

PINNACLE

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Wednesday 13 May 22

Planning Department

South Dublin County Council

County Hall, Tallaght

Dublin 24

D24 A3XC

Ref: P180403

**RE: EdgeConneX Ireland Ltd., Retention & Completion of Amendments,
Ballymaikaily, East of the Newcastle Road, (R120), Lucan, Co. Dublin
Planning Reg. Ref. No. SD22A/0009**

Further to the Additional Information request pertaining to Item 2, in respect of the above development, as received from the Local Authority, dated 11th March 2022. we would respond as follows:-

2. It is unclear what surface areas of site are being affected by proposed development. There are no drainage drawings submitted showing the surface water layout of existing and proposed development. The applicant is requested to:

(1) Submit a report to clearly show surface water attenuation calculations, surface areas in m², runoff coefficients of existing and proposed development including areas to be retained.

(2) Show in a report and drawing what surface water attenuation is proposed and required in m³ for existing and proposed development.

(3) Submit a drawing showing the surface water layout and attenuation for existing and proposed development.

(4) Contact water services at South Dublin County Council to discuss revised report and drawing prior to submission of same.

DIRECTORS: Mr. Paddy O'Sullivan, Mr. David O'Sullivan, Mr. David O'Sullivan, Mr. David O'Sullivan, Mr. David O'Sullivan, Mr. David O'Sullivan

REGISTERED IN IRELAND Company Number 43291 REGISTERED OFFICE: 57a Patrick Street, Dun Laoghaire, Dublin 24, Ireland

OFFICES: Dublin, London, Cork, Galway, Drogheda, Sligo, Carrigrohane

Response:-

Refer to Dwg. No. P180403-210 Rev. A, which was submitted as part of the Compliance pack, in order to indicate the volume of surface water attenuation provided, for the entire EdgeConneX campus. The submitted compliance was signed off by Water Services, as received on the 4th April 2019 – refer Appendix A.

In addition to the above, this retention application contains circa 1,017m² of additional hardstanding, comprising of additional sections of concrete footpath, which are not accounted for in the original scheme. Based on a Co-efficient of 1.00, the additional attenuation required in order to provide for the additional hardstanding areas equates to circa 36m³ – refer Dwg. No. P180403-299 & Appendix B.

From an overall site attenuation perspective this additional required storage, as a result of the increased hard standing area, can be provided in the permitted and oversized attenuation ponds granted under Planning Ref. SD18A/0298 to the north of the site. The table and text from this application for the full development of the site, explaining this over-provision is set out below (extract of table and text below):-

Planning Ref	Required Attenuation for Phase	Cumulative Attenuation Required	Basis of Calculation	Cumulative Attenuation Provided	Over Provision
SD16A/0214	800m ³	800m ³	MicroDrainage	1,382m ³	582m ³
SD16A/0345	300m ³	1,100m ³	MicroDrainage	1,382m ³	282m ³
SD17A/0141	140m ³	1,240m ³	MicroDrainage	1,630m ³	390m ³
SD17A/0392	1m ³	1,241m ³	MicroDrainage	1,630m ³	389m ³
Total	1,241m³	1,241m³	MicroDrainage	1,630m³	389m³

Table 1 – Existing Attenuation Storage Pond / Wetland

It should be noted that further to the above table and in order to accommodate the footprint of the northernmost proposed data hall, under this application, it is required to modify a section of the existing pond adjacent to the data hall. This would create a deficit of overall storage volume of circa 105m³.

This means that the "over provision" as stated in Table 1 above, will be reduced to 284m³, i.e. 389m³ – 105m³. However, 101m³ of the deficit is being provided for in the new pond, in that we only require 239m³ of storage and we are in fact providing 340m³.

Based on the hardstanding area for this current application, i.e. circa 9,405m² (0.94Ha), the attenuation volume required has been calculated as being circa 456m³, which will be provided for as mentioned above, i.e. an attenuation tank (116m³) and a smaller pond to the east of the existing one (340m³).

Taking all of the above into account, we still have a minimum over provision of 280m³, by way of additional storage for the overall campus, which will now be slightly reduced by this current retention application, i.e. 36m³, leaving us now with an over provision of circa 244m³.

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We trust that the above meets with your requirements, however should you require any further information or clarification, please do to hesitate to contact us.



Shaun O'Reilly

Pinnacle

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Encl. (12)

APPENDIX A
Compliance Sign Off

Shaun O'Reilly

From: Brian Harkin <bharkin@SDUBLINCOCO.ie>
Sent: 04 April 2019 16:55
To: Shaun O'Reilly
Subject: SD16A/0214 - Compliance Condition 6 and Condition 7

To: Shaun O' Reilly Associate, Pinnacle Consulting Engineers

Water Services are satisfied that Condition 6 and Condition 7 of Planning Permission SD16A/0214 is being complied with.

