

Neath Town Centre Retail and leisure development

Drainage Strategy Statement

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1.0 INTRODUCTION

- 1.2 The report is not intended to be used as a detailed design proposal, but to demonstrate that an acceptable means of disposal has been considered and can be provided to serve the needs of the development and comply with current planning policies.
- 1.3 Site Location - The development site is located within Neath Town Centre. The majority of the site extends across the site of the former demolished MSCP. The site also extends from Wind Street through top Fairfield Way. The site is bounded to the east by Prince of Wales Drive. The National Grid Reference for the centre of the site is Easting: 275463, Northing: 197625, Grid Reference SS754976. Site location **Figure 1** below.



Figure 1 – Site Location

2.0 KEY DESIGN CRITERIA & SITE INFORMATION

2.1 Development Proposal

The development proposal is for a pool and leisure centre and 6no. A1 retail Units plus a first floor unit (A1, A3 or D2 use), together with associated service yard, hard & soft landscaping and public realm improvements.

2.2 Development Area

The proposed development area has been measured as approximately 11740m² / 1.174 hectares. The majority of the development is hard surfaced comprising 3330m² roofs, 2961m² new service yards, 564m² existing service yard, 3535m² public realm improvements and a 1350m² future development plot.

The pre-development area comprised a Multi Storey Car park, now demolished, public highway with associated footpaths and public realm area comprising of both hard and soft landscaped areas.

2.3 Site Permeability

Specific infiltration testing has not been carried out within the development boundary. However, we believe that some soakaway will be possible on the site and this will be incorporated into the surface water drainage solution in support of the SAB application. Due to the previous site usage and subsoil conditions, made ground and alluvium, together with the need to protect existing and proposed services discharge of surface water via soakage is considered impractical for the development due to size and massing requirements. Any areas of soft landscaping will be assumed to discharge to ground as is normal.

2.4 Adjacent Waterways / Waterbodies

A storm water culvert runs along Gnoll Park Road and Prince of Wales Drive, ultimately discharging to the River Neath to the north of the development. The culvert is owned and maintained by Neath Port Talbot County Borough Council. Any excess water that cannot be disposed of via soakaway would be discharged to this point following attenuation and cleansing via hydraulic features.

2.5 Existing Sewers /Drains

Sewer records were obtained from Dwr Cymru Welsh Water in January 2019. See **Appendix B**, extract as **Figure 3**.

2.5.1 - Surface Water Sewers

DCWW sewer records indicate no surface water sewers within close proximity of the development site;

2.5.2 - Foul Sewers

DCWW sewer records show a foul sewer serving the new MSCP and WILKO store, ultimately discharging to a combined sewer in Water Street. This sewer was installed as part of the Phase 1 development works.

2.5.3 - Combined Sewers

The site is bounded by two large combined sewers, one runs along Water Street in a northerly direction and the second runs in a westerly direction along Wind Street, joining at their junction.

