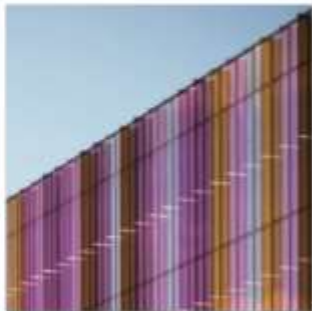


PIXB – Liverpool, Tarbock

Drainage Statement

Doc Ref: 15135-BKP-XX-XX-RP-C-0001

Date: 15.05.2024



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-	First Issue		15.05.24

1.0 INTRODUCTION & SCOPE

1.1 – Scope

Our client Whitbread PLC has requested Booth-King Partnership Ltd. to undertake a scheme drainage design and provide this drainage statement for the purposes of planning permission with Liverpool City Council for a new 26-bedroom two storey annex extension, shown in blue on Figure 1 below.

2.0 EXISTING SITE

2.1 – Location

The site is located off the Cronton Road, the A5080, address Premier Inn Liverpool (Tarbock) Wilson Road, Tarbock Green, Liverpool, L36 6AD, as per Location Plan provided in Appendix A. The site covers an area of approximately 1.39ha.



Figure 1.
Existing Site

2.2 – Existing Foul Network

The existing foul network for the hotel is private and falls under gravity to the north of the site, as noted in Figure 2 below by the red arrow. The majority of the network appears to be 150mm UPVC pipes. Refer to Appendix B for existing site survey information including drainage layout.

