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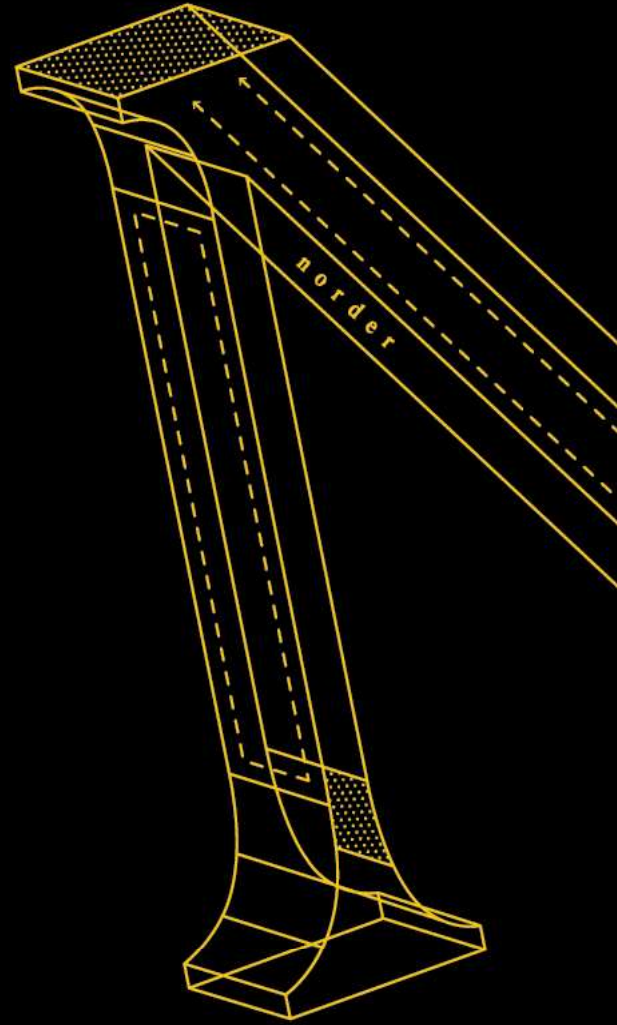
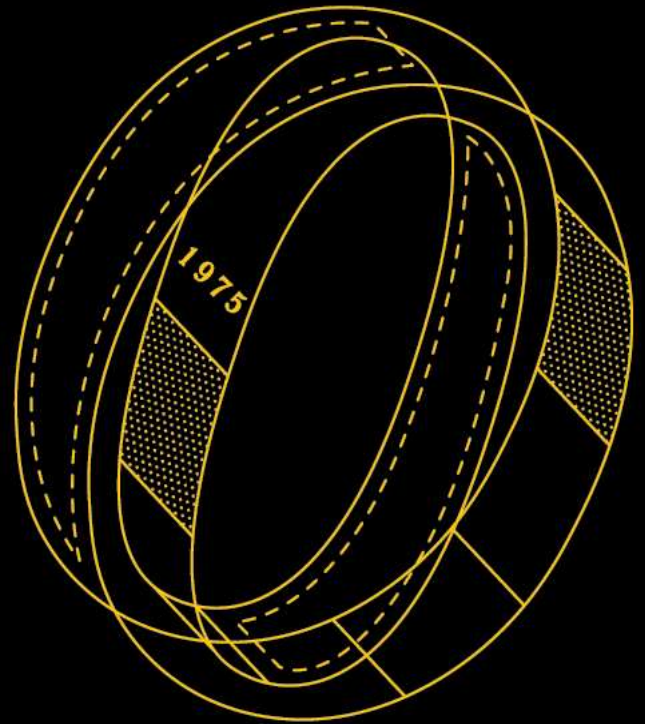
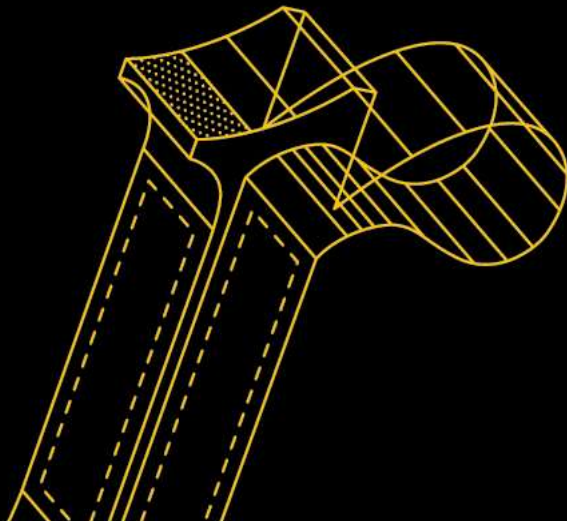
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Client: Heineken

Project Title: MCV Replacement
Heineken, Manchester

Document Title: Flood Risk Assessment

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TABLE OF CONTENTS

	Page No.
1 INTRODUCTION	1
2 SITE INFORMATION	2
2.1 Existing Site and Proposed Development	2
2.2 Flood Zone Classification	3
3 POSSIBLE SOURCES OF FLOODING	4
3.1 Fluvial (Rivers)	4
3.2 Tidal	4
3.3 Surface Water	4
3.4 Ground Water	5
3.5 Infrastructure Failure	5
3.6 Development Drainage	7

Appendix A – Site Location Plan

Appendix B – Existing and Proposed Layout

Appendix C – Flood Mapping Information

Appendix D – Sewer and Drainage Records



1 Introduction

This Flood Risk Assessment (FRA) has been produced in accordance with the 2021 National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance (PPG).

The FRA has been produced on behalf of Heineken in respect of the proposed MCV Replacement Project located within their existing brewery site at Denmark Road, Manchester, M15 6LD.

The comments and opinions contained in this report, including the conclusions and recommendations, are based on the following information:

- (i) Existing OS plans.
- (iii) Government and Environment Agency flood mapping.
- (iv) United Utilities sewer record plans.

This report is prepared solely for the use of Heineken and their advisers.

2 Site Information

2.1 Existing Site and Proposed Development

The proposed development is located within the existing Heineken Brewery site off Denmark Road, Manchester, M15 6LD. Grid reference 383848 E, 395897 N. A site location plan is attached under **Appendix A**.

