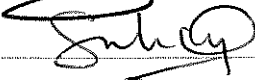


STANDARD CONSTRUCTION DETAILS

A Series - General
B Series - Highway Details
F Series - Drainage
H Series - Fencing
K Series - Traffic and Street Lighting

Document Issue Record:

Document: Contract Documents – Standard Construction Details

	Name	Signature	Date
Revised by:	L. Pendlebury		26/11/10
Checked by:	D. Giblin		26/11/10
Authorised by:	S. Ong		26/11/10

Engineer: S.L.Ong B.Sc., C.Eng., M.I.C.E., M.I.H.T.

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BL8 9GL

Tel : 0161 253 7799
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E-mail: engcon@bury.gov.uk
Internet: www.bury.gov.uk

CONSTRUCTION DETAILS**LIST OF DRAWINGS****Drawing No.****A Series - General**

A100 Project Information Board

B Series – Highway Details**100 Series - Carriageway Construction Details**

B100 Typical Carriageway and Footway Detail
B101 Typical Carriageway Construction and Reinstatement Details
B102 Block Paving and Sett Paving Construction Details
B103 Reinforced Concrete Bus Lay-By
B104 Carriageway Edging, Concrete Vehicular Crossing and Dished Flag Footway
B105 Carriageway Tie-In and Construction Joint Details

200 Series - Kerb and Paving Details

B200 Kerb, Edging and Channel Block Details
B201 Edge Details
B202 Arrangements for Flag Paving to Radius Kerbs
B203 Block Paved Rumble Strip
B204 UTC Standard Installation (Two Way Traffic Flow)
B205 UTC Standard Installation (One Way Traffic Flow)

300 Series - Highway Feature Details

B300 Dropped Kerb Crossing
B301 Beany Block Dropped Kerb Crossing
B302 Speed Table
B303 S-Ramp Speed Table
B304 Road Humps
B305 Speed Cushion
B306 Raised Junction Tables
B307 Mini-Roundabout
B308 Block Paving Chevron Markings for Normal Roundabouts
B309 Central Pedestrian Refuge
B310 Staggered Puffin Crossing

B311	Build Out Details
B312	Dragons Teeth Entry Markings
B313	Carriageway Markings for Bus Stops

400 Series - Highway Furniture Details

B400	Street Nameplate
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F Series - Drainage

F100	Manhole - Variable Features
F101	Manhole Type 1 - Pipes n.e. 825mm dia. Depth to Benching <6.0m
F102	Manhole Type 2 - Circular Precast Concrete <1.5m to Soffit
F103	Manhole Type 3 - Brick Manhole <1.5m to Soffit
F104	Manhole Type 4 - Rectangular Precast Concrete <1.5m to Soffit
F105	Manhole Type 5 - Rectangular Precast Concrete (No Entry) <1.5m to Soffit
F106	Manhole Type 6 - Polypropylene Inspection Chamber (No Entry) <1.5m to Soffit
F107	Catchpit Manholes
F108	Standard Dropshaft
F109	Rodding Eye
F110	Gully Details – Type P1 to P5
F111	Gully Details – Type P6
F112	Gully Details – Type P8 and P9
F113	Gully Details – Type P10
F114	Gully Details – Type P11
F115	Gully Details – Type P12 and P13
F116	Pipe and Ducting Bedding Details
F117	Pipe Bedding Details - Filter Drains
F118	French Drain Details
F119	Trench Reinstatement Details
F120	Footway Reinstatement Details
F121	Service Duct Protection, Manhole Adjustment / Replacement
F122	Typical Pipe Outfall

H Series - Fencing

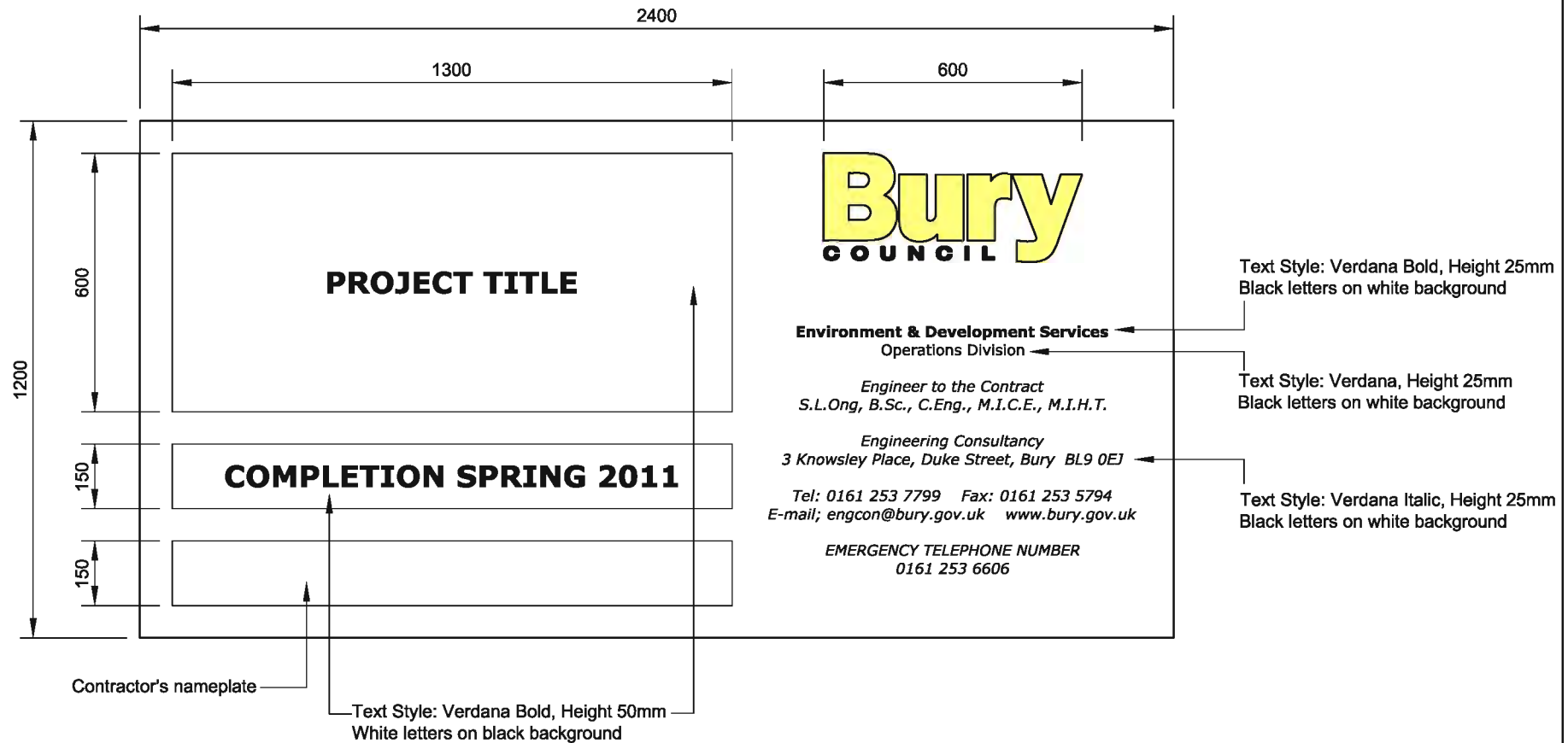
H100	Strained Wire Fence with Concrete Posts
H101	Strained Wire Fence with Timber Posts
H102	Timber Post and Rail Fence
H103	Stockproof Fencing

H104	Timber Boarded Fence
H105	Field Gates
H106	Stiles
H107	Visirail Pedestrian Guardrail
H108	Tubular Steel Handrail
H109	Knee High Diamond Rail Timber Fence

K Series – Traffic and Street Lighting

K100	Installation of Traffic Sign
K101	Lighting Columns, Brackets and Lanterns
K102	Installation of Traffic Pole
K103	Carriageway Loop Box
K104	Advance Warning and End of Road Works Signs

A Series – General



NOTES

1. The number of boards required for the project is stated in the Bill of Quantities.
2. Boards to be mounted and sited on site as directed by the Engineer.

BURY LOGO

Self adhesive overlay provided by the Contractor.
Computer image file supplied by the Employer.
Colour - Pantone 109 (100% yellow 10% magenta).
Note: the proportion of width to height of the logo must not be distorted.

Revision	Date	Description

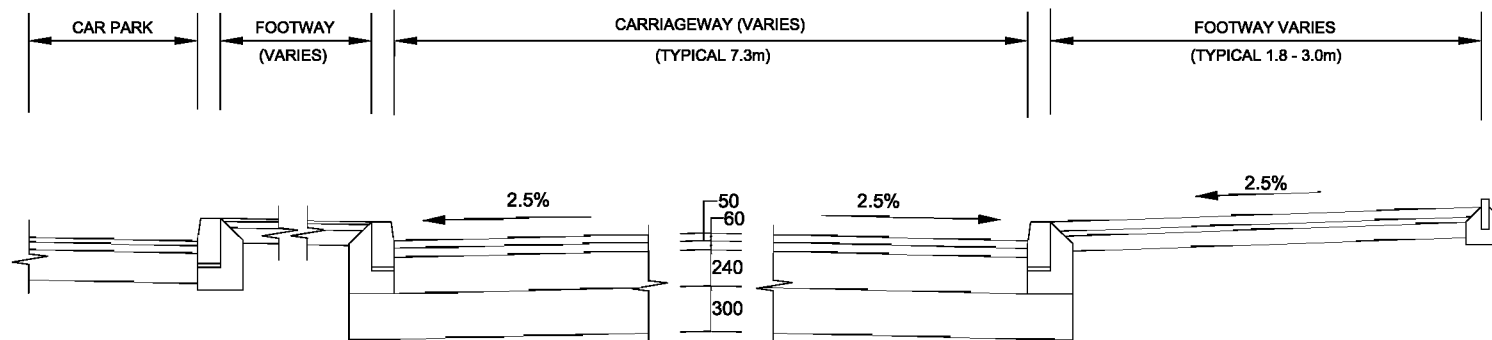
PROJECT INFORMATION BOARD

Drawing No.

A100



B Series – Highway Details



TYPICAL CARRIAGEWAY AND FOOTWAY CROSS SECTION

CAR PARK CONSTRUCTION

30mm	AC10 Close Graded Surface Course 100/150 to BS EN 13108 Part 1
50mm	AC20 Dense Binder Course 100/150 to BS EN 13108 Part 1
200mm	Granular Type 1 Sub-Base
OR	
65mm	Thick concrete block paving
35mm	Sharp Sand
200mm	Granular Type 1 Sub-Base
	Joint sand stabiliser

CARRIAGEWAY CONSTRUCTION

40mm	Hot Rolled Asphalt 30/14F Surface Course 40/60 with 20mm pre-coated chippings to BS EN 13108 Part 4
OR	
35mm	Thin Surface Course with 10mm nominal size aggregate to Clause 942 (AAV = 10max, PSV = 62 min)
60mm	AC20 Dense Binder Course 100 /150 to BS EN 13108 Part 1
240mm	AC32 Dense Base 100/150 to BS EN 13108 Part 1
300mm	Granular Type 1 Sub-Base

NOTE

Carriageway construction is in accordance with Design Manual for Roads and Bridges, Volume 7, Section 2.

FOOTWAY CONSTRUCTION (VEHICLE OVER-RUN)

20mm	AC6 Dense Surface Course 100/150 to BS EN 13108 Part 1
100mm	AC20 Dense Binder Course 100/150 to BS EN 13108 Part 1
150mm	Granular Type 1 Sub-Base
OR	
	450 x 450 x 70mm thick standard Trafica precast concrete flags
35mm	Sharp Sand
100mm	AC20 Dense Binder Course 100/150 to BS EN 13108 Part 1
150mm	Granular Type 1 Sub-Base

FOOTWAY CONSTRUCTION (PEDESTRIAN ONLY)

20mm	AC6 Dense Surface Course 100/150 to BS EN 13108 Part 1
60mm	AC20 Dense Binder Course 100/150 to BS EN 13108 Part 1
150mm	Granular Type 1 Sub-Base
OR	
	450 x 450 x 70mm thick standard Trafica precast concrete flags
35mm	Sharp Sand
150mm	Granular Type 1 Sub-Base
OR	
100mm	Wet lean Concrete CBM4 as described in the contract

PROFILE

Although cross sections generally show straight gradients from crown to channel the finished profile shall be a continuous smooth curve and unless otherwise specified the amount of springing shall be as follows:-



AMOUNT OF SPRINGING

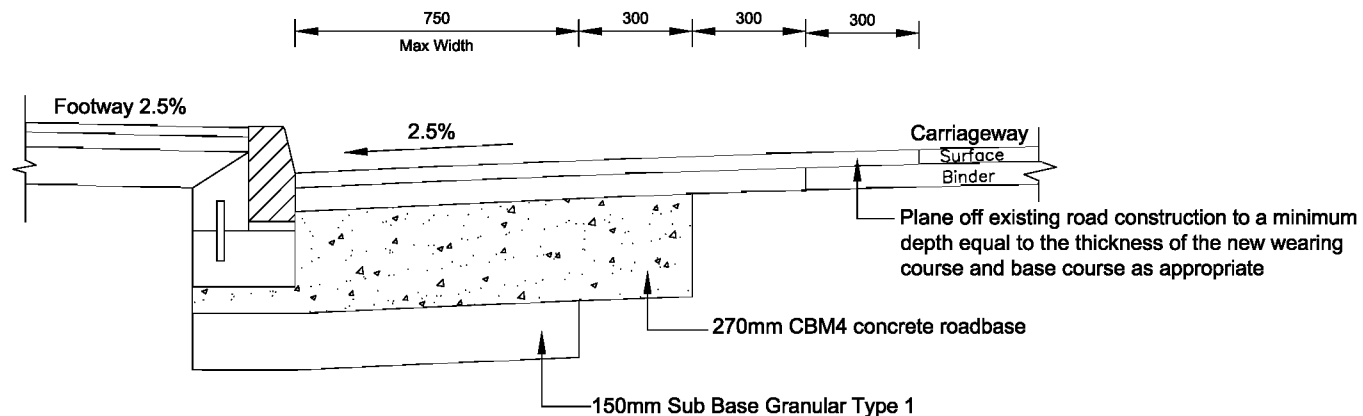
- For Two Way road with camber - $0.25 \times \text{crown}$
- For Two Way road with superelevation $\frac{1}{160} \times \text{carriageway width at centre (max 50mm)}$
0.25x centre spring at quarter point

Revision	Date	Description

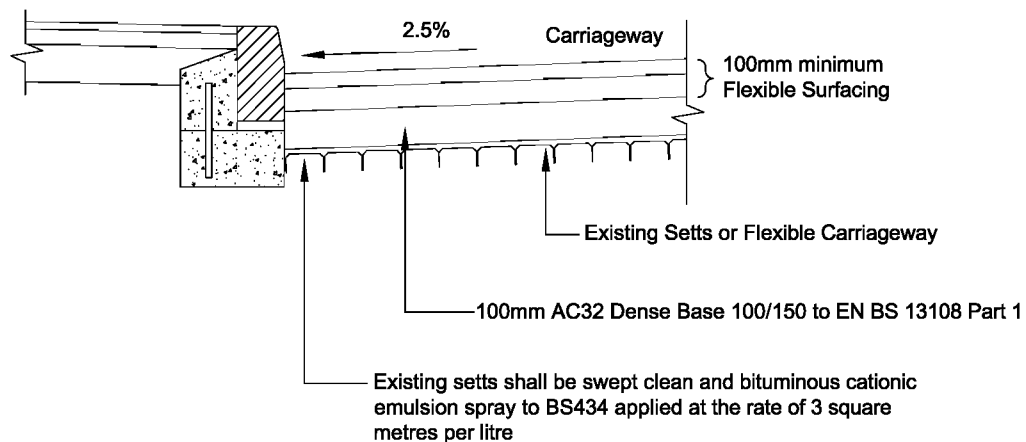
TYPICAL CARRIAGEWAY AND FOOTWAY DETAIL

Drawing No.

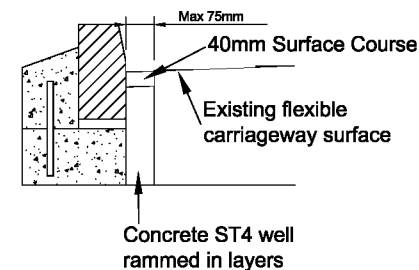
B100



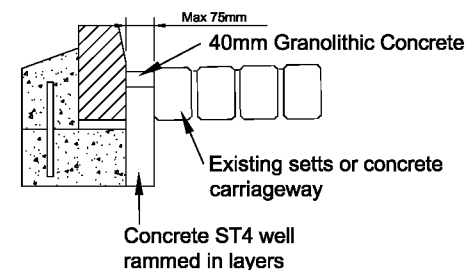
NARROW WIDTH CARRIAGEWAY CONSTRUCTION



CONSTRUCTION OVER EXISTING CARRIAGEWAY



TYPE A - FLEXIBLE



TYPE B - RIGID

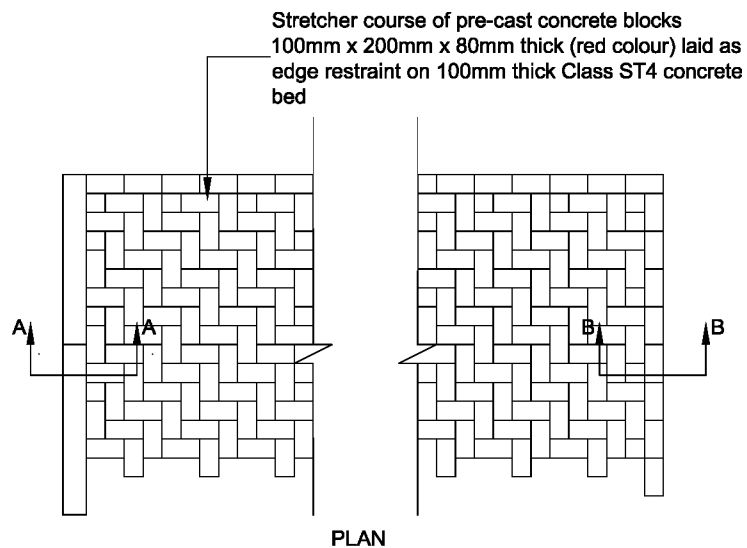
**REINSTATEMENTS OF EXISTING CARRIAGEWAY
ADJACENT TO NEW KERBS**

Revision	Date	Description

TYPICAL CARRIAGEWAY CONSTRUCTION AND REINSTATEMENT DETAILS

Drawing No.

B101



25 x 25 chamfer

300mm min

C25/20 Class concrete with reinforcement
mesh top and bottom to BS4483, Ref.
No.393 with minimum lap 450mm, 50mm
cover top and bottom and 40mm cover at
sides

150 x 225mm half battered pre-cast concrete
kerb on 25mm cement mortar on min 150mm
thick concrete Class ST1

Footway

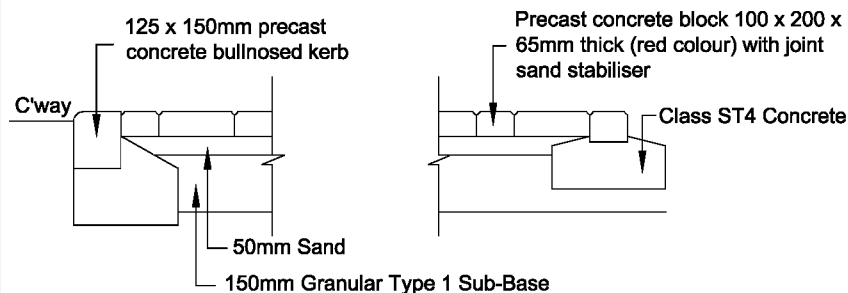
80mm precast concrete paving block

40mm sand screed with joint sand
stabiliser

200mm CBM4 concrete road-base
(upper surface tolerance ± 5 mm)

150mm Granular Type Sub-Base

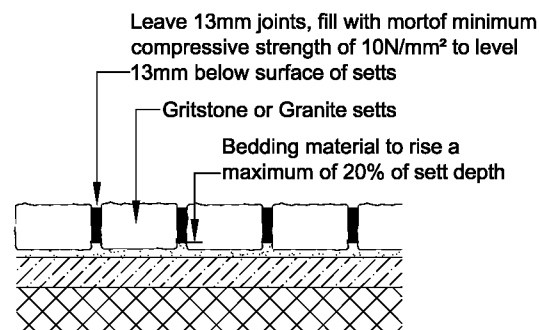
BLOCK PAVING TO BUS LAY-BY



SECTION A-A

SECTION B-B

BLOCK PAVING TO OFF STREET PARKING BAYS



SETT PAVING

CARRIAGEWAY AREAS

- Joints - Mortar with minimum compressive strength of 40N/mm²
- Bedding - 50mm cement stabilised aggregate with minimum compressive strength of 15N/mm²
- 200mm Cement Bound Material (CMB4) or AC32 heavy duty macadam base/binder 100/150
- 150mm Granular Type1 Sub-Base

PEDESTRIAN AREAS

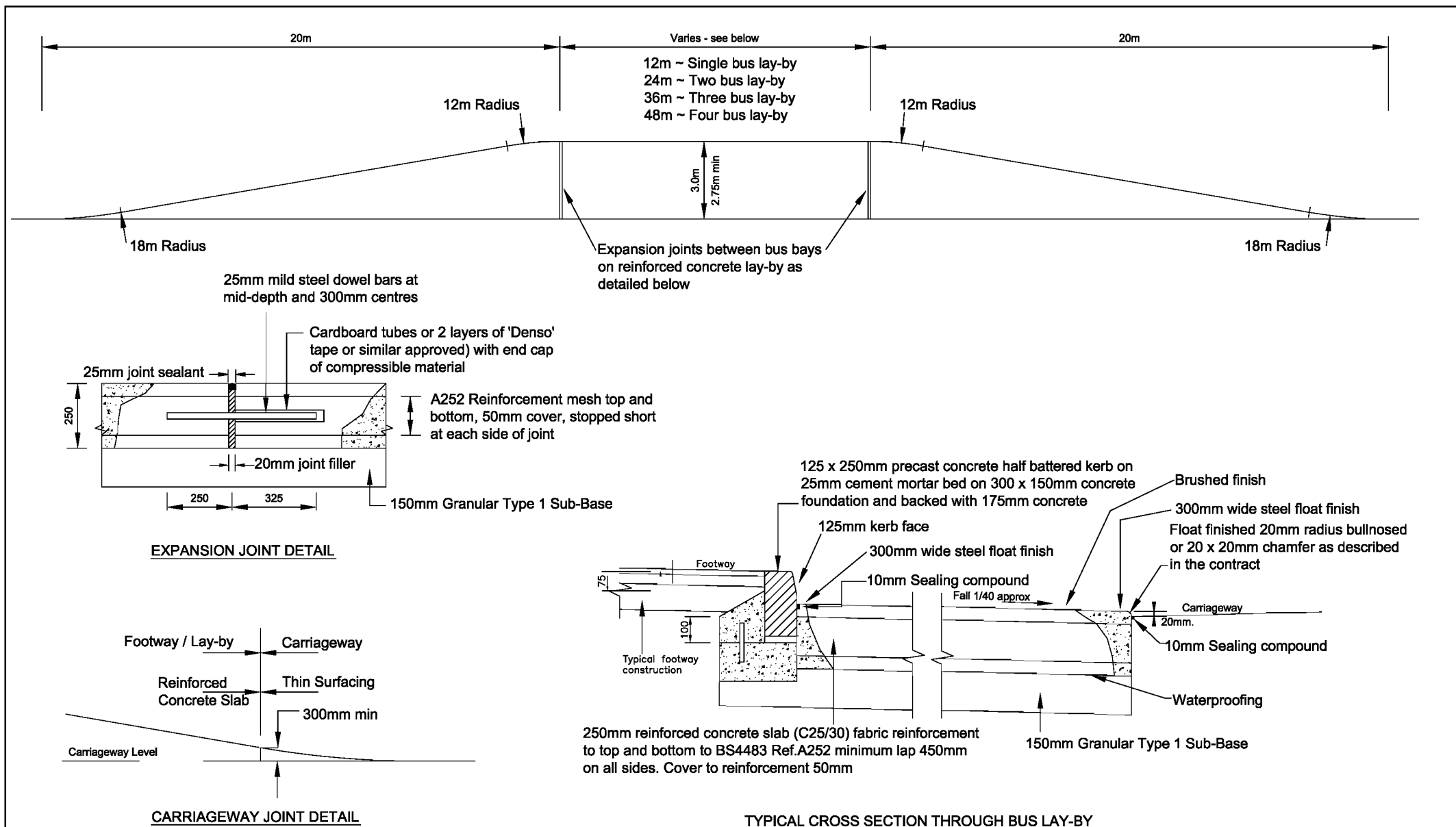
- Joints - Mortar with minimum compressive strength of 15N/mm²
- Bedding - 50mm cement stabilised aggregate with minimum compressive strength of 10N/mm²
- 100mm Cement Bound Material (CMB3) on AC32 heavy duty macadam base/binder 40/60.
- 150mm Granular Type1 Sub-Base

Revision	Date	Description

BLOCK PAVING AND SETT PAVING CONSTRUCTION DETAILS

Drawing No.

B102

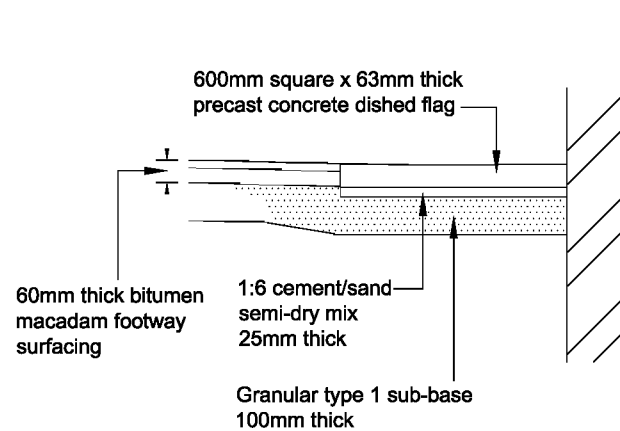


Revision	Date	Description

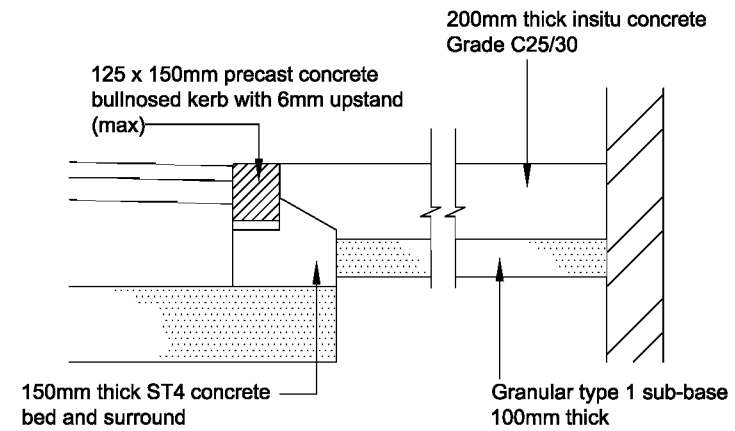
REINFORCED CONCRETE BUS LAY-BY

Drawing No.

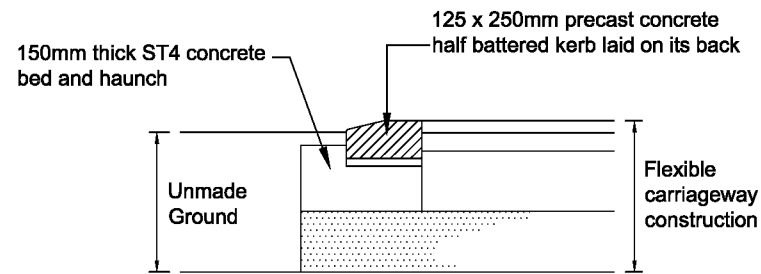
B103



DISHED FLAG FOOTWAY



CONCRETE VEHICULAR CROSSING



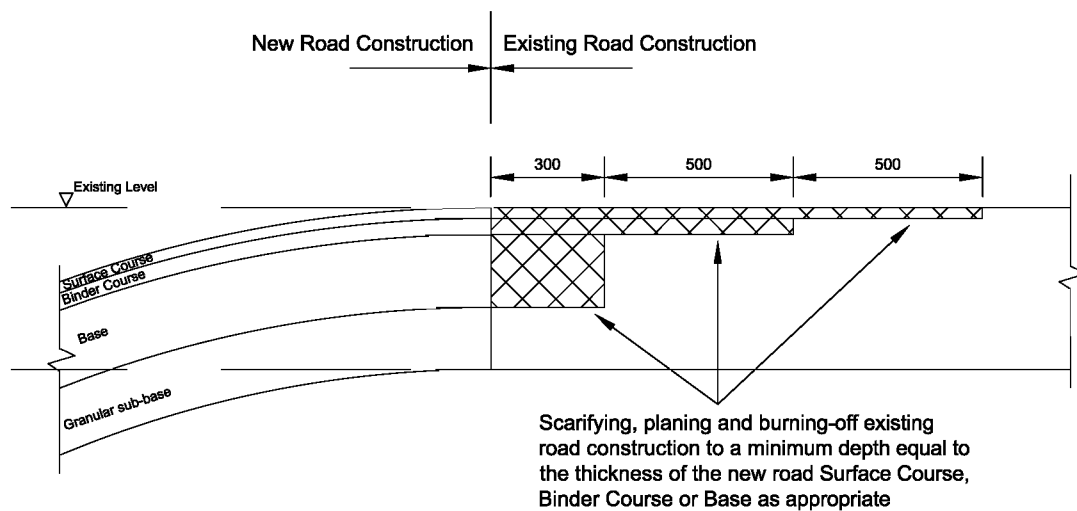
CARRIAGEWAY EDGING

CARRIAGEWAY EDGING, CONCRETE VEHICULAR CROSSING AND DISHED FLAG FOOTWAY

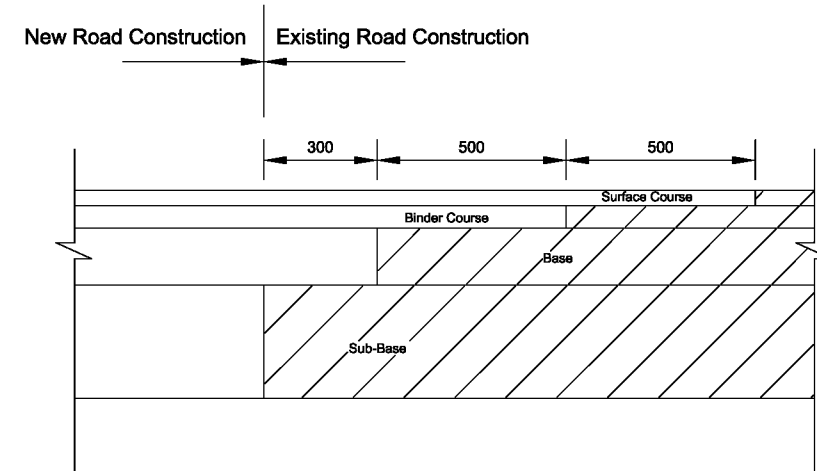
Drawing No.

B104

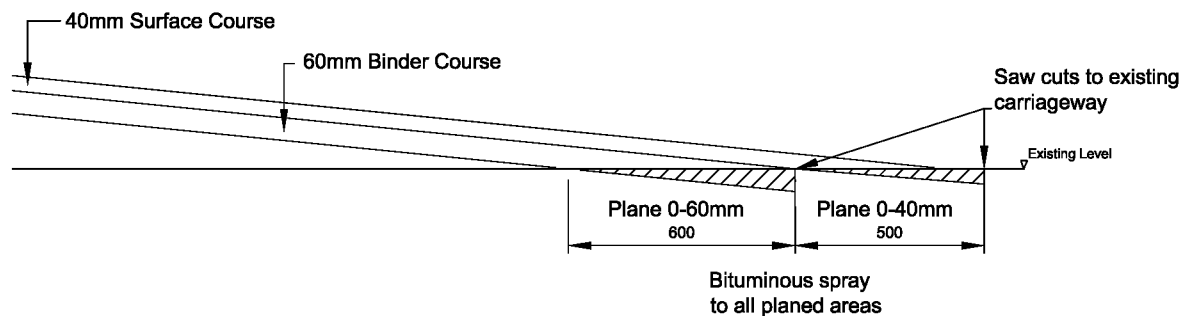
Revision	Date	Description



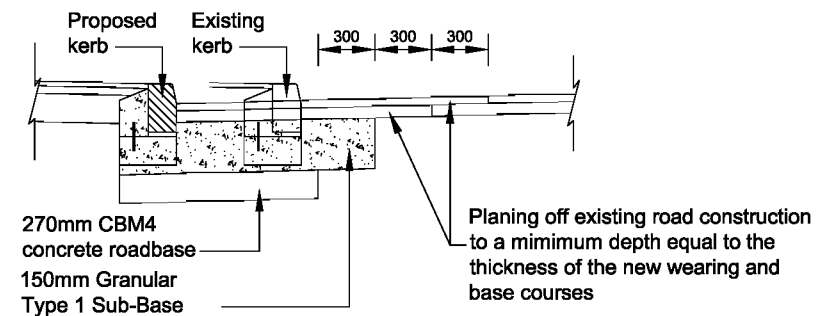
TIE-IN OF CARRIAGEWAY BELOW EXISTING



CARRIAGEWAY JOINT DETAIL



TIE-IN OF CARRIAGEWAY ABOVE EXISTING



LONGITUDINAL JOINT DETAIL

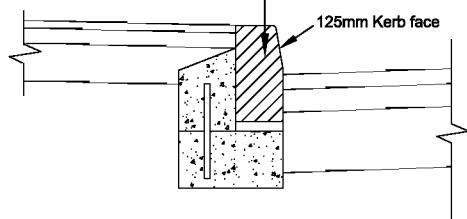
Revision	Date	Description

CARRIAGEWAY TIE-IN AND CONSTRUCTION JOINT DETAILS

Drawing No.

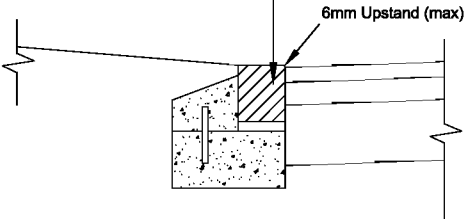
B105

150 x 305mm OR 125 x 255mm precast concrete half battered kerb on 25mm cement mortar and 275 x 150mm ST1 concrete bed with 16mm dia. x 250mm long mild steel dowel bars at 500mm centres on 150mm class ST1 concrete bed and backing



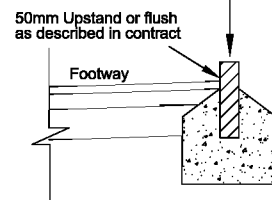
HALF BATTERED KERB

125 x 150mm precast concrete bullnosed kerb in dropped crossing on 25mm cement mortar and 275 x 150mm ST1 concrete bed with 16mm dia. x 250mm long mild steel dowel bars at 500mm centres on 150mm class ST1 concrete bed and backing

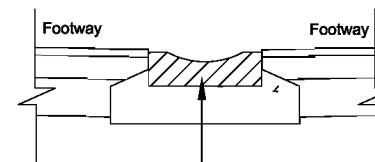


BULLNOSED KERB (IN DROPPED CROSSING)

50 x 200mm precast concrete edging on 100mm ST1 concrete bed and backing (both sides)

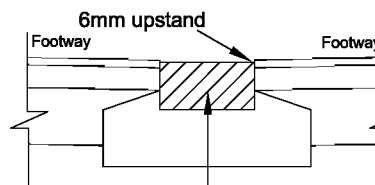


EDGING



300 x 90mm precast concrete dish channel on 100mm Class ST1 concrete bed and haunch

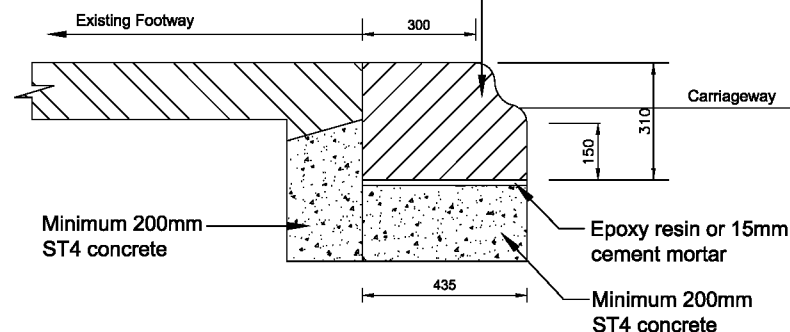
PRECAST CONCRETE DISH CHANNEL IN FOOTWAY



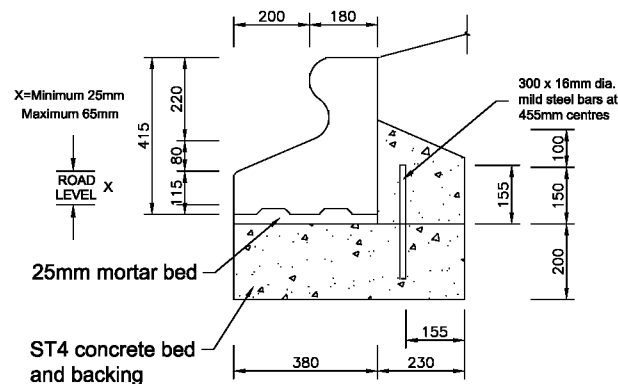
250 x 125mm precast concrete square channel on 150mm Class ST1 concrete bed and haunch

PRECAST CONCRETE SQUARE CHANNEL IN CAR PARK

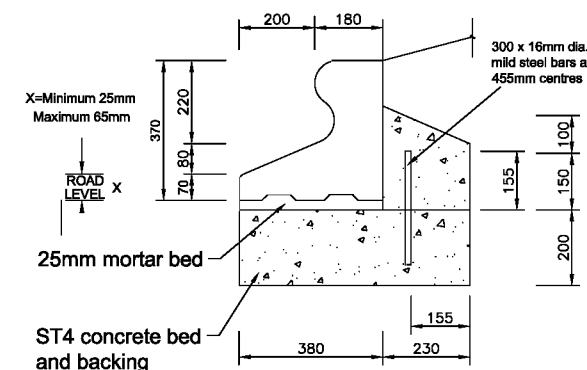
435 x 310 x 1000mm Kassel kerbs (existing carriageway in front of kerbs to be saw cut and reinstated or as described in the contract)



'KASSEL' TYPE KERB



**TRIEF SAFETY KERB DETAIL
(GST 2A PROFILE)**



**TRIEF SAFETY KERB DETAIL
(GST 2 PROFILE)**

Kassel Kerbs available from:

George Lines, Head Office and Depot, Coln Industrial Estate,
Old Bath Road, Colnbrook, Slough, Berkshire SL3 0NJ.
Tel: 01753 685354

NOTES:

1. All precast concrete units to be hydraulically pressed and shall comply with BS7263
2. All cutting of kerbs, edgings and channel blocks shall be by rotary cutter

Trief Kerb supplied by: Redland Precast, Selby Road,
Barrow-on-Soar, Loughborough, Leicestershire LE12 8LX.
Tel: 01509 812601

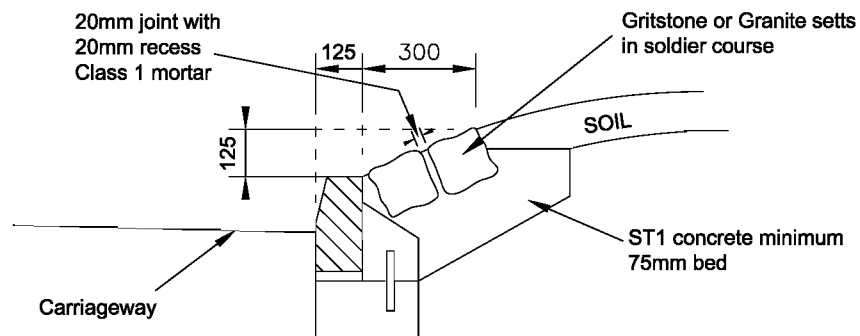
Revision	Date	Description

KERB, EDGING AND CHANNEL BLOCK DETAILS

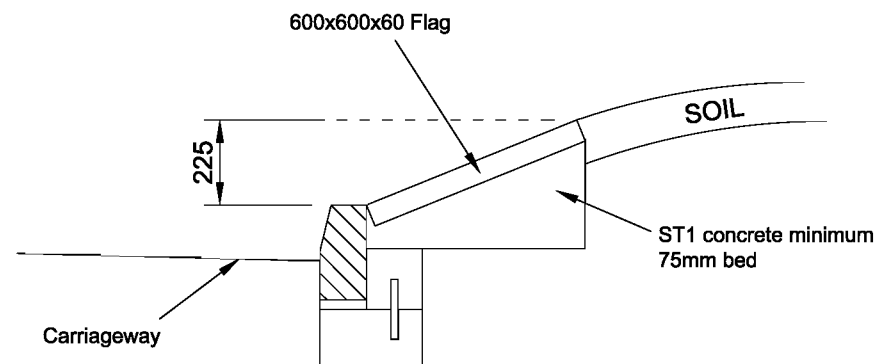
Drawing No.

