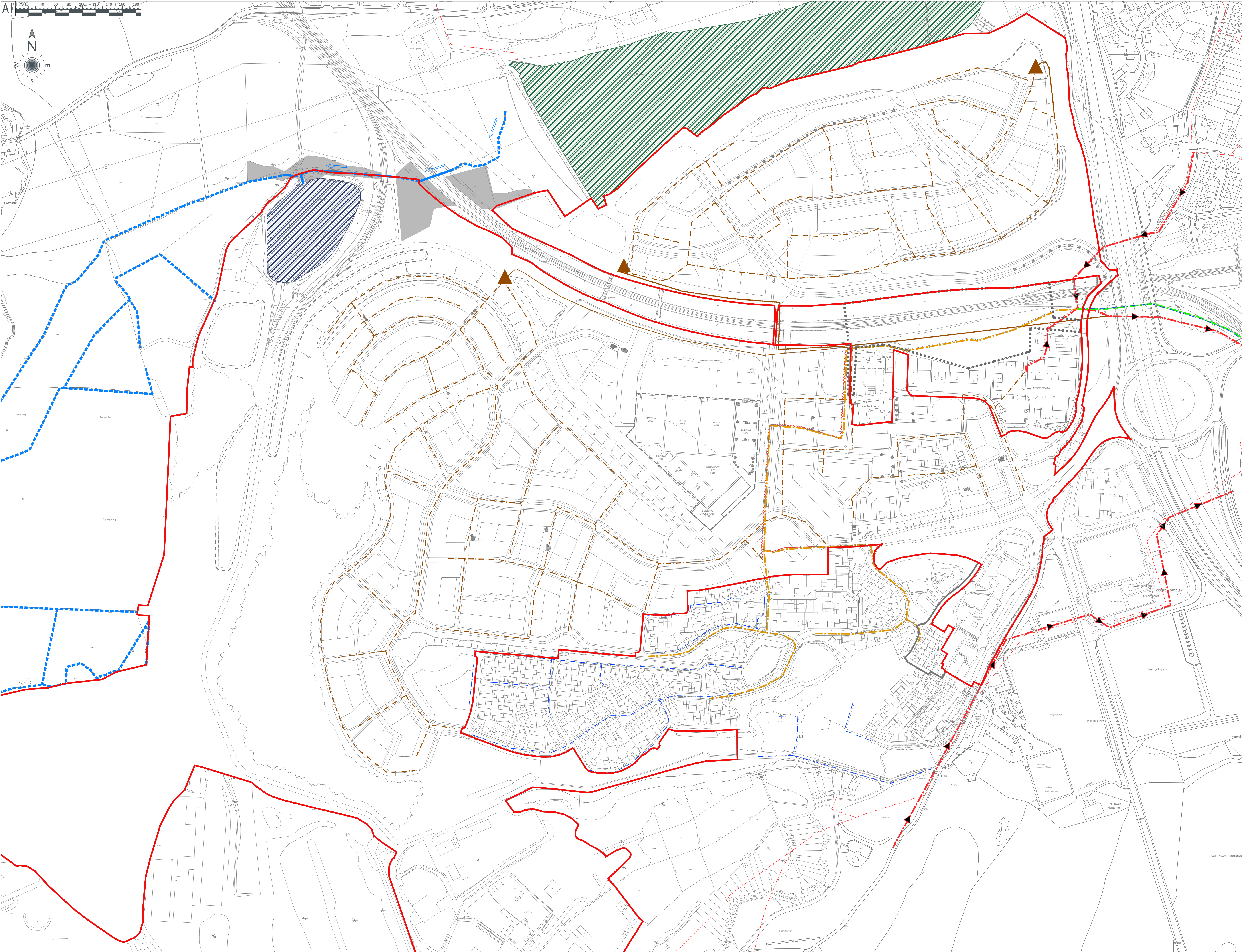
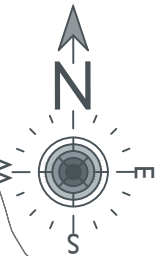




NOTES

- These drawings have been produced with reference to the CDM Regulations 2015. Please note that these are pre-construction phase drawings and should be subject to further design risk management as required in accordance with Regulation 9
- These drawings should be read in conjunction with all relevant documentation, drawings and standard details.
 - PIA accept no liability for the accuracy of third party data.
 - All dimensions in meters unless otherwise stated. Do not scale from this drawing.
 - Foul water drainage design based on:
 - Masterplan Design (dwg no: 21009(05) 101) from Powell Dobson architects,
 - Proposed Earthworks, PJA July 2021
 - DCWW Asset Mapping, August 2021
 - Confirmation required from DCWW to confirm the acceptability of the foul drainage. May be subject to downstream network upgrades and reinforcement.
 - Subject to detailed earthworks design and information detailed survey to confirm outfall levels.
 - Diversion of existing DCWW assets subject to confirmation from DCWW.

KEY

- Site Boundary
- Existing Watercourse/Drain
- North Site Reservoir
- South Site Reservoir
- Existing DCWW Foul Sewer
- Existing DCWW Surface Water Sewer
- Existing DCWW Combined Sewer
- Indicative Location of Proposed Foul Water Sewer
- Indication Location of Existing Foul Sewer to be Abandoned & Diverted
- Indicative Location of Proposed Foul Water Rising Main
- Indicative Location of Proposed Foul Pumping Station

REV	DATE	REVISION NOTE	BY
P4	23.11.21	Updated Site Boundary	JP
P3	06/10/2021	UPDATED SITE BOUNDARY & MASTER PLAN	CT
P2	21/09/2021	REVISED MIXED USE AREA	PR
P1	24/08/2021	DRAW FOR COMMENT	PR

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CLIENT
St Modwen Developments Ltd.

