

Project name	IWP4		
Design note title	126669/FO/2020 - Planning Condition 4 - Surface Water Drainage		
Document reference	10042-HYD-XX-XX-TN-D-0001		
Author	Neil Byrne		
Revision	P03		
Date	29 January 2021	Approved	✓

This updated note replaces the previous version (revision P02) which is now withdrawn.

Updates since the previous issue of this note:

- 1) Drawing 10042-HYD-XX-XX-DR-S-0210 revision P4 (Drainage Layout) has been updated to show an amended connection route to the UU sewer following site investigation and further detail has been added to the attenuation tank and Hydrobrake.
- 2) MCC have provided comments and our responses to those comments are included at the end of this note.

1. SCOPE

This document addresses the following planning condition (126669/FO/2020 - Planning Condition 4):

4) Notwithstanding the flood risk and drainage strategy prepared by Hydrock stamped as received by the City Council, as Local Planning Authority, on the 6th April 2020:

(a) The installation of any drainage for the site shall not commence until a scheme for the drainage of surface water for the development has been submitted for approval in writing by the City Council as the Local Planning Authority.

This shall include: - Evidence that the drainage system has been designed (unless an area is designated to hold and/or convey water as part of the design) so that flooding does not occur during a 1 in 100 year rainfall event with allowance for climate change in any part of a building; - Assessment of overland flow routes for extreme events that is diverted away from buildings (including basements). Overland flow routes need to be designed to convey the flood water in a safe manner in the event of a blockage or exceedance of the proposed drainage system capacity including inlet structures. The flood water should be routed away from the buildings and towards the less vulnerable areas i.e. open spaces, car parks and roads. A layout with overland flow routes needs to be presented with appreciation of these overland flow routes with regards to the properties on site and adjacent properties off site. - Hydraulic calculations of the proposed drainage system for the entire network; - Construction details of flow control and SuDS elements. The development shall then be constructed in accordance with the approved details, within an agreed timescale.

Reason - To promote sustainable development, secure proper drainage and to manage the risk of flooding and pollution pursuant to policies SP1, EN14 and DM1 of the Manchester Core Strategy (2012)

The following seeks to address the three main requirements above.

2. REQUIREMENT: NO FLOODING FOR 1:100 YEAR

- » Evidence that the drainage system has been designed (unless an area is designated to hold and/or convey water as part of the design) so that flooding does not occur during a 1 in 100 year rainfall event with allowance for climate change in any part of a building

We can confirm that the drainage system has been designed to accommodate a 1:100 year storm event with +40% climate change allowance with no flooding. Refer to Figure 1 below, full calculations are included at the end of this report.

Pipe Number	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Maximum Vol (m³)	Pipe Flow (l/s)	Status
1.000 1		240 minute 100 year Winter I+40%	45.669	45.330	0.686	0.000	0.12	1.025	5.2	SURCHARGED
1.001 2		240 minute 100 year Winter I+40%	46.354	45.329	0.886	0.000	0.40	2.187	15.9	SURCHARGED
1.002 3		240 minute 100 year Winter I+40%	46.946	45.325	1.029	0.000	0.19	80.226	6.0	SURCHARGED
1.003 4		240 minute 100 year Winter I+40%	47.151	45.344	1.143	0.000	0.10	2.293	3.9	SURCHARGED
1.004 5		240 minute 100 year Winter I+40%	47.074	45.344	1.270	0.000	0.02	2.416	2.0	SURCHARGED
1.005 6		240 minute 100 year Winter I+40%	47.010	43.687	-0.273	0.000	0.02	0.027	2.0	OK

Figure 1 - extract from Microdrainage results - highest water level for 1:100 year + 40% climate change

3. REQUIREMENT: ASSESS OVERLAND FLOW ROUTES

- » Assessment of overland flow routes for extreme events that is diverted away from buildings (including basements). Overland flow routes need to be designed to convey the flood water in a safe manner in the event of a blockage or exceedance of the proposed drainage system capacity including inlet structures. The flood water should be routed away from the buildings and towards the less vulnerable areas i.e. open spaces, car parks and roads. A layout with overland flow routes needs to be presented with appreciation of these overland flow routes with regards to the properties on site and adjacent properties off site.

To check the overland flow routes, we ran the Microdrainage simulation for a 1:1000 year storm event +100% climate change to observe which areas would flood. Flooding was observed at the north western end of the building where the ground levels are lower (pipes 1.000 and 1.001).

Pipe Number	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Maximum Vol (m³)	Pipe Flow (l/s)	Status
1.000 1		480 minute 1000 year Winter I+100%	45.669	45.831	1.187	162.318	0.14	163.708	6.1	FLOOD
1.001 2		60 minute 1000 year Winter I+100%	46.354	46.355	1.912	0.728	2.09	4.039	82.3	FLOOD
1.002 3		60 minute 1000 year Winter I+100%	46.946	46.475	2.179	0.000	0.33	83.501	10.6	SURCHARGED
1.003 4		60 minute 1000 year Winter I+100%	47.151	46.543	2.342	0.000	0.30	3.649	11.9	SURCHARGED
1.004 5		60 minute 1000 year Winter I+100%	47.074	46.547	2.473	0.000	0.03	3.776	2.6	SURCHARGED
1.005 6		60 minute 1000 year Winter I+100%	47.010	43.692	-0.268	0.000	0.02	0.032	2.6	OK

