

Report No:	Date:
DW2005	6th September 2019
Project:	
Manchester Science Park Proposed Temporary Car Park at Denmark Road Drainage Strategy	
Client:	
Bruntwood SciTech	

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1.0 Introduction

The temporary car park on the former Ripon Street Council Depot is intended to continue in its current use for a further short period of time.

The site is adjacent to the existing Manchester Science Park land.

Refer to Appendix A for site location.

2.0 Existing & Proposed Site Area

The existing site drains under gravity to the adopted combined sewer in Ripon Street; refer to Appendix C for extracts from the United Utilities Sewer Records and existing site drainage layout. In accordance with legislation at the time that the depot was changed to car park use, the surface water discharge from the site was reduced to less than 50% of the original flow.

The site is within Flood Zone 1, i.e. above the 1 in 1000 year flood level. Refer to drawing DW2005-S-EA02 and Environment Agency flood risk data in Appendix B.

EA flood data Node 2 is very close to the site entrance and has a 1 in 1000 year flood level of 33.86m; the site entrance is at 34.10m.

Denmark Road Temporary Car Park

The proposal is to maintain the temporary Car Park use at the site for a further temporary period of 5 years.

The site is accessed off Ripon Street & Denmark Road and is bounded by Manchester Science Parks to the North, Denmark Road to the South, Holy Name Catholic School to the East and Cornerstone Day Centre/George Halle Road to the West. Refer to Appendix A for site location.

Refer to Appendix B for the existing site layout.

The total site area is approx. 4,500m² (0.45 Ha) and the impermeable area of the Temporary Car Park is approx. 3,500m², the same as the previous yard & buildings.

- Surface water drainage from the original depot buildings and yard discharged, unrestricted, to the combined sewer in Ripon Street.
- The current Temporary Car Park maintained the original connection to the public sewer in Ripon Street using the existing site connections.
- The proposed temporary car park will have no need for any foul water connection.
- The ground was found to be clay strata which prevented the use of any soakaway type drainage.
- The drainage system incorporates a by-pass petrol interceptor.
- On the basis that soakaways were not possible, storm water is attenuated on site by localised ponding of the car park areas, within the significant rise and falls on the site.
- In original Depot site produced a surface water run-off of approx. 65 litres / second; this was reduced to 26 litres / second during the works in 2014 with a flow restrictor installed the final manhole prior to discharge into the combined sewer.

- Surface water attenuation is calculated for a 1 in 100 year storm plus 40% Climate Change as 63m^3 . The peaks and troughs of the car park surfacing provide an area in excess of $2,000\text{m}^2$ where ponding can occur. If this were flat the 63m^3 would produce a maximum temporary ponding depth of approx. 35mm at the peak of the storm. Due to the rise and fall of the troughs this would potentially produce depths varying from 0mm to approx. 70mm.

Performance of the car park has been closely monitored since the temporary installation was carried out and there have been no recorded instances of excessive ponding or any problems in relation to surface water run-off from the car parking areas. A selection of photos below were taken immediately after extremely heavy rainfall this summer.



3.0 Summary

The former depot and yard have been used as a temporary car park for approx. 5 years.

Surface water flow from the site discharges into the combined sewer in Ripon Street via a flow restrictor which has reduced the run-off to well below 50% of its original peak flow. Surface water storage is achieved via temporary ponding on the car park surface within the peaks and troughs of the original yard surface. In addition, all surface water from the car park area discharges through a bypass petrol interceptor.

During the time of use as a car park there have been no reported incidents of excessive ponding on the surfacing.

A new SRF including a site-wide strategy for car parking is anticipated to be approved by MCC in September 2019.