The Heineken brewery is bound by Princess Road to the west with a supermarket and retail park beyond. To the north, the site is bound by Greenheys Lane with a residential area beyond. Charles Halle Road and Denmark Road run adjacent to the eastern boundary with residential housing beyond, along with a primary school and commercial unit. To the south the site is bound by Moss Lane East, with a number of churches and social clubs and commercial units beyond.

The Bridgewater Canal runs approximately 1.75Km to the north west of the site and the River Irwell runs approximately 1.85Km to the north west of the site. Both vehicular and pedestrian access can be taken into the site via Denmark Road.

The Heineken site is approximately 7.5Ha in area and accommodates the main factory and production buildings along with the main office building. The remainder of the site is used as car parking, lorry parking and storage. The site is covered in impermeable surfacing, being a mixture of concrete and asphalt pavements, with the exception of a small area of landscaping at the site entrance and to some boundaries.

The proposed MCV Replacement Project planning boundary occupies an area of approximately 150m² and is located just within the southern half of the Heineken brewery site. The planning area is currently occupied by the existing brewhouse building, within which the existing MCV Vessel 1 and MCV Vessel 2 are contained.

The proposal is to replace the 2 no. existing MCV vessels with 2 no. smaller diameter MCV vessels, along with an additional cereal cooker vessel. Both vehicular and pedestrian access to the site will continue to be taken from Denmark Road and the development area will remain as fully impermeable surfacing.

A plan showing the existing and proposed layout is attached under **Appendix B**.

2.2 Flood Zone Classification

The flood map for planning has been obtained from the Environment Agency and a copy of the flood map is attached under **Appendix C**.

The flood map for planning shows that the MCV Replacement Project boundary is partially located within Flood Zone 2 which has an annual probability of flooding from rivers of between 1 in 100 and 1 in 1000 (0.1% and 1.0%).

There are no allocated flood storage areas within the vicinity of the site area.

The proposed MCV Replacement Project is classed as general industry and would therefore be classed as a Less Vulnerable development in accordance with Table 2 : Flood Risk Vulnerability Classification, of the PPG, associated with the NPPF. Table 3 : Flood Risk Vulnerability and Flood Zone Compatibility, of the PPG, associated with the NPPF, shows that an exceptions test is not required for a Less Vulnerable development located within Flood Zone 2 and therefore the proposed development is appropriate within Flood Zone 2.

3 Possible Sources of Flooding

3.1 Fluvial (Rivers)

Fluvial sources of flooding include the inundation of floodplains from rivers and watercourses, inundation of areas outside the floodplain due to the influence of bridges, embankments and other features which artificially raise water levels, overtopping or breaching of defences, blockages of culverts, flood channels or flood corridors.

The Bridgewater Canal runs approximately 1.75Km to the north west of the site and the River Irwell runs approximately 1,85Km to the north west of the site.

The Flood Map for Planning shows that the MCV Replacement Project boundary is partially located within Flood Zone 2 which has an annual probability of flooding from rivers of between 1 in 100 and 1 in 1000 (0.1% and 1.0%).

The MCV Replacement vessels are located within an existing building and will therefore not increase impermeable area on the site. As such the proposals will have no effect on the site and surrounding areas during a flood event.

A copy of the Flood Map for Planning is attached under **Appendix C**.

3.2 Tidal

The area and associated Rivers are not subject to tidal events.

3.3 Surface Water

Flooding from surface water can include sheet run off from adjacent land and surcharged sewers being combined, foul or surface water sewers.

The Government long term flood risk information shows that the whole of the development is located within an area having a very low risk of flooding due to surface water. A very low risk of flooding means that it has a chance of flooding of < 0.1% each year.

The MCV Replacement vessels are located within an existing building and will therefore not increase impermeable area on the site. As such the proposals will not increase the risk of flooding from surface water on the site or surrounding areas.

A copy of the long term flood risk information is attached under **Appendix C**.

3.4 Ground Water

Flooding from groundwater can include the water table rising above ground level after prolonged rainfall, remote from a watercourse, low lying areas underlain by permeable rock (aquifers), seepage directly into properties, and groundwater recovery after pumping has ceased from mining or industry.

There is no evidence of groundwater issues on the site.

3.5 Infrastructure Failure

Flooding from the failure of reservoirs, canals, industrial processes, burst water mains, blocked sewers or failed pumping stations.

United Utilities sewer records show a 2450mm brick combined sewer and a 750mm by 1020mm brick combined sewer run in a westerly direction within the carriageway of Moss Lane East. These sewers are shown to have a depth to invert of approximately 8m and 3.5m respectively.

A 620mm by 860mm brick culvert combined sewer runs in a southerly direction within Princess Road. The sewer records do not provide a depth for the sewer. The sewer connects onto the 2450mm combined sewer indicated above to continue to run in a westerly direction away from the site. A 610mm by 930mm combined sewer runs in a southerly direction within the site and under the site service road to the south. This sewer is shown to have a depth to invert of approximately 3m and runs into the 750mm by 1020mm brick combined sewer indicated above. This sewer also serves the adjacent residential development located to the east of the site.

A 680mm brick combined sewer, shown to increase to a 620mm by 770mm sewer, runs in a northerly direction within the carriageway of Denmark Road, commencing at the site entrance. This sewer is shown to have a depth to invert of approximately 2.25m. This sewer is shown to have a 750mm combined spur running into the site which stops at a dead end.

A 300mm diameter, 560mm by 710mm, and 600mm diameter combined sewers run into the site from the Police Station to its eastern boundary. These sewers are shown to connect to each other and run in a westerly direction, but are shown to end within the site boundary. A 1805mm by 3300mm surface water sewer is shown to run in a southerly direction adjacent to the western side of Denmark Road. The sewer is shown to have a depth to invert of approximately 4m and is shown to end at the site entrance.

As these drainage systems are adopted and owned by United Utilities, it is considered that these systems are likely to be adequately maintained and monitored. A copy of the sewer records are attached under **Appendix D**.

The existing brewhouse which will accommodate the MCV Replacement Project, is served by surface water and process drainage. As these private drainage systems are owned and maintained by the brewery as part of their site management system, they are considered to be adequately maintained.

As such, the site is considered not to be at significant risk from infrastructure failure or flooding from existing sewers.

