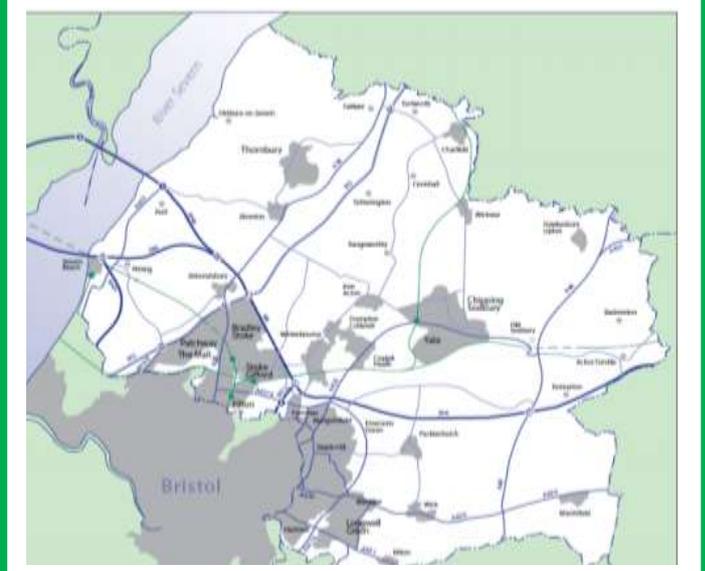


South Gloucestershire Council Adoptable Highway Specification

*Delivering Jobs,
Homes and
Infrastructure*



Contents

Abbreviations.....	6
0000 Introduction.....	7
0100 Preliminaries.....	9
0101 Temporary Accommodation and Equipment for the Council	9
0102 Vehicles for the Council.....	9
0105 Materials Sampling and Testing of Materials and Plant	9
0110 Information Boards.....	9
0113 Programme of Works	10
0116 Services and Utilities.....	10
0117 Street Works, Traffic Management and Safety.....	10
0118 Temporary Diversions for Traffic.....	11
0122 Photographic Surveys.....	11
0123 Road Safety Audits	11
0124 Management of Health and Safety for Highway Works.....	12
0125 As-Built information	12
0200 Site Clearance and Asset Information	13
0201 Site Clearance.....	13
0202 Clearance of Trees.....	13
0203 Clearance of Hazardous Material.....	13
0204 Street Furniture and Equipment in the Public Highway	13
0400 Road Restraint Systems (Vehicle & Pedestrian)	14
0401 Pedestrian Guardrails.....	14
0402 Protection of Pedestrian Guardrails	14
0403 Road Restraint System or Vehicle Restraint System (Safety Barrier)	14
0500 Highway Drainage	15
0501 Highway Drainage General	15
0502 Sustainable Drainage Systems (SuDS).....	15
0503 Location of Highway Drains.....	16
0504 Capacity of Highway Drains	16
0505 Bedding, Laying and Surround Materials for Drains.....	16
0506 Pipes Treated as a Structure.....	16
0507 Manholes & Inspection Chambers	16
0508 Gullies	17

South Gloucestershire Council Adoptable Highway Specification

0509 Backfilling of Drainage Trenches.....	18
0510 Maintenance of Drains	18
0511 CCTV surveys	18
0512 Records of As Built Drainage	18
0600 Earthworks.....	19
0700 Road Pavements, Kerbs, Footways/Paths and Paved Areas	20
0701 Typical Road Construction - Design.....	20
Table 1: Typical Road Construction Details – Minimum Requirements	20
0702 High friction surfacing.....	26
0703 Kerbs, Channels and Edging.....	26
0704 Technical Mortars.....	27
0705 Gradients and Mobility Access	27
0706 Tactile Paving.....	27
1200 Traffic Signals, Signs and Road Markings	28
Traffic Signals	28
Traffic Signs	28
Road Markings	28
Street Naming and Numbering.....	28
1300 Street Lighting	29
Electricity Supply by an Independent Distribution Network Organisation (IDNO).....	29
SGC Street Lighting Contract Services	29
1700 Structures	30
1900 Protection of street furniture and sign posts	31
2600 Miscellaneous.....	32
Public Transport Infrastructure	32
Bus Shelter Specification	32
Power Supply Connection	32
Street Furniture for Bus Stops.....	36
Electrical Requirements for Bus Shelters.....	37
Appendix 1	40
Appendix 2	41
Cycling Infrastructure	42
Public Rights of Way.....	42
3000 Highway Landscaping and Biodiversity	43

South Gloucestershire Council Adoptable Highway Specification

Street Trees	43
Concrete aprons and service covers in landscaped areas.....	43
Biodiversity.....	44
References	45

[Back to contents](#)

Amendments

Item No.	Description	Date
1	First edition	May 2015

[Back to contents](#)

Review

The Council intends to review this document on a regular basis. Please forward any comments to the Highways Development Implementation Team at the following address or by email or by telephone:-

- **South Gloucestershire Council**
PO Box 300
Highways Development Implementation Team
Civic Centre
High Street
Kingswood
Bristol BS15 0DS
- newdevelopmenthighways@southglos.gov.uk
- 01454 868000 (Street Care)

Any amendments will be shown in the Amendments Table above.

[Back to contents](#)

Abbreviations

SGC	South Gloucestershire Council
DMRB	Design Manual for Roads and Bridges
MCHW	Manual of Contracts for Highway Works
MfS	Manual for Streets
SFA	Sewers for Adoption
DfT	Department for Transport
PPE	Personal Protective Equipment
BSEN	British Standard European Normalised
TTRO	Temporary Traffic Regulation Orders
TRO	Traffic Regulation Order
HFS	High Friction Surfacing
AIP	Approval In Principal
SuDS	Sustainable Drainage System
WRAP	Waste and Resources Action Plan

[Back to contents](#)

0000 Introduction

The Specification has been prepared to provide guidance to all Developers carrying out adoptable highway works in South Gloucestershire.

It sets out The Council's (SGC) local requirements for the adoptable works where these may differ from any national standards, and this document must be read in conjunction with all the relevant national standards to ensure that the works are fully compliant with all the standards.

The Specification is intended to be used for adoptable works under Section 38 agreements; however it may also be used for works in the highway under Section 106/278 agreements subject to The Council's approval.

Unless otherwise stated, all highway works must be in accordance with the South Gloucestershire Council Adoptable Highway Specification, referred to as "**The Specification**" and the Department for Transport's (DfT) documents:-

- Design Manual for Roads and Bridges (DMRB), Manual of Contract Documents (MCHW) including Notes for Guidance, and Manual for Streets (MfS)
- Relevant BSEN's and code of practices, Sewers for Adoption (SFA) and the guidance contained in the document Manual for Streets 2.

Some of the details included in The Specification contain additions and/or variations to the Department for Transport documents referred to above. Where details in The Specification depart from details in the DfT documents, The Specification shall apply and take precedence over the DfT documents unless agreed in writing by The Council.

For the purpose of this document, 'The **Council**' is South Gloucestershire Council (SGC), and in most circumstances is used in reference to the Appointed Officer acting on the Council's behalf for the purposes of Highway Adoption.

The Developer referred to in The Specification is the party in any agreement with The Council for the purposes of carrying out adoptable works or works in the highway.

References to The Developer shall be considered in this Specification document to apply to the Developer and any contractor employed by, controlled by or managed by the Developer and shall be read as such.

All engineering design submissions for proposed Adoptable Highways must be in accordance with the approved planning consent, conditions, design and access statements and drawings.

We use all relevant documents including The Specification in our design checking process, any site inspections we carry out and in the material testing process to ensure the timely construction and delivery of residential and commercial developments within the Council's area to our standards.

The Council encourages innovative designs where appropriate and The Specification is not intended to exclude alternative options nor is it intended to prevent such innovative Design and developments. However, alternatives and/or other departures from this or national guidance must be accepted by The Council and agreed in writing by The Council.

Any adoptable highway works undertaken prior to the granting of Technical Approval by The Council, are done so at Developer's risk and may result in works being deemed unacceptable for public adoption.

All approvals required and referred to in The Specification must be in writing from SGC.

South Gloucestershire Council Adoptable Highway Specification

The Specification will be reviewed by The Council on a regular basis and amendments issued as necessary to ensure that this document is up to date, fit for purpose and encourages sustainable innovative design solutions where appropriate.

[Back to contents](#)

Notes: The section numbering in this Specification has been used to generally reflect that of the MCHW, Specification for Highway Works, although there will be some variations.

0100 Preliminaries

0101 Temporary Accommodation and Equipment for the Council

1. The Developer may be requested to provide to accommodation for The Council depending on the type, condition, and duration of the highway works. The Council may appoint a permanent engineer or site inspector to be present on site for the duration of a highway scheme and as a result, may need temporary accommodation. Any temporary accommodation provided must have access to basic welfare facilities, electricity, internet and phone access and drying facilities.
2. Any equipment that may be required by South Gloucestershire Council in order to undertake inspections specific to the highway works that cannot be provided by The Council must be provided by the developer or its appointed contractor. The Council will always provide basic Personal Protective Equipment (PPE) inclusive of Safety helmet, High Visibility Clothing and Safety Footwear. If any particular PPE is required that is not possessed by The Council, this PPE must be provided by the Developer or its appointed contractor.

[Back to contents](#)

0102 Vehicles for the Council

1. Where required, the Developer must provide access for SGC to a vehicle suitable for accessing all areas of the highway works. The vehicle must be maintained in a road worthy condition including fuel, be licensed and insured for use on the Public Highway and have an up to date MOT certificate. The vehicle will need to be accessible at all time during working hours and will be kept at or near to the site.

[Back to contents](#)

0105 Materials Sampling and Testing of Materials and Plant

1. Materials sampling and testing of materials and plant shall be done so in accordance with the terms of the highway adoption agreement and the relevant section of this specification. See South Gloucestershire Council's Adoptable Highway Construction Material Testing Requirements and Guidance Notes.
2. The developer is advised that copies of all test results and certificates will be required prior to adoption and in order to assist the developer it is recommended that copies of the test results are provided to the Council concurrently as they are provided to the developer. This is to avoid delays during the construction process and prior to the adoption or remedial measures. The developer is advised to confirm in writing that the material test results can be made available to the Council by their contractors.