Brian Harkin
Senior Executive Engineer
Water Services
South Dublin County Council
Tallaght Dublin 24

Tel: 01-414 9000 Ext 4234

Please note:

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www.dublinsoutdoors.ie

Shaun O'Reilly

From: Brian Harkin <bharkin@SDUBLINCOCO.ie>
Sent: 04 April 2019 16:58
To: Shaun O'Reilly
Cc: Chris Galvin
Subject: Planning Ref SD16A/0345 Condition 6 and 7 Compliance

To: Shaun O' Reilly Associate, Pinnacle Consulting Engineers

Water Services are satisfied that Condition 6 and Condition 7 of Planning Permission SD16A/0345 is being complied with.

Brian Harkin
Senior Executive Engineer
Water Services
South Dublin County Council
Tallaght Dublin 24

Tel: 01-414 9000 Ext 4234

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Shaun O'Reilly

From: Brian Harkin <bharkin@SDUBLINCOCO.ie>
Sent: 04 April 2019 16:56
To: Shaun O'Reilly
Cc: Chris Galvin
Subject: SD17A/0141 Condition 5 and 6 Compliance

To: Shaun O' Reilly Associate, Pinnacle Consulting Engineers

Water Services are satisfied that Condition 5 and condition 6 of Planning Permission SD17A/0141 is being complied with.

Brian Harkin
Senior Executive Engineer
Water Services
South Dublin County Council
Tallaght Dublin 24

Tel: 01-414 9000 Ext 4234

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Shaun O'Reilly

From: Brian Harkin <bharkin@SDUBLINCOCO.ie>
Sent: 04 April 2019 16:54
To: Shaun O'Reilly
Cc: Chris Galvin
Subject: SD17A/0392 Condition 15 and 16 Compliance

To: Shaun O' Reilly Associate, Pinnacle Consulting Engineers

Water Services are satisfied that Condition 15 and condition 16 of Planning Permission SD17A/0392 is being complied with.

Brian Harkin
Senior Executive Engineer
Water Services
South Dublin County Council
Tallaght Dublin 24

Tel: 01-414 9000 Ext 4234

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Shaun O'Reilly

From: Brian Harkin <bharkin@SDUBLINCOCO.ie>
Sent: 04 April 2019 16:57
To: Shaun O'Reilly
Cc: Chris Galvin
Subject: SD18A/0298 Compliance 4 and 5

To: Shaun O' Reilly Associate, Pinnacle Consulting Engineers

Water Services are satisfied that Condition 4 and condition 5 of Planning Permission SD18A/0298 is being complied with.

Brian Harkin
Senior Executive Engineer
Water Services
South Dublin County Council
Tallaght Dublin 24

Tel: 01-414 9000 Ext 4234

Please note:

The information in this email is confidential and may be legally privileged. It is intended solely for the addressee. Access to this email by anyone else is unauthorised. If you are not the intended recipient, any disclosure, copying, distribution or any action taken or omitted to be taken in reliance on it, is prohibited and may be unlawful. If you have received this electronic message in error, please notify the sender or postmaster@sdblincoco.ie. This message has been swept by Anti-Virus software.

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APPENDIX B
Surface Water Calculations

Print Close Report



Surface water storage requirements for sites

www.uksuds.com | Storage estimation tool

Calculated by: Francois Jansen van Rensburg
 Site name: EDB02
 Site location: Grange Castle, Dublin

Site Details

Latitude: 53.31881° N
 Longitude: 6.43026° W
 Reference: 2372055295
 Date: May 16 2022 15:32

This is an estimation of the storage volume requirements that are needed to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). It is not to be used for detailed design of drainage systems. It is recommended that hydraulic modelling software is used to calculate volume requirements and design details before finalising the design of the drainage scheme.