Appendix A

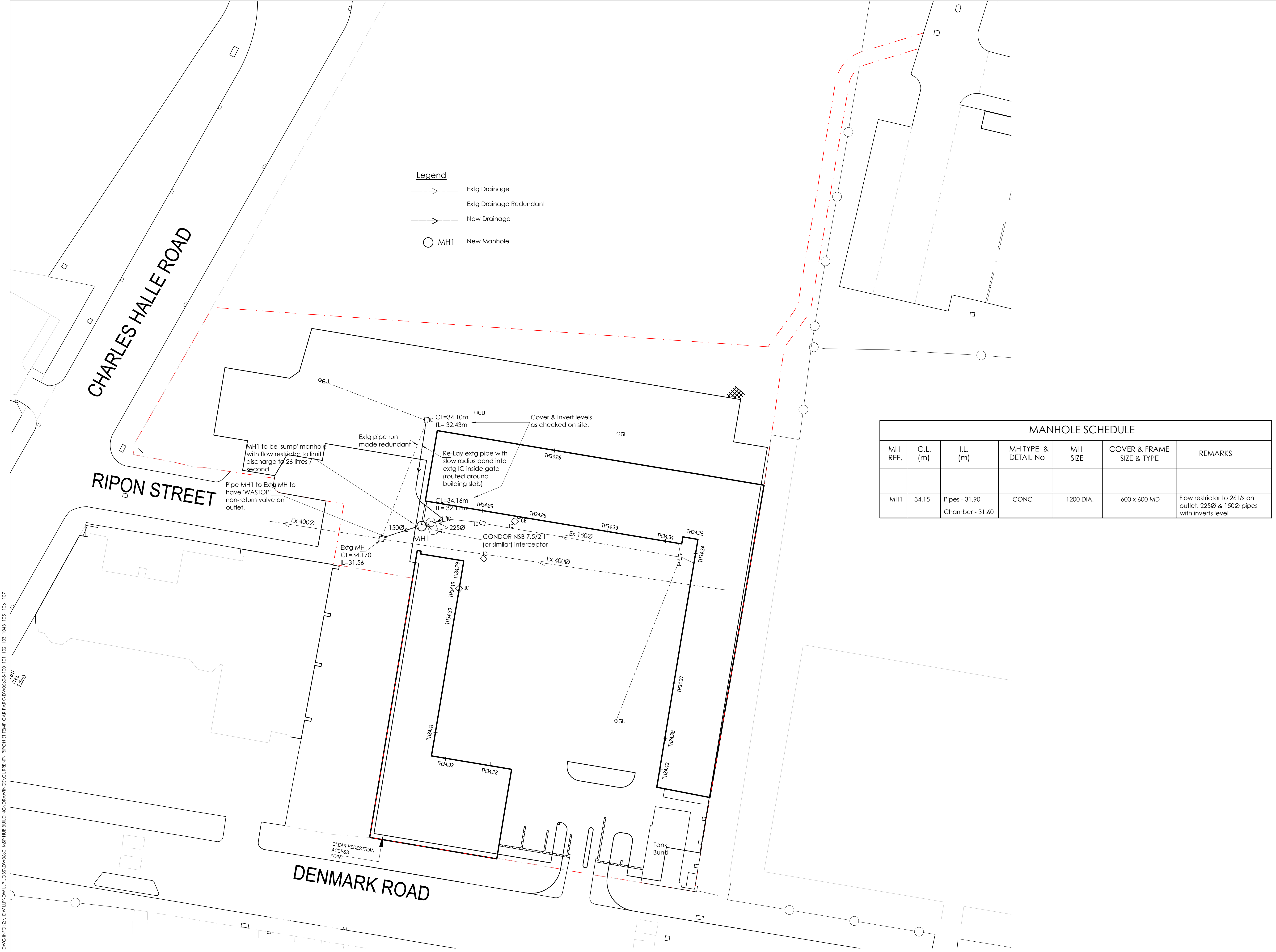
Site Location & Topographical Survey

Appendix B

Existing Site Drainage Layout

EA Flood Data and Node Location Drawing

DWG INFO: 2; DWG LEP/DWLP_P035/DW0660; NSP HUB BUILDINGS DRAWINGS; CURRENT; RIPON ST TEMP CAR PARK/DW0660; 101; 102; 103; 104B; 105; 106; 107



- GENERAL NOTES**
- Do not scale this drawing.
Contractor to check all dimensions and report all errors and omissions to the Engineer.
- This drawing is abased upon the topographical survey and BDP drawing P2006149(9-1)024.
 - ALL setting out and levels are taken from the BDP drawing and these must be checked against the latest revision prior to any works being carried out.
 - Existing drainage to be surveyed pre and post works. In addition, existing cover & invert levels to be checked prior to commencing works.
 - Flow restrictor in MH2 to limit discharge to 26 litres / second with a 'head' of 2.7m.
 - Petrol interceptor to be Condor NSB 7.5/2.1 (or similar) installed strictly in accordance with manufacturers details.
 - 150Ø pipe from MH2 to Extg MH to be fitted with 'WASTOP' non-return valve.
 - For drainage details see drawing DW0660-S-105.