For clarity, The Council reserves the right to sample and test any materials and/or plant intended for use in the construction of proposed adoptable highways, at the **Developer's expense**. [Material Testing Requirements Link](#).

[Back to contents](#)

0110 Information Boards

1. The Developer shall ensure that, when required by The Council, it will within a prescribed period to be agreed with The Council and prior to the commencement of any highway works, provide and erect Information Boards informing the public of the intended highway works, the duration of the highway works and contact details of the parties responsible for the highway works. Information boards shall be located in positions to be agreed with The Council and number to

be agreed with The Council. The Developer shall maintain the information boards in a safe, legible, clean condition until the completion of the highway works.

[Back to contents](#)

0113 Programme of Works

1. For the purposes of inspection, Street Works Coordination and resources, a detailed Programme of Works for the proposed adoptable highway works must be submitted to The Council at least 6 weeks prior to the commencement of any highway works. The Council must be provided immediately with any revision to the Programme of Works if applicable.

[Back to contents](#)

0116 Services and Utilities

1. The Developer is responsible for ensuring that all public and/or private Services/Utilities are maintained and protected in accordance with the owners requirements at all times during the highway works.
2. A fully coordinated design and management of new and/or existing Services/Utilities provisions is required prior to and during the highway works and evidence of this design and coordination is required by The Council. Contact should be made with the owners of all Services/Utilities as early as possible to ensure good coordination of the design and management. Every opportunity must be given to the Utilities to lay their services as the development proceeds to avoid delay and unnecessary expense.
3. Where it is envisaged that future alterations or additions are to be made to Services/Utilities, provisions such as extra ducting this must be installed prior to the application of any bituminous pavement materials. Private Services/Utilities (i.e. not maintained by any Statutory Undertaker or Public Body) cannot be located within the highway unless covered by a Private Maintenance Agreement, a copy of which must be retained by the Council.
4. Details for some of the principal utility companies operating in the South Gloucestershire Council area are given in the [Section 50 Licence application pack](#) supplied by The Council to the Developer.

Where any works are undertaken in relation to Services/Utilities, after the application of bituminous pavement materials, full reinstatement of the bituminous materials will be required to the satisfaction of The Council (Without prejudice to the Highway Authorities right to enforce the requirements of Section 58 of the New Roads & Street Works Act,). Trench reinstatements to any Services/Utilities works undertaken after the laying of finished road pavement materials, will not be accepted for adoption

[Back to contents](#)

0117 Street Works, Traffic Management and Safety

1. Prior to undertaking any works in the Public Highway, permission must be granted by The Council in the form of a Street Works Licence pursuant to the New Roads & Street Works Act 1991.
2. All Signing and Guarding of street works shall be in accordance with Chapter 8 of the Traffic Signs Regulations and General Directions 2002 and where required by The Council, designed for approval.
3. Any operatives, officers or supervisory staff working adjacent to, or within the public highway must wear Hi Visibility clothing in accordance with the latest relevant BSEN. All other PPE must be in accordance with the site or contract requirements.
4. Maintenance of existing highway assets such as Street Lights, Signs, Traffic Signals, Highway Drainage, Road Markings, Footways or Paths, Public Rights of Way and Carriageways, during any street works must be done so with full approval from The Council. Temporary closure, relocation, excavation or diversion of any highway asset must be done so

with the appropriate approvals or licences to be provided by The Council. The Developer is responsible for all charges associated with these works.

5. As part of the Technical Approval process the Council will identify whether a Traffic Regulation Order (TRO) is required. TROs are written legal agreements developed by the Highway Authority allowing the police and / or the Council to enforce various regulations including:-
 - Speed limits
 - Road closures
 - One-way streets
 - Weight or width restrictions
 - Banned turns
 - Bus/cycle lanes
 - Controlled parking and on-street parking places.

6. A TRO can be permanent, temporary or experimental. A requirement of the Highways Development Agreement includes a clause that the developer is to pay to cover the costs of the consultation, advertising and making of each TRO. The likely costs and timescales of introducing the TRO will be provided to The Developer when a formal request for funding is made to South Gloucestershire Council.

It should be noted that the costs of introducing a TRO are in addition to the Supervision fee and any other fees required to be paid to the Council as part of a Highways Development Agreement.

7. Further information on the TRO process can be obtained from the Developer TRO Engineer on 01454 868000.

[Back to contents](#)

0118 Temporary Diversions for Traffic

Any traffic diversions required as part of any highway works will need the prior approval of The Council's Traffic Manager.

[Back to contents](#)

0122 Photographic Surveys

It is recommended that a joint survey is carried out by The Council and the Developer prior to the commencement of the works and that the Developer keeps photographic records of all stages of highway construction. Photographic dilapidation surveys must be taken of the existing highway features surrounding any highway works inclusive of Highway Drainage. The Council may undertake photographic progress and dilapidation surveys at the appropriate stages for our own purposes.

[Back to contents](#)

0123 Road Safety Audits

South Gloucestershire Council requires Road Safety Audits to be carried out on all Highway Schemes. There are 4 RSA Stages:-

- Stage 1 must be carried out prior to receiving Planning Approval.
- Stage 2 must be included in the Technical Approval Submission for any agreements.
- Stage 3 must to be carried out prior to the highway being offered for adoption.

- A RSA Stage 4 may also be required for a post adoption check.

For further information on the Road Safety Audit policy and procedure please refer to the Road Safety Team in The Council. [Road Safety Audit Procedure Link](#)

[Back to contents](#)

0124 Management of Health and Safety for Highway Works

Please refer to the SGC “Management of Health and Safety for Highway Works Policy” (14).

For further information relating to Street Works and Traffic Management, (please also see the Construction page of the above Guidance document).

[Back to contents](#)

0125 As-Built information

In accordance with the MCHW Volume 1, Appendix H. South Gloucestershire Council require all As-Built drawing information for all new asset information that falls under the section 38 agreement to be as follows:

- General Arrangement Plan (pdf format).
- As-Built Drawings of each asset type (AutoCAD and or MapInfo.Tab format and or ESRI Shape format).

This is to enable the asset information to be transferred onto the South Gloucestershire Councils asset (mapping) register for future reference.

We require a post As-Built survey to be undertaken in order for the information above to be provided.

[Back to contents](#)

0200 Site Clearance and Asset Information

0201 Site Clearance

Site Clearance proposals must be submitted for approval as part of the initial technical highway design submission, particularly where the site is situated entirely or partly within the public highway. During the works the Developer must record any street furniture, plant or equipment or Council assets removed from or relocated within the highway and supply such records in a format required by The Council as required.

[Back to contents](#)

0202 Clearance of Trees

Clearance of any Trees, hedgerows or any other landscaping and including any drainage features must be done so with the prior approval of South Gloucestershire Council (SGC) and in accordance with the Planning Approval to avoid clearance of any protected features.

[Back to contents](#)

0203 Clearance of Hazardous Material

Clearance of any hazardous material: Movement and/or disposal of any hazardous or contaminated materials or ground must be completed in accordance with legislative requirements... (*Environmental Protection Act 1990 (in particular – duty of Care), The Hazardous Waste (England and Wales) Regulations 2005, Environmental Permitting (England and Wales) Regulations 2010*) and best practice. Developments on “brownfield” land may well be subject to an agreed remediation method plan and reference should be made to this before commencing works.

Contaminated material should be segregated to avoid contaminating other areas. Where soils or other materials need to be imported onto site, suitable and sufficient checks should be made to ensure the source is traceable and the material is suitable for the intended use. If unexpected contamination is revealed on site, works should cease on that part of the site and advice sought from appropriate and competent persons e.g. Environmental Health and/or the Environment Agency. Measures should be employed on site to prevent contamination e.g. from spillage of fuels/oils associated with vehicles or generators etc.

[Back to contents](#)

0204 Street Furniture and Equipment in the Public Highway

Before any features, furniture or equipment can be cleared from the Public Highway, permission must first be granted by the owner and evidence of this permission copied to SGC.

[Back to contents](#)

0400 Road Restraint Systems (Vehicle & Pedestrian)

0401 Pedestrian Guardrails

Pedestrian guardrails shall be provided where directed by The Council. They shall be steel or aluminium and shall comply with the relevant current standard with vertical bar infilling. Consult The Council for type to be used, especially in visibility splays.

[Back to contents](#)

0402 Protection of Pedestrian Guardrails

When aluminium is used no protective coating is necessary, unless SGC Structures Team requires it. Steel guardrails shall be protected by sprayed metal coatings or galvanising and by painting. After fabrication, each complete unit shall be de-scaled by blast cleaning and shall be sprayed with zinc or aluminium of minimum thickness 4 mic (0.1mm) in accordance with the relevant standard or hot dipped galvanised in accordance with the relevant standard. One coat of etch primer or calcium plumbate paint followed by two coats of lamellar-pigmented micaceous iron oxide to shade shall complete the protection.

Any areas of the metallic coating damaged during erection shall be made good with two coats of zinc rich paint prior to the application of the finished coats.

[Back to contents](#)

0403 Road Restraint System or Vehicle Restraint System (Safety Barrier)

To determine whether a Road Restraint System is required TD 19 (DMRB 2.2.8) states that a RRRAP Assessment (Road Restraint Risk Assessment Process) should be carried out for each site/scheme to establish the need for vehicle restraint and, if so, its performance requirements. TD 19 is intended for use on roads with design speed or imposed speed limit of ≥ 50 mph, reference TD 19/06, and paragraph 1.18.

For roads with Design Speed or Imposed Speed Limit ≥ 50 mph and traffic flow < 5000 AADT, the RRRAP shall be used with a default 5000 AADT, ref TD 19/06 CI 1.23 (I). This should result in an acceptable output.

Where the design speed or imposed speed limit is < 50 mph the RRRAP is less applicable and due regard to the guidance given in the document "Provision of Road Restraint Systems on Local Authority Roads" published by the UK Roads Liaison Group and the Department for Transport should be given in the assessment of whether a Vehicle Restraint System is required and the performance requirements of that VRS.