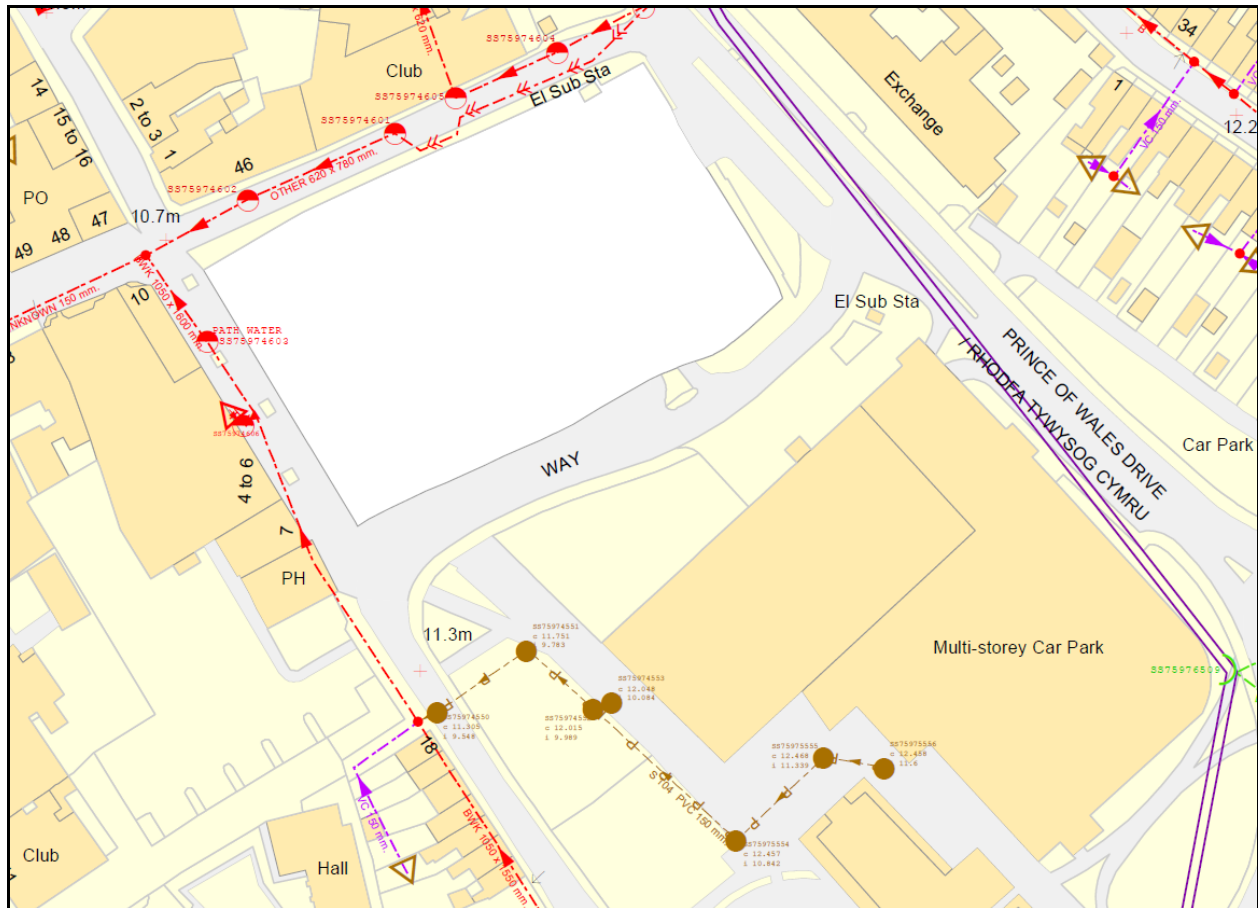


Figure 3 - DCWW Sewer Plan Extract

2.6 Existing Drains

A visual connectivity topographic survey has been carried with additional investigations using ground penetrating radar (GPR) to establish locations of highway and private drains within the area refer to **Appendix C**.

The investigation shows the majority of private drains and highway gullies connecting /discharging to the DCWW combined sewer network.

3.0 DRAINAGE DESIGN STANDARDS & REQUIREMENTS

3.1 Surface Water Design requirements

It is intended to dispose of surface water from the development in line with Sab requirements.

Technical Advice Note 15: Development and Flood Risk, 2004

TAN 15 states the aim for new development is to not create additional run off for undeveloped situations and in case of redevelopment to reduce run off where possible, accepting there may be practical difficulties achieving this aim.

SAB strategy will address the following requirements:

S1 Surface Water runoff destination

S1 is a Hierarchy Standard while **S2** to **S6** are Fixed Standards. The Hierarchy Standard **S1** gives criteria for prioritising the choice of runoff destination, see Table 1 below. This hierarchal approach is

to be followed in the provision of the surface water drainage design philosophy. Standard **S1** comprises 5 Levels with the most preferred level represented by Level 1, and movement from Level 1 to lower levels determined by demonstration that the exception criteria apply.

Table 1 - S1 Surface Water runoff destination	
Priority Level 1:	Surface water runoff is collected for use;
Priority Level 2:	Surface water runoff is infiltrated to ground;
Priority Level 3:	Surface water runoff is discharged to a surface water body;
Priority Level 4:	Surface water runoff is discharged to a surface water sewer, highway drain, or another drainage system;
Priority Level 5:	Surface water runoff is discharged to a combined sewer.

The Fixed Standards **S2** to **S6** gives;

Design Standards which state the minimum design criteria that all SuDS should satisfy; and Standards which state how SuDS should be built, maintained and operated.

The SuDS Standards are aimed at ensuring that the most effective drainage scheme is delivered for protecting and enhancing both the natural and built environment.
The fixed standards cover;

Standard S2 – Surface water runoff hydraulic control

The aim of Standard S2 is to manage the surface water runoff from and on a site to protect people on the site from flooding from the drainage system for events up to a suitable return period, to mitigate any increased flood risk to people and property downstream of the site as a result of the development, and to protect the receiving water body from morphological damage.

Standard S3 – Water Quality

Standard S3 addresses the drainage design requirements to minimise the potential pollution risk posed by the surface water runoff to the receiving water body.

Standard S4 - Amenity

Standard S4 addresses the design of SuDS components to ensure that, where possible, they enhance the provision of high quality, attractive public space which can help provide health and wellbeing benefits, they improve liveability for local communities and they contribute to improving the climate resilience of new developments.