Site characteristics

Total site area (ha): 0.1017
 Significant public open space (ha): 0
 Area positively drained (ha): 0.1017
 Impermeable area (ha): 0.1017
 Percentage of drained area that is impermeable (%): 100
 Impervious area drained via infiltration (ha): 0
 Return period for infiltration system design (year): 10
 Impervious area drained to rainwater harvesting (ha): 0
 Return period for rainwater harvesting system (year): 10
 Compliance factor for rainwater harvesting system (%): 66
 Net site area for storage volume design (ha): 0.1
 Net impermeable area for storage volume design (ha): 0.1
 Pervious area contribution to runoff (%): 30

Methodology

esti IH124
 Q_{BAR} estimation method: Calculate from SPR and SAAR
 SPR estimation method: Calculate from SOIL type

Soil characteristics	Default	Edited
SOIL type:	2	2
SPR:	0.3	0.3

Hydrological characteristics	Default	Edited
Rainfall 100 yrs 6 hrs:	--	60
Rainfall 100 yrs 12 hrs:	--	73
FEH / FSR conversion factor:	1	1
SAAR (mm):	949	949
M5-60 Rainfall Depth (mm):	17	17
'r' Ratio M5-60/M5-2 day:	0.3	0.3
Hydrological region:	12	12
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 10 year:	1.72	1.72
Growth curve factor 30 year:	2.13	2.13
Growth curve factor 100 years:	2.61	2.61
Q _{BAR} for total site area (l/s):	0.26	0.26
Q _{BAR} for net site area (l/s):	0.26	0.26

* where rainwater harvesting or infiltration has been used for managing surface water runoff such that the effective impermeable area is less than 50% of the 'area positively drained', the 'net site area' and the estimates of Q_{BAR} and other flow rates will have been reduced accordingly.

Design criteria

Climate change allowance factor: 1.2
 Urban creep allowance factor: 1.1
 Volume control approach: Use long term storage
 Interception rainfall depth (mm): 0
 Minimum flow rate (l/s): 2

Site discharge rates	Default	Edited	Estimated storage volumes	Default	Edited
1 in 1 year (l/s):	2	2	Attenuation storage 1/100 years (m ³):	36	36
1 in 30 years (l/s):	2	2	Long term storage 1/100 years (m ³):	0	0
1 in 100 year (l/s):	2	2	Total storage 1/100 years (m ³):	36	36

This report was produced using the storage estimation tool developed by HRWallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at <http://uksuds.com/terms-and-conditions.htm>. The outputs from this tool have been used to estimate storage volume requirements. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

Met Eireann
Return Period Rainfall Depths for sliding Durations
Irish Grid: Easting: 304000, Northing: 230000,

DURATION	Interval		Years													