B	Drainage & MH's reconfigured to suit site findings			8.12.14
A	Interceptor moved, Drainage & MH's reconfigured to suit			16.10.14
Rev	Detail	By	Auth	Date
Revisions				

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Client

Manchester Science Parks

Project

Ripon Street
Temporary Car Park

Drawing Title

Drainage Layout

Drawing Status

preliminary

Project No.

DW0660

Discipline

S

Drawing No.

104

Scale

1:250

Sheet Size

A1

Revision

B

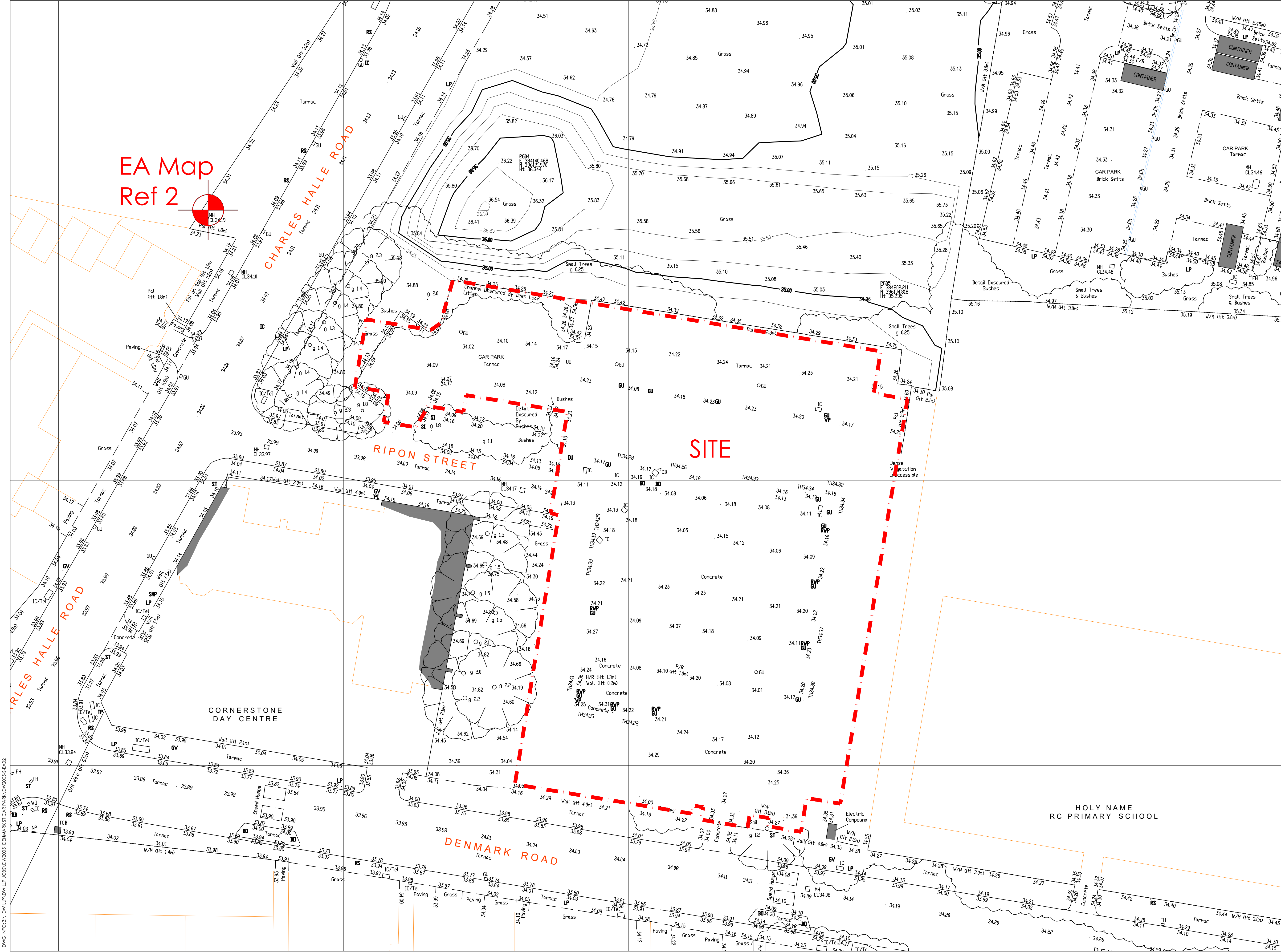
Date

Drawn

Checked

Auth

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GENERAL NOTES

Do not scale this drawing.
Contractor to check all dimensions and report all errors and omissions to the Engineer.