B200

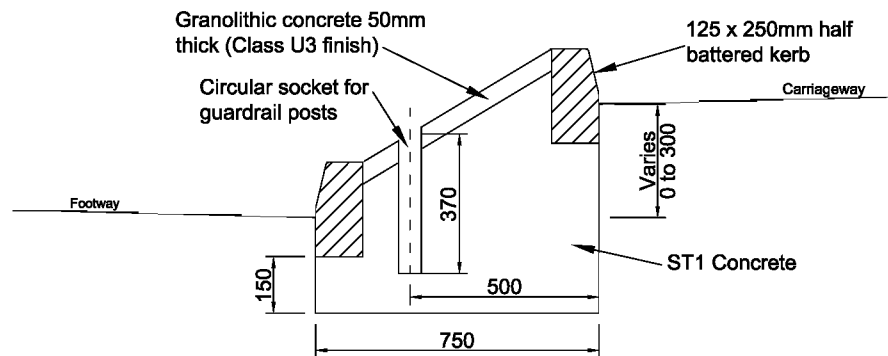
Bury
COUNCIL
Environment & Development Services
Engineering Consultancy



SETT PAVING



INCLINED PAVING



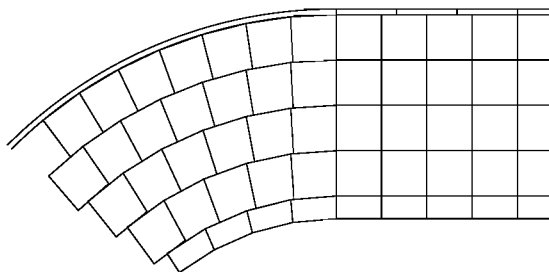
DOUBLE KERB

Revision	Date	Description

EDGE DETAILS

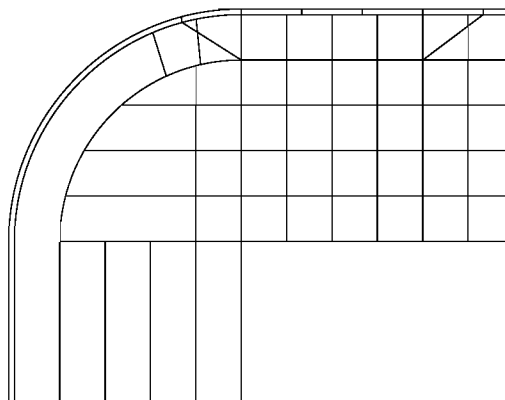
Drawing No.

B201

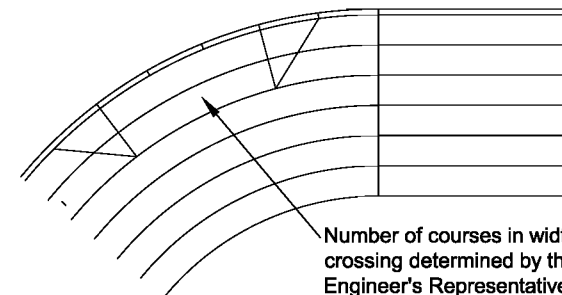


For radius between 6 to 8 metres all flags to be cut.
For radius between 8 to 12 metres alternate flags to be cut.
For radius exceeding 12 metres flags laid without cutting.

ARRANGEMENT FOR 600mm x 600mm
PRECAST CONCRETE FLAGGING LAID TO
KERBS EXCEEDING 6m RADIUS

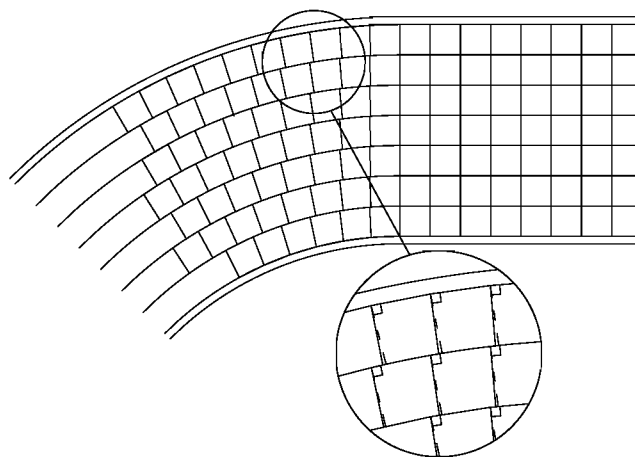


ARRANGEMENT FOR 600mm x 600mm
PRECAST CONCRETE FLAGGING LAID
TO 3m RADIUS KERBS

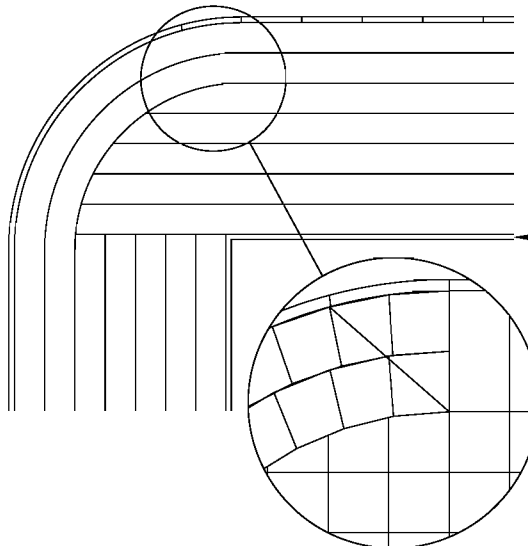


Number of courses in width of
crossing determined by the
Engineer's Representative

ARRANGEMENT DROPPED CROSSING
OVER ONE OR TWO COURSES TO
KERBS EXCEEDING 6m RADIUS

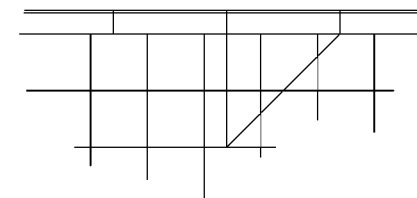


ARRANGEMENT FOR 400mm x 400mm
PRECAST CONCRETE FLAGGING LAID TO
KERBS EXCEEDING 6m RADIUS



Fillet at back of
footway not to
exceed 70mm
wide

ARRANGEMENT FOR 400mm x 400mm
PRECAST CONCRETE FLAGGING LAID
TO 3m RADIUS KERBS



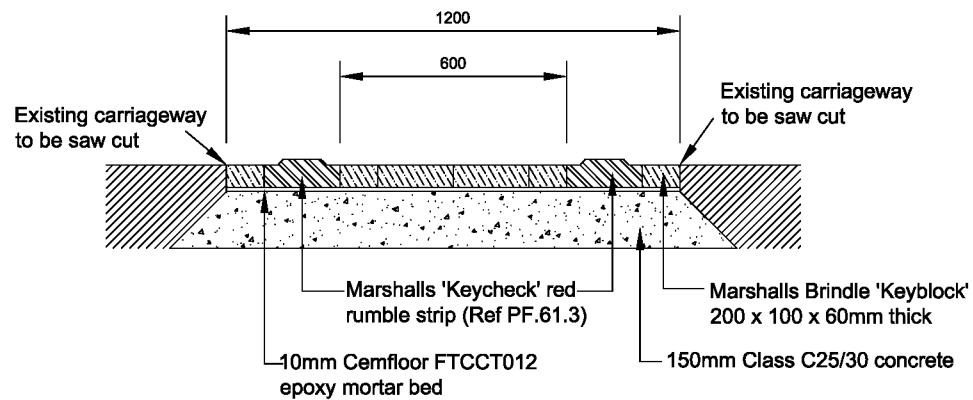
ARRANGEMENT FOR FLAG CUTTING TO
TAPER KERB

Revision	Date	Description

ARRANGEMENTS FOR FLAG PAVING TO RADIUS KERBS

Drawing No.

B202



Revision	Date	Description

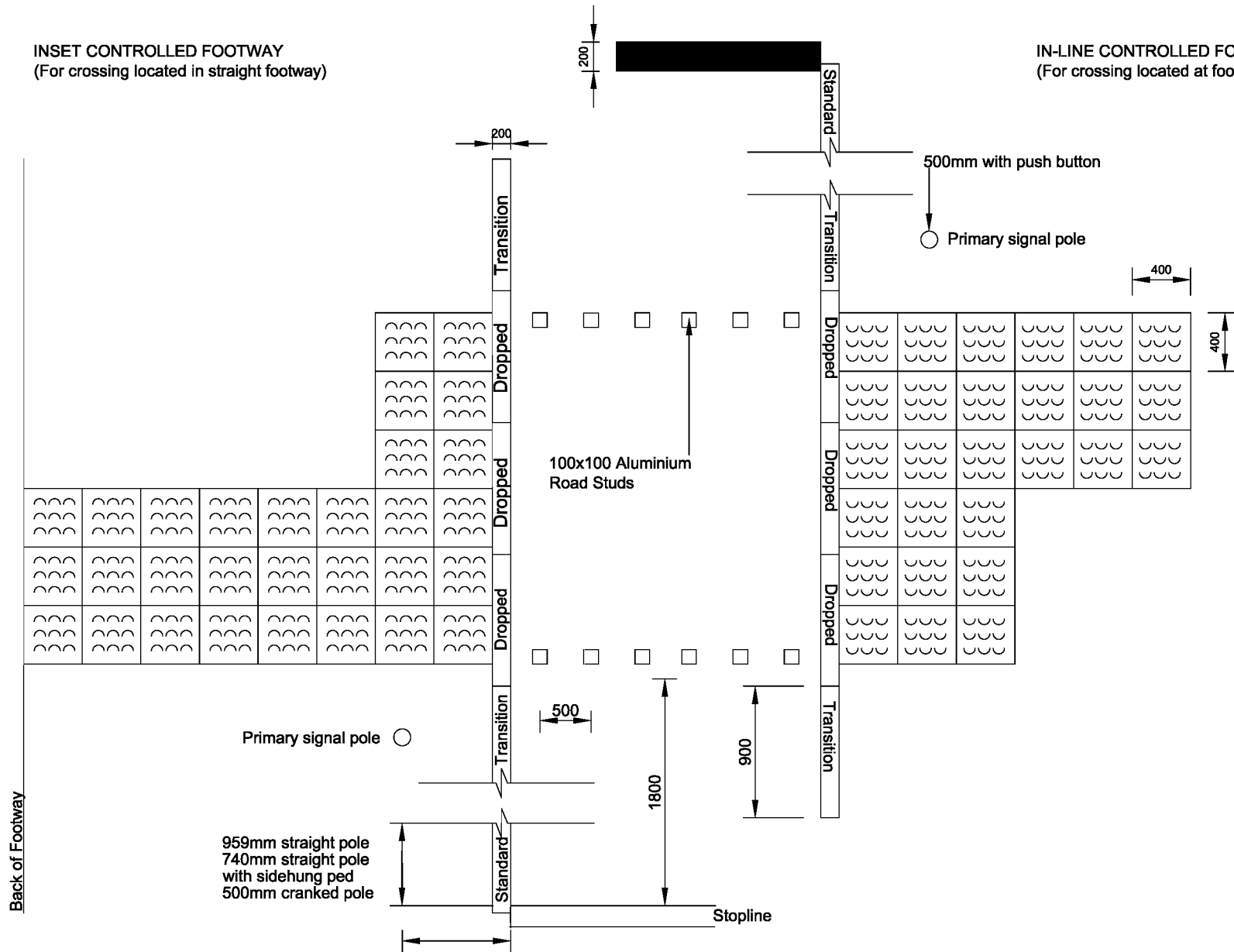
BLOCK PAVED RUMBLE STRIP

Drawing No.

B203

INSET CONTROLLED FOOTWAY
(For crossing located in straight footway)

IN-LINE CONTROLLED FOOTWAY
(For crossing located at footway junction)



Building / Back
of Footway

Revision	Date	Description

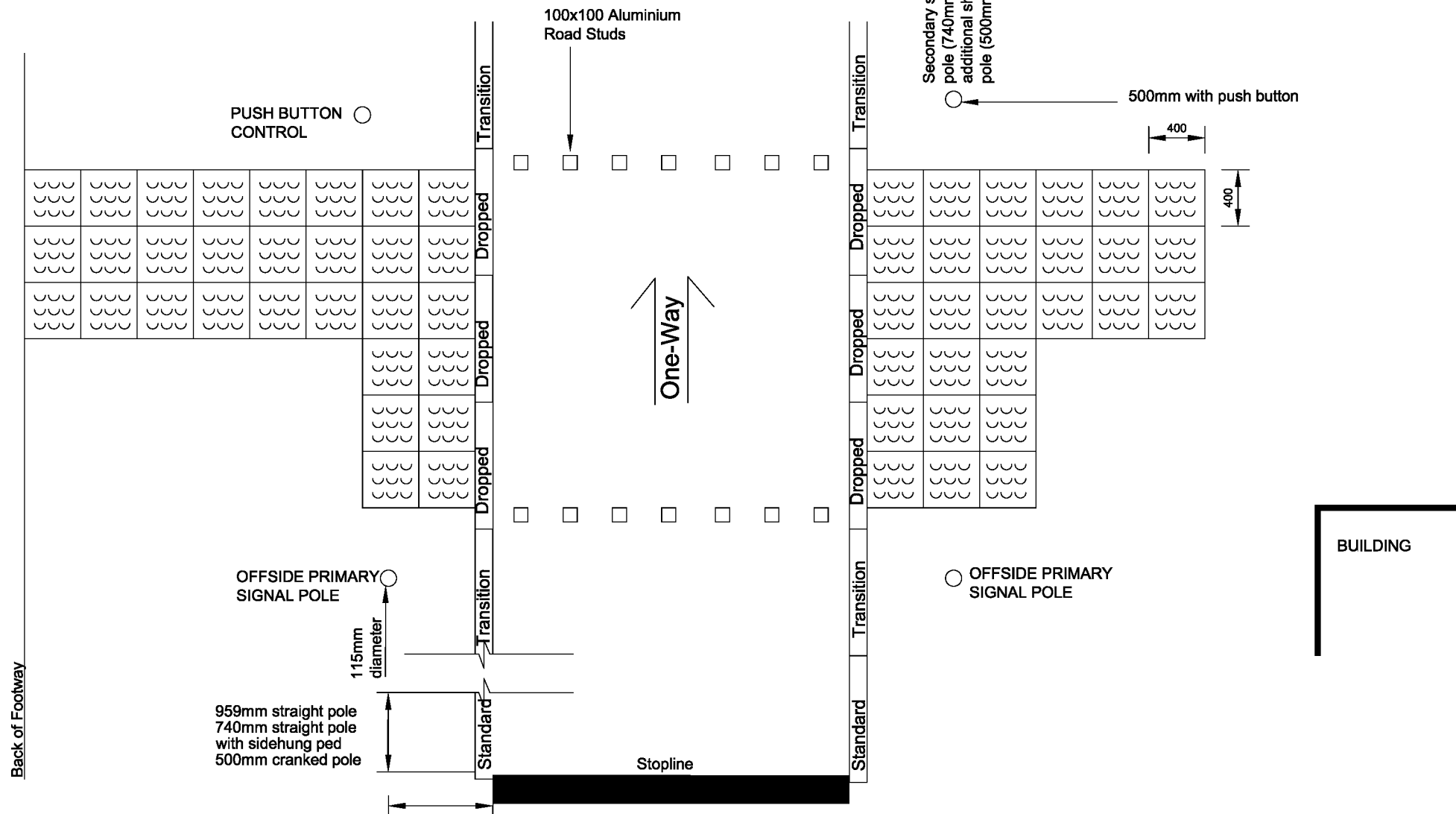
UTC STANDARD INSTALLATION (TWO WAY TRAFFIC FLOW)

Drawing No.

B204

INSET CONTROLLED FOOTWAY
(For crossing located in straight footway)

IN-LINE CONTROLLED FOOTWAY
(For crossing located at footway junction)

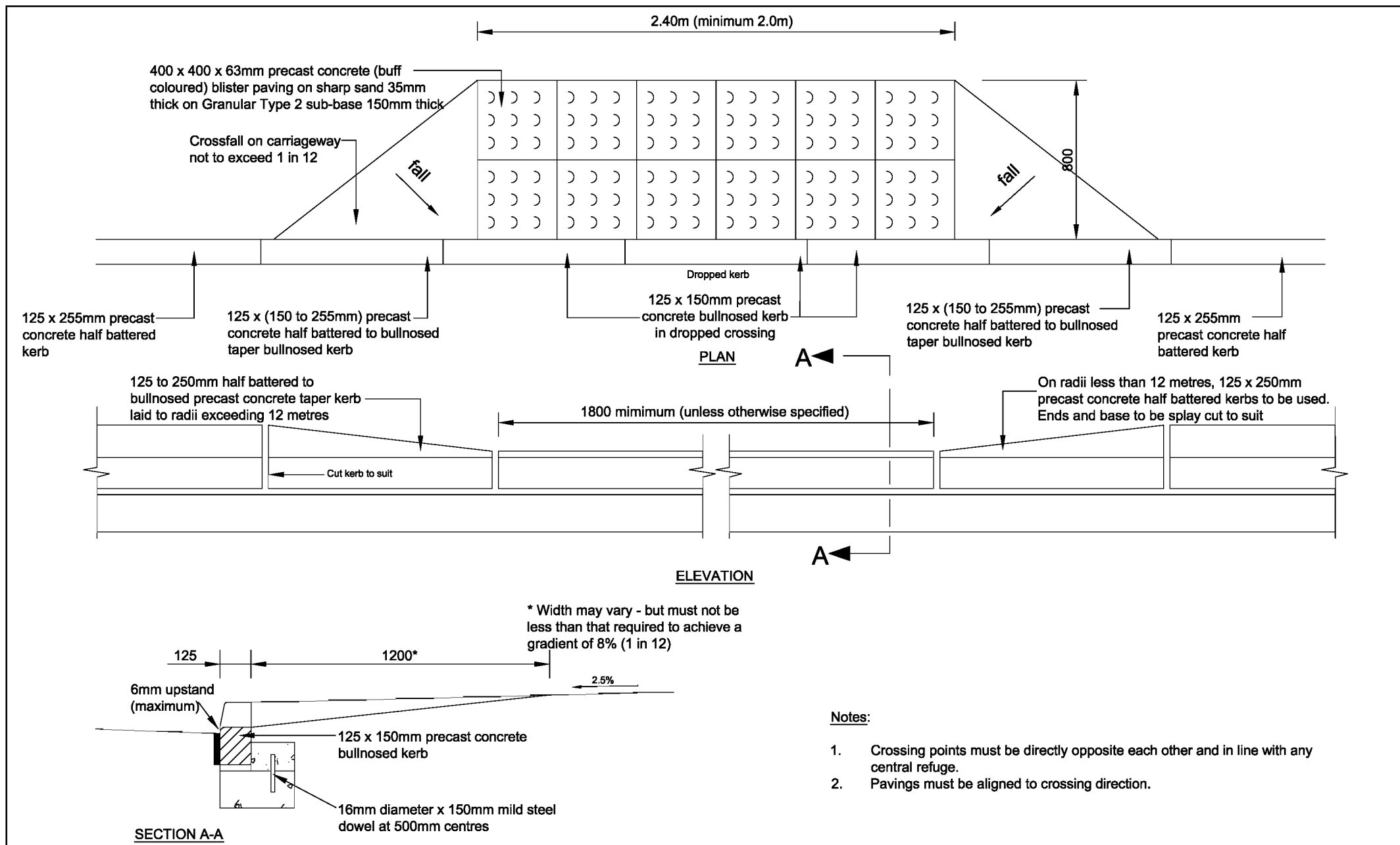


Revision	Date	Description

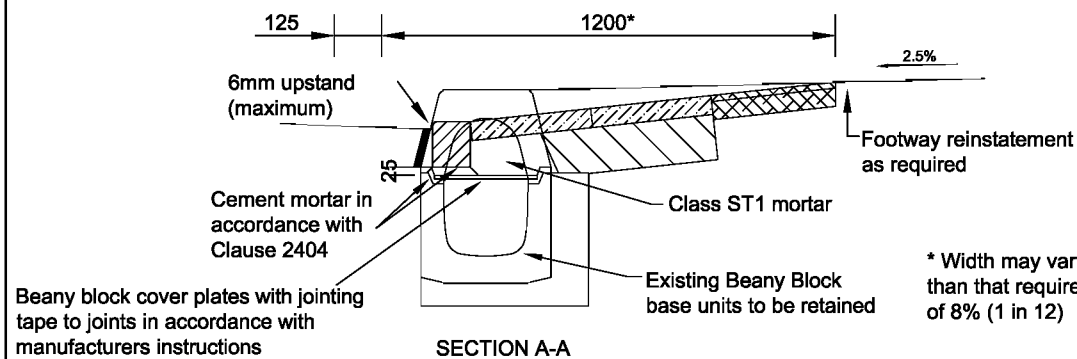
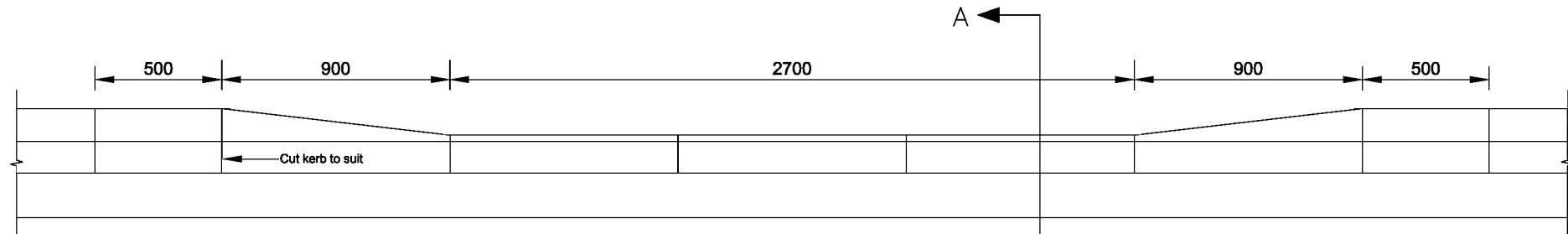
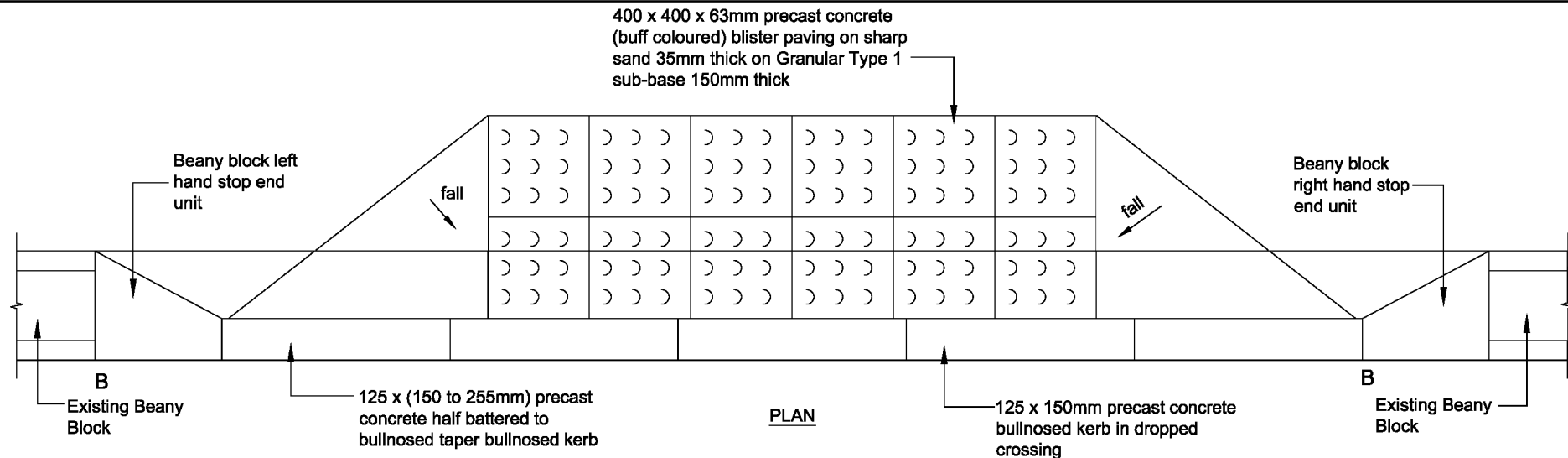
UTC STANDARD INSTALLATION (ONE WAY TRAFFIC FLOW)

Drawing No.

B205



			DROPPED KERB CROSSING	Drawing No.	B300  Environment & Development Services Engineering Consultancy
Revision	Date	Description			



Note:

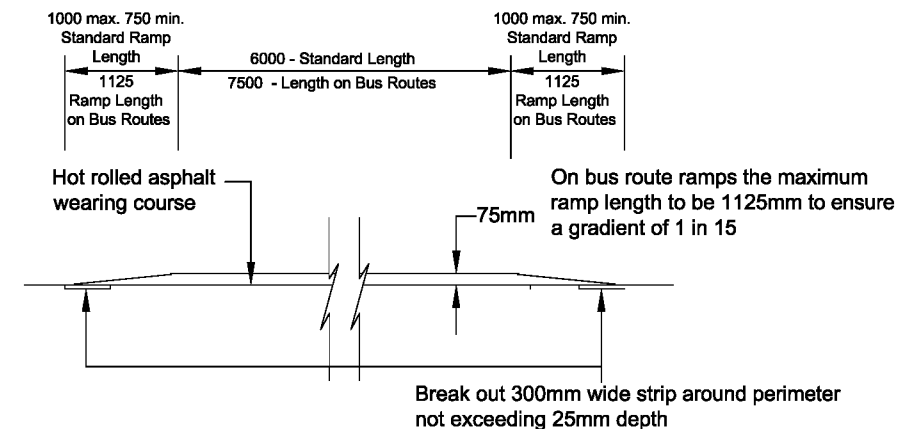
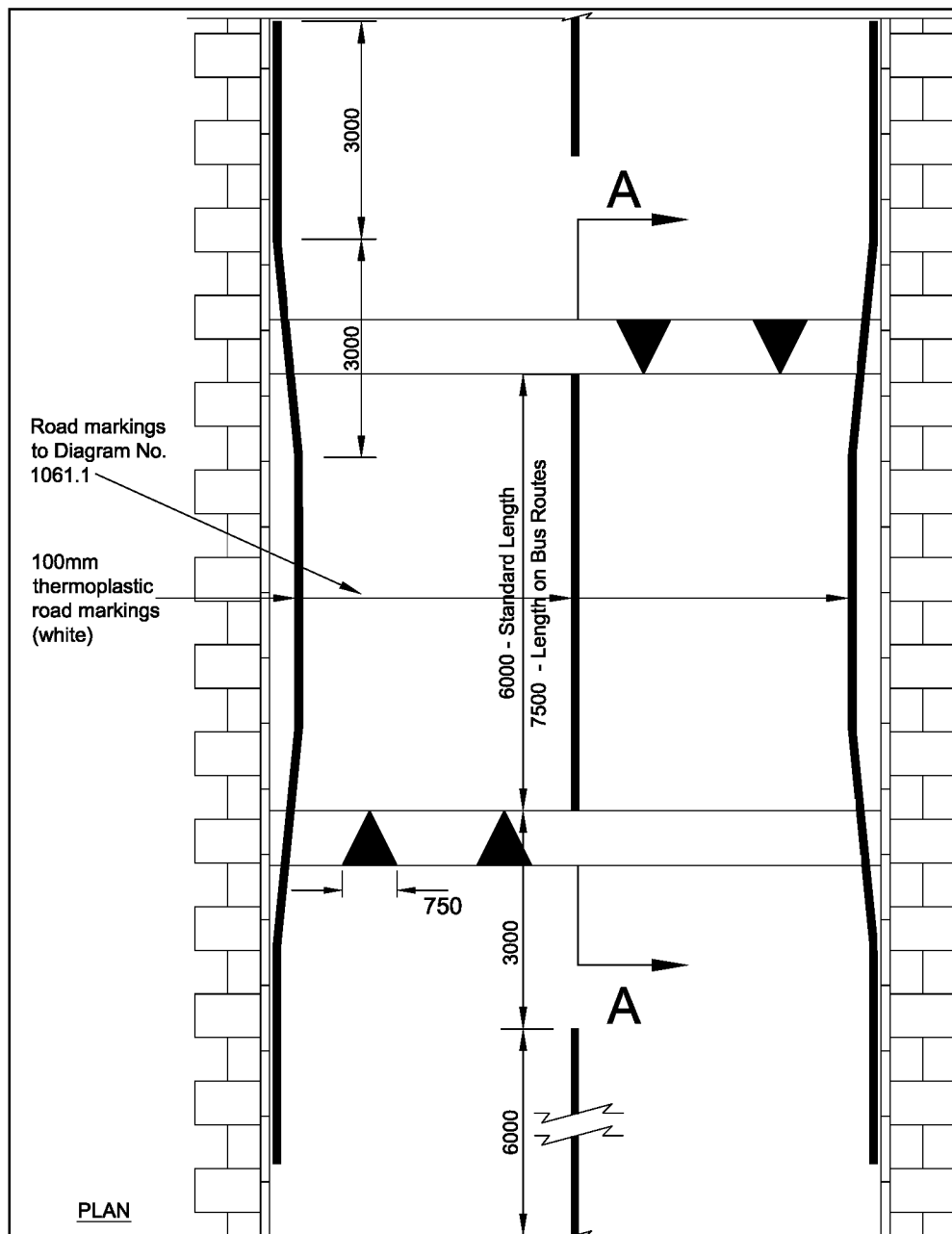
Existing Beany Block top blocks to be removed between points B-B. Cover plates to be fitted to accommodate dropped crossing as detailed.

Revision	Date	Description

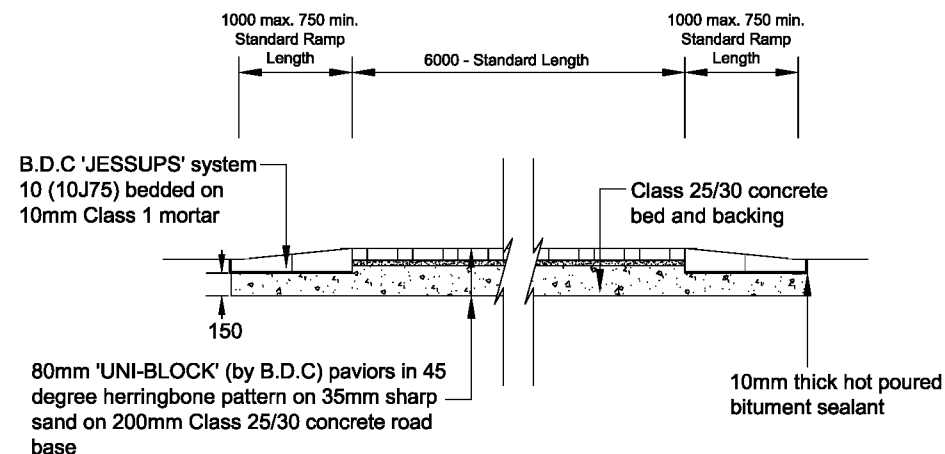
BEANY BLOCK DROPPED KERB CROSSING

Drawing No.

B301



HOT ROLLED ASPHALT CONSTRUCTION
SECTION A-A



BLOCK PAVED CONSTRUCTION
SECTION A-A

NOTES:

1. Transverse dimensions for the layout of speed tables may require adjusting locally to accommodate the exact carriageway dimensions on site. All adjustments to be approved by the Engineer.
2. Cationic bituminous emulsion shall be applied to all surfaces receiving hot rolled asphalt and dense bitumen macadam surfacing.
3. Uni-Blocks and Jessups blocks are available from;
B.D.C. Concrete Products Ltd., St Omer's Road, Dunsten, Gateshead NE11 9EJ. Tel 0191 460 5085

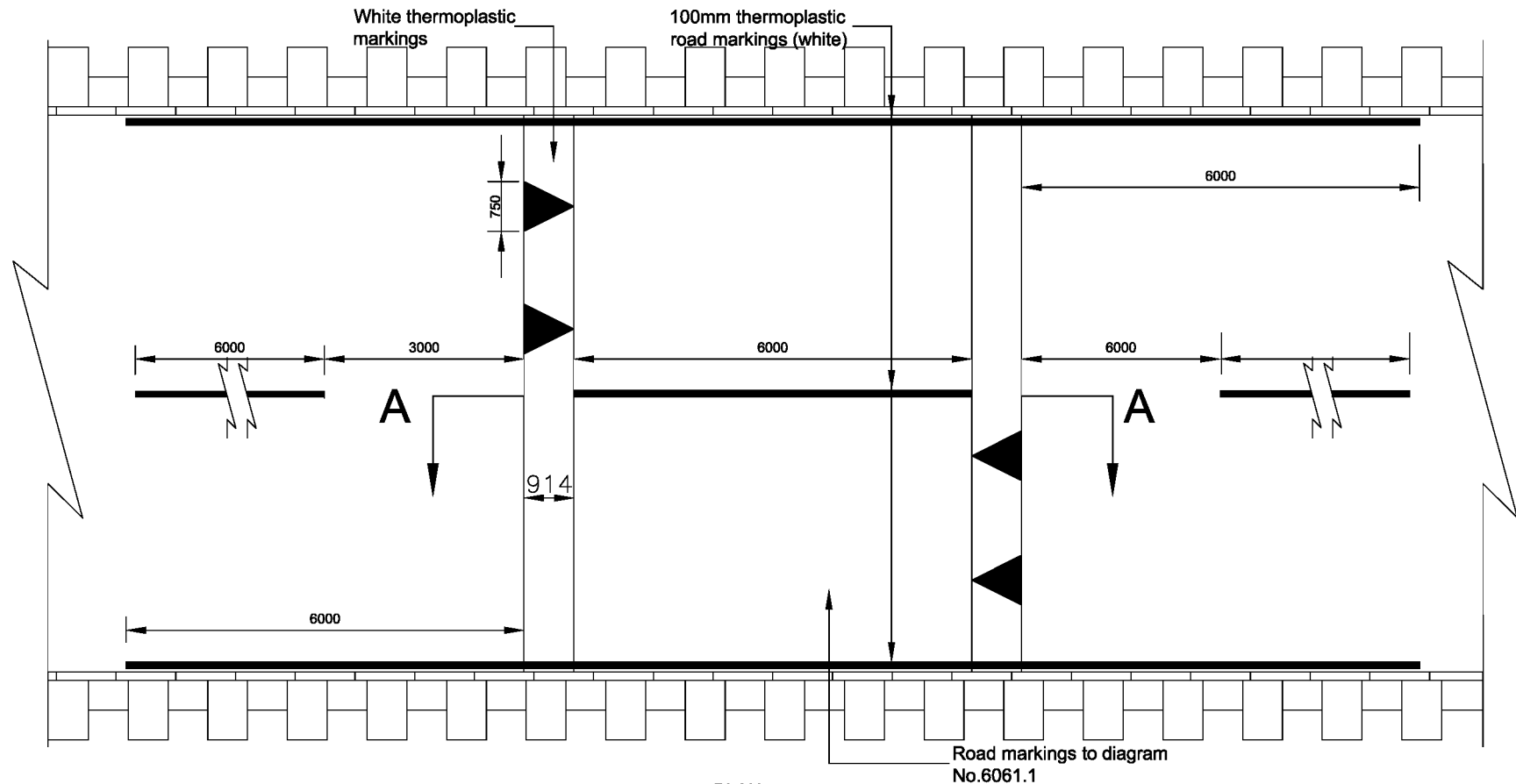
Revision	Date	Description

SPEED TABLE

Drawing No.

B302

Bury
COUNCIL
Environment & Development Services
Engineering Consultancy

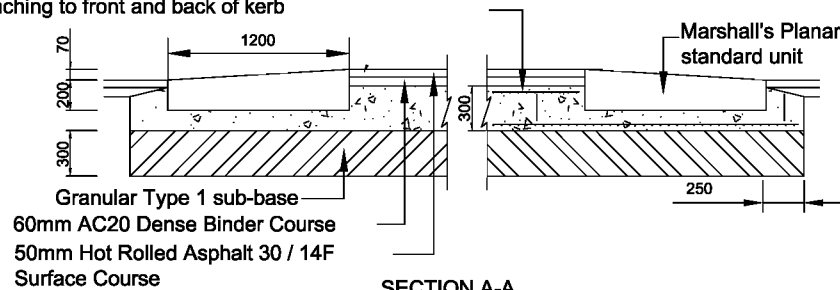


Class C32/40 concrete with A393 structural mesh top and bottom with 40mm cover. Mesh also required in haunching to front and back of kerb

PLAN

NOTES:

1. Transverse dimensions for the layout of speed tables may require adjusting locally to accommodate the exact carriageway dimensions on site. All adjustments to be approved by the Engineer.
2. Cationic bituminous emulsion shall be applied to all surfaces receiving hot rolled asphalt and dense bitumen macadam surfacing.
3. Uni-Blocks and Jessups blocks are available from; B.D.C. Concrete Products Ltd., St Omer's Road, Dunsten, Gateshead NE11 9EJ. Tel 0191 460 5085



SECTION A-A

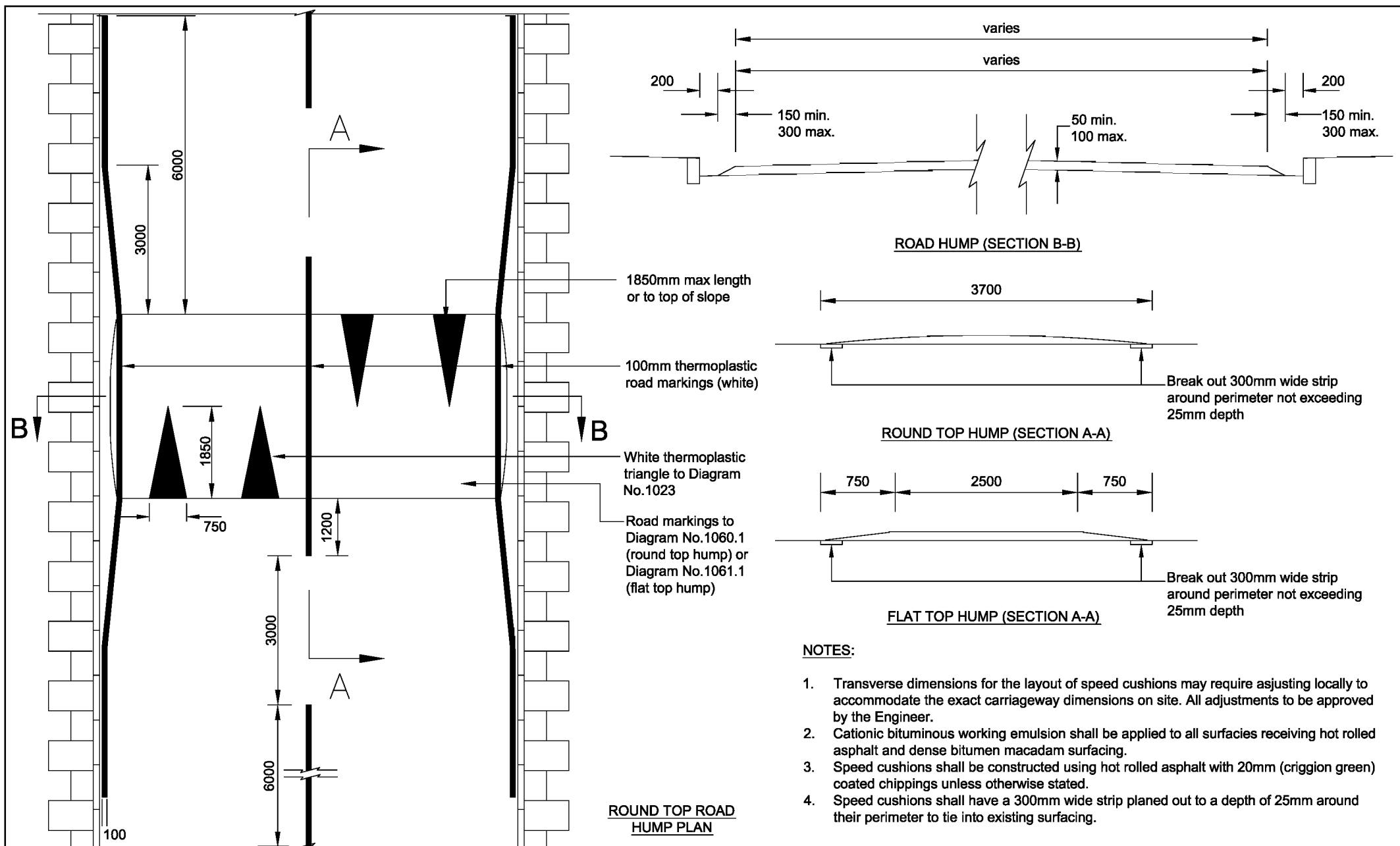
S-RAMP SPEED TABLE

Drawing No.