Figure 2: extract from Microdrainage results - highest water level for 1:1000 year + 100% climate change

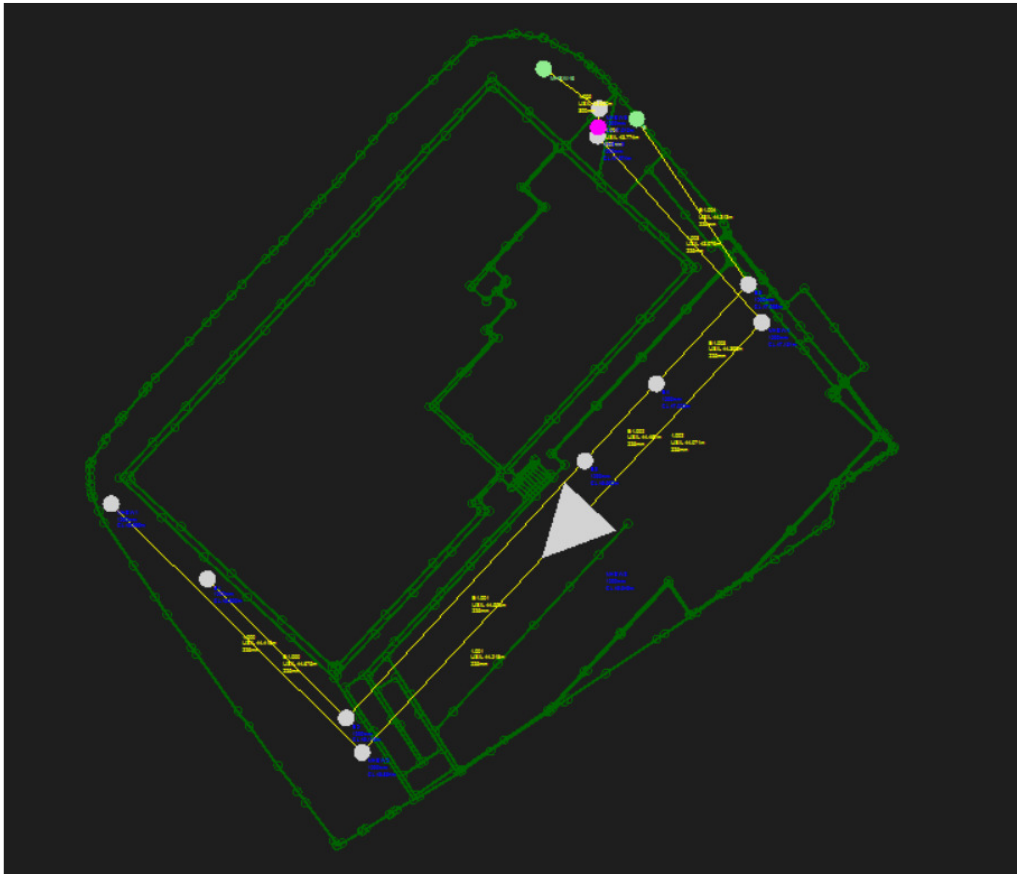


Figure 3: Microdrainage network diagram

Floodwater would then run off into the highway at the western corner of the site into the junction of Old Mill Street and Great Ancoats Street. Once in the carriageway it would either flow in a south easterly direction along Great Ancoats Street or south westerly direction along Store Street, depending on the falls of the carriageway in the junction.