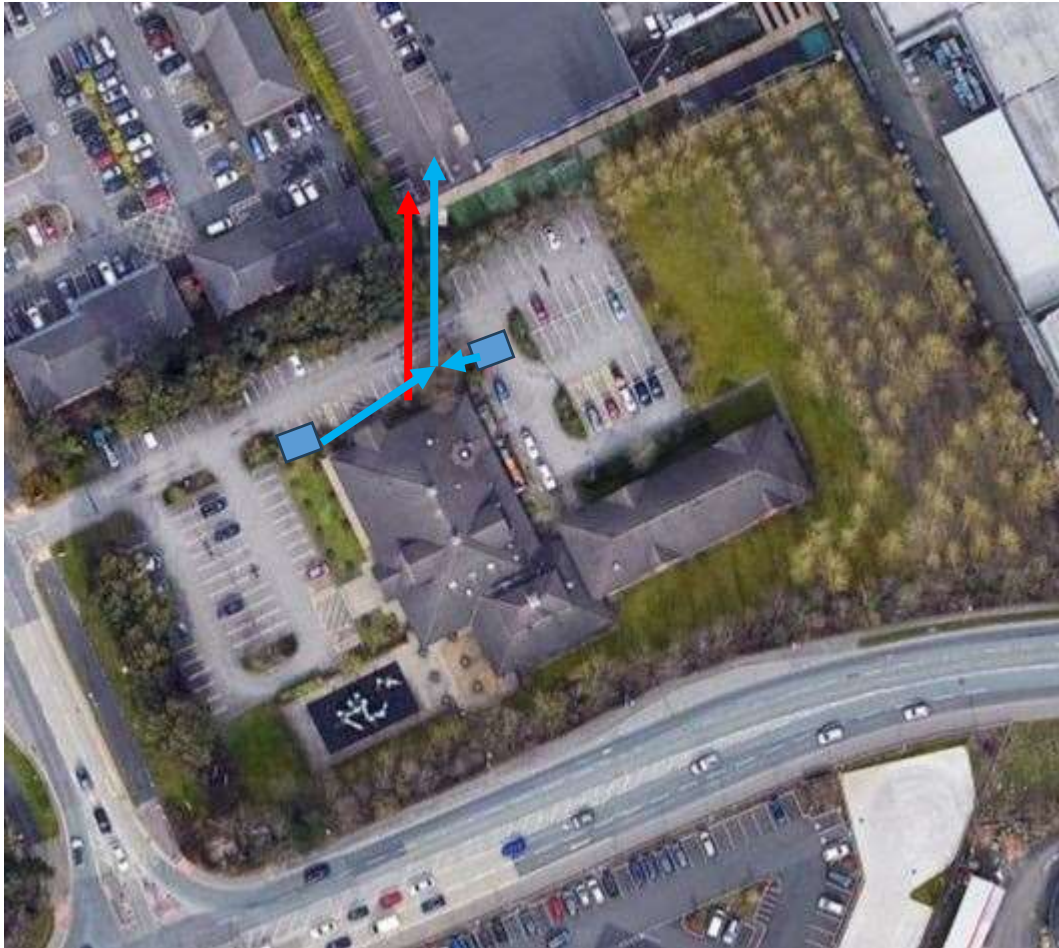


Figure 2.
Site Drainage Discharge Location

The site drainage discharges to a 225mm diameter UU foul sewer located on Stretton Way, which then discharge to Chapel Brook.

2.3 – Existing Surface Water

The existing surface water network for the hotel is private and falls under gravity to the north of the site. The surface water drains all the hardstanding roof and car park areas and discharges via 2No. petrol interceptors, as noted in blue on figure 2 above. The majority of the network appears to be 150/225mm UPVC pipes. Refer to drawing 0500 Appendix B for existing site survey including current drainage layout.

The site drainage discharges to a 225mm diameter UU foul sewer located on Stretton Way, which then discharge to Chapel Brook.

2.4 – Flooding

From review of the local flood maps there is no residual risk of flooding on site from costal, river or surface water flooding. There is a slight note of potential flooding to Chapel Brook, some 150m to the north of the site. The site is therefore considered very low risk of flooding.

3.0 – SITE DRAINAGE PROPOSALS

3.1 – Proposal

It is proposed to erect a new 389m² annex extension to the hotel, refer proposed drainage general arrangement for layout and details provided in Appendix C.

3.2 – Proposed Foul Network

It is proposed to install a new gravity system local to the new annex extension, the runs will be kept to a depth, such that they can tie into the existing system, where required these may need to be concrete encased under the roadway and carpark. With reference to British Water Flows and Loads 4, flows for the additional hotel extension will increase site peak foul discharge by 0.36 l/s to 0.95 l/s total.

British Water - Flows and Loads 4					
Hotel - New extension	Rooms (2 person)	No.	FLOW (L)		
Hotel Guests (3*)	26	52	250	13000	
			Total	13000	litre/day
			Peak flow (total/10hr/60/60)	0.36	l/s
			Average flow (total/24hr/60/60)	0.15	l/s
Hotel - Total (inc extension)	Rooms (2 person)	No.	FLOW (L)		
Hotel Guests (3*)	67	134	250	33500	
Full time day staff		4	90	360	
Part time staff		8	45	360	
			Total	34220	litre/day
			Peak flow (total/10hr/60/60)	0.95	l/s
			Average flow (total/24hr/60/60)	0.40	l/s
NB: restaurant adjacent not included, as remains unchanged					

Approval will be sought with United Utilities for the additional foul flow noted above. Section 106 agreement will be required prior to a positive connection being made.

3.3 – Infiltration/Soakaway Disposal

From local BGS borehole sources we have reviewed the local understood geology within the vicinity of the proposed site. The closest borehole to site and generally representative of the others surrounding is circa 220m to the east, noted below in Figures 3 & 4.