The Developer is recommended to contact the SGC Structures Team at the earliest opportunity to agree the appropriate type of Road Restraint System or Vehicle Restraint System (Safety Barrier) before detailed design work is carried out to avoid unnecessary delays and abortive works.

Any Road Restraint System proposed must be compliant with all relevant sections of BS EN 1317, TD19 (where applicable), ENV 1317-4 and any other relevant standards.

The installation of Road Restraint Systems must be carried out by a competent contractor certified under Quality Assurance Sector Scheme 2B. Certificates of compliance and any relevant on site testing required by The Council must be issued by the contractor for acceptance on completion of the installation and prior to the road being trafficked.

[Back to contents](#)

0500 Highway Drainage

0501 Highway Drainage General

Drainage details in this Specification only apply to highway drainage and not to sewer and manhole construction pursuant to Section 104 of the Water Industry Act 1991.

Highway drainage design and construction shall comply in all respects with the latest edition of 'Sewers for Adoption' (SFA) and Series 5 of the Manual of Contract Documents for Highway Works (MCHW) (and associated BSEN's) unless otherwise specified in this document.

Highway Drainage features consist of the following:-

- Sewer Pipes (including piped culverts)
- Gully Pots, Grills & Connection Pipes
- Manholes, Catch pit & headwalls
- Filter, Fin or French Drains
- Open Ditch, swales or Rhine
- Control Features – such as Hydro-brakes, Flap Valves, Orifice Plates, Penstocks and Attenuation Systems

Highway Drainage features carry surface water from the highway **only**, and become adopted highway drains, providing the design and construction complies in all respects with this Specification.

All pipes which carry surface water from other private areas (i.e. Non -Highway) such as roofs, private drives, privately maintained open spaces, etc. are not adoptable by The Council and may be adopted as Public Drainage by the local water company. Private Drainage must not be located within the Public Highway unless covered by either a Private maintenance licence or other appropriate agreement with The Council and copies of which will be retained by the Council.

All adoptable highway drainage shall discharge to a pipe or watercourse at a point to be approved by the Council's drainage design team and the owner/maintainer of the system to which it discharges. Evidence will be required that the Developer has a right to discharge surface water at the proposed point of discharge, free of any liability which may be binding upon The Council when the drain is adopted.

Please Note: all development Drainage Strategy documents and Flood Risk Assessments, must be approved by the relevant drainage bodies including the Planning Department of The Council prior to any Highway Drainage design or construction being considered. Evidence of these approvals must be included with the initial engineering design submission.

[Back to contents](#)

0502 Sustainable Drainage Systems (SuDS)

SuDS can include:-

- Filter strips and swales
- Filter drains and permeable surfaces
- Infiltration and attenuation systems
- Attenuation basins and ponds
- Underground tanks e.g. box culverts and over-sized pipes

Under the Flood and Water Management Act (2010) South Gloucestershire Council is the "Lead Local Flood Authority".

Developers shall incorporate appropriate SuDS in the highway drainage proposals, subject to approval from SGC. Criteria by which the form of drainage appropriate to any particular situation can be determined, as well as requirements for the design, construction, operation and maintenance of SuDS.

Please Note: whilst The Council promotes the use of SuDS on new development, certain types of SuDS systems are not acceptable for adoption as Highway, due to onerous maintenance requirements.

[Back to contents](#)

0503 Location of Highway Drains

All maintainable highway drains shall be located within the highway or within land which is to be adopted by the Council. Only in exceptional circumstances will Highway drains be permitted within land which is to remain private. Easements will be required for maintenance access to drainage which is to remain in private land. Such easements will be in accordance with the latest version of SFA, as a minimum. All associated costs in forming any easements shall be met by the Developer.

Where possible it is preferred that Highway Drainage is located outside of the vehicular carriageway (i.e. in verge or footways), to ensure safe access for future maintenance. Where this is not possible, ensure that access chambers and manholes are located outside of the envisaged vehicle track and to one side of the carriageway, to ensure future traffic management during maintenance operations is efficient and safe.

[Back to contents](#)

0504 Capacity of Highway Drains

The capacity of highway drains is to be designed in accordance with the current edition SFA and the DMRB and is determined by the overall drainage strategy for any given development area. In certain cases, the developer may be required to provide an oversized system to accommodate the drainage of adjoining land and/or future development.

The minimum diameter of any pipe shall be 150mm. All as-built Highway pipe joints will be fit for purpose and tested prior to adoption.

[Back to contents](#)

0505 Bedding, Laying and Surround Materials for Drains

Combinations for bedding, pipe and surround materials are to be designed in accordance with the DMRB and SFA and as agreed with The Council.

[Back to contents](#)

0506 Pipes Treated as a Structure

Pipes that have an internal diameter larger than 900mm and / or a cover of less than 1000mm will be deemed to be a "structure" and will follow the structural design approval process on the Structures page and all Box Culverts will be deemed to be a Structure.

[Back to contents](#)

0507 Manholes & Inspection Chambers

Manholes or Inspection Chambers shall be provided at every pipe junction (other than for gully connections) and at every point of change of size, direction and/or gradient. The distance between Manholes & Inspection Chambers shall not exceed 100m.

Precast concrete manholes with ST2 concrete surround (unreinforced to BS 8500-2 and BSEN 206-1 with 20mm Nominal maximum size aggregate and a Class S2 (75mm) slump are to be used unless the depth to invert is less than 1.3m or where otherwise agreed by The Council .

Where Manholes or Inspection Chambers do not exceed 1.3m alternative materials and preformed products may be accepted. Flexible joints and rocker pipes shall be used in accordance with DMRB and the SFA.

Foundations to Manholes & Inspection Chambers shall be of ST4 concrete to BS8500-2 and BSEN 206-1.

Brickwork to the underside of Manhole & Inspection Chamber access points, shall be in accordance with DMRB and SFA.

Access Covers to Manholes & Inspection Chambers shall be of a suitable and durable material and where located within the carriageway or footway shall provide an 'In Service' anti-skid/slip resistance suitable for the type and speed of use.

Access Covers to Manholes & Inspection Chambers shall be Class D400 unless a higher strength cover and frame is required due to high traffic loadings or other requirements.

Recessed chamber covers for use in areas of modular construction are not accepted for adoption.

All covers to chambers used in areas of modular construction must be of a suitable frame depth to accommodate the surrounding blocks without the need for modification.

[Back to contents](#)

0508 Gullies

Gullies (inclusive of pot, frame and connection) for use in the highway will be trapped unless otherwise agreed with The Council. Gullies may be precast concrete or "plastic".

Where plastic is used, a minimum 150mm ST2 concrete surround (unreinforced to BS 8500-2 and BSEN 206-1 with 20mm Nominal maximum size aggregate and a Class S2 (75mm) slump shall be provided. Plastic Gully Pots, must have a British Board of Agreement Roads and Bridges Certificate or CE Product Certificate.

Gully grills shall be Class D400 and where used in pedestrian or shared spaces shall be 'Pedestrian and Cycle Friendly'.

The maximum length for any gully connection is 12m. Gully pots shall be 1.0m internal depth.

Gullies shall be provided at not less than 1 per 200m² of impermeable surface area. Channel blocks will be required where the longitudinal gradient is less than 0.8% (or 1:125) or a system otherwise agreed with the Council. Where the longitudinal gradient of the road is 0.8% or less, additional gullies will be required.

The Developer is to ensure that the number and positioning of the gullies, having regard to the longitudinal gradient and cross falls available, are adequate to drain the carriageways, footways and footpaths. Roads will not be adopted that have standing water on them.

Double gullies with separate connections or a single 225mm diameter connection should be provided at all low spots.

When positioning gullies, providing access for maintenance needs to be taken into account including the method of maintenance.....i.e. does a carriageway have to be closed to maintain gullies?

Gully gratings shall be hinged, non-lockable and installed as directed by the manufacturer in the direction of the traffic.

[Back to contents](#)

0509 Backfilling of Drainage Trenches

Trenches shall be backfilled in accordance with the MCHW, and SFA.

[Back to contents](#)

0510 Maintenance of Drains

During the construction phase, the developer must keep the interior surfaces of drains, gullies and manholes and all gratings, frames and covers free from any detritus or any other contamination. All drainage must be cleaned to the satisfaction of the Council prior to issue of Final Adoption Certificate.

[Back to contents](#)

0511 CCTV surveys

The Developer should carry out a CCTV survey to the SFA standard requirements on all drains and sewers laid under any highway if requested by The Council prior to laying of any surfacing materials and the final surface material. The Developer must be able to demonstrate that the drains and sewers are to the required specification and acceptable for adoption by the relevant authority and will not result in any remedial excavations being required within the completed road surface prior to adoption.

For the avoidance of doubt any remedial measures to the road construction as a result of excavation works or the like identified by the CCTV survey required by The Council prior to adoption will be in accordance with Section 0116 , in particular paragraph 3 of this Specification as a minimum.

[Back to contents](#)

0512 Records of As Built Drainage

An "As Built "survey of the highway drainage (and any private drainage situated within the proposed highway) in a format required by the Council must be carried out at the Developer's expense prior to the issue of the S.38 agreement Part 3 Final Adoption certificate (and in the case of S.106/278 agreements the Final completion certificate).

[Back to contents](#)

0600 Earthworks

Any earthworks undertaken on construction sites prior to the development of any adoptable highway will be subject to the contract requirements of that site and be in accordance with the DMRB and the MCHW Series 600.

Any Earthworks undertaken in or adjacent to the existing or an adoptable highway, shall be done so only with the prior approval of The Council. Finished Earthworks in/ or adjacent to the highway normally come in the form of embankments, open spaces, ditches or verges (including drainage features).

Any embankments within above or supporting any highway shall have a gradient no greater than 1 in 3 and drainage shall be accommodated at the toe of any slope.

For embankment slopes where a maximum gradient of 1 in 3 cannot be achieved, some form of soil reinforcement (geogrids, soil anchoring, etc.) will be required and will be treated as a structure and will need to be approved by SGC Highway Structures Team. Early discussions with the Structures Team is recommended especially where complex earthworks are to be part of the highway or affect the highway, to avoid unnecessary delay in the approval of the proposed works.