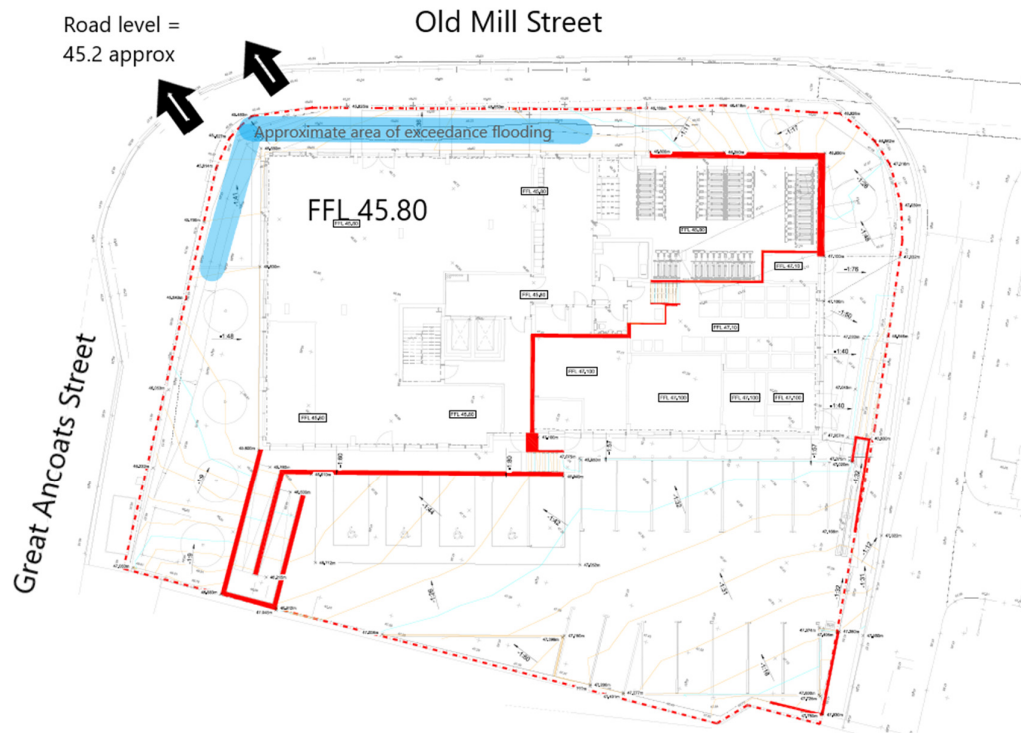


Figure 4: overland flow route from site into carriageway of public highway

4. REQUIREMENT: PROVIDE HYDRAULIC CALCULATIONS AND DETAILED DRAWINGS

- » Hydraulic calculations of the proposed drainage system for the entire network; - Construction details of flow control and SuDS elements.

Full output of Microdrainage calculations and drawings are included in the following pages.

Drawing 10042-HYD-XX-XX-DR-S-0210 revision P4 shows the proposed flow control and attenuation tank.

5. FURTHER MCC COMMENTS

Further to the previous issue (P2) we have received the following comments from MCC - our response is below each comment.

5.1.1 *Please provide drawings for attenuation tank and flow control – these do not seem to appear on drawings Sheets 1 to 3.*

We have updated our drawings to show further detail on the proposed tank system and Hydrobrake. This is shown on Drawing 10042-HYD-XX-XX-DR-S-0210 revision P4 (Drainage Layout) which is appended to this note.

5.1.2 FFLS should be set 150mm above MH cover levels, please update drainage layout IW4-HYD-XX-XX-DR-D-0200 in the Technical Note.

As there is little available space around the building and there is no 150mm step down from internal to external level it has not been possible to accommodate this. To compensate we have provided extra capacity in the SW drainage system - the calculations show that the highest water level is 45.33m and the lower FFL is 45.80m, so there is over 450mm 'freeboard' designed within the manholes. We believe that is a suitable alternative. Note that this was already included within the design and is a point of clarification only.

5.1.3 Please show flow control and its specs on drainage layout IW4-HYD-XX-XX-DR-S-0210 in the Technical Note.

This has now been added to Drawing 10042-HYD-XX-XX-DR-S-0210 revision P4.

5.1.4 Where surface water is connected to the public sewer, agreement in principle from United Utilities is required that there is adequate spare capacity in the existing system taking future development requirements into account. An email of acceptance of proposed flows and/or new connection will suffice. For the avoidance of doubt, this must be obtained quoting UU's ref DC/20/1542 and Planning ref 126669/FO/2020 to provide opportunity for further comment from UU.

We have carried out further investigations on site and have slightly modified our design, and we are now proposing a direct connection to a UU manhole. We have applied to UU for a connection under Section 106 of the Water Industry Act.

Date 18/11/2020 12:09

File ISLINGTON WHARF PHASE 4...

Designed by chloefell

Checked by

Innovyze

Network 2018.1.1

Existing Network Details for Surface Water

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type
1.000	24.741	0.201	123.1	0.051	5.00	0.0	0.600	o	225	Pipe/Conduit
1.001	21.029	0.147	143.1	0.100	5.00	0.0	0.600	o	225	Pipe/Conduit
1.002	20.104	0.095	211.6	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit
1.003	17.426	0.127	137.2	0.019	0.00	0.0	0.600	o	225	Pipe/Conduit
1.004	1.917	0.114	16.8	0.008	0.00	0.0	0.600	o	300	Pipe/Conduit
1.005	4.788	0.178	26.9	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit

Network Results Table

PN	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Vel (m/s)	Cap (l/s)
1.000	44.419	0.051	0.0	1.18	46.8
1.001	44.218	0.151	0.0	1.09	43.4
1.002	44.071	0.151	0.0	0.89	35.6
1.003	43.976	0.170	0.0	1.11	44.3
1.004	43.774	0.179	0.0	3.85	272.3
1.005	43.660	0.179	0.0	3.04	215.1

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Manhole Schedules for Surface Water

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
MHSW1	45.669	1.250	Open Manhole	1200	1.000	44.419	225				
MHSW2	46.354	2.136	Open Manhole	1200	1.001	44.218	225	1.000	44.218	225	
MHSW3	46.946	2.875	Open Manhole	1200	1.002	44.071	225	1.001	44.071	225	
MHSW4	47.151	3.175	Open Manhole	1200	1.003	43.976	225	1.002	43.976	225	
MHSW5	47.074	3.300	Open Manhole	1200	1.004	43.774	300	1.003	43.849	225	
MHSW6	47.010	3.350	Open Manhole	1200	1.005	43.660	300	1.004	43.660	300	
MHSW16	47.050	3.568	Open Manhole	1200		OUTFALL		1.005	43.482	300	

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PIPELINE SCHEDULES for Surface Water