The Government flood mapping for reservoirs shows that the whole site will potentially be affected due to the failure of reservoirs when river levels are normal. It is noted by the Environment Agency that the failure of a reservoir is very unlikely and that the maps provided reflect a credible worst case scenario for the purposes of emergency planning. It is considered the risk of flooding from the failure of a reservoir is low.

A copy of the Government flood mapping for reservoirs is attached under **Appendix D**.

3.6 Development Drainage

An increase in formally drained impermeable area could increase flood risk to a wider catchment.

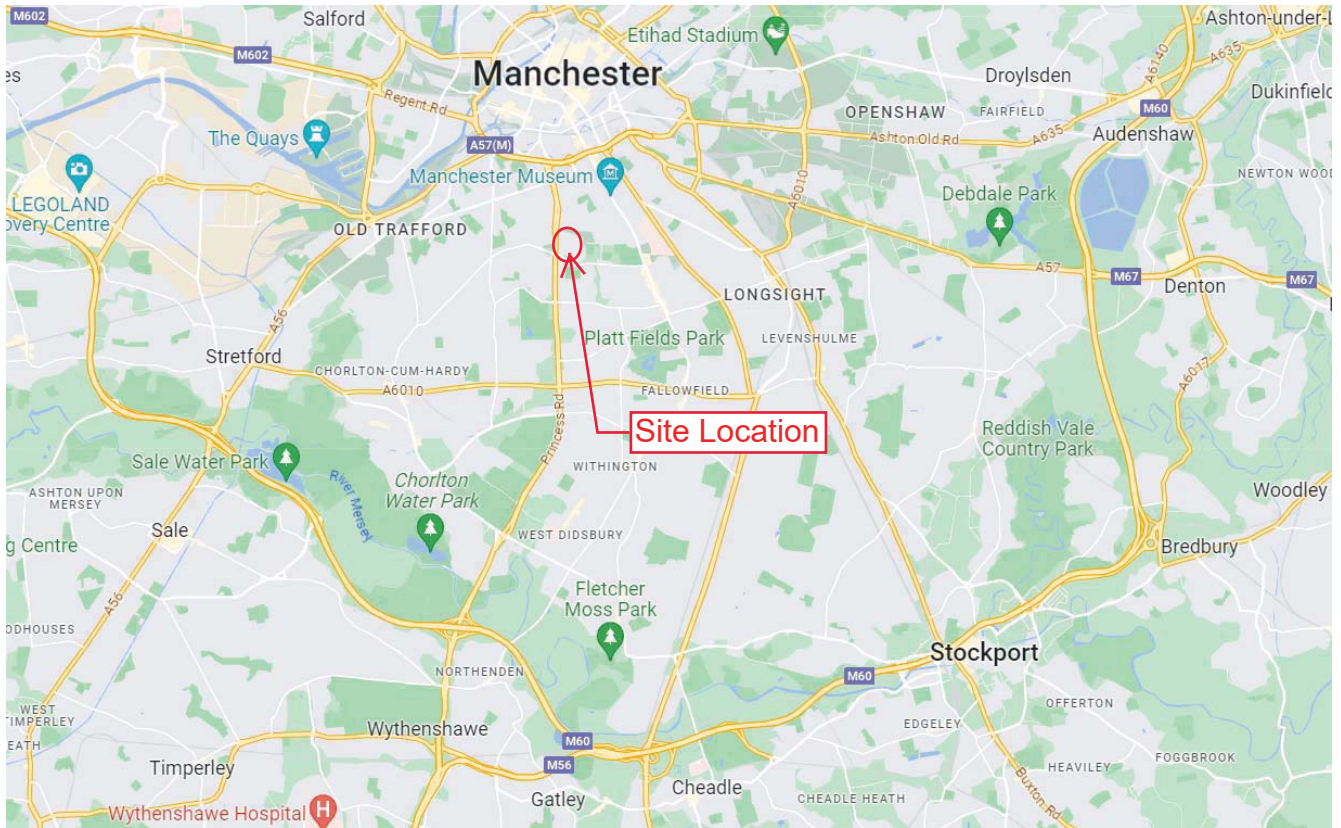
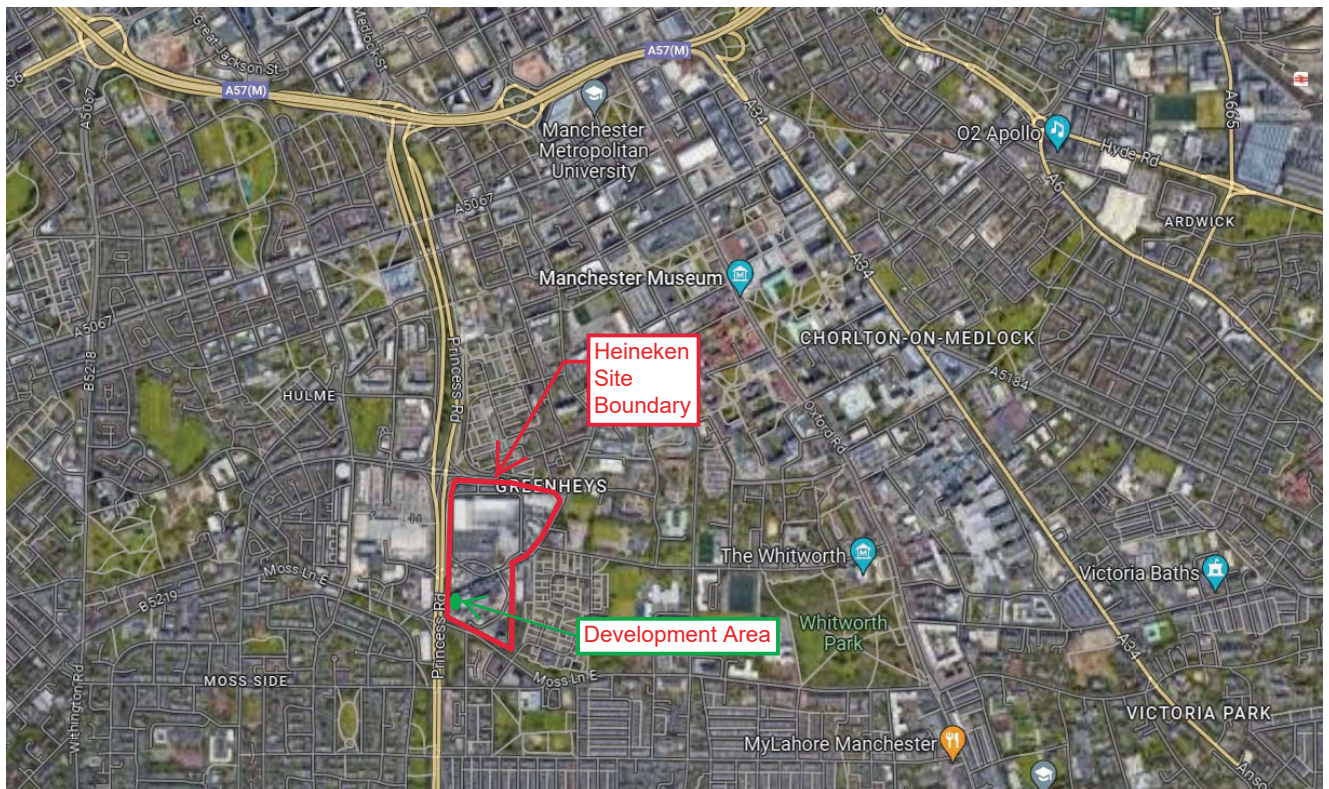
The MCV Replacement vessels are located within an existing building, which is impermeable and formally drained and discharged into the surrounding site drainage network.