PROJECT
Coed Darcy

DRAWING TITLE
**Indicative Foul Water
Drainage Strategy
Option 2**

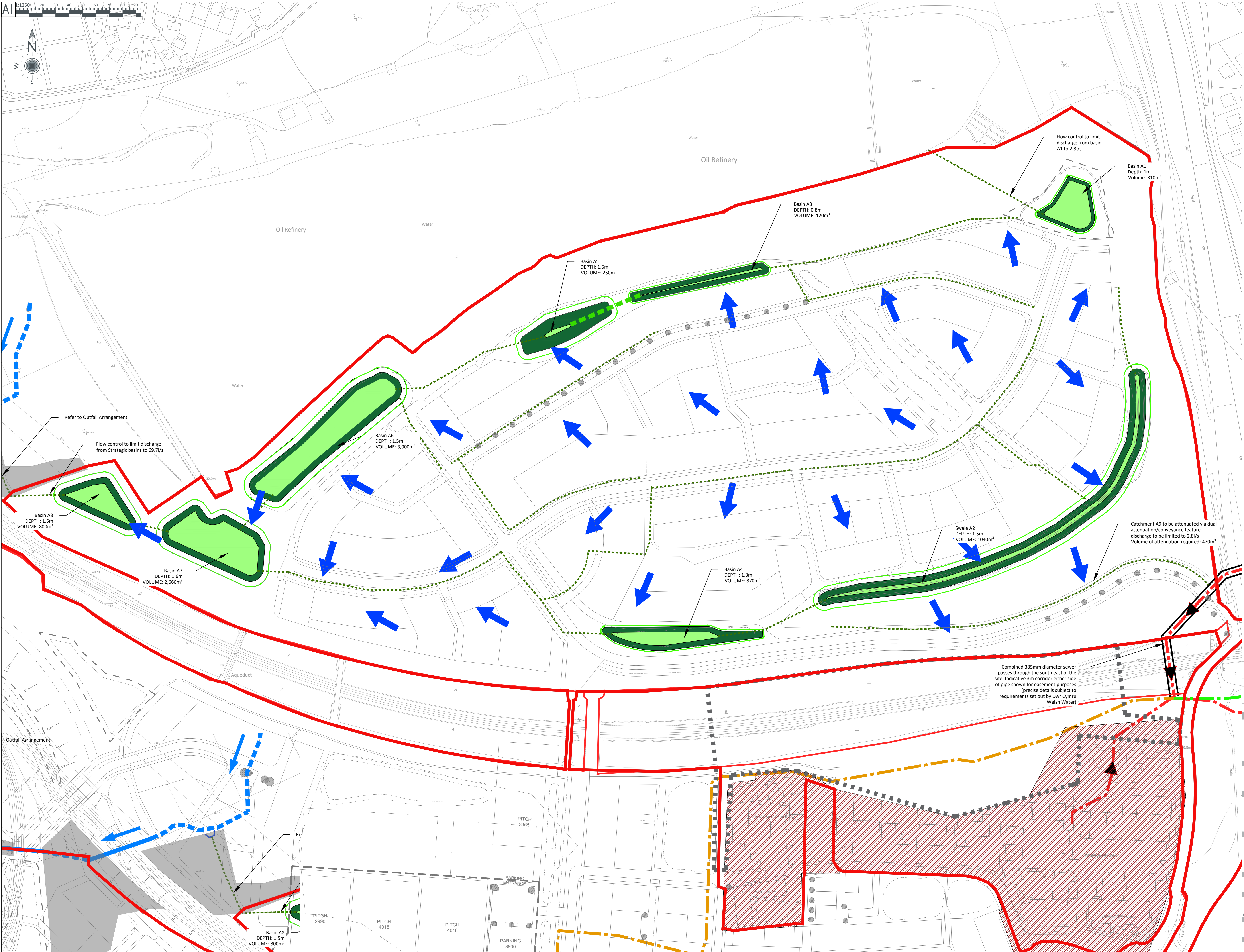
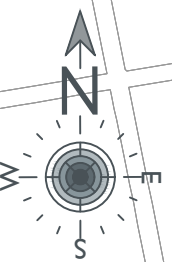
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INFORMATION
PJA JOB No. SUB-CODE DRAWING NO. REVISION
05474 - - 0100 - P4
Revision Letter: P - Prelim / A - Approval / T - Tender / C - Construction
BIM DRAWING REFERENCE

SCALE DRAWN REVIEWED DATE
A1@2500 PR AC Aug 21



Appendix F Exceedance Flow Route Plan

AI 1:1250 0 20 30 40 50 60 70 80 90



NOTES

These drawings have been produced with reference to the CDM Regulations 2015. Please note that these are pre-construction phase drawings and should be subject to further design risk management as required in accordance with Regulation 9

- These drawings should be read in conjunction with all relevant documentation, drawings and standard details.
- PIA accept no liability for the accuracy of third party data.
- All dimensions in meters unless otherwise stated. Do not scale from this drawing.
- Surface water drainage design based on Masterplan Design (dwg no: 21009(05) 101) from DobsonPowell architects and Proposed Original Level Gradient Map (dwg no: 04020-A-0122).
- See associated Indicative Surface Water Drainage Strategy drawing 05474-SK-0002-P4, PIA (2021) for further information alongside supporting FCA & Drainage Report.

KEY

- Existing Watercourse/Drain
- Indicative Surface Water Sewer
- Indicative Surface Water Conveyance Feature (modelled as pipes)
- Indicative Surface Water Conveyance Feature (not modelled)
- Indicative Attenuation Location
- Indicative Maintenance and Access Buffer
- Existing DCWW Combined Sewer
- Existing DCWW Foul Sewer
- Existing DCWW Surface Water Sewer
- Proposed Exceedance Flow Route
- Proposed Headwall
- Area Assumed to Remain as Existing
- Site Boundary

P3	23/11/21	Updated Site Boundary	JP
P2	06/10/2021	Revised Masterplan & Site Boundary	PR
P1	04/10/2021	Draft for Comment	PR

REV DATE REVISION NOTE BY

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CLIENT
St. Modwen Developments Ltd

