**BRITISH LAND** 

# **1 TRITON SQUARE**

DISCHARGE OF PLANNING CONDITION 13: SUSTAINABLE URBAN DRAINAGE - LONGFORD PLACE Rev 01

30<sup>th</sup> JUNE 2020



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|---|---|---|
| Project title   | 1 Triton Square   | Job number                              |
|   |   | 246868                                  |
| сс  |   | File reference                          |
|   |   | 4-05-01                                 |
| Prepared by   | Kate Fletcher   | Date                                    |
|   |   | 30 June 2020                            |
| Subject   | Discharge of Planning Condition 13: SUDS - Longford Place |   |

## **1** Introduction

This filenote sets out the sustainable urban drainage systems incorporated in to the design of Longford Place, to discharge the SUDS planning condition 13.

This compliments the filenote dated 10.April.2018 for the main 1 Triton Square building scheme, where the Longford Place area was excluded as it was still undergoing design development.



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# 2 Longford Place

Longford Place has been redesigned as part of the overall 1 Triton Square development. This area sits directly on ground enabling areas of soft landscaping to drain directly into the ground.

There is a margin adjacent to Longford Street which remains part of Camden Council's demise, and is therefore not considered as part of this filenote.

## 2.1 Original Longford Place

The original Longford Place area was largely hardstanding, with a horseshoe area of planting around an external creche building. The creche and the hardstanding around the planting discharged via a series of gullies and drainage channels to a below ground drainage system, discharging directly to the Thames Water sewer in Longford Street.



Google Streetview of Longford Place from July 2016

The below diagram indicates the areas of the original Longford Place area which were hardstanding and which were soft landscaping, discharging directly into the ground.

The areas are summarised as below:

#### Soft landscaped areas:

- Area A 16m2
- Area B 16m2
- Area C 260m2
- TOTAL 292m2

#### Hard landscape: 689m2

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Diagram indicating the areas of hard landscape (green) and soft landscape (yellow) in the original Longford Place

The existing drainage information for this area comes from the original as-designed drawings, which do not give specifics for the branch drains. However there is sufficient detail on the design drawings to indicate the drainage from the hard standing areas discharged below ground directly to manholes which connect to the Thames Water sewer in Longford Street. Refer to extract below.

See also appendix at end of this filenote.

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Extract from as-designed drawing DD-5204 Longford Street Sewer Connections

## 2.2 **Proposed Longford Place**



The proposed Longford Place design increases the area of soft landscaping, thereby increasing the area of Longford Place which can discharge surface water flows directly to the ground.

The below diagram indicates the areas of the proposed Longford Place area which are hardstanding and which are soft landscaping, discharging directly into the ground.

The areas are summarised as below:

#### Soft landscaped areas:

- Area A 23m2
- Area B 74m2
- Area C 322m2

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- Area D 94m2
- TOTAL 513m2



Diagram indicating the areas of hard landscape (green) and soft landscape (yellow) in the proposed Longford Place

Surface water discharging on to the yellow soft landscaped areas will drain directly to ground. Surface water falling on the green hardstanding areas will be collected via a series of drainage gullies and channels discharging to the existing manholes. Refer to extract below.



*Extract from Arup drainage drawing 246868-A\_A-XX-GR-DR-PX-52320 indicating below ground drainage discharging to existing manholes* 

#### 2.2.1 Reduction in flows to sewer

The proposed Longford Place design increases the area of soft landscaping, therefore reducing the flows discharging to the sewer compared with the original scheme.

Original scheme area of hardstanding 689m2

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Proposed scheme area of hardstanding 469m2

This reduces the volume of surface water flows discharging to sewer by 32%.

#### 2.2.2 Flow rate discharge to sewer

Please refer to Appendix A2 for calculation based on BS EN 12056 part 3.

The expected flow rate from 469m2 of hardstanding for a 1 in 100 year + 40% 10 minute storm is 2.2 l/s.

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## **3** Combined Impact of Longford Place and 1Triton Square

#### **3.1.1** Flow rate of discharge to sewer from Longford Place

Please refer to Appendix A2 for calculation based on BS EN 12056 part 3.

The expected flow rate from 469m2 of hardstanding for a 1 in 100 year + 40% 10 minute storm is 2.2 l/s.