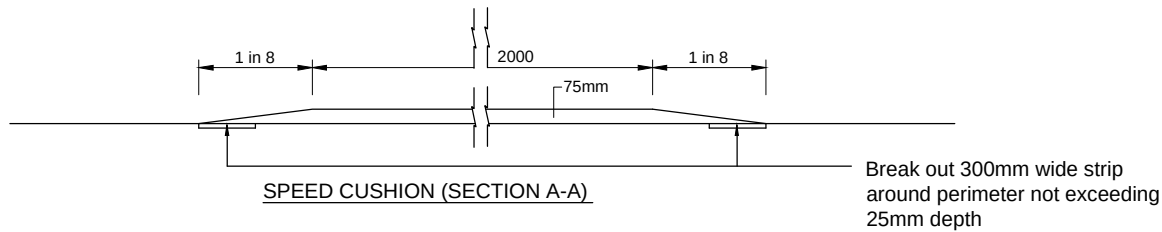
B303

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Engineering Consultancy

Revision	Date	Description

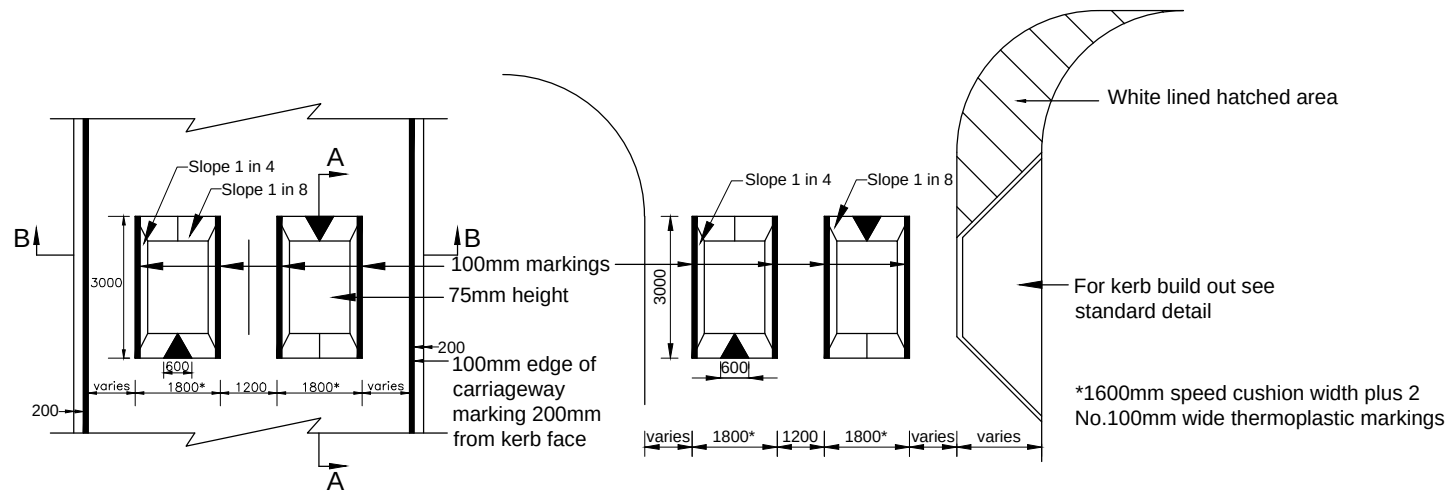
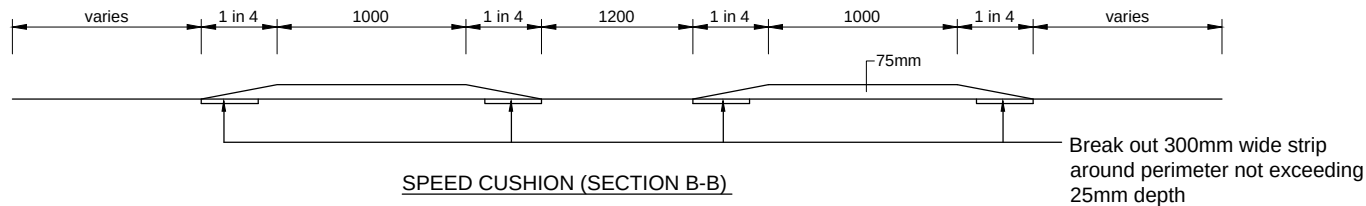


			ROAD HUMPS	Drawing No. B304	 Bury COUNCIL Environment & Development Services Engineering Consultancy
Revision	Date	Description			



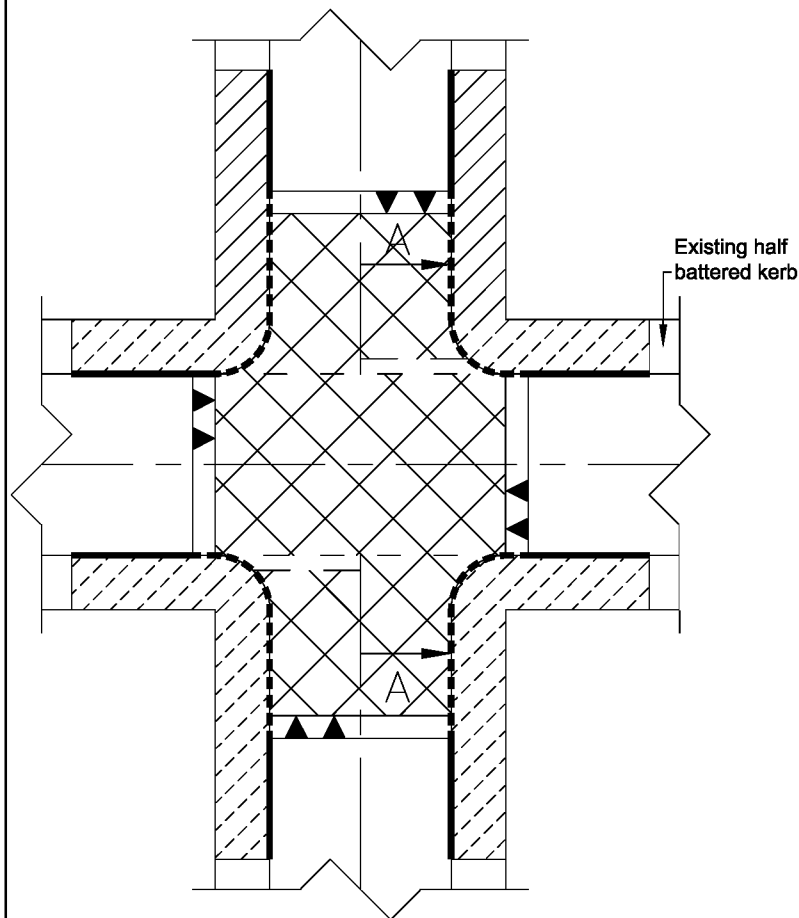
NOTES:

1. Transverse dimensions for the layout of speed cushions may require adjusting locally to accommodate the exact carriageway dimensions on site. All adjustments to be approved by the Engineer.
2. Cationic bituminous working emulsion shall be applied to all surfaces receiving hot rolled asphalt and dense bitumen macadam surfacing.
3. Speed cushions shall be constructed using hot rolled asphalt with 20mm (criggion green) coated chippings unless otherwise stated.
4. Speed cushions shall have a 300mm wide strip planed out to a depth of 25mm around their perimeter to tie into existing surfacing.

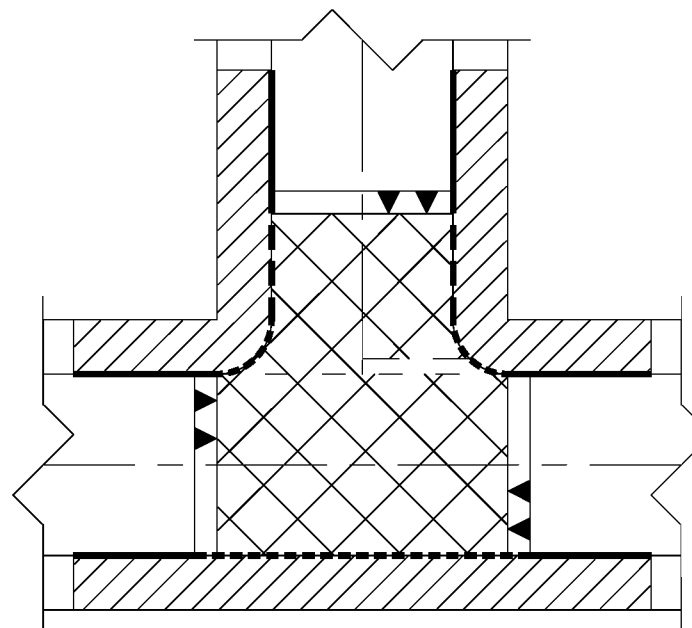


						Drawing No.	
						B305	
Revision	Date	Description					

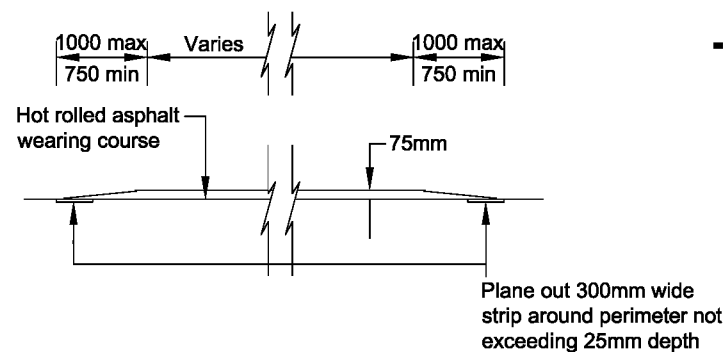
SPEED CUSHION



TYPICAL CROSSROAD DETAIL



TYPICAL 'T' JUNCTION DETAIL

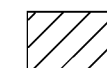


RAISED JUNCTION TABLE
SECTION A-A
HOT ROLLED ASPHALT CONSTRUCTION

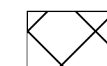
NOTES:

1. Transverse dimensions for the layout of raised junction tables may require adjusting locally to accommodate the exact carriageway dimensions on site. All adjustments to be approved by the Engineer.
2. Cationic bituminous working emulsion shall be applied to all surfaces receiving hot rolled asphalt and dense bitumen macadam surfacing.
3. Raised junction tables shall have a 300mm wide strip planed out to a depth of 25mm around their perimeter to tie into existing surfacing.

KEY



Existing footways to be resurfaced



Raised junction table



Transition kerb



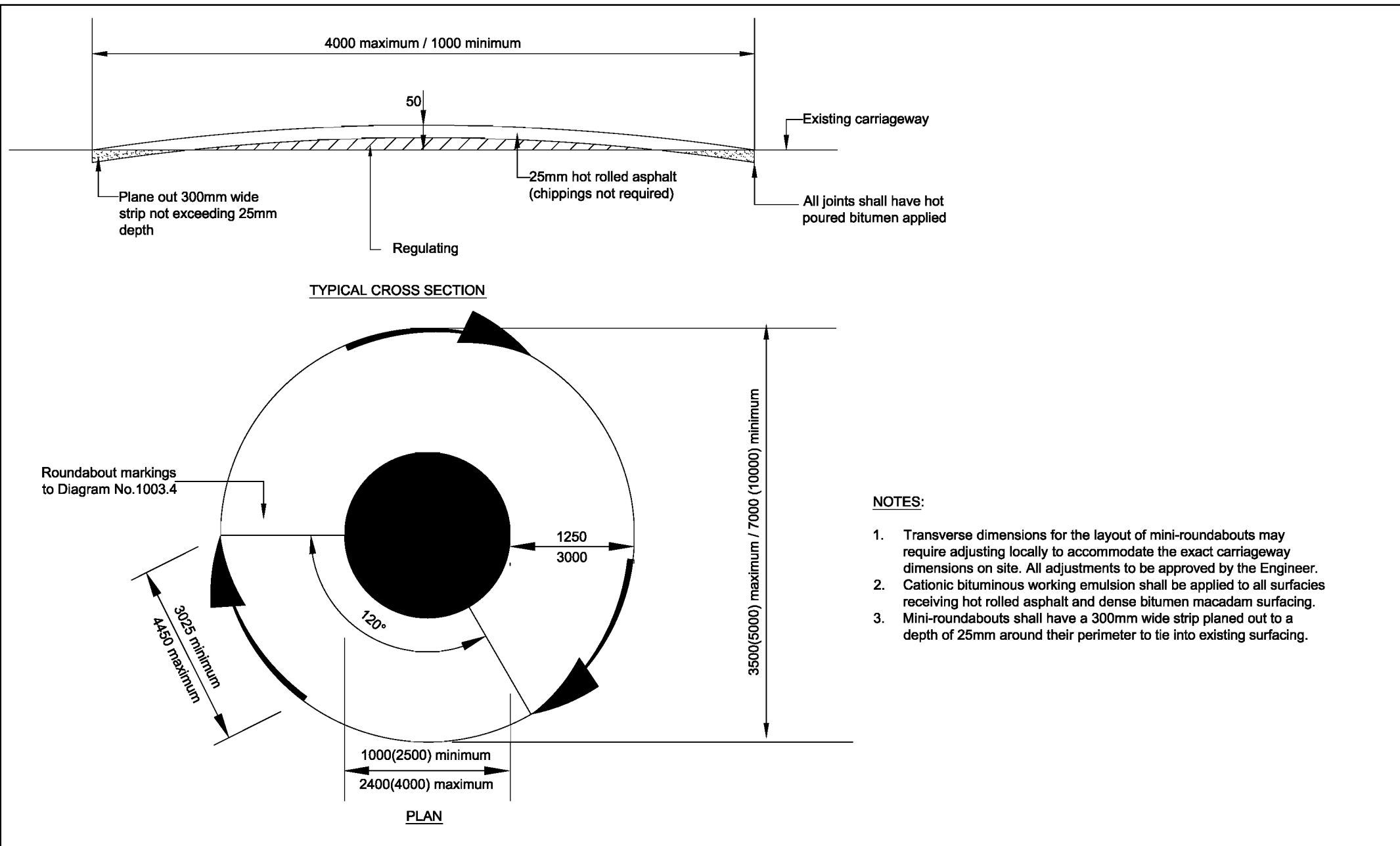
125 x 255 precast concrete half battered kerb with 6mm face above raised junction table

Revision	Date	Description

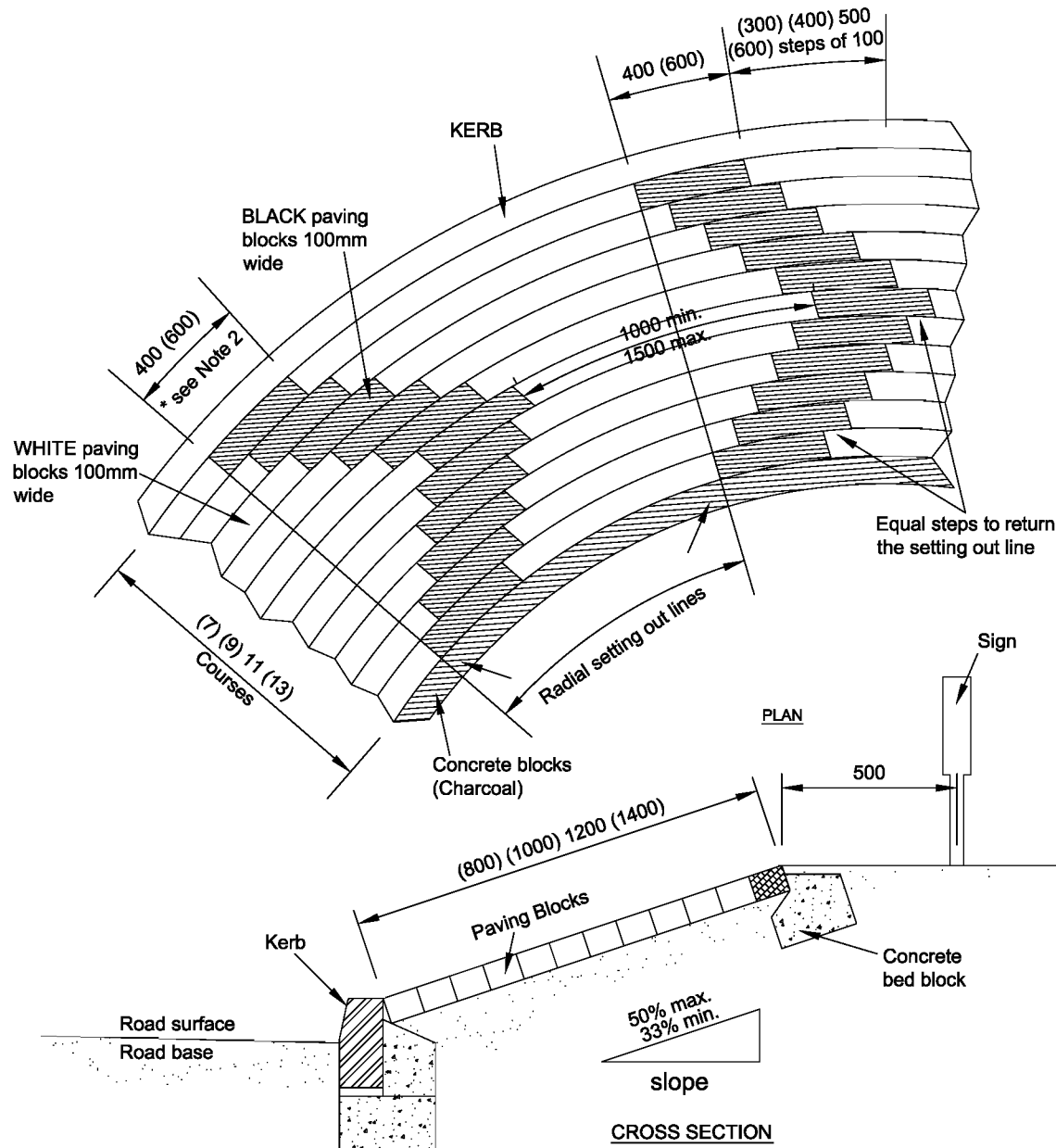
RAISED JUNCTION TABLE

Drawing No.

B306

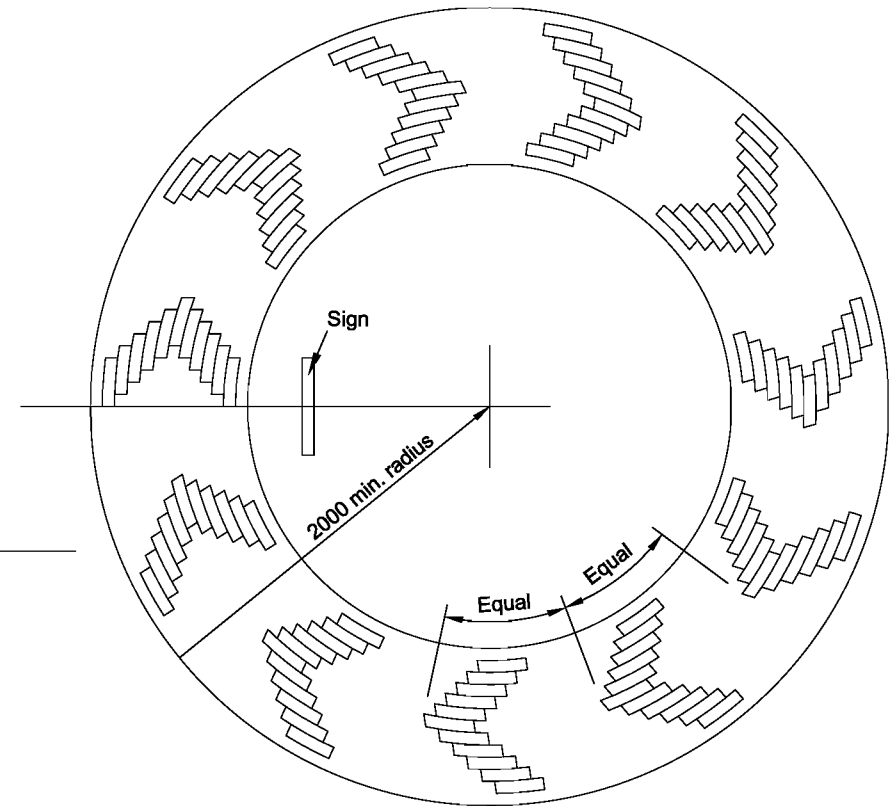


			MINI-ROUNDABOUT	Drawing No. B307	
Revision	Date	Description			



SPACING:

1. **SPACING** - The chevrons to be spaced equally around the roundabout with gaps of 1500mm between, which may be varied down to 1000mm to allow for different diameters of roundabout. The number of chevrons may be varied to accord with the different with different diameters.
2. **WIDTH OF CHEVRON** - Where the length of the gaps between the chevrons is equal to or greater than 1200mm the width of the chevron measured along the circumference of the roundabout shall be the larger size of 600mm.
3. This drawing only illustrates the geometric design of the Block Paved Chevron marking. Actual construction of the central island, drainage system and vertical sign fixing will be to the requirements of the Traffic Authority.
4. Advice is given on the geometric design of roundabouts in the Department of Transport Manual for Roads and Bridges, Volume 6 (TD 16 / 93).



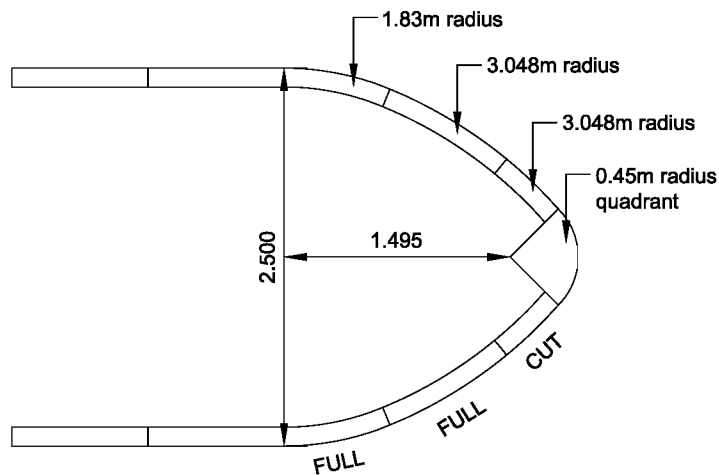
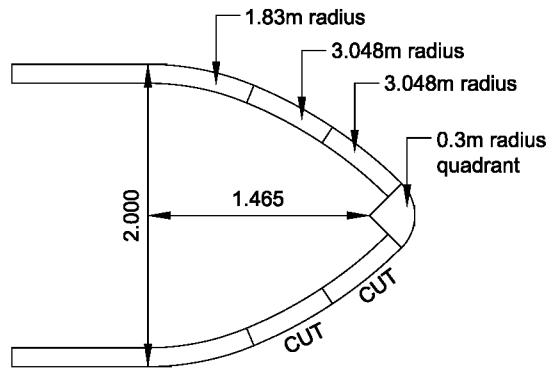
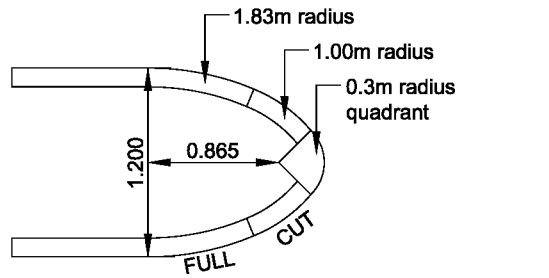
Revision	Date	Description

BLOCK PAVING CHEVRON MARKINGS FOR NORMAL ROUNDABOUTS

Drawing No.

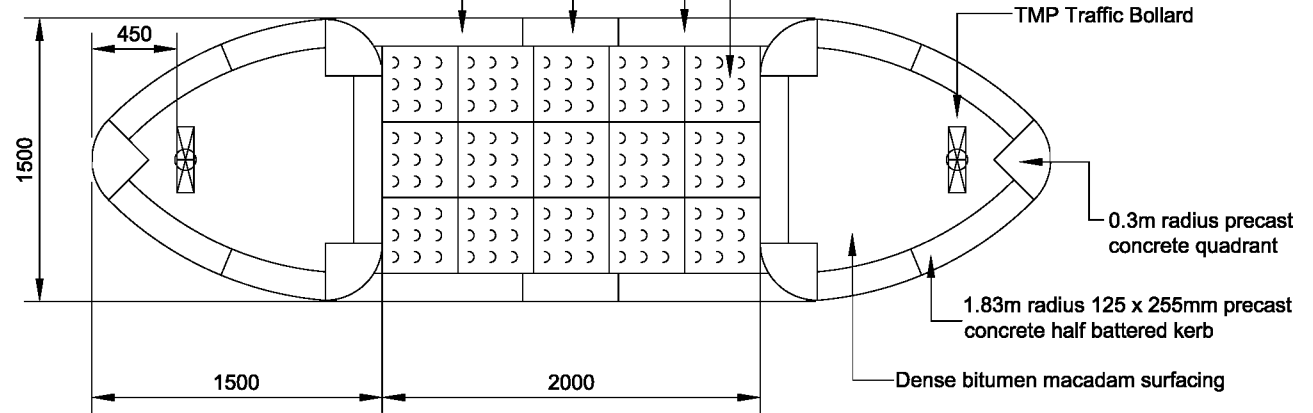
B308

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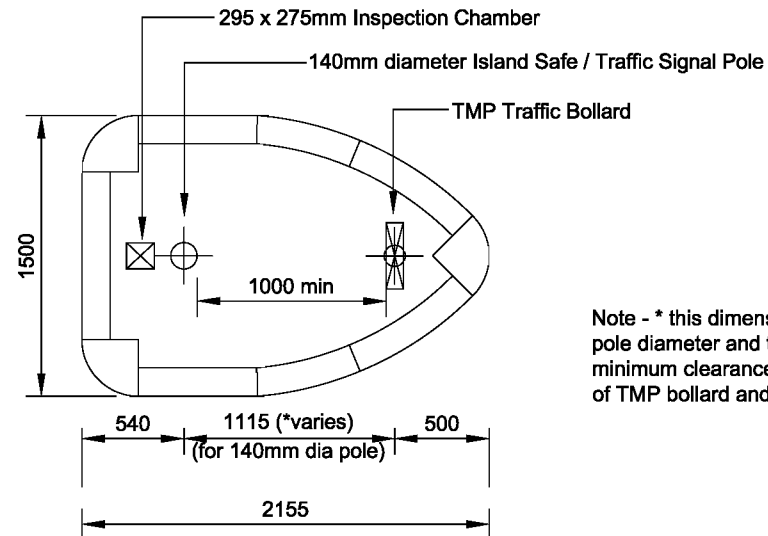


KERB ARRANGEMENTS FOR DIFFERENT WIDTH REFUGES

125 x 150mm precast concrete half battered kerbs in dropped crossing



**CENTRAL PEDESTRIAN REFUGE WITHOUT REFUGE BEACON /
ISLAND SAFE POLE / TRAFFIC SIGNAL POLE**



Note - * this dimension varies to accommodate pole diameter and to maintain the 1000mm minimum clearance required between back of TMP bollard and face of pole

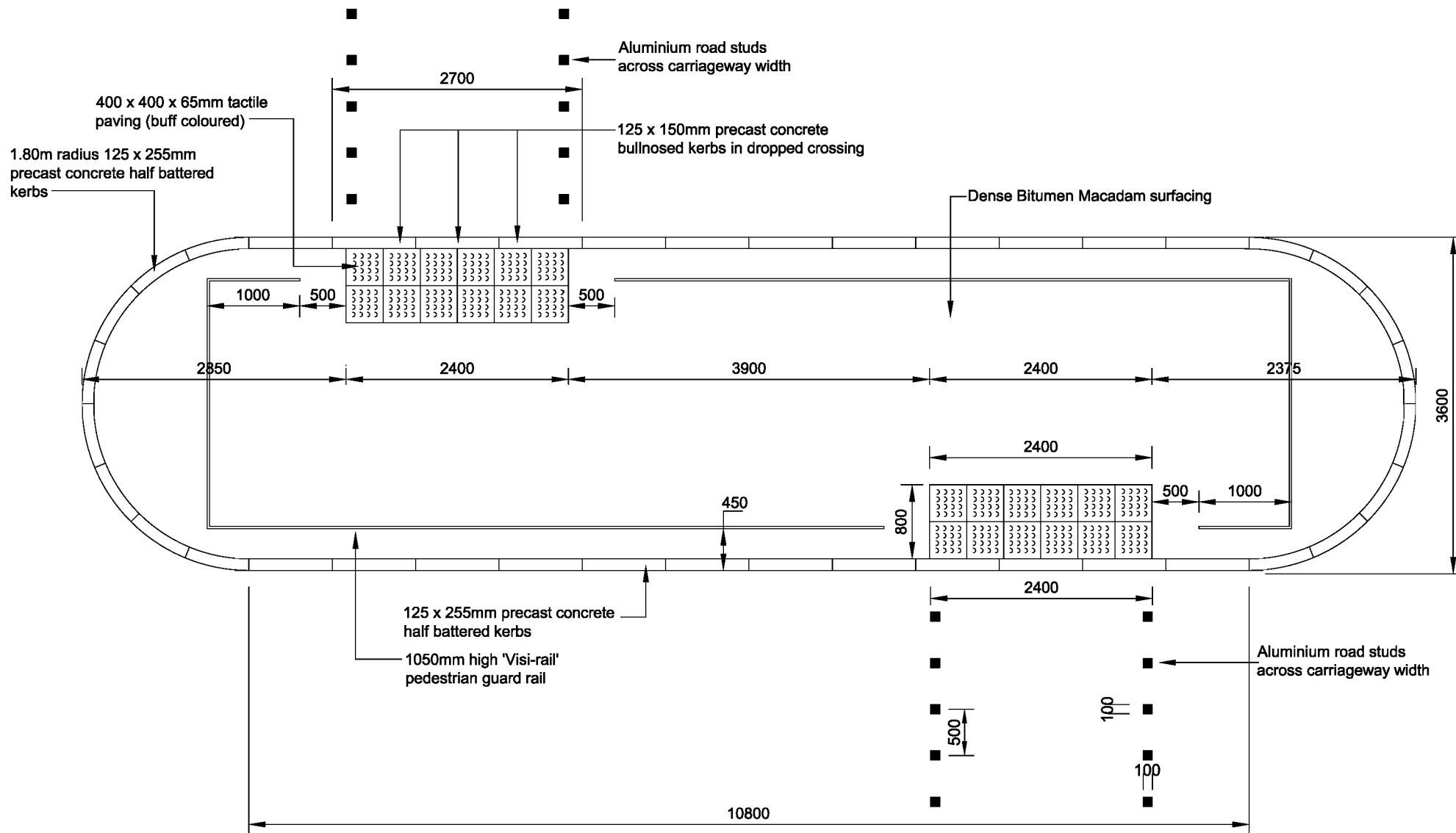
**CENTRAL PEDESTRIAN REFUGE WITH REFUGE BEACON /
ISLAND SAFE POLE / TRAFFIC SIGNAL POLE**

Revision	Date	Description

CENTRAL PEDESTRIAN REFUGE

Drawing No.

B309

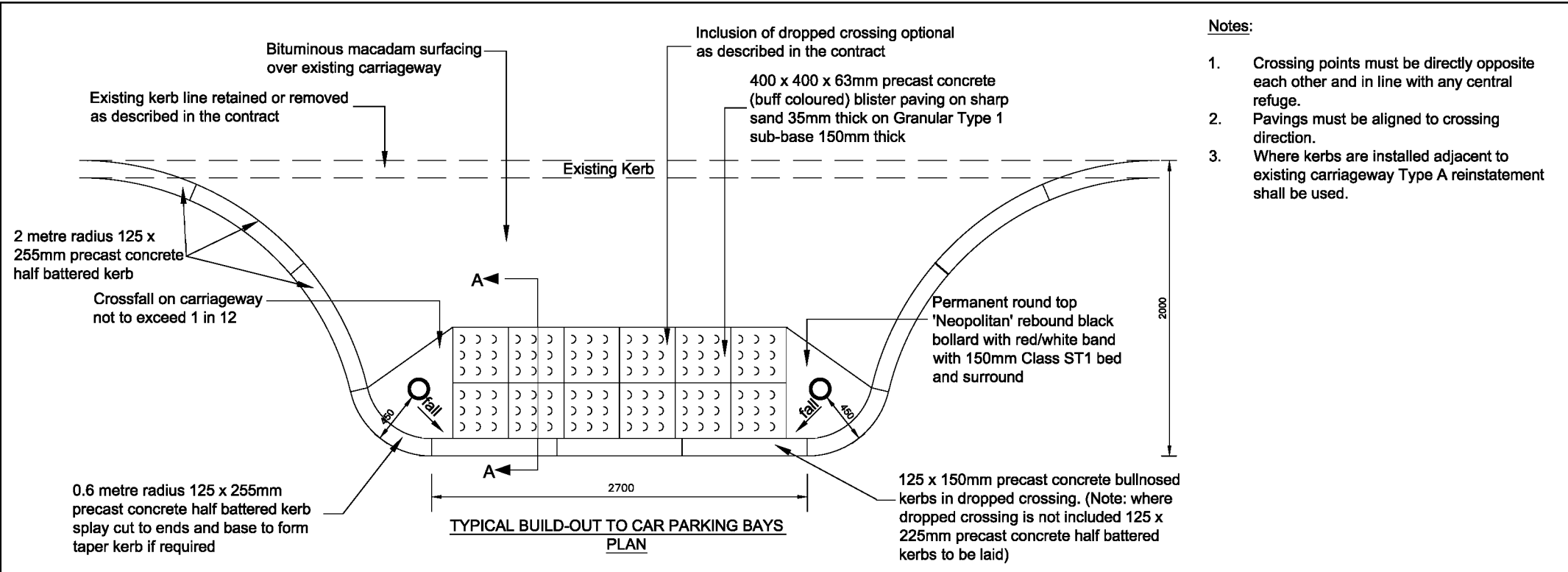


Revision	Date	Description

STAGGERED PUFFIN CROSSING

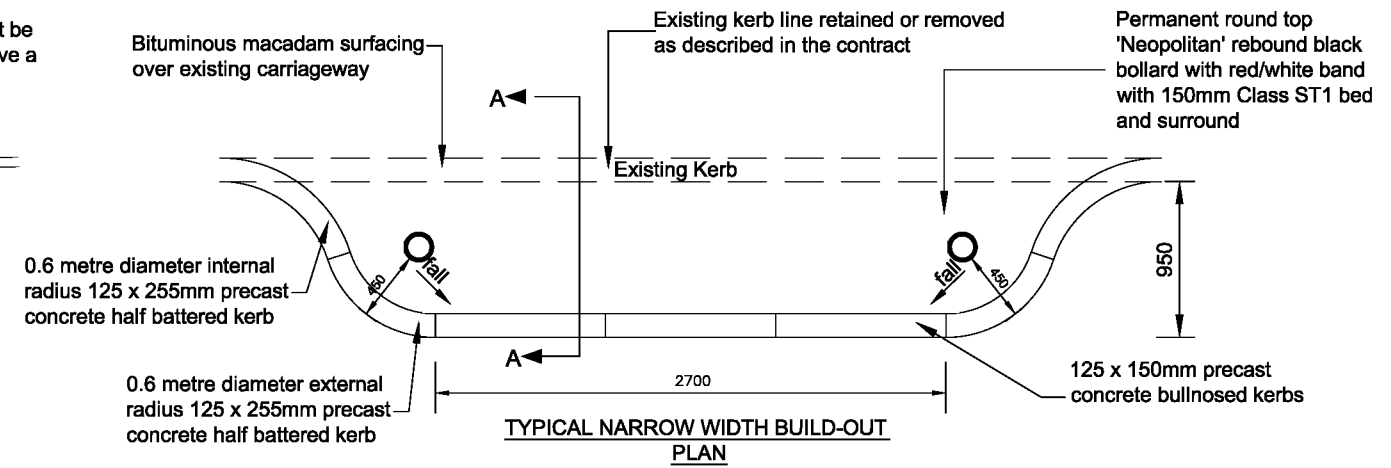
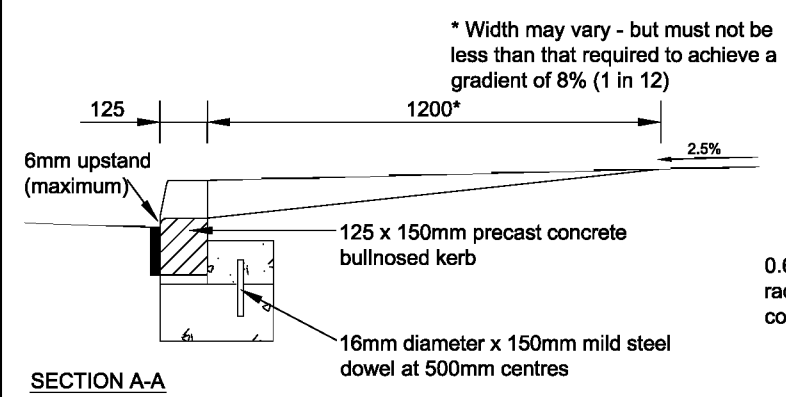
Drawing No.

B310

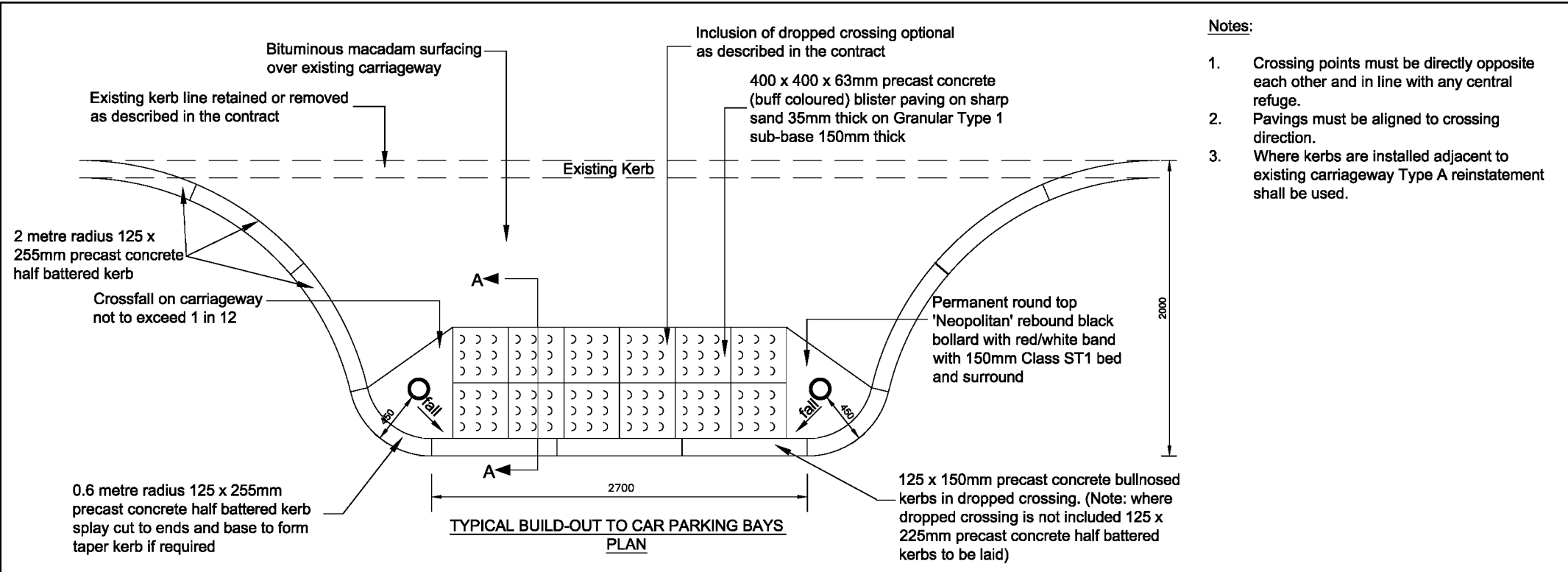


Notes:

1. Crossing points must be directly opposite each other and in line with any central refuge.
2. Pavings must be aligned to crossing direction.
3. Where kerbs are installed adjacent to existing carriageway Type A reinstatement shall be used.

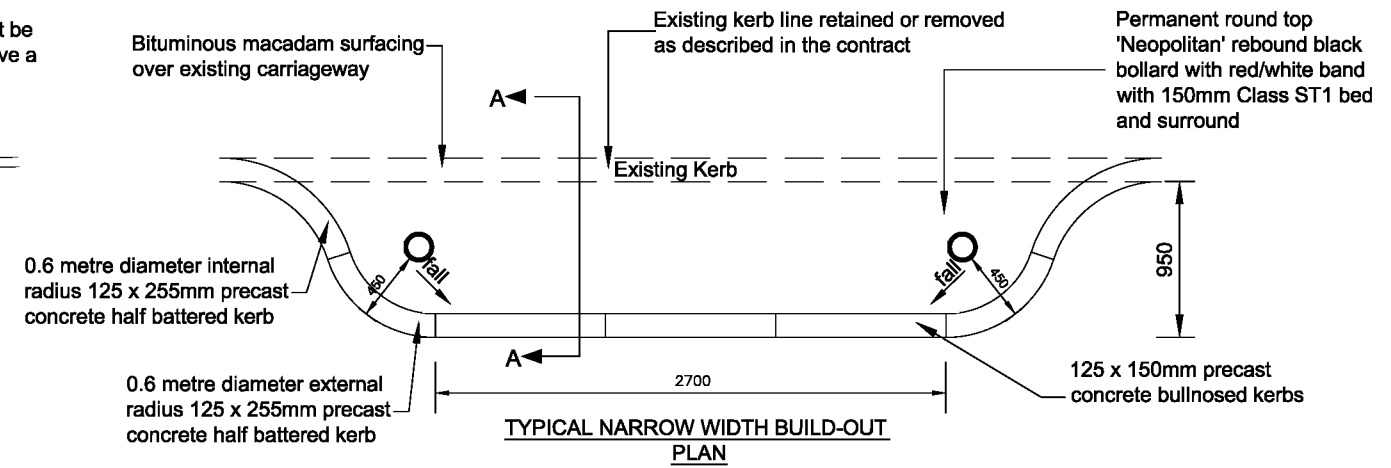
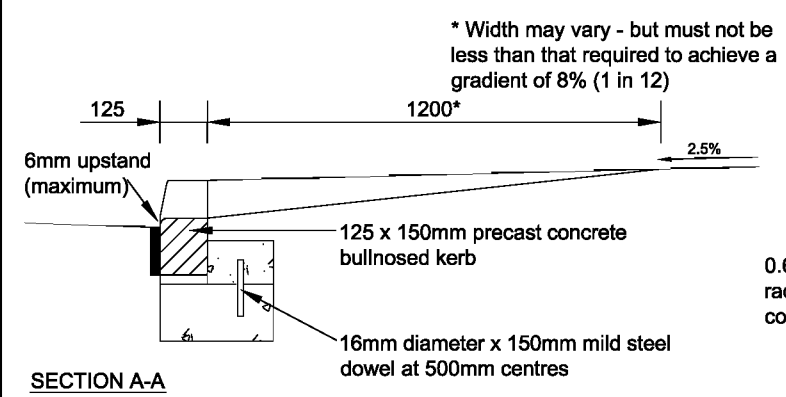


			BUILD OUT DETAILS	Drawing No. B311	
Revision	Date	Description			

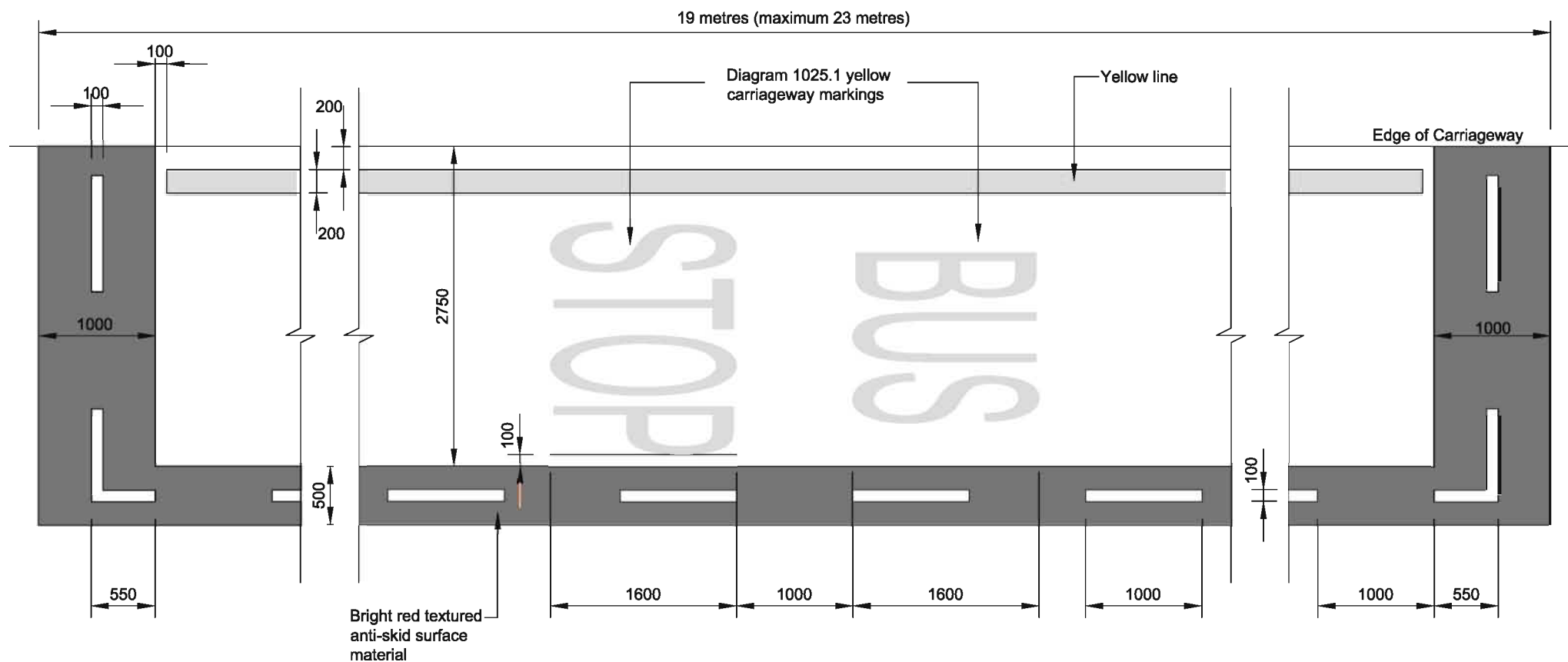


Notes:

1. Crossing points must be directly opposite each other and in line with any central refuge.
2. Pavings must be aligned to crossing direction.
3. Where kerbs are installed adjacent to existing carriageway Type A reinstatement shall be used.