	6months,	1year,	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,
5 mins	2.4,	3.5,	4.1,	5.1,	5.8,	6.3,	8.1,	10.1,	11.5,	13.5,	15.3,	16.8,	19.0,	20.8,	22.2,	N/A ,
10 mins	3.3,	4.9,	5.8,	7.1,	8.0,	8.8,	11.2,	14.1,	16.1,	18.9,	21.4,	23.4,	26.5,	28.9,	31.0,	N/A ,
15 mins	3.9,	5.7,	6.8,	8.4,	9.5,	10.3,	13.2,	16.6,	18.9,	22.2,	25.2,	27.5,	31.1,	34.0,	36.4,	N/A ,
30 mins	5.1,	7.5,	8.8,	10.8,	12.2,	13.3,	16.9,	21.1,	24.0,	28.0,	31.7,	34.5,	39.0,	42.5,	45.5,	N/A ,
1 hours	6.7,	9.7,	11.4,	13.9,	15.7,	17.0,	21.6,	26.8,	30.3,	35.4,	39.9,	43.4,	48.9,	53.2,	56.8,	N/A ,
2 hours	8.8,	12.6,	14.8,	18.0,	20.2,	21.9,	27.6,	34.1,	38.4,	44.6,	50.2,	54.5,	61.2,	66.5,	70.8,	N/A ,
3 hours	10.3,	14.8,	17.2,	20.9,	23.4,	25.3,	31.8,	39.2,	44.2,	51.1,	57.4,	62.3,	69.8,	75.7,	80.7,	N/A ,
4 hours	11.5,	16.5,	19.1,	23.2,	26.0,	28.1,	35.2,	43.3,	48.7,	56.3,	63.2,	68.5,	76.7,	83.1,	88.4,	N/A ,
6 hours	13.5,	19.2,	22.3,	26.9,	30.1,	32.6,	40.6,	49.8,	55.9,	64.6,	72.3,	78.2,	87.5,	94.7,	100.7,	N/A ,
9 hours	15.8,	22.4,	26.0,	31.3,	34.9,	37.7,	46.9,	57.3,	64.2,	74.0,	82.7,	89.4,	99.8,	107.9,	114.6,	N/A ,
12 hours	17.7,	25.0,	28.9,	34.8,	38.7,	41.8,	51.9,	63.3,	70.9,	81.5,	91.0,	98.3,	109.6,	118.4,	125.7,	N/A ,
18 hours	20.8,	29.2,	33.7,	40.4,	44.9,	48.4,	59.9,	72.8,	81.4,	93.4,	104.1,	112.3,	125.0,	134.9,	143.1,	N/A ,
24 hours	22.9,	32.1,	37.0,	44.4,	49.4,	53.3,	65.9,	80.3,	89.7,	103.0,	114.8,	123.9,	138.0,	148.9,	157.9,	189.6,
2 days	28.7,	39.1,	44.6,	52.7,	58.1,	62.3,	75.7,	90.6,	100.4,	113.9,	125.8,	134.9,	148.8,	159.6,	168.4,	199.1,
3 days	33.4,	44.8,	50.7,	59.4,	65.2,	69.6,	83.7,	99.2,	109.3,	123.2,	135.3,	144.6,	158.7,	169.5,	178.4,	209.0,
4 days	37.6,	49.8,	56.1,	65.3,	71.3,	75.9,	90.7,	106.8,	117.1,	131.3,	143.7,	153.2,	167.5,	178.4,	187.4,	218.2,
6 days	44.9,	58.5,	65.4,	75.4,	82.0,	87.0,	102.8,	119.8,	130.7,	145.6,	158.5,	168.3,	183.0,	194.3,	203.4,	234.7,
8 days	51.3,	66.1,	73.6,	84.3,	91.3,	96.6,	113.3,	131.2,	142.6,	158.0,	171.4,	181.5,	196.6,	208.1,	217.5,	249.3,
10 days	57.3,	73.1,	81.0,	92.4,	99.7,	105.3,	122.8,	141.5,	153.3,	169.3,	183.0,	193.4,	208.9,	220.7,	230.3,	262.6,
12 days	62.8,	79.6,	87.9,	99.9,	107.6,	113.4,	131.6,	150.9,	163.1,	179.6,	193.7,	204.3,	220.2,	232.3,	242.0,	274.9,
16 days	73.2,	91.6,	100.7,	113.6,	121.9,	128.2,	147.6,	168.2,	181.0,	198.4,	213.2,	224.2,	240.8,	253.3,	263.3,	297.3,
20 days	82.7,	102.6,	112.4,	126.2,	135.0,	141.7,	162.2,	183.8,	197.3,	215.4,	230.7,	242.2,	259.4,	272.2,	282.6,	317.4,
25 days	94.0,	115.5,	126.0,	140.8,	150.2,	157.3,	179.1,	201.8,	215.9,	234.8,	250.9,	262.8,	280.6,	293.9,	304.6,	340.4,