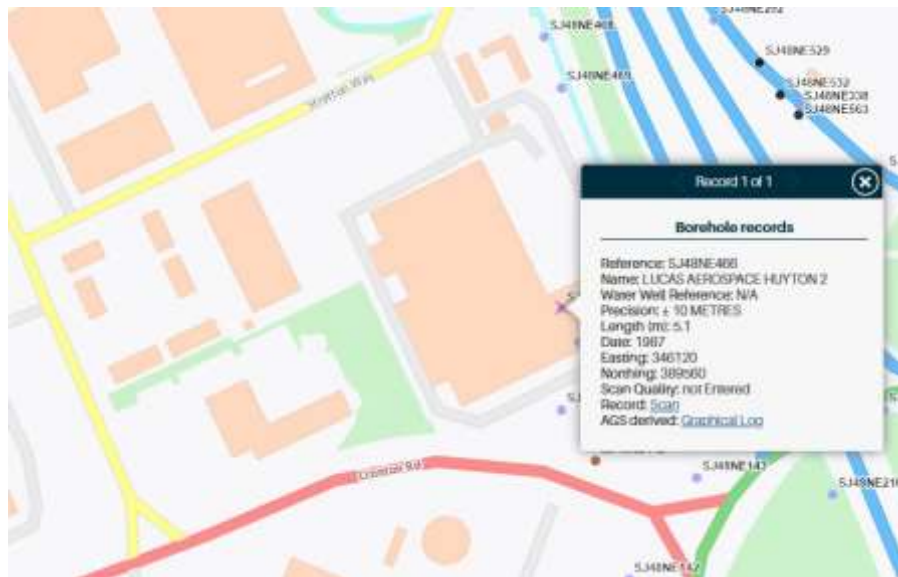


Figure 3.
BH Location

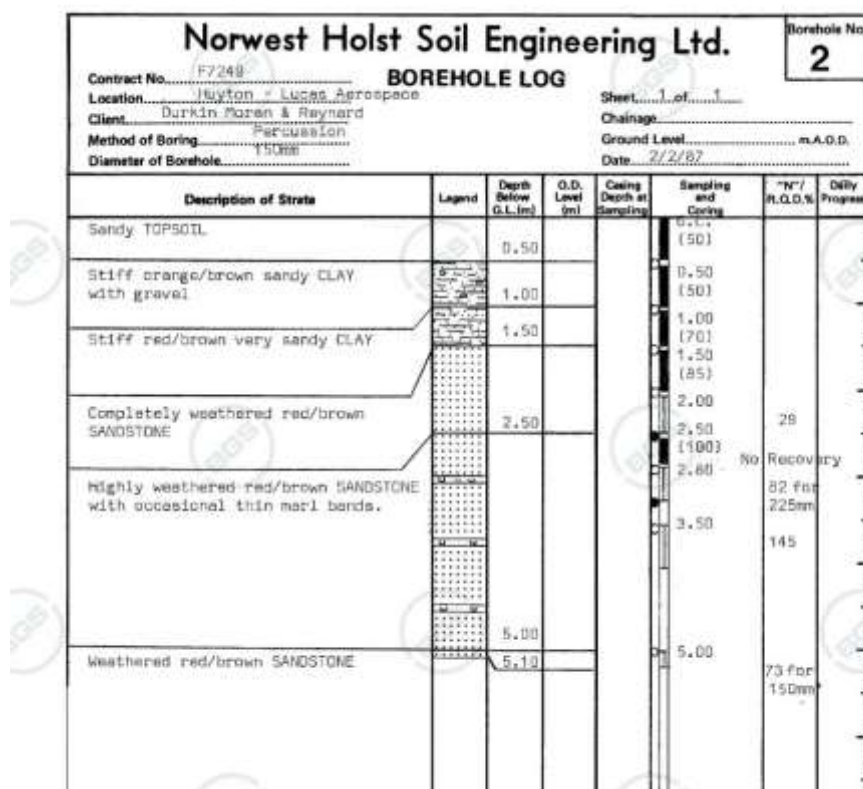


Figure 4.
BH Information

3.3 Infiltration/Soakaway Disposal (cont.)

On review of the borehole information established within the vicinity of the site it is generally consistant and is made up of a layer of firm to stiff clay to 1.5-2m depth noted on shallow sandstone rockhead.

It is our opnion, based on this general make up, that a soakaway solution will not be feasible on this site.

3.4 – Proposed Surface Water

The new extension to the existing hotel will require a new surface water system with attenuation and controlled discharge.

It is proposed that the majority of the existing car park drainage system remains relatively unaltered with minor changes to road gully positions.

It is proposed that the entirety of the new extension roof area and neighbouring section of new car parking is taken by a new rainwater system and is attenuated in cellular storage tanks underground, Area = 600m².

It is proposed to limit the discharge from this area to a reasonable flow rate of 2.3 l/s, which is the smallest controllable flow through a hydro brake of minimum 75mm diameter to mitigate any risk of blockage and subsequent flooring issue.

As required for a storm event of 1:100 years and with an allowance of 40% for climate change, the new network attenuation is required to be a minimum of 24.1m³ in accordance with the Wallingford Procedure storage calculator.

ator.