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PROJECT

Coed Darcy

DRAWING TITLE
Indicative Surface Water
Exceedance Strategy North

DRAWING ISSUE STATUS

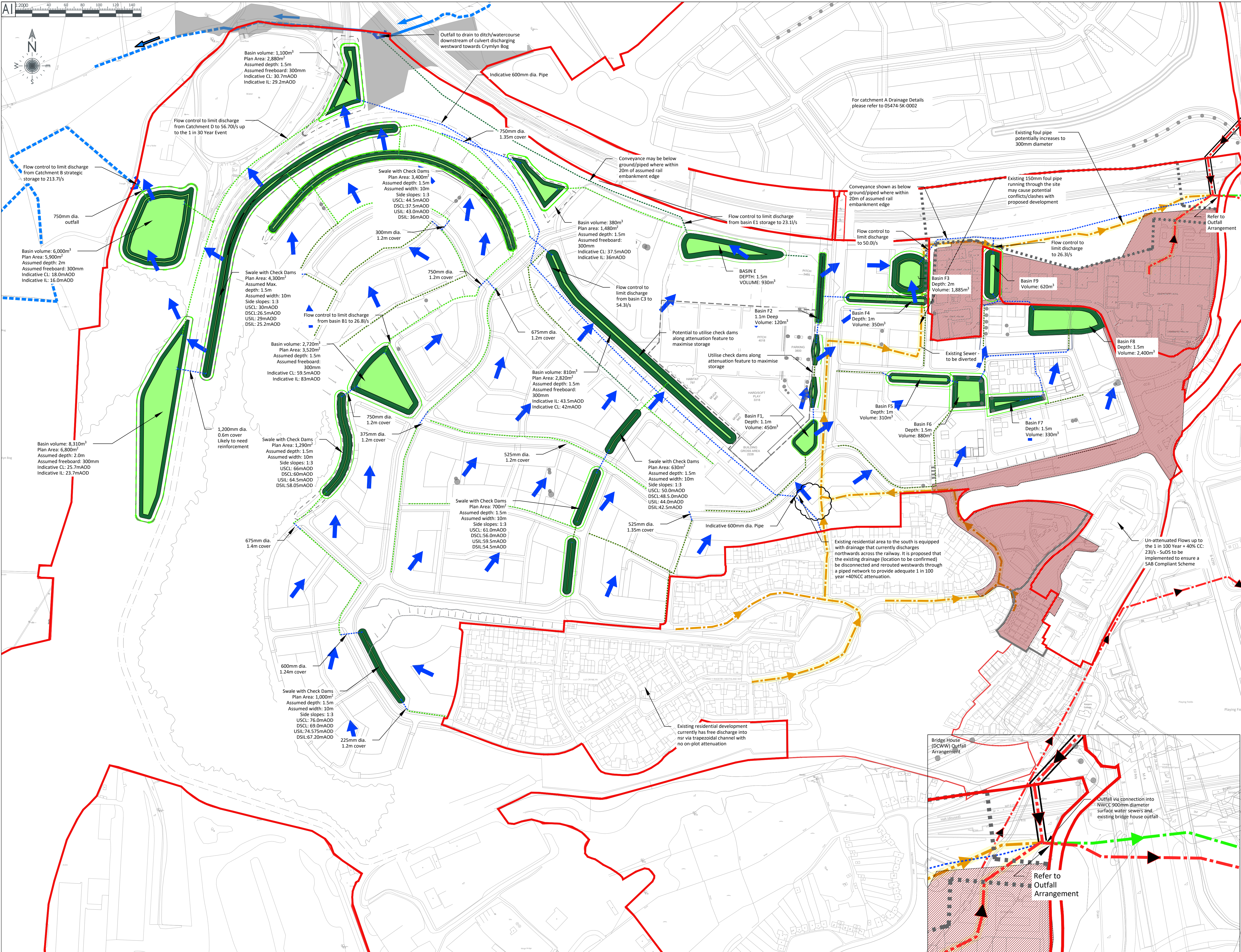
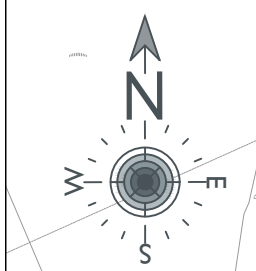
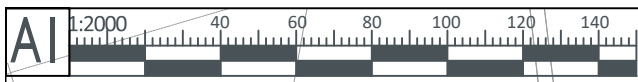
INFORMATION

PJA JOB No. SUB-CODE DRAWING NO. REVISION
05474 - A - 0010 - P3

Revision Letter: P - Prelim A - Approval I - Tender / C - Construction

SEE DRAWING REFERENCE

SCALE DRAWN REVIEWED DATE
AI @ 1:1250 PR AC Oct 2021



- NOTES**
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 - These drawings should be read in conjunction with all relevant documentation, drawings and standard details.
 - PIA accept no liability for the accuracy of third party data.
 - All dimensions in meters unless otherwise stated. Do not scale from this drawing.
 - Surface water drainage design based on Masterplan Design (dwg no: 21009(05) 101) from DobsonPowell architects, Proposed Original Level Gradient Map (dwg no: 04020-A-0122) and Existing Levels Gradient Map (dwg no: 04020-A-0120).
 - See associated Indicative Surface Water Drainage Strategy drawing 05474-SK-0004-PS, PJA (2021) for further information alongside supporting FCA & Drainage Report.

- KEY**
- Existing Watercourse/Drain
 - Indicative Surface Water Sewer
 - Indicative Surface Water Conveyance Feature (modelled as pipes)
 - Indicative Surface Water Conveyance Feature (not modelled)
 - Indicative Attenuation Location
 - 3m Indicative Maintenance and Access Buffer
 - Indicative Earthworks Extent
 - Existing DCWW Combined Sewer
 - Existing DCWW Foul Sewer
 - Existing DCWW Surface Water Sewer
 - Proposed Surface Water Exceedance Flow Route
 - Proposed Headwall
 - Area Assumed to Remain as Existing
 - Site Boundary

P3	23/11/21	Updated Site Boundary	JP
P2	06/10/2021	Revised Site Boundary & Masterplan	PR
P1	04/10/2021	Draft for Comment	PR