Similarly, where fill proposals are overly deep/thick and support the highway, the proposals will need the prior approval of the SGC Structures Team. We reserve the right to have any proposals independently.

All Earthworks that require the approval of The Council will be subject to the Council's SGC Adoptable Highway Construction Materials Testing Requirements and Guidance Notes and shall be tested by a UKAS accredited testing contractor and laboratory.

The Developer shall provide to the Council on request the required soil and material testing certificates for any soils or similar materials either re-used from the development or imported to the site to ensure that the materials complies with all required classifications and standards in the DMRB ,the MCHW and the WRAP guidance for the control of waste materials. Failure to provide the required documentation may result in the highways not being adopted by The Council.

The Developer is advised to include for the provision of land drainage or other means of keeping the excavation to the formation level free of water including from overland flooding and the like during the construction process and to keep the road construction free of water from any source. This is to avoid the failure of the road construction caused by the ingress of water into the formation and saturation of the granular materials.

[Back to contents](#)

0700 Road Pavements, Kerbs, Footways/Paths and Paved Areas

Recycled Highway Construction Materials

South Gloucestershire Council is committed to initiatives for the development of and the use of recycled materials in highway construction. Developers may offer suitably processed reclaimed materials for use on new highway development schemes.

To ensure recycled materials are fit for purpose (only where intended for use in adoptable Highway), South Gloucestershire Council's Adoptable Highway Construction Materials Testing Requirements must be adhered to. The regularity of insitu testing per tonnage of recycled materials will normally be double that required for quarried materials (i.e. 1 per every 50 tonnes as opposed to 1 per every 100 tonnes). Written approval will be required from the Council prior to use.

0701 Typical Road Construction - Design

Typical minimum construction standards for various types of road are shown in Table 1.

Other forms of construction may be considered at the design stage and the Council may require the Developer to submit detailed design calculations for approval to determine the suitable road construction as necessary.

For example, where there is a delay in the final surface being laid, where the roads are to be used by additional construction traffic and/or heavy good vehicles, or the roads may be used for future developments linking off the roads the Council may require a revised road construction or materials. Some guidance on this aspect can be found below in The Specification.

Table 1: Typical Road Construction Details – Minimum Requirements

Road Type	Course	Thickness (mm) / Material Type (to current BS EN Standards) and Mix designation		
Industrial/High Performance	Surface	50 mm / Hot Rolled Asphalt design mix (type F) with a 14mm aggregate applied to clause 943 of SHW. (NB Normally incorporating a PMB Binder to meet performance criteria) with the addition of 20mm Pre Coated Chippings depending on texture depth requirements. Mix Designation - HRA 35/14 F 40/60 (PMB) des (CI 943)		
	Binder	60 mm / Heavy Duty Asphalt Concrete bin (design) with a 20mm aggregate to clause 929 of SHW Mix Designation – AC 20 HDM bin 40/60 des (CI 929)		
	Base	220 mm / Heavy Duty Asphalt Concrete base (design) with a 32mm aggregate to clause 929 of SHW (laid in 2 layers) Mix Designation – AC 32 HDM base 40/60 des (CI 929)		
	Sub-base	CBR>5%	300 mm Type 1 granular sub-base	
		2-5%	225 mm Type 1 + 350 capping layer	
		<2%	225 mm Type 1 + 600 capping layer	

[Back to contents](#)

South Gloucestershire Council Adoptable Highway Specification

Road Type	Course	Thickness (mm) / Material Type (to current BS EN Standards) and Mix designation	
Distributors/Spine Roads	Surface *	40 mm / Hot Rolled Asphalt Design Mix (type F) with a 14mm aggregate applied to clause 911 of SHW with the addition of 20mm Pre Coated Chippings depending on texture depth requirements. Mix Designation - HRA 30/14 40/60 des (CI 911)	
	Binder	60 mm / Heavy Duty Asphalt Concrete bin (design) with a 20mm aggregate to clause 929 SHW Mix Designation – AC 20 HDM bin 40/60 des (CI 929)	
	Base	150 mm / Heavy Duty base Asphalt Concrete (design)with a 32mm aggregate to clause 929 of SHW Mix Designation – 150 AC 32 HDM base 40/60 des (CI 929)	
	Sub-Base	CBR>5%	300 mm Type 1 granular sub-base
		2-5%	225 mm Type 1 & 350 capping layer
<2%		225 mm Type 1 & 600 capping layer	
Residential	Surface *	40 mm / Asphalt Concrete Close Graded Surface Course Recipe Mix with a 10mm aggregate to Clause 912 of SHW Mix Designation – AC 10 Surf 40/60 rec (CI 912)	
	Binder	70 mm / Heavy Duty Asphalt Concrete bin (design) with a 20mm aggregate to clause 929 of SHW Mix Designation – AC 20 HDM bin 40/60 des (CI 929)	
	Base	100 mm / Heavy Duty Asphalt Concrete base (design) with a 32mm aggregate to clause 929 of SHW Mix Designation – AC 32 HDM base 40/60 des (CI 929)	
	Sub-base	CBR>5%	300 mm Type 1 granular sub-base
		2 -5%	225 mm Type 1 + 350 capping layer
		<2%	225 mm Type 1 + 600 capping layer
	Modular construction	Block paving specification to be in accordance with planning requirements Note: Where proposed traffic volumes and/or movements are envisaged to be greater than that of typical residential areas, a more robust construction must be agreed with SGC. Technical mortar in accordance must be used. See section 0704.Technical Mortars. (See Point 9 for further requirements)	
	Laying Course	20/30 mm compacted grit sand of the appropriate grade	
	Base	100 mm / heavy Duty Asphalt Concrete base (design) with a 32mm aggregate to clause 929 of SHW Mix Designation – AC 32 HDM base 40/60 des (CI 929) See point 8 below for further requirements	
	Sub-base	CBR>5%	300 mm Type 1 granular sub-base
		2 -5%	225 mm Type 1 & 350 capping layer
<2%		225 mm Type 1 & 600 capping layer	

[Back to contents](#)

Road Type	Course	Thickness (mm) / Material Type (to current BS EN Standards) and Mix designation
Footways and Cycleway	Surface	25 mm / Asphalt Concrete Dense surf with a 6mm aggregate to clause 909 of SHW Mix Designation – AC 6 dense surf 40/60 (CL 909). See Note 7 re 100/150 pen
	Binder	60 mm / Asphalt Concrete Dense bin (recipe) with a 20mm aggregate to clause 906 of SHW Mix Designation – AC 20 bin 40/60 rec (CL 906). See Note 7 Re 100/150 pen
	Sub-base	225 mm Type 1 granular sub-base
Vehicle Crossovers to Private Drives	Surface	25 mm / Asphalt Concrete Dense surf to clause 909 of SHW Mix Designation – AC 6 dense surf 40/60 (CL 909)
	Base	60 mm /Dense bin (recipe) clause 906 of SHW Mix Designation – AC 20 bin 40/60 rec (CL 906)
	Sub-base	225 mm Type 1 granular sub-base
All Other Vehicle Crossovers	Surface	40 mm /Dense surf to clause 909 of SHW Mix Designation – AC 6 dense surf 40/60 (CL 909)
	Binder	To match adjacent road construction
	Base	To match adjacent road construction
	Sub-base	To match adjacent road construction

[Back to contents](#)

Notes:

*With the Council’s written prior agreement and at the Developer’s risk an alternative surfacing material such as a Thin Surfacing System for the surface course may be accepted on S.38 residential roads.

The use of alternative surfacing materials such as the Thin Surfacing Systems on existing adopted highways when part of a S.106/278 works in the highway agreement may be acceptable; however SGC may require full reconstruction of the road to formation level to ensure the long term durability of the road following the completion of the works.

- 1) CBR values shown are those at Formation level.
- 2) Where the CBR is less than 1% special treatment may be necessary. Consult the Council for approval of any special treatments proposed.
- 3) **Trafficking of bituminous layers:–**
 - (a) Where there is a delay between the laying of any bituminous layers (i.e. – Base & Binder or Binder & Surface) the already laid course should be treated with sealing grit prior to trafficking (i.e. normally the same day following the end of the laying operation).
 - (b) Where it is envisaged that a Base or Binder is to be trafficked for any period of time prior to the application of the Surface, the Developer should submit design proposals for approval indicating how the road construction is to be protected. For example the layer/layers to be

trafficked could include a 'Polymer Modified Binder' (PMB) to replace the standard binder material. The addition of a PMB has been shown to significantly improve the performance of a surfacing material when subjected to vehicle movements for which it is not designed to take.

The reduction of any design thickness for any bituminous layer if a PMB is used instead of the normal pavement grade bitumen is NOT permissible.

Failure to consider this overall advice may result in the material being deemed unacceptable for adoption.

(c) Binder enriched bituminous mixes are also advisable when Base or Binder layers are to be trafficked prior to the application of the Surface. This is where a material is pre-ordered with a "top-end" of design target binder content specified or if a specific "enriched" mix is chosen. The developer must choose **a specific enriched design** for the road. All bituminous mixes produced by any mixing Plant must have a **Type Test Certificate** which lists all the constituent sources and petrological details, target grading, bitumen type, penetration and percentage added. **A copy of ALL Type Test Certificates must be provided to South Gloucestershire Council to ensure that any compliance testing of laid materials can be accurately.**

For the avoidance of doubt, all of the above can be discussed with the council, but the ultimate responsibility for maintaining bituminous materials during the construction process is the Developer's.

4) Where capping and sub-base layers are checked for bearing ratios the following minimum CBR values are mandatory:-

(a) Type One sub-base > 30%

(b) Capping > 15%

Note that the CBR test results for the formation must be considered in the road construction design process for the time of year the actual construction is planned to take place. The time of the year as well as other factors such as natural variations in the moisture content of the formation layer will affect this.

The test results may not be representative of the conditions during construction and may need to be corrected or the tests re-done where there is a delay in carrying out the work to comply with the specification in considering the road construction depths.

