

Design Assessment Checklist: Filter Strip

Objectives

This checklist can be used by the organisation approving the drainage scheme (drainage approving body) to help assess submissions for drainage approval.

This checklist is aimed at providing a consistent assessment process and ensuring that designs meet the key design requirements set out in the SuDS Manual (CIRIA C697). The design guidance in the Manual provides details that support the implementation of this checklist so that designs and compliance assessment can be delivered effectively. **Appropriate page references are provided in the checklist.**

This checklist should form part of a suite of documents required for a submission for drainage approval, including (but not limited to):

- A Scheme Design Assessment;
- Detailed Infiltration Assessment (where infiltration components are proposed);
- A Scheme Health and Safety Risk Assessment (if required);
- A Scheme Construction Method Statement;
- A Scheme Maintenance Plan.

It can be used as a checklist by organisations responsible for the approval and adoption of SuDS to support their assessment of schemes, or it can be used as part of the required submissions from the developer. It can also help designers ensure that they have provided all relevant information to the drainage approving body in their submissions for approval.

The checklist allows simple designs to be assessed against the “Deemed to comply” requirements in Table 1. Deemed to comply requirements (DtCR) are a set of standard design principles that avoid the need for complicated design calculations, modelling or other justification. The requirements are taken from the SuDS Manual. If the design varies from the Deemed to comply requirements, the variations should be explained and justified at the appropriate points in the checklist with a reference to supporting evidence.

The checklist can be used for a single filter strip or groups of filter strips with the same characteristics.

Table 1 Deemed to Comply Requirements: Filter Strip

Parameter	Deemed to comply requirements
Maximum “length” of contributing drainage area to each metre width of filter strip (L in Figure 1)	L = 6m for every 1m length of filter strip, f, up to a maximum of 50m contributing area (see Figure 1).
Drop from adjacent surface onto filter strip	50mm to 100mm
Longitudinal slope	1 in 50 < Slope in direction of flow < 1 in 20
Manning’s n value	0.25 (for flow below level of short dense grass) 0.1 (for above grass flows)

Design Assessment Checklist: Filter Strip

Maximum velocity across filter strip at full flow conditions	1.5m/s
Maximum water depth at full flow conditions	100mm
For the 1 year 30 minute event meet one or more of following requirements:	
Flow height Or	<50mm
Velocity	< 0.3 m/s

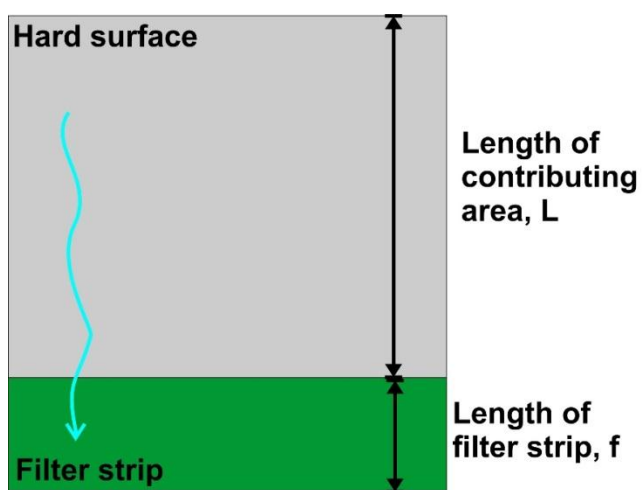


Figure 1 Filter strip dimensions

Note: Filter strips are principally treatment systems although they can be used to convey flows from larger events.

Table 2 Design Assessment Checklist: Filter Strip

GENERAL INFORMATION			
Site ID			
Asset ID(s)			
Filter strip location(s) and co-ordinates		Drawing Reference(s)	
Date of assessment		Specification Reference(s)	
Primary function(s) of filter strip	Conveyance/Treatment		

Check	DtCR	Summary details (See Note)	Acceptable (Y/N)	Comments/ Remedial actions
DIMENSIONS (SuDS Manual Ref.)				
Length of contributing drainage area (in direction of flow), L (m)	✓			
Length of filter strip (in direction of flow), f (m)	✓			
Width (m)				
Longitudinal slope (1 in ?)	✓			
INFLOWS (SuDS Manual Ref.)				
Provide a description of the contributing catchment land use and its size (m ²)..				
Does the design include: <ul style="list-style-type: none"> • A suitable flow spreading device? • Appropriate drops from the adjacent surface into the filter strip? 	✓			

Check	DtCR	Summary details (See Note)	Acceptable (Y/N)	Comments/ Remedial actions
OUTFALL ARRANGEMENTS (SuDS Manual Ref.)				
Provide details of discharge arrangements from filter strip				
Is the filter strip designed to allow infiltration? If yes, attach Infiltration Assessment.				
Is a geomembrane required to prevent infiltration? If yes, give reason and reference Specification or Drawing.				
Depth to maximum likely groundwater level (m)?				
CONVEYANCE (SuDS Manual Ref.)				
Proposed vegetation, and assumed roughness criteria (Manning's 'n')?				
Maximum velocity across filter strip at full flow conditions (m/s)	✓			
Maximum water depth at full flow	✓			

Design Assessment Checklist: Filter Strip

conditions (m)				
WATER QUALITY TREATMENT (SuDS Manual Ref.)				
For the 1 year 30 minute event confirm:				
Flow height is acceptable for effective treatment	✓			
Or				
Maximum velocity is acceptable for effective treatment	✓			
CRITICAL MATERIALS/ PRODUCT SPECIFICATIONS				
Geomembrane				
Geotextile (non-woven)				
Topsoil				
Other (including proprietary systems):				
LANDSCAPE/BIODIVERSITY (SuDS Manual Ref.)				
Does the proposed planting have potential to create bio diverse habitats?				
Have native plant species been used? (Note if ornamental species are proposed, give reasons and describe measures that prevent their migration to natural water bodies)				
Is the proposed planting appropriate to the location, visually, relative to gradient, water depths etc. and with respect to access and maintenance?				
Where relevant, confirm planting design does not adversely impact highway visibility and safety requirements (check with highway authority).				
Is the proposed top soil profile suitable to sustain the proposed plant species and is it sufficiently permeable?				

Design Assessment Checklist: Filter Strip

Check	DtCR	Summary details (See Note)	Acceptable (Y/N)	Comments/ Remedial actions
CONSTRUCTABILITY (SuDS Manual Ref.)				
Are there any identifiable construction risks? If yes, state and confirm acceptable risk management measures are proposed.				
MAINTAINABILITY (SuDS Manual Ref.)				
Confirm that access for maintenance is acceptable and summarise details				
Are there specific features that are likely to pose maintenance difficulties? If yes, identify mitigation measures required.				
FILTER STRIP DESIGN ACCEPTABILITY (SuDS Manual Ref.)		Summary details including any changes required	Acceptable (Y/N)	Date changes made
Acceptable: Minor changes required: Major changes required / re-design:				

Note: Input range if applied to > 1 filter strip. If there is a DtCR (as indicated) confirm whether or not this is met and provide details of any variations.