Site Location :		PIXB - Liverpool Tarbock							
				Overall Site Area, A =		0.06 ha			
				M5-60 (Fig. 1) =		20 mm			
				r (Fig. 2) =		0.3			
				Impermeable Area, Ai =		140%	0.084 ha		
				Permeable Area, Ap =		0%	0 ha		
				Run-off Co-efficient, Cv =		0.9			
				Routing Co-efficient, Cr =		1.3 (fixed)			
				Required Return Period, T Years =		100			
Duration	Z1	M5-D	Z2	MT-D	Q in	Q out	Storage	Point Intensity, I	Q _{peak} (3.61*Cv*I*Ai)
mins		mm		mm	m3	m3	m3	mm/hour	l/s
5	0.35	7.0	1.86	13.0	10.9	0.69	10.2	156.2	42.6
10	0.50	10.0	1.97	19.7	16.5	1.38	15.2	118.2	32.3
15	0.59	11.8	1.97	23.2	19.5	2.07	17.5	93.0	25.4
30	0.77	15.4	1.98	30.5	25.6	4.14	21.5	61.0	16.6
60	1.00	20.0	1.93	38.6	32.4	8.28	24.1	38.6	10.5
120	1.28	25.6	1.89	48.4	40.6	16.56	24.1	24.2	6.6
240	1.58	31.6	1.85	58.5	49.1	33.12	16.0	14.6	4.0
360	1.80	36.0	1.85	66.6	55.9	49.68	6.3	11.1	3.0
600	2.05	41.0	1.77	72.6	61.0	82.8	-21.8	7.3	2.0
1440	2.80	56.0	1.72	96.3	80.9	198.72	-117.8	4.0	1.1
2880	3.50	70.0	1.67	116.9	98.2	397.44	-299.2	2.4	0.7
				Allowable Discharge Flow:		2.30 l/s			
				Required Storage for given flow:		24.1 m3			
References - The Wallingford Procedure, Volumes 1-4									

3.4 – Proposed Surface Water (cont.)

This will be provided within the car park, using 'Stormbloc Extra' grates by 'Hydro International' (or equal approved) to allow for the required minimum cover depth of 0.6m. It will be 9.6x4.8x0.66m dp., providing 29m³. From the technical data below the crates are suitable for lightly trafficked areas such as the car park.