As there is no increase in formally drained impermeable area there will not be an increase in flood risk to a wider catchment due to the development proposals.

Appendix A – Site Location Plan

Heat Recovery Project Heineken Brewery, Manchester

Site Location Plan



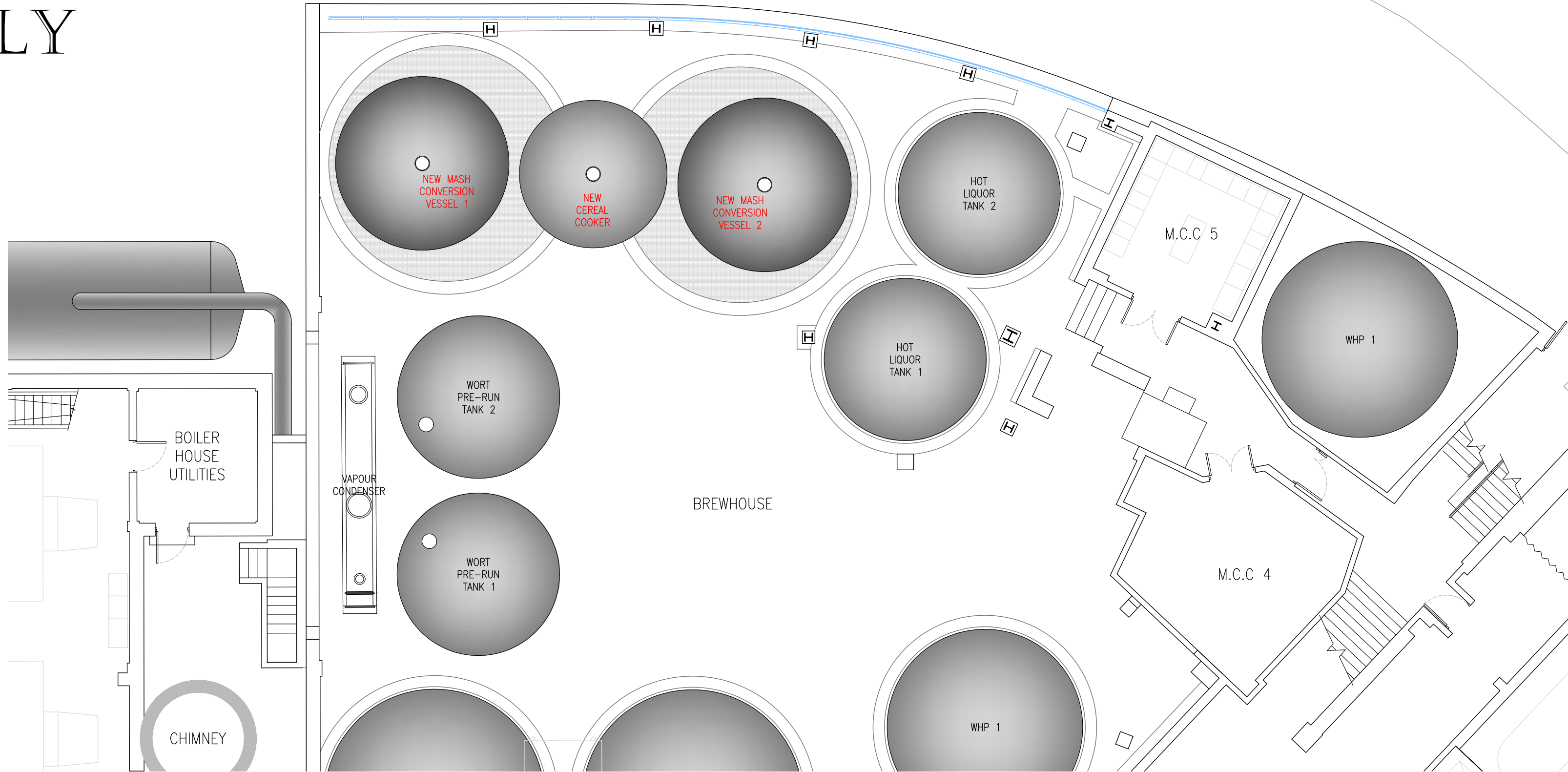


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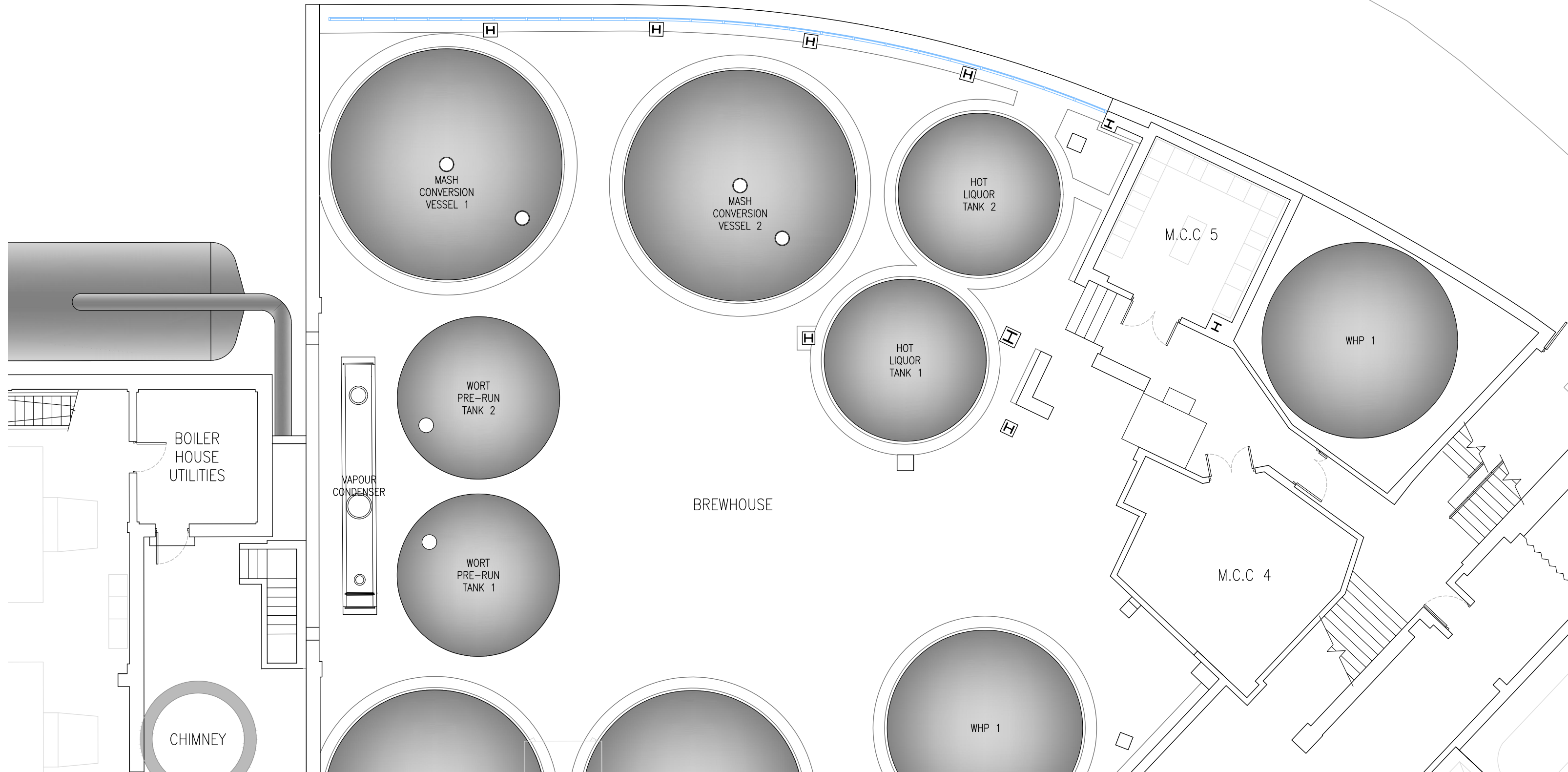
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THIS DESIGN IS THE PROPERTY OF L.E.S. AND IS NOT TO BE COMMUNICATED TO ANY THIRD PARTY NOR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT WAS SUPPLIED.			
<div><div>⚠</div><div>THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015</div><div>⚠</div></div> <p>Prior to commencing any works on site a full risk assessment must be completed by all Contractors for every task and role to be undertaken and be submitted for approval. The assessment must take into consideration not only the construction phase but also cleaning maintenance and eventual removal/demolition.</p>			
<div>PLANNING</div>			
2	General update following review DMS No. 6299_390889 MHC 26-03-2024		
1	Initial Issue DMS No. 6299_389313 MHC 02-02-2024		
Issue		Revision / Serial No.	Sig. Date
Title: SITE LOCATION & BLOCK PLANS			
Client		Heineken	
Location		Manchester	Scale as shown
Project		MCV Replacement	Date February 2024 Drawn MHC
AI		BUILDING & CIVILS	