REV	DATE	REVISION NOTE	BY
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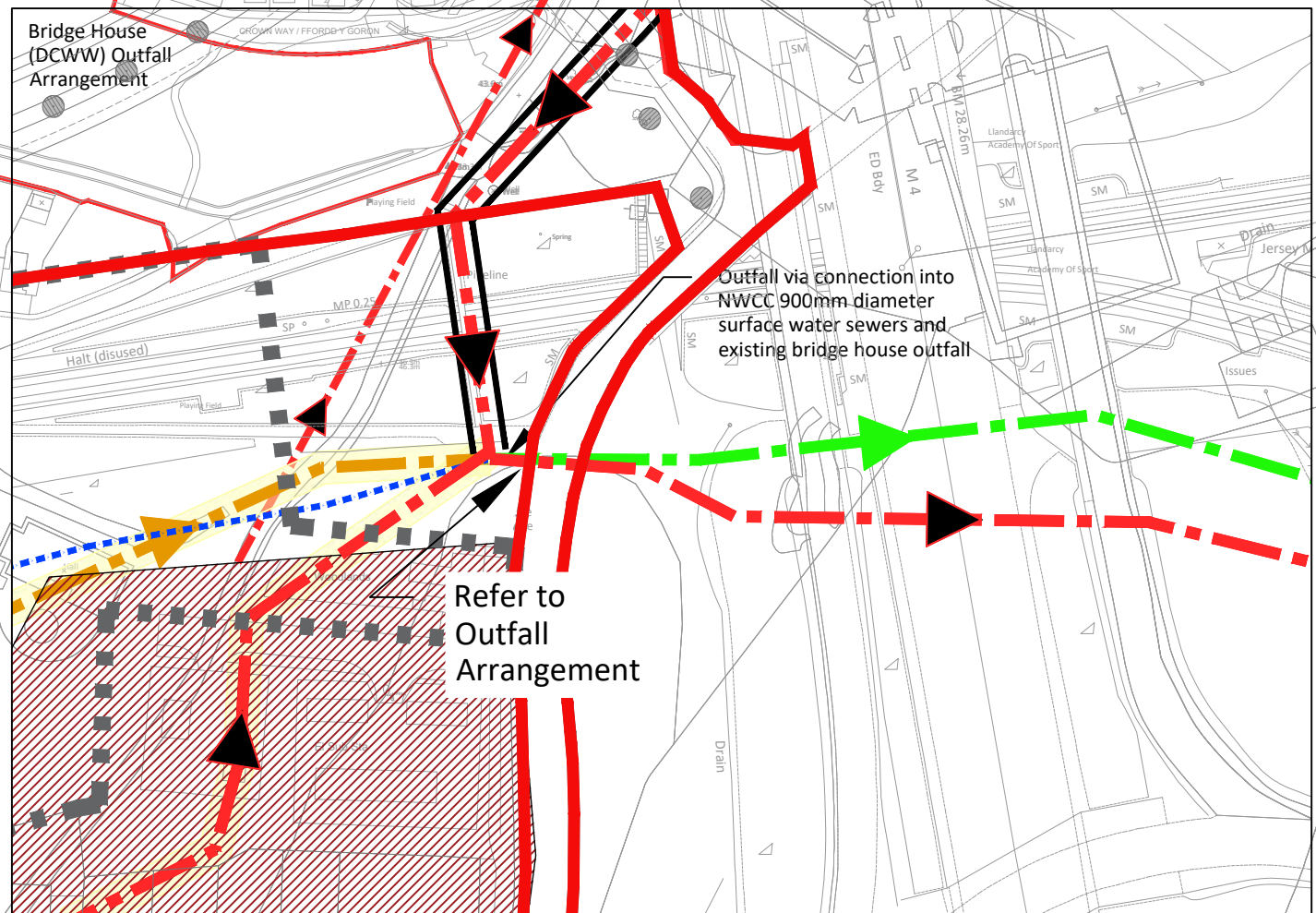
CLIENT
St. Modwen Developments Ltd

PROJECT
Coed Darcy

DRAWING TITLE
Indicative Surface Water Exceedance Strategy South

DRAWING ISSUE STATUS
INFORMATION
PJA JOB No. SUB-CODE DRAWING NO. REVISION
05474 - A - 0011 - P3
Revision Letter: P - Prelim / A - Approved / T - Tender / C - Construction
REV DRAWING REFERENCE

SCALE	DRAWN	REVIEWED	DATE
AI @ 1:2000	PR	AC	Oct 21





Appendix G Greenfield Run Off Calculations

Appendix C. QBar Study

Technical Note

Project:	Coed Darcy		
Subject:	QBar Study		
Author:	Atkins		
Date:	28/01/2019	Project No.:	5041216
Distribution:	Representing:		

Document history

Revision	Purpose description	Origin-ated	Checked	Reviewed	Author-ised	Date
Rev 1.0	To provide verification of QBAR used on the drainage design to date	JJ	PJB	RR	CB	29/08/19

Client signoff

Client	
Project	Coed Darcy
Project No.	5041216
Client signature / date	

1. Introduction

The Coed Darcy site covers approximately 250 hectares of brownfield land, and bounds the Crymlyn Bog to the west, which is a site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC) and Wetland of International Importance (Ramsar site).

Planning Condition 22, is one of three planning requirements outlined as part of the planning permission and relates to ensuring the proposed surface water drainage strategy is designed in a manner that would have no adverse impact on the Crymlyn Bog.

The purpose of this document is to provide clarity regarding the maximum allowable surface water discharge rate that has been used for the drainage design to date. The intention is to demonstrate that the existing surface water discharge rate for the site is greater than the rate used to design the surface water drainage network.

This has been achieved by calculating the greenfield equivalent mean annual maximum flow rate (QBAR) for the site.

2. Calculating QBar

In order to calculate the QBAR for the site, the natural overland surface water catchments and contributing areas were reviewed and quantified. The 'Source Control' module of MicroDrainage was used to calculate QBAR.

2.1. Surface Water Catchments

Contours and existing site levels were reviewed using a drone survey performed in 2018 and GoogleEarth images, to identify the natural drainage routes across the site. Areas beyond the site boundary were also considered to ensure the whole catchment was included in the contributing areas, as shown in Figure 2-1.

The catchment containing the existing industrial area has not been considered in this assessment as it drains away from the Crymlyn Bog, refer to Figure 2-1