			BUILD OUT DETAILS	Drawing No. B311	
Revision	Date	Description			



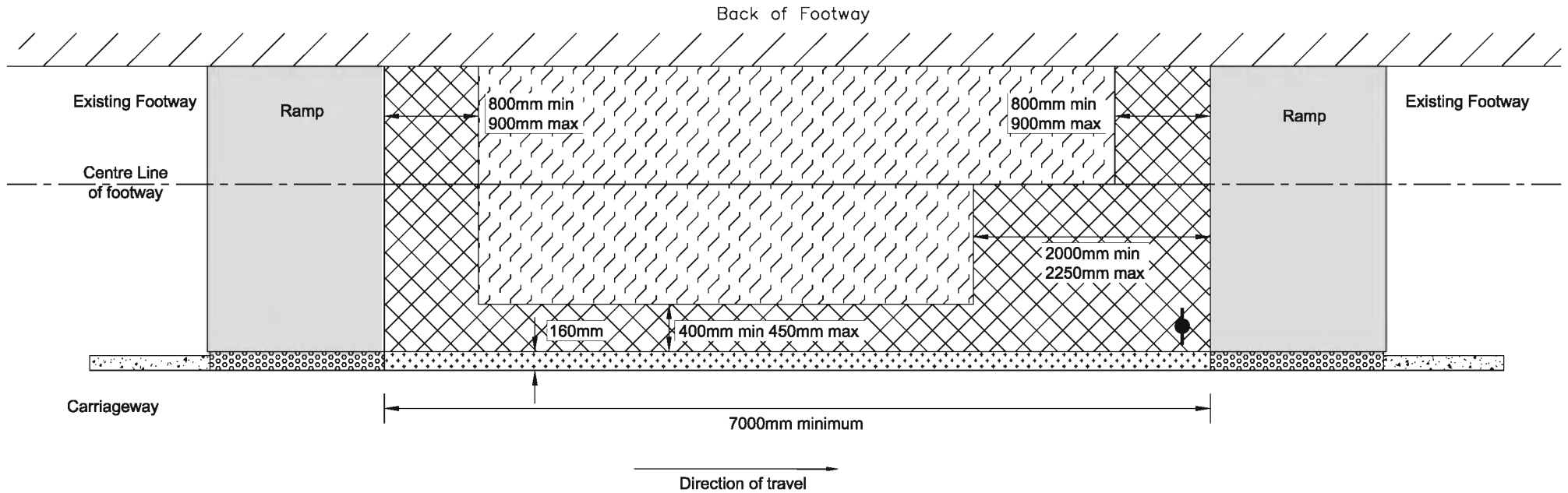
Revision	Date	Description

CARRIAGEWAY MARKINGS FOR BUS STOPS

Drawing No.

B400

PLAN VIEW



CROSS SECTION



KEY



Proprietary transition kerbs



Existing standard kerbs



200 x 100 x 60mm precast concrete block
Red in colour on 35mm sharp sand



Proprietary raised kerbs



400 x 400 x 63mm precast concrete paving slabs
Marshal's Perfecta Buff on 35mm sharp sand



Bus Stop pole and plate to be sited 600mm from the kerb edge and 400mm from the top of the ramp

Revision	Date	Description

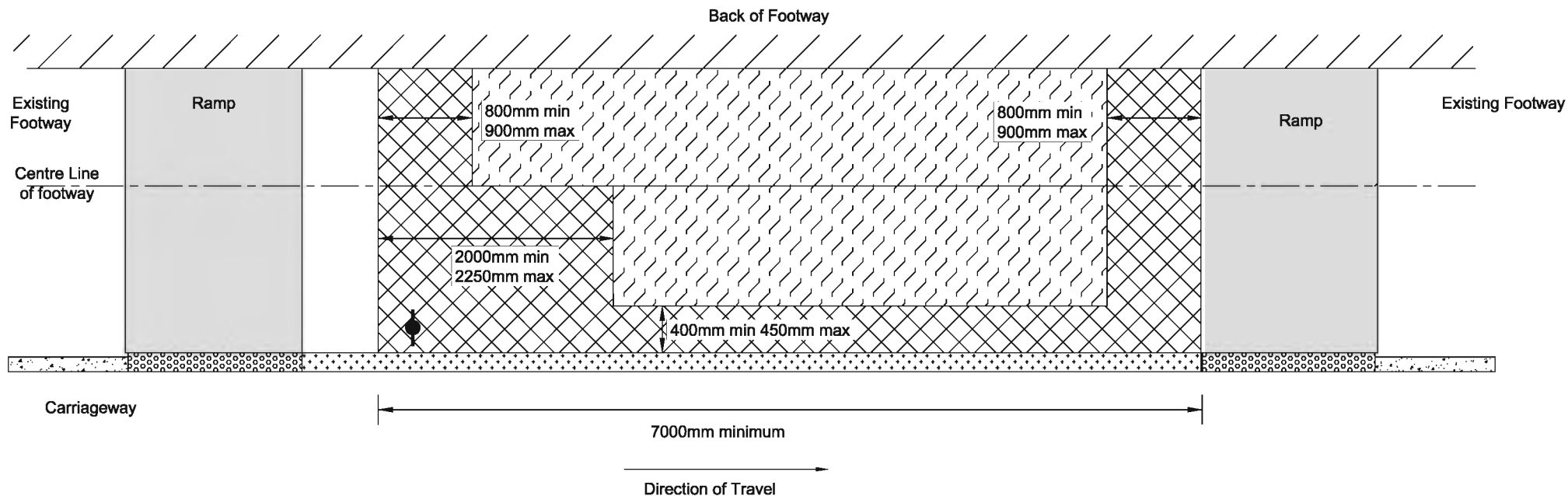
RECOMMENDED GENERAL ARRANGEMENT OF THE
FOOTWAYS AND KERBS FOR BUS STOPS ON QBC's

Drawing No.

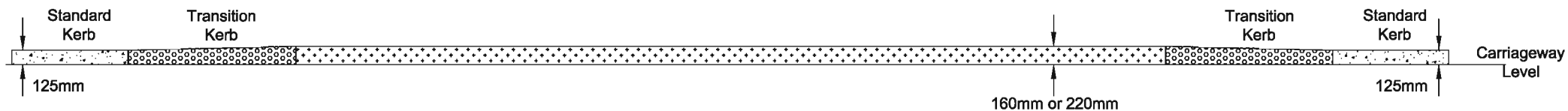
B401

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PLAN VIEW



CROSS SECTION



KEY

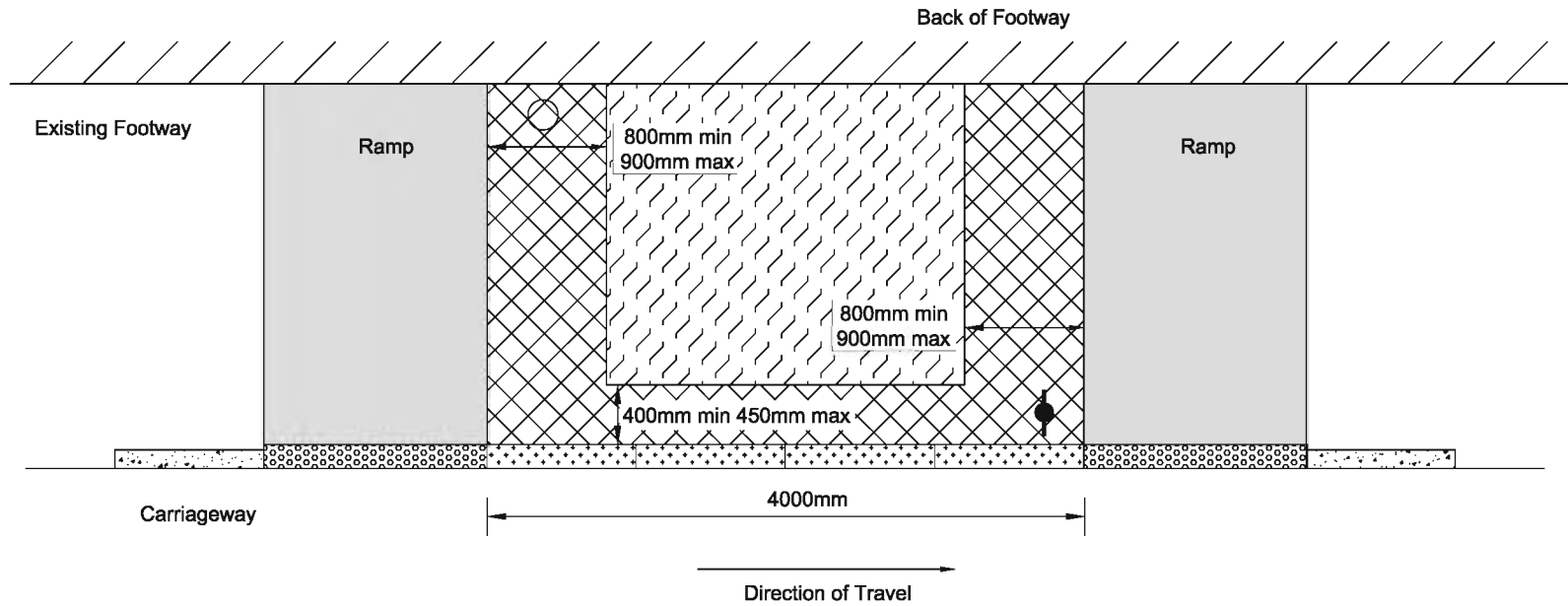
	Proprietary transition kerbs		Existing standard kerbs		200 x 100 x 60mm precast concrete block Red in colour on 35mm sharp sand		Bus Stop pole and plate to be sited 600mm from the kerb edge and 400mm from the top of the ramp
	Proprietary raised kerbs		400 x 400 x 63mm precast concrete paving slabs Marshal's Perfecta Buff on 35mm sharp sand				

RECOMMENDED GENERAL ARRANGEMENT OF THE FOOTWAY AND KERBS FOR BUS STOPS ON QBC'S WITH FORWARD FACING QUEUES

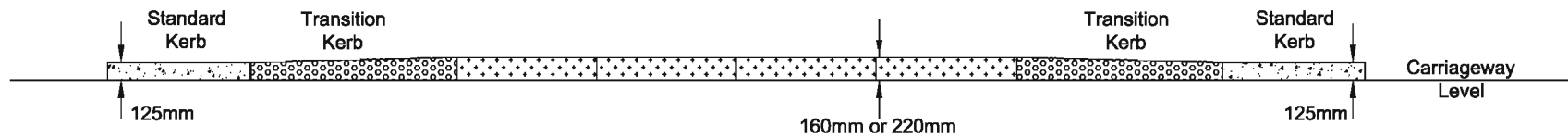
Drawing No.

B402

PLAN VIEW



CROSS SECTION



KEY



Proprietary transition kerbs



Existing standard kerbs



200 x 100 x 60mm precast concrete block
Red in colour on 35mm sharp sand



400 x 400 x 63mm precast concrete paving slabs
Marshal's Perfecta Buff on 35mm sharp sand



Bus Stop pole and plate to be sited 600mm from the kerb edge and 400mm from the top of the ramp



Litter Bin



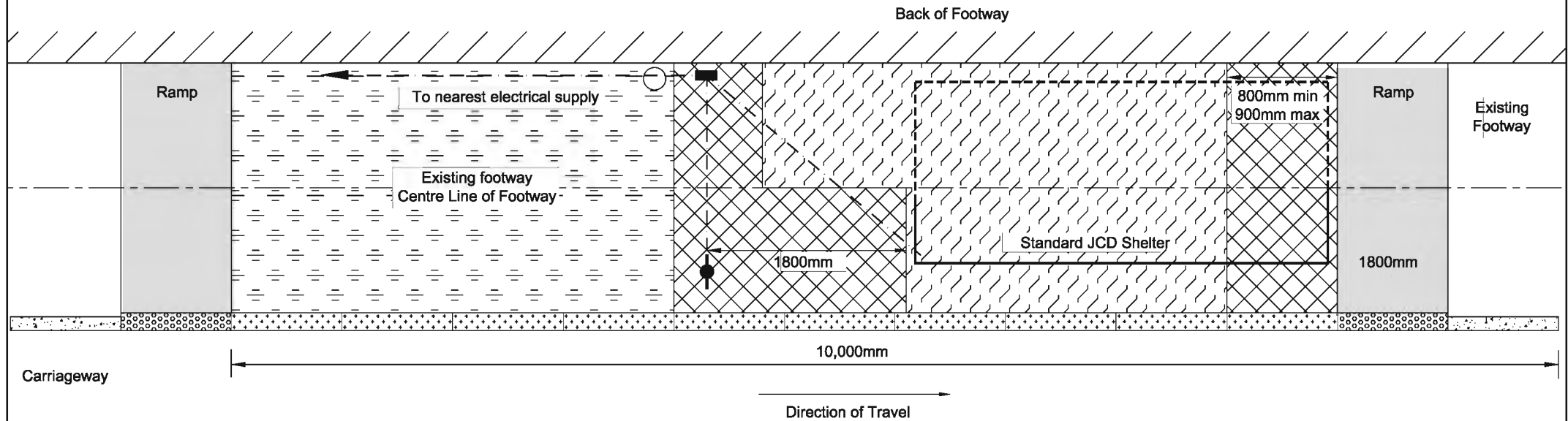
Proprietary raised kerbs

RECOMMENDED GENERAL ARRANGEMENT OF THE FOOTWAY AND KERBS AT LIGHTLY USED AND ALIGHTING BUS STOPS

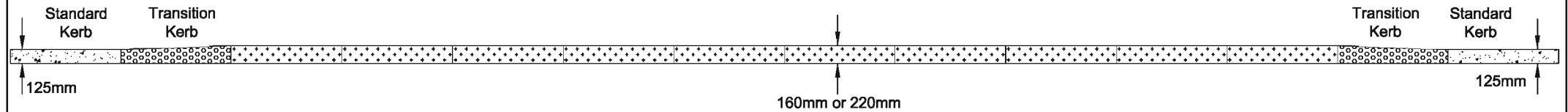
Drawing No.

B403

PLAN VIEW



CROSS SECTION



KEY

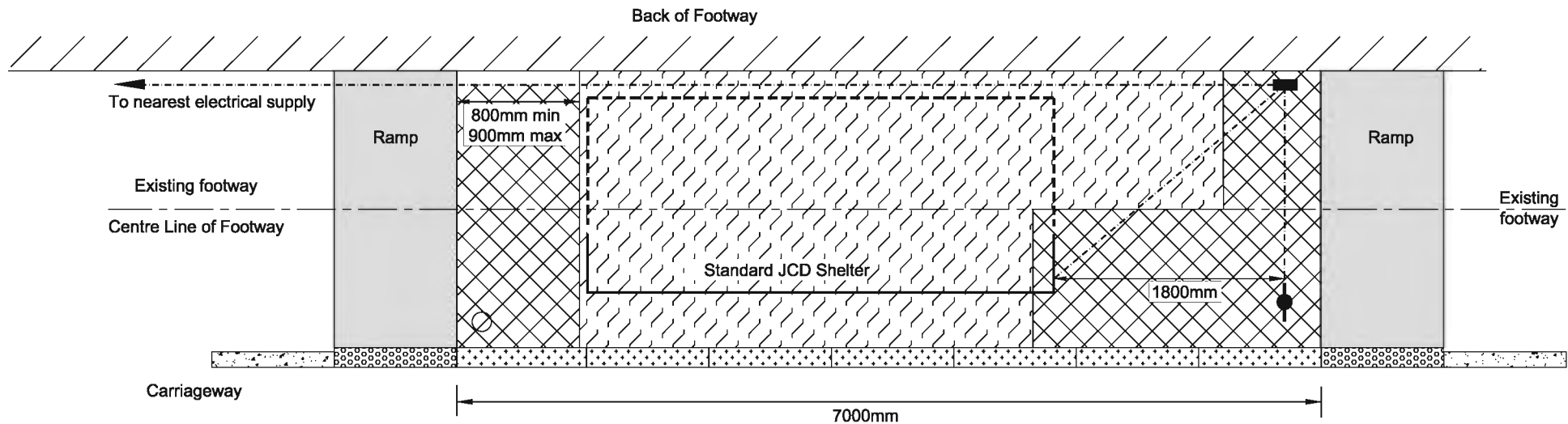
	Proprietary transition kerbs		Existing standard kerbs		200 x 100 x 60mm precast concrete block Red in colour on 35mm sharp sand		Bus Stop pole and plate to be sited 600mm from the kerb edge and 400mm from the top of the ramp
	Proprietary raised kerbs		Existing Footway		400 x 400 x 63mm precast concrete paving slabs Marshal's Perfecta Buff on 35mm sharp sand		Litter Bin
							Ducting for electrical supply

AN EXAMPLE OF A LAYOUT FOR THE FOOTWAY AND KERBS AT A BUS STOP WITH A FORWARD FACING QUEUE, WITH A SHELTER THAT IS SITED WITH THE SCREEN NEXT TO THE KERB

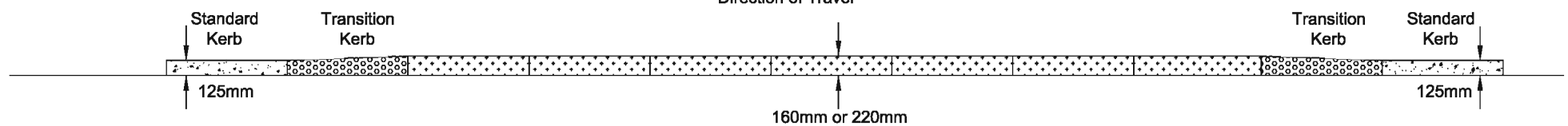
Drawing No.

B404

PLAN VIEW



CROSS SECTION



KEY

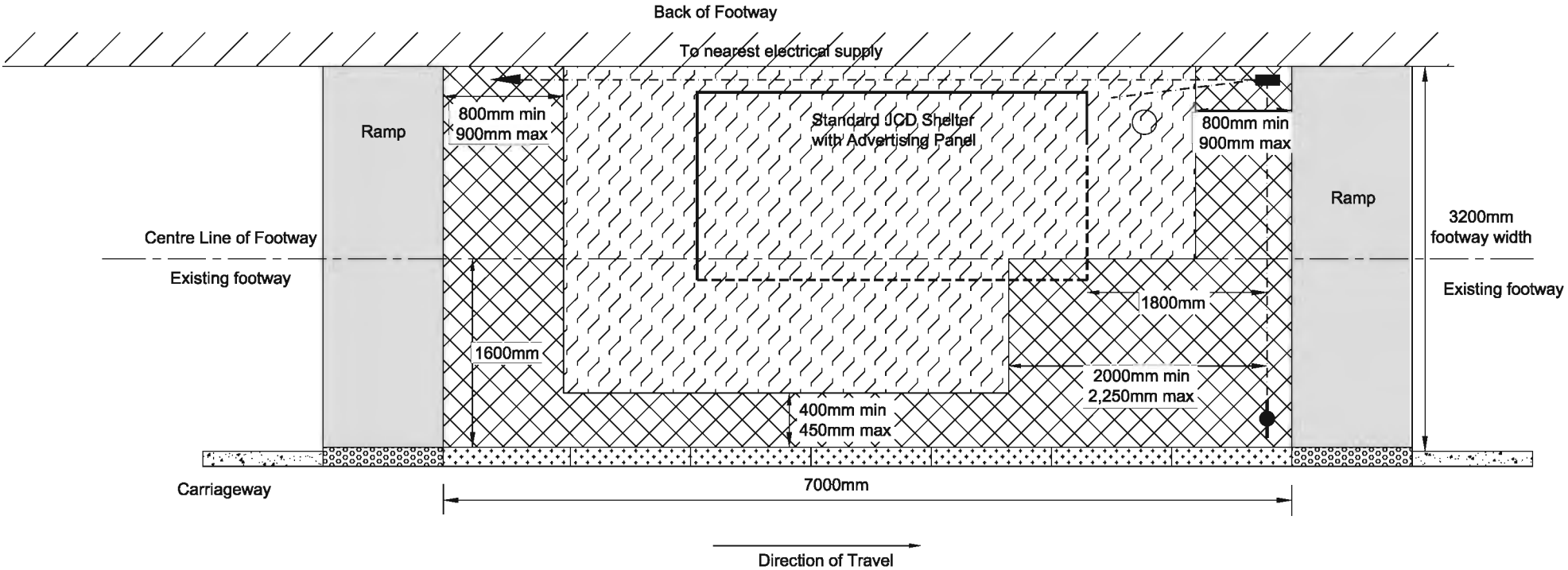
	Proprietary transition kerbs		Existing standard kerbs		200 x 100 x 60mm precast concrete block Red in colour on 35mm sharp sand		Bus Stop pole and plate to be sited 600mm from the kerb edge and 400mm from the top of the ramp
	Proprietary raised kerbs		400 x 400 x 63mm precast concrete paving slabs Marshal's Perfecta Buff on 35mm sharp sand		Litter Bin		Ducting for electrical supply

AN EXAMPLE OF A LAYOUT FOR THE FOOTWAY AND KERBS AT A BUS STOP WITH A SHELTER THAT IS SITED WITH THE SCREEN NEXT TO THE KERB

Drawing No.

B405

PLAN VIEW



KEY

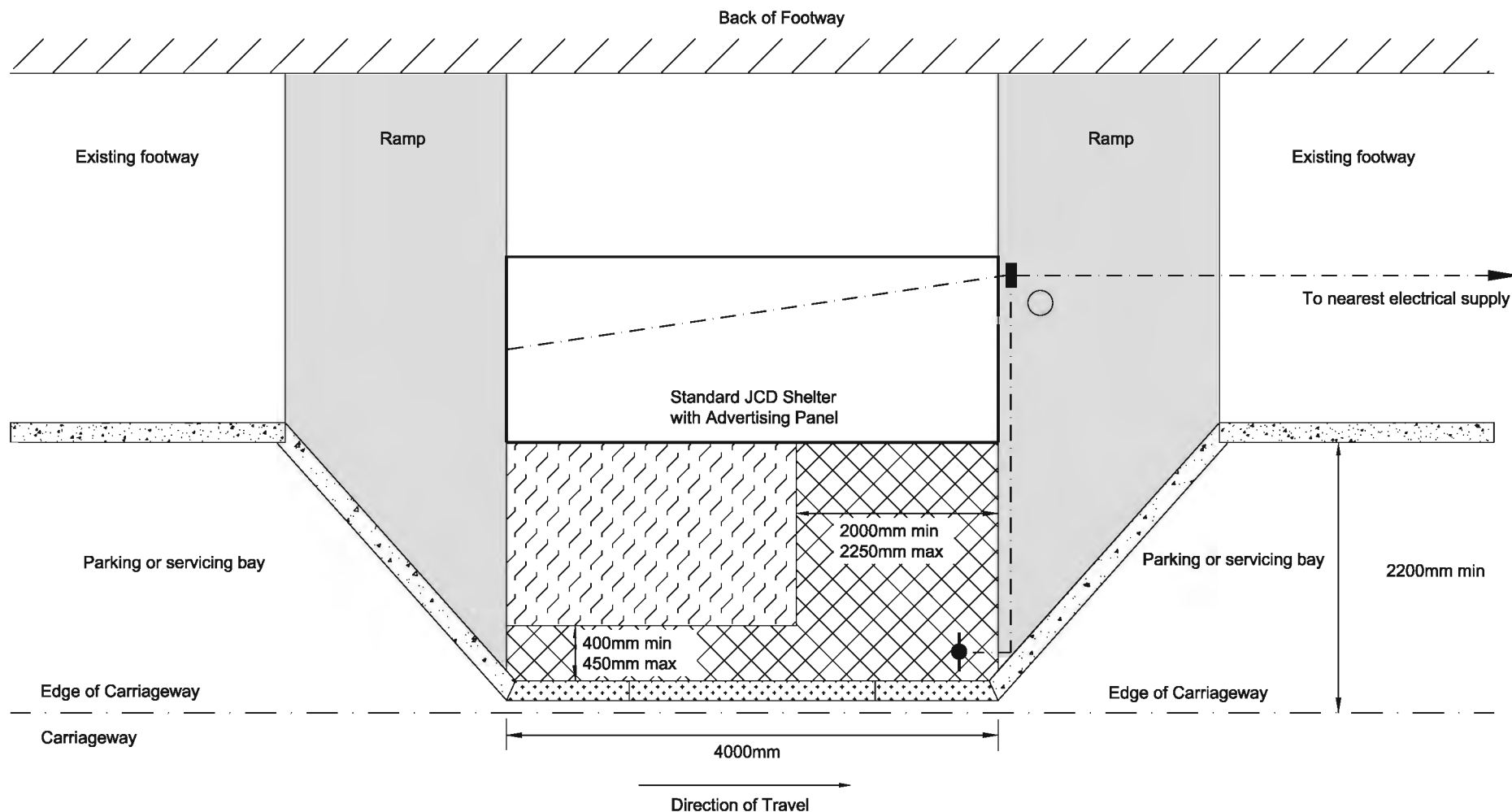
- | | | | | | | | |
|---|------------------------------|---|--|---|---|---|---|
|  | Proprietary transition kerbs |  | Existing standard kerbs |  | 200 x 100 x 60mm precast concrete block
Red in colour on 35mm sharp sand |  | Bus Stop pole and plate to be sited 600mm from the kerb edge and 400mm from the top of the ramp |
|  | Proprietary raised kerbs |  | 400 x 400 x 63mm precast concrete paving slabs
Marshal's Perfecta Buff on 35mm sharp sand |  | Litter Bin |  | Ducting for electrical supply |
| | | | |  | Electricity supply pillar | | |

AN EXAMPLE OF A LAYOUT FOR THE FOOTWAY AND KERBS AT A BUS STOP WITH A SHELTER THAT IS SITED WITH THE SCREEN AT THE REAR OF THE FOOTWAY. THE WIDTH OF THE FOOTWAY IN THIS EXAMPLE IS 3200MM

Drawing No.
B406

Revision	Date	Description

PLAN VIEW



KEY



Proprietary transition kerbs



Existing standard kerbs



200 x 100 x 60mm precast concrete block
Red in colour on 35mm sharp sand

--- Ducting for electrical supply



Proprietary raised kerbs



400 x 400 x 63mm precast concrete paving slabs
Marshal's Perfecta Buff on 35mm sharp sand

○ Litter Bin

AN EXAMPLE OF A LAYOUT FOR THE FOOTWAY AND KERBS AT
A BUS STOP BOARDER. WHERE THE FOOTWAY HAS BEEN
EXTENDED INTO THE CARRIAGEWAY (BUS STOP BOARDER)

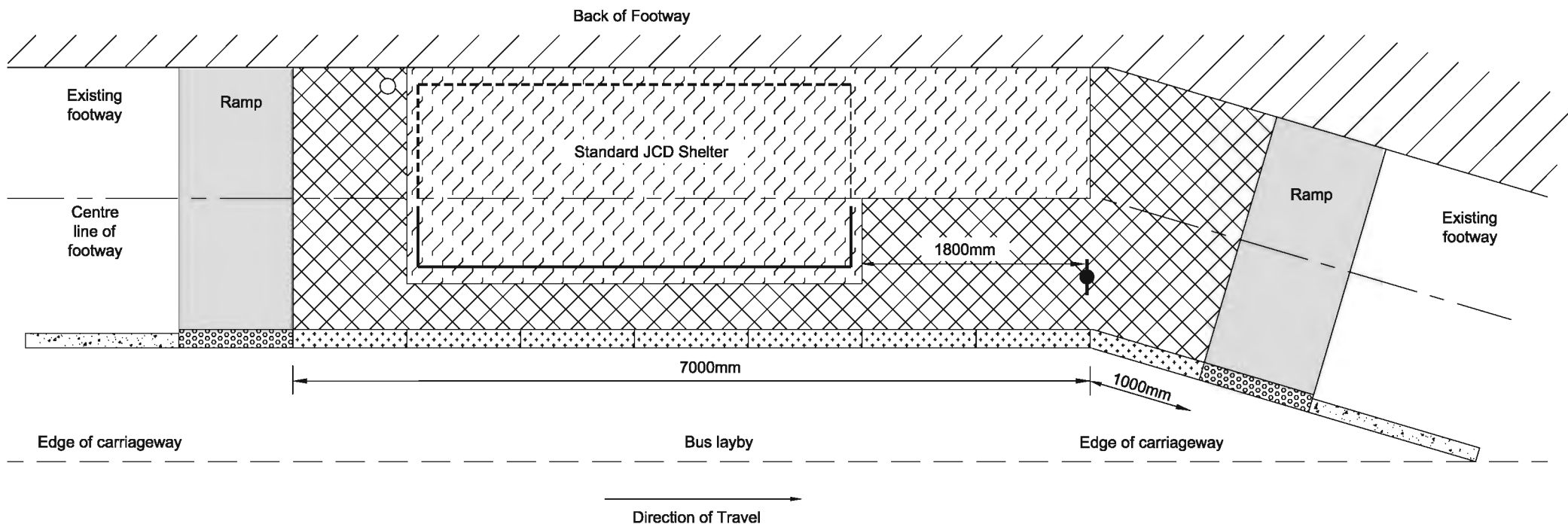
Drawing No.

B407

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Revision	Date	Description

PLAN VIEW



KEY



Proprietary transition kerbs



Existing standard kerbs



200 x 100 x 60mm precast concrete block
Red in colour on 35mm sharp sand



Bus Stop pole and plate



Proprietary raised kerbs



400 x 400 x 63mm precast concrete paving slabs
Marshal's Perfecta Buff on 35mm sharp sand



Litter Bin

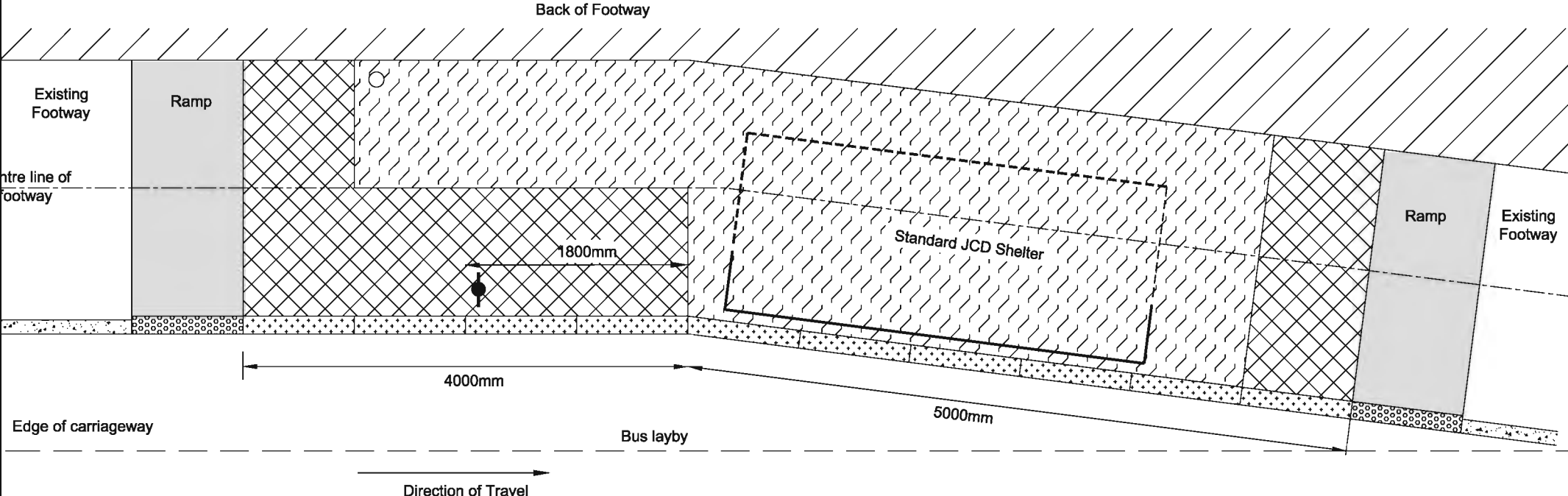
Revision	Date	Description

AN EXAMPLE OF A LAYOUT FOR THE FOOTWAY AND KERBS AT A BUS STOP IN A LAYBY WITH A SHELTER NEXT TO THE BACK OF THE FOOTWAY

Drawing No.

B408

PLAN VIEW



KEY



Proprietary transition kerbs



Existing standard kerbs



Proprietary raised kerbs



200 x 100 x 60mm precast concrete block
Red in colour on 35mm sharp sand



400 x 400 x 63mm precast concrete paving slabs
Marshal's Perfecta Buff on 35mm sharp sand



Bus Stop pole and plate



Litter Bin

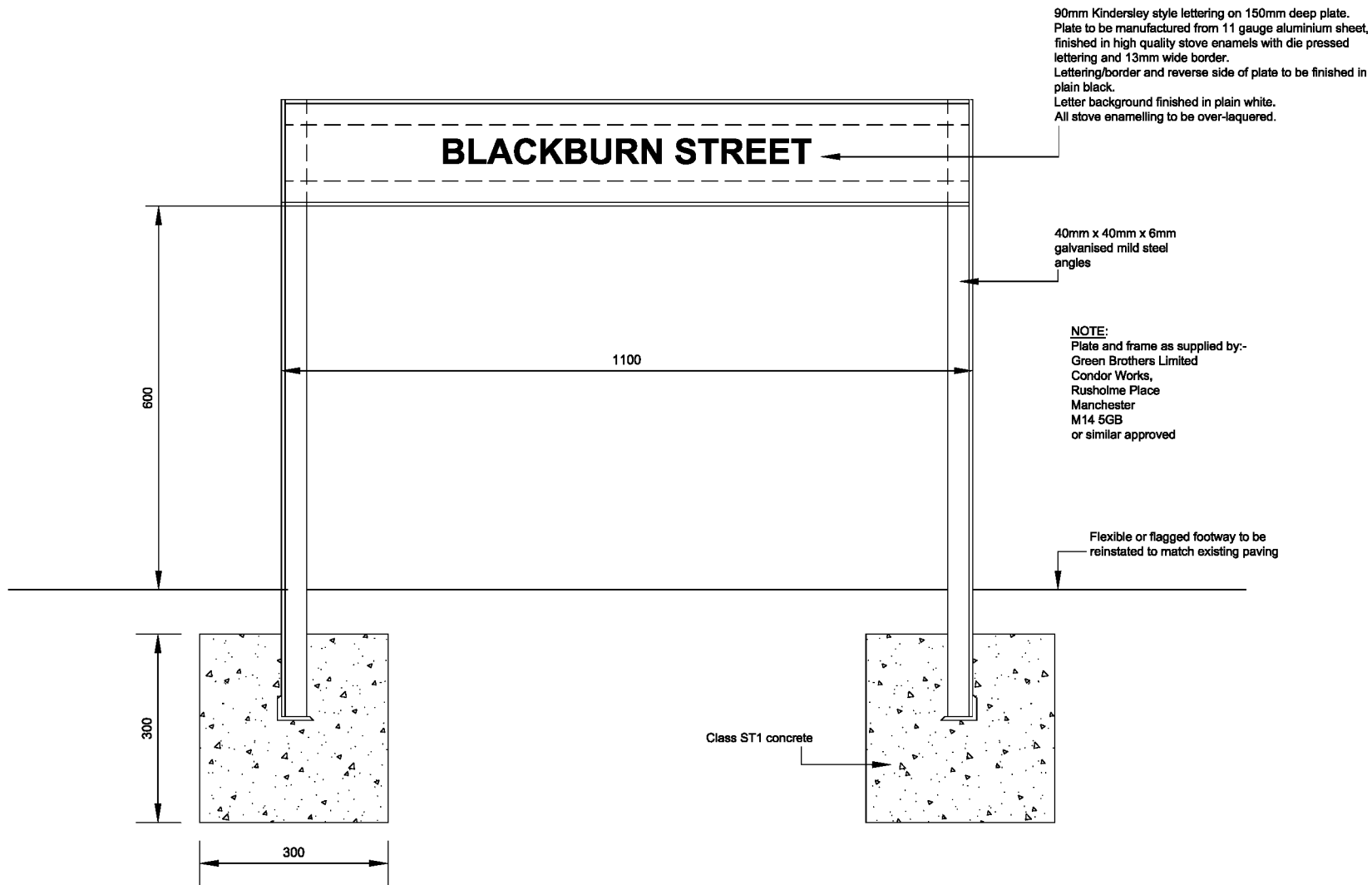
Revision	Date	Description

AN EXAMPLE OF A LAYOUT FOR THE FOOTWAY AND KERBS AT A BUS STOP IN A LAYBY WITH A SHELTER SITED ON THE EXIT SPLAY OF THE LAYBY

Drawing No.

B409





1S	Nov' 10	Revised Standard Detail for Issue
Issue	Date	Description

STREET NAMEPLATE

Drawing No.