DRG No.		6299_D1105	2
THIS IS A CAD DRAWING DO NOT ALTER			
<div><div></div><div>LORIEN ENGINEERING SOLUTIONS Part of the NIRAS Group</div></div> <p>Millennium Court, First Avenue, Burton-on-Trent, Staffordshire, DE14 2WH. e-mail: engineeringuk@niras.com www.lorienengineering.com</p> <div>consult • design • manage • construct</div>			

Appendix B – Existing and Proposed Layout

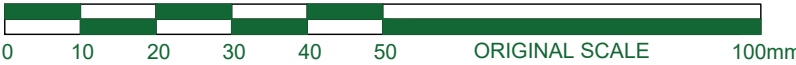
FOR ILLUSTRATIVE
PURPOSES ONLY



PROPOSED BREWHOUSE FLOOR PLAN
Scale 1:100



EXISTING BREWHOUSE FLOOR PLAN
Scale 1:100



AI	BUILDING & CIVILS	
DRG No.	6299_D1102	1
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 THE CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015 
Prior to commencing any works on site a full risk assessment must be completed by all Contractors for every task and role to be undertaken and be submitted for approval. The assessment must take into consideration not only the construction phase but also cleaning maintenance and eventual removal/demolition.

PLANNING

1	Initial Issue DMS No. 6299_389301	MHC	..	02-02-2024
Issue	Revision / Serial No.	Sig.	Date	

Title: EXISTING & PROPOSED BREWHOUSE FLOOR PLANS			
Client Heineken		Scale 1:100 @ A1	
Location Manchester		Date February 2024	
Project MCV Replacement		Drawn MHC	

AI	BUILDING & CIVILS	
DRG No.	6299_D1102	1
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Appendix C – Flood Mapping Information