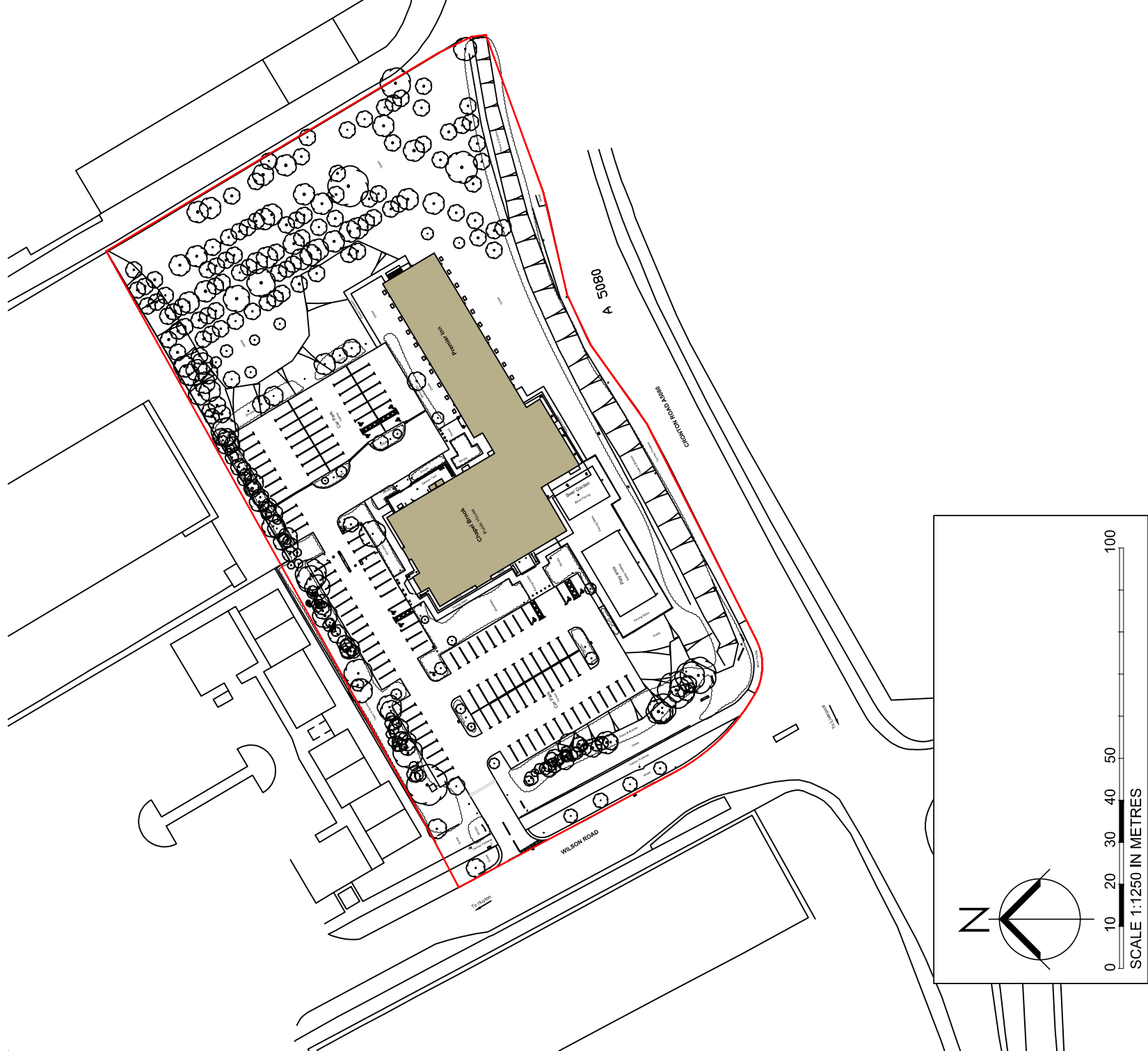


Stormbloc® Extra

- Porosity: 96%
- Length / width / height:
 - Full block: 800 / 800 / 660 mm
 - Half block: 800 / 800 / 360 mm
- Cover depth:
 - Landscaped area, no traffic: 0.4 m
 - Light traffic loading ≤ 2.5 t: 0.6 m
 - Roads & HGV loading yards with traffic loading ≤ 44 t: 0.8 m

Refer drawings in Appendix D for proposed layout and drainage details. Approval will be sought with United Utilities for the additional foul flow noted above. Section 106 agreement will be required prior to a positive connection being made.

APPENDIX A LOCATION PLAN



BN DRAWN	DRAWN REVISION	2/4/24 DATE	VER
PROJECT PREMIER INN EXTENSION, LIVERPOOL TARBOCK		AP ALLISON PIKE ARCHITECTS & DESIGNERS	
TITLE SITE LOCATION PLAN		7 Burton Road West, Daley, Stockport, Cheshire, SK12 2AE. Telephone: 01 665 7667 72 Website: www.allisonpike.com Email: info@allisonpike.com	
SCALE 1:1250@ A1	DRAWING No AP8	REV	© Allison Pike Partnership Limited

APPENDIX B
EXSITING SITE SURVEY

APPENDIX C
PROPOSED DRAINAGE LAYOUT & DETAILS

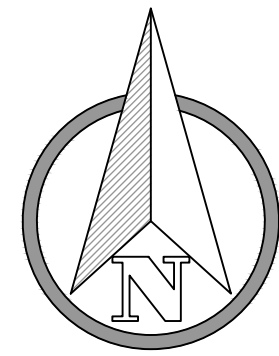
TOPOGRAPHICAL NOTES:



The Topographical and buried services shown on this drawing were provided to Booth King by others. Booth King have not verified this information and therefore we can not guarantee its accuracy. The position and alignment of services may differ from that shown and other buried services may be present.

The contractor must verify the location of all buried services before any excavation or piling works begin. Damage to existing services could present a major health and safety risk plus associated commercial penalties.

Levels information shown is based on information available.
This office is to be made aware of any discrepancies found on site.