B500

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F Series – Drainage

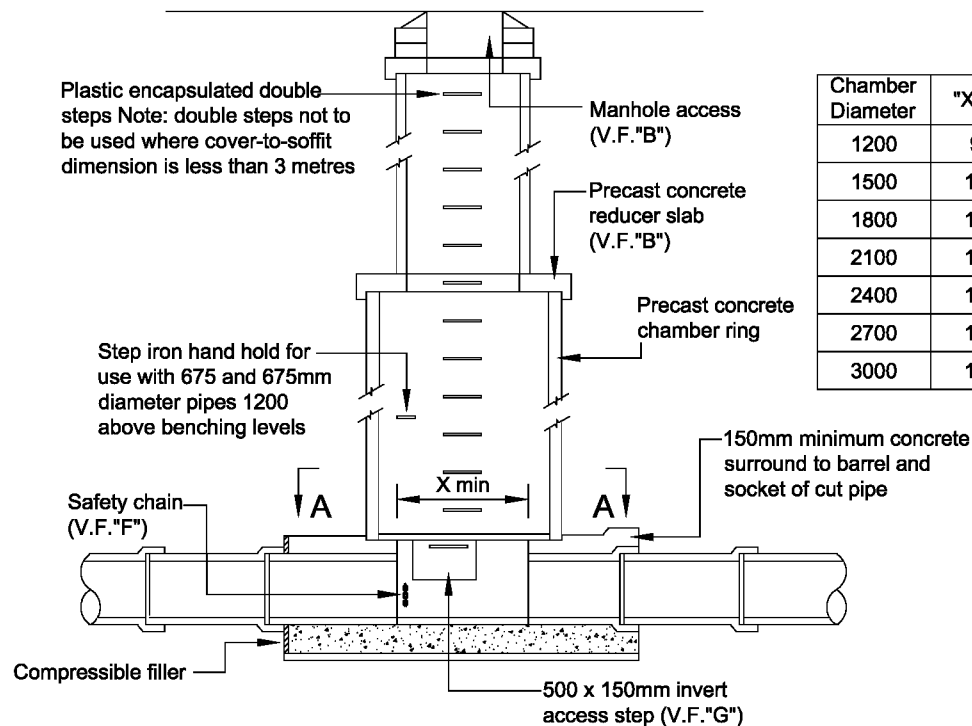
VARIABLE FEATURES (V.F.)										
A	Manhole shaft and ladder / double step access	For 1200, 1350 and 1500 manhole chambers (or where the depth to soffit is <3m) a full height (no access shaft) construction is preferred. For depths to soffit from cover level <3.0m Double Step Access shall be used. For manhole deeper than 3.0m a ladder is required. For Double Step Access minimum internal manhole access shaft diameter shall be 1050. For Ladder Access minimum internal shaft diameter shall be 1200.								
B	Manhole Cover	Depth to soffit from cover level <1.5m			Depth to soffit from cover level >1.5m					
		Minimum Clear Opening Sizes 750 x 750 on 1050 and 1200 chamber / shaft 1200 x 675 on 1500 and above chambers / shafts Beneath all man-access covers greater than 600 x 600 a retractable safety handhold shall be provided. It shall extend 1200 above ground level.			Minimum Clear Opening Sizes 600 x 600 for Double Step Access 600 x 600 for Ladder Access 750 x 600 for Feature Ladder Access					
	Cover Slab	Hole Size in Cover Slab	Cover Frame Seating Ring on Cover Slab Double Step Access	Hole Size in Cover Slab	Cover frame seating ring on cover slab					
	Chamber Dia				Double Step Access	Ladder Access	Feature Ladder Access			
	1050	750 x 600 c.o.	750 x 750 c.o.	600 x 600 e.o.	Type 1 - 600 x 600 e.o.	Not applicable	Not applicable			
	1200	1200 x 675 c.o.	1200 x 675 c.o.	750 x 600 e.o.	Type 1 - 600 x 600 e.o.	Type 1 - 600 x 600 e.o.	750 x 600 opening			
	1350	1200 x 675 c.o.	1200 x 675 c.o.	750 x 600 e.o.	Type 1 - 600 x 600 e.o.	Type 1 - 600 x 600 e.o.	750 x 600 opening			
	1500	1200 x 675 c.o.	1200 x 675 c.o.	750 x 600 e.o.	Type 1 - 600 x 600 e.o.	Type 1 - 600 x 600 e.o.	750 x 600 opening			
	1800	1200 x 675 c.o.	1200 x 675 c.o.	750 x 600 e.o.	Type 1 - 600 x 600 e.o.	Type 1 - 600 x 600 e.o.	750 x 600 opening			
	2100	1200 x 675 c.o.	1200 x 675 c.o.	750 x 600 e.o.	Type 1 - 600 x 600 e.o.	Type 1 - 600 x 600 e.o.	750 x 600 opening			
2400	1200 x 675 c.o.	1200 x 675 c.o.	750 x 600 e.o.	Type 1 - 600 x 600 e.o.	Type 1 - 600 x 600 e.o.	750 x 600 opening				
2700	1200 x 675 c.o.	1200 x 675 c.o.	750 x 600 e.o.	Type 1 - 600 x 600 e.o.	Type 1 - 600 x 600 e.o.	750 x 600 opening				
3000	1200 x 675 c.o.	1200 x 675 c.o.	750 x 600 e.o.	Type 1 - 600 x 600 e.o.	Type 1 - 600 x 600 e.o.	750 x 600 opening				
		Note: for Ladder Access the eccentric seating ring is turned through 180 degrees c.o. = central opening e.o. = eccentric opening								
Reducing Slab		Hole Diameter in Reducing Slab								
Chamber Dia										
1200	reducing slab not used									
1350	reducing slab not used									
1500	reducing slab not used									
1800	1050 for Double step access or 1200 for Ladder Access									
2100	1050 for Double step access or 1200 for Ladder Access									
2400	1050 for Double step access or 1200 for Ladder Access									
2700	1050 for Double step access or 1200 for Ladder Access									
3000	1050 for Double step access or 1200 for Ladder Access									
Feature related to pipe Diameter		Diameter of larger pipes								
		225	300	375	450	525	600	675	750	825
C	Rocker pipes	Rocker pipe effective length : 600						Rocker pipe effective length : 1000		See note 6
D	Benching Width	Minimum 600			Minimum 750			Minimum 1100		
E	Benching Railings	Not Required					Required			
F	Sewer Safety Chains	Not Required					Required			
G	Invert Access Step	Not required			Required with double steps					

Revision	Date	Description

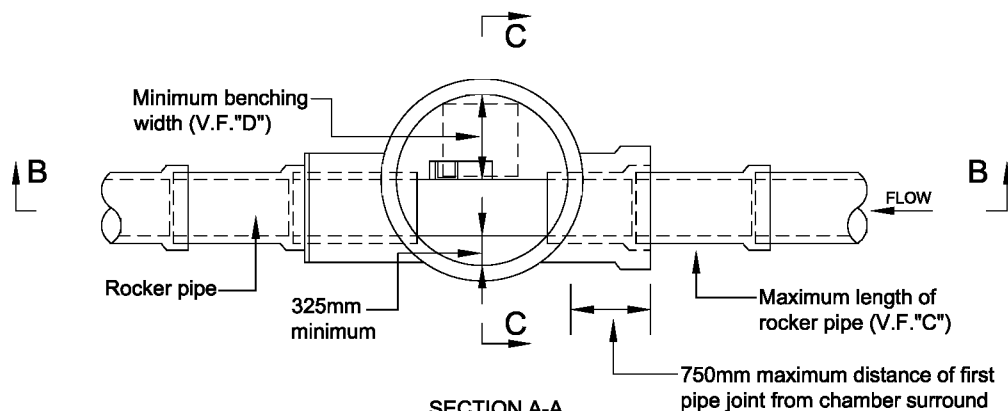
MANHOLE VARIABLE FEATURES

Drawing No.

F100

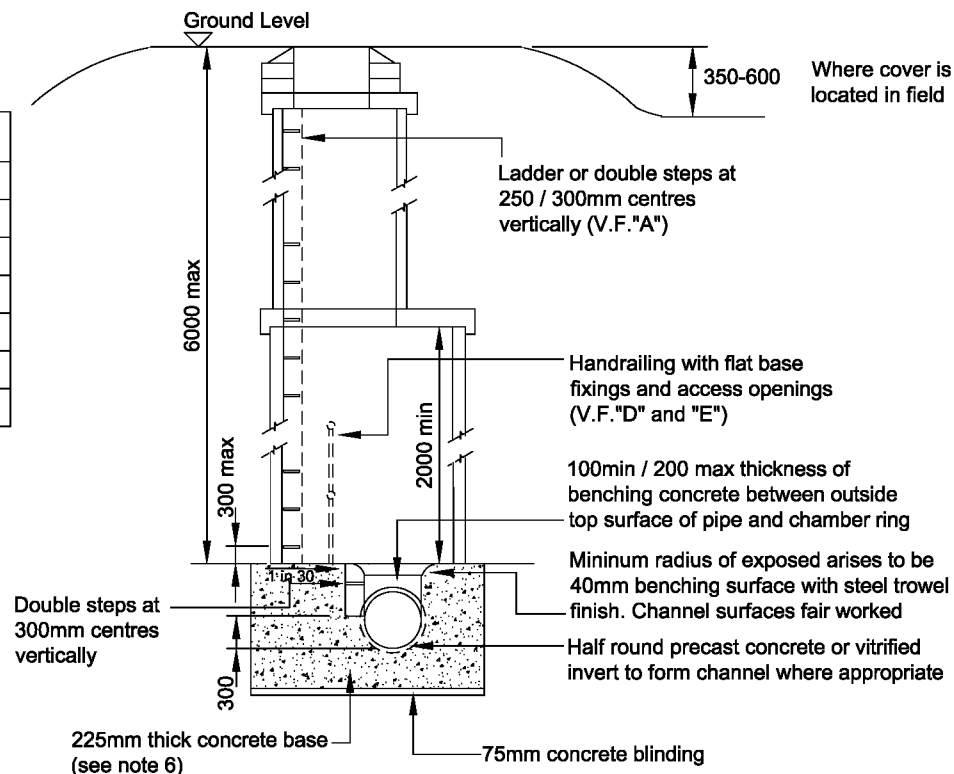


SECTION B-B



SECTION A-A

Chamber Diameter	"X" Min
1200	950
1500	1050
1800	1150
2100	1300
2400	1450
2700	1550
3000	1700



SECTION C-C

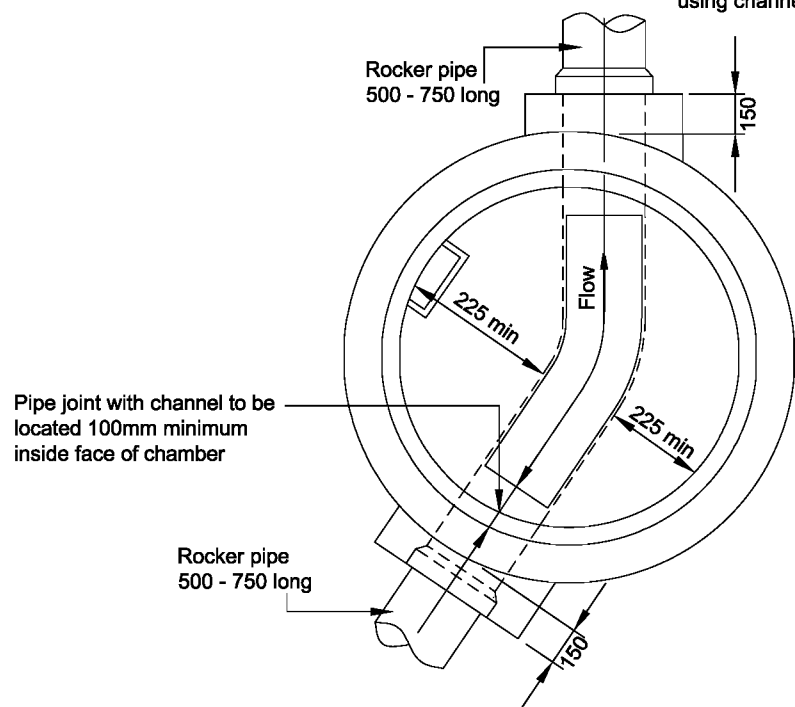
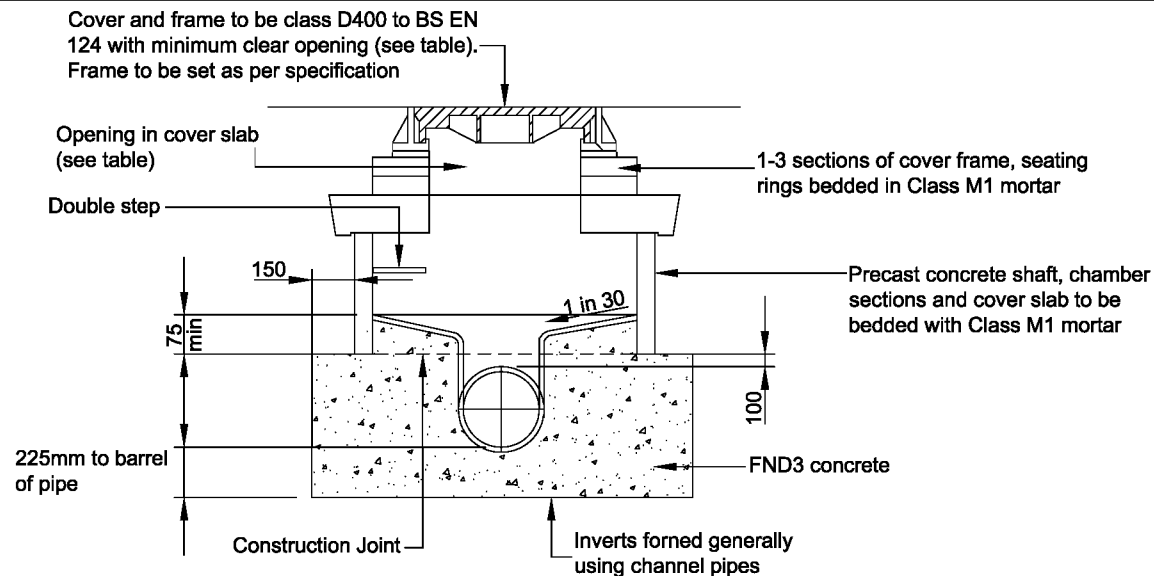
NOTES

- Concrete benching and pipe surround shall be placed in a single continuous operation from top of base slab to top of benching and pipe surround.
- Connections to manholes shall be constructed with the soffits level unless detailed differently on the contract drawings.
- A concrete surround is not normally required to manholes unless installed in areas of unstable ground, under conditions of flotation or where subjected to exceptional or eccentric loadings. In which case a 150mm surround of at least 20N/mm² concrete shall be provided. Any joints should be staggered with precast concrete joints
- Double steps shall be plastic encapsulated carbon to BS EN 1247-2 manhole steps.
- 150mm deep manhole covers are to be used on Category 1,2,3 Roads. 100mm deep on Category 4 roads. Double triangular covers are to be used in carriageway.
- All insitu concrete to be FND3.
- Where V.F. appears in notation refers to variable features as shown on Standard Detail No.F100.

Revision	Date	Description

MANHOLE TYPE 1 - PIPES NOT EXCEEDING 825mm DIAMETER (DEPTH TO BENCHING NOT EXCEEDING 6000mm)

Drawing No.
F101



Nominal Int. Pipe Dia.	Minimum Int. Chamber Dia.	Minimum Clear Opening Size	Hole Size in Cover Slab	Cover Frame Seating Ring
100	1050	750 x 750	750 x 750 central	750 x 750 central
150	1050	750 x 750	750 x 750 central	750 x 750 central
225	1200	1200 x 675	1200 x 675 central	1200 x 675 central
300	1200	1200 x 675	1200 x 675 central	1200 x 675 central
375	1350	1200 x 675	1200 x 675 central	1200 x 675 central

NOTES

1. A concrete surround is not normally required to manholes unless installed in areas of unstable ground, under conditions of flotation or where subjected to exceptional or eccentric loadings. In which case a 150mm surround of at least FND3 concrete shall be provided. Any joints should be staggered with precast concrete joints.
2. Double steps shall be plastic encapsulated carbon to BS EN 1247-2 manhole steps.

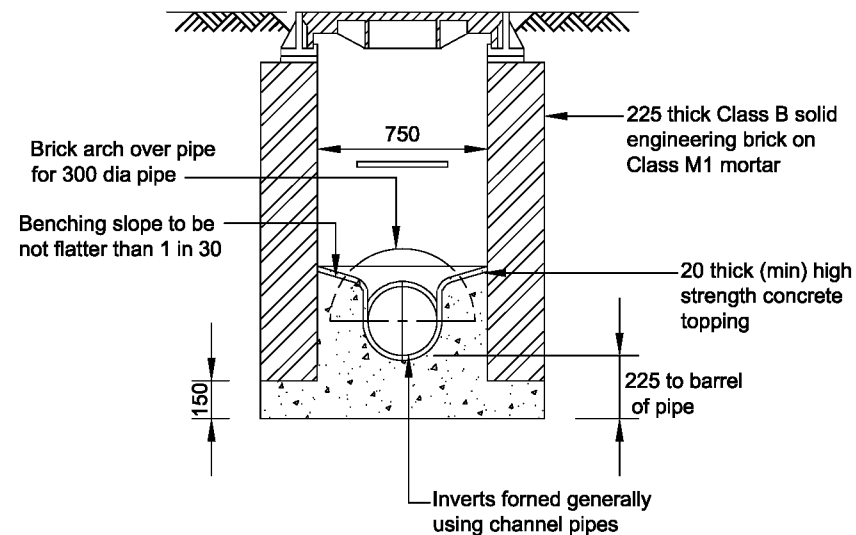
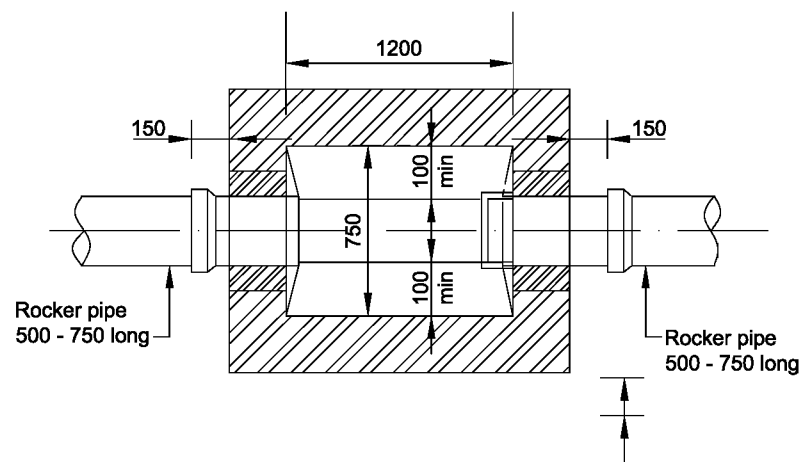
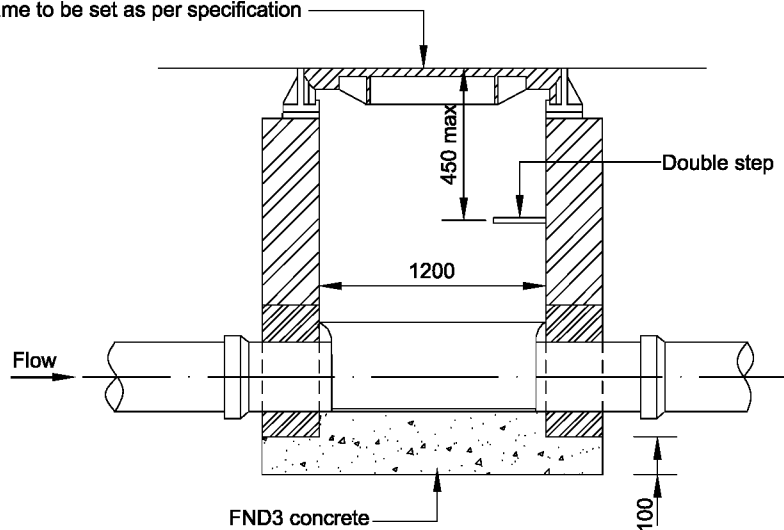
Revision	Date	Description

MANHOLE TYPE 2 - CIRCULAR PRECAST CONCRETE MANHOLE <1.5m TO SOFFIT

Drawing No.

F102

Cover and frame to be class B125 to BS EN 124 with 1200 x 675 minimum clear opening.
Frame to be set as per specification



NOTES

1. Maximum pipe diameter 300mm
2. Location of this type of manhole is restricted to areas where Class B125 covers can be used.
3. Double steps shall be plastic encapsulated carbon to BS EN 1247-2 manhole steps.

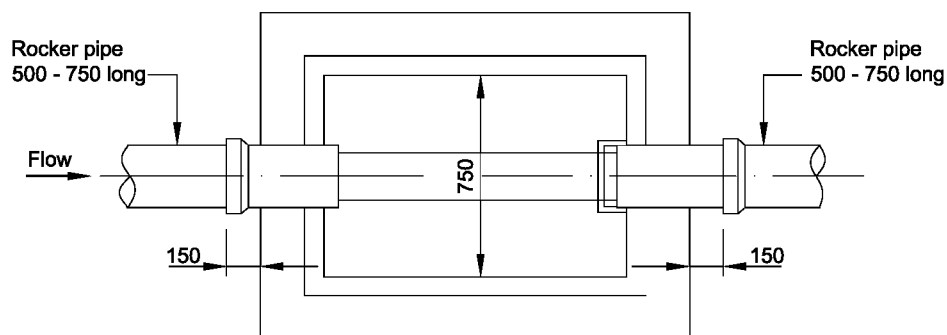
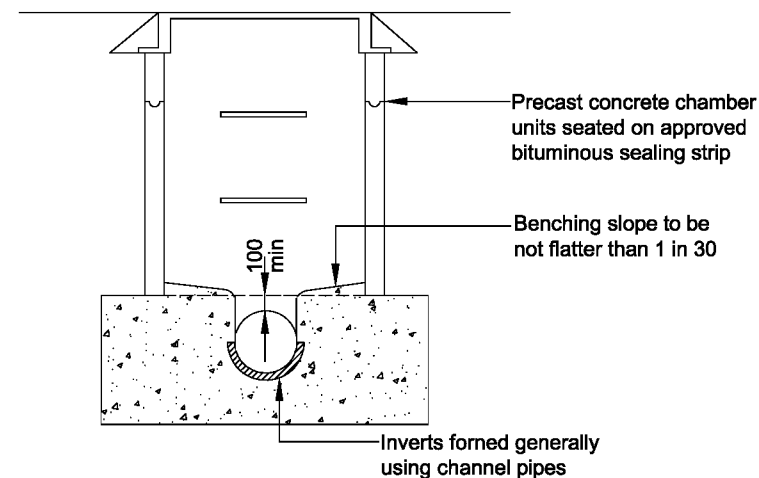
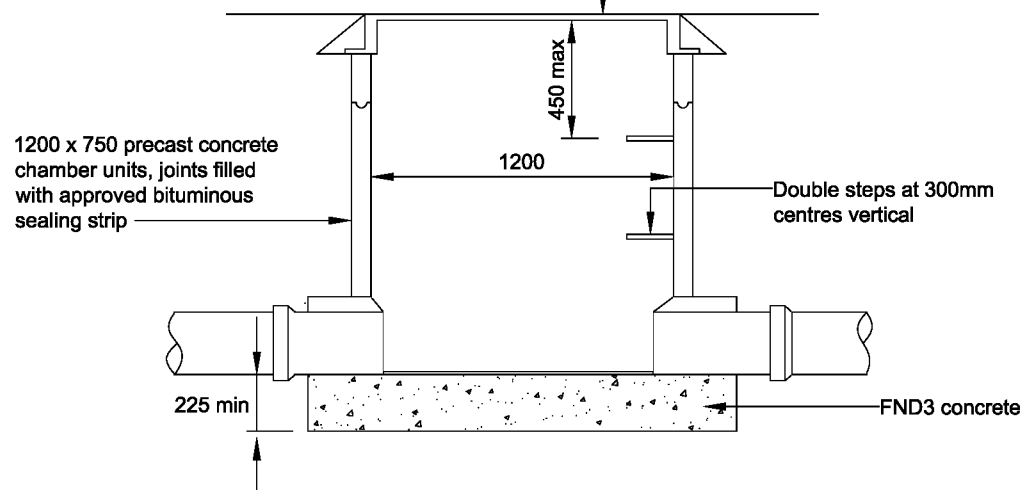
Revision	Date	Description

MANHOLE TYPE 3 - BRICK MANHOLE <1.5m TO SOFFIT

Drawing No.

F103

Cover and frame to be class D400 to BS EN 124
with minimum 1200 x 675 minimum clear opening.
Frame to be set as per specification



NOTES

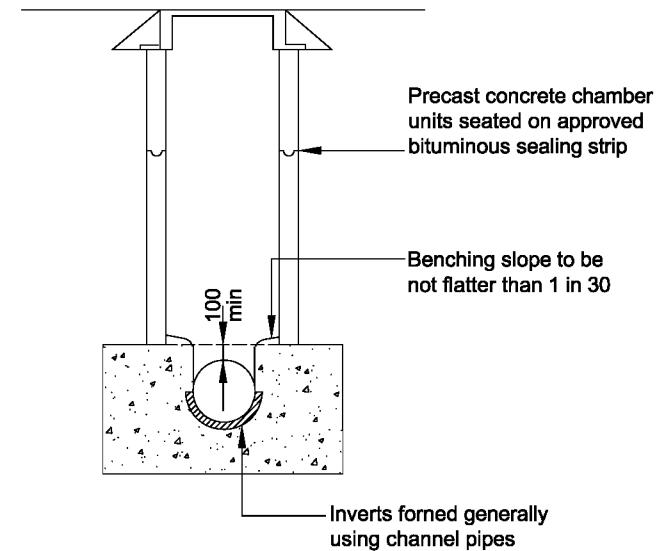
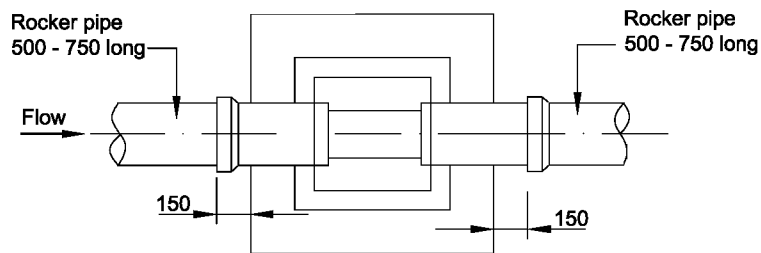
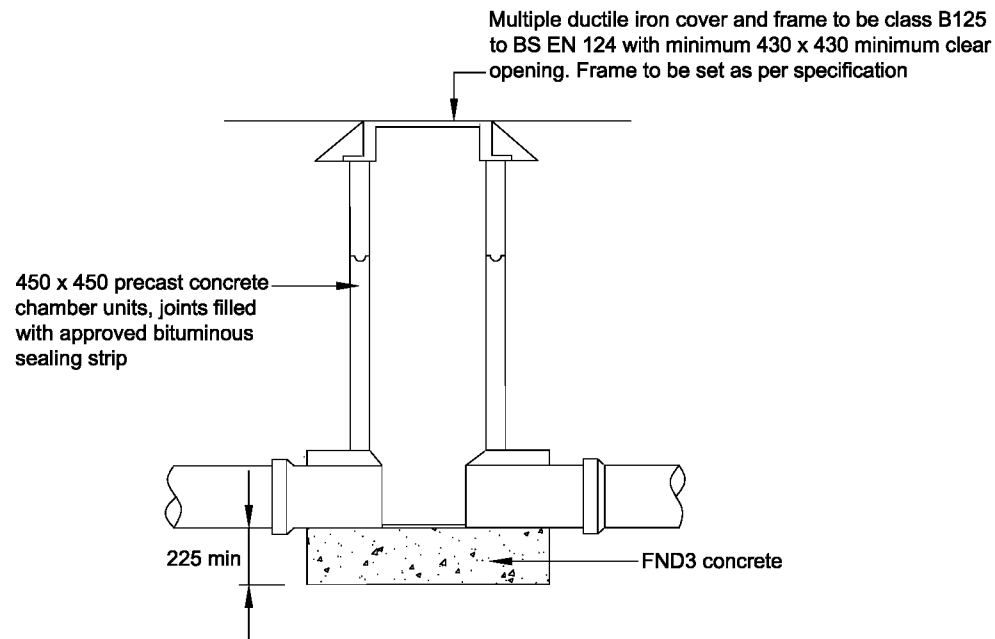
- Maximum pipe diameter 300mm
- Cover and Frame:
150 deep covers are to be used on Category 1, 2 and 3 roads.
100 deep covers to be used in Category 4 roads.
Double triangular covers to be used in carriageway.
- A concrete surround is not normally required to manholes unless installed in areas of unstable ground, under conditions of flotation or where subjected to exceptional or eccentric loads. In which case a 150mm surround at least FND3 concrete shall be provided. Any joints should be staggered with the precast concrete joints.

Revision	Date	Description

MANHOLE TYPE 4 - RECTANGULAR PRECAST CONCRETE MANHOLE <1.5m TO SOFFIT

Drawing No.

F104



NOTES

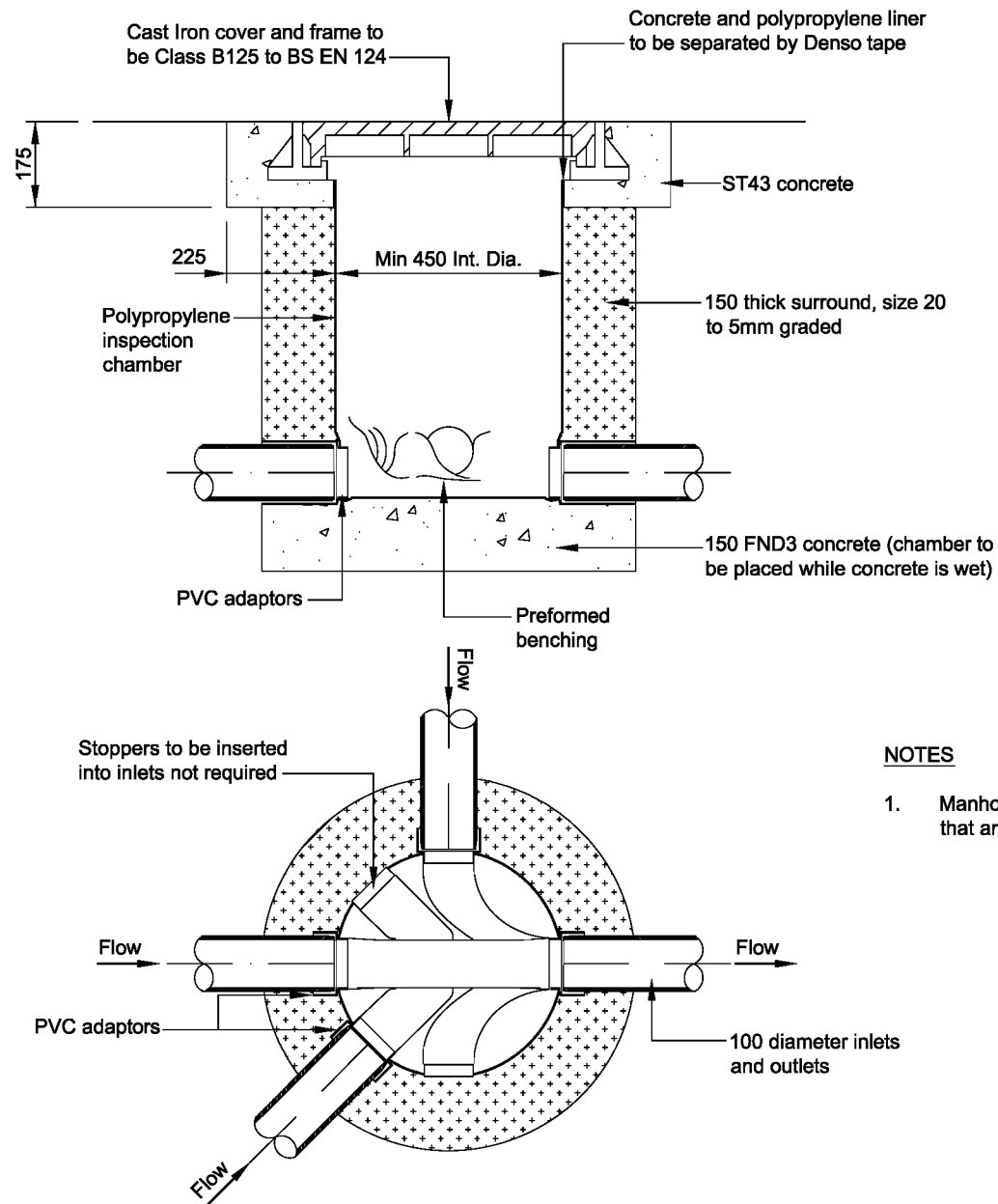
1. Location of manholes restricted to pedestrian and lightly trafficked areas
2. A concrete surround is not normally required to manholes unless installed in areas of unstable ground, under conditions of flotation or where subjected to exceptional or eccentric loads. In which case a 150mm surround at least FND3 concrete shall be provided. Any joints should be staggered with the precast concrete joints.

Revision	Date	Description

MANHOLE TYPE 5 - RECTANGULAR PRECAST CONCRETE INSPECTION CHAMBER (NON PERSONNEL ENTRY) <1.5m TO SOFFIT

Drawing No.

F105



NOTES

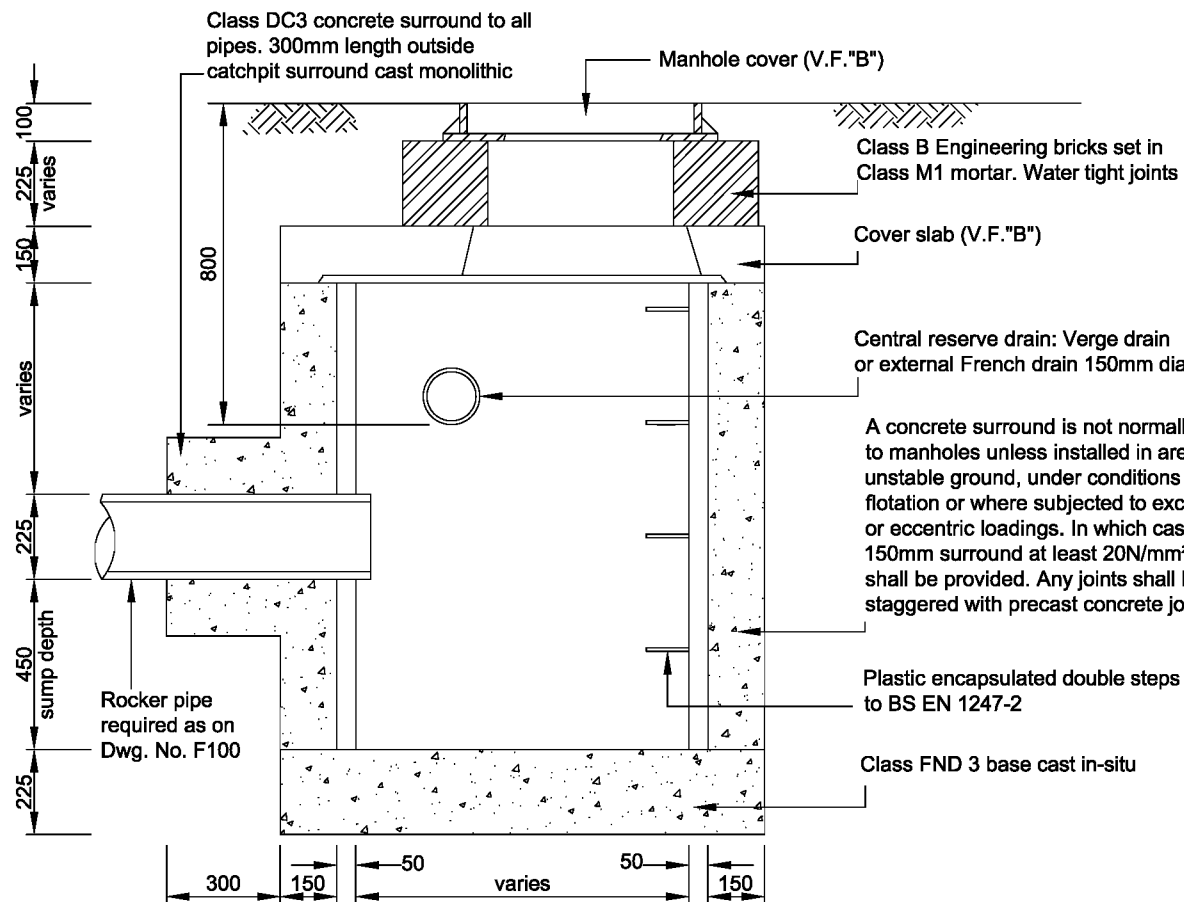
1. Manholes only suitable for locations that are inaccessible to vehicles.

MANHOLE TYPE 6 - POLYPROPYLENE INSPECTION CHAMBER (NON PERSONNEL ENTRY) <1.2m TO INVERT

Drawing No.

F106

Revision	Date	Description

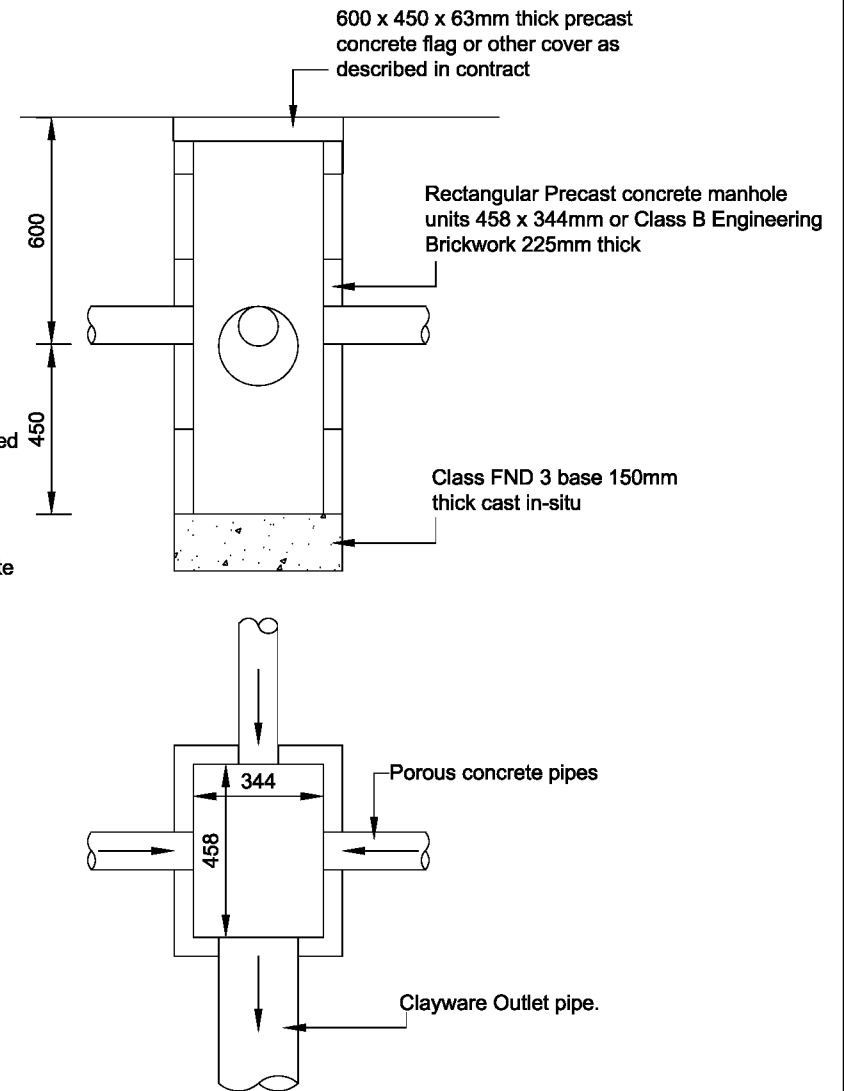


CIRCULAR PRECAST CONCRETE

NOTES

1. Size, direction and number of inlet and outlet pipes varies.
2. Location of double steps to be agreed with the Engineer.
3. 150mm deep manhole covers are to be used on Category 1,2,3 Roads. 100mm deep on Category 4 roads. Double triangular covers are to be used in carriageway.
4. Where V.F. appears in notation refers to variable features as shown on Standard Detail No.F100.

Nominal Int. Pipe Dia (mm)	Chamber Ring Size (mm)
300 or less	1200
375 or less	1200
450 or less	1350
525 or less	1500
600 or less	1500
675 or less	1800



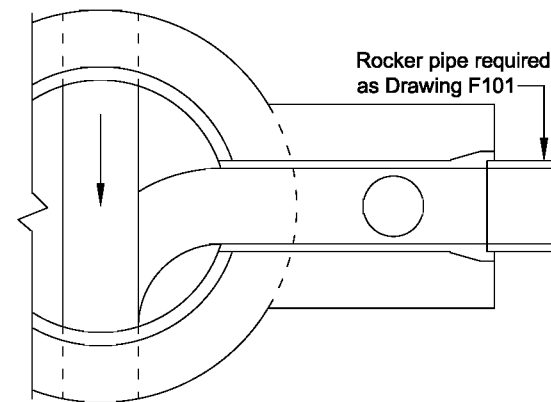
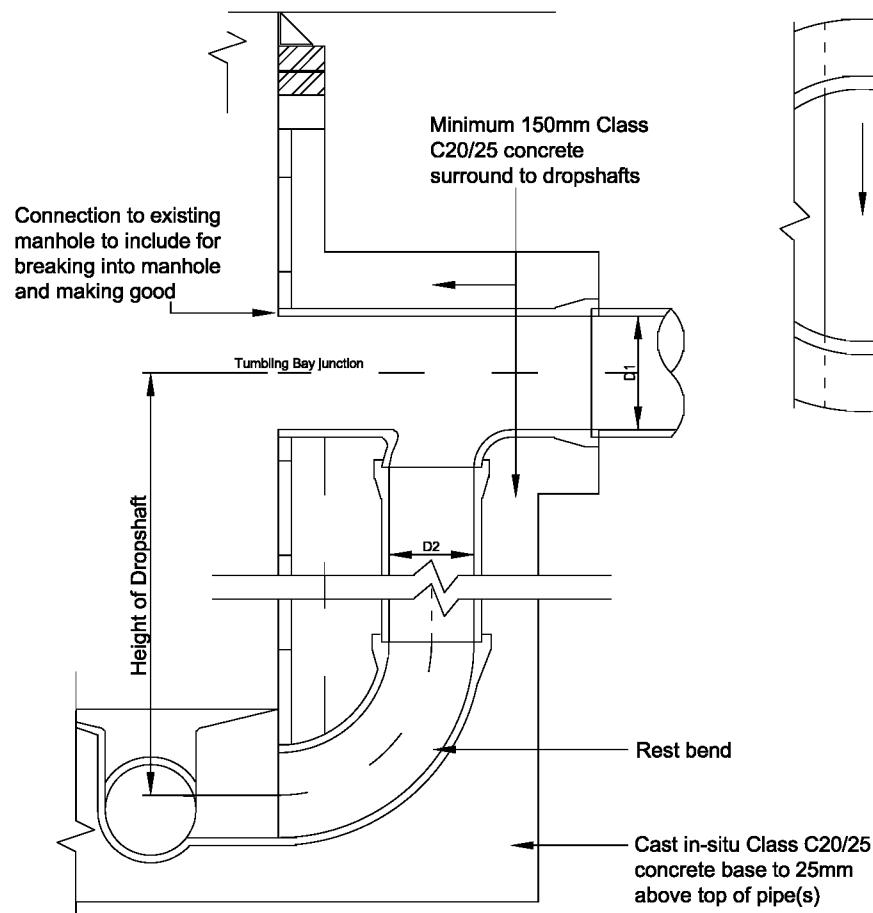
RECTANGULAR PRECAST CONCRETE OR BRICK

Revision	Date	Description

CATCHPIT MANHOLES

Drawing No.