Flood map for planning

Your reference
9062 HUK MCV

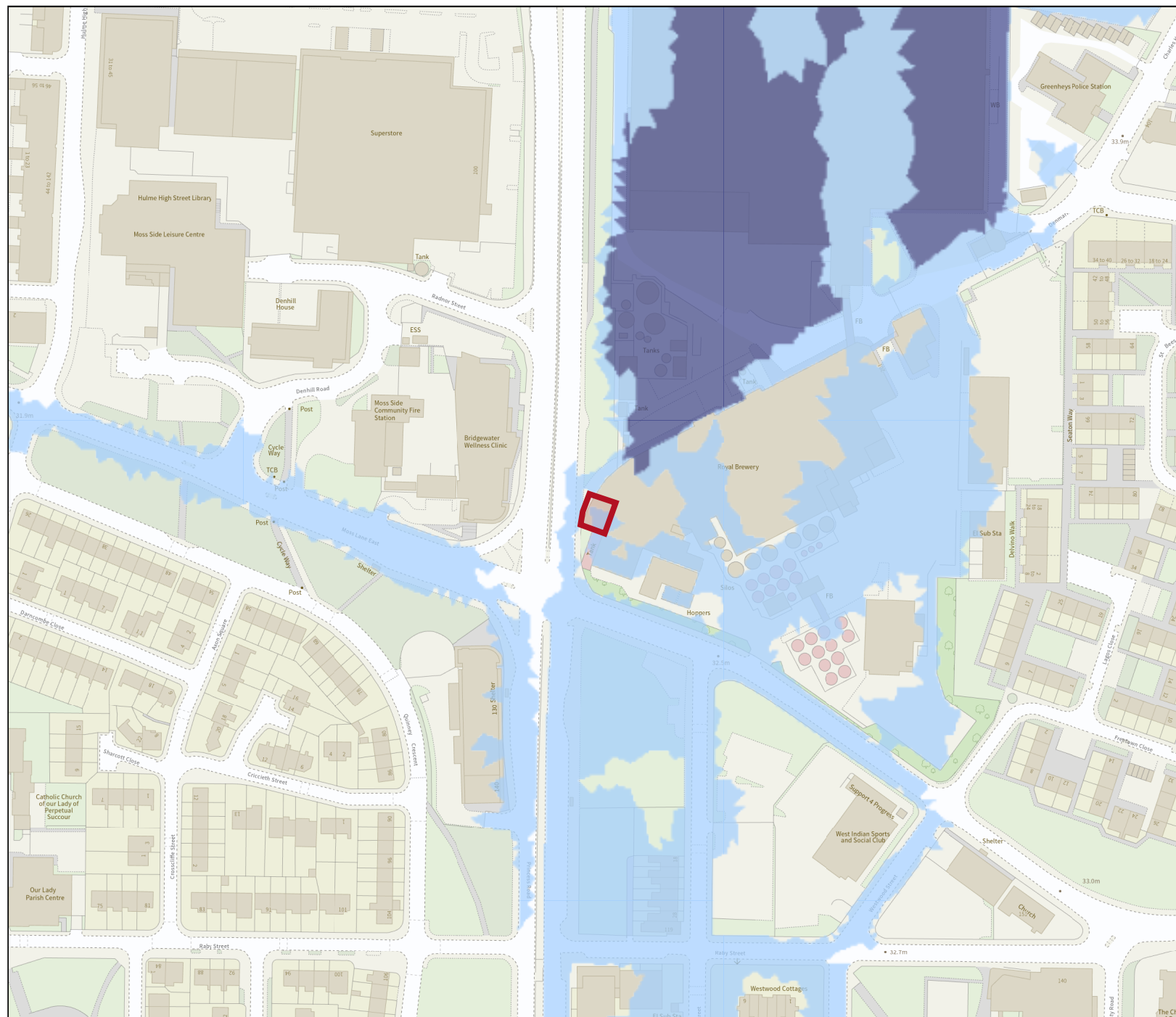
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383849/395895

Scale
1:2500

Created
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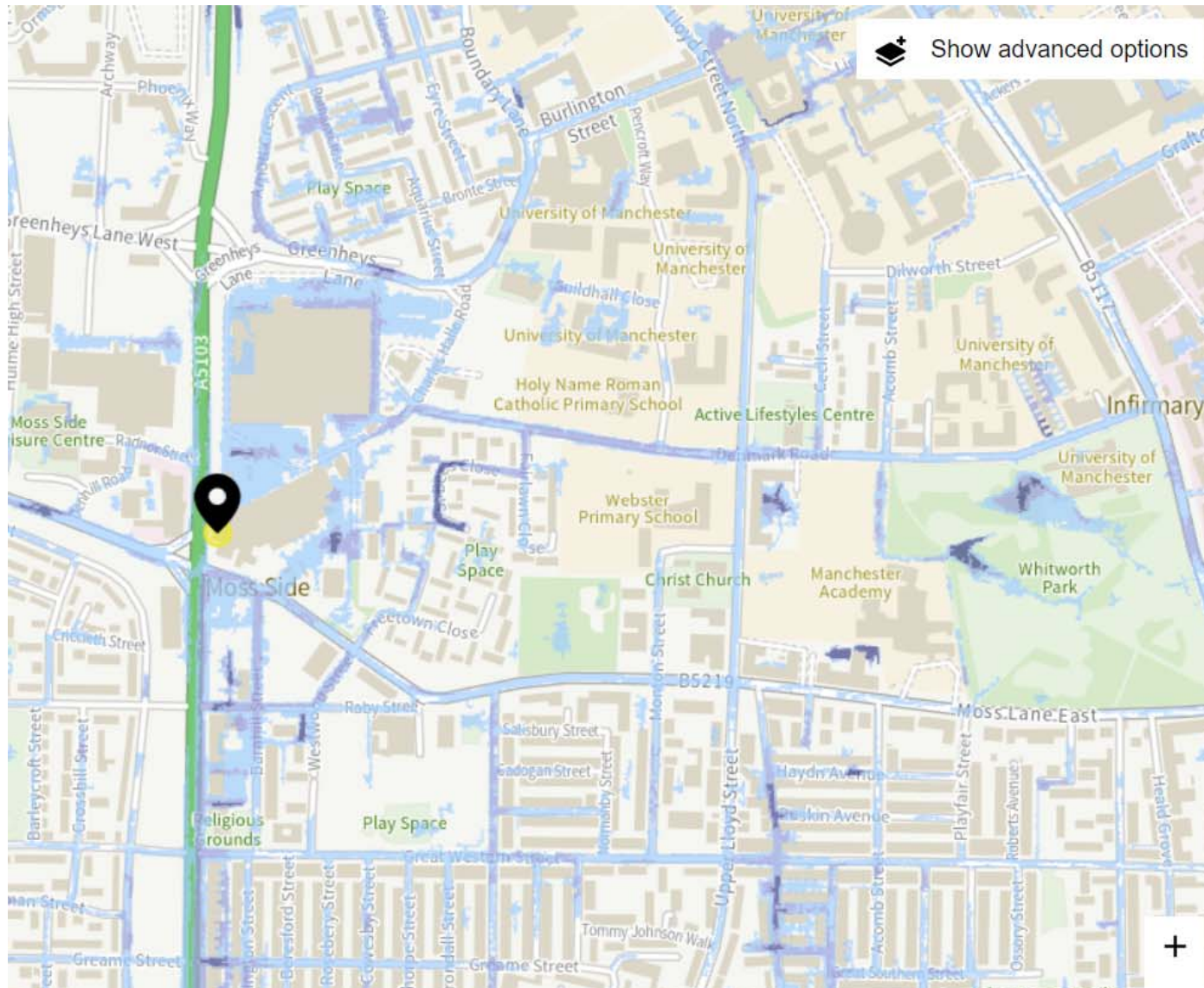
-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area

