



SUDS Strategy

The Secretary of State for Communities and Local Government delivered a written ministerial statement on the implementation of sustainable drainage systems (SuDS) in parliament on 18 December 2014. The statement made changes to the National Planning Policy Framework (NPPF) which in turn made SuDS a material consideration in the determination of planning applications for major developments. These changes came into effect on 6 April 2015.

Alongside the changes to NPPF the Town and County Planning (Development Management procedure) (England) Order was amended making Lead Local Flood Authorities (LLFA), a statutory consultee in the planning process for major development proposals which have surface water implications, starting from 15 April 2015.

Consequently, developers need to provide SuDS on major developments where appropriate, while paying due regard to the following:

- National Planning Policy Framework
- Written statement on sustainable drainage systems (HCWS161)
- Planning practice guidance
- Non-statutory technical standards for sustainable drainage systems
- District local plan policies (please visit individual district councils)

The prime function of SuDS, as with conventional drainage, is to provide effective surface water drainage, ensuring the greatest degree of flood risk protection over the long term both within and downstream of the development and prevent pollution. However, SuDS approaches can bring wider benefits too. Appropriately designed, constructed and maintained, SuDS are more sustainable than conventional drainage systems and can help to:

- Reduce run-off surface water flow-rates and/or volumes and hence reduce the risk of flooding
- Encourage natural groundwater re-charge
- Reduce pollutant concentrations in storm water
- Provide habitat for wildlife.

There are many site-specific factors which will influence the choice of any single or combination of SuDS devices used within a development. The primary factors are:

- Whether the development is domestic, commercial or industrial
- Whether the underlying ground is contaminated. If so, infiltration systems will most probably not be permitted.
- Whether the underlying ground is permeable enough for infiltration systems to be considered.
- Whether the ground water levels are deep enough for infiltration systems to be considered
- Whether the site is steeply sloping and its general topography
- The availability of space inside the development for each potential SUDS facility.
- Health & Safety aspects should the development be likely to be inhabited or used by children.

To ensure no increased flood risk to offsite land and development, disposal of surface water to the ground is encouraged and runoff volumes will be reduced through the SuDS management train where ground conditions permit. Where ground conditions are unsuitable, a discharge to an open water body / sewer will be necessary with rates restricted to the existing site conditions.

SUDS Methods

Method	Comment	Suitability for Development
Green Roofs	Can be used on suitable low -rise buildings to provide retention, attenuation and treatment of rainwater, and promotes evaporation and local biodiversity.	Not suitable: Architectural proposals for the development involve a pitched roof arrangement which are not suitable for green roofs.
Rainwater Harvesting	Rainwater harvesting reduces the total runoff volume from the developed site, and reduces treated water consumption.	Not suitable: Can not be used for multi residential apartment blocks.
Infiltration	Reduces total run off volume from the development	Awaiting site investigation report
Permeable Surfacing (Infiltration)	Reduces total run off volume from the development. Can be used to enhance quality of run -off water.	Awaiting site investigation report
Permeable Surfacing (Tanked)	Can be used to enhance quality of run -off water. Sub -base provides 'source' storage and reduces the volume of storage downstream. The storage can be created with selection of the stone fill or use of plastic box systems. Impermeable membrane at base of construction to prevent impact on pavement stability	Suitable: Subject to detailed design and drainage layout.
Swales, basins and ponds	Provide areas for above ground surface run off storage. Swales also allow filtering of particulate matter, improving water quality.	Suitable: Shallow features in amenity area to be considered - Subject to detailed design and drainage layout. Awaiting site investigation report
Bio-Retention Areas	Collect and retain run -off to help improve water quality, prior to discharge in piped system or infiltration	Suitable: Shallow features in amenity area to be considered - Subject to detailed design and drainage layout. Awaiting site investigation report
Geocellular storage	Suitable for sites with insufficient space for basins etc. Suitable for sites where topography prevents the use of open basins etc. Can be very effective infiltration devices subject to ground conditions.	Suitable: Subject to detailed design and drainage layout. Awaiting site investigation report
Large Pipes, conduits and tanks	Suitable for sites with insufficient space for basins etc. Provide a volume of below ground storage with a high void ratio and good man entry provision to allow for future maintenance and cleaning. Generally, be suitable for adoption by the statutory water company (e.g. United Utilities).	Suitable: Large diameter on-line pipes and manholes can be located within the highway corridor

Surface Water Flow Rates

Developable Site Area = 3,280sq.m.

Existing Brownfield Run-off Rates

(Based on 2,930sq.m. existing impermeable area)

1yr = 21.83 l/s (26.82 mm/hr rainfall)
30yr = 53.41 l/s (65.62 mm/hr rainfall)
100yr = 68.95 l/s (84.72 mm/hr rainfall)

Proposed Run-off Rates

(30% betterment on existing flow rates)

1yr = 15.28 l/s **Design Flow rate = 15 l/s**
30yr = 37.38 l/s
100yr = 48.26 l/s

Proposed impermeable areas = 2,050sq.m.

