

Appendix J: Surface Water Drainage – Attenuation (04/06/13)

From: Simon Lewis
Sent: 04 June 2013 08:41
To: Cathy Molloy (cathy.molloy@richmond.gov.uk)
Cc: Georgina Atkinson
Subject: Re. Twickenham - Sustainable Drainage

Hi Cathy,

I have spoken to our Drainage Consultant on the point you raised regarding Policy DM SD7 and our sustainable drainage proposals. The following response has been prepared.

- It is noted that the LB Richmond's Policy DM SD 7 requires all development proposals to follow the sustainable drainage hierarchy, and any discharge should be reduced to greenfield run-off rates wherever feasible. It is also noted that the drainage strategy which forms part of the Flood Risk Assessment shows how the Mayor's essential standard for achieving 50% of the pre-development peak flows is to be met, but the locally adopted policy requires the applicant to provide justification to demonstrate that not all surface water run-off can be dealt with on site by SUDS.
- The greenfield run-off rates for the Site based on the Interim Code of Practice Mean Annual Flood method is attached. The greenfield run-off rates are as follows:

1 in 1 year (Q1) = 5.7 l/s
1 in 2.33 years (Qbar) = 6.7 l/s
1 in 30 years (Q30) = 11.6 l/s
1 in 100 years (Q100) = 13.4 l/s
- Surface water from the Site currently discharges via three outfalls. A 300mm diameter and a 225mm diameter outfall discharge directly to the River Crane (and not via public sewers) and a 150mm diameter outfall discharges to a public surface water sewer. The attached preliminary drainage design drawings show how it is intended to re-use these three connections.
- It is proposed that the sewer connection will be attenuated to the greenfield run-off rates noted above using a complex control i.e. two hydro-brakes, which will ensure that the flows for the 1 in 1 year, 1 in 30 year and 1 in 100 year + 30% are not exceeded. The catchment discharging to the sewer is relatively small comprising part of the community building roof and the section of road south of the community building.
- The drainage hierarchy has been followed in the design of the drainage:
 - 1) Water butts are to be used in order to store rainwater for later use.
 - 2) Infiltration techniques are to be used although these have had to be kept shallow to keep at least 1m above the ground water table. The upper terraces of the Apartment Block are to be Green Roof, covering an area of 466m². Planting is also to be used on the podium deck. This is currently being designed and when the areas are known this will be factored into the drainage design as it will further reduce surface water entering the drainage system and attenuate the flow rates. All of the external car parking areas and part of the access road are to be porous paving construction. All of the houses are to drain to soakaways and to the permeable car parking areas.
 - 3) The flow to the existing 300mm diameter outfall will be attenuated by using a hydro-brake. The flow to the 225mm diameter outfall will be attenuated by using pumps. The storage available within the permeable paving and the piped network are sufficient to prevent any flooding during a 1 in 100 year + 30% critical storm event.

- 4) As mentioned above, the flow to the public sewer is to be restricted to greenfield flow rates using a complex control and a small storage tank will be used to prevent flooding during the 1 in 100 year + 30% critical storm.
- In summary, greenfield flow rates will be used for the discharge to the public surface water sewer. Most of surface water will drain to soakaways and permeable paving with green roofs reducing and attenuating flows. Excess flows, which will be attenuated, will discharge directly to the river.

I trust the above clarifies our position.

