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Our reference: 077409-CUR-XX-XX-CO-GE-00001-V01

30 March 2021

Manchester City Council
Planning Department
P O Box 532
Town Hall
Manchester
M60 2LA

Dear Sir/Madam

Re: Planning Ref – 121380/FO/2018 - Swan House, Swan St, Manchester, M4 5DF – Planning Condition 6 Discharge

We acknowledge receipt of a copy of the Environment Agency letter to you dated 19 March 2021 in relation to the discharge of condition 6. The Environment Agency raised specific queries with reference to incomplete information being submitted to them in relation to the assessment of environmental chemistry laboratory results for two samples of ground water. We submit our response below.

The results of laboratory analysis of the groundwater samples taken from BH102 and BH103 been assessed against UK/EU Drinking Water Standards (DWS) due to the underlying Principal aquifer within the bedrock. Additionally, it should be noted that the Principal Aquifer it is overlain by a Secondary Undifferentiated aquifer within the superficial deposits.

Granular Glacial Till was encountered from depths of 10-13m below ground level (bgl), underlain by granular residual soils at 15-17m bgl and sandstone bedrock at 20-24.20m bgl. Natural soil of limited permeability thus overlies the secondary aquifer with thickness varying from 7.5m to 12.3m.

The groundwater sample from BH102 is from the sandstone and as detailed in Table 1 below and the logs, the sampling pipe is sealed off at rockhead.

Table 1 – *Monitoring Well Response Zones*

	Borehole Ref.	Response Zone(s) m bgl (m AOD)	Strata Description(s)
Stage 2	BH101A	5.00 – 15.00 (44.95 – 34.95)	Cohesive and granular glacial till
	BH102	22.00 – 32.00 (28.10 – 18.10)	Chester Formation (formerly Chester Pebble Beds) (sandstone)
	BH103	1.00 – 5.00 (49.42 – 45.42)	Made ground and cohesive glacial till

The slotted pipework was installed 22-32m bgl (28.10-18.10m AOD), with groundwater levels recorded between 24.29-24.63m bgl (25.81-25.47m AOD) during the four monitoring visits.

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This water sample is therefore considered representative of the groundwater within the sandstone bedrock underlying the site.

The groundwater sample from BH103 is influenced by the Made Ground and as detailed in Table 1 and the logs, the response zone is sealed in the cohesive Made Ground and underlying cohesive Glacial Till to a depth of 5m bgl. Perched groundwater levels were recorded between 2.80-3.59m bgl (47.62-46.83m AOD) during the four monitoring visits.

This water sample is therefore considered representative of the perched groundwater within the Made Ground and above the relatively impermeable cohesive Glacial Till.

The two groundwater samples collected and tested show a difference in water quality as might be expected for samples taken from natural solid strata and from superficial strata influenced by made ground close to the surface. Neither water sample shows significant impact by metals or inorganic compounds when compared with the UK Drinking Water Standards (DWS).

However, the sample from BH103 records more elevated hydrocarbon concentrations but not exceeding Environmental Quality Standards (EQS) threshold for the named aromatic fractions. There are some elevations against WHO thresholds in the lower to mid-range fractions of the sample from BH103.

There are no elevated TPH concentrations of concern in the water sample taken from the solid strata. Surprisingly, the total concentrations of PAH's are not dissimilar for both samples. However, there are no exceedances of the named determinands other than Benzo(a)pyrene for which the EQS threshold is very low and cannot be tested to that limit by Earth Sciences laboratories.

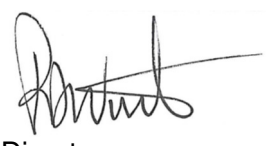
It is also noted that the Secondary and Principal Aquifers are overlain by a relatively thick layer of low permeability soils and that there is no evidence of significant contamination in the made ground soils on site nor a continuing potentially contaminative use of the site.

With consideration of the above there is no indication of a significant contamination risk arising from the development site to groundwater and or evidence of existing significant contamination of ground water underlying the development site.

Therefore, it is considered that the pile risk assessment previously issued is still valid.

We trust that this provides sufficient supporting information to answer your queries and discharge planning condition 6. If there are any questions, please do not hesitate to contact us.

Yours faithfully



Director
For and on behalf of
Curtins Consulting Ltd

Encs
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Richard Cunliffe – RG-Group
James Roberts - Simpsons

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