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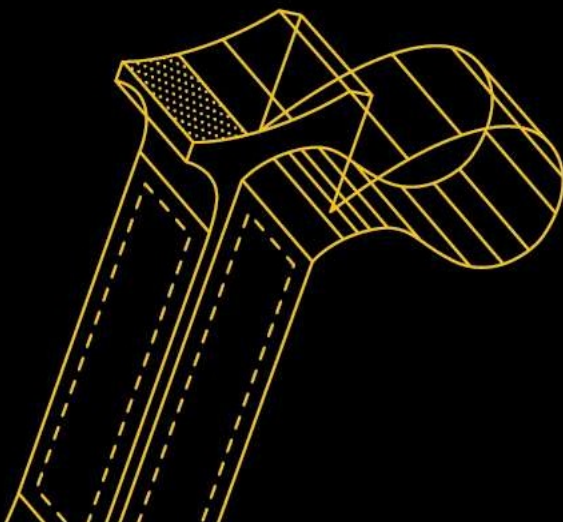
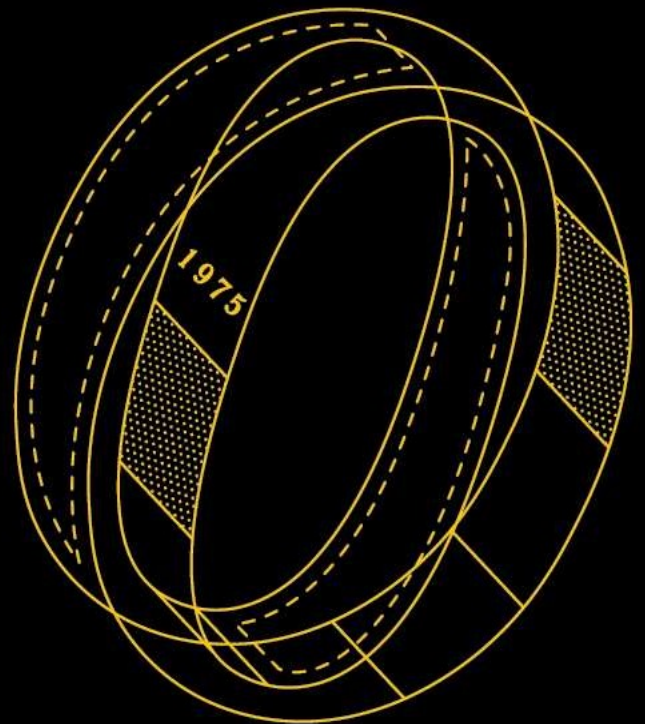
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Client: Heineken

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Heineken, Manchester

Document Title: Flood Risk Assessment

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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 replacement high level access platform around existing Cooling Tower 14 (CT14) 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 384042 E, 396135N. 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 development has a red line boundary area of approximately 150m² and is located to the north east of the Heineken brewery site within the existing CT14 compound area, with a lorry yard and service road adjacent. The proposals consist of a new high level platform to replace the existing smaller high level platform. The platform will be supported by a lattice steel frame structure located off the existing ground slab. This area is currently positively drained to the surface water drainage network and has a level at the platform of 33.55m AOD, with a surrounding existing ground level of approximately 33.39m AOD. Both vehicular and pedestrian access to the site will continue to be taken from Denmark Road.

Plans showing the existing and proposed layout are attached under **Appendix B**.

2.2 Flood Zone Classification

A 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 proposed platform structure is fully located within Flood Zone 3 which has an annual probability of flooding from rivers of 1 in 100 or greater (1% or greater).

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

The proposed replacement access platform 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 within Flood Zone 3a and therefore the proposed development is appropriate within Flood Zone 3a.

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 proposed platform structure is fully located within Flood Zone 3 which has an annual probability of flooding from rivers of 1 in 100 or greater (1% or greater).

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

The proposed replacement access platform will be supported by a lattice steel frame structure located off the existing ground slab. The lattice steel frame will be located within the Flood Zone area and will have an insignificant amendment to the current site arrangement and therefore it is considered that this will have a negligible effect on the site and surrounding areas, during a flood event.

A copy of the Flood Map 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 low risk of flooding due to surface water. A low risk of flooding means that it has a chance of flooding of between 0.1% and 1% each year.

The proposed replacement access platform will be supported by a lattice steel frame structure located off the existing ground slab and therefore the proposals will have a negligible effect on the site and surrounding areas due to risk of flooding from surface water.

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**.

Private surface water drains run within the vicinity of the proposed works and the area is served by a series of gullies. The surface water drainage discharges to the west of Heineken site. 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 proposed replacement access platform is located above an area covered by impermeable concrete surfacing which is 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

Appendix B – Existing and Proposed Layout

Appendix C – Flood Mapping Information

Appendix D – Sewer and Drainage Records