Kind regards

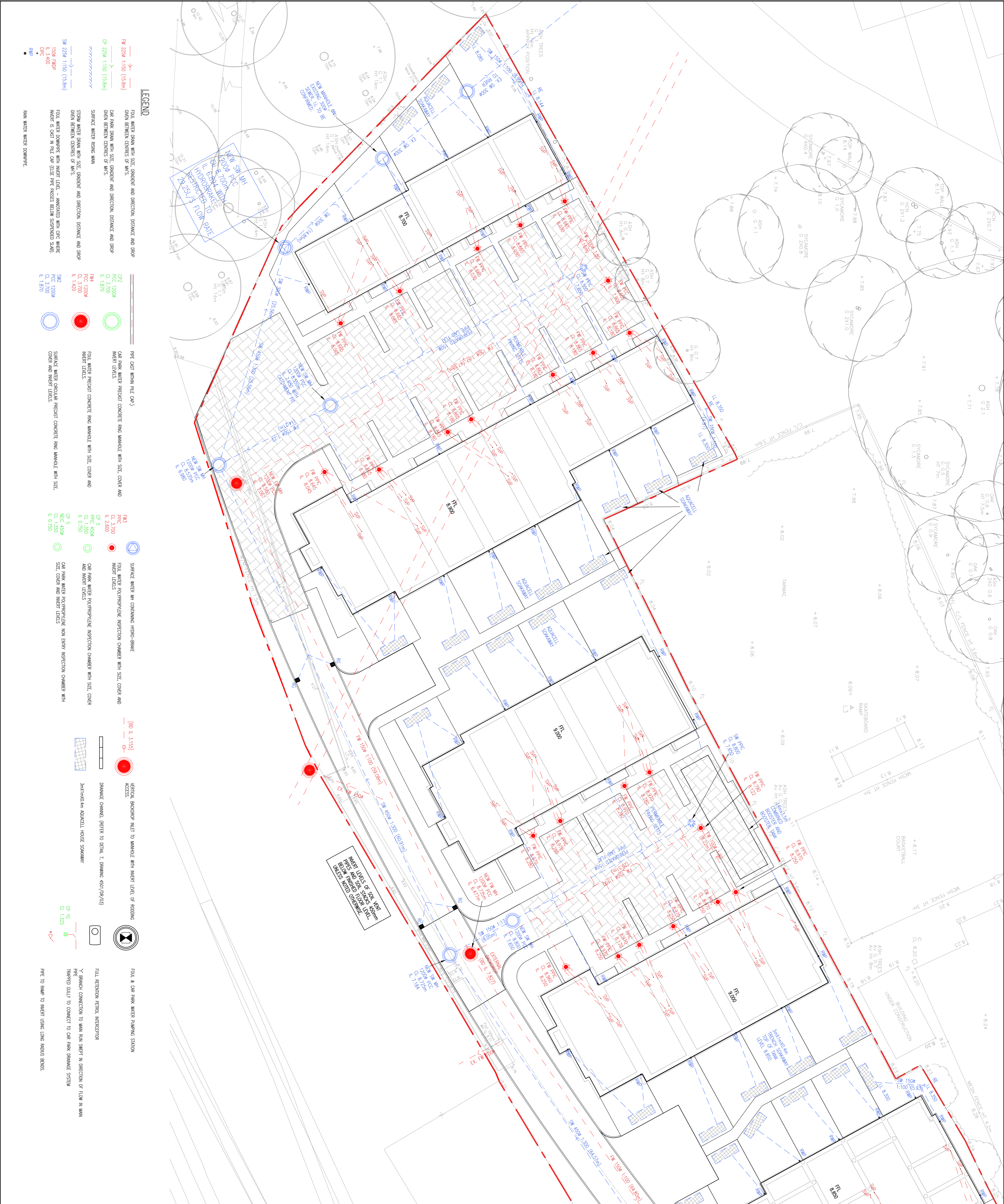
Simon

Simon Lewis
Development Director

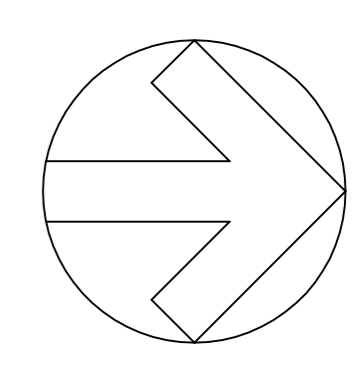


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FOR CONTINUATION SEE DRAWING 4616/CIVIL/21 (SHEET 2 OF 2)