F107



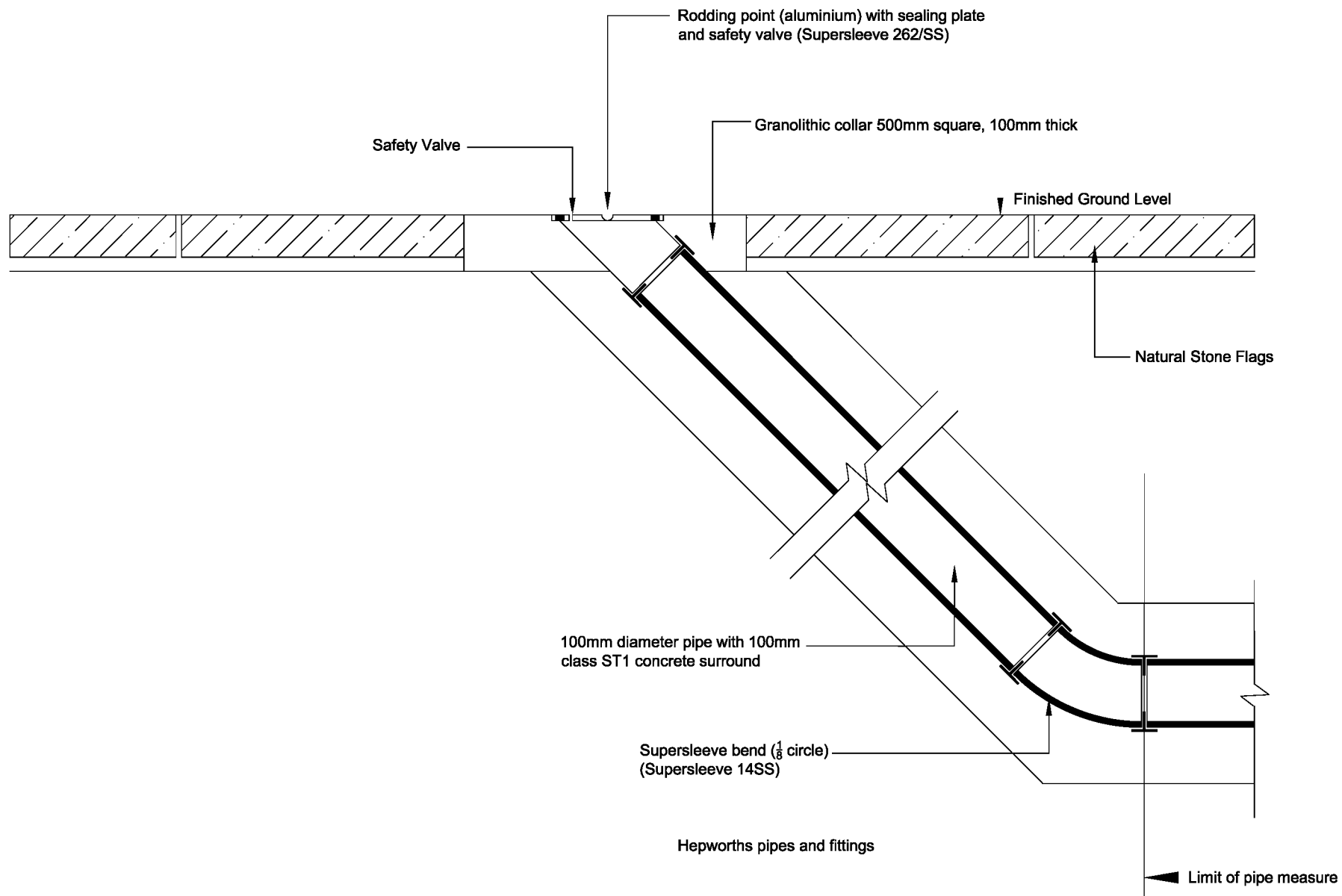
Sewer Diameter (D1 mm)	Dropshaft Diameter (D2 mm)
225 - 300	225
375	300
450	375
525 - 600	450
675	525
750 - 900	600

Revision	Date	Description

STANDARD DROPSHAFT

Drawing No.

F108

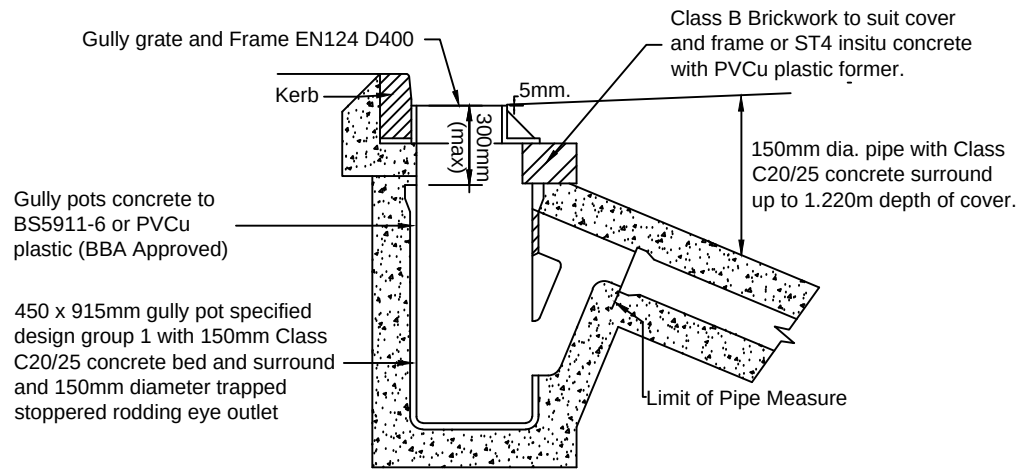


Revision	Date	Description

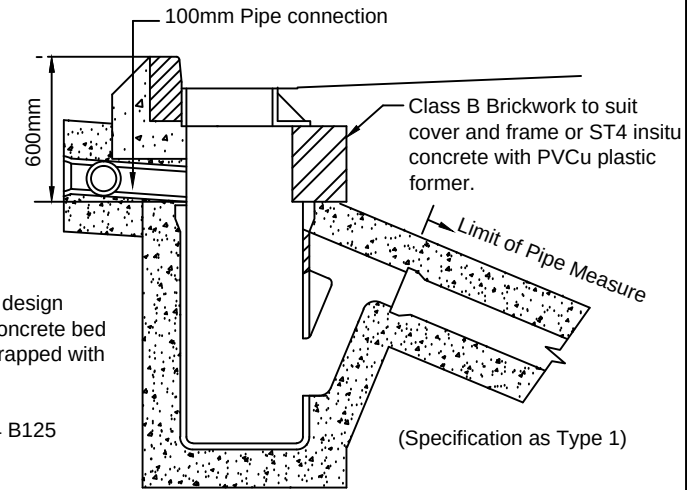
RODDING EYE

Drawing No.

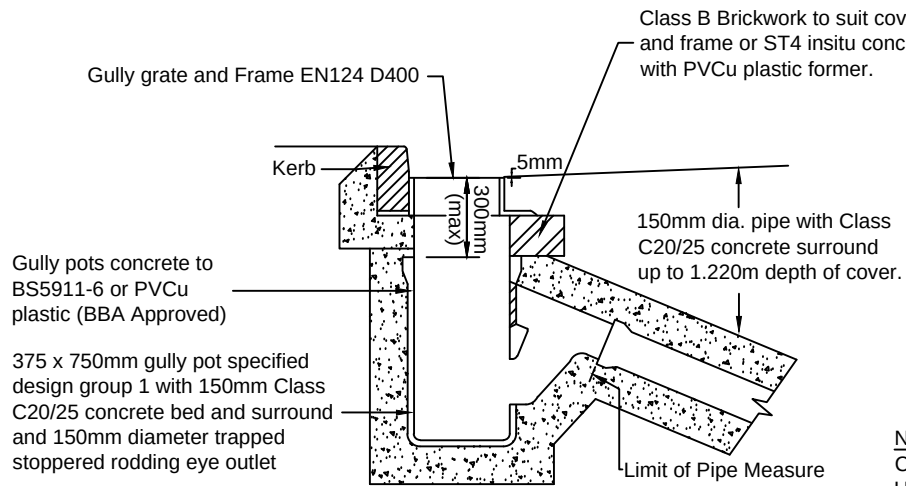
F109



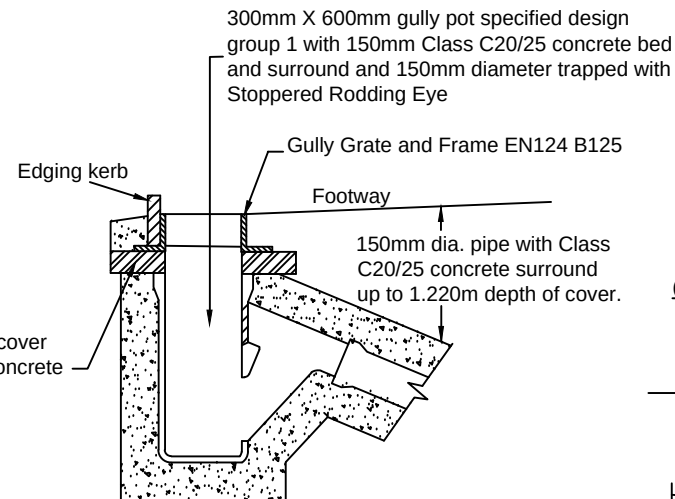
HIGHWAY GULLY TYPE P1
(CONNECTION DIRECT TO SEWER)



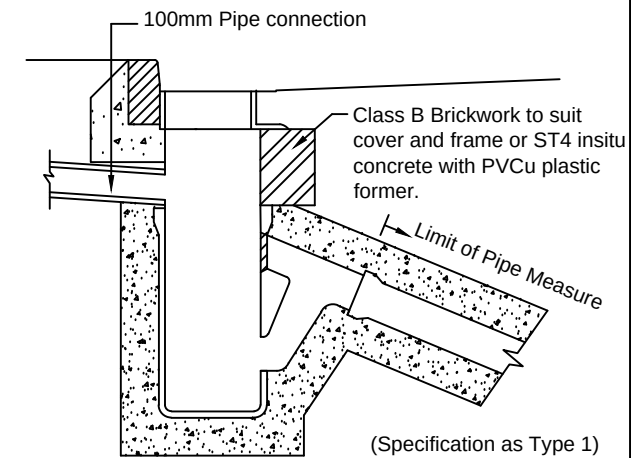
HIGHWAY GULLY TYPE P2
(WITH BACK CONNECTION)



HIGHWAY GULLY TYPE P3
(CONNECTION DIRECT TO SEWER)



FOOTWAY GULLY TYPE P4
(CONNECTION DIRECT TO SEWER)



HIGHWAY GULLY TYPE P5
(WITH BACK CONNECTION)

NOTE:
Cast ironware and supporting brickwork to be bedded using Ultracrete M90 GP fast set mortar and backfilled using Ultracrete QC10 rapid strength concrete as supplied by:-
Instarmac Group PLC, Kingsbury Link, Trinity road, Tamworth B78 2EX
Tel: 01827 872244

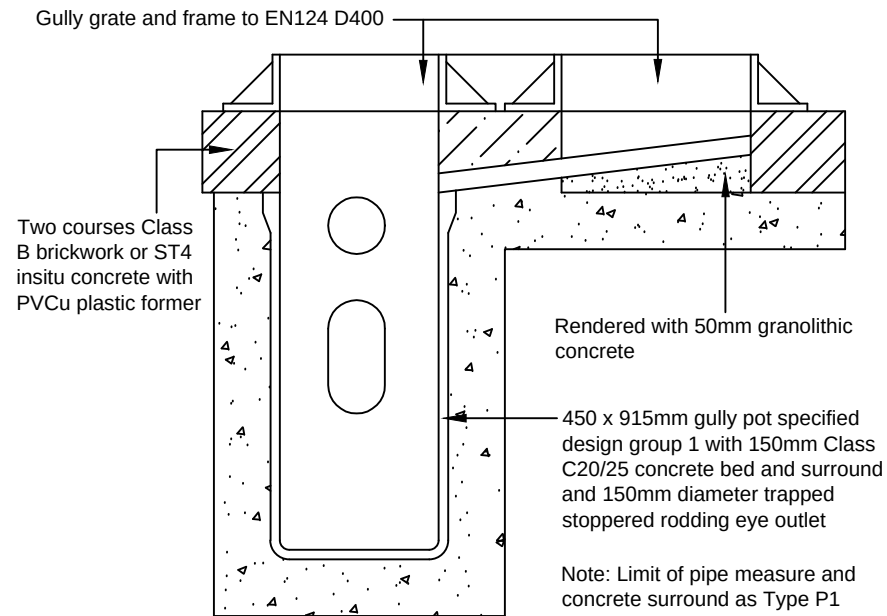
Revision	Date	Description

GULLY DETAILS TYPE P1 - P5

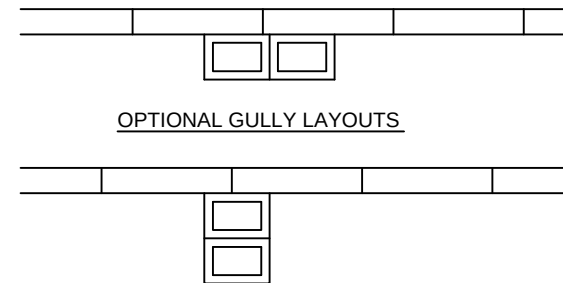
Drawing No.

F110

Bury
COUNCIL
Environment & Development Services
Engineering Consultancy



**TYPICAL GULLY TYPE P6
(DOUBLE GRATE AND FRAME)**



NOTE:

Cast ironware and supporting brickwork to be bedded using Ultracrete M90 GP fast set mortar and backfilled using Ultracrete QC10 rapid strength concrete as supplied by:-

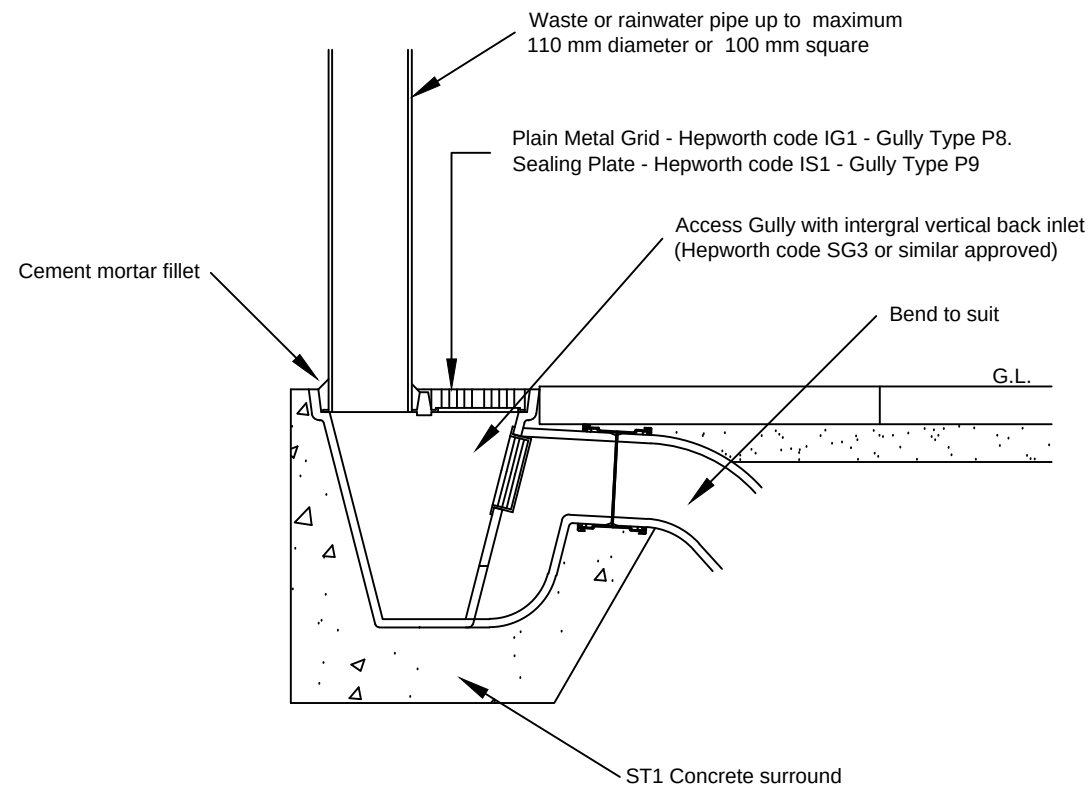
Instarmac Group PLC, Kingsbury Link, Trinity road, Tamworth B78 2EX
Tel: 01827 872244

Revision	Date	Description

GULLY DETAILS TYPE P6

Drawing No.

F111



GULLY TYPE P8 and P9
(CONNECTION DIRECT TO SEWER)

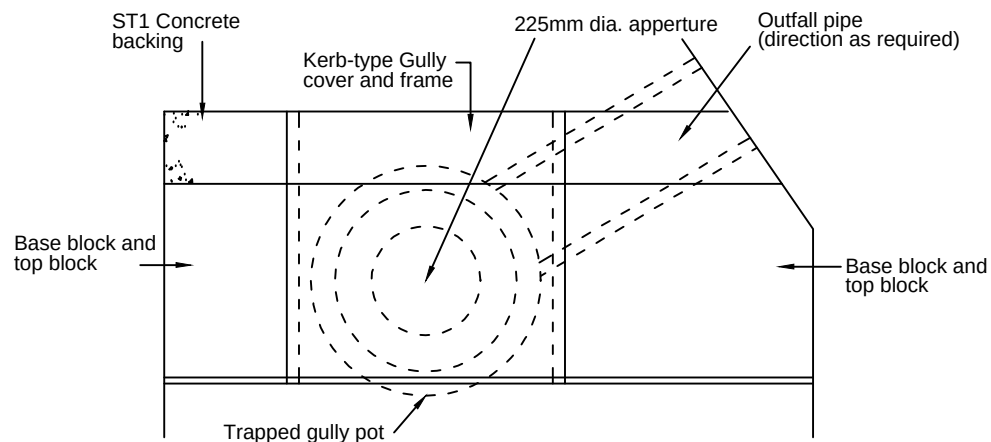
N.B. Limit of pipe measure and concrete surround as Gully Type P1

Revision	Date	Description

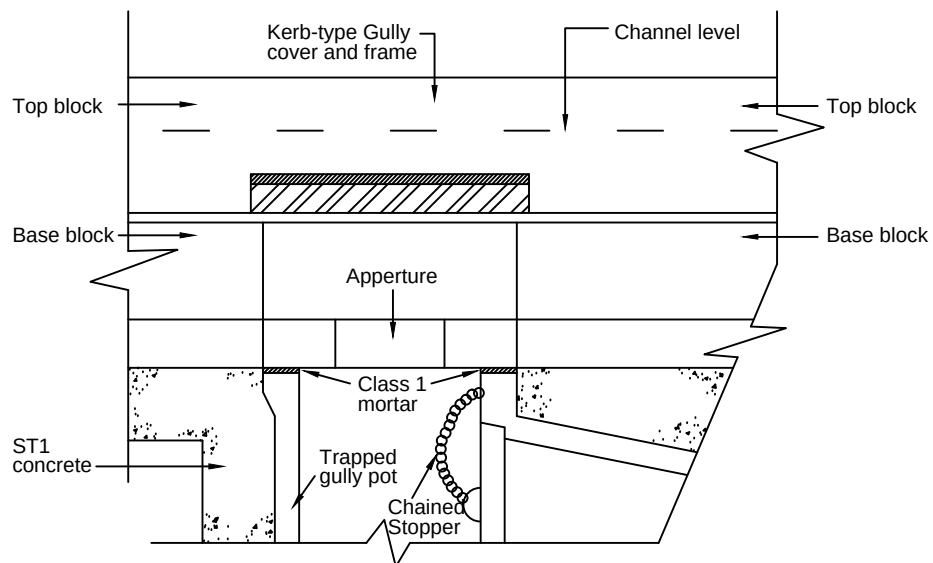
GULLY DETAILS TYPE P8 and P9

Drawing No.

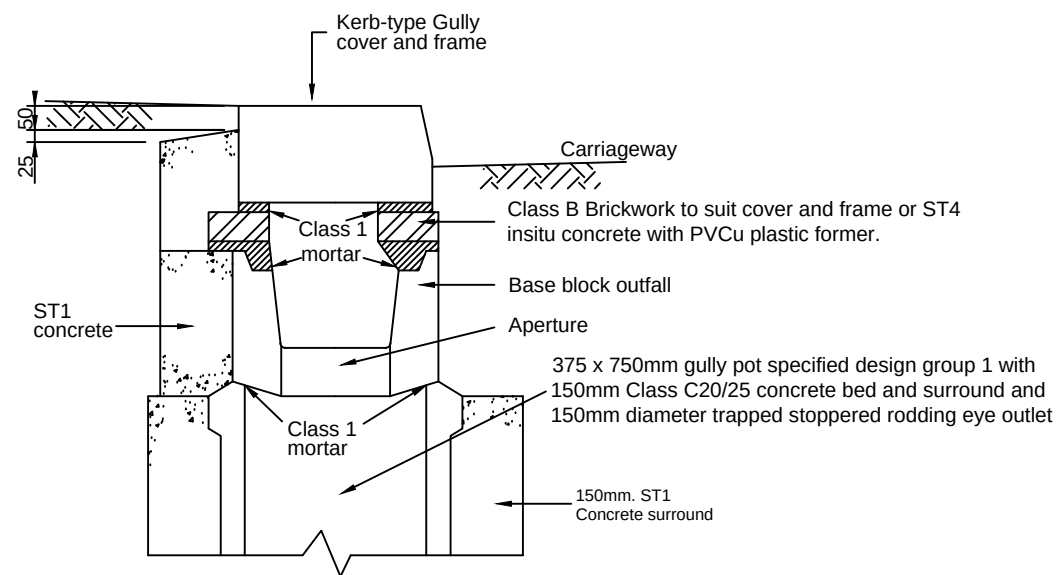
F112



PLAN



LONGITUDINAL SECTION



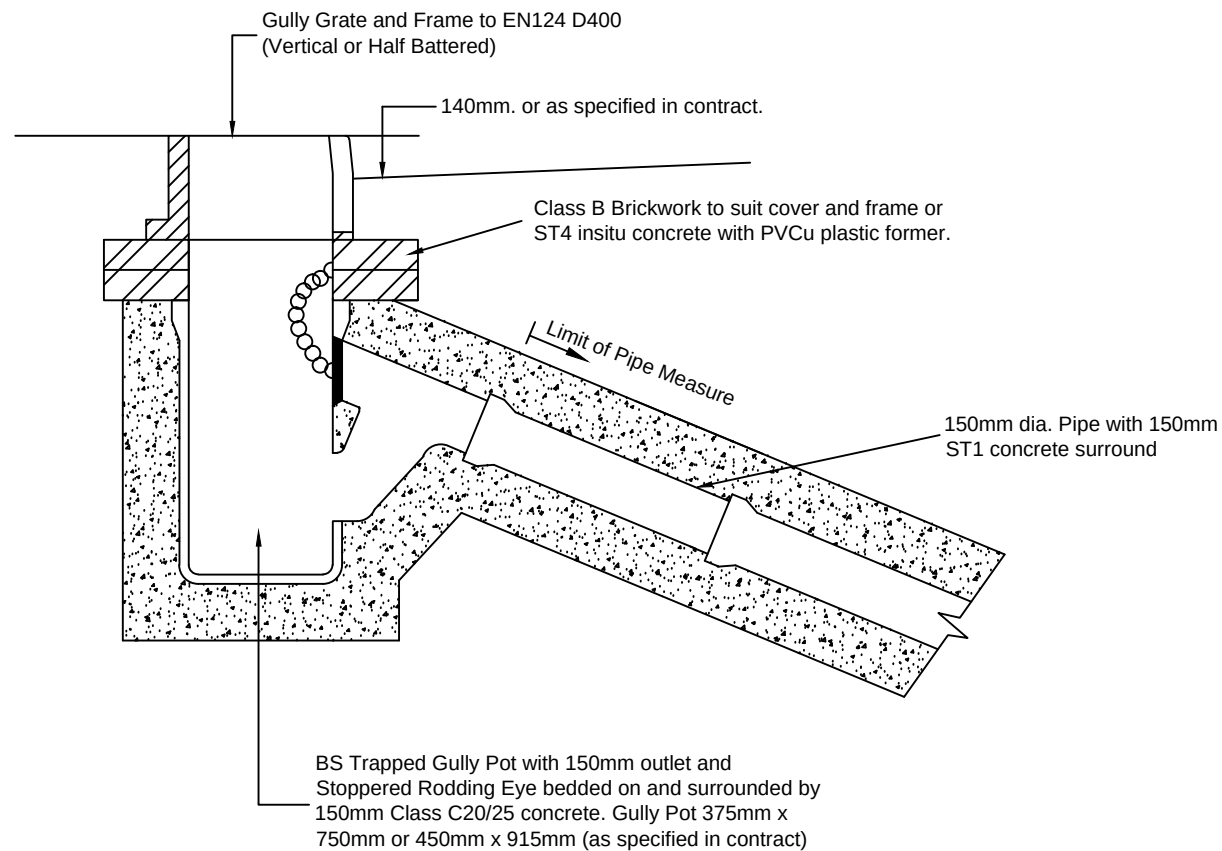
CROSS SECTION

Revision	Date	Description

GULLY DETAILS TYPE P10

Drawing No.

F113

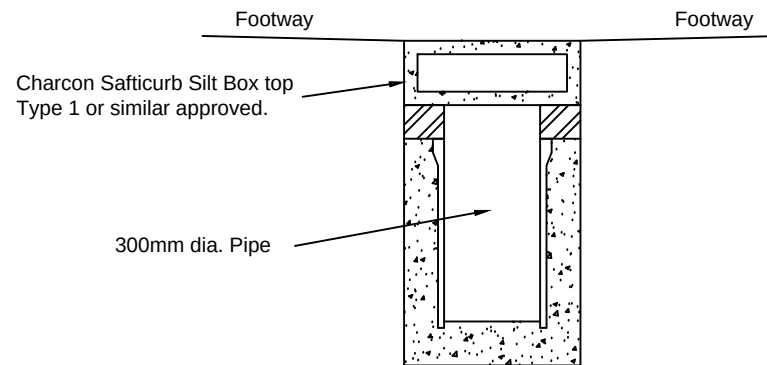


Revision	Date	Description

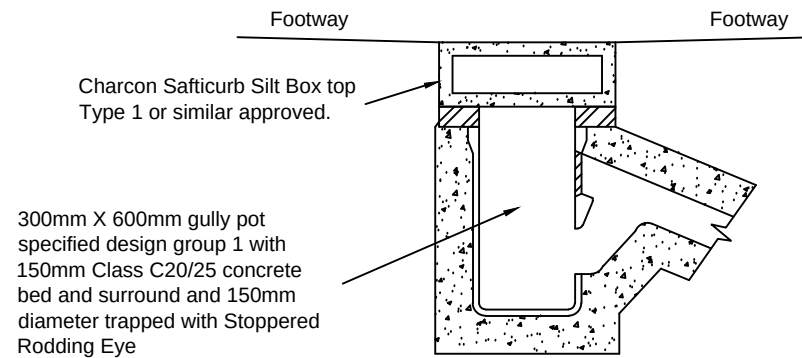
GULLY DETAILS TYPE P11 (ARTERIAL GULLY)

Drawing No.

F114



GULLY TYPE P12



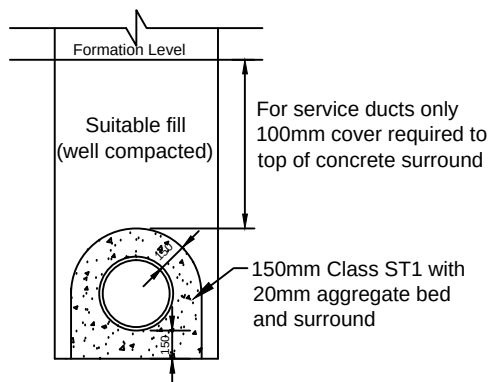
GULLY TYPE P13

Revision	Date	Description

GULLY DETAILS TYPE P12 AND P13

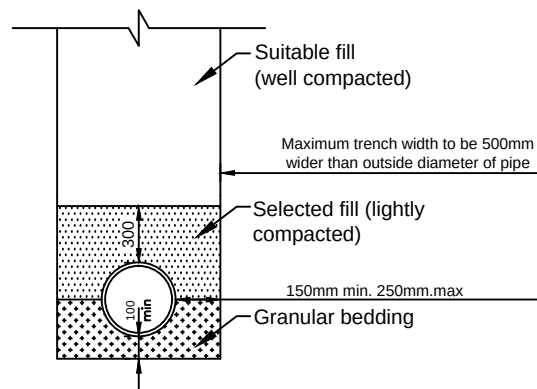
Drawing No.

F115



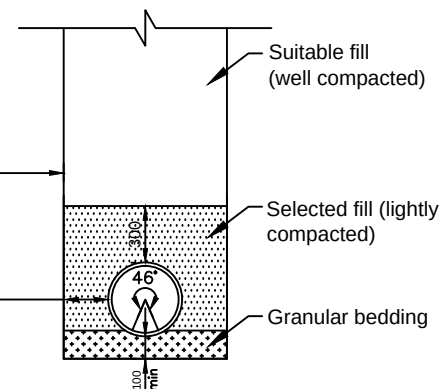
CLASS A PIPE BEDDING SURROUND
TO SEWERS AND DUCTS

(Class B Bedding) Factor 2.5



CLASS B PIPE BEDDING

(Class C Bedding) Factor 1.9



CLASS C PIPE BEDDING

NOTES

1. For the purpose of measurement of excavation and fill items the net width shall be based on the mean clearance of 200mm from the outside of the pipe barrel.
2. Trench widths wider than those specified will only be approved after written approval of the Engineer.
3. All granular backfill shall be to Clause 503 of the MMHW Specification for Highway Works.

French Drain

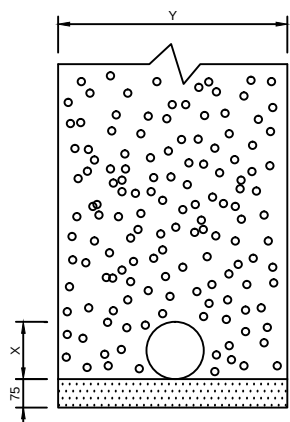
100mm Group 1 porous pipe bedded on Type A filter material with Type B filter material as fill to top of trench

Revision	Date	Description

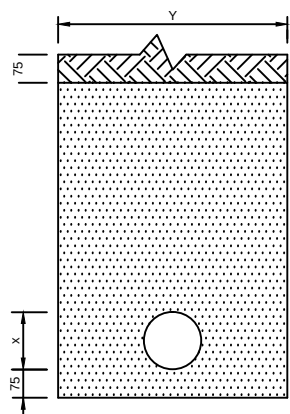
PIPE BEDDING DETAILS

Drawing No.

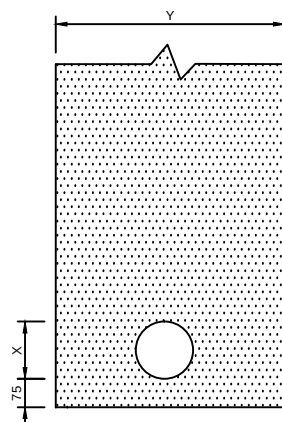
F116



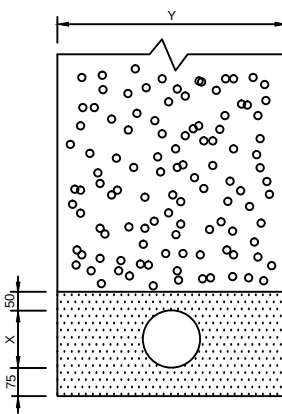
TYPE H PIPE BEDDING



TYPE M PIPE BEDDING



TYPE K PIPE BEDDING



TYPE I PIPE BEDDING

NOTES

1. Dimension X is the external diameter of the pipe.
2. Pipes shall comply with the requirements for filter drains as detailed in Table 5.1 of the MMHW Specification.
3. Pipes are to be laid with slots or perforations as directed by the Engineer on site.
4. Minimum drain width Y to be $X + 300$ for drains not exceeding 150mm below finished ground level and $X + 450$ for drains exceeding 1.5m cover below finished ground level.

KEY



Type A or C filter material to MMHW Specification for Highway Works Clause 505 or granular material to Clause 503.i as specified in the contract



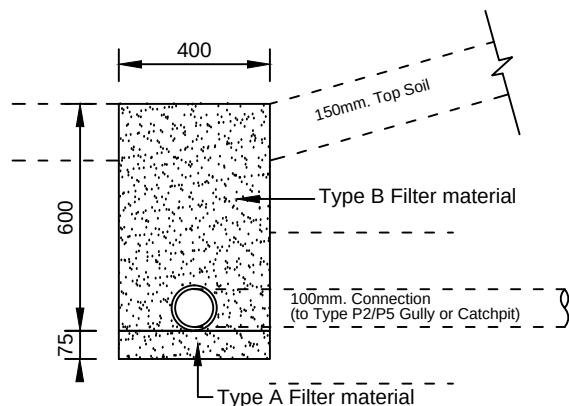
Type B filter material to MMHW Specification Clause 505

Revision	Date	Description

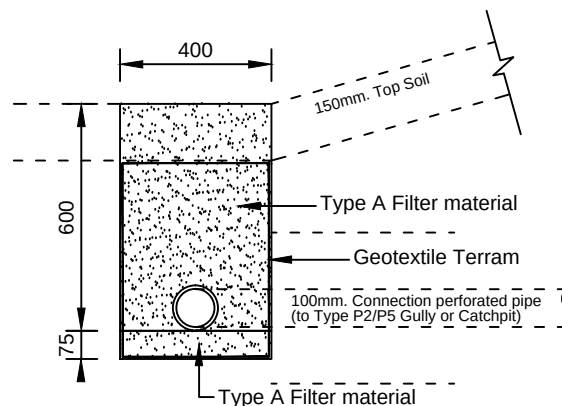
PIPE BEDDING DETAILS - FILTER DRAINS

Drawing No.

F117



FRENCH DRAIN



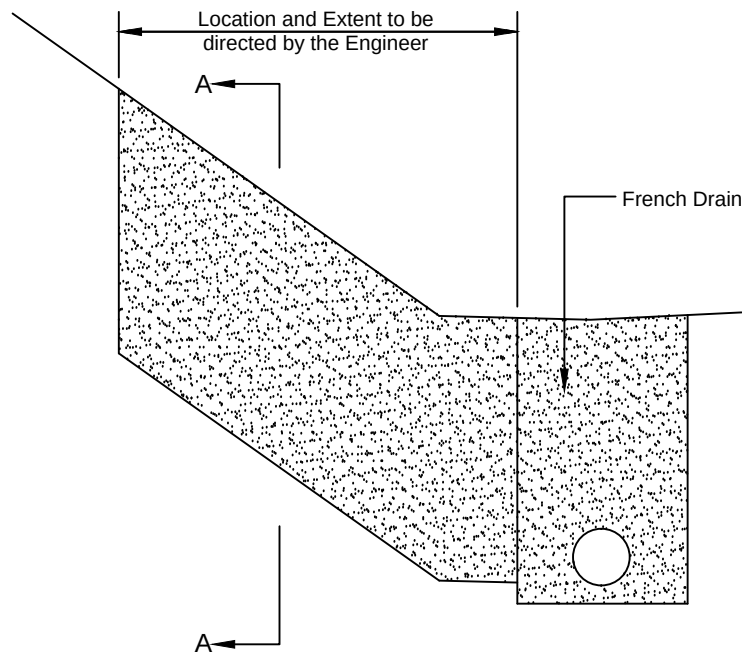
FRENCH DRAIN TYPE 'A'

NOTES

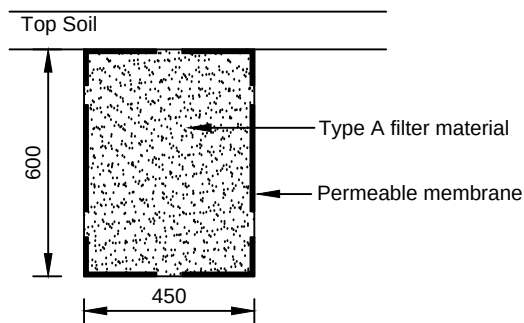
1. For the purpose of measurement of excavation and fill items the net width shall be based on the mean clearance of 200mm from the outside of the pipe barrel.
2. Trench widths wider than those specified will only be approved after written approval of the Engineer.
3. All granular backfill shall be to Clause 503 of the MMHW Specification for Highway Works.

French Drain

100mm Group 1 porous pipe bedded on Type A filter material with Type B filter material as fill to top of trench



FILTER DRAIN ON SIDE SLOPE DRAIN



SECTION A-A

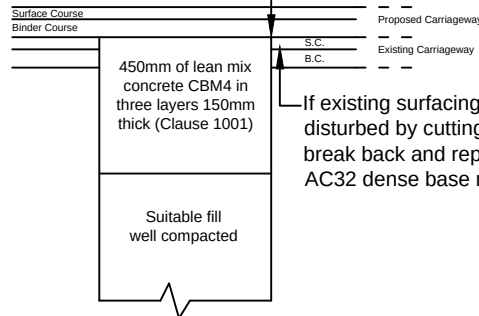
Revision	Date	Description

FRENCH DRAIN DETAILS

Drawing No.

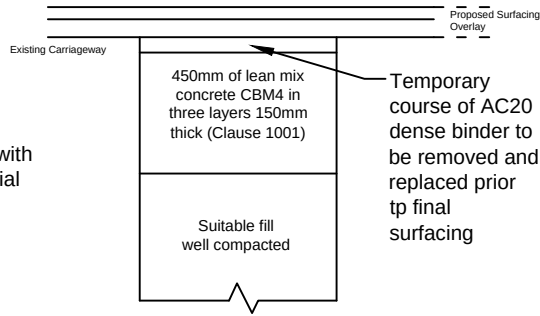
F118

Vertical joint sealed with bitumen



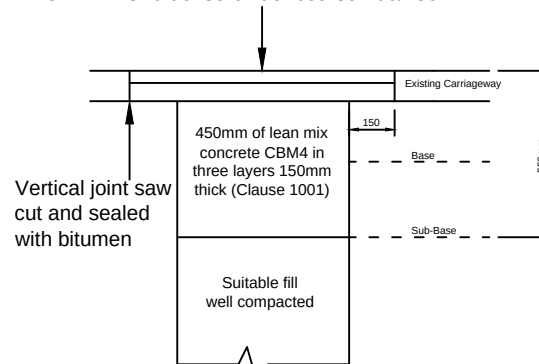
TYPE A - PERMANENT REINSTATEMENT IN CARRIAGEWAY TO BE OVERLAID

Note: Type B to be used where Contractor is to allow traffic to use the existing carriageway before final surfacing



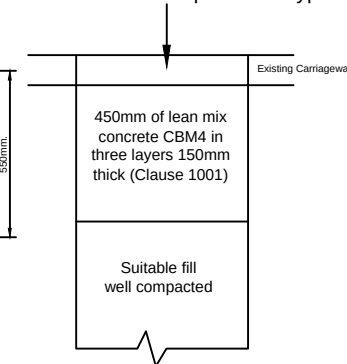
TYPE B - TEMPORARY REINSTATEMENT IN CARRIAGEWAY TO BE OVERLAID (AT CONTRACTOR'S EXPENSE)

40mm - Hot rolled asphalt surface course
60mm - AC20 dense binder course
OR
25mm - AC6 dense surface course 100/150
75mm - AC20 dense binder course 100/150

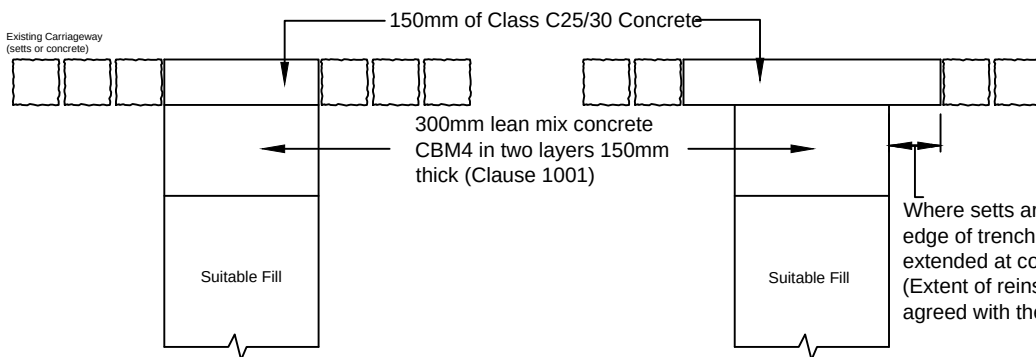


TYPE C - PERMANENT REINSTATEMENT IN CARRIAGEWAY OUTSIDE LIMIT OF SURFACING

100mm AC20 dense binder course 100/150 (temporary and to be removed and completed as Type C)



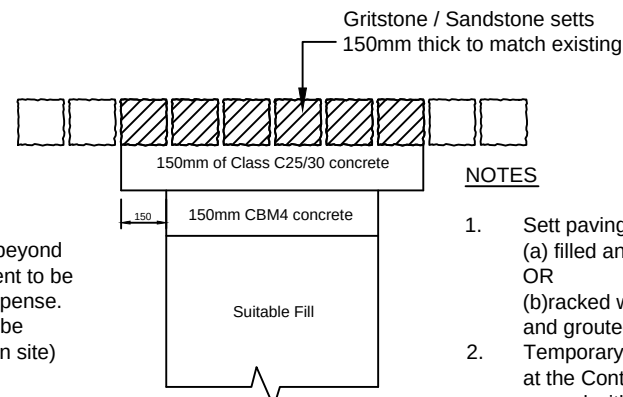
TYPE D - TEMPORARY REINSTATEMENT IN CARRIAGEWAY OUTSIDE LIMIT OF WORKS (AT CONTRACTOR'S EXPENSE)



PERMANENT REINSTATEMENT WITHIN TRENCH WIDTH

PERMANENT REINSTATEMENT BEYOND LIMITS OF TRENCH WIDTH AT CONTRACTOR'S EXPENSE

TYPE E - PERMANENT REINSTATEMENT OF RIGID PAVEMENT (SETTS OR CONCRETE) IN EXISTING CARRIAGEWAY TO BE OVERLAID



TYPE F - PERMANENT REINSTATEMENT OF RIGID PAVEMENT IN EXISTING CARRIAGEWAY OUTSIDE LIMIT OF SURFACING

NOTES

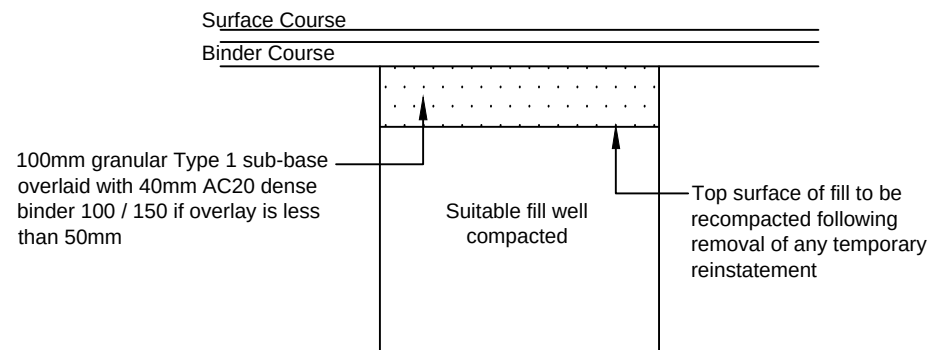
1. Sett paving joints to be either;
(a) filled and pointed with Class 1 mortar
OR
(b) racked with 8mm limestone chippings and grouted with bitumen to match existing.
2. Temporary reinstatement to be carried out at the Contractor's own expense and to be agreed with the Engineer

Revision	Date	Description

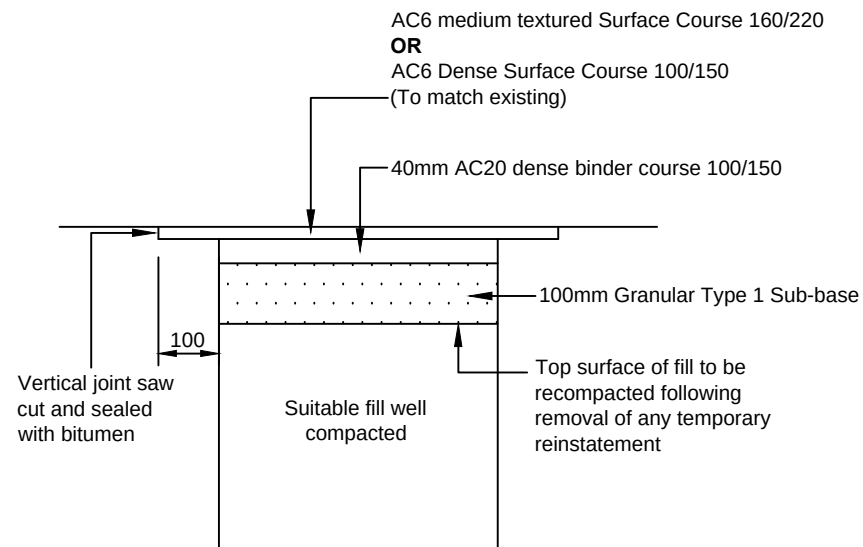
TRENCH REINSTATEMENT DETAILS

Drawing No.