100yr attenuation storage = approx 60cu.m
(+40% climate change) (based on 15.0 l/s)

Design based on Layout:

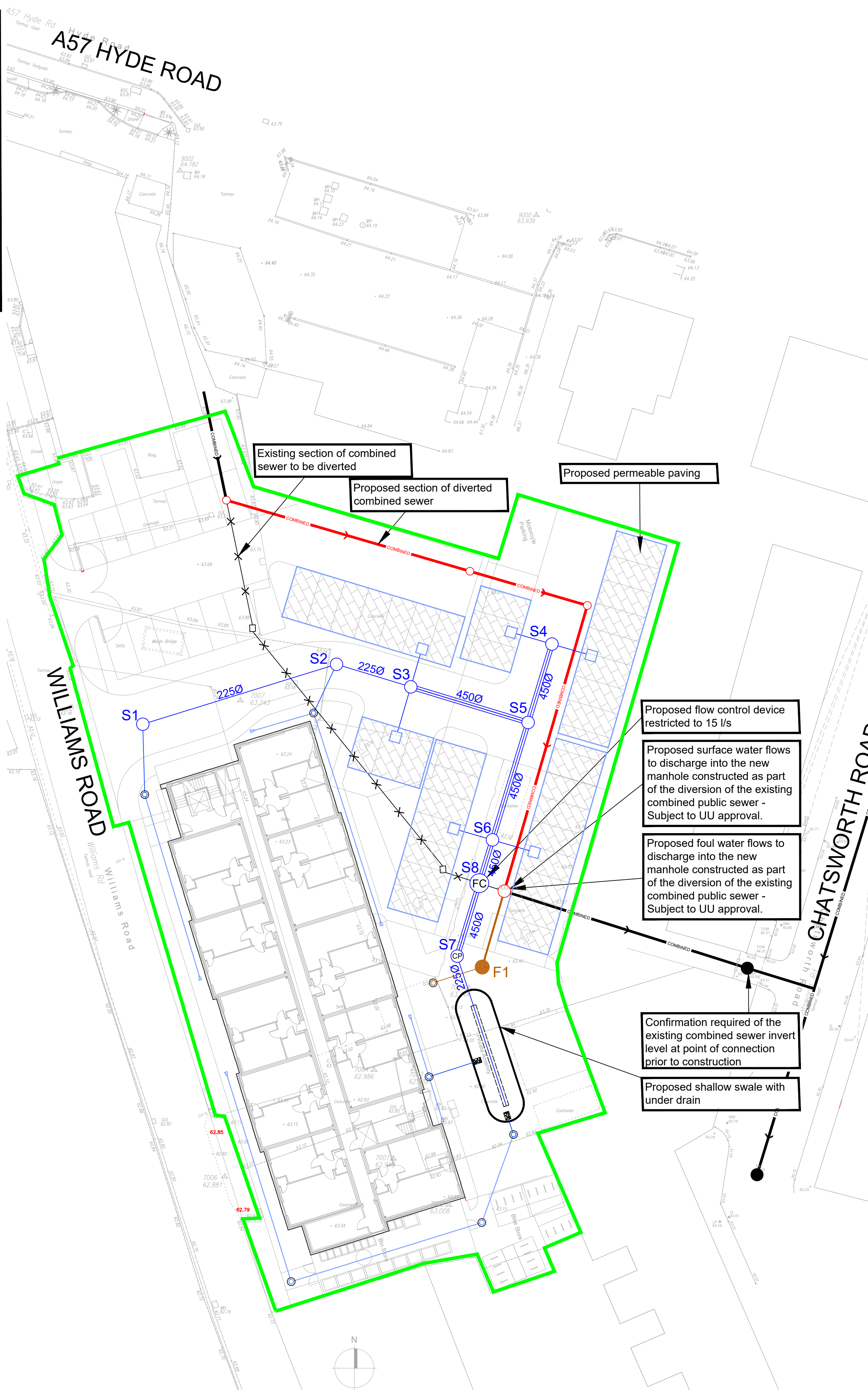
Dwg No.4402/101

Rev: A

Grid/Level datum based on Topo:

Dwg No. RBS - 18/1178/001

Rev: B



Notes

- Setting out shall be undertaken using only the information given. Distances should not be scaled from this drawing.
- All sewers shall be constructed in accordance with Design and Construction Guidance (DCG) Standards and United Utilities Details & Guidelines.
- The minimum gravity pipe diameter under adoptable highways shall be 150mm
- It is the responsibility of the Contractor to verify all information given with regards to existing services and drainage connections etc. prior to commencing the works. The rates shall include for hand dig around services where necessary. The Contractor shall adhere to the CDM Regulations at all times
- All materials to bear the relevant B.S. Kitemark and comply fully with the specifications. All concrete & concrete products must use Sulphate resistant cement to withstand Class 3 condition (unless the site investigation report proves that sulphate attack from soils and groundwater will not occur).
- All opening notices etc. as required under Highways Acts etc. are to be obtained prior to commencement of works. All works are to be inspected by L.A., NHBC or the Network Operator as applicable.
- Where structured wall UPVC pipes (or similar approved) are used in adoptable drainage they shall be handled and laid in accordance with the manufacturers instructions and will be subject to post installation deformation testing prior to adoption. A Class S Bed and Surround must be used for structured wall pipes
- Trench backfill in highways to within 1m of highway shall, as directed by the Highway Authority be a suitable granular material all in accordance with Design and Construction Guidance (DCG) Standards.
- Slab levels shall not be varied without reference to the Engineer for guidance.
- Pipes have not been designed to accommodate construction traffic loading. The contractor is responsible for providing adequate protection to the pipes during construction.

Legend

- Site Boundary
- Existing
 - COMBINED Existing Combined Sewer
- Proposed
 - S1 Adoptable Surface Water Sewer
 - F1 Adoptable Foul Sewer
 - Surface Water Private Drainage
 - COMBINED Combined Sewer Diversion
 - Combined Sewer Abandonment
 - Permeable Paving & Distributor Box
 - FC Flow Control Device Manhole
 - CP Catchpit Manhole

STRATEGY

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Client

MANGROVE ESTATES LTD

Project

CHATSWORTH MILL,
WILLIAMS ROAD, GORTON.

Title

DRAINAGE STRATEGY

DRAWING NUMBER

7588 / PL01

SCALE at A1 1:250

DATE	06.05.21	REVISION
DRAWN	JAR	-
CHECKED	AJ	-