signals
Ramped Vehicular Crossing

Scale	N.T.S
Drawn	D. Ellis
Checked	
Date	Mar. 2013
File	TM/SD
Drawing No.	

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BCD/1115 Rev. E