Rev	Detail	By	Auth	Date

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Client

Bruntwood SciTech

Project

Ripon St Depot
Temporary Car Park
Denmark Road
for Manchester Science Park

Drawing Title

Part Copy Topo Survey
Indicating EA Node Ref's

Drawing Status

info

Project No.	Discipline	Drawing No.
DW2005	S	EA02

Scale	Sheet Size	Revision
1:250 at A1	A1	

Date	Drawn	Checked	Auth

12th March 2014

PRRSTH1897

					Undefended Levels					
Map Reference	Model Node Reference	Easting	Northing	Data	2 % AEP (1 in 50 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + Climate Change*	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)
1	ea013_Model_CORN02_00012	384001	396008	Modelled Water Level (m aod)	33.09	33.14	33.17	33.24	33.23	33.46
				Modelled Flow (cumecs)	8.71	8.79	8.84	8.96	8.96	8.85
2	ea013_Model_CORN02_00013	384101	396118	Modelled Water Level (m aod)	33.63	33.67	33.70	33.75	33.75	33.86
				Modelled Flow (cumecs)	8.1	8.11	8.12	8.13	8.15	8.13
3	ea013_Model_CORN02_00014	384172	396260	Modelled Water Level (m aod)	33.96	34.01	34.04	34.09	34.09	34.23
				Modelled Flow (cumecs)	8.18	8.19	8.21	8.23	8.25	8.13
4	ea013_Model_CORN02_00015	384198	396369	Modelled Water Level (m aod)	34.32	34.38	34.41	34.47	34.47	34.63
				Modelled Flow (cumecs)	8.16	8.17	8.18	8.19	8.21	8.1
5	ea013_Model_CORN02_00019	384140	396511	Modelled Water Level (m aod)	34.84	34.89	34.92	34.99	34.98	35.16
				Modelled Flow (cumecs)	8.24	8.27	8.29	8.32	8.34	8.3
6	ea013_Model_CORN02_00022	384237	396664	Modelled Water Level (m aod)	35.72	35.76	35.78	35.84	35.83	35.98
				Modelled Flow (cumecs)	8.3	8.34	8.35	8.36	8.37	8.09

Model data taken from the Corn Brook 2009 study

Notes:

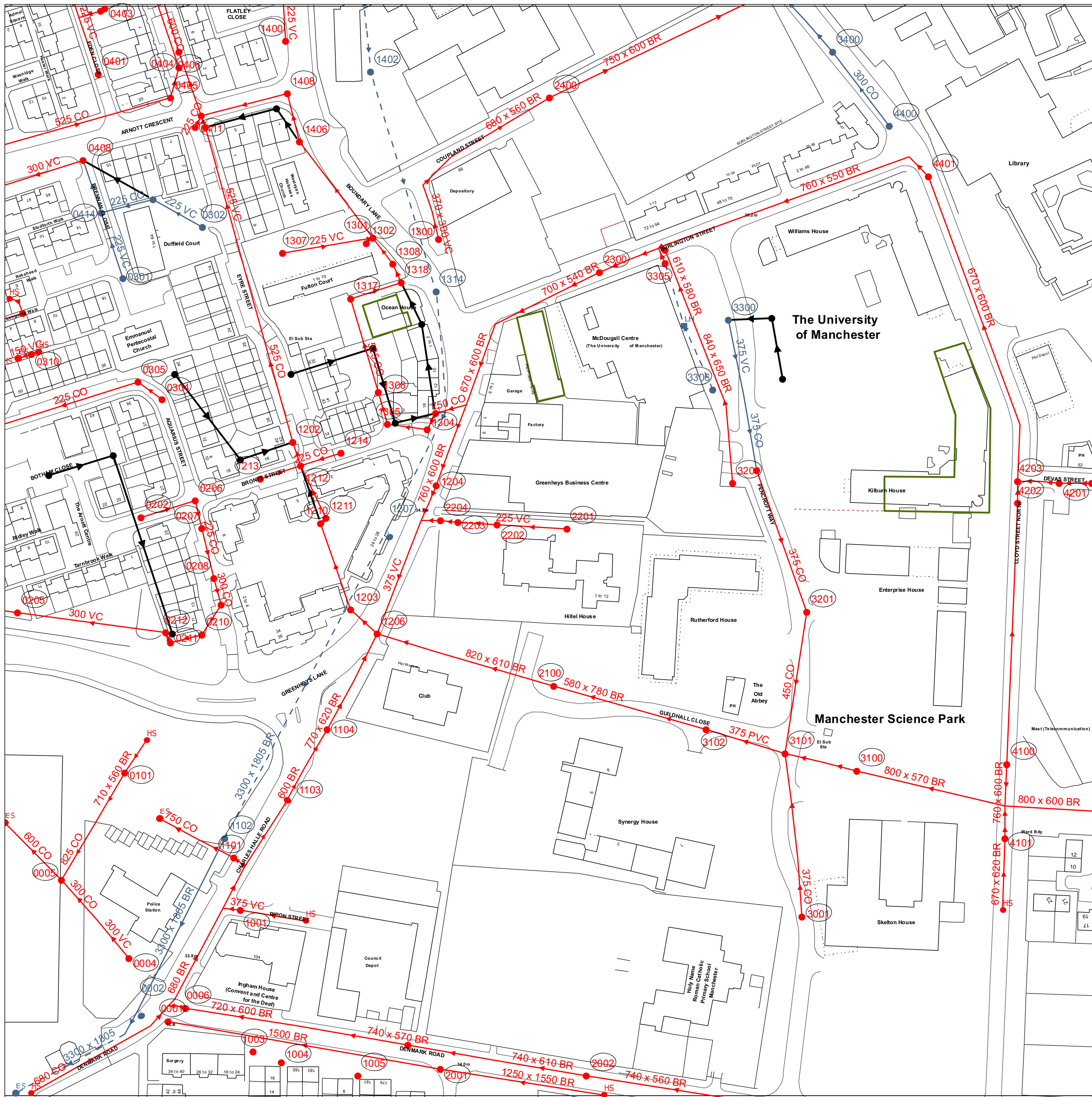
AEP - Annual Exceedence Probability

m aod - metres above ordnance datum

*Climate Change Scenario for fluvial only - 20% increase in flow

Appendix C

Extracts from United Utilities Sewer Records



Refo	Cover	Func	Invert	Size	Shape	Mat	Length	Grad	Refo	Cover	Func	Invert	Size	Shape	Mat	Length	Grad			
0001	33.36	CO	0	3300	1805	EG	BR	12.53	3	0201	33.37	SW	0	3300	1805	EG	BR	12.53	3	
0002	33.38	SW	31.09	300		CI	VC	23.43	0	0203	33.9	CO	0	3300	1805	EG	BR	12.53	3	
0004	33.33	CO								0204	33.52	CO	0	3300	1805	EG	BR	12.53	3	
0005	33.37	CO								0303	34.5	CO	0	3300	1805	EG	BR	12.53	3	
0006	33.69	CO								0413	34.34	SW	0	3300	1805	EG	BR	12.53	3	
0101	33.37	SW	30.42	710	560	EG	BR	27.78	1	1201	34.34	CO	0	3300	1805	EG	BR	12.53	3	
0202	CO		0	225		CI	VC	25.83	17	1215	34.34	CO	0	3300	1805	EG	BR	12.53	3	
0205	33.91	CO								1309	34.63	CO	0	3300	1805	EG	BR	12.53	3	
0206	CO									1311	33.94	CO	0	3300	1805	EG	BR	12.53	3	
0207	CO									1312	33.85	CO	0	3300	1805	EG	BR	12.53	3	
0208	CO									1313	34	CO	0	3300	1805	EG	BR	12.53	3	
0209	CO									1319	34.79	CO	0	3300	1805	EG	BR	12.53	3	
0210	CO									1401	34.79	CO	0	3300	1805	EG	BR	12.53	3	
0211	CO									1407	CO									
0212	CO									3302	35.64	SW	0	3300	1805	EG	BR	12.53	3	
0301	34.32	SW	32.36	225		CI	VC	31.78	1	3303	35.81	SW	0	3300	1805	EG	BR	12.53	3	
0302	34.71	SW	32.55	225		CI	VC	26.09	0											
0304	CO		0	225		CI	VC	13.64	9											
0305	CO																			
0307	CO																			
0310	CO																			
0401	34.42	CO	32.33	225		CI	VC	69.57	2											
0402	34.39	CO	32.72	150		CI	VC	10.44	0											
0403	34.45	CO	32.6	150		CI	VC	2.24	7											
0404	34.63	CO	28.83	600		CI	CO	92.97	4											
0405	34.66	CO	27.12	525		CI	VC	51.24	2											
0406	34.63	CO																		
0407	34.72	CO																		
0408	34.7	CO																		
0410	CO																			
0411	CO		27.55	525		CI	VC	30.84	4											
0412	SW		0	225		CI	VC	6.07	1											
0414	SW		0	225		CI	VC	24.5	16											
1001	33.84	CO	31.11	375		CI	VC	8.06	0											
1002	33.59	CO																		
1003	33.9	CO																		
1004	33.98	CO																		
1005	34.11	CO																		
1101	33.63	CO	0	3300	1805	EG	BR	88.55	22											
1102	33.71	SW	31.76	600		CI	BR	20.59	0											
1103	34.01	CO																		
1104	34.19	CO	28.38	525		CI	CO	74.8	3											
1202	34.62	CO																		
1203	34.28	CO																		
1204	34.08	CO																		