#### **3.1.2** Flow rate of discharge to sewer from 1 Triton Square

The 1 Triton Square building incorporates a combined rainwater harvesting, greywater and attenuation tank, collecting rainwater flows to the building and greywater from the showers.

Please refer to original Condition 13 SUDS submission, appended to this filenote.

In Appendix A.1.5 of the original Condition 13 submission, we show the following:

| Greywater yield | 3,200 m3 per annum  |
|-----------------|---|
| Rainwater yield | 2,484 m3 per annum  |
| TOTAL           | 5,684 m3 per annum available for WC and toilet flushing in the building |

Calculated WC and urinal flushing volumes required: 14,981m3 per annum

Based on the above, we can collect 38% of our annual consumption. This would suggest that on a typical year, the discharge to sewer will be close to zero.

In the unlikely event there is a large storm and the tank has sufficient water in it that it needs to empty, the pump flow rate is set to 30 l/s.

#### 3.1.3 Combined impact of Longford Place and 1 Triton Square

Noting the above calculated WC and urinal flushing volumes required, the need to empty the tank to make space for an incoming storm is small. For the majority of the time, there will be no surface water discharge to sewer from the combined rainwater harvesting, greywater and attenuation tank.

On the rare occasions this will be required, telemetry predicts a storm coming *in advance of the storm arriving*, such that the water from the tank is expelled *before* the storm arrives.

This will mean that surface water flows from Longford Place will not discharge at the same time as the expelled flows from the 1 Triton Square tank.

Given the above, it can be reasonably expected that typically discharges to sewer will largely come from the Longford Place flows only, considerably lower than the 30 l/s allowed. On the very rare occasions that water is expelled from the 1 Triton Square tank, this will happen in advance of any storms, so only flows from the 1 Triton Square tank will discharge to sewer, at a rate of 30 l/s.

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## 4 Conclusion

The combined flow rate from Longford Place and 1 Triton Square building will typically only consist of the flows from Longford Place, as the water recycling from rainwater harvesting and greywater within the 1 Triton Square building meets only 38% of the annual WC and urinal flushing volume required for the building, and will therefore not discharge flows to sewer.

On the very rare occasions that water is expelled from the 1 Triton Square tank, this will happen in advance of any storms, meaning flows from Longford Place will be zero, and only flows from the 1 Triton Square tank will discharge to sewer, at a rate of 30 l/s.

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## A1 Appendix – reference drawings

Original Longford Place drawings

- 34979T-01B-06 Topological survey drawing
- AA39046/DD-5204 Longford Street Sewer Connections
- SK-P-0037 Longford Place Original Areas

Proposed Longford Place drawings

- TOWN667(04)3001 Landscape key plan
- TOWN667(04)3010 Landscape surface finishes plan
- 246868-A\_A-XX-GR-DR-PX-52320
- SK-P-0038 Longford Place Areas Landscape Drainage Services