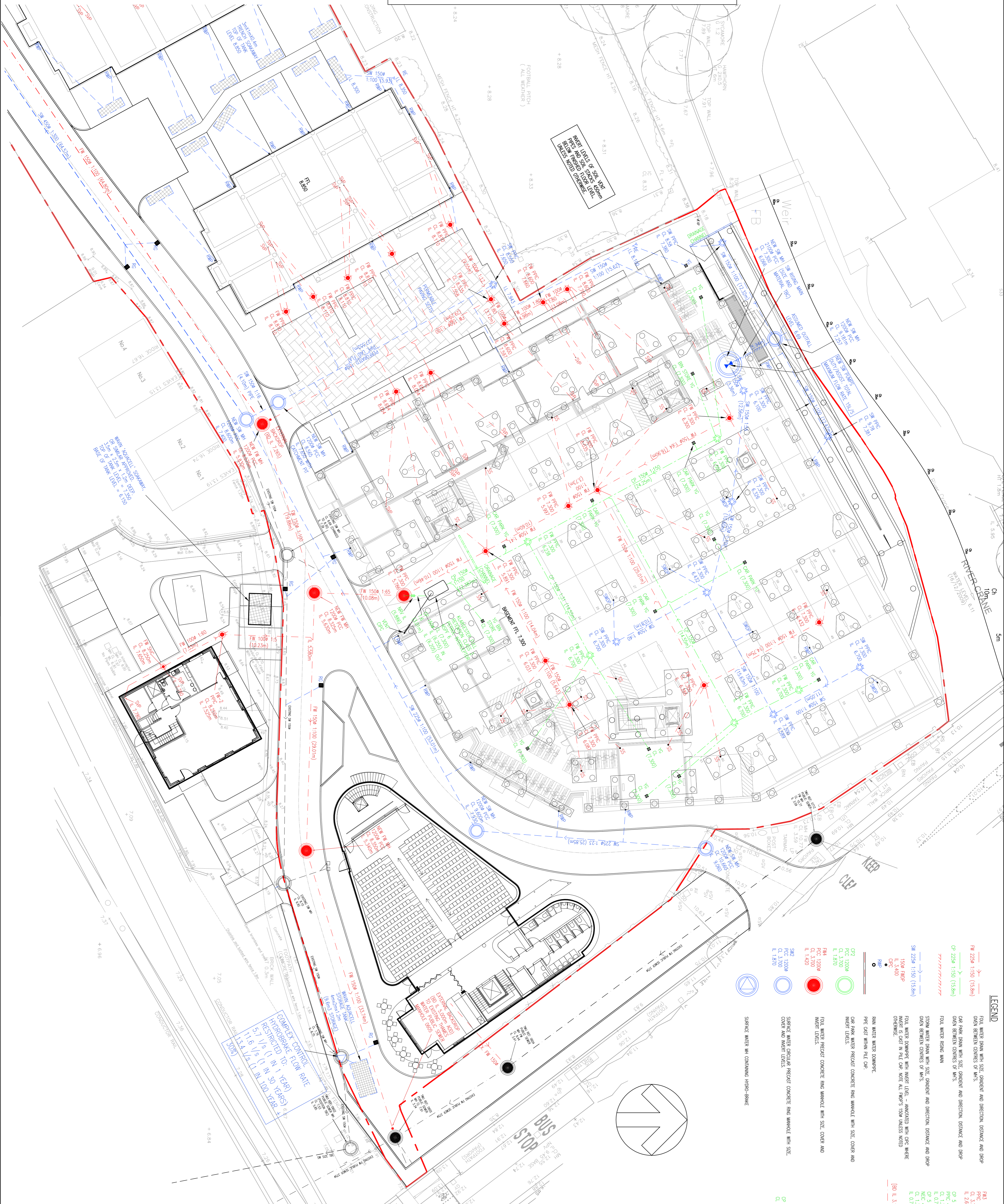
- NOTES
- 1) THE DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS AND ENGINEER'S DRAWINGS.
 - 2) THE COVERS SHALL BE SET TO SAME LEVEL AND FILL AS ADJACENT GROUND. IN ALL CONSTRUCTION, THE COVER SHALL BE 100mm ABOVE FINISHED GROUND AND MANHOLES/INSPECTION CHAMBERS SHALL BE 100mm ABOVE FINISHED GROUND.
 - 3) ALL DOWNPIPES AND BELOW GROUND BRANCH PIPES TO MAIN RINGS SHALL BE 150mm DIA. UNLESS OTHERWISE SPECIFIED.
 - 4) ALL DOWNPIPES AND BELOW GROUND BRANCH PIPES TO MAIN RINGS SHALL BE 150mm DIA. UNLESS OTHERWISE SPECIFIED.
 - 5) DOWNPIPES WITHIN RESIDENTIAL CAR PARKS - ALL DOWNPIPES SHALL BE CAST IN PLACE CONCRETE WITHIN AND BELOW RESIDENTIAL SLAB. ALL DOWNPIPES SHOWN ON THIS DRAWING (REFER TO 2224) SHALL BE CAST IN PLACE CONCRETE WITHIN AND BELOW RESIDENTIAL SLAB. ALL DOWNPIPES SHOWN ON THIS DRAWING (REFER TO 2224) SHALL BE CAST IN PLACE CONCRETE WITHIN AND BELOW RESIDENTIAL SLAB. ALL DOWNPIPES SHOWN ON THIS DRAWING (REFER TO 2224) SHALL BE CAST IN PLACE CONCRETE WITHIN AND BELOW RESIDENTIAL SLAB.
 - 6) ALL PIPES CAST WITHIN AND BELOW RESIDENTIAL SLAB SHALL BE 150mm DIA. UNLESS OTHERWISE SPECIFIED.
 - 7) ALL DOWNPIPES AND BELOW GROUND BRANCH PIPES TO MAIN RINGS SHALL BE 150mm DIA. UNLESS OTHERWISE SPECIFIED.
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 - 20) ALL DOWNPIPES AND BELOW GROUND BRANCH PIPES TO MAIN RINGS SHALL BE 150mm DIA. UNLESS OTHERWISE SPECIFIED.