Figure 2-1 - Derived Catchments

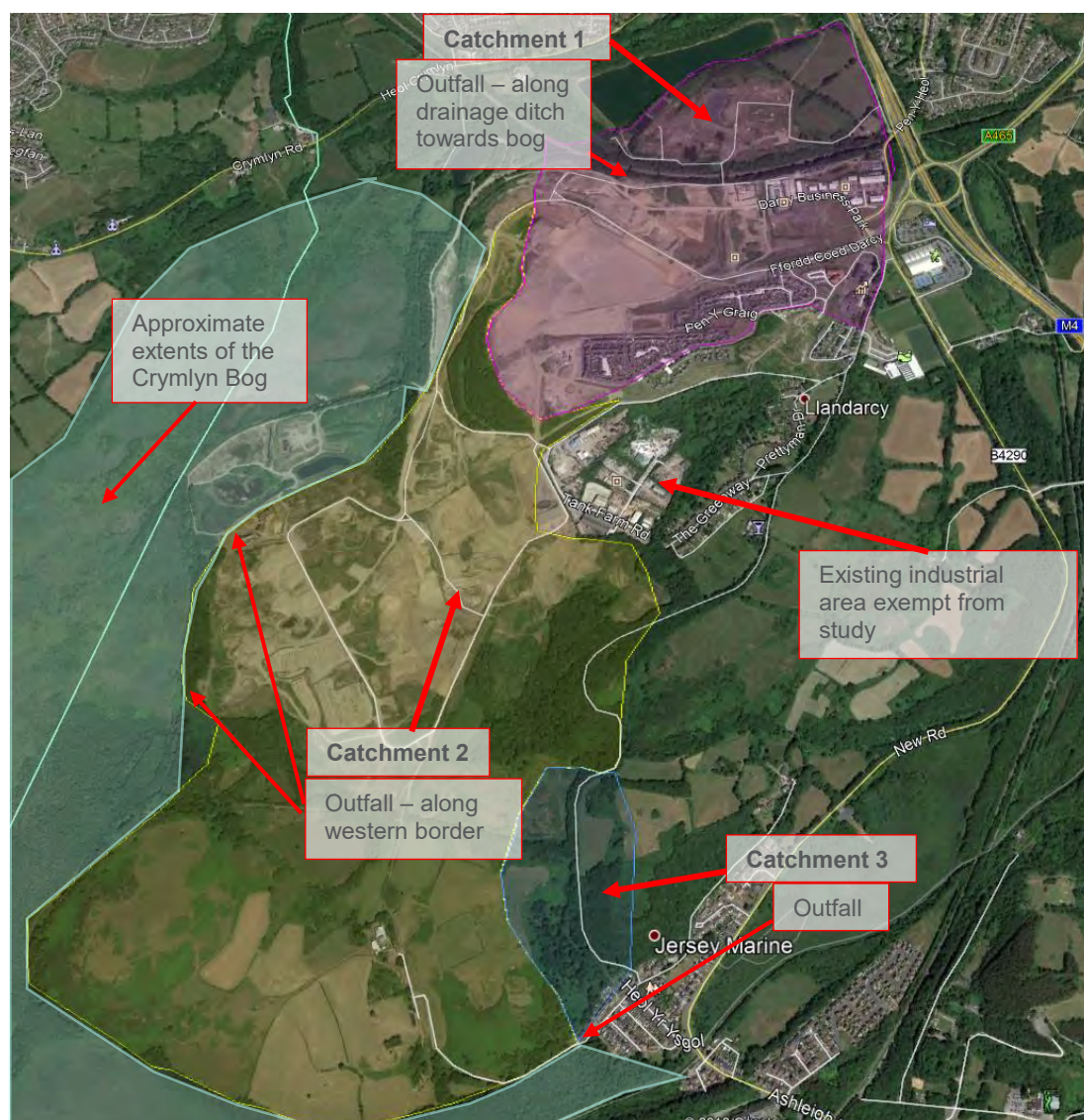


Table 2-1 lists the catchment areas measured from the contour mapping.

Table 2-1 - Contributing Areas

Catchment	Area (ha)
Catchment 1 (Pink)	89
Catchment 2 (Yellow)	169
Catchment 3 (Blue)	14

2.2. Greenfield Runoff Calculations

MicroDrainage Source Control – Rural Runoff Calculator was used to calculate the greenfield equivalent runoff rate using the IH124 method. This was chosen as it is generally accepted that this method of calculation is applicable to catchments with an area exceeding 50ha.

Catchment 3 has an area less than 50ha (14ha); therefore, the ICP SUDS modification to the IH124 method has been used to calculate the greenfield equivalent runoff rate.

2.2.1. Input Parameters

The following parameters shown in Table 2-2 were used to determine the greenfield equivalent QBAR run-off rate for the site.

Table 2-2 - Source Control input parameters

Factor	Value	Comment
Area	As defined in Table 2-1	Contributing catchment area (ha).
Return Period	1 in 100 years	Not relevant to QBAR calculation.
SAAR	As defined in Table 2-3	Standard Annual Average Rainfall as obtained from Rural Runoff Calculator mapping.
SOIL	As defined in Table 2-3*	As obtained from Rural Runoff Calculator mapping.
REGION	9	Wales is located within Region 9.
URBAN	As defined in Table 2-3	Only Catchment 1 has urbanised areas according to mapping shown in Figure 2-1. Factor estimated based on proportion of developed area in catchment.

*No adjustments to the SOIL factor identified in the Rural Runoff Calculator mapping has been undertaken. The site has some steep gradients which may affect the speed and infiltration of the soil. Therefore, by not adding an adjustment factor, the resulting QBAR rate is considered conservative.

2.3. QBAR Results

Following the input of data as outlined in Table 2-2 and Table 2-3, the greenfield run off equivalent was assessed. The resulting QBAR and the per hectare rate can also be found in Table 2-3.

Table 2-3 - Catchment Data and QBar Results

Catchment	Area (ha)	SAAR (mm)	SOIL	URBAN	QBAR (l/s)	QBAR rate (l/s/ha)
1	89	1200	0.4	0.3	796.3	8.95
2	169	1257	0.4	N/A	939.3	5.60
3	14	1200	0.4	N/A	89.5	6.40

The Standard-period Average Annual Rainfall (SAAR) values are derived from Met Office data, in 1km grids. The SAAR values shown in Table 2-3 show that Catchment 2 falls in a different grid and therefore has a different amount of average annual rainfall. This along with differing catchment areas, results in different QBAR values.

The results show that all catchments have a QBAR rate that is higher than rate of 5.5l/s/ha, which has been used within the surface water drainage design.

Results from the runoff assessment are included in Appendix A.

2.4. Conclusion

The surface water drainage design to date has been based on a maximum allowable surface water discharge rate of 5.5l/s/ha. Following the assessment presented above, the greenfield equivalent discharge rate for the catchments draining into the Crymlyn Bog is between 5.60 and 8.95/s/ha.

Therefore, using the rate of 5.5l/s/ha represents a betterment in terms of the existing situation and should ensure that the existing flows into the Crymlyn Bog are not exceeded.

