

CFA Piles Contaminating Aquifers

Risk: Piling through contaminated land with aquifer below may present a risk of introducing a pathway for contamination to enter the aquifer.

[CFA Piles such as these] reduce the possibility of transporting contaminated soil from the upper layers into the aquifer and [...] do not provide an easy contamination path for surface water to reach the lower strata. [Similarly, driven piles are generally] not permitted for fear of taking contamination down into the [aquifer]. (NC/99/73)

Harmful exposure of site operatives to contaminants in pile arisings is understood to be negligible, should the client be aware of a heightened risk to site workers, Van Elle must be informed.

Van Elle are not responsible for the disposal of pile arisings. The client is to ensure pile arisings disposed of responsibly.

Site Specifics: Earth Environmental & Geotechnical Ltd – GeoEnvironmental Investigation. Ref: A4210/21/SI dated September 2021

The above referenced report makes the following statements with regards to the type of foundations required, contaminated ground and risk of contaminating the aquifers. Within the executive summary of the site investigation, the risk from contamination from the site is described to be low to moderated.

"5.2 Observable Indications of Contamination

During the ground investigation, variable Made Ground containing concrete, glass fragments, metal nails, rebar, pottery fragments, plastic and red brick were observed in the exploratory holes.

No other visual or olfactory signs of contamination were observed.

7.3 Foundation Considerations

Based on the ground conditions encountered, conventional shallow strip/pad foundations are not considered suitable for the proposed development. The main consideration is the significant thickness of Made Ground encountered across the site (up to 3.05m thickness in places).

Therefore, alternative methods such as pile foundations are considered more suitable for the development.

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11.1 Soil Contamination

There is a moderate to low potential risk from soil contamination to construction workers and ground workers during development, and appropriate measures such as PPE, site health plans, appropriate disposal of material arisings will be required to mitigate this risk. The groundworks contractor must provide a soil management plan including methods of dealing with unanticipated soil contamination encountered during groundworks.

Based on the results of the chemical testing, an exceedance in Lead was encountered in one soil sample (WS1 at 0.60m).

However, the contaminated soils are located beneath the proposed building footprint. Therefore, there will be a low risk, due to the removal of the pollutant linkage during development.

11.5 Groundwater Contamination

Based on the results of the chemical testing, no contaminant exceedances were encountered in the groundwater sample retrieved from WS2. Therefore, the risk is considered very low."

Conclusions

Based on the above, the site investigation report suggests the risk of contaminating the ground water is very low. As piling is being suggested as the best form of foundations based on the ground conditions, a CFA pile is going to be the most suitable based on the guidance within the NC/99/73 report to reduce the risk of contaminating any watercourse or aquifer. This being said, it will need to be confirmed by a consultant engineer.

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