Rev.	Date	Revision	ISSUED FOR INFORMATION	DD	CM
0	24.05.13				

INFORMATION			DD	CM
Rev.	Date	Revision	DD	CM
0	24.05.13			

Project		FORMER SORTING OFFICE TWICKENHAM
Drawing Title		BELOW GROUND DRAINAGE LAYOUT
Drawn by	Checked by	Scale
PR	AD	1:200 @ A1
Drawing No.		Revision
4616/CIVIL/10		0

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isa		CONSULTING ENGINEERS



LEGEND

- FW 229 1:150 (15.0m)
- FW 234 1:150 (15.0m)
- SW 229 1:150 (15.0m)
- SW 234 1:150 (15.0m)
- 1500 RPP
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- RAIN WATER DOWNPIPE
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NOTES

- 1) THE DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS AND ENGINEER'S DRAWINGS.
- 2) THE COVER SHALL BE SET TO CORRECT LEVEL AND FALL AS ADVISED BY THE DRAWING.
- 3) ALL CONSTRUCTION SHALL BE TO CURRENT RELEVANT CODES OF PRACTICE AND RECOMMENDATIONS.
- 4) ALL DOWNPIPES AND BELOW GROUND BRANCH PIPES TO MAIN RAINS SHALL BE 150mm DIA. UNLESS OTHERWISE SPECIFIED.
- 5) DOWNPIPES WITH BRACKET CAR PARK - ALL DOWNPIPES SHALL BE CAST IRON UNLESS OTHERWISE SPECIFIED.
- 6) ALL DOWNPIPES SHALL BE SET TO CORRECT LEVEL AND FALL AS ADVISED BY THE DRAWING.
- 7) ALL DOWNPIPES SHALL BE SET TO CORRECT LEVEL AND FALL AS ADVISED BY THE DRAWING.
- 8) ALL DOWNPIPES SHALL BE SET TO CORRECT LEVEL AND FALL AS ADVISED BY THE DRAWING.
- 9) MANHOLE INSPECTION CHAMBERS SHALL BE CAST IRON UNLESS OTHERWISE SPECIFIED.
- 10) ALL GULLIES SHALL BE TRAPPED AND STOPPED (REFER TO DETAILS).
- 11) THE CONVEYOR SHALL CHECK AND CONFORM TO THE ENGINEER'S ASSUMED SIZES AND CONDITIONS OF CONVEYOR SIZES, SPEEDS AND CONNECTIONS.
- 12) RETENTION SEPARATOR (CLASS 2) TO ENVIRONMENT AGENCY REGULATION THE MANUFACTURER'S RECOMMENDATIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- 13) SINKS SHALL BE PROVIDED WITH TRAP AND STOPPED (REFER TO DETAILS).
- 14) ALL PIPES SHALL BE SET TO CORRECT LEVEL AND FALL AS ADVISED BY THE DRAWING.
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- 25) ALL PIPES SHALL BE SET TO CORRECT LEVEL AND FALL AS ADVISED BY THE DRAWING.

INFORMATION

Rev.	Date	Revision	By	CHK
0	24.05.13	ISSUED FOR INFORMATION	PR	AD

Project: **FORMER SORTING OFFICE TWICKENHAM**

Drawing Title: **PROPOSED SITE LEVELS SHEET 2 OF 2**

Drawn by: **DO** Checked by: **AD** Scale: **1:200 @ A1**

Drawing No.: **4616/CIVIL/11** Revision: **0**

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**TWICKENHAM SORTING
 OFFICE
 GREENFIELD RUNOFF**



Date 22/05/2013 17:57
 File

Designed By domonitan
 Checked By

Micro Drainage

Source Control W.12.2

ICP SUDS Mean Annual Flood

Input

Return Period (years)	1	Soil	0.300
Area (ha)	1.182	Urban	0.750
SAAR (mm)	600	Region Number	Region 6

Results l/s

QBAR Rural	1.8
QBAR Urban	6.7
Q1 year	5.7
Q1 year	5.7
Q30 years	11.6
Q100 years	13.4