

Summary of Surveys

Acoustic Survey

An initial overview survey of the site has been undertaken and is presented in a technical design note. The purpose of this document is to provide sufficient high-level guidance to inform the business case. A full acoustic survey will be completed to support the planning application at a later date.

It is noted that the site is located on a residential area, far from any busy roads and therefore the buildings will likely be suitable for natural ventilation. It is believed that open windows will be suitable on all façades for both ventilation and controlling thermal overheating. As a result, it is expected that there will be no requirement from an acoustic perspective for upgraded glazing or trickle ventilation

To control reverberation, an initial review suggests Class C suspended ceiling should be provided throughout classrooms. In teaching spaces where there will be no ceiling, an allowance for 50% of the ceiling area as Class A absorption would be sufficient.

The minimum insulation between classrooms is 45 dB DnT,w for walls and floors. Floors will also require to meet an impact sound insulation performance ≤ 60 dB.Ln,T,w. The classroom doors are required to meet 30 dB Rw.

Based on the site review, it is unlikely that the plant room will require significant noise control.

Air Quality

An air quality assessment has been carried out based on the methodologies and guidance set out in Local Air Quality Management Technical Guidance LAQM TG(16)12 and the IAQM and Environmental Protection UK (EPUK) Land- Use Planning & Development Control planning for Air Quality guidance. The assessment considered both current and future conditions, with and without the proposed development, as well as emissions during the construction phase.

The background pollutant concentrations in the locality of the development site are well within the NAQOs as are the monitored NO² concentrations at Gravel Hill, less than 1km from the development site. NO² and PM concentrations are expected to be similar to those at the Gravel Hill monitoring site. As a result of the development, all receptors would experience a negligible increase in all pollutant concentrations and none would experience any exceedances of the NAQOs.

All construction dust impacts are able to be mitigated provided the guidance recommended by the IAQM and provided in the appendix of this report, is followed. It is recommended that a construction dust management plan is devised based on this guidance and submitted to BoP for approval.

Arboriculture

There are a high proportion of good trees on this site, which significantly limits its development potential. As most of these trees are visible from outside the site, there is very limited scope for removals without significantly adversely affecting local character.

Any excavation into existing levels is unlikely to be considered acceptable unless it is outside the root protection zone.

Should significant tree loss be considered, mitigation planting would need to be substantial and extensive across the entire site. Species selection must be forest sized trees such as oak, beech and sweet chestnut. Smaller species such as rowan and cherry will not replace lost oaks. Overshadowing will need to be carefully considered given the density of trees on the site.

Archaeological

The proposed development is unlikely to have an effect on any designated heritage assets within its surroundings. However, as parts of the site were not subject to previous development, it cannot be ruled out that archaeological remains may survive at the site.

Within the surroundings of the site, find spots of worked flint, from Mesolithic period onwards, have been found. In addition, Canford Heath, approximately 2km north-east of the site, is well known for prehistoric funerary activity, with a number of bowl barrows designated as Scheduled Monuments. The site is also located c. 1km east of a Roman Road leading to Poole, although there are no recorded remains of Roman date in the vicinity of the site.

The site is located c. 700m south of Ridgeway and Broadstone Conservation Area and there are no other designated heritage assets within 1km of the site. Due to distance and intervening modern development, it is considered that the proposed development would not have any effect on the designated area.

Buried Services

Buried services have been surveyed and are recorded on drawing: SS-HYDROCK HILLBOURNE-UTILITIES-R1.

Drainage

Drainage records have been reviewed and on-site surveys completed.

Existing drainage is recorded on drawing: SS-HYDROCK-HILLBOURNE-UTILITIES-R1

Existing storm-water from the buildings and hard-standing is discharged to a public storm-water sewer that crosses the site. This is a strategic sewer and requires a 4m easement on each side to prevent additional load on the pipe and for future maintenance access.

Existing foul water from the site is discharged to a public foul sewer in Kitchener Crescent. A public foul sewer assumed to originate at Southbrook Farm crosses the site and will require diversion as part of the development work.

Ecology

The majority of the site is of low ecological value; however, the mature tree boundaries and small area of woodland do provide opportunities for foraging bats and some areas of the schools offer low potential to support roosting bats. A bat emergence survey and activity surveys will be required to confirm the presence or otherwise of bat species. It is anticipated that these surveys will be completed during spring 2019.

A pond is also present on site and eDNA samples have confirmed that there are no great crested newts using it.

The boundaries to the school site offer minor habitat for reptile species and therefore further surveys will be carried out in 2019.

Flood risk

This site is shown to be wholly within Environment Agency Flood Zone 1 (Low Risk) associated with a <0.1% (>1000yr) Annual Exceedance Probability (AEP) of river flooding. The closest watercourse to the site approximately 1.5km southeast of the site and this flows into the Hatch Pond.

Environment Agency mapping also shows a low - medium risk of surface water flooding along Kitchener Crescent, but much (if not all) of this this is likely to be accommodated by highways drainage. There is understood to be a potential risk from groundwater flooding in the southeast of the site associated with a perched water table and layers of permeable rock above clay. This risk is likely to be mitigated through the inclusion of permeable sub-base within the new road construction which will provide an alternative route for the groundwater. There is no other significant flood risk from other sources known.

Ground Conditions

Desk Study

The site was undeveloped land until the 1950's, when the school was built. The school was expanded in the 1960s and 1990s. An old brick works and associated clay pits were present 100-200m south west of the site, historically.