[Back to contents](#)

5) Sealing of Joints and Adhesive Bonds between Bituminous Layers:-

(a) ALL Bituminous laying procedures / protocols are to be strictly adhered to as per BS 594987: 2010 (or any updated edition in the future) and as such the following points are highlighted:

(b) In accordance with BS 594987 Bond Coats are now considered Best Practice for all bituminous layers to help ensure an adequate (adhesive) bond and also enhance waterproofing properties between bituminous layers and as such are compulsory if any works are considered for Public Adoption. The use of a Tack coat instead of Bond Coat is NOT accepted. Clause 5.5.2 of BS 594987 identifies the exact requirements for application of Bond Coats.

(c) In accordance with BS 594987 all transverse and longitudinal joints in any bituminous layer must be cut back to expose the full thickness of that layer, ensuring any loose material is cleared away and the vertical face painted with a uniform coating of hot applied bitumen emulsion 40/60 pen or Bond Coat.

(d) All raised ironworks and projections (including kerb faces) against which bituminous materials will abut, will be subject to the above jointing requirements.

(e) All Bituminous Sprays and Bond Coats must conform to the relevant parts of MCHW, Volume 1. Clause 920. The main requirement to note is that any sealing or jointing product must have a British Board of Agreement (BBA), Highway Authority Product Approval Scheme (HAPAS), and Roads & Bridges Certificate.

[Back to contents](#)

(6) Laying in Adverse Conditions:-

Clause 6 of BS 594987 clearly outlines the requirements when laying in adverse conditions. If works are to be considered for Public Adoption, then the following requirements must be adhered to. Laying should not be carried out if standing water is present.

- Materials laid in moderate to heavy rainfall will not be accepted.
- Laying shall be carried out with due regard to ambient weather conditions so that materials can be properly compacted. The asphalt shall not be laid on any surface which is frozen or covered with ice or snow. Laying shall cease when the air temperature reaches 0 °C on a falling thermometer, except in calm dry conditions, when laying shall cease if the air temperature reaches -3 °C on a falling thermometer.

(Further guidance and explanatory notes are in the BS 594987 Section 6.2. for various thicknesses and materials and MCHW Volume1:945).

[Back to contents](#)

7) All the materials identified in the above table must be machine laid and all materials are to be 40/60 pen. In general, only machine laid materials are accepted, except for AC6 dense surf 70/100 pen and AC20 dense bin 100/150 pen, which may in some circumstances be permitted for footways when being hand laid subject to SGC's permission. This also includes areas of main carriageway where paving plant cannot access.

[Back to contents](#)

8) Where longitudinal falls are less than 1:200 on residential roads of modular construction, the bituminous base should be permanently cored at 1m centres, filled with clean stone and then covered with a suitable protective membrane, for drainage purposes (exact specification to be agreed with SGC).

[Back to contents](#)

9) For footpaths and footways of modular construction, a nominal 75 mm bituminous sub-layer will be required laid to the tolerances in DMRB.

[Back to contents](#)

(10) For segregated footpaths or footways adjacent to open spaces or landscaped areas, measures must be put in place to take account of possible shrinkage failures in the construction.

[Back to contents](#)

(11) Geotextiles/membranes:-

Geotextiles may be required to separate earthworks materials or to strengthen the formation. The material on which it is placed must not have sharp objects which might damage it. The geotextile must

be laid in continuous contact with this material so that it is not stretched over hollow or humps. Adjacent sheets shall overlap by at least 300mm. Fill shall be placed immediately after the geotextile is laid, and plant shall not be allowed to run on the membrane until it has been covered by a minimum of 300mm of suitable material. The depth of fill over the geotextile must be in accordance with guidance in DMRB.

[Back to contents](#)

(12) Capping Layers and Sub-Base:-

- (a) Capping and Sub-base materials shall be approved by the Council and will be subject to SGC's Adoptable Highway Construction Materials Testing Requirements including both source approval and insitu testing.
- (b) All graded granular material shall be laid and compacted in accordance with the MCHW Series 800.
- (c) The sub-base materials shall be treated with an approved weed killer for all carriageways and footways/footpaths prior to the application of bituminous materials.

[Back to contents](#)

(13) Bituminous materials – Performance Requirements & Good Practice:-

- (a) To protect and aid preparation for future surfacing, where base or binders are to be left exposed to the environment and even trafficked prior to surfacing, sealing grit shall be applied and shall be bitumen pre-coated grit not exceeding 3mm nominal size.
- (b) Limestone aggregate is not acceptable for use in surface course materials due to the materials excessive polishing qualities.
- (c) Over banding is generally considered acceptable to safe guard bituminous joints from water ingress and frost damage, however where over banding is applied, it must meet required friction properties required for the class of carriageway, type of traffic and location. **However by strictly adhering to the treatment of all joints, both longitudinal and transverse, as per the procedures specified in BS594987 the practice of over banding surface courses should not be necessary.**
- (d) Aggregate durability must be measured by the Aggregate Abrasion Value (AAV) test as defined in Annex A of BS EN 1097-8:2000. The AAV is a measure of the durability or resistance to abrasion of an aggregate under the action of traffic. Polished stone value (PSV) is the term used to describe the skid resistance value of the aggregate tested after a controlled Laboratory polishing procedure.

The minimum required PSV and/or AAV of any given carriageway is dependent on the Class and type of carriageway, speed limit and the average annual daily number of commercial vehicles estimated to use the 'lane' at the end of the anticipated life of the surfacing. See DMRB, Volume 7, Section 7, and Part 1 for tables containing the PSV & AAV values for any given scenario.

[Back to contents](#)

(14) Testing of Highway Construction Materials:-

Any materials used in adoptable highway works shall be tested in accordance with the SGC 'Adoptable Highway Construction Materials Testing Requirements' and 'SGC Adoptable Highway Construction Materials Testing Guidance Notes' document. Any materials which do not conform to the testing requirements (Inc. the performance requirements as identified in the relevant BSEN) will be considered unacceptable for adoption. [Material Testing Requirements Link](#)

(15) Road laying Tolerance:-

The road laying tolerances should be in accordance with the [DMRB, Series 700](#), and Table 7/1.

[Back to contents](#)

(16) Recycled Materials:-

South Gloucestershire Council (SGC) supports sustainable development and where the developer proposes the use of recycled materials either from within the development or imported, all materials must comply with the requirements of the DMRB and MCHW and the WRAP Guidance: Quality Protocol for Aggregates.

Where the Developer is proposing the use of recycled materials for incorporation into the highway to be adopted early discussions with The Council on the acceptability of the material is recommended. Copies of all sampling, test results and certificates for the recycled material must be provided to SGC in the same way as the other materials.

Recycled materials can require a higher number and extent of tests to ensure compliance with the Specification and The Council reserves the right to require additional testing over and above those in the MCHW and WRAP to satisfy itself on the acceptability of the materials.

Further information on the testing can be found in the Council's SGC Adoptable Highway Construction Materials Testing Requirements – and Guidance Notes.

[Back to contents](#)

0702 High friction surfacing

The requirement for High Friction Surfacing (HFS) can be found in the DMRB, Volume 7, Section 5, Part 2: HD38/39. Please also see the SGC "[High Friction Surfacing Policy](#)" for additional requirements regarding HFS.

[Back to contents](#)

0703 Kerbs, Channels and Edging

Typical kerb up-stands on finished highway works will be 125mm unless otherwise specified during the Planning process. Kerb up-stands at vehicular crossovers will be 25mm and be constructed using a 'Bull Nose' (BN) type kerb. Kerbs used at pedestrian crossing points shall present a 0-6mm up-stand and the kerb type should be specified appropriately. Measures should be taken at Pedestrian crossing points with a flush finish, to ensure that drainage is suitably accommodated.

All kerbs and edgings, unless otherwise specified during the planning process shall be pre cast concrete and all kerbs and edgings shall laid and backed with ST2 concrete mix ST2 (unreinforced) in accordance with BS 8500-2 and BSEN 206-1 with 20mm Nominal maximum size aggregate and a Class S2 (75mm) slump. Admixtures (including calcium chloride and pigments) shall not be used in the production of concrete.

Sulphate resisting concrete shall be used where the design sulphate class is higher than the design chemical class.

Where the Developer proposes the use of two stage kerbing to the highway during construction prior to the laying of the final kerbing, details of the method of construction must be agreed with The Council.

Tapered transition kerbs at crossing points and vehicular crossovers where pedestrian routes are situated must be constructed utilising 'Double Tapered' (kerbs which drop to carriageway level over two

kerb lengths). Double Tapered kerb units ensure that suitable gradients are accommodated on Footways at points where the path needs to lower.

[Back to contents](#)

0704 Technical Mortars

All technical mortars used shall be in accordance with the DMRB, MCHW and BS7533 unless otherwise agreed with The Council.

[Back to contents](#)

0705 Gradients and Mobility Access

Longitudinal gradients must not be exceed the guidance in the “Inclusive Mobility” Government Guidance Document and the scheme design must be in accordance with the requirements of the Disability Discrimination Act.

Where the Developer is not able to reasonably comply with this guidance because of the existing ground levels the Developer must be able to demonstrate how access for the mobility impaired can be accommodated. This may exclude the use of some road types such as shared spaces, and a footway and pedestrian barriers/handrails may be required.

It is recommended that this is **considered fully** at the planning stage rather than at the technical approval stage when The Council may not accept the highway for adoption if mobility access has not been satisfactorily provided.

Where the Developer proposes the use of modular construction on residential roads additional cross banding construction or similar may be required on steep gradients to prevent the movement of the blocks downhill.

Vertical curves should be designed in accordance with TD 9 /93; however a relaxation on the K values for the design of vertical curves on new low speed residential roads may be agreed in some circumstances. The developer must be able to demonstrate that actual speeds on the roads will be below 30 mph and that the reduction will not cause problems for larger HGVs or other users of the road.

Road Type	Design Speed	K value	Min curve length
Distributor	30	6.0	20
Residential/access	<30	2.0	20

[Back to contents](#)

0706 Tactile Paving

Refer to the “Guidance on the Use of Tactile Paving Surfaces” document produced by the DETR for information and advice on how to provide the necessary tactile paving surfaces on new developments.

