

Designing Highways for Adoption



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1. Aim

- 1.1 This document is intended to provide guidance on the design and construction of roads for adoption. This is in accordance with the design standards that Islington follow for public highways. This document does not compromise the Islington Streetbook, it rationalises the fundamental engineering principals underpinning it.

2. Background

- 2.1 Islington's road network is classified into three hierarchies 2, 3, and 4. These are set out in the national code 'Well-maintained Highways Code of Practice for Highway Maintenance Management'

Hierarchy	Type	Description	Islington Street Type	msa
1	Motorway	Subject to Motorway regulations	None	100 +
2	Strategic Route	Trunk roads and some principal A roads between primary destinations	All A Roads	30
3a	Main Distributor	Major Urban Network and inter-Primary links. Short - medium distance traffic	None	10
3b	Secondary Distributor	Classified Road (B and C class) and unclassified urban bus routes carrying local traffic with frontage access and frequent junctions.	Bus Routes, B and C Roads	10
4a	Link Road	Roads linking between the main and secondary distributor network with frontage access and frequent junctions	Local Distributor Roads	2.5
4b	Local Access Road	Roads serving limited numbers of properties carrying only access traffic	Residential loop roads or cul-de-sacs	0.5

Table 1

- 2.2 The hierarchies closely follow the reinstatement categories set out in the New Roads and Street Works Act (NRSWA). Due to Islington's compact nature and consistent geology a uniform highway bearing pressure can be adopted across the borough based on a CBR of 3% or a foundation stiffness ≤ 50 MPa , unless the designer has evidence from site investigations.

- 2.3 Thus our roads can be designed to suit 3 traffic types:

Hierarchy	msa	20 year msa
2	30	47
3a, 3b	10	16
4a, 4b *	2.5	4

Table 2

* Design thickness is constant below 2.5 msa

3. Highway Design

- 3.1 Traffic loading for highway design is derived from actual traffic counts or by using the hierarchy default value. Using the current HD 24/96 Traffic Assessment from DMRB the growth in traffic loading during the life of the road can be determined. Surface types and thicknesses are then applied in accordance with HD 26/01 Pavement Design, HD 36/99 Surfacing materials for new and Maintenance Construction or HD 40/01 Footway Maintenance.
- 3.2 Drainage shall be in accordance with HD 33/06 Surface and Sub Surface Drainage for Highways for surface water channels, designed to HA 37/97 Hydraulic Design of Road Edge Surface Water Channels. Designers should include any footway discharge into edge channels in the calculations. Gullies will be in accordance with **Appendix 2**
- 3.3 The optimum designs only vary by the thickness of the binder and base courses. The majority of Islington's streets are flexible construction founded on HBM bases and the proposed designs allow for either the resurfacing or reconstruction.
- 3.4 The naming of various pavement layers is to be in accordance with BS EN13108

Old designation	BS EN13108
Wearing Course	Surface Course
Basecourse	Binder Course
Roadbase	Base

Table 3

4. Reconstruction, new and adopted roads

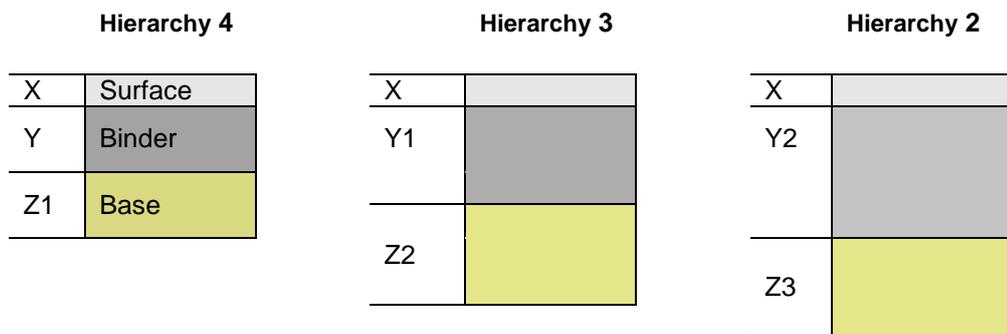


Figure 2

Ref Fig 2	mm	Material	BS EN13108
X	40	SMA – 10mm aggregate	10 HAPAS TSCS PSV60
Y	60	HMB35	SMA 14-bin 40/60 des
Y1	80	HMB35	SMA 14-bin 40/60 des
Y2	160	HMB35	SMA 14-bin 40/60 des
Z1	150	CBGM 7.5N/mm ²	CBGM 7.5N/mm ²
Z2	250	CBGM 7.5N/mm ²	CBGM 7.5N/mm ²
Z3	250	CBGM 7.5N/mm ²	CBGM 7.5N/mm ²

Table 5

5. Note for new or adopted roads

- 5.1 The design standard is set out in item 4 above and is in accordance with the Islington Streetbook, planning guidance. This includes flagged paving and natural granite kerbs. Natural materials are to be constructed in accordance with 'Natural Stone Surfacing – Good Practice Guide' published by the society of Chief Officers of Transportation in Scotland (SCOTS) <http://www.scotsnet.org.uk>
- 5.2 All HAPAS warranties are to be made available to Islington on adoption.
- 5.3 Highway lighting shall be designed in accordance with the requirements of Islington's public lighting team. Early consultation is advised regarding equipment, illumination levels and design life.
- 5.4 References to the Specification for Highway Works