The following should be noted:

- The IH 124 method is considered to under-estimate run-off rates hence the actual existing greenfield equivalent run-off rates may actually be higher. Therefore, the degree of betterment achieved by using 5.5l/s/ha may be greater.
- The steep gradients within and around the site would increase runoff flow rates; however, this effect is not been accounted for in the IH124 calculation methodology. Therefore, the actual existing flow rates could be higher hence the use of 5.5l/s/ha represents a greater amount of betterment.

In summary, the use of 5.5l/s/ha as the maximum allowable surface water discharge rate for the proposed development represents a betterment and avoids detrimental effects on the Crymlyn Bog as a result of increased flow rates.



Appendix H I in 30 Year Event Calculations

PJA					Page 1
Seven House, High Street Longbridge Birmingham, B31 2UQ		Coed Darcy Catchment A1 1 in 30 Year			
Date 21/09/2021 File Catchment A1 basin desi...		Designed by PR Checked by AC			
Innovyze		Source Control 2019.1			
<u>Summary of Results for 30 year Return Period</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	47.570	0.070	1.5	55.3	O K
30 min Summer	47.597	0.097	2.1	76.7	O K
60 min Summer	47.628	0.128	2.3	101.3	O K
120 min Summer	47.652	0.152	2.4	120.6	O K
180 min Summer	47.667	0.167	2.5	132.7	O K
240 min Summer	47.677	0.177	2.5	141.2	O K
360 min Summer	47.690	0.190	2.5	151.6	O K
480 min Summer	47.697	0.197	2.6	157.1	O K
600 min Summer	47.701	0.201	2.6	160.9	O K
720 min Summer	47.705	0.205	2.6	163.6	O K
960 min Summer	47.708	0.208	2.6	166.6	O K
1440 min Summer	47.710	0.210	2.6	168.0	O K
2160 min Summer	47.706	0.206	2.6	164.3	O K
2880 min Summer	47.699	0.199	2.6	158.9	O K
4320 min Summer	47.686	0.186	2.5	148.6	O K
5760 min Summer	47.675	0.175	2.5	139.7	O K
7200 min Summer	47.667	0.167	2.5	132.7	O K
8640 min Summer	47.660	0.160	2.4	127.1	O K
10080 min Summer	47.654	0.154	2.4	122.4	O K
15 min Winter	47.570	0.070	1.5	55.3	O K
30 min Winter	47.597	0.097	2.1	76.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
15 min Summer	62.504	0.0	43.4	22	
30 min Summer	43.821	0.0	64.2	37	
60 min Summer	29.490	0.0	98.2	66	
120 min Summer	18.137	0.0	122.0	124	
180 min Summer	13.719	0.0	139.1	184	
240 min Summer	11.266	0.0	152.7	242	
360 min Summer	8.528	0.0	173.7	360	
480 min Summer	6.982	0.0	189.8	440	
600 min Summer	5.971	0.0	202.8	500	
720 min Summer	5.250	0.0	213.8	562	
960 min Summer	4.279	0.0	231.5	694	
1440 min Summer	3.209	0.0	257.3	970	
2160 min Summer	2.411	0.0	306.4	1384	
2880 min Summer	1.981	0.0	335.2	1788	
4320 min Summer	1.530	0.0	385.5	2596	
5760 min Summer	1.291	0.0	443.1	3352	
7200 min Summer	1.145	0.0	490.7	4112	
8640 min Summer	1.046	0.0	536.7	4848	
10080 min Summer	0.975	0.0	580.5	5640	
15 min Winter	62.504	0.0	43.4	22	
30 min Winter	43.821	0.0	64.2	36	
©1982-2019 Innovyze					