F119



REINSTATEMENT TYPE 'G'
PERMANENT REINSTATEMENT IN BITUMINOUS MACADAM
FOOTWAY TO BE OVERLAID



REINSTATEMENT TYPE 'H'
PERMANENT REINSTATEMENT IN BITUMINOUS MACADAM
FOOTWAY OUTSIDE LIMIT OF SURFACING

REINSTATEMENT TYPE 'J'
PERMANENT REINSTATEMENT IN FLAGGED
FOOTWAY OUTSIDE LIMIT OF SURFACING

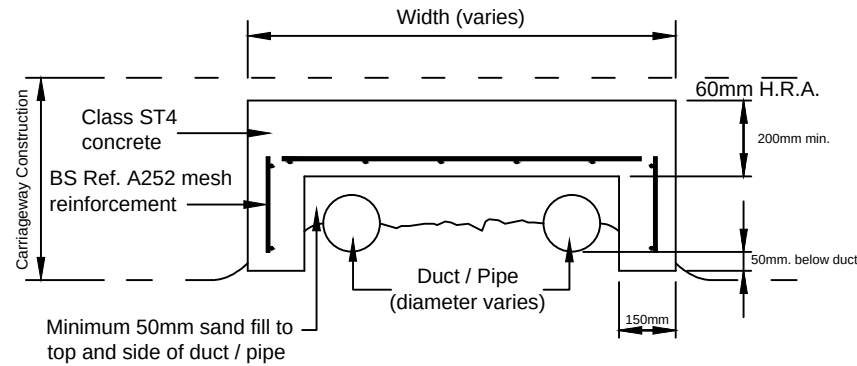
Take up and relay precast concrete flags on 35mm sharp sand on 100mm granular Type 1 sub-base on suitable fill well compacted.

Revision	Date	Description

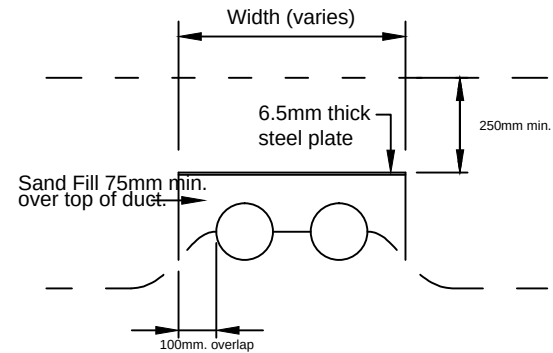
FOOTWAY REINSTATEMENT DETAILS

Drawing No.

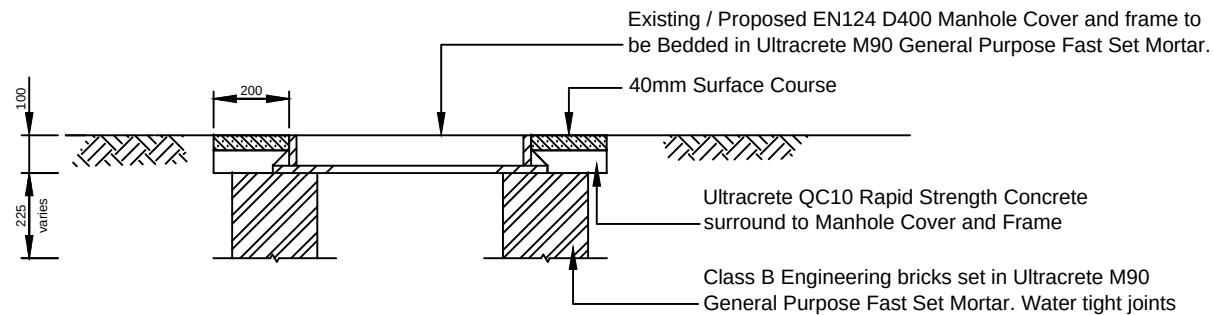
F120



PROTECTION TO SHALLOW SERVICE DUCTS AND PIPES



STEEL PLATE PROTECTION TO SHALLOW SERVICE DUCTS AND PIPES



ADJUSTMENT / REPLACEMENT OF MANHOLE COVER AND FRAME

NOTE:

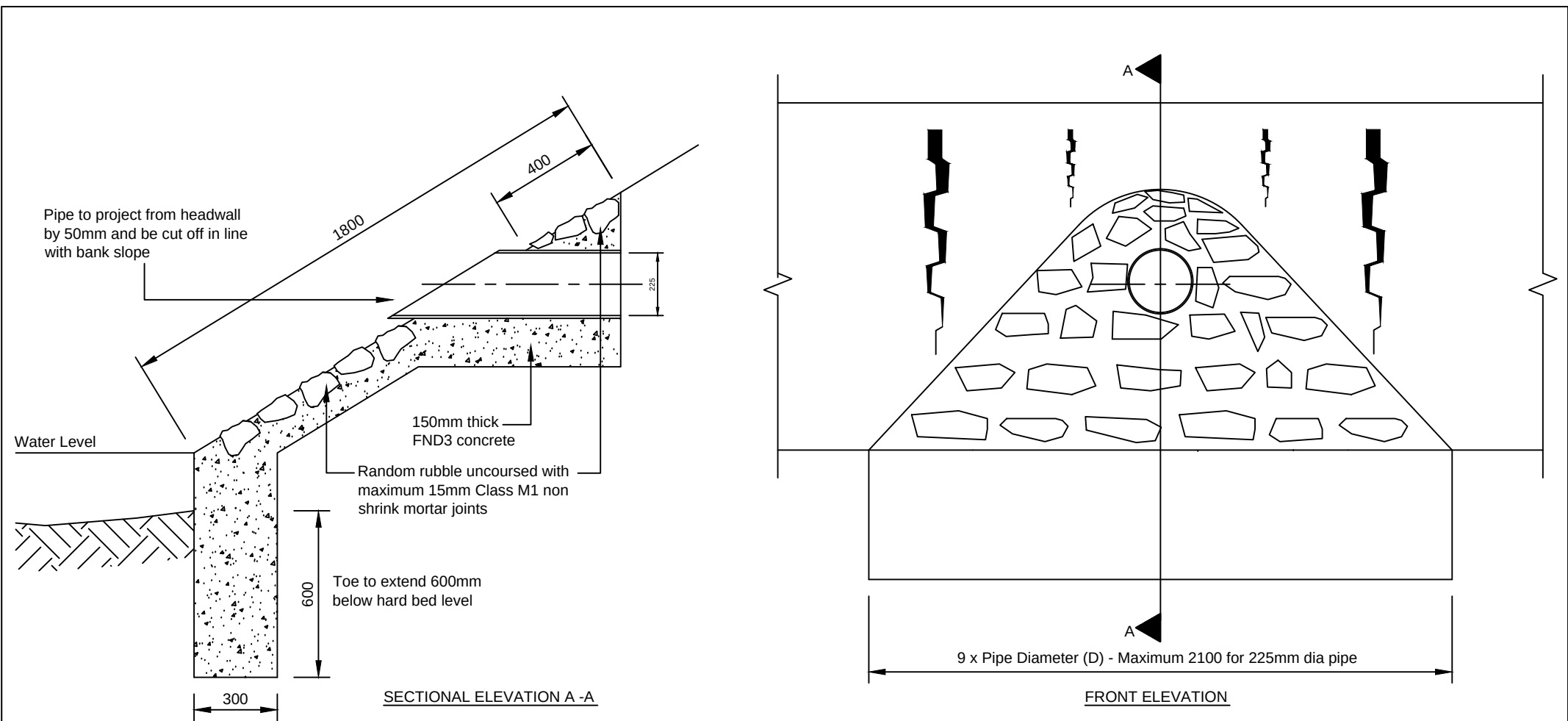
Cast ironware and supporting brickwork to be bedded using Ultracrete M90 GP fast set mortar and backfilled using Ultracrete QC10 rapid strength concrete as supplied by:-
Instarmac Group PLC, Kingsbury Link, Trinity road, Tamworth B78 2EX
Tel: 01827 872244

Revision	Date	Description

SERVICE DUCT PROTECTION MANHOLE ADJUSTMENT / REPLACEMENT

Drawing No.

F121



NOTES

1. Outlet velocity not to exceed 1.2m/s
2. In certain circumstances the bed and opposite bank may need to be protected by rubble pitching. The pitching should consist of large (225-300mm thick) stones of hard durable inert material set in appropriate concrete bed and pointed with a suitable mortar.
3. Maximum diameter of pipe to be 225mm

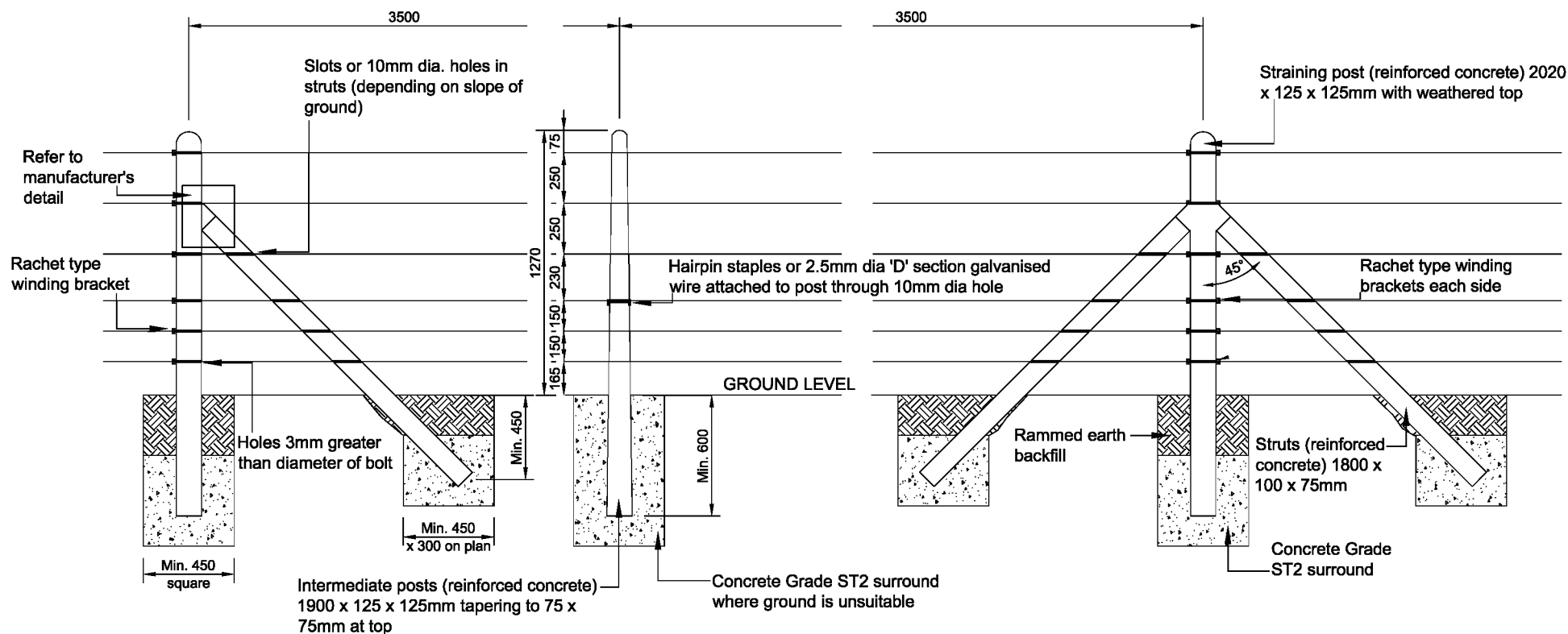
Revision	Date	Description

TYPICAL PIPE OUTFALL

Drawing No.

F122

H Series – Fencing



STRAINED WIRE FENCE TO B.S. 1722:PART 3 1973. TYPE SC120 APPROX. 1.3m HIGH

NOTES

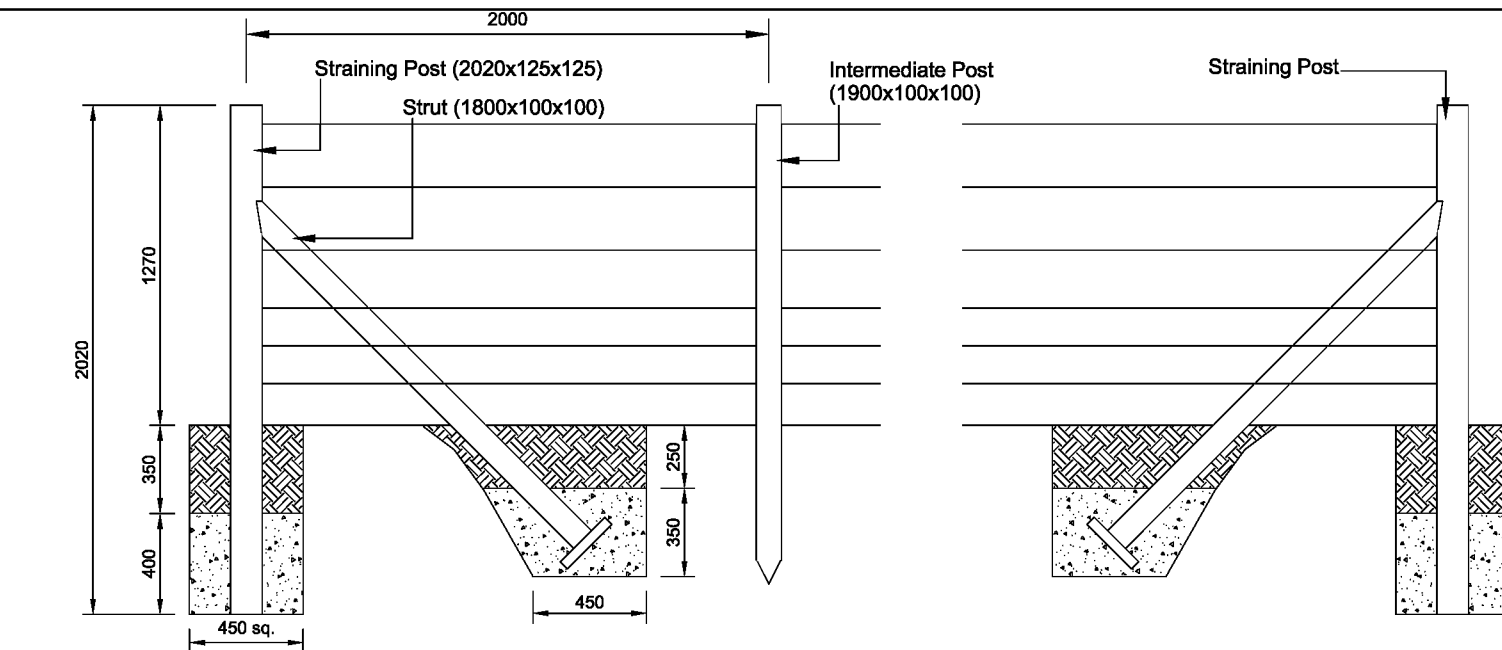
1. Barbed wire to be of galvanised mild steel grade specified in BS4102 (two line wires, 12 barbs per metres). Barbs to be removed in locality of tensioners to facilitate tensioning.
2. Plain wire to be galvanised mild steel complying with the requirements of BS4102 to be 4mm diameter ((No.8 gauge).

Revision	Date	Description

STRAINED WIRE FENCE WITH CONCRETE POSTS

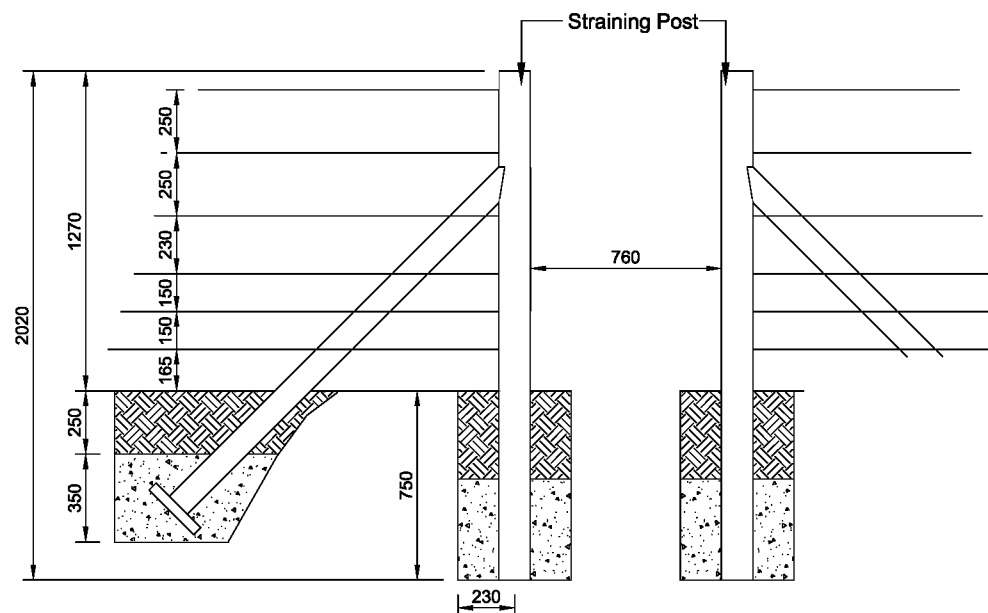
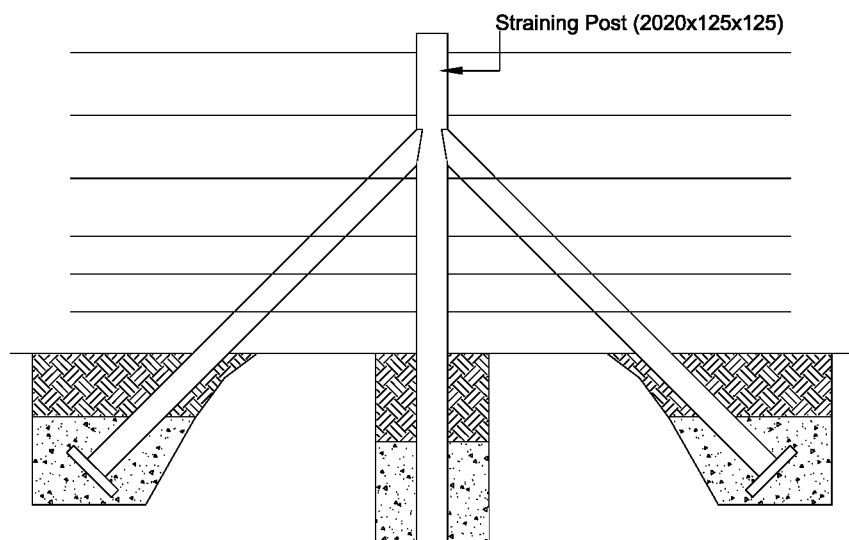
Drawing No.

H100



NOTES

1. Fencing shall comply with BS1722.
2. All timber to be softwood treated in accordance with the appropriate specification clause.
3. Plain wire to BS4102 4mm diameter (No.8 gauge) galvanised mild steel or BS4102.3 13mm diameter (No.10 gauge) high tensile carbon steel.
4. Eyebolts to comply with BS1722 250mm long x M10 diameter with welded eyes or approved galvanised High Tensile Line Splicers preformed line products (Great Britain) Ltd. or similar approved.
5. Struts to be notched and securely spiked to straining post.
6. All concrete to be Grade ST2 sulphate resisting unless otherwise shown.
7. All timber to be cut to size and approved by the Engineer before use.

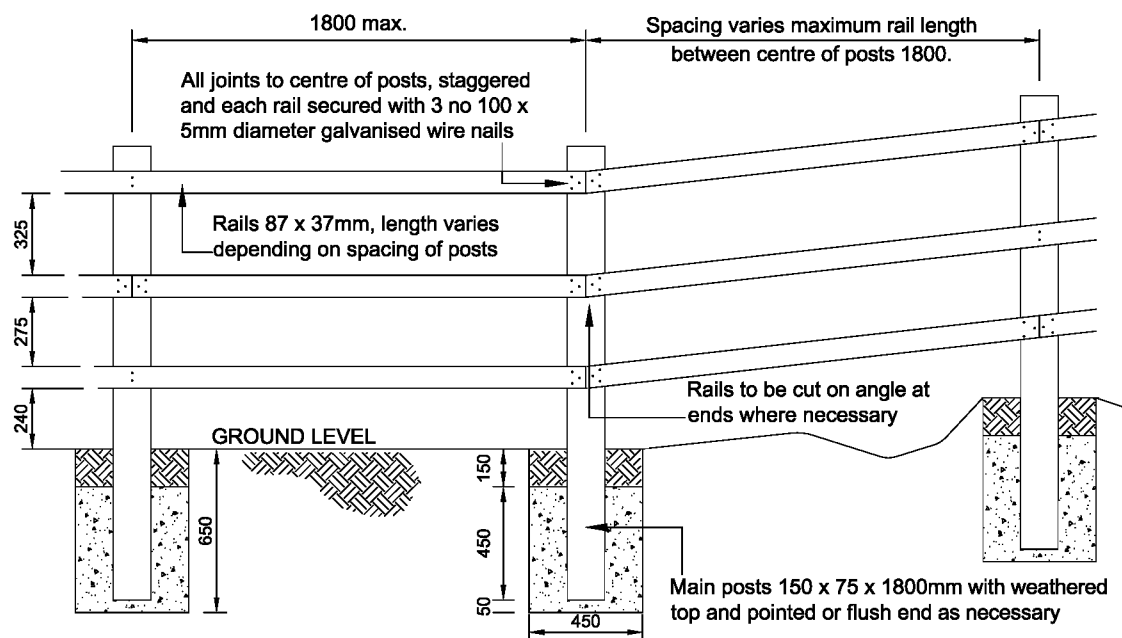


Revision	Date	Description

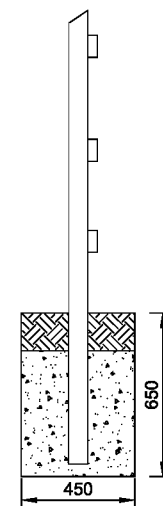
STRAINED WIRE FENCE WITH TIMBER POSTS

Drawing No.

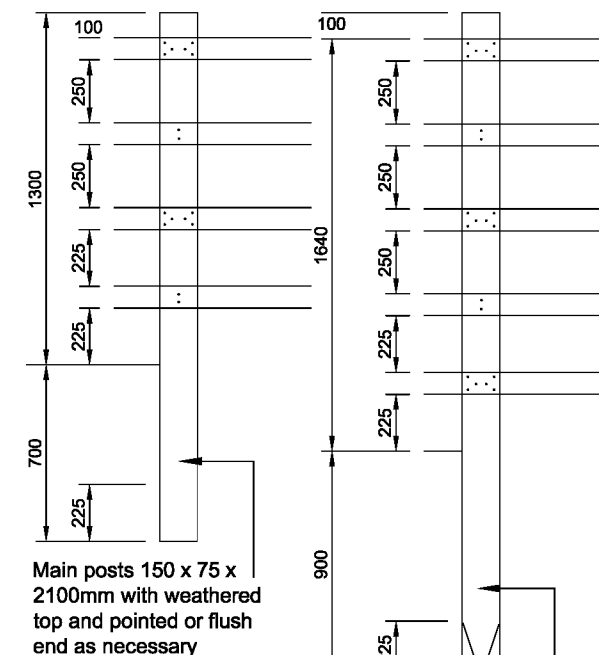
H101



THREE RAIL FENCE



TYPICAL SECTION



POST AND RAIL
DIMENSIONS FOR
THREE RAIL FENCE

Main posts 150 x 75 x 2640mm with weathered top and pointed or flush end as necessary

POST AND RAIL
DIMENSIONS FOR
FIVE RAIL FENCE

NOTES

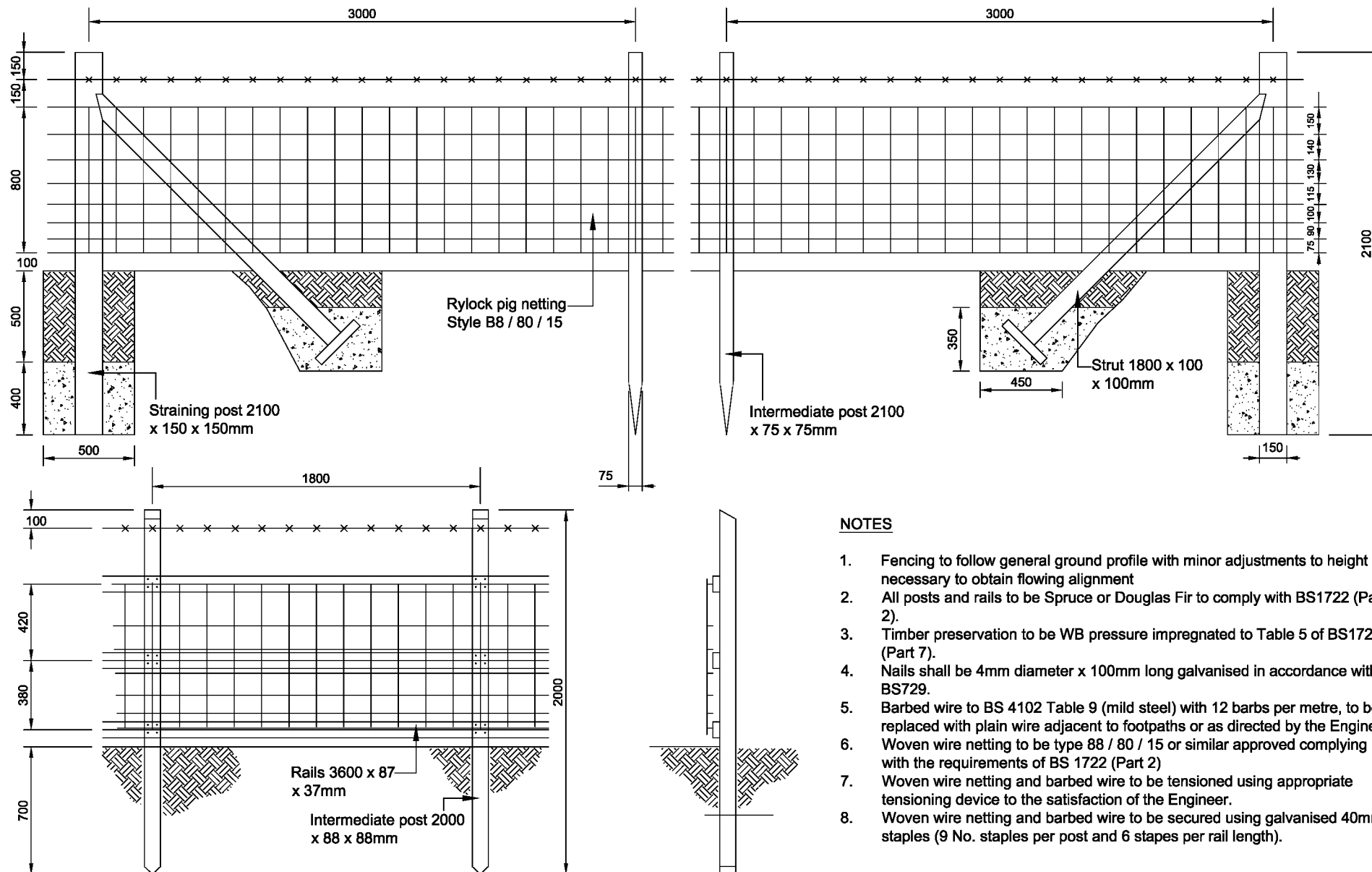
1. All timber shall be approved softwood pressure impregnated with approved preservative. All cuts and notches made during erection to be treated with two coats of approved preservative by brush before assembly.
2. All timber shall be approved softwood to Table 2 of BS1722 and shall be pressure impregnated with preservative in accordance with Tables 4 and 5.
3. Concrete for use in supporting posts and struts to be Grade ST2 unless otherwise specified.
4. Rails to be cut on angles at ends where necessary.
5. Rails to be fixed as shown above with joints staggered where possible.
6. Each rail to be fixed with 2 or 3 galvanised nails to each post as shown above.

Revision	Date	Description

TIMBER POST AND RAIL FENCE

Drawing No.

H102



STOCKPROOF FENCING WITH TIMBER RAILS

NOTES

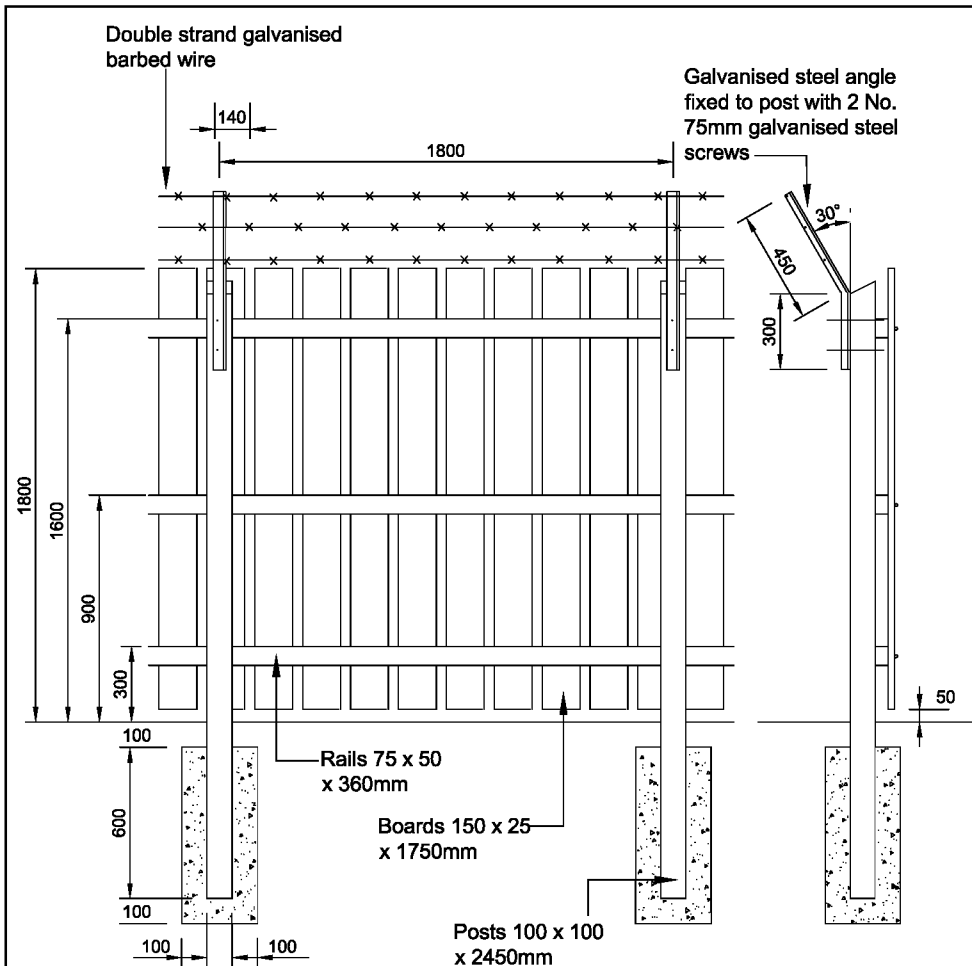
1. Fencing to follow general ground profile with minor adjustments to height as necessary to obtain flowing alignment
2. All posts and rails to be Spruce or Douglas Fir to comply with BS1722 (Part 2).
3. Timber preservation to be WB pressure impregnated to Table 5 of BS1722 (Part 7).
4. Nails shall be 4mm diameter x 100mm long galvanised in accordance with BS729.
5. Barbed wire to BS 4102 Table 9 (mild steel) with 12 barbs per metre, to be replaced with plain wire adjacent to footpaths or as directed by the Engineer.
6. Woven wire netting to be type 88 / 80 / 15 or similar approved complying with the requirements of BS 1722 (Part 2)
7. Woven wire netting and barbed wire to be tensioned using appropriate tensioning device to the satisfaction of the Engineer.
8. Woven wire netting and barbed wire to be secured using galvanised 40mm staples (9 No. staples per post and 6 stapes per rail length).

Revision	Date	Description

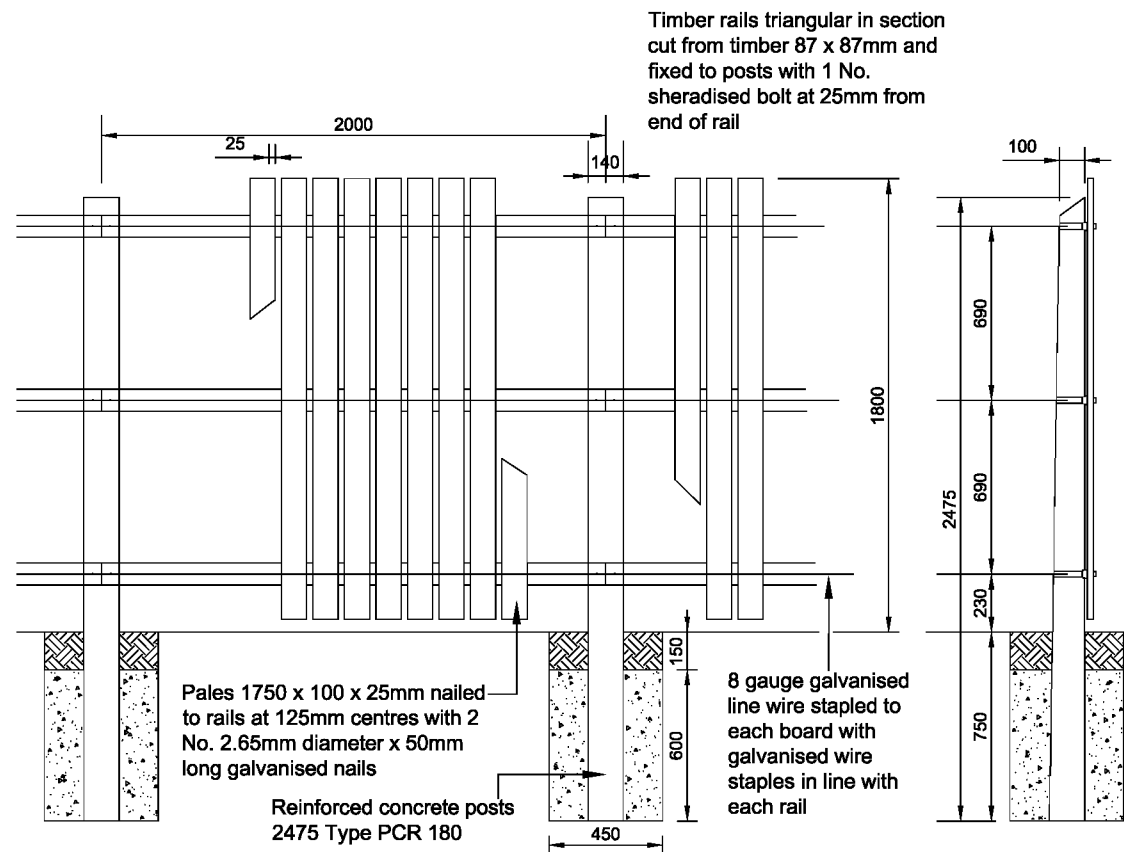
STOCKPROOF FENCING

Drawing No.

H103



TIMBER BOARDED FENCE WITH TIMBER POSTS



TIMBER BOARDED FENCE WITH CONCRETE POSTS AND BARBED WIRE

NOTES

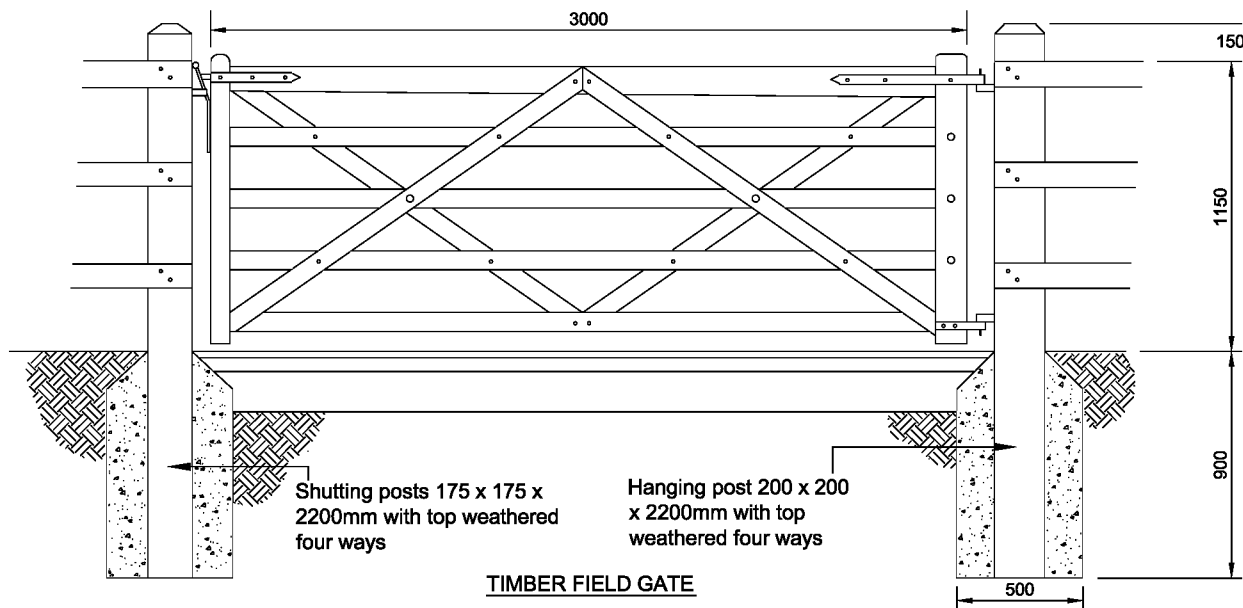
1. Timber boarded fence to BS1722 (Part 5).
2. All timber to be seasoned softwood factory pressure impregnated with 'Tanolith' or similar approved.
3. Rails to be butt jointed and nailed twice to each timber post with 5mm diameter x 125mm galvanised nails/ Joints to be staggered.
4. Boards to be nailed twice to each rail with 5mm diameter x 63mm long galvanised nails.
5. Line wires to be stretched tight prior to stapling and returned round postsa at each end and changes of direction.
6. All concrete to be grade C12/15 'dry-lean' mix well rammed to 150mm below ground level.

Revision	Date	Description

TIMBER BOARDED FENCE

Drawing No.

H104



NOTES

Gate Timbers

- 1 No. Top rail 125 x 75mm tapering to 75mm mortised and tenoned through.
- 4 No. Under rails 75 x 75 x 2900mm mortised and tenoned 60mm into verticals and glued.
- 4 No. Diamond bracing 75 x 75 x 1700mm mortised into verticals pegged or glued.
- 1 No. Hanging stile 125 x 75 x 1150mm with top weathered.
- 1 No. Slam stile 75 x 75 x 1150mm.