NOTES:

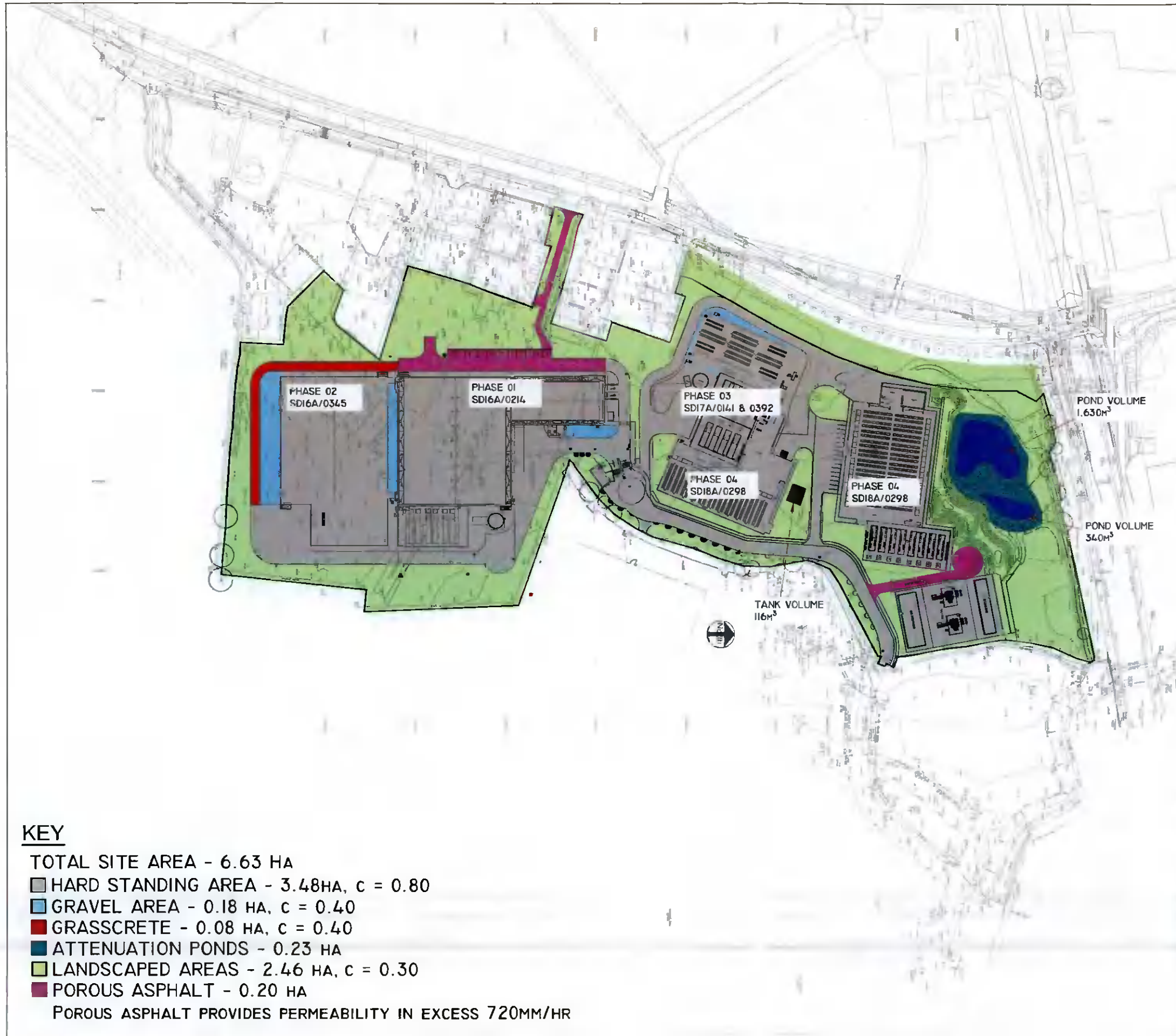
N/A Data not available

These values are derived from a Depth Duration Frequency (DDF) Model

For details refer to:

'Fitzgerald D. L. (2007), Estimates of Point Rainfall Frequencies, Technical Note No. 61, Met Eireann, Dublin',

Available for download at www.met.ie/climate/dataproducts/Estimation-of-Point-Rainfall-Frequencies_TN61.pdf



REV	DESCRIPTION	BY	CHK	DATE
A	MINOR REVISIONS TO AREAS	KR	SO'R	01/03/19

CLIENT


PROJECT
 EDCCDUB02A/03
 GRANGE CASTLE
 DUBLIN

DRAWING TITLE
 AREAS SUMMARY
 —
 —

PINNACLE
 CONSULTING ENGINEERS

GROSVENOR COURT,
 67A PATRICK STREET,
 DUN LAOGHAIRE,
 COUNTY DUBLIN
 IRELAND TELEPHONE +353 1231 1041
 NORWICH | WELWYN | LONDON | BRISTOL

DRAWING STATUS INFORMATION			
SCALE	DATE	DRAWN	CHKD
1:2000	25.09.18	KR	SO'R
DRG NO	REV	SIZE	
210	A	A3	

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KEY

- TOTAL SITE AREA - 6.63 HA
 - HARD STANDING AREA - 3.48HA, c = 0.80
 - GRAVEL AREA - 0.18 HA, c = 0.40
 - GRASSCRETE - 0.08 HA, c = 0.40
 - ATTENUATION PONDS - 0.23 HA
 - LANDSCAPED AREAS - 2.46 HA, c = 0.30
 - POROUS ASPHALT - 0.20 HA
- POROUS ASPHALT PROVIDES PERMEABILITY IN EXCESS 720MM/HR



- KEY**
- ADDITIONAL HARD STAND AREA (C=1.0) - 1 017m² (36m² ADDITIONAL ATTENUATION REQUIRED)
 - HARD STAND AREA FOR PLANNING SUBMISSION (C=1.0) (AS SUBMITTED, AGREED AND APPLIED WITH)
 - LANDSCAPED AREAS (C = 0.8)

PLANNING REGISTRATION REFERENCE:
SD 22A/0009

REV. DESCRIPTION	BY	CHK.	DATE



PROJECT
EDCDUB02A/03
GRANGE CASTLE
DUBLIN

DRAWING TITLE
HARD PAVED
AREAS COMPARISON

PINNACLE
CONSULTING ENGINEERS

GROSVENOR COURT,
67A PATRICK STREET,
DUN LAOGHAIRE,
COUNTY DUBLIN,
IRELAND TELEPHONE: +353 1231 1041
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DRAWING STATUS			
PLANNING			
SCALE	DATE	DRAWN	CHKD
1:750	22 05 16	FJV/R	SO'R
DRG NO.		REV	SIZE
299		-	A3