AUSTIN PARTNERSHIP

CONSULTING ENGINEERS

Project Title:
ST. CUTHBERTS REDEVELOPMENT, CARDIFF

Project No:
19.4389

Client:
UNITED WELSH

Date:
AUGUST 2019

Revision:
0

Status:
PLANNING

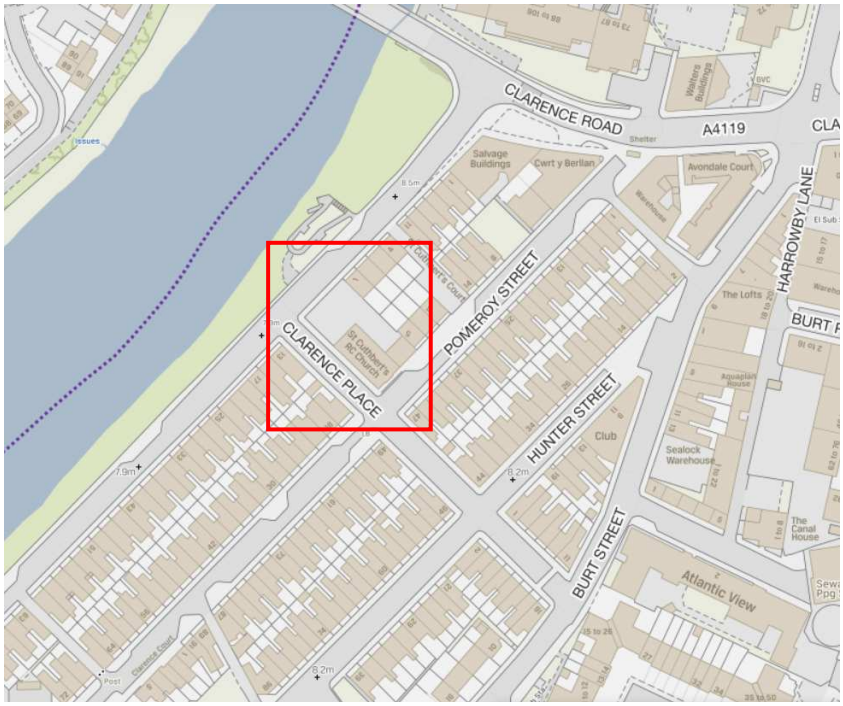
DRAINAGE STRATEGY

Austin Partnership Ltd, Waterfront 2000, Atlantic Wharf, 11 Drake Walk, Cardiff.CF10 4AN.

Tel: +44 (029) 2043 5300 mail@austinpartnership.co.uk www.austinpartnership.co.uk

1.1 SITE LOCATION

The development site is located on the corner of Clarence Place and Pomeroy, in Grangetown, Cardiff. The nearest postcode is CF10 5GS, and the National Grid Reference is ST185745. The extract below shows the location of the site with a red square.



1.2 EXISTING DEVELOPMENT

The development site has a church building located on the south-east corner, with the remained of the site as impermeable positively drained parking area.

1.3 PROPOSED DEVELOPMENT

The proposed development is for an L-shaped block of apartments located on the north-west corner of the site, with an area of soft landscaping along its eastern boundary and a small parking area and bin store to the south-east corner.

1.4 TOPOGRAPHY

A topographical survey of the site has been undertaken by Hywel John Surveys Ltd, and indicates that the site is relatively flat, with an average level of approx. 8.30m above Ordnance Datum.

1.5 GEOLOGY

A full geotechnical site investigation report has been not been carried out on this site, however trial pits and a borehole have been utilised to establish ground conditions and soil infiltration rates. These investigation works reveal the site has approx. 4.0m of made ground with underlying strata of gravelly clay.
Regarding the drainage elements of the development no special treatment of below ground drainage pipes is expected from the results of the site investigation works. The possibility for the use of soakways for storm water drainage disposal was confirmed by the success infiltration tests and this is outlined in the relevant section of point 1.6 below.