PJA		Page 2																																																																																																																																																																																																						
Seven House, High Street Longbridge Birmingham, B31 2UQ	Coed Darcy Catchment A1 1 in 30 Year																																																																																																																																																																																																							
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Innovyze Source Control 2019.1																																																																																																																																																																																																								
<u>Summary of Results for 30 year Return Period</u> <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Control (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>60 min Winter</td><td>47.628</td><td>0.128</td><td>2.3</td><td>101.4</td><td>O K</td></tr><tr><td>120 min Winter</td><td>47.652</td><td>0.152</td><td>2.4</td><td>120.8</td><td>O K</td></tr><tr><td>180 min Winter</td><td>47.667</td><td>0.167</td><td>2.5</td><td>132.9</td><td>O K</td></tr><tr><td>240 min Winter</td><td>47.678</td><td>0.178</td><td>2.5</td><td>141.4</td><td>O K</td></tr><tr><td>360 min Winter</td><td>47.691</td><td>0.191</td><td>2.5</td><td>152.0</td><td>O K</td></tr><tr><td>480 min Winter</td><td>47.697</td><td>0.197</td><td>2.6</td><td>157.5</td><td>O K</td></tr><tr><td>600 min Winter</td><td>47.701</td><td>0.201</td><td>2.6</td><td>160.2</td><td>O K</td></tr><tr><td>720 min Winter</td><td>47.703</td><td>0.203</td><td>2.6</td><td>162.1</td><td>O K</td></tr><tr><td>960 min Winter</td><td>47.705</td><td>0.205</td><td>2.6</td><td>163.9</td><td>O K</td></tr><tr><td>1440 min Winter</td><td>47.702</td><td>0.202</td><td>2.6</td><td>161.7</td><td>O K</td></tr><tr><td>2160 min Winter</td><td>47.691</td><td>0.191</td><td>2.5</td><td>152.5</td><td>O K</td></tr><tr><td>2880 min Winter</td><td>47.678</td><td>0.178</td><td>2.5</td><td>142.1</td><td>O K</td></tr><tr><td>4320 min Winter</td><td>47.656</td><td>0.156</td><td>2.4</td><td>123.7</td><td>O K</td></tr><tr><td>5760 min Winter</td><td>47.638</td><td>0.138</td><td>2.4</td><td>109.0</td><td>O K</td></tr><tr><td>7200 min Winter</td><td>47.624</td><td>0.124</td><td>2.3</td><td>98.0</td><td>O K</td></tr><tr><td>8640 min Winter</td><td>47.613</td><td>0.113</td><td>2.2</td><td>89.5</td><td>O K</td></tr><tr><td>10080 min Winter</td><td>47.605</td><td>0.105</td><td>2.2</td><td>83.1</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Discharge Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>60 min Winter</td><td>29.490</td><td>0.0</td><td>98.2</td><td>64</td></tr><tr><td>120 min Winter</td><td>18.137</td><td>0.0</td><td>122.0</td><td>122</td></tr><tr><td>180 min Winter</td><td>13.719</td><td>0.0</td><td>139.1</td><td>180</td></tr><tr><td>240 min Winter</td><td>11.266</td><td>0.0</td><td>152.7</td><td>238</td></tr><tr><td>360 min Winter</td><td>8.528</td><td>0.0</td><td>173.8</td><td>350</td></tr><tr><td>480 min Winter</td><td>6.982</td><td>0.0</td><td>189.8</td><td>458</td></tr><tr><td>600 min Winter</td><td>5.971</td><td>0.0</td><td>202.8</td><td>552</td></tr><tr><td>720 min Winter</td><td>5.250</td><td>0.0</td><td>213.8</td><td>576</td></tr><tr><td>960 min Winter</td><td>4.279</td><td>0.0</td><td>231.7</td><td>730</td></tr><tr><td>1440 min Winter</td><td>3.209</td><td>0.0</td><td>257.6</td><td>1038</td></tr><tr><td>2160 min Winter</td><td>2.411</td><td>0.0</td><td>306.4</td><td>1476</td></tr><tr><td>2880 min Winter</td><td>1.981</td><td>0.0</td><td>335.3</td><td>1904</td></tr><tr><td>4320 min Winter</td><td>1.530</td><td>0.0</td><td>385.8</td><td>2688</td></tr><tr><td>5760 min Winter</td><td>1.291</td><td>0.0</td><td>443.1</td><td>3464</td></tr><tr><td>7200 min Winter</td><td>1.145</td><td>0.0</td><td>490.8</td><td>4184</td></tr><tr><td>8640 min Winter</td><td>1.046</td><td>0.0</td><td>536.9</td><td>4928</td></tr><tr><td>10080 min Winter</td><td>0.975</td><td>0.0</td><td>581.0</td><td>5640</td></tr></table>			Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status	60 min Winter	47.628	0.128	2.3	101.4	O K	120 min Winter	47.652	0.152	2.4	120.8	O K	180 min Winter	47.667	0.167	2.5	132.9	O K	240 min Winter	47.678	0.178	2.5	141.4	O K	360 min Winter	47.691	0.191	2.5	152.0	O K	480 min Winter	47.697	0.197	2.6	157.5	O K	600 min Winter	47.701	0.201	2.6	160.2	O K	720 min Winter	47.703	0.203	2.6	162.1	O K	960 min Winter	47.705	0.205	2.6	163.9	O K	1440 min Winter	47.702	0.202	2.6	161.7	O K	2160 min Winter	47.691	0.191	2.5	152.5	O K	2880 min Winter	47.678	0.178	2.5	142.1	O K	4320 min Winter	47.656	0.156	2.4	123.7	O K	5760 min Winter	47.638	0.138	2.4	109.0	O K	7200 min Winter	47.624	0.124	2.3	98.0	O K	8640 min Winter	47.613	0.113	2.2	89.5	O K	10080 min Winter	47.605	0.105	2.2	83.1	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	60 min Winter	29.490	0.0	98.2	64	120 min Winter	18.137	0.0	122.0	122	180 min Winter	13.719	0.0	139.1	180	240 min Winter	11.266	0.0	152.7	238	360 min Winter	8.528	0.0	173.8	350	480 min Winter	6.982	0.0	189.8	458	600 min Winter	5.971	0.0	202.8	552	720 min Winter	5.250	0.0	213.8	576	960 min Winter	4.279	0.0	231.7	730	1440 min Winter	3.209	0.0	257.6	1038	2160 min Winter	2.411	0.0	306.4	1476	2880 min Winter	1.981	0.0	335.3	1904	4320 min Winter	1.530	0.0	385.8	2688	5760 min Winter	1.291	0.0	443.1	3464	7200 min Winter	1.145	0.0	490.8	4184	8640 min Winter	1.046	0.0	536.9	4928	10080 min Winter	0.975	0.0	581.0	5640
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PJA		Page 3
Seven House, High Street Longbridge Birmingham, B31 2UQ	Coed Darcy Catchment A1 1 in 30 Year	
Date 21/09/2021 File Catchment A1 basin desi...	Designed by PR Checked by AC	
Innovyze Source Control 2019.1		

Rainfall Details

Rainfall Model	FEH
Return Period (years)	30
FEH Rainfall Version	2013
Site Location	GB 271172 196525 SS 71172 96525
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.360

Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)
0	4 0.180	4	8 0.180

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PJA		Page 4
Seven House, High Street Longbridge Birmingham, B31 2UQ	Coed Darcy Catchment A1 1 in 30 Year	
Date 21/09/2021 File Catchment A1 basin desi...	Designed by PR Checked by AC	
Innovyze	Source Control 2019.1	

Model Details

Storage is Online Cover Level (m) 49.000

Tank or Pond Structure

Invert Level (m) 47.500

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	780.0	1.500	1080.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0077-2800-1200-2800
Design Head (m)	1.200
Design Flow (l/s)	2.8
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	77
Invert Level (m)	47.500
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	2.8
Flush-Flo™	0.336	2.7
Kick-Flo®	0.683	2.2
Mean Flow over Head Range	-	2.4

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.1	1.200	2.8	3.000	4.3	7.000	6.4
0.200	2.6	1.400	3.0	3.500	4.6	7.500	6.6
0.300	2.7	1.600	3.2	4.000	4.9	8.000	6.8
0.400	2.7	1.800	3.4	4.500	5.2	8.500	7.0
0.500	2.6	2.000	3.5	5.000	5.4	9.000	7.2
0.600	2.4	2.200	3.7	5.500	5.7	9.500	7.3
0.800	2.3	2.400	3.8	6.000	5.9		
1.000	2.6	2.600	4.0	6.500	6.1		