Ref Fig 1 & 2	BS EN13108	New Specification as amended by IAN 101-07 & subsequent codes
Prefix X	10 HAPAS TSCS PSV60	942
Prefix Y	SMA 14-bin 40/60 des	937
Prefix Z	CBGM 7.5N/mm ²	821
Prefix Z	BS EN13108-8	

Table 6

- 5.5 Specifiers must inform suppliers if the binder course is to be used as a running surface. Suppliers will submit their designs for appropriate mixtures or modifications to accommodate the traffic loading and duration.
- 5.6 **Highway Structures**
Highway structures include all bridges, culverts, retaining walls, subways and any structural element that influence the highway, persons or vehicles using it.
- 5.7 Highway structures shall be designed in accordance with the Design Manual for Roads and Bridges (DMRB). Loading will be considered in accordance with Volume 1, Section 3 of the DMRB to BS5400. Live loading will be to BS 5400 or to EN 1991-2 Load Model 1.¹
- 5.8 The designer will show by calculation that all elements of the highway structure can withstand all combinations of dead and live loading by pedestrians and all vehicles permitted under the current Construction and Use regulations.
- 5.9 An initial Approval in Principle (AIP) document will be provided as set out in the appropriate annex of BD2/05 - Vol. 1 Section 1 of the DMRB.

6. Underground Services

- 6.1 Any underground plant and equipment should be placed at the correct depth and installed with the appropriate colour coding in accordance with the current version of National Joint Utilities Groups' (NJUG) publication "NJUG Guidelines on the positioning and colouring of underground utilities' apparatus". Copies can be found at: <http://www.njug.org.uk/publication/114/>

¹ Interim Advice Notes 123 & 124 issued by the Highways Agency

7. Administration

- 7.1 Before work commences all designs must be submitted and approved by the Highways Service.
- 7.2 Concurrent with the design process, the financial arrangements will be agreed regarding inspection fees, commuted sums and handover procedures.
- 7.3 Islington does not adopt highways that are unconnected to the borough network of public highways.
- 7.4 The proposer will notify Highways Services of the name of their contractor, start date and arrange an early meeting to fix the works and inspection programme.
- 7.5 As the works progress, the contractor will give a minimum of 24 hours notice of when highway works will be ready for inspection. This includes:
 - Drainage and ducts
 - Formation
 - Kerbs
 - Binder and Surface Courses
 - Footways
 - Lighting & Street Furniture
 - Reinforced concrete prior to the concrete pour
- 7.6 Before the highway is opened, it will be jointly inspected; subject to any remedial works and the financial obligations being met, a provisional certificate of completion will be issued.
- 7.7 During the defect correction period the highway will remain the liability of the Developer and will be maintained by the Developer or their servants. This period will not be less than 12 months.
- 7.8 At the end of this period a further inspection will take place and after any further remedial work, a final certificate will be issued and the road will become public highway

8. Fees and Charges

- 8.1 In accordance with the legislative provisions, Islington's Highways Service will raise charges for all relevant administrative expenses, including an appropriate sum in respect of general staff costs, overheads and for inspecting drawings or making site visits in accordance with Table 7, or the current published charges.

Project Value (Bond Value)	Dwg Inspection Charge	Site Inspection Charge
up to £25000	£500	£200
£25000 - £100000	£1000	£300
£100000 - £250000	£2500	£500
£250000 - £1 million	£5000	£650
>£1 million	£5000 + £500 per £100000 over £1million	£750

- 8.2 Before adoption, a commuted sum will be paid by the developer for the whole of the adopted highway works in accordance with s38(6) & 278(3) of the Highways Act. The commuted sum for all of the highway offered for adoption shall be calculated in accordance with the guidance note published by LoTAMB

9. Updates

- 9.1 Where reference is made to published codes and standards, it is deemed that the current version of these codes and standards is used.

Appendix 1

Designing Footways and Pedestrian Areas for Mechanical Sweeping.

Mechanical sweepers frequently sweep many of our streets. Additionally, deep cleaning and 'gum-busting' activities are carried out to the paved surfaces using pressurised jets and sprays.

Footway design needs to accommodate the cleansing regime; table 1 illustrates the issues.

Sweeper Characteristics	Design Considerations
Brush positioning	Check overhangs of benches and bins etc.
Height of the machine	Height clearance of signs, trees, shelters etc.
Width of the machine	Position of street furniture and width of ramps.
Length of the machine and turning circle	Disposition of obstructions
Weight	Accidental horizontal loading on street furniture
Axle loads	Influence on pavement and sub-structures
Wheel loads	Effect on small elements cut from slabs
Clearance	Effect on special surfaces
Pressure Washing	Resilience of materials
Brush abrasion	Joint widths and pointing materials. Treatment at covers and boxes and depth of material in rebated covers.
Washing, jetting and brushing	Use of heritage materials

App1 - Table 1

Typical footway and precinct sweeper characteristics are shown in table 2.

Model	Applied 525HS	Applied 636HS	Scarab Minor
Sweeping Speed	13 kph	13 kph	16 kph
Wheels No.	4	4	4
Length	3.120	3.450	4.230
Width	1.140	1.140	1.650
Height	1.980	1.980	2.245
Weight (front)			1.600
Weight (rear)			2.600
Weight Total (tonnes)	2.100	2.725	4.200

App1 - Table 2

Appendix 2 Road Gully