<https://www.gov.uk/government/publications/guidance-on-the-use-of-tactile-paving-surfaces>

[Back to contents](#)

1200 Traffic Signals, Signs and Road Markings

Traffic Signals

For all development proposals that include new traffic signals installations and/or affect existing traffic signals, early consultation with SGC's Signals Team is required. Please refer to the SGC web page for a general specification for Traffic Signals equipment, installation and commissioning.

Traffic Signs

Traffic signs on roads to be adopted as public highway must conform to the current version of the "[Traffic Signs Regulations and General Directions](#)" (TSRGD). The "[Traffic Signs Manual](#)" provides further information on the design and positioning of traffic signs. Traffic signs which are not included in the TSRGD must have special authorisation from the Department for Transport.

Illumination of Traffic Signs and Bollards.

Please refer to the SGC "Street Lighting Policy".

[Back to contents](#)

Road Markings

Road markings in thermoplastic material are to be provided by the developer in accordance with the TSRGD. Any markings not included in the TSRGD require special authorisation from the Department for Transport.

Street Naming and Numbering

For street naming and numbering please see the [SGC website](#).

Please note that it is the Developer's responsibility to supply and install street nameplates to the SGC requirements prior to the occupation of any properties and failure to do so may mean that the roads are not adopted.

[Back to contents](#)

1300 Street Lighting

Please see the SGC Street Lighting Policy and Guidance on the Part-Night Street Lighting Policy on the SGC website.

Electricity Supply by an Independent Distribution Network Organisation (IDNO)

Where the developer chooses to use an IDNO for the electricity supply to the development, a Service Level Agreement shall be entered into by the IDNO and SGC to ensure the supply to the street lighting columns, traffic signs, traffic signals, feeder pillars, etc.

SGC Street Lighting Contract Services

South Gloucestershire Council offers a complete street lighting and electrical design and contract installation service. Street Care Commercial is a section of South Gloucestershire Council carrying out commercially traded work on the open market.

Street Lighting and Electrical: 01454 864011

streetcarecommercial@southglos.gov.uk

[Back to contents](#)

1700 Structures

Please refer to the Structures Guidance on the Council's web page for details. This is a brief overview of the process to be followed.

All highway supporting structures (bridges, culverts, underpasses, walls and steps/stepped ramps when appropriate) and retaining walls adjacent to the highway regardless of the size of the structure will need to be approved by the Highway Structures Team.

The developer is responsible for identifying any structures and must contact the Highway Structures Team prior to entering into the agreement to establish which structures will be adopted by the Council within this agreement.

As a general rule, retaining walls that will support private land above adopted highway will not be included in the adoption agreement. They will, however still need to be subject to the technical approval process as required by the Highways Act 1980.

Cattle grids, where required, must be constructed only in accordance with standard details, copies of which are obtainable from the Highway Structures Team.

Before commencing the design of any structure the developer must contact the Highway Structures Team to establish if Technical Approval will be required. If Technical Approval is required, an Approval In Principle (AIP) must be submitted for approval prior to any detailed design being carried out. The AIP must be in the format stipulated by the Highway Structures Team and must comply with structural Euro code design requirements. Withdrawn British Standard designs will not be accepted.

Once the AIP has been approved and signed by the Bridge & Highway Structures Manager, full details and calculations of all structures must be forwarded for approval at least two months prior to construction. Design and Check (to the appropriate check category) certificates must be submitted to the Bridge & Highway Structures Manager for signature once design is agreed to be of suitable standard for acceptance.

The structure must be designed in accordance with the DMRB and the MCHW.

The approval of such details and calculations will not remove from the developer the responsibility for the accuracy of such details and calculations.

[Back to contents](#)

1900 Protection of street furniture and sign posts

Please refer to the SGC “[Protection of Street Furniture, Protection of Sign Posts Policy](#)” (9) and to Section 3000 for additional information on Concrete aprons to street furniture.

[Back to contents](#)

2600 Miscellaneous

Public Transport Infrastructure

Note that on certain developments there may be specific items of infrastructure required that are enhanced designs to be provided as part of the planning permission.

Bus Shelter Specification

Section A

Shelter Design Specification

Shelters shall be of modular design, size 1.3 – 1.5m, width 1.3 – 1.8m and conform to the guidelines of the Disability Discrimination Act.

Construction shall be of stainless steel posts (60x60 SHS) with a mid-rail and welded roof supports with an extruded aluminium glazing system with hidden fixings. Any coloured panels, rails, seat, timetable casings are to be blue (RAL 5002) however more than one option colour may be required.

Side glazing shall be 6mm polycarbonate with options for toughened safety glass and solid back panels. The roof shall be curved, 4mm tinted polycarbonate, with an option for flag mountings where specified. Shelters shall come with an integral full length perch seat without handles.

Full, half, and quarter side panels may be specified for cantilever shelters when requesting a quotation. Enclosed shelters must provide a minimum 1000mm exit and entry to accommodate wheelchair users & double-buggies.

The shelter shall be installed RTI compatible with bracketry and wiring included (certification will be required at installation, see section B) and be ready to receive a 3 line x 32 character LED shelter display (*Vix Shannon* 12kg, installed at a later date under separate contract).

The shelter shall have an integral connection housing with a planted root for cable duct access, providing entry on all facets. The connection housing shall be 500mm high above ground level, consisting of a 50mm above ground plinth and minimum dimensions 450mm high door access, 400mm wide and approximately 160mm deep, giving a minimum internal clearance of 140mm from the face of the backboard. The backboard shall be varnished marine plywood, or similar, of at least 20mm thickness. The connection housing shall also provide an 8mm brass earthing bolt fixed to the structure for a main earth provision, with a similar earthing point on the door. The connection housing shall consider BS EN 60529 and be sealed to a minimum of IP54.

The door access shall open into the shelter and preferably be hinged

[Back to contents](#)

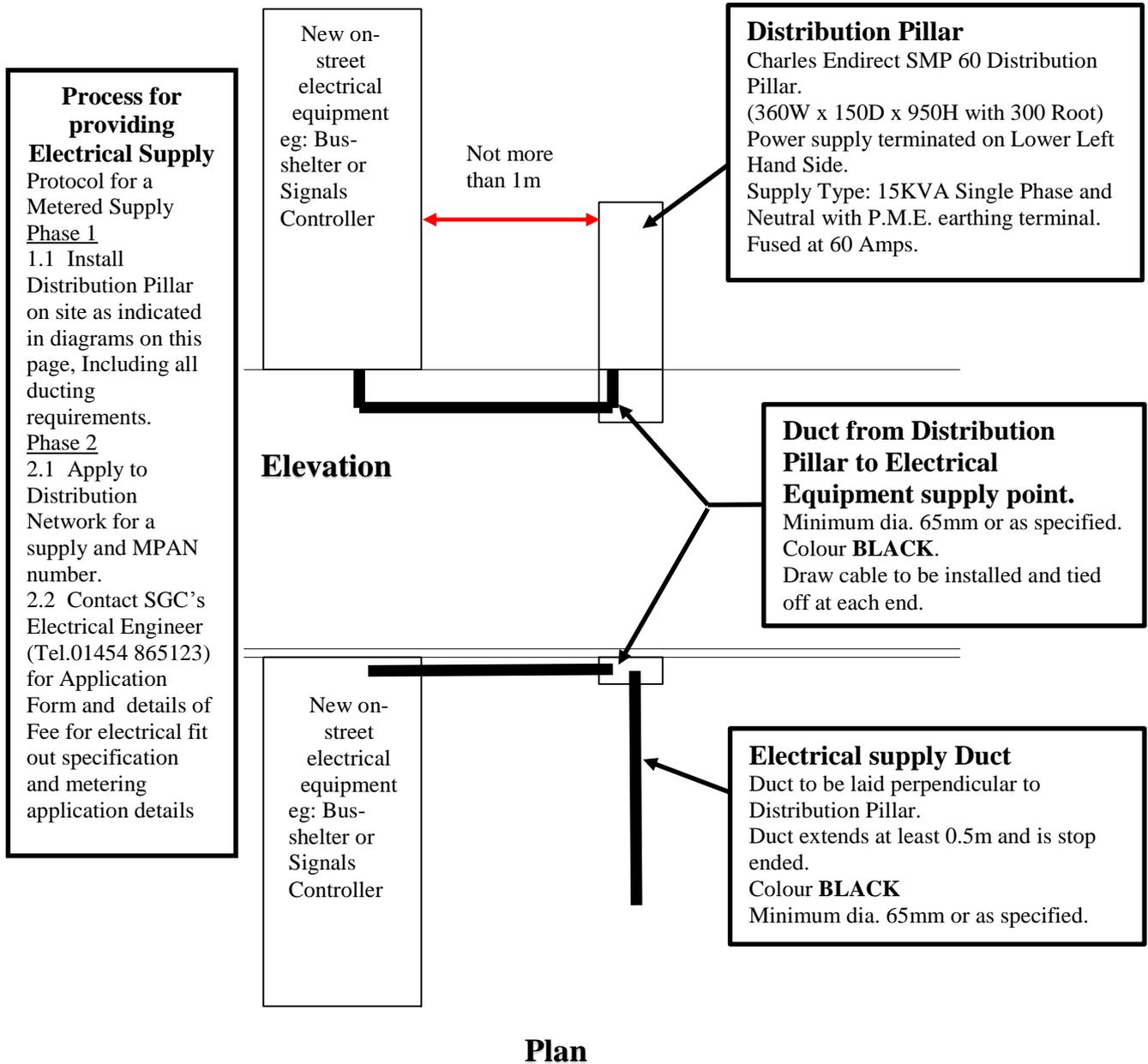
Power Supply Connection

Where utility (*WPD*) electrical disconnections and/or connections are required this will generally be arranged separately by South Gloucester Council (SGC). If requested within the quotation however, the Contractor will be required to arrange the electricity disconnection (non-emergency) and/or supply connection as a priced option (the company being reimbursed the electricity company's net invoiced costs). New electricity supplies shall be metered and the meter shall be mounted in an appropriate enclosure (min. width 350mm) and be independent of the shelter.