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	225	MHSW1	45.669	44.419	1.025	Open Manhole	1200
1.001	o	225	MHSW2	46.354	44.218	1.911	Open Manhole	1200
1.002	o	225	MHSW3	46.946	44.071	2.650	Open Manhole	1200
1.003	o	225	MHSW4	47.151	43.976	2.950	Open Manhole	1200
1.004	o	300	MHSW5	47.074	43.774	3.000	Open Manhole	1200
1.005	o	300	MHSW6	47.010	43.660	3.050	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	24.741	123.1	MHSW2	46.354	44.218	1.911	Open Manhole	1200
1.001	21.029	143.1	MHSW3	46.946	44.071	2.650	Open Manhole	1200
1.002	20.104	211.6	MHSW4	47.151	43.976	2.950	Open Manhole	1200
1.003	17.426	137.2	MHSW5	47.074	43.849	3.000	Open Manhole	1200
1.004	1.917	16.8	MHSW6	47.010	43.660	3.050	Open Manhole	1200
1.005	4.788	26.9	MHSW16	47.050	43.482	3.268	Open Manhole	1200

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Area Summary for Surface Water <table><thead><tr><th>Pipe Number</th><th>PIMP Type</th><th>PIMP Name</th><th>PIMP (%)</th><th>Gross Area (ha)</th><th>Imp. Area (ha)</th><th>Pipe Total (ha)</th></tr></thead><tbody><tr><td>1.000</td><td>User</td><td>-</td><td>100</td><td>0.020</td><td>0.020</td><td>0.020</td></tr><tr><td></td><td>User</td><td>-</td><td>100</td><td>0.031</td><td>0.031</td><td>0.051</td></tr><tr><td>1.001</td><td>User</td><td>-</td><td>100</td><td>0.019</td><td>0.019</td><td>0.019</td></tr><tr><td></td><td>User</td><td>-</td><td>100</td><td>0.064</td><td>0.064</td><td>0.083</td></tr><tr><td></td><td>User</td><td>-</td><td>100</td><td>0.017</td><td>0.017</td><td>0.100</td></tr><tr><td>1.002</td><td>-</td><td>-</td><td>100</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td>1.003</td><td>User</td><td>-</td><td>100</td><td>0.019</td><td>0.019</td><td>0.019</td></tr><tr><td>1.004</td><td>User</td><td>-</td><td>100</td><td>0.004</td><td>0.004</td><td>0.004</td></tr><tr><td></td><td>User</td><td>-</td><td>100</td><td>0.005</td><td>0.005</td><td>0.008</td></tr><tr><td>1.005</td><td>-</td><td>-</td><td>100</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td></td><td></td><td></td><td></td><td>Total</td><td>Total</td><td>Total</td></tr><tr><td></td><td></td><td></td><td></td><td>0.179</td><td>0.179</td><td>0.179</td></tr></tbody></table> Free Flowing Outfall Details for Surface Water <table><thead><tr><th>Outfall Pipe Number</th><th>Outfall Name</th><th>C. Level (m)</th><th>I. Level (m)</th><th>Min I. Level (m)</th><th>D, L (mm)</th><th>W (mm)</th></tr></thead><tbody><tr><td>1.005</td><td>MHSW16</td><td>47.050</td><td>43.482</td><td>0.000</td><td>1200</td><td>0</td></tr></tbody></table> Simulation Criteria for Surface Water <table><tbody><tr><td>Volumetric Runoff Coeff</td><td>0.750</td><td>Additional Flow - % of Total Flow</td><td>0.000</td></tr><tr><td>Areal Reduction Factor</td><td>1.000</td><td>MADD Factor * 10m³/ha Storage</td><td>2.000</td></tr><tr><td>Hot Start (mins)</td><td>0</td><td>Inlet Coeffiecient</td><td>0.800</td></tr><tr><td>Hot Start Level (mm)</td><td>0</td><td>Flow per Person per Day (l/per/day)</td><td>0.000</td></tr><tr><td>Manhole Headloss Coeff (Global)</td><td>0.500</td><td>Run Time (mins)</td><td>60</td></tr><tr><td>Foul Sewage per hectare (l/s)</td><td>0.000</td><td>Output Interval (mins)</td><td>1</td></tr><tr><td>Number of Input Hydrographs</td><td>0</td><td>Number of Storage Structures</td><td>1</td></tr><tr><td>Number of Online Controls</td><td>1</td><td>Number of Time/Area Diagrams</td><td>0</td></tr><tr><td>Number of Offline Controls</td><td>0</td><td>Number of Real Time Controls</td><td>0</td></tr></tbody></table> Synthetic Rainfall Details <table><tbody><tr><td>Rainfall Model</td><td>FSR</td><td>Profile Type</td><td>Summer</td></tr><tr><td>Return Period (years)</td><td>100</td><td>Cv (Summer)</td><td>0.750</td></tr><tr><td>Region</td><td>England and Wales</td><td>Cv (Winter)</td><td>0.840</td></tr><tr><td>M5-60 (mm)</td><td>18.000</td><td>Storm Duration (mins)</td><td>30</td></tr><tr><td>Ratio R</td><td>0.358</td><td></td><td></td></tr></tbody></table>						Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)	1.000	User	-	100	0.020	0.020	0.020		User	-	100	0.031	0.031	0.051	1.001	User	-	100	0.019	0.019	0.019		User	-	100	0.064	0.064	0.083		User	-	100	0.017	0.017	0.100	1.002	-	-	100	0.000	0.000	0.000	1.003	User	-	100	0.019	0.019	0.019	1.004	User	-	100	0.004	0.004	0.004		User	-	100	0.005	0.005	0.008	1.005	-	-	100	0.000	0.000	0.000					Total	Total	Total					0.179	0.179	0.179	Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D, L (mm)	W (mm)	1.005	MHSW16	47.050	43.482	0.000	1200	0	Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000	Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000	Hot Start (mins)	0	Inlet Coeffiecient	0.800	Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000	Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60	Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1	Number of Input Hydrographs	0	Number of Storage Structures	1	Number of Online Controls	1	Number of Time/Area Diagrams	0	Number of Offline Controls	0	Number of Real Time Controls	0	Rainfall Model	FSR	Profile Type	Summer	Return Period (years)	100	Cv (Summer)	0.750	Region	England and Wales	Cv (Winter)	0.840	M5-60 (mm)	18.000	Storm Duration (mins)	30	Ratio R	0.358		
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Innovyze		Network 2018.1.1	
Online Controls for Surface Water			
Hydro-Brake® Optimum Manhole: MHSW5, DS/PN: 1.004, Volume (m³): 4.4			
Unit Reference MD-SHE-0061-2000-1500-2000 Design Head (m)1.500 Design Flow (l/s)2.0 Flush-Flo™Calculated ObjectiveMinimise upstream storage ApplicationSurface Sump AvailableYes Diameter (mm)61 Invert Level (m)43.774 Minimum Outlet Pipe Diameter (mm)75 Suggested Manhole Diameter (mm)1200			
Control Points Head (m)Flow (l/s) Design Point (Calculated)1.5002.0 Flush-Flo™0.2691.6 Kick-Flo®0.5451.3 Mean Flow over Head Range-1.5			
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) 0.1001.3 0.2001.5 0.3001.6 0.4001.5 0.5001.4 0.6001.3 0.8001.5 1.0001.7 Depth (m)Flow (l/s) 1.2001.8 1.4001.9 1.6002.1 1.8002.2 2.0002.3 2.2002.4 2.4002.5 2.6002.6 Depth (m)Flow (l/s) 3.0002.7 3.5003.0 4.0003.1 4.5003.3 5.0003.5 5.5003.6 6.0003.8 6.5003.9 Depth (m)Flow (l/s) 7.0004.1 7.5004.2 8.0004.3 8.5004.5 9.0004.6 9.5004.7			
©1982-2018 Innovyze			