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COED DARCY
CATCHMENT A2

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Checked by AC

Source Control 2019.1

Page 1



Cascade Summary of Results for Catchment A2 basin design.SRCX

Upstream
Structures

Outflow To

Overflow To

(None) Catchment A4 basin design.SRCX Catchment A4 basin design.SRCX

Half Drain Time : 700 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Overflow (l/s)	Max E Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	46.149	0.649	0.0	10.0	0.0	10.0	271.4	O K
30 min Summer	46.249	0.749	0.0	10.0	0.0	10.0	378.6	O K
60 min Summer	46.344	0.844	0.0	10.0	0.0	10.0	501.6	O K
120 min Summer	46.407	0.907	0.0	10.0	0.0	10.0	593.3	O K
180 min Summer	46.442	0.942	0.0	10.0	0.0	10.0	649.8	O K
240 min Summer	46.465	0.965	0.0	10.0	0.0	10.0	688.4	O K
360 min Summer	46.491	0.991	0.0	10.0	0.0	10.0	734.2	O K
480 min Summer	46.503	1.003	0.0	10.0	0.0	10.0	754.6	O K
600 min Summer	46.506	1.006	0.0	10.0	0.0	10.0	760.8	O K
720 min Summer	46.505	1.005	0.0	10.0	0.0	10.0	759.1	O K
960 min Summer	46.501	1.001	0.0	10.0	0.0	10.0	751.5	O K
1440 min Summer	46.492	0.992	0.0	10.0	0.0	10.0	736.0	O K
2160 min Summer	46.477	0.977	0.0	10.0	0.0	10.0	709.7	O K
2880 min Summer	46.462	0.962	0.0	10.0	0.0	10.0	683.4	O K
4320 min Summer	46.436	0.936	0.0	10.0	0.0	10.0	639.9	O K
5760 min Summer	46.412	0.912	0.0	10.0	0.0	10.0	601.5	O K
7200 min Summer	46.392	0.892	0.0	10.0	0.0	10.0	570.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Overflow Volume (m³)	Time-Peak (mins)
15 min Summer	62.504	0.0	284.4	0.0	26
30 min Summer	43.821	0.0	398.8	0.0	41
60 min Summer	29.490	0.0	536.7	0.0	70
120 min Summer	18.137	0.0	660.2	0.0	128
180 min Summer	13.719	0.0	749.0	0.0	188
240 min Summer	11.266	0.0	820.2	0.0	246
360 min Summer	8.528	0.0	931.3	0.0	364
480 min Summer	6.982	0.0	1016.6	0.0	482
600 min Summer	5.971	0.0	1086.7	0.0	600
720 min Summer	5.250	0.0	1146.7	0.0	688
960 min Summer	4.279	0.0	1246.2	0.0	804
1440 min Summer	3.209	0.0	1401.7	0.0	1060
2160 min Summer	2.411	0.0	1579.9	0.0	1476
2880 min Summer	1.981	0.0	1730.7	0.0	1904
4320 min Summer	1.530	0.0	2004.5	0.0	2728
5760 min Summer	1.291	0.0	2256.3	0.0	3568
7200 min Summer	1.145	0.0	2501.2	0.0	4392

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CATCHMENT A2

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Source Control 2019.1

Micro Drainage

Cascade Summary of Results for Catchment A2 basin design.SRCX

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Overflow (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status
8640 min Summer	46.375	0.875	0.0	10.0	0.0	10.0	545.2	O K
10080 min Summer	46.360	0.860	0.0	10.0	0.0	10.0	523.2	O K
15 min Winter	46.149	0.649	0.0	10.0	0.0	10.0	271.5	O K
30 min Winter	46.249	0.749	0.0	10.0	0.0	10.0	379.0	O K
60 min Winter	46.345	0.845	0.0	10.0	0.0	10.0	502.4	O K
120 min Winter	46.408	0.908	0.0	10.0	0.0	10.0	595.6	O K
180 min Winter	46.444	0.944	0.0	10.0	0.0	10.0	653.4	O K
240 min Winter	46.468	0.968	0.0	10.0	0.0	10.0	693.3	O K
360 min Winter	46.495	0.995	0.0	10.0	0.0	10.0	741.6	O K
480 min Winter	46.508	1.008	0.0	10.0	0.0	10.0	764.6	O K
600 min Winter	46.513	1.013	0.0	10.0	0.0	10.0	773.3	O K
720 min Winter	46.513	1.013	0.0	10.0	0.0	10.0	773.2	O K
960 min Winter	46.505	1.005	0.0	10.0	0.0	10.0	758.1	O K
1440 min Winter	46.489	0.989	0.0	10.0	0.0	10.0	730.6	O K
2160 min Winter	46.460	0.960	0.0	10.0	0.0	10.0	679.6	O K
2880 min Winter	46.427	0.927	0.0	10.0	0.0	10.0	625.2	O K
4320 min Winter	46.361	0.861	0.0	10.0	0.0	10.0	525.0	O K
5760 min Winter	46.289	0.789	0.0	10.0	0.0	10.0	426.9	O K
7200 min Winter	46.198	0.698	0.0	10.0	0.0	10.0	321.2	O K
8640 min Winter	46.116	0.616	0.0	10.0	0.0	10.0	240.6	O K
10080 min Winter	46.040	0.540	0.0	10.0	0.0	10.0	178.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Overflow Volume (m³)	Time-Peak (mins)
8640 min Summer	1.046	0.0	2741.4	0.0	5192
10080 min Summer	0.975	0.0	2979.6	0.0	5960
15 min Winter	62.504	0.0	284.4	0.0	26
30 min Winter	43.821	0.0	398.8	0.0	40
60 min Winter	29.490	0.0	536.7	0.0	68
120 min Winter	18.137	0.0	660.2	0.0	126
180 min Winter	13.719	0.0	749.0	0.0	184
240 min Winter	11.266	0.0	820.2	0.0	242
360 min Winter	8.528	0.0	931.3	0.0	356
480 min Winter	6.982	0.0	1016.6	0.0	470
600 min Winter	5.971	0.0	1086.7	0.0	580
720 min Winter	5.250	0.0	1146.7	0.0	688
960 min Winter	4.279	0.0	1246.2	0.0	886
1440 min Winter	3.209	0.0	1401.7	0.0	1110
2160 min Winter	2.411	0.0	1579.9	0.0	1580
2880 min Winter	1.981	0.0	1730.7	0.0	2028
4320 min Winter	1.530	0.0	2004.5	0.0	2936
5760 min Winter	1.291	0.0	2256.3	0.0	3808
7200 min Winter	1.145	0.0	2501.2	0.0	4536
8640 min Winter	1.046	0.0	2741.4	0.0	5200
10080 min Winter	0.975	0.0	2979.6	0.0	5944

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