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- This drawing is to be read in conjunction with all relevant contractual documents.
- Anyone using this drawing must be aware of their legal duties under the CDM Regulations 2015, refer to the HSE website for further information. BKPL are not Principal Designers.
- All dimensions shown on this drawing are in millimeters unless noted otherwise.
- If the Contractor consider that they do not have sufficient information to safely complete the works detailed on this drawing, they should contact the Engineer.
- This document uses revision codes in accordance with ISO EN 19650:
P, Preliminary (non-contractual) - review, comment or approval.
C, Contractual - Approved for stage completion.
- This document uses status codes in accordance with ISO EN 19650:
Work in progress:
S0 - WIP
Shared (non-contractual):
S1 - Coordination, S2 - Information, S3 - Review, S4 & S5 - Approval.
Published (contractual):
A1, An, etc. (where "n" relates to the project stage)
- This document uses project stages in accordance with the IStructE Structural Plan of Work 2020:
2 - Concept, 3 - Coordination, 4 - Technical Design,
4.5 - Production Design, 5 - Construction, 6 - Handover.
- Only documents with a revision code C# (where '#' relates to a revision number) and status code A5 are suitable for construction. Documents with status code A6 indicate final construction ONLY. Any deviations to that which is on site is not the liability of BKPL.

C01	15.05.24	STAGE 3 - ISSUED FOR PLANNING	PA
REV.	DATE	REVISION DETAILS	INITIALS
CURRENT DRAWING REVISION CHECKED BY			SP
CURRENT DRAWING REVISION APPROVED BY			AI
DRAWING STATUS:		PROJECT STAGE:	
A3		STAGE 3	

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PROJECT:
**Premier Inn Extension
Liverpool Tarbock**

TITLE:
**Proposed Drainage
Key Plan**

SCALE (A1)	AUTHOR	DATE	REVISION	BKPL No.
1:250	CM	May 24	C01	15135

DRAWING REF:
15135-BKP-XX-XX-DR-C-0510



DRAINAGE NOTES:

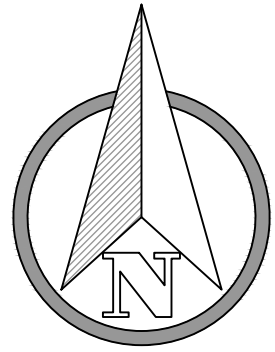
- All adoptable works to be in accordance with SSG appendix C where applicable.
- All manhole cover levels to be confirmed by Architect.
- Clay pipes to be flexibly jointed and comply with the requirements of BS EN 295.
- Concrete pipes to be flexibly jointed and comply with the requirements of BSEN 1916 and BS 5911.
- Plastic pipes (PVC-U) to be flexibly jointed and comply with the requirements of BS EN 1401-1 1998.
- All surface water pipes to be laid at a gradient no flatter than 1:80 (UNO).
- All foul water pipes to be laid at a gradient no flatter than 1:40 (UNO).
- For minimum depths requiring pipe protection refer to drainage details drawings.
- Protection to drains and gully connections may be concrete bed surround between cover depths of 450mm to 200mm.
- Until final surface is placed, heavy traffic is not to be allowed over pipe trenches without special precautions.
- Pipes and fittings are to be laid in accordance with the manufacturers recommendations.
- All Manholes should be concrete manhole rings (UNO).
- All SVP & RWP positions TBC by Architect.
- Rodding access is to be provided at all pop-ups.
- For setting out of all pop-up positions refer to Architect's details.
- Civil engineering contractor to arrange for:
 - Own services and temporary supplies.
 - Pathway & partial closure as deemed required by their method statement. Including costs.
 - Temporary adequate over pumping as deemed required by civil engineers method of construction.
- The contractor should confirm the locations for existing services prior construction.

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DRAINAGE LINE TYPES KEY:

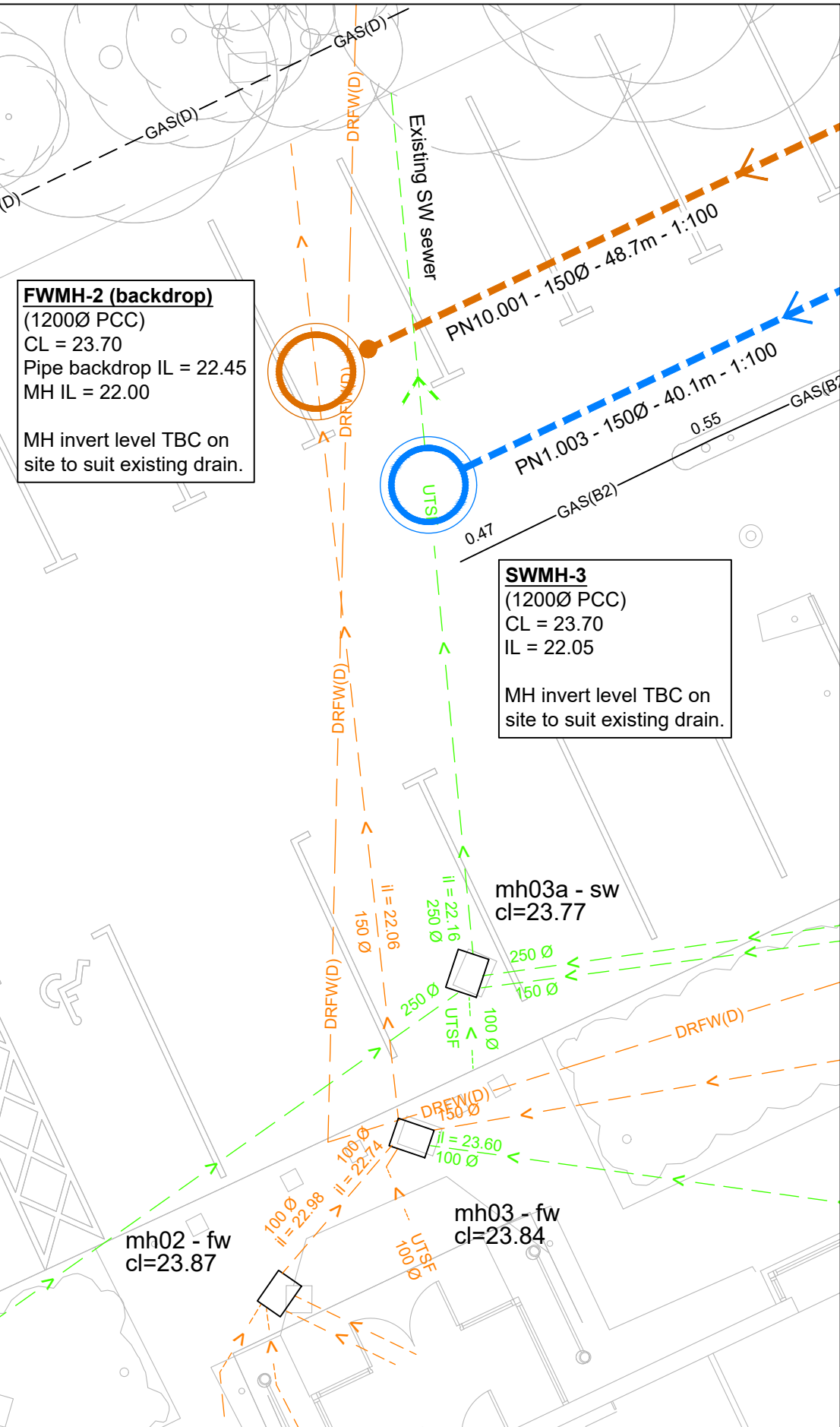
REF.	DESCRIPTION
	Existing FW network
	Existing SW network
	Proposed FW network
	Proposed SW network

DRAINAGE ANNOTATION KEY:

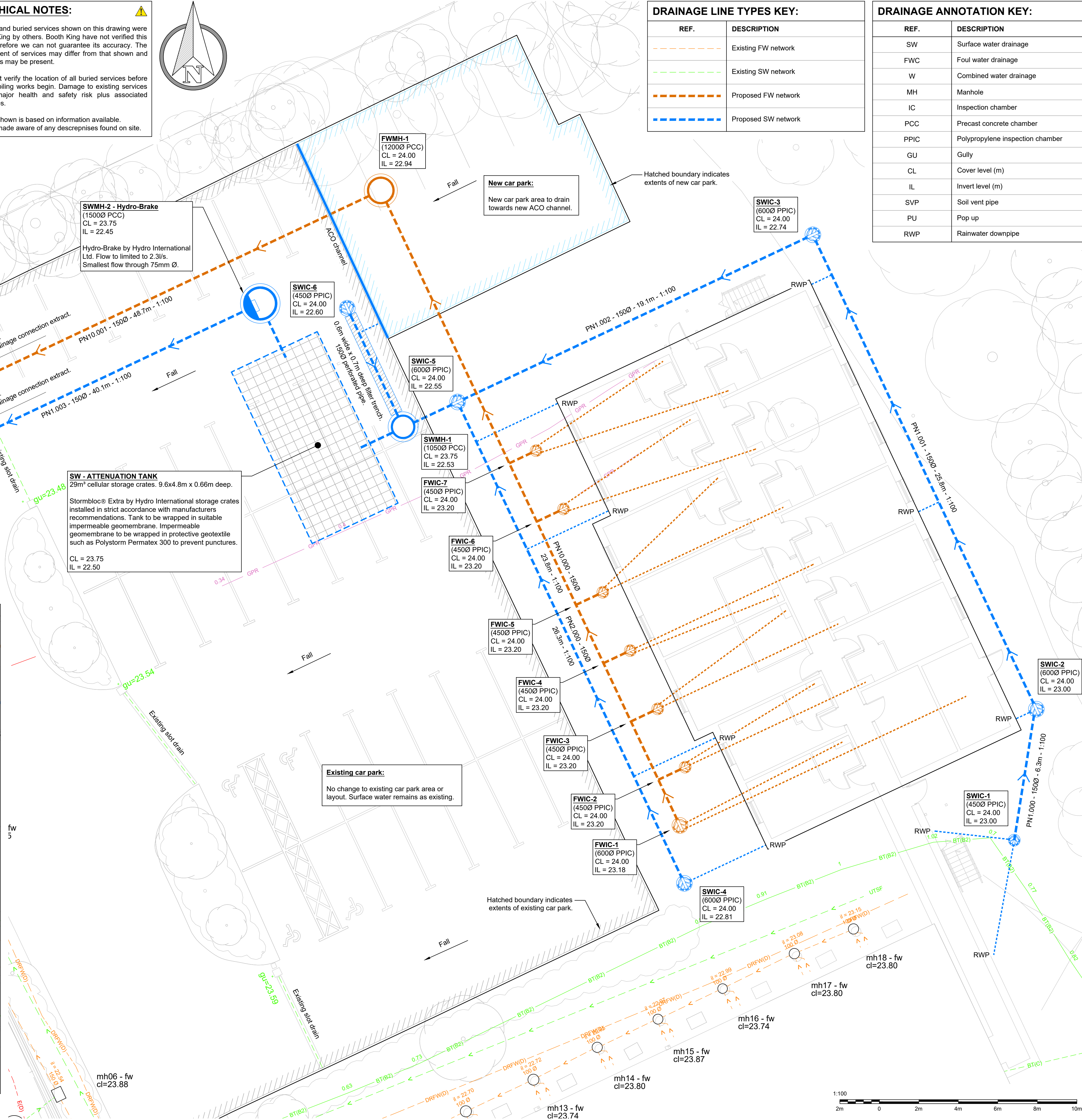
REF.	DESCRIPTION
SW	Surface water drainage
FWC	Foul water drainage
W	Combined water drainage
MH	Manhole
IC	Inspection chamber
PCC	Precast concrete chamber
PPIC	Polypropylene inspection chamber
GU	Gully
CL	Cover level (m)
IL	Invert level (m)
SVP	Soil vent pipe
PU	Pop up
RWP	Rainwater downpipe

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EXTRACT ON PROPOSED DRAINAGE CONNECTION
SCALE 1:XX



C01	15.05.24	STAGE 3 - ISSUED FOR PLANNING	PA
REV.	DATE	REVISION DETAILS	INITIALS
CURRENT DRAWING REVISION CHECKED BY SP			
CURRENT DRAWING REVISION APPROVED BY AI			
DRAWING STATUS: A3		PROJECT STAGE: STAGE 3	

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PROJECT: Premier Inn Extension Liverpool Tarbock				
TITLE: Proposed Drainage GA				
SCALE (A1)	AUTHOR	DATE	REVISION	BKPL No.
1:250	CM	May 24	C01	15135
DRAWING REF: 15135-BKP-XX-XX-DR-C-0511				