Hydrock Consultants Ltd		Page 6																																																																	
. . .		Micro Drainage																																																																	
Date 18/11/2020 12:09		Designed by chloefell																																																																	
File ISLINGTON WHARF PHASE 4...		Checked by																																																																	
Innovyze		Network 2018.1.1																																																																	
Storage Structures for Surface Water Tank or Pond Manhole: MHSW3, DS/PN: 1.002 Invert Level (m) 44.272 <table><thead><tr><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th></tr></thead><tbody><tr><td>0.000</td><td>75.0</td><td>1.400</td><td>0.0</td><td>2.800</td><td>0.0</td><td>4.200</td><td>0.0</td></tr><tr><td>0.200</td><td>75.0</td><td>1.600</td><td>0.0</td><td>3.000</td><td>0.0</td><td>4.400</td><td>0.0</td></tr><tr><td>0.400</td><td>75.0</td><td>1.800</td><td>0.0</td><td>3.200</td><td>0.0</td><td>4.600</td><td>0.0</td></tr><tr><td>0.600</td><td>75.0</td><td>2.000</td><td>0.0</td><td>3.400</td><td>0.0</td><td>4.800</td><td>0.0</td></tr><tr><td>0.800</td><td>75.0</td><td>2.200</td><td>0.0</td><td>3.600</td><td>0.0</td><td>5.000</td><td>0.0</td></tr><tr><td>1.000</td><td>75.0</td><td>2.400</td><td>0.0</td><td>3.800</td><td>0.0</td><td></td><td></td></tr><tr><td>1.200</td><td>0.0</td><td>2.600</td><td>0.0</td><td>4.000</td><td>0.0</td><td></td><td></td></tr></tbody></table>				Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	0.000	75.0	1.400	0.0	2.800	0.0	4.200	0.0	0.200	75.0	1.600	0.0	3.000	0.0	4.400	0.0	0.400	75.0	1.800	0.0	3.200	0.0	4.600	0.0	0.600	75.0	2.000	0.0	3.400	0.0	4.800	0.0	0.800	75.0	2.200	0.0	3.600	0.0	5.000	0.0	1.000	75.0	2.400	0.0	3.800	0.0			1.200	0.0	2.600	0.0	4.000	0.0		
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Notes:

- All dimensions are to be checked on site before commencement of works. Work to figured dimensions only. Do not scale off this drawing. Any discrepancies are to be reported to the Hydrock for clarification.
- This drawing is to be read in conjunction with all relevant Hydrock drawings and specifications
- This drawing is to be read in conjunction with all relevant Architectural and M&E Services drawings and specifications
- This drawings is based on RYDER ARCHITECTURE drawing no. IW4-RYD-00-00-DR-A-3000-S2-P15 Level 00 GA Plan
- This drawing is based on GREENHATCH GROUP drawing no 36242_T_UG, dated 03.03.2020
- No allowance has been made for any changes in ground profile after date of survey
- Contours are shown at 0.1m intervals
- All kerbs to be standard HB type 125mm high UNO
- Contours and gradients are indicated for guidance purposes and shall not be used for setting out. Setting out shall be based off spot levels only.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING

CONSTRUCTION

MAINTENANCE / CLEANING

DECOMMISSIONING / DEMOLITION

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT

Retaining wall

P02	27.10.20	Revision status amended to align with viewpoint document QA	BP	ME
P01	16.10.20	Architects layout amended	BP	ME
T1	07.10.20	Tender Issue	BP	RJ
P3	30.03.20	Levels amended as per architect sketches	BP	RJ
P2	23.03.20	Levels amended to suit new layout	BP	RJ
P1	11.03.20	First Issue	BP	RJ
Rev	Date	Description	By	Ckd

Architect :

Ryder

Hydrock

WATERSIDE PLACES

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T +44 (0)161 233 0746
E info@hydrock.com
www.hydrock.com

Client :

ISLINGTON WHARF - PHASE 4 MANCHESTER

Drawing Title:

PROPOSED LEVELS

Drawing Status:

TENDER ISSUE

Hydrock Job No:

C10042

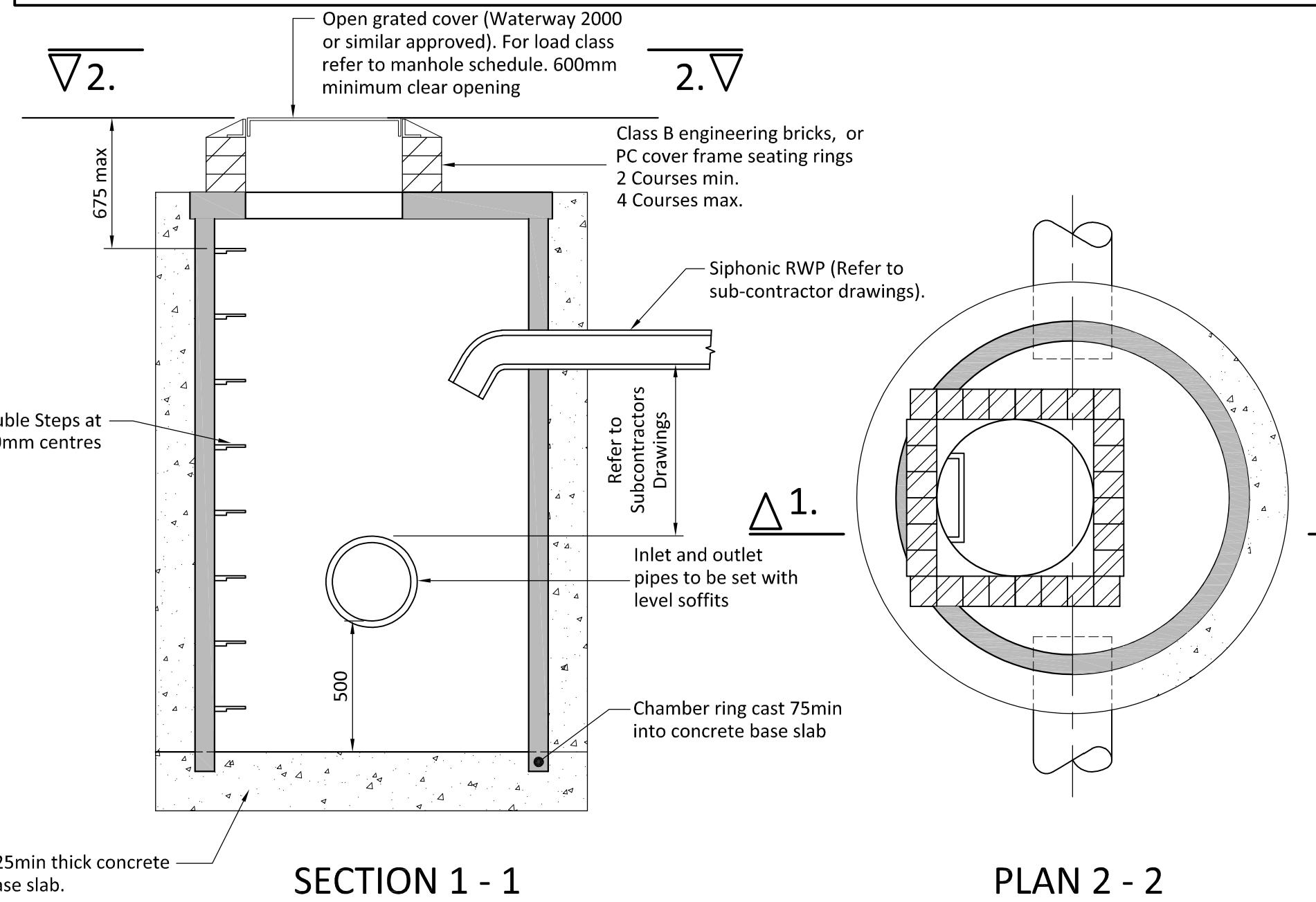
Drawn	Checked	Scale @ A1	Date	Issue Date
BP	RJ	1:100	11.03.2020	11.03.2020