1.6 OPPORTUNITY FOR DISCHARGE OF STORM WATER

As the development site is designated in a Flood Zone 2, and is also less than 1 hectare in size, a site-specific flood consequence assessment has been carried out by Austin Partnership, and should be read in conjunction with this document.
In line with Planning Policy Guidance and current thinking the surface water run-off from any new development should be dealt with by way of a Sustainable Drainage Sytems (SuDS) to prevent an increased risk of flooding within the catchment. If a SuDS cannot be achieved then a conventional drainage system can be installed provided it does not any flooding or increase any run-off from the site.
The proposed storm water run-off destination hierarchy is shown below, in order of preference:

a. To be collected for reuse.
b. To be infiltrated to ground.
c. To be discharged into surface water body.
d. To be discharged into highway drain or storm water sewer.
e. To be discharged into a combined sewer.

Collect for re-use:
Some sort of rainwater harvesting system should be considered for a new development, as these should reduce the rate of discharge from the proposed impermeable areas, such as roofs. These can be in the form of a full rainwater harvesting system which would feed toilets and irrigate a green roof and any gardens, or a slightly smaller scale where just the toilets would be fed. However, the viability of rainwater harvesting systems for any scheme would have to be investigated as it may be deemed not suitable, as it may not be a cost-effective part solution for managing the run-off from the development, taking into account the potential water supply benefits of such a system.

Infiltrate to ground:
As part of the geotechnical site investigation works carried out by Johnson Poole and Bloomer, in-situ soakaway tests were conducted, in accordance with BRE Digest 365. The table of results from these are shown in Appendix A of this document. From this, it has been determined that the feasibility of a direct soakaway solution would be viable on the project. However, after pre-application talks with the SAB officers at Cardiff County Council, they advised that a soakaway would not be suitable for this site, due to concerns with ground water entering the large brick sewers in the vicinity of the site.

Discharge to a water body:
The River Taff is approximately 25m away from the north-west boundary, and following talks with the SAB officers at Cardiff County Council, they advised that the provision of a piped connection, with headwall and non return valve would be their preferred option for the discharge of surface water from the site. A discharge rate and level guidance would be provided by them following the planning decision.

Discharge to highway sewer or storm sewer:
Streets surrounding the site have road gullys present but their connection points have not been ascertained, and it is believed that the local authority have no drainage records of any highway drainage.
The asset plan provided by Dwr Cymru Welsh Water, shows no storm water sewers in the vicinity of the site.

Discharge to combined sewer:
The asset plan provided by Dwr Cymru Welsh Water, shows combined sewers in both Clarence Embankment and Pomeroy Street. These are both at considerable depth at connection to these should only be sought if no other option is available.

1.7 DISCHARGE OF FOUL WATER

The asset plan provided by Dwr Cymru Welsh Water, shows combined sewers in both Clarence Embankment and Pomeroy Street. An existing connection to the sewer in Pomeroy Street is present on the site boundary and all foul water from the new development is proposed to utilise this.

As it is proposed to discharge to the public sewerage system, Dwr Cymru Welsh Water should be informed. This is to ensure that the discharge from the site shall not be detrimental to the existing sewerage system.

APPENDIX A

Soakaway test results, from geotechnical report

SUMMARY OF RATES OF INFILTRATION

SITE: St Cuthbert's Church, Pomeroy Street, Cardiff Bay

JOB No: TC260

SOAKAWAY		Base of Pit (m)	WATER LEVEL DURING TEST (m)		INFILTRATION RATE (A) (m/sec) - BRE Digest 365	INFILTRATION RATE (B) (m/sec) - full Area
Pit	Cycle		Start	Finish		
2	1	2.60	1.340	2.120	8.79E-05	5.45E-05
2	2	2.60	1.050	2.120	1.35E-04	8.65E-05
2	3	2.60	1.300	1.890	3.11E-04	1.72E-04

Note :

Infiltration Rate (A) is the standard calculation outlined in BRE Digest 365, which takes account of actual drained area of pit.

Infiltration Rate (B) is based on the principles outlined in BRE Digest 365, but also includes the full undrained area of pit.

Where only partial drainage has occurred, the quoted infiltration rate should be used as a guide only and strictly only apply to the drained portion of the pit; substantially lower rates would apply to the lower undrained section of the pit.

Infl-rates 16/02/2004

End...