0 20 40 60m



MCV Replacement Project
Heineken, Manchester
9062

Flood Risk From Surface Water



Key

Surface water

- ☐ Extent
- ☒ High risk
More than 3.3% chance each year
- ☒ Medium risk
Between 1% and 3.3% chance each year
- ☒ Low risk
Between 0.1% and 1% chance each year

☐ Depth

Map details

- ☒ Show flooding
- ☒ Selected address
- ☒ 15m boundary

Appendix D – Sewer and Drainage Records

SEWER  United



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VC	13.945622	
CO	74.330305	
BR	22.847332	
BR	22.847332	
PVC	31.442276	
CO	37.017332	1 in 112
BR	72.917776	1 in 228
VC	15.247998	
VC	15.247998	
BR	24.046306	
VC	5.945171	
CO	18.248229	1 in 304
CO	18.248229	1 in 304
VC	54.488553	1 in 196
CO	27.892855	1 in 174
VC	11.382332	
VC	11.382332	
VC	6.805898	
VC	6.805898	
VC	10.46231	
VC	31.821489	
VC	49.879133	1 in 200

Abandoned Foul Surface Water Combined

Public Sewer
Private Sewer
Section 104
Rising Main
Sludge Main
Overflow
Water Course
Highway Drain

red - combined blue - surface water
brown - foul purple - overflow

- MANHOLE FUNCTION**
- | | |
|----|---------------|
| FO | Foul |
| SW | Surface Water |
| CO | Combined |
| OV | Overflow |

SEWER SHAPE			
CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified

- BR Brick
- PE Polyethylene
- RP Reinforced Plastic Matrix
- GO Concrete
- CBS Concrete Segment Bulbed
- CSU Concrete Segment Unbulbed
- CC Concrete Box Culverted
- PSC Plastic / Steel Composite
- GRG Glass Reinforced Plastic
- DI Ductile Iron
- PVC Polyvinyl Chloride
- CI Cast Iron
- SI Spin Iron
- ST Steel
- VC Unfilled Clay
- PP Polypropylene
- PF Pitch Fibre
- MAC Masonry, Coursed

Heineken Manchester Denmark Road.

Sheet: 3 of 4

SEWER RECORDS



Refno	Cover	Func	Invert	Size x	Shape	Mat	Length	Grat	Refno	Cover	Func	Invert	Size x	Shape	Mat	Length	Grat
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5904	SW	28.69	0	300	CO	UN	30.5208	1 in 222	5905	SW	28.69	0	300	CO	UN	30.5208	1 in 222
5906	SW	28.69	0	300	CO	UN	30.5208	1 in 222	5907	SW	28.69	0	300	CO	UN	30.5208	1 in 222
5908	SW	28.69	0	300	CO	UN	30.5208	1 in 222	5909	SW	28.69	0	300	CO	UN	30.5208	1 in 222
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5998	SW	28.69	0	300	CO	UN	30.5208	1 in 222	5999	SW	28.69	0	300	CO	UN	30.5208	1 in 222

LEGEND

All point assets follow the standard colour convention:
● Combined
● Surface water
● Public Sewer
● Private Sewer
● Section 104
● Rising Main
● Overflow
● Water Course
● Highway Drain

Manhole
 Head of System
 Extent of Survey
 Rooking Eye
 Inlet
 Discharge Point
 Penstock
 Valve
 Air Valve
 Non Return Valve
 Sump
 Cascade
 Flow Meter
 Hatch Box
 Oil Interceptor
 Drop Shaft
 Office Plate

Side Entry Manhole
 Offset
 Inspection Chamber
 Bifurcation Chamber
 Lamp Hole
 Junction / Saddle
 Catchpit
 Valve Chamber
 Vent Column
 Vent Chamber
 Penstock Chamber
 Network Storage Tank
 Sewer Overflow
 We Treatment Works
 Sewer Work
 Control Kiosk
 Change of Characteristic

MANHOLE FUNCTION
 FO Surface
 SW Surface Water
 CO Combined
 OV Overflow

SEWER SHAPE
 CI Circular
 EG Egg
 FI Flat Top
 RE Rectangular
 SQ Square
 TR Trapezoidal
 AR Arch
 BA Bant
 HO Horseshoe
 UN Unspecified

SEWER MATERIAL
 AC Asbestos Cement
 BR Brick
 PE Polyethylene
 RP Reinforced Plastic Matrix
 CO Concrete
 CSB Concrete Segment Bored
 CSB Concrete Segment Unbored
 CC Concrete Box Culvert
 PSC Plastic / Steel Composite
 GRAC Glass Reinforced Plastic
 DI Ductile Iron
 PVC Polyvinyl Chloride
 CI Cast Iron
 SI Spun Iron
 ST Steel
 VC Vitrified Clay
 PP Polypropylene
 PF Pitch Fibre
 MAC Masonry, Random
 UN Unspecified