| 00/H 27.24<br>29.75                                |  |
|--|--|
| 27.45 CCol BrS CPS                                 | Depth to top of duct Pd Depth to top of pipe   |
| PO 27.23<br>27.30 27.14                            | (e)     Empty Duct     Pe     Polyethylene       FH     Fire Hydrant     SL     Sump Level       Id     Invert Deeth     (ITT)     Unable to L iff without demage  |
| Ta   | IL     Invert Level     (UTT)     Unable to Trace       (NFI)     No Further Information     WD     Way Duct   |
| 27.34 27.21 27.19<br>27.23 40                      | SERVICE LEGEND   |
| لاً127.16<br>۲ <sub>IC</sub><br>CL27.18            | FOUL DRAINAGE  |
| 2727   | SURFACE WATER DRAINAGE   |
| 27,18 CL27,14CPS<br>27,28                          | GAS  |
| CL27.35  | TELEPHONE  |
| 27.19<br>27.39 67.10 CL27.31 CL27.33 39 Conc Hedge | COLT   |
| dP Grating Crating                                 | VERIZON  |
| Conc Wall 28. 2 mar Intercom's                     | VODAPHONE  |
| Heage 21.  | UNKNOWN SERVICE UNDERGROUND CHAMBER  |
| Hedge Grating                                      |  |
|  | Electro-detection techniques have been used in the location of underground services.<br>The results are not infallible and trial excavations must be carried out to confirm service<br>identification, position and particularly depths. |
|  | Although all reasonable effort has been made in searching available record drawings the completeness of the underground services information cannot be guaranteed.   |
| EJB  | Unless otherwise stated, drainage pipes are 100mm diameter.  |
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|  | DUE TO THE INHERENT INSTABILITY OF PAPER MATERIALS, DRAWINGS   |
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|  | This drawing has been produced for the purpose of the original commissioning agent.<br>Ployman Craven Limited will accent no responsibility for details that are subconvently found to be the  |
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|  | See www.plowmancraven.co.uk for full terms and conditions of contract.   |
|  | ISSUES & REVISIONS   |
|  | Issue Details By Date  |
|  | A     Original issue     PCL     04/04/2010       B     Underground Services Added     PCL     12/05/2010  |
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|  | SHEET LAYOUT   |
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|  | 3497 <u>9T-01 3497</u> 9T-02   |
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|  | CONSISTENT WITH A PRESENTATION SCALE OF 1:200 .<br>INTERROGATED DIMENSIONS WILL BE WITHIN THE TOLERANCE  |
|  | ASSOCIATED WITH THIS AND SMALLER SCALES ONLY.  |
|  | ALL LEVELS ARE IN METRES AND ARE ABOVE ORDNANCE SURVEY   |
|  | OBSERVATIONS.  |
| 7  | THE SURVEY GRID SHOWN ON THIS DRAWING IS POSITIONED ON<br>ORDNANCE SURVEY (OS) NATIONAL GRID, OBTAINED BY MULTIPLE   |
|  | ALL QUOTED DIMENSIONS ARE IN METRES  |
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|  | M3 Consulting  |
| GL27.59  | Dashwood House   |
|  | 69 Old Broad Street  |
|  | London   |
| SP.  | EC2M 1QS   |
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| CL27.5   | Project Mint   |
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| * 2 <sup>6</sup><br>Cl 27 57                       |  |
| 6.1  | SURVEYED AND DRAWN BY  |
| 27.88  | Plowman Craven   |
| 28.19  | Plowman Craven House   |
| CL27.59 28.19 + 28.49                              | Lea Business Park  |
| +28.04<br>CL27.60 28.18 +                          | Lower Luton Road<br>Hertfordshire  |
|  | AL5 5EQ  |
| CPS CPS  | 1 +44(0)1582 765566     Info@plowmancraven.co.uk       5 +44(0)1582 765370     www.plowmancraven.co.uk   |
| T.   |  |
| 27.79<br>+   | SCALE 1:200 @ A1   |
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| 27.45 CCol BrS CPS                                | SERVICE ABBREVIATIONS:   |
| ol FIC<br>CL27.43 27.30 21.23<br>27.4             | Comparison to point duct     Pa     Depth to top of pipe       (e)     Empty Duct     Pe     Polyethylene       FH     Fire Hydrant     SL     Sump Level  |
| Ta  | IL Invert Level (UTL) Unable to Lift without damage<br>IL Invert Level (UTT) Unable to Trace<br>(NFI) No Further Information WD Way Duct   |
| 27.34 + 67.21 27.19                               | SERVICE LEGEND   |
| CL27.16   |  |
| 27.27   | SURFACE WATER DRAINAGE >   |
| 27.18 CL27.14CPS                                  | GAS  |
| CL27.35   | ELECTRICITY  |
| 27.19<br>27.39 1 G CL27.31 0 27.33 CONS Hedge H   | COLT   |
| 27.51 27.19<br>LP<br>Grating<br>Grating           | METROMEDIA   |
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| rege  | Electro-detection techniques have been used in the location of underground services.<br>The results are not infallible and trial excavations must be carried out to confirm service<br>identification position and particulative depths  |
|   | Although all reasonable effort has been made in searching available record drawings<br>the completeness of the underground services information cannot be guaranteed.  |
| EJB   | Unless otherwise stated, drainage pipes are 100mm diameter.  |
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|   | consequence of undisclosed facts or that were obscured from view at the time of survey or that have been altered since the survey.   |
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|   | ISSUES & REVISIONS   |
|   | Issue Details By Date  |
|   | A     Original issue     PCL     04/04/2018       B     Underground Services Added     PCL     12/05/2016  |
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|   | SHEET LAYOUT   |
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|   | 34979T-03 34979T-04<br>34979T-05   |
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| C PLOWMAN CRAVEN LIMITED                          | ISSUE B  |
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