

HAVANT BOROUGH COUNCIL

Town & Country Planning Act 1990

Consultation on Planning Application

MEMORANDUM

From:	Environmental Health	To:	Development Control
Our Ref:	CONS/17/02118	Your Ref:	APP/16/00060
EH Case Officer Extn:	44 6677	Date:	15 November 2017
DC Case Officer:	Rachael McMurray		
DC Case Officer Extn:	44 6546		
Application Number:	APP/16/00060		
Site Address:	36 Station Road, Hayling Island, PO110EQ		
Proposed Development:	Request to Discharge Conditions 3, 5, 6, 7, 9, 10 (17.10.17).		

Observations / Comments:

I have read the supporting documentation relating to condition no's 3 (contamination) and 5 (drainage).

1.0 Drainage (SuDS / Pollution)

I note that the proposals are to utilise the existing surface water drainage connection. It appears that this connection issues to an open ordinary watercourse at around 59 West Lane, flowing West and discharging to Langstone Harbour just South of Saltmarsh (Channel) - a flow path of around 1km. The Harbour is a sensitive environment, but the ordinary water course will provide a degree of opportunity for sedimentation and filtration. The development is not high risk, and provided that system entries (road gulleys) are conventionally trapped, I have no pollution concerns. No adverse comment.

2.0 Contamination

The site investigation confirms that a broad range of chemical compounds are present at artificially elevated concentrations. Concentrations identified across this range display varying degrees of consistency, and varying degrees of severity. In particular, there is a very broad spectrum of PAH and VOC contaminants present, but primarily identified at levels well below that which would be regarded to be significant to a ground floor resident.

2.1 Hydrocarbons, PAH, VOC

Visual / Olfactory evidence supports the conclusion that there is a true hydrocarbon impact at the site, and it is of interest to note that lines of evidence differ - for example hydrocarbon odour is identified where total volatile organic compounds (tVOC) are not above the instrument's limit of detection (<LOD), tVOC is >LOD where there is no odour, and only limited evidence of elevated hydrocarbons in soils, and soils display greatest hydrocarbon impact where there is neither quantifiable tVOC vapour or notable odour.

This is considered to be indicative of a low-level site wide impact. The conceptual site model

is not well developed, so it is not clear whether this is likely to be the result of a localised (on-site) release, or due to the influence of an external source (e.g. off-site source migrating in / on shallow groundwater).

Elevated VOC's include naphtha's, benzo-, benzol-, and -fluoranthene compounds. Several less common compounds are also tentatively identified in groundwater, though VOC are represented in both soils and groundwater. This indicates a complex mixture that is unlikely to represent a release of a refined substance (e.g. a grade of fuel). It is considered more likely that the sample results are indicative of a process residue. A heavily weathered compound is less likely, as compounds with low carbon numbers (light fraction) are not well represented. The presence of VOC within soils may be related to light non-aqueous (LNAPL) contaminants being/having been present on the groundwater surface, sorbed to soils within a 'smear zone' as groundwater levels vary seasonally. It is possible that the results are indicative of an impact from the former station road gas works (between 100 & 145m West), but I'm not sure that there is sufficient evidence to rule out a local source.

2.2 Metals

It would appear that there is a probable local hotspot at WS5, comprising largely metallic contaminants, but also PAH. WS5 coincides with the most alkaline conditions recorded, which would normally hinder mobility / liberation, so deposit may have been in distributable form (i.e. powder/particles, paint, or as a solution). Lead is identified as an outlier at this location (separate statistical population), despite this compound being elevated across all the other sample locations. Barium also exceeds it's respective site specific screening value, and Zinc is also present at significantly elevated concentrations (not of particular concern, but supportive of WS5 results being a genuine hotspot, and not due to laboratory or sampling error). No reason is posited for the likely occurrence of elevated concentrations in this area of the site, or the likely extent of the hotspot.

2.3 Soil Gas

A single round of monitoring identified depleted O₂ levels, and CO₂ at >5% by volume in one sample. No Methane was identified, Hydrogen Sulphide was not sampled, and tVOC was identified at low level in WS2. both WS2 & WS3 displayed elevated CO₂, but WS3 was more significant. Both WS2 & WS3 appear to account for the proportional volumetric increase in CO₂ by a corresponding depletion of O₂ (i.e. biological or chemical oxygen demand).

It is considered that WS1 results may well not be representative, due to the shallow groundwater level - possibly submerging the well response zone. No well details are provided, so it is not possible to draw a reliable conclusion.

I consider that the elevated CO₂ is likely to be related to biological decay of hydrocarbons present in the unsaturated zone - but this is far from certain.

Perhaps of more importance is the potential for tVOC to be liberated from the unsaturated zone & shallow groundwater, the potential for which is not well understood.

The report acknowledges that the indicative sampling presented is only a snapshot, and further rounds of sampling are recommended.

2.4 Sample Strategy, Assessment Criteria & Report Conclusions

The sample location distribution for this phase of investigation was non-targeted, and dictated by the footprint of occupied extant buildings.