[Back to contents](#)

South Gloucestershire Council Adoptable Highway Specification

The contractor is responsible for following the requirements within the electricity supply regulations 1988 and shall provide the necessary documentation and certification to allow the local authority to arrange for the electricity supplier (*WPD*) to install and energise an installation.



Example photographs of Installation



External View

The supplier should be informed that the **Meter Asset** shall be purchased from the meter operator who should be nominated as EDF-CFS to ensure a smooth transition on adoption.

A **one year only** contract shall be entered into with the supplier.

The meter shall be an **AMR Meter** with dome type vandal resistant external antenna as it will be fitted in a roadside metal cabinet.



Internal View



Internal View – with consumer board open

Parts List

Code	Reference	Description
EC-1C10	LEWDEN EC-1C10 MCB 10A 6KA	Miniature Circuit Breaker
57.504.0055.0		Din Rail Terminal
07.311.0155.0		End Plate
WPENC863	WPLUS WPENC863	Weatherproof Plastic Enclosure
WP6AMCB	WPLUS WP6AMCB MCB 6A	Miniature Circuit Breaker
3093Y016475	AEI 3093Y 1.5MMX100M WHI	Flexible Cable PVC
NLS4305CN	NEWLEC NLS4305CN	8x1in Screws
WPCLIPR9/11W	WPLUS WPCLIPR9/11W	Cable Clip
WPCLIPR7/8W	WPLUS WPCLIPR7/8W	Cable Clip
WPCT4/24N	WPLUS WPCT4/24N	Cable Ties
605582	RADIO SPARES	Anti-Condensation Heater
103386	RADIO SPARES	Din Rail Thermostat
CLICK WA227	JUNCTION BOX 1P 100A	Service Connection Box
NEWLEC NLPG251WHI		Gland PVC
W/PLUS WPMB04		4 Way Consumer Unit C/W 100A Main Switch
WPLUS WPGPBW20S		SWA Cable Gland 20mm

Supply and Erection

When providing a quotation the Contractor shall include for the supply & erection of shelters, undertaking all excavation, foundation and reinstatement works, the provision of appropriate traffic management and for the removal to tip of existing shelters where required. Installers are to be qualified to *Operative Level* of the *New Roads and Street Works Act 1991*.

NRSA 1991 Utilities Enquiries and Works Opening Notice (N notice)

The Contractor will be required to arrange utility enquiries and appropriate notices prior to any installation works.

Options

- Double A4 portrait (590mm x 210mm) display case, shelter or post mounted
- A1 poster-size display case (650x1000mm min) shelter mounted
- Cases to be secured with tamper-proof screws (hex socket & pin) or lock and key (see section B)
- Roof mounted post (see section B)
- Stainless steel stop pole (see section B)
- Flag (see section B)
- Illumination (see section C)
- Solar powered Illumination (see section C)

The following information is required:-

- Full details, drawings and specification of the proposed shelter(s) and all its options to meet the requirements of the specification; highlighting any items that do not comply
- Full details and specification of any alternative bus stop components proposed by the Contractor
- Full transportation & installation details of pre-assembled units if not assembled on site
- Specify details of any additional costs for mounting at either front or rear of footways
- Indicate the capacity for and indicative costs of removing existing shelters to tip
- Details of indicative prices & response times for typical maintenance items i.e. replacement glazing, solid panels and roof structure.

[Back to contents](#)

Section B

Street Furniture for Bus Stops

Post Type A (see appendix 1)

The post shall be a 90mm diameter, silver anodised, triangular aluminium post (or similar) capable of mounting an RTI unit (12kg) and has an accessible internal smooth bore conduit & top cap.

The post shall be at least 3600mm long, of which 700mm will be below ground.

The post shall have built in channels to accept a flag and one or two display cases.

Post Type B

Steel, CHS posts may be specified without electrical cable conduits.

Roof Mounted Post

Steel, CHS posts capable of securely mounting flag.

Display Cases

The size shall be A4 or A1 as required.

It shall be bottom opening, with tamper-proof screws (hex socket & pin) or lock and key.

The case shall include spacing bolts and fixing bolts for attachment to a post or shelter as specified.

Flag (see appendix 2)

This flag should be constructed of 4.5mm pvc (or similar) and have a 300mm x 600mm visible area. It shall be fade resistant, colour fast and be reflective or have night glow properties.

The flag shall include:-

- The appropriate council logo (supplied)
- A bus silhouette
- The stop name
- The “*Traveline*” logo and text (supplied)
- A blank space for text indicating “*buses towards.....*” to be inserted by SGC

The flag shall be able to fit to a supplied post or to a bus shelter bracket.

[Back to contents](#)

Section C

Electrical Requirements for Bus Shelters

(a) General

The company shall be an NICEIC Approved Electrical Contractor. Materials, equipment and workmanship required under the Contract shall comply with BS 7671 Regulations for Electrical Installations (IEE Wiring Regulations) and the rules and regulations of the electricity supplier who will provide the supply.

The Contractor shall employ only competent personnel with appropriate qualifications to undertake the work.

(b) Connection Housing and Components

Shelters shall be installed with two 50mm capped ducts (one black and one orange) extending from within 50mm of the connection housing backboard to a point, outside the line of shelter and a minimum of 200mm beyond foundation, below ground with a minimum cover of 450mm.

The backboard of the connection housing shall have the following components fitted:-

Unit 1 – Cut-Out

A combined neutral and earth cut-out unit, with a single fuse, manufactured and tested in accordance with BS7654:1997 Type 2.

Unit 2 – Isolator

A four-module enclosure, complete with extension box and gland plate, housing a mains filter of minimum specification 250V AC, 50Hz, 15Amp. The filter shall supply a double pole switch connector, which feeds a DVS (Dynamic Voltage Suppressor) minimum specification 240V 140 joules surge suppressor. Terminal blocks shall provide the connection points for the outgoing 3 core arctic flex to feed Unit 3.

Unit 3 – Isolator

A four-module enclosure and extension box, housing 2 x 6A, 30mA RCBO units and Earth Terminal to provide 2 no. outgoing circuits for the RTI and bus shelter light.

The Enclosures

The general design and construction of the enclosures shall ensure that in normal use the unit will function in a reliable manner and cause no danger to either persons or adjacent equipment.

The enclosure shall comply with the material requirements of clause 8.2.12 of BS EN 60439-3 (1991).

The enclosure shall be fitted with a hinged, lockable transparent safety lid which requires the use of a tool to gain access to functional equipment. The IP rating of the Enclosure shall comply with the requirements of BS EN 60529 (1992). The enclosure (when assembled with functional parts) shall be labelled to the requirements of BS EN 60439-1 (1999) clause 5.

Cable connections shall ensure the integrity of IP rating is maintained. Outgoing cable points shall be designed so as to ensure moisture will drip away from the unit.

The Switch Disconnecter

The switch disconnecter shall be manufactured to and comply with the requirements of BS EN 60947-3 (1999 + A1 2001).

The switch disconnecter shall be independently tested to the requirements of BS EN 60947-3 (1999 + 2001) clause 8.

Independent third party certification, showing the complete test results shall be produced upon request.

Electrical ratings. The minimum electrical specification for the switch disconnecter is:-

Rated Voltage $U_e = 400V\sim$	Rated Current $I_e = 32A$
Rated Insulation Voltage $U_i = 400V\sim$	Utilisation Category = AC-22A
Rated Impulse Voltage $U_{imp} = 6kV$	

The product shall be labelled as stated in BS EN 60947-3 (1999 + A1 2001), clause 5.

[Back to contents](#)

(c) Wiring

The components shall be supplied pre-wired in accordance with drawing no. EC-01.

The outgoing wiring from the unit 3 isolator shall be as follows:-

1. For the future RTI unit – an internally routed 20mm diameter flexible conduit, glanded into the base termination plate and into an adaptable box (or similar) at the proposed RTI position, complete with a blue 1.5mm² 3 core 'Arctic Grade' flex type 3183AG (as specified below) terminating with a re-wireable IEC plug.
2. For the shelter light (where ordered) – an internally routed 20mm diameter flexible conduit glanded invisibly into the lighting fitting and wired with a blue 1.5mm 2core 'Arctic grade' flex type 3183AG (as specified below).

The Arctic grade flex shall be 300/500v, 3 core round profile flex, of the type used in the connection of electrical appliances for outdoor industrial installations that need to remain operational in extreme climatic conditions, with a temperature range of -40C to +70 C. The cable shall be blue (220V applications) with 3 cores, (colours brown, blue and green/yellow).

The insulation of the conductors shall be Arctic grade PVC Type T1 4 to BS7655.

(d) Light fitting

The light fitting (where ordered) shall be of robust construction being round or square and incorporating a 2D compact fluorescent lamp. The fitting shall be designed to orientate the light down, unless upward light is screened by the construction of the shelter. The light fitting shall include a SELC 101 miniature photocell switching at 70 lux.

(e) Inspection and Testing

Stage 1 – Every bus shelter on completion and before being energised shall be inspected and tested to verify that the requirements of BS7671 and the electricity supply regulations 1988 have been met. The certification shall be given to the local authority to arrange for the electricity supplier (WPD) to install and energise the installation. The method of testing shall be such that no danger to persons or property or damage to equipment can occur even if the circuit is defective.

Stage 2 - Every bus shelter shall, on completion and **after** being energised, be inspected and tested to verify that the requirements of BS7671 have been met. The certification shall be given to the local authority for their information. The method of testing shall be such that no danger to persons or property or damage to equipment can occur even if the circuit is defective.

Where items have been tested by the manufacturer prior to installation, the Contractor shall obtain copies of such tests and their results. The Contractor shall then take all the necessary steps to ensure that these conditions still appertain prior to the item being put into service. Copies of such test sheets shall be included with all other test certificates on completion.

The Contractor shall ensure that all test instruments have been calibrated and adjusted in accordance with BS EN ISO 9001 and come complete with calibration certificates to verify that BS EN ISO 9001 has been complied with.