Drawing Number:

IW4-HYD-XX-XX-DR-D-0200

Revisions:

P02



- | SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION | |
|--|--|
| IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING | |
| | |
| MAINTENANCE / CLEANING | |
| | |
| DECOMMISSIONING / DEMOLITION | |
| | |

Architect :

Ryder Architects

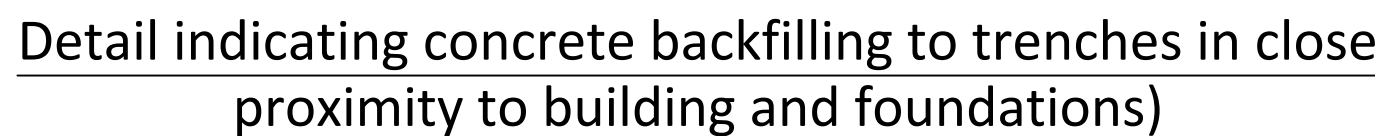
Client : 

Drawing Title:

Drainage and External
Pavement Details
Sheet 2 of 3

Hydrock Job No: C-10042

Drawing Number:	Revision:
IW4-HYD-XX-XX-DR-S-0212	P01



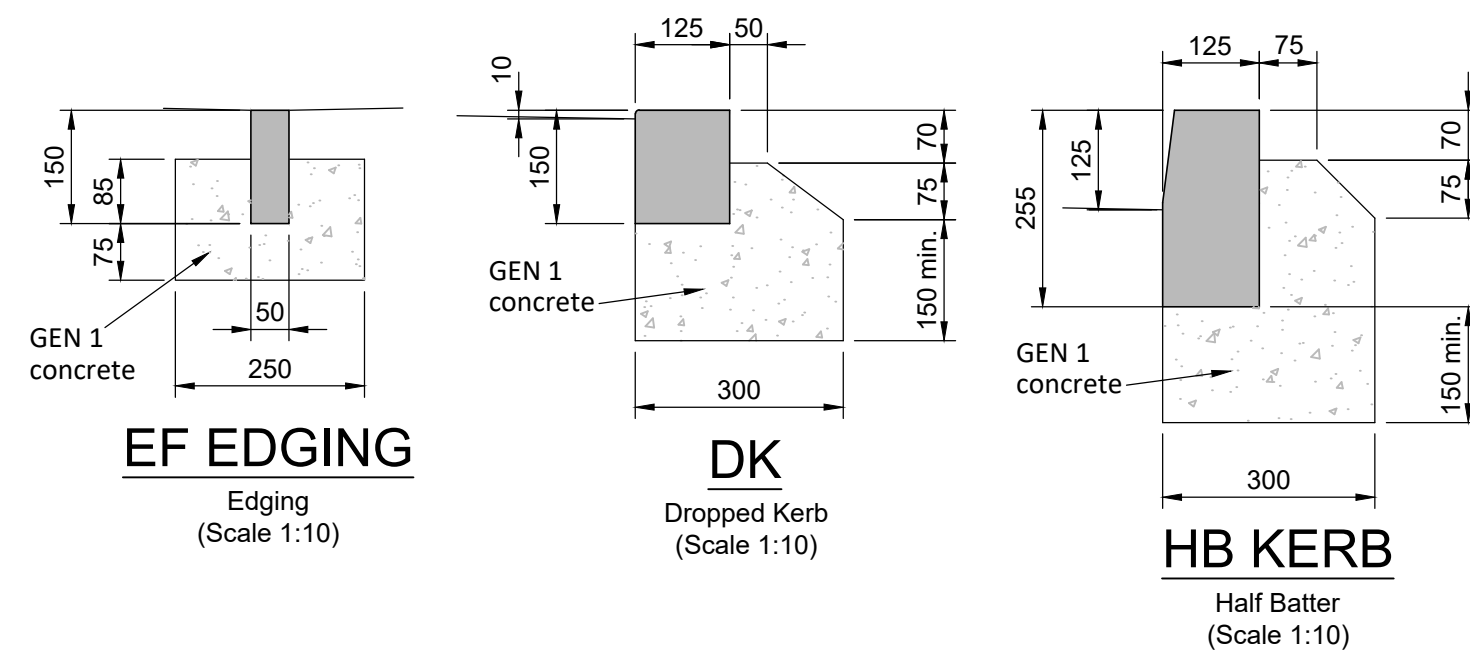
Compressible Filler Table

(Bitumen impregnated insulating board to BS 1142: Part 3)



Table 1 BS EN 1610 : 2015 - Minimum trench width depending on the nominal diameter (DN) of the pipe.