Standard S5 – Biodiversity

Standard S5 addresses the design of SuDS to ensure, where possible, they create ecologically rich green and blue corridors in developments and enrich biodiversity value by linking networks of habitats and ecosystems together. Biodiversity should be considered at the early design stage of a development to ensure the potential benefits are maximised.

Standard S6 – Design of drainage for Constuction, Operation and Maintenance and Structural Integrity

Standard S6 deals with designing robust surface water drainage systems so they can be easily and safely constructed, maintained and operated, taking account of the need to minimise negative impacts on the environment and natural resources.

3.2 Foul Water Design requirements

Foul water drainage is designed to comply with current Building Regulations Part H and in accordance with BS EN 752:2017. All below ground gravity drainage systems are also in accordance with current adoptable standards for future proofing the system. All foul drainage will be designed to achieve self cleansing velocities.

4.0 Surface Water

In order to comply with the requirements of the standards the proposed surface water drainage design takes account of the standards S1 to S6 and will mitigate any negative impact of surface water runoff from the development or flood risk outside of the development boundary.

It will ensure that flooding does not occur on any part of the site for a 1 in 30 year rainfall event, or in any part of a building for a 1 in 100 year rainfall event with an additional 30% allowance for climate change in line with current guidance.

Pollution prevention and treatment trains have been considered to ensure efficient removal of contaminants as close to source as possible.

4.1 Runoff destination prioritisation - Standard S1

4.1.1 *Priority Level 1: Surface water runoff is collected for use;*

Due to the scale and nature of the development it is not deemed appropriate or necessary to collect water for re-use.

4.1.2 *Priority Level 2: Surface water runoff is infiltrated to ground;*

As noted in section. 2.3 the use of ground infiltration techniques will be used such as soakaways, detention ponds and swale type features, to limit the amount of water being discharged from the development.

4.1.3 *Priority Level 3: Surface water runoff is discharged to a surface water body;*

It was agreed during the Phase 1 works that surface water runoff from the Phase 1 Development could discharge to the adjacent Groll Culvert. The discharge is limited and attenuated. The Phase 1 development had an agreed permitted discharge rate of 25litres /second per hectare to the culvert.

Therefore it is proposed to discharge excess surface water from the development to the existing culvert, a stub connection pipe has been provided during the Phase 1 MSCP/ Wilco store works.

4.1.4 *Priority Level 4: Surface water runoff is discharged to a surface water sewer, highway drain, or another drainage system;*

Not available.

4.1.5 *Priority Level 5: Surface water runoff is discharged to a combined sewer.*

The existing highway and associated footpaths along Water Street and Fairfield Way are shown to currently discharge via a series of gullies into the DCWW combine sewer system. It is also assumed

that the old MSCP also discharged into this network as no other points of discharge available, although this is difficult to confirm post-demolition.

4.2 Surface Water runoff hydraulic control – Standard S2

WinDES Microdrainage has been used to model the hydraulic performance of the surface water drainage system up to and including the 1 in 100yr + 30% climate change (130yr) for all storm events.

The design proposals intercept and convey all surface water runoff maximising cleansing and soakaway potential. Residual discharge in extreme events to prevent localised flooding would be directed to and discharge to either the Gnoll Culvert or the existing DCWW Combined sewer.

4.3 Water Quality – Standard S3

All surface water is to be cleansed using hydraulic features such as swales, rain gardens, and filter strips. All runoff is conveyed via suitably sized SuDS systems, with runoff treated close to source.

4.4 Amenity – Standard S4

Provision of the public realm landscaping and above ground hydraulic features will be used to improve public amenity.

4.5 Biodiversity – Standard S5

Soft landscaping is to be introduced to enhance and encourage the biodiversity within the public realm area.

4.6 Design of drainage for Construction, Operation and Maintenance and Structural Integrity – Standard S6

All elements of the drainage system and SuDS elements will be designed giving consideration to the construction, maintenance and management of the systems in accordance with the CDM Regulations 2015. The contractor is to be made aware of the publication CIRIA report C768 - Guidance on the construction of SuDS, prior to construction. This publication gives guidance on construction planning and maintenance of a site during construction of SuDS systems.

All attenuation systems will incorporate pre-treatment hydraulic devices to prevent clogging of the systems.

A Drainage and SuDS Management and Maintenance plan will be made available to the Client /End User, for inclusion in the site Operation and Maintenance Manual.

5.0 Foul Water

All foul flows generated by the development comply with current Building Regulations and the requirements of the drainage authority. All foul drainage will achieve self-cleansing velocities.

All foul water discharge from the new units will be via a gravity drainage system located to the rear of the units within the service yard. The conveyed foul water is intended to discharge to the DCWW combined sewer within Fairfield Way via an existing foul Manhole located within the public footpath.