Geology at the site indicated to comprise Head Deposits (clay, silt, sand, gravel) over Oakdale Clay/Poole Formation (sand, silt, clay). The Poole Formation is classified as a Secondary A aquifer.

There are no recorded landfills located within 500m. Main sources of contamination are considered to include Made Ground from development of school buildings and former fuel storage at each of the two school boiler rooms.

Ground Investigation

The following ground investigation works were completed from 29th May until 1st June:

- 4x cable percussive boreholes up to 10m deep
- 15x windowless sampler boreholes up to 5.45m deep
- 5x trial pits up to 2.2m deep
- Soakage testing carried out at four positions (TP01, TP02, TP03 and TP04a)
- CBR testing via TRL DCP carried out at 17 positions
- Gas and groundwater monitoring (six visits)
- Water sampling from boreholes

Ground conditions typically comprised topsoil/subsoil/Made Ground over interbedded sand and clay. The competency of the natural soils varied greatly from soft clay and loose sand to stiff clay and dense sand. Made Ground was encountered at less than half the positions, generally less than 0.5m thick, up to a maximum of 1.0m in WS07 and 1.6m in WS11. No significant visual or olfactory evidence for contamination was identified.

Groundwater was encountered at variable depths across the site, from 1.0m depth in WS01, WS02, WS09, WS10, WS11 and WS13, to 9.0m depth in BH01 and BH04. Further information on groundwater levels will be obtained via the gas and groundwater monitoring programme.

Geotechnical conclusions:

Excavations during investigation were generally stable, although slight spalling should be expected from the Made Ground and within the sands and gravels below the water table. Water seepages into excavations are likely to be adequately controlled by sump pumping.

Foundations are recommended by zone to comprise:

Area 1A: Piled foundations

Area 1B: Trench fill foundations at between 1.5m bgl to 2.0m bgl.

Area 2A: Piled foundations

Area 2B: Trench fill generally to 1.5m bgl.

School Area: Strip or pad foundations between 1.0m bgl and 2.0m bgl.

All strip and pad foundations shall be founded at least 300mm into the firm clay (or better) or medium dense sands (or better) of the Poole Formation.

An allowable bearing pressure of 100kN/m² on strip and trench fill foundations up to 1.0m in width (for residential) and 150kN/m² on pad foundations up to 1.0m square (for school) can be used for preliminary design purposes, whereby the long term settlement from the foundation loadings should not exceed 25mm.

Deepening of foundations/heave protection is likely to be required to allow for the effects of trees.

An equilibrium CBR of 5% will be achievable over the majority of the site. However, the CBR testing results indicate that in localised areas the achieved values will fall below 5%.

Soakage testing

The results of soakage testing indicated the site is unsuitable for traditional soakaways due to poor drainage characteristics.

Geo-environmental conclusions:

Human health:

- hotspots of arsenic and lead within the Made Ground (TP02 and TP04).

Plant growth:

- hotspots of copper and zinc (TP02).

Controlled Waters:

- groundwater across the site was found to exceed DWS for pH, nickel and manganese.

Ground gases or vapours:

- low to moderate risk from ground gases; CS2 conditions apply.

Radon:

- the site is not in a Radon Affected Area.

Water supply pipes:

- brownfield site and the presumption in the guidance is that barrier pipe will be used. However, the investigation and assessment has indicated no significant Contaminants of Concern and as such standard pipework may be suitable for the site following negotiations with the supply company.

Proposed mitigation:

The mitigation measures proposed to remove unacceptable risks include:

- additional gas monitoring to establish a “worst-case” scenario;
- pre-demolition asbestos survey;
- discussions with service providers regarding the materials suitable for pipework etc.;
- installation of ground gas protection measures;
- remediation of the site; and
- verification of the remedial works.

Waste management:

Excavated soils to be disposed of as waste, are likely to be classed as non-hazardous with the exception of soils in vicinity of TP02 which are deemed ecotoxic due to elevated concentrations of copper and zinc.

Topography

A topographic survey has been completed for the site. This includes ridge and eaves heights for neighbouring buildings and the road outside the site as far as the closest junctions.

A further survey was completed to confirm the size of trees on site, some of which have grown significantly since the previous survey. During this survey, the footpath to the north west of the site was also mapped.

Transportation

The site is highly accessible by walking and cycling and there are a wide choice of facilities for everyday needs purposes. The site is also located within a short walk of bus stops on Kitchener Crescent and Hillbourne Road and within cycling distance of Poole Rail Station(which is also connected via bus). For a significant number of journeys, potential future residents will not need the use of a car. The site is situated in a location that provides a choice of travel modes for residents and visitors in accordance with policies in National Planning Policy Framework.

Data obtained for the most recent five-year period did not indicate a specific road safety issue within the vicinity of the site which would be exacerbated by the proposed development.

The residential elements of the site are forecast to generate less than one vehicle per minute during peak hours. This increase would not have a material impact on the operation of the surrounding highway network.

The site would not have a severe impact on the highway network and safe and suitable access for vehicles, pedestrians and cyclists can be provided.

Raised tables!

Consequently, it is considered that there are no significant highways and transportation matters that should preclude the Local Planning Authority from approving this planning application

Utilities

It is anticipated that the electrical substation within the site will be moved to the site boundary. The new substation would provide sufficient capacity for the new school building and proposed residential developments.

SSE has undertaken a preliminary design shown in drawing: ELZ641 HV.