1206	33.73	CO																		
1207	34.3	SW	31.38	3300	1805	HO	BR	159.24												
1210	CO																			
1211	CO																			
1212	CO		28.68	525		CI	CO	11.42	0											
1213	CO		0	225		CI	VC	19.67	13											
1214	CO		0	225		CI	VC	19.3	12											
1300	34.61	CO	32.72	370	300	EG	VC	13.34	0											
1301	34.62	CO																		
1302	34.71	CO	32.22	225		CI	VC	1.89	6											
1304	CO																			
1305	CO																			
1306	CO																			
1307	34.55	CO	32.49	225		CI	VC	38.49	1											
1308	34.88	CO	29.89	525		CI	VC	14.99	0											
1310	34.35	CO																		
1314	34.68	SW																		
1317	CO		0	525		CI	CO	9.33	1											
1318	CO		33.05	525		CI	VC	50.14	1											
1400	35.02	CO	32.6	3300	1805	HO	BR	105.36	3											
1402	34.95	SW																		
1406	CO																			
1408	CO																			
2001	33.8	CO	31.19	1500		CI	BR	126.92	4											
2002	33.85	CO																		
2003	34.69	CO	33.34	225		CI	VC	32.06	1											
2201	34.69	CO																		
2202	34.41	CO																		
2203	34.04	CO																		
2204	33.91	CO																		
2300	34.52	CO																		
2400	34.87	CO	31.41	750	600	EG	BR	57.7	2											
3001	34.73	CO	32.78	375		CI	CO	27.07	0											
3100	34.74	CO	32	800	570	EG	BR	164.9	0											
3101	34.34	CO																		
3102	34.23	CO																		
3103	35.23	CO	32.53	450		CI	CO	65.76	2											
3202	34.84	CO																		
3204	34.72	CO	0	840	650	EG	BR	74.75	30											
3300	35.41	SW	33.13	375		CI	VC	34.71	1											
3304	34.59	CO																		
3305	34.74	CO	31.59	300		CI	VC	7.62	0											
3306	34.36	SW	31.86	300		CI	VC	62.14	2											
3400	35.33	SW	31.86	300		CI	VC	19.85	0											
4100	34.88	CO	32.38	760	600	EG	BR	19.03	0											
4101	34.85	CO	32.79	600	570	EG	BR	8	0											
4200	35.48	CO																		
4201	35.28	CO																		
4202	34.9	CO																		
4203	CO																			
4400	35.1	SW	32.15	300		CI	CO	42.8	1											
4401	35.03	CO	0	670	600	EG	BR	127.3	4											
0007	SW																			
0008	CO		0	680		CI	CO	63.13	24											
0010	CO		0	680		CI	BR	12.04	4											
0011	CO		30.95	300		CI	CO	24.08	0											
0013	CO		0	680	580	EG	BR	4	0											
0102	CO		30.46	625		CI	CO	29.15	1											
0103	CO		0	750		CI	CO	19.24	6											
0105	CO		0	710	560	EG	BR	18.03	1											
0306	CO		150			CI	VC	3.49	9											
0309	CO		0	375		CI	VC	10.29	11											