The statistical outlier at WS5 has not received detailed treatment within the report, and it is of note that the statistical analysis presented is relevant only to the question of whether the entire site can be regarded to be contaminated (or not), and similar calculations undertaken for a smaller relevant averaging area (e.g. a private garden area) could well yield exceedances of assessment criteria for other determinands - Arsenic, Barium, Lead, Dibenzo(a,h)anthracene and potentially Chromium & Mercury exceed screening levels at their maximum recorded concentrations.

As regards the site specific assessment criteria, it is noted that the soil organic matter content selected (3.09%) is disproportionately high relative to the sampled values (Average 1.14%, Max 1.6%, Min 0.01%). This selection likely resulted in greater (i.e. less strict) screening values than might otherwise have been generated.

Remedial measures (concluded to be necessary for Lead) were not particularly well 'fleshed out', but the approach is agreed to be broadly appropriate, and capable of addressing all forms of metallic soil contamination, where direct exposure to soil & ingestion / inhalation of soil particles are the principal exposure pathways.

It is agreed that the metallic contamination should be relatively immobile (relative to controlled waters receptors, and neighbours) at the soil pH's identified. That the metals elevated in soils have not generally been identified in significant quantities within the one groundwater sample tested (with the exception of Barium) is supportive of this conclusion.

2.5 Conclusions

The report is not particularly specific in terms of its conclusions, but it is probably uncontroversial to conclude that the intended 'take home' messages are that;

- (1) all made ground at the site can be regarded to be contaminated with lead, such that mitigation is necessary to prevent exposure.
- (2) Results from WS5 are statistically different from the remainder of the samples, and may represent a localised deposit of material of demonstrably different character to the general made ground at the site.
- (3) PAH, Hydrocarbons & VOC's are elevated in both soils and groundwater, but have not been identified at levels which represent an exposure level that is likely to be unacceptable
- (4) Risks to Construction workers should be managed via CDM regulations
- (5) Risks to controlled waters are considered low, due to low mobility (referring to metals)
- (6) Risks to neighbours are predominantly limited to the construction phase, largely dust release. To be controlled via CEMP & good site practice.
- (7) Risks to occupants are to be managed by a combination of source removal and clean cover, in respect of which a remediation method statement is required
- (8) Liaison with the water company is required to confirm the need (or otherwise) for a protected potable supply
- (9) Gas risk is insufficiently quantified, requiring further assessment.
- (10) Materials for disposal may not always be classifiable as inert waste.
- (11) Works should proceed under a watching brief.

My conclusions from a critical review of the Geo-Environmental Report are as below (numbers refer to points above):

- (1) Agreed.
- (2) It is not clear that results from WS5 are likely to represent the maximum concentrations present, or that the impacted material is likely to be highly localised. Further consideration of these results should be undertaken, and further investigation should be considered following demolition of the extant buildings to determine whether the proposed approach to risk mitigation is adequate.
- (3) Tentatively agreed, though in line with (2), a local source cannot be ruled out in uninvestigated areas of the site
- (4) Agreed
- (5) Controlled waters are considered likely to have been affected already - possibly the influence of external sources. Subject to further investigations discussed above (2), it is agreed that no on-site source has (yet) been identified that is likely to materially impact controlled waters.
- (6) Subject to further investigations discussed above (2), it is agreed that no on-site source has (yet) been identified that is likely to materially impact neighbours by pathways other than a particulate vector.
- (7) Dependent upon further investigations discussed above (2), and below (9). Agreed. Consideration should be given to the need for a hydrocarbon vapour barrier to residential units.
- (8) Given the wide range of PAH & VOC species present across the site, and in particular within shallow groundwater (where seasonal range is not known / quantified), this is considered to form an essential part of risk mitigation. Precautionary protection of the pipework would be preferred, as in the event that the 'off-site-source' interpretation is correct, groundwater concentrations within groundwater may vary for a number of reasons, and the investigation may not necessarily have captured worst case conditions.
- (9) Further assessment is considered to be prudent, and should include PID screening (tVOC) at all locations. Well details should be provided to aid interpretation. If further trial holes are proposed (i.e. in response to (2) above) that are compatible with well installations, further positions should be considered.
- (10) Agreed, but waste management issue.
- (11) Agreed - outline provided in section 6.9 has sufficient scope.

With specific regard to the condition requirements; it is arguable that the submitted report was not of sufficient scope to '*adequately identify and characterise any physical contamination on or affecting the site*'. The report recommends further work to better characterise risks, and so whilst the report is not deficient in it's rationale it is almost by definition insufficient to satisfy that aspect of the condition.

No remediation strategy is provided in respect of c.3 pt.2, and the report concludes that one is necessary. Similarly no verification plan has been submitted in accordance with c.3 pt.3. The submission cannot be regarded as being sufficient to discharge the condition in full.

Given Geo-Environmental's own recommendations for further work, and my own recommendations that the scope of the proposed work should be expanded to characterise soils in the broad vicinity of WS5 (and including areas presently beneath buildings); I am minded to recommend that the application to discharge c.3 be refused.

The condition is specific that demolition not be considered to be 'commencement' with specific regard to condition 3 prior-to -commencement clause. It is recommended however that any demolition works be limited to above ground structures only, in order to avoid prejudice to the conceptual model for interpretive purposes.

Mr. Jonathan Driver
Environmental Control Officer