Gate Posts

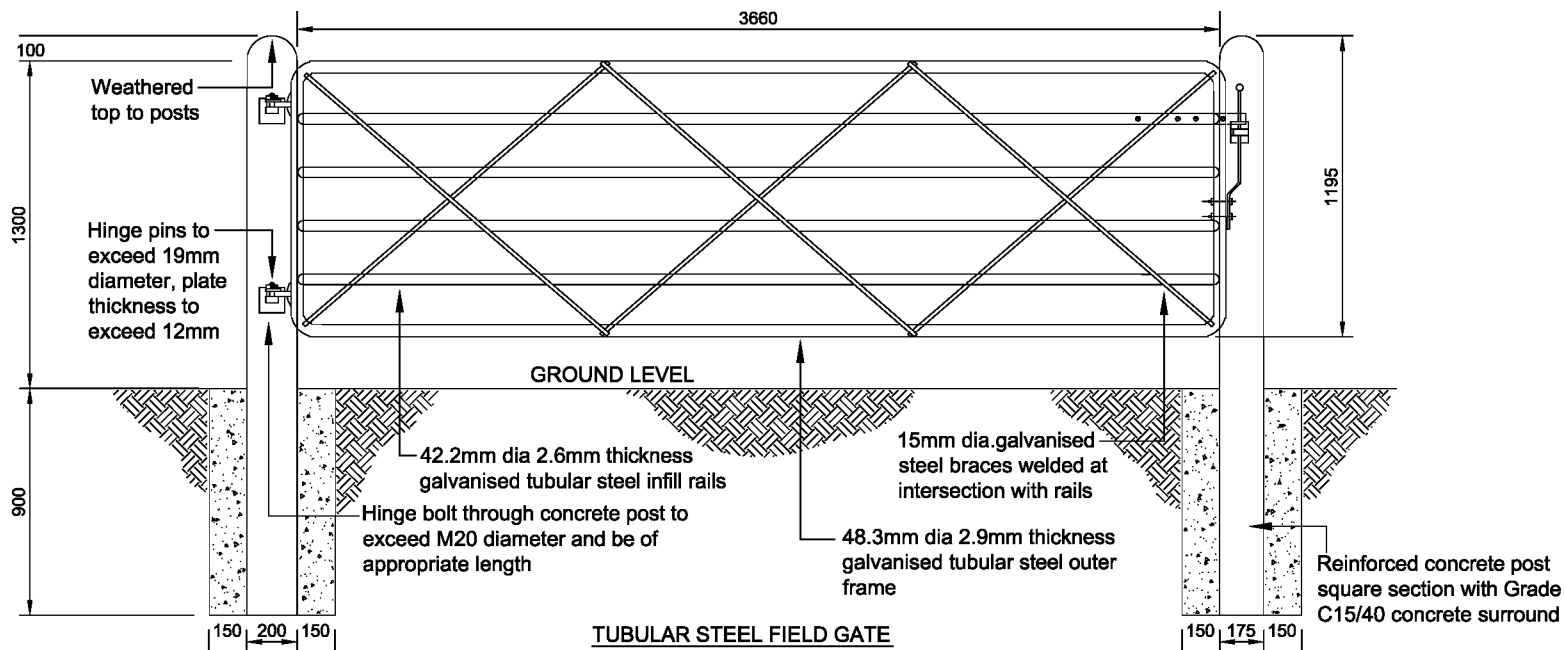
As shown

Gate Fittings

- 1 No. 610 x 38 x 6mm top hinge.
- 1 No. 125 x 38 x 6mm bottom hinge.
- 1 No. 610 x 38 x 6mm spring latch.
- 1 No. Keeper.

All fittings to be fastened using hex bolts and nuts and spot welded to prevent removal.

All steel and ironwork to be galvanised.

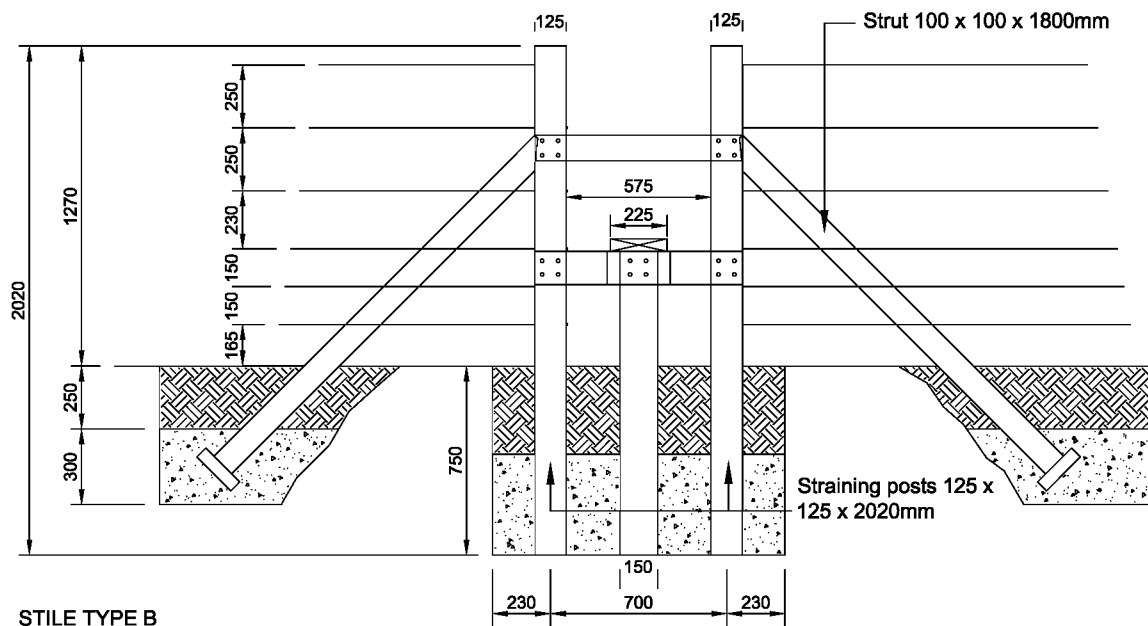
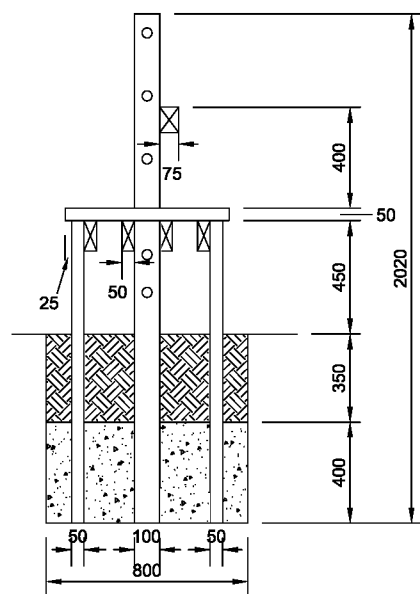
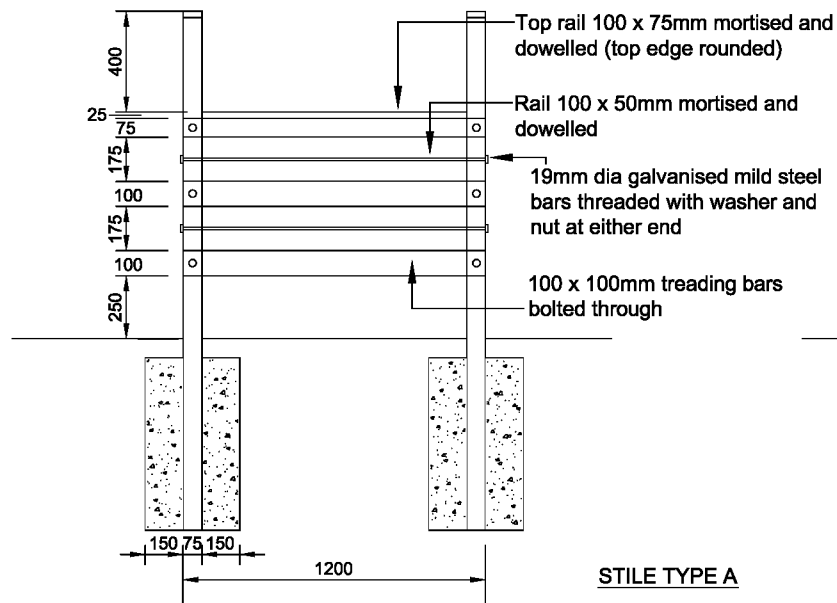


Revision	Date	Description

FIELD GATES

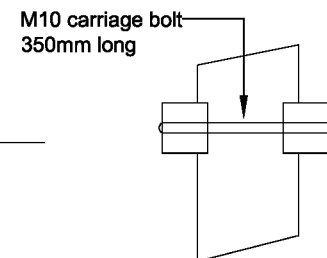
Drawing No.

H105



NOTES

1. All timber to be softwood treated in accordance with the appropriate specification clause.
2. Struts to be notched and securely spiked to straining post.
3. All concrete to be Grade ST4 sulphate resisting unless otherwise shown.
4. End fence posts at either side of the stile to be concreted in at the same time as the stile posts.
5. Bottom 300mm of stile to be fitted with sheep netting, fastened to posts and bottom rail.
6. All bolts, washers nut and fixings to be hot dipped galvanised.

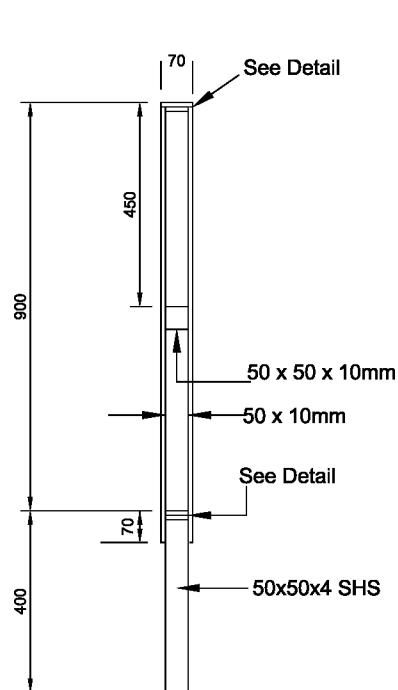


Revision	Date	Description

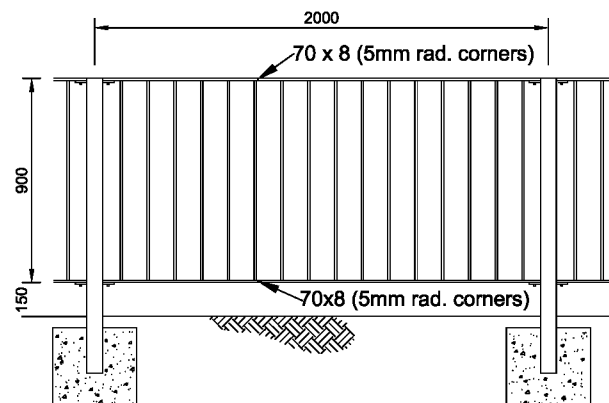
STILES

Drawing No.

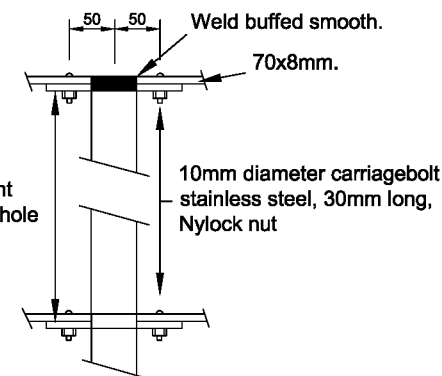
H106



POST TYPE P2/4



PANEL ELEVATION



POST DETAILS

Panel Type	Panel Layout	Optimum Sight Angle	Typical Uses
V2		2.5 to 5 degrees	Straight roads, moderate to high speeds
V4		5 to 14 degrees	Straight roads, low to moderate speeds curves
V8		more than 14 degrees	Curves less than 15m radius (e.g. bellmouths)

NOTES

1. Clearance from posts to kerb face to be 450mm, unless otherwise stated.
2. For usage see Visirail Design Guide.
3. Steel to be Grade 43C to BS 4360.
4. Welds to be 5mm fillet welds to BS 948.
5. Design and construction to BS 3049.
6. Standard finish hot dip galvanised.

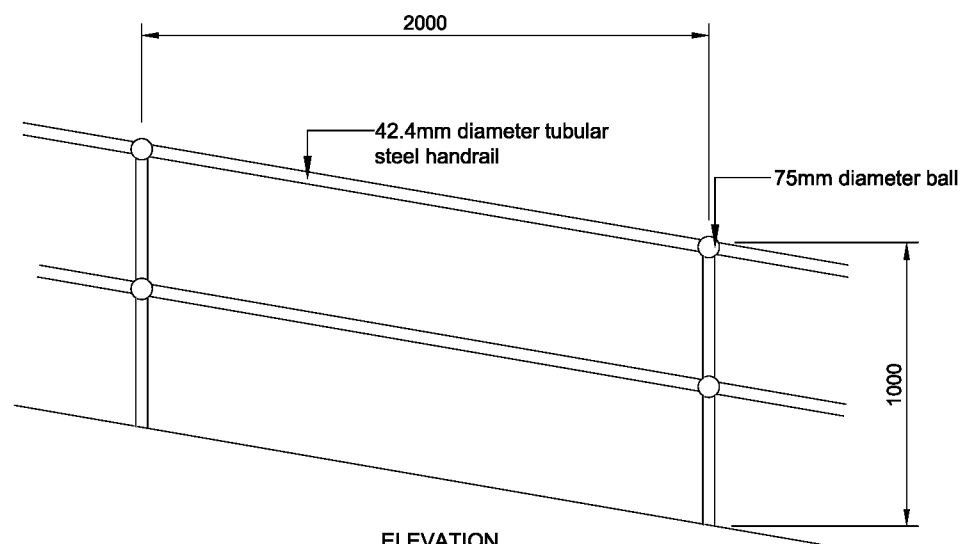
VISIRAIL PEDESTRIAN GUARDRAIL as supplied by:-
 Hugh Logan Engineering Ltd
 Mount Harriet Drive
 Stepps
 Glasgow
 G33 6DG
 Tel: 0241 779 3931
 or as described in the contract

Revision	Date	Description

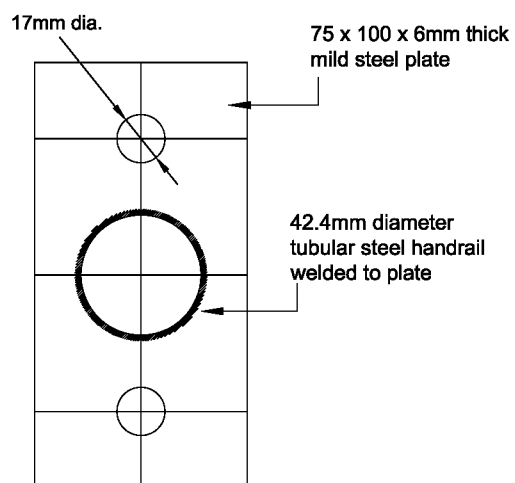
VISIRAIL PEDESTRIAN GUARDRAIL

Drawing No.

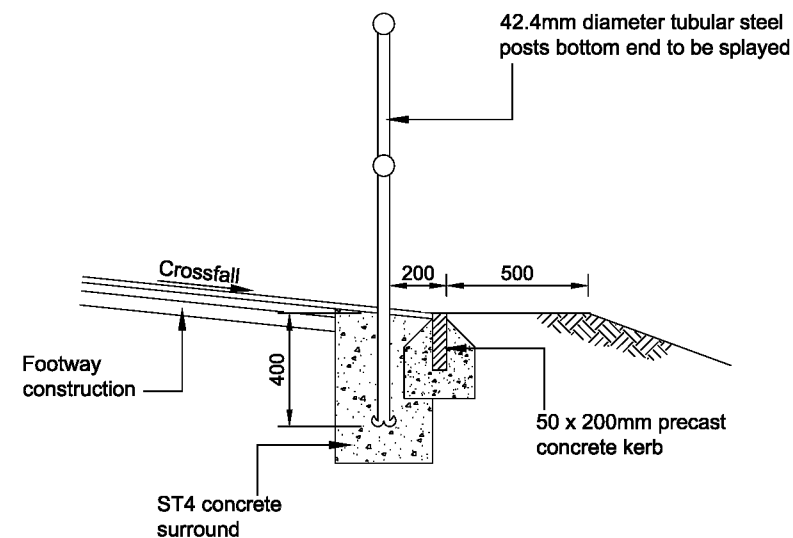
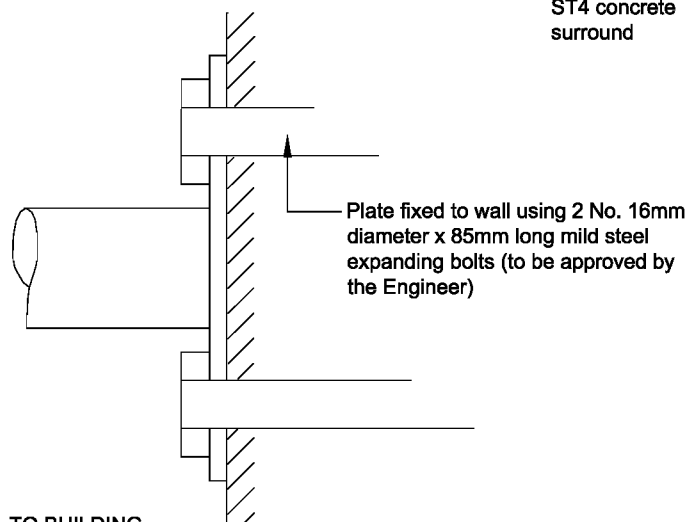
H107



ELEVATION



CONNECTION OF HANDRAIL TO BUILDING



SECTION

NOTE:
Handrail can have two rails as shown or single top rail as specified in the contract

Revision	Date	Description

TUBULAR STEEL HANDRAIL

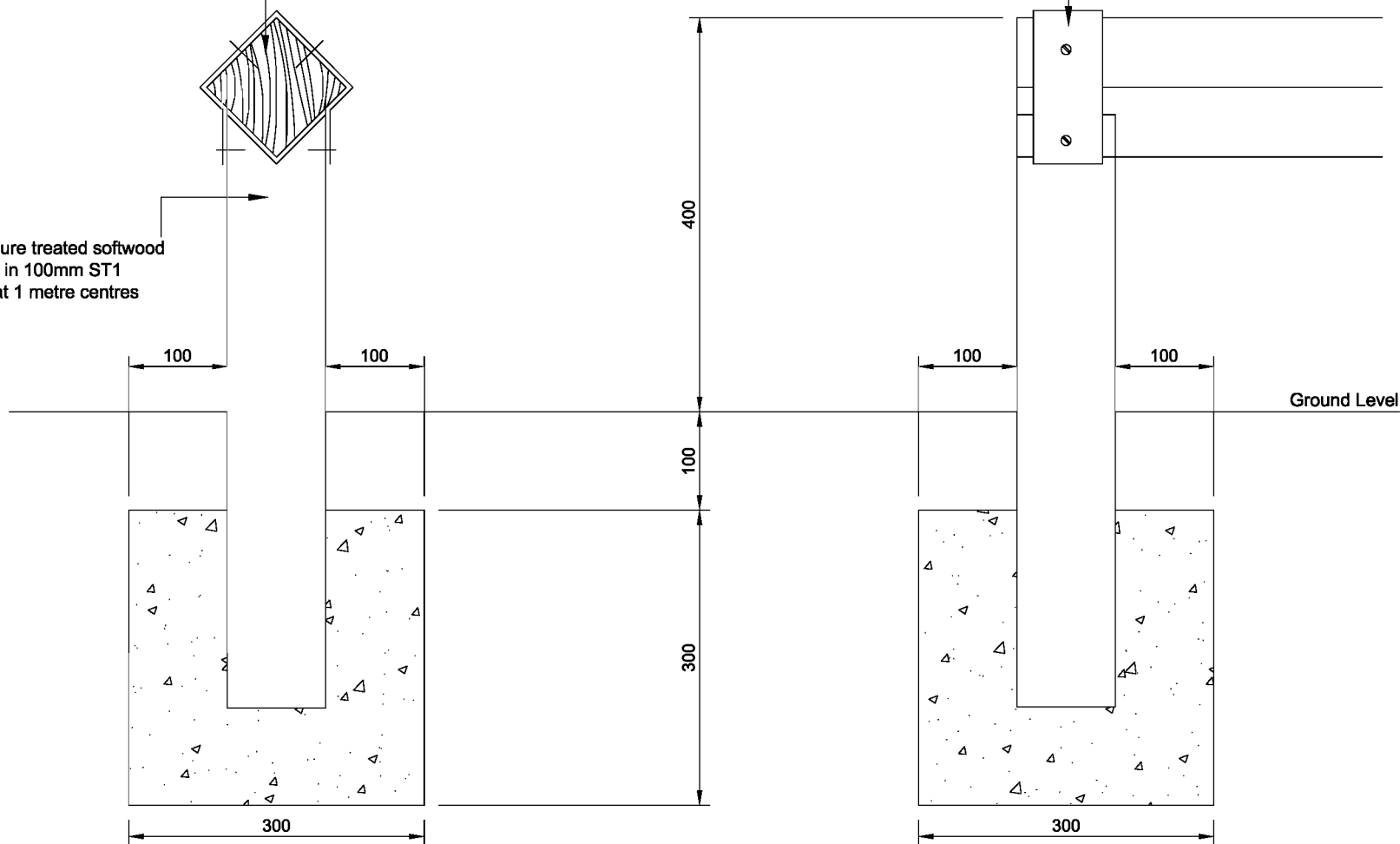
Drawing No.

H108

100mm x 100mm pressure treated softwood rail butt jointed at uprights below fixing straps and stained

100 x 100mm pressure treated softwood stained uprights set in 100mm ST1 concrete surround at 1 metre centres

Mild steel straps fixed with galvanised screws and painted



Revision	Date	Description

KNEE HIGH DIAMOND RAIL TIMBER FENCE

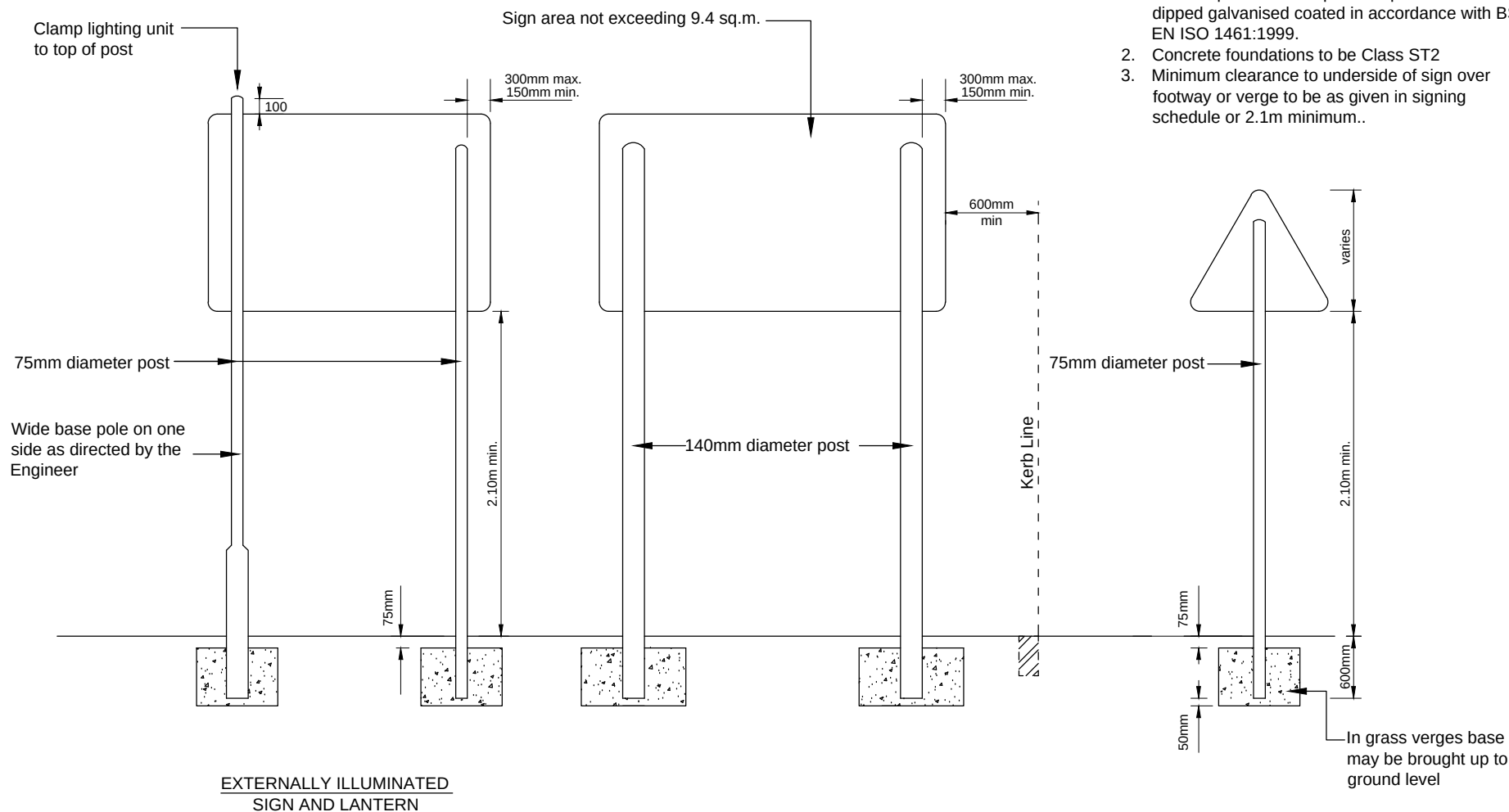
Drawing No.

H109

K Series – Traffic and Street Lighting

NOTES

1. All steel posts to have plastic tops and be hot dipped galvanised coated in accordance with BS EN ISO 1461:1999.
2. Concrete foundations to be Class ST2
3. Minimum clearance to underside of sign over footway or verge to be as given in signing schedule or 2.1m minimum..



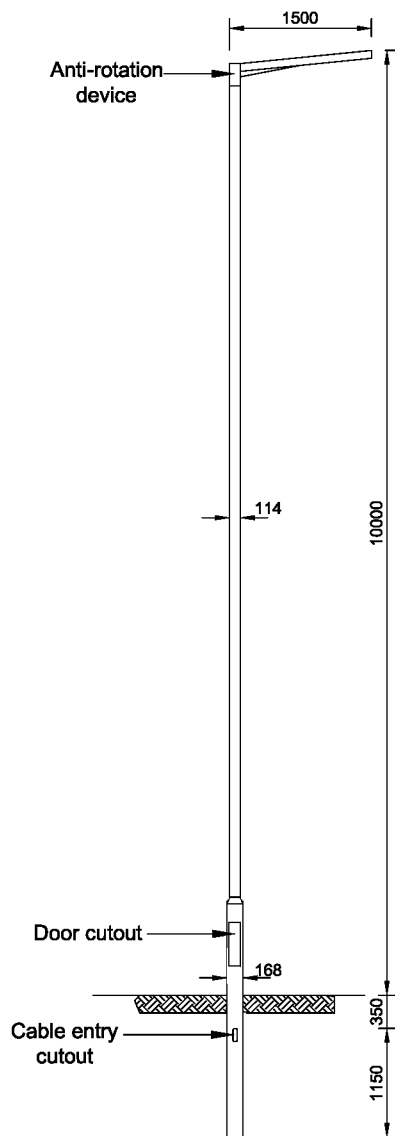
Post foundation sizes are shown on the Traffic Sign Schedule in Appendix 12/1 of the Contract Specific Information

Revision	Date	Description

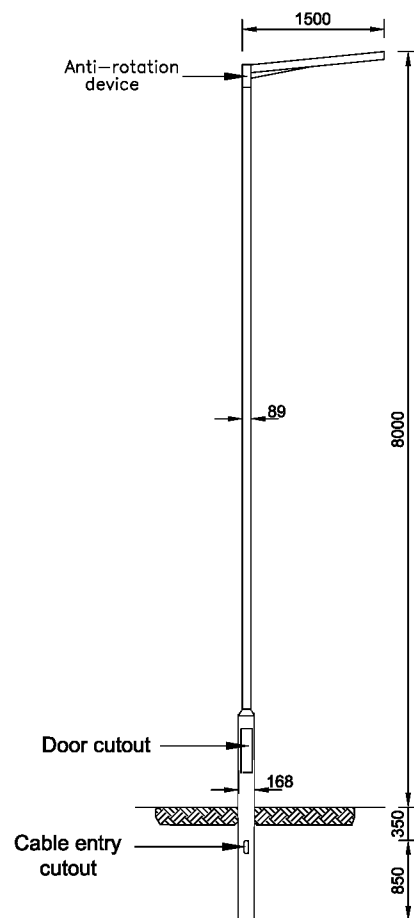
INSTALLATION OF TRAFFIC SIGN

Drawing No.

K100



TYPE A



TYPE B

	TYPE A	TYPE B
LANTERN	Model: Urbis ZX2 860463 Lamp: 150 SON PT Control: Integral Gear	Model: Urbis ZX2 860463 Lamp: 100 SON PT Control: Integral Gear
BRACKET	Outreach: 1.5m Manufacturer: Stainton Metal Company Limited	Outreach: 1.5m Manufacturer: Stainton Metal Company Limited
LIGHTING COLUMN	Height: 10m Manufacturer: Stainton Metal Company Limited Model: Metro 10m	Height: 10m Manufacturer: Stainton Metal Company Limited Model: Metro 8m

NOTES

1. The bracket arm where appropriate must be able to turn 360 degrees and be positively locked at 90 degree increments.
2. K Factor for columns over 8 metres 2.2 minimum.
3. K Factor for columns under 8 metres 1.5 minimum.

Revision	Date	Description

LIGHTING COLUMNS, BRACKETS AND LANTERNS

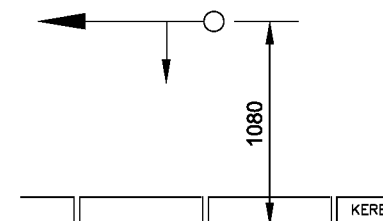
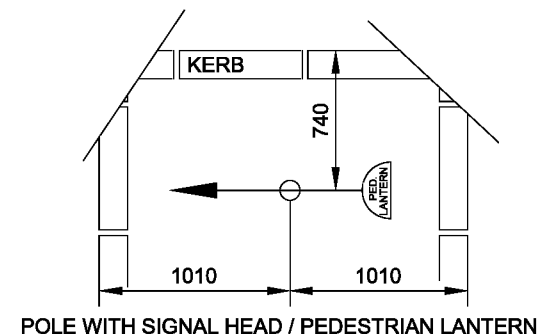
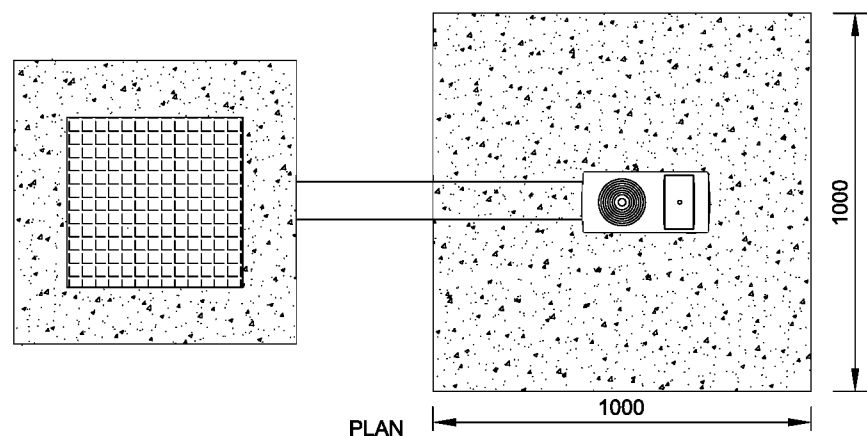
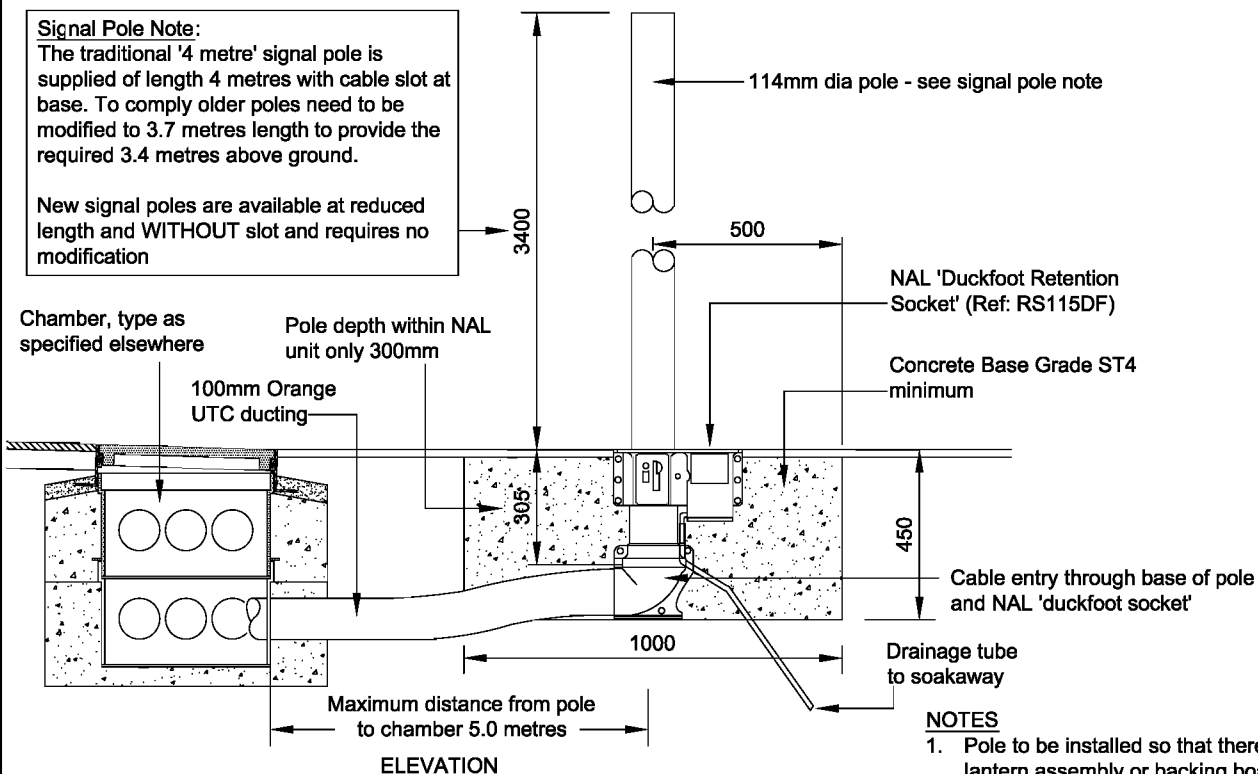
Drawing No.

K101

Signal Pole Note:

The traditional '4 metre' signal pole is supplied of length 4 metres with cable slot at base. To comply older poles need to be modified to 3.7 metres length to provide the required 3.4 metres above ground.

New signal poles are available at reduced length and WITHOUT slot and requires no modification



CLEARANCE DISTANCES POLE CENTRE TO KERB

NOTES

1. Pole to be installed so that there is a minimum clearance of 500mm between the kerb face and any part of the signal pole, lantern assembly or backing board (information regarding the actual distance required from pole to kerb to achieve this clearance for each pole should be obtained from GMUTC Signals Section or the traffic signs installation Contractor).
2. Posts to be located 1.0m forward of stop lines.
3. NAL unit should be located in concrete paving or similar to prevent from sliding upon any impact.
4. Concrete shall be grade ST4 or stronger.
5. Use nylon drainage tube provided for soakaway.
6. NAL unit should be set upon compact material and set in accordance with good code of practice for installation of posts.
7. Place NAL in centre of hole, ensuring drainage duct is not obstructed.
8. Ensure that the two stainless steel bolts are not obstructing the entry of the traffic signal post and that there is good clearance on all sides.
9. Connect traffic signal ducting into socket.
10. Insert stainless steel sleeve. Insert pole to ensure vertical.
11. Ensure access lid is locked/secure in position. Surround with concrete and compact.
12. Check pole is vertical and finish.
13. Remove pole if required and leave with pedestrian cover plug and sleeve in position. Reinstall prior to signal company installation.
14. RS 'drop kerb wedge' may be added in area of sloped surface to match up with any paving.
15. Supplier:

NAL Limited, 3 Battenhall Place, Worcester, Worcestershire WR5 2DT. Tel: 01905 769713, Fax: 01905 769837, E-mail: sales@nal.ltd.uk

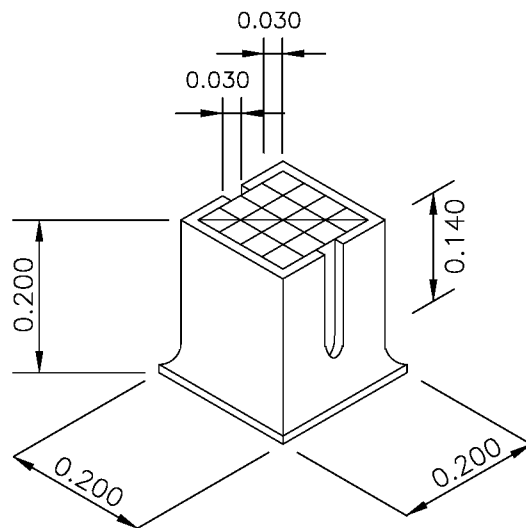
Revision	Date	Description

INSTALLATION OF TRAFFIC SIGNAL POLE

Drawing No.

K102

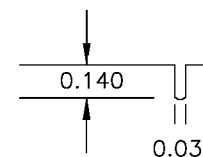
Bury
COUNCIL
Environment & Development Services
Engineering Consultancy



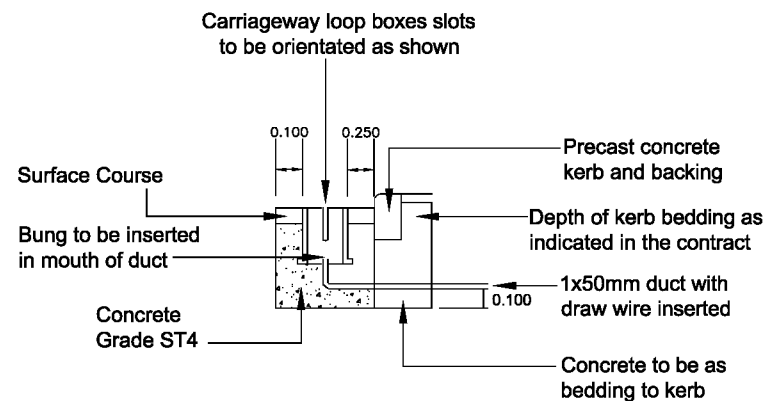
CARRIAGEWAY LOOP BOX

NOTE:

Loop Box supplied by;
Roberts Castings Ltd.
Tel: 02464 420497



Root of slot to be semi- circular.
Boxes with non- semi-circular
slots will not be accepted



**INSTALLATION OF CARRIAGEWAY
LOOP BOX**

Revision	Date	Description

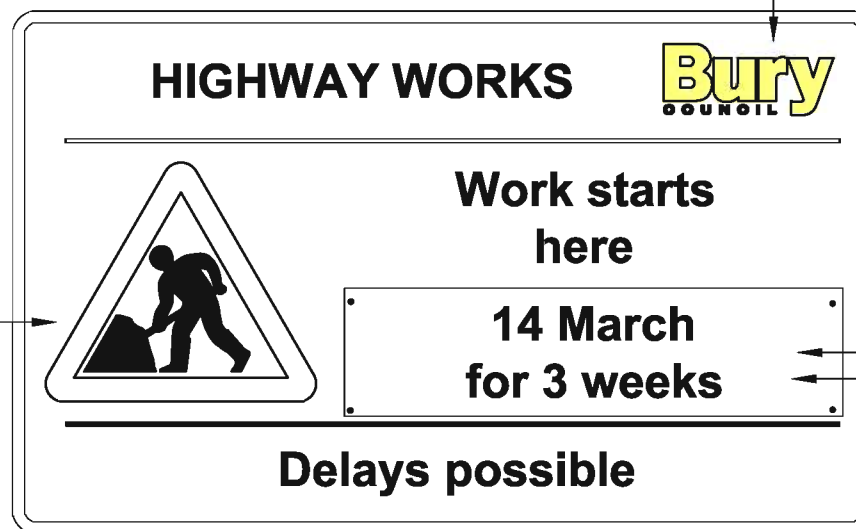
CARRIAGEWAY LOOP BOX

Drawing No.

K103

Sign Reference: P7003.1
 Width: 2440mm
 Height: 1559mm
 Area: 3.80sq.m
 'X' heights: 150.0 and 75.0mm
 Letter colour: Black
 Background: Yellow
 Border: Black
 Material: Class 2

Red triangle, black
 symbol on white
 background



BURY COUNCIL LOGO

Self adhesive overlay provided by the Contractor.
 On white background
 Computer image file supplied by the Employer.
 Colour - Pantone 109 (100% yellow 10% magenta).
 Note: the proportion of width to height of the logo
 must not be distorted.

Removable plate to be fixed to the
 main sign with four number bolts

Dates to be altered for each contract
 as agreed with the Engineer

ADVANCE NOTICE OF ROAD WORKS TO BEGIN SIGN

Sign Reference: P7006
 Width: 1498mm
 Height: 1067mm
 Area: 1.60sq.m
 'X' heights: 125.0, 75.0, 50.0 and 37.50mm
 Letter colour: Black
 Background: Yellow
 Border: Black
 Material: Class 2

Red triangle, black
 symbol on white
 background

Black text on white
 background with
 white border



END OF ROAD WORKS SIGN

Revision	Date	Description

**ADVANCE WARNING AND
 END OF ROAD WORKS SIGNS**

Drawing No.

K104