Address or Site Reference:
 Heineken Manchester Denmark Road,

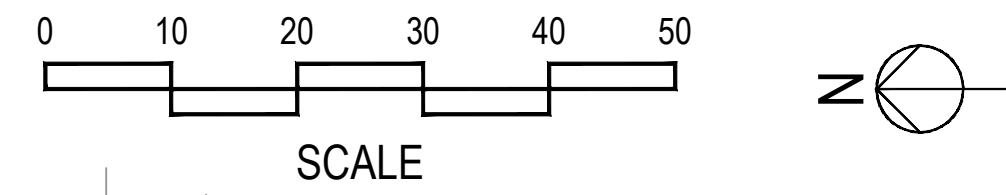
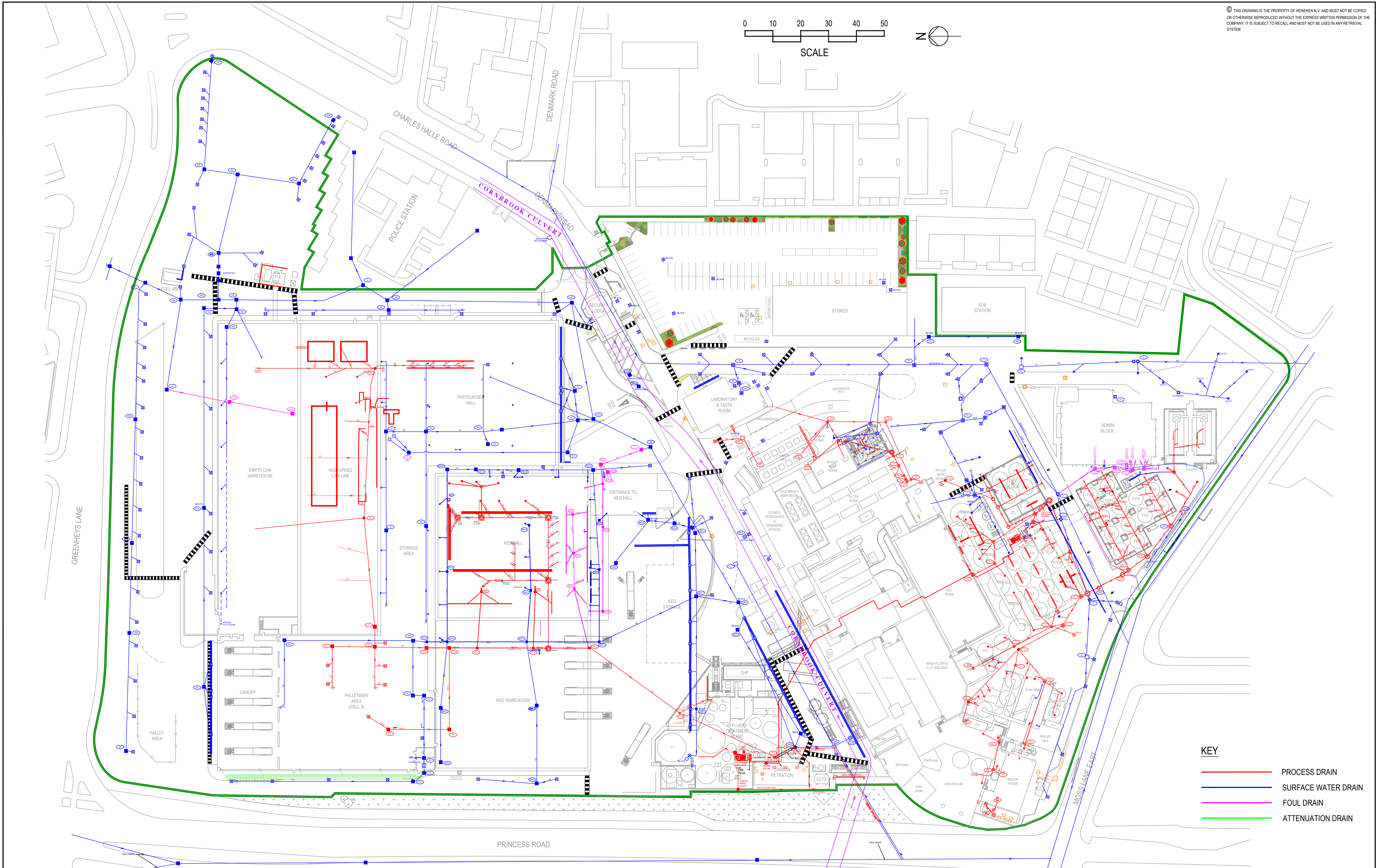
OS sheet SJ8395NE
 Number: 173
 Date: 28/12/2018
 Sheet: 4 of 4

Printed by: Property Searches

SEWER RECORDS

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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KEY

- PROCESS DRAIN
- SURFACE WATER DRAIN
- FOUL DRAIN
- ATTENUATION DRAIN

U	18/01/01	SPB	DRY 1 - BLOCK & REVEAL DRAINAGE ADDED.
U	15/12/00	SPB	ETP OUTLET PIPE & SAMPLE POINT SHOWN.
T	28/06/00	DJ	UPDATES TO DRAINS AROUND THE PALLETISER AREA & ATTENUATION DRAIN INSTALLED.
S	27/04/18	SPB	UPDATES TO DRAINS AROUND NEW FV BLOCK, HORAP TANKS AND NEW YEAST CULTURE PLANT.
P	13/02/16	AP	UPDATED FURTHER TO SURVEY.
P	18/05/15	AP	UPDATED FURTHER TO SITE LAYOUT CHANGES.
N	28/07/14	AP	FOUL DRAINS LAYER COLOUR CHANGE.
N	28/05/14	AP	CHAMBERLINE UPDATES.
N	28/06/12	AP	SITE PLAN UPDATED, HOWELL'S DEMOLISHED.
K	28/09/10	AP	BRICK SUMP P1.1 POSITION CORRECTED.
REV	DATE	DRN	DESCRIPTION



Heineken UK Limited
Manchester Brewery
201 Denmark Road, Manchester, M15 6LD
Tel: 0161 226 4371

LOCATION	MANCHESTER BREWERY
PROJECT	DRAINAGE MASTER DRAWING

DRAWN BY:	BR
DATE:	07/01/99
APPROVED BY:	
DATE:	

TITLE	DRAINAGE SITE PLAN
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DRAWING No.:	87-001 Sheet 2	REV:	V
STATUS	AS BUILT	SCALE @ A1:	1:600

MCV Replacement Project
Heineken, Manchester
9062

Flood Risk From Reservoirs