Table 2 BS EN 1610 : 2015
Minimum trench width depending
on the trench depth



FOR TIE-IN TO ADOPTED HIGHWAYS REFER TO THE
LOCAL APPROVING AUTHORITY'S STANDARD DETAILS
(Scale 1 : 25)

Notes:

1. All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
2. This drawing is to be read in conjunction with all relevant Engineers' and Service Engineers' drawings and specifications.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING:

MAINTENANCE / CLEANING

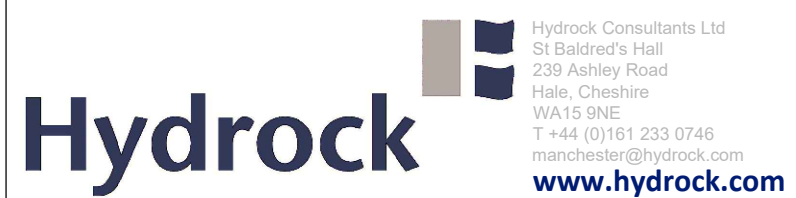
DECOMMISSIONING / DEMOLITION

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A
COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE
TO AN APPROVED METHOD STATEMENT

P02	12/11/2020	Filter Drain Detail Added	CF	NB
P01	23/10/2020	Drawing BIM numbering updated	DA	ME
T1	09/10/2020	Tender Issue.	DA	RJ
P1	24/04/2020	Preliminary Issue.	JT	RJ
Rev	Date	Description	By	Ckd

Architect

Ryder Architects



Client

WATERSIDE
— PLACES —

ISLINGTON WHARF
PHASE 4

Drainage and External Pavement Details Sheet 3 of 3

Drawing Status:

TENDER

Hydrock Job No.

C-10042

Drawn JT	Checked RJ	Scale @ A1 AS SHOWN	Date 24/04/20	Issue Date 24/04/20
Drawing Number: IW4-HYD-XX-XX-DR-S-0213				Revision: P02

Notes:

1. This drawing is to be read in conjunction with all relevant drawings, specifications and documentation.
2. The position, size and levels of all drains are to be confirmed on site prior to the commencement of the works and any discrepancies reported immediately to the Engineer.
3. Do not scale from this drawing, work to dimensions or co-ordinates provided. All levels are in metres and all dimensions are in millimetres, unless otherwise noted.
4. The Contractor shall allow for the protection, temporary and permanent support and diversion works as necessary, to all existing services to the satisfaction of the public utilities.
5. The Contractor shall allow for dealing with surface water run-off into excavations and from groundwater by means of sumps, pumping and de-watering as appropriate, in order to keep the excavation as reasonably dry as possible during the construction of the works.
6. Any gradients of drains indicated are indicative only and the Contractor shall install the drains to the specified levels shown for each manhole (U.N.O). Catchpit invert levels are for the outgoing pipe with the sump level specified separately.
7. Co-ordinate setting out information for manholes is to the intersection the drains and not the centre of the manhole.
8. Cover levels of the manholes are provisional and subject to adjustment on site to suit the finished ground levels. All external works construction areas to be as located by the architect.
9. Positions and sizes of above ground foul and surface water drainage connections are to be confirmed prior to construction with the Architect and M&E Engineer.
10. Diameter of PCC manholes varies with pipe size, and is to be in accordance with the tables shown on the accompanying Hydrock Standard Details drawings.
11. Channels are to be sized by the supplier and approved by the Engineer in writing prior to ordering. Drainage channels to be installed to manufacturers' requirements. Design of channels shall be based on a 1 in 30 year storm return period, 15 minute duration.
12. All works are assumed to be within public highway or within land owners lands & no works are required on third party land owners property.
13. Design assumes that no water authority sewers or other drainage systems require modification, diversion or abandoning.
14. All works within the public highway to be reinstated to highway authority requirements.
15. No deep rooting trees/vegetation should be planted within 5.0m of any drainage works.
16. All WPC's, SRWP's and RWP's are shown indicatively. Locations shall be confirmed by others.
17. All manholes less than 1.5m deep are considered as none man entry and shall be maintained from ground level.
18. Rainwater downpipe locations in abeyance.

Notes:

1. All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Project Manager for verification. Figured dimensions only are to be taken from this drawing.
2. This drawing is to be read in conjunction with all relevant Contract Issue drawings and specifications.
3. Finer details may vary subject to detailed design, such as location of linear drainage, exact positioning of pipes and manholes.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING:

CONSTRUCTION

MAINTENANCE / CLEANING

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Key:

- Proposed Surface Water Drainage
- Proposed Foul Water Drainage
- Proposed Combined Drainage
- Proposed Filter Drain Type K to HCD F2
- Existing Combined Drainage
- Existing Private Drainage to be Abandoned
- Drainage Channel
ACO Multidrain M150PPD with Heelguard Slotted Ductile Iron Grating

P04	26.01.21	Outfall Connection amended	BP	NB
P03	11.12.20	Drainage amended to suit pop-up locations	CF	NB
P02	13.11.20	Drainage amended to suit utilities layout	CF	NB
P01	16.10.20	Drainage moved within site boundary	BP	ME
T1	09.10.20	First Issue	BP	NB
Rev	Date	Description	By	Ckd

Architect :

Ryder

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Wals, Cheshire
WAL5 8WE
T +44 (0)161 233 0746
www.hydrock.com

Client :

WATERSIDE
PLACES

Project Title:

ISLINGTON WHARF - PHASE 4
MANCHESTER

Drawing Title:

DRAINAGE LAYOUT

Drawing Status:

TENDER ISSUE

Hydrock Job No:

C10042

Drawn	Checked	Scale @ A1	Date	Issue Date
BP	NB	1:100	09.10.2020	09.10.2020

Drawing Number:	Revision:
IW4-HYD-XX-XX-DR-S-0210	P04