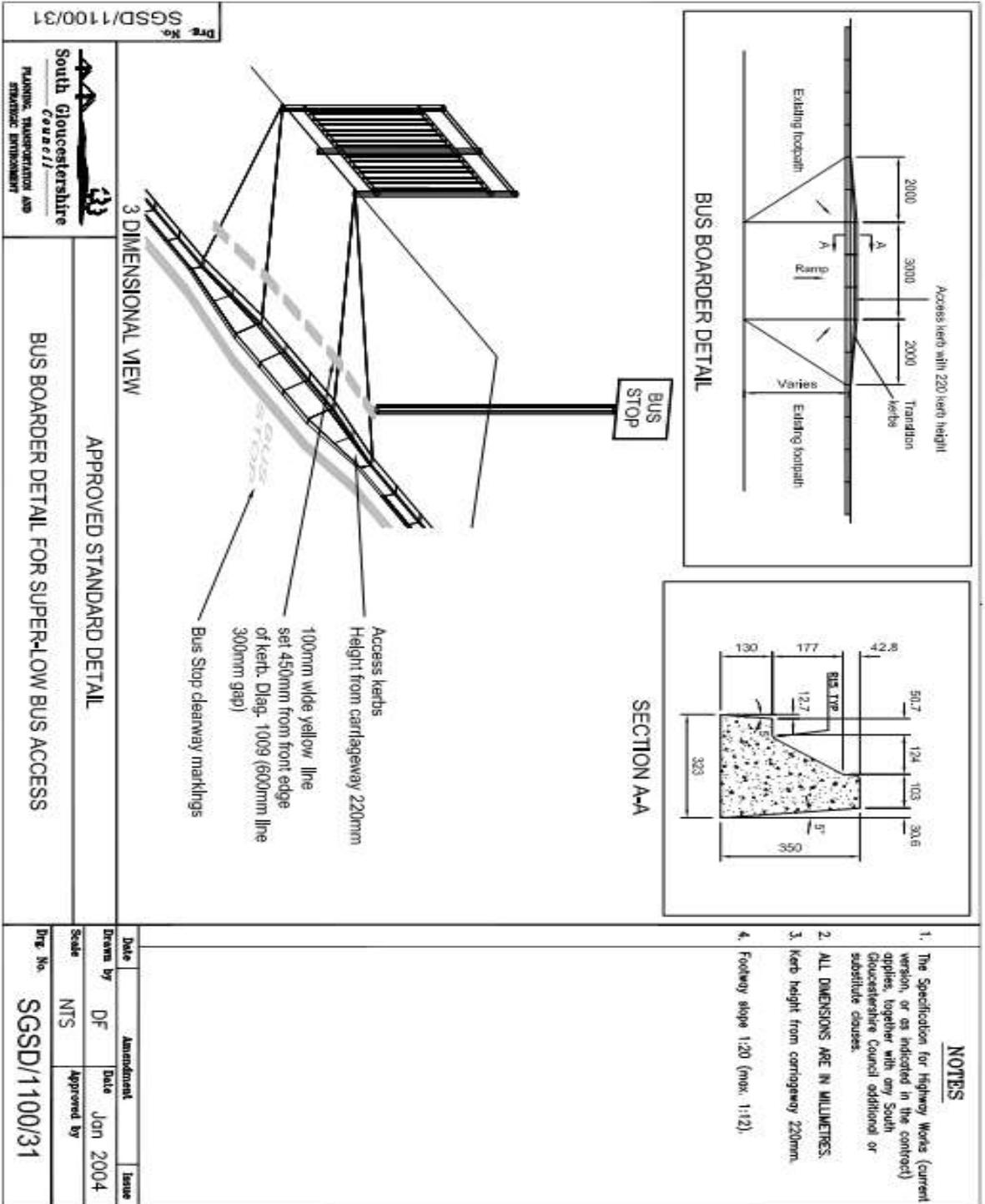
The Contractor shall furnish the Engineer with a test certificate verifying compliance with BS 7671 upon completion of the inspection and tests.

[Back to contents](#)

Appendix 1

<p>Drw No. SGSD/1100/30</p> <p>South Gloucestershire Council PLANNING, TRANSPORTATION AND STRATEGIC ENVIRONMENT</p>	<p>RAISED BUS PLATFORM DETAIL</p> <p>APPROVED STANDARD DETAIL</p> <p>BUS LAY-BY DETAIL</p>	<p>Drw No. SGSD/1100/30</p> <p>Drawn by DF Date Jan 2004</p> <p>Scale NTS Approved by</p> <p>Amendment</p> <p>Issue</p>
<p>Existing footpath</p> <p>Type K42 kerbs</p> <p>BUS STOP</p> <p>Access kerbs 220mm height from carriageway</p> <p>Bus Stop clearway markings</p> <p>100mm wide yellow line set 450mm from front edge of kerb edge (Disp. 1009 (600mm line, 300m gap))</p> <p>Existing footpath</p> <p>** Guardrail to elevated section of footway if required</p>	<p>BUS LAY-BY DETAIL</p> <p>8000 *</p> <p>7000</p> <p>1500</p> <p>8000 *</p> <p>15000 *</p> <p>Type K42 kerbs</p> <p>Access kerbs</p> <p>Type K42 kerbs</p> <p>Bus Stop clearway markings (confined for clarity) as detail below</p> <p>Existing footpath</p>	<p>NOTES</p> <ol style="list-style-type: none"> 1. The Specification for Highway Works (current version, or as indicated in the contract) applies, together with any South Gloucestershire Council additional or substitute clauses. 2. ALL DIMENSIONS ARE IN MILLIMETRES. 3. For dimensions of Bus Borders refer to drawing SGSD/1100/31. 4. * Dimensions shown are to be used as a guide only. Actual lay-by will determine size. 5. ** Guardrail may be omitted where site conditions permit. 6. Access kerb height from carriageway is 220mm. 7. Maximum gradient of footway to be 1 in 12.

Appendix 2



Cycling Infrastructure

For details of the provision of cycling infrastructure please refer to the Transport Policy Team. As for the Public transport infrastructure on certain developments there may be a requirement for alternative cycling infrastructure provision to accord with the planning permission.

[Back to contents](#)

Public Rights of Way

Footpaths, leisure walks, bridleways, horse riding routes and byways.

For details on the Specification for works affecting existing PROW or the creation of new PROW please contact the PROW team who will be able to provide you with guidance on the Specification requirements together with advice and local knowledge of the area.

Contact details:-

<http://www.southglos.gov.uk/transport-and-streets/public-rights-of-way>

01454 868004

Planning and transportation

[Back to contents](#)

3000 Highway Landscaping and Biodiversity

All requirements for Highway landscaping will be agreed through the planning process. Highway landscaping is not to be confused with Public Open Space Landscaping as South Gloucestershire Council manages these areas separately and both are maintained in different ways. When considering highway landscaping, consultation must be sought with South Gloucestershire's Highway Landscaping Maintenance Manager.

Street Trees

All proposals for trees in the highway must be in accordance with BS 5837:2012: Trees in relation to design, demolition and construction with reference to guidance on the [SGC website](#), and approved in advance by The Council. The following recommendations give guidance for the planting of trees in the highway:

- In rural areas no tree should be planted within 3 metres of the edge of carriageway.
- In urban areas, on major traffic routes (roads carrying over 4000 vehicles per day) and including bus routes no tree should be planted within 1.5 metres of the edge of the carriageway.
- In other roads in urban areas including bus routes no tree should be planted such that the final position of the fully grown trunk shall be within 0.6 metres of the edge of carriageway. An unobstructed footway width of 1.8 metres should exist past the trees in such a form as to allow unobstructed access to any person with a mobility handicap.
- No tree shall be planted so as to constitute a roadside hazard. No planting shall take place on the inside of bends where visibility will be reduced or on the outside of bends where over-run areas are considered necessary in the interests of safety.
- Visibility shall not be obstructed within the designed visibility splays.
- Planting shall not obstruct access to underground services.
- Trees shall be sited clear of overhead service lines as required by the relevant Statutory Undertakers.

Advice and information regarding the appropriate design of tree pits and root barriers is provided in BS5837:2012: Trees in relation to design, demolition and construction”.

Where Street Trees are located within the highway and particularly within shared space roads, consideration should be made towards how the tree interacts with the pavement construction. Only trees which are suitable for location in hard landscaped areas should be selected. Where trees are located within areas of highway pavement construction, details for tree pits will need to be submitted to SGC for approval.

[Back to contents](#)

Concrete aprons and service covers in landscaped areas

To facilitate the maintenance of street furniture and street lighting located within landscaped areas:-

- All posts, distribution pillars, sign posts etc. which stand in grassed areas are to be surrounded with a concrete ST4 apron 100mm thick and 300mm wide finished to conform to the general levels of the area, but 25mm below the settled or compacted grass level for mowing purposes.

South Gloucestershire Council Adoptable Highway Specification

- Similar aprons 150mm wide shall be provided along all house and boundary walls, etc. which adjoin grassed areas and must have expansion and contraction joints to avoid cracking in accordance with the DMRB and MCHW.
- All services covers in grassed areas must be a minimum of Class B125 (BS EN 124:1994) and set 25mm lower than the adjacent ground level.

[Back to contents](#)

Biodiversity

Issues relating to biodiversity (ecology and geology) are generally considered in the planning phase of development. Guidance is given on the [Planning & Biodiversity](#) section of the SGC website with further detail provided in the [Biodiversity Design Guide](#).

Special ecological measures in relation the highways will be in accordance with the DMRB and MCHW.

[Back to contents](#)

References

- South Gloucestershire Council (SGC) Webpages
- Design Manual for Roads and Bridges (DMRB) Volumes 1-15
- Manual of Contract Documents (MCHW): Volumes 1-3
- Sewers for Adoption 6th and 7th editions
- Manual for Streets Volume 1
- Manual for Streets Volume 2
- Traffic Signs Regulations and General Directions (TSRGD)
- Traffic Signs Manual
- WRAP Guidance: Quality Protocol for Aggregates
- [Back to contents](#)
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