SUMMARY OF ACTIONS

HUMAN HEALTH	In relation to a proposed residential land use at the Waterfront site, hydrocarbon concentrations across the site have been found to exceed the screening thresholds indicating a potentially significant 'site wide' risk to the human health of proposed residential end users. Consequently, where soft landscaping or private gardens are proposed, representative soil concentrations above the SGV should either be assessed further through Detailed Risk Assessment or be subject to appropriate mitigation in gardens / soft landscaping. In addition, localised 'hotspots' of heavy metal (arsenic, copper, lead and zinc) contamination and occurrences of asbestos in soils have also been identified in the shallow Made Ground and will require suitable remediation if they correspond with proposed soft landscaping / private garden areas or groundworks. Additional hotspots were previously identified in the CampbellReith, 2011 LQS. Impacted soils should be verified and delineated and contamination removed with the resultant excavation validated during development works. Imported soil material for use in proposed private gardens or soft landscaped areas will require compliance with an agreed set of limiting values which demonstrate that they are suitable for human exposure. Previously identified radioactively contaminated soils should be delineated and excavated under controlled working methods by suitably qualified specialist / contractor for disposal to a suitability classed receiving facility.
CONTROLLED WATERS	An extensive hydrocarbon solvent (tetrachloroethene) plume has been identified within the underlying groundwater across the majority of the Waterfront site and is considered to pose a potentially significant risk to hydrological / ecological receptors. Investigation and potential remediation of the plume is considered necessary to protect hydrological and ecological receptors. Further investigation is required to confirm the source (and presence of DNAPL) as part of recommended remedial approach. These works should be undertaken in accordance with a Design Specification and Contractor's Method Statement agreed with the Client and regulatory authorities.
BUILDINGS AND STRUCTURES/ SERVICES	Based upon current monitoring the ground gas regime at the site has been assessed as a CIRIA Characteristic Situation 2. This indicates that minimum ground gas protection measures comprising a membrane and ventilated sub-floor void will be required for buildings on site. Consideration of the requirement for contaminant resistant supply pipe work for services should be undertaken in consultation with the service provider.
SITE WORK CONTROLS	Basic/ standard personal protective equipment (PPE) should be employed by construction and maintenance workers. The Contractor's Health and Safety Plan and associated risk assessments and method statements should consider the potential for: ground / groundwater based contamination / UXO risk / unforeseen contamination. Construction work should be controlled by an environmental specification that details the requirements for Health and Safety provisions for workers (based on HSE document HSG66). Method statements should be prepared by the Contractor to provide: a watching brief for sources of contamination; controlled asbestos removal; and, provision of methods to protect the environment (EA PPG). A watching brief for contamination should be undertaken and documented by the Contractor throughout groundworks.
REGULATORY	Agreement may be required with the Environmental Health Officer and

APPROVAL	Environment Agency via the planning process.
WASTE	The LQS does not address the classification of waste soils. However, the soil results, and those of the Waste Acceptance Criteria analysis, can be utilised as a basis for such assessments, although additional testing may be required. It is noted that such assessments are required to accord with the Environmental Permitting and Planning Legislation and also to control costs during development. The Groundworks Contractor may need to complete assessments to inform the European Waste Code and to satisfy their Duty of Care obligations. If it is proposed to reuse any soils on site, this will require a CL:aire CoP Materials Management Plan. Full waste records are required for verification reporting.
OTHER	Previous site investigations have identified the presence and clearance of UXO on site however these reports were subsequently required to be withdrawn due to the discovery and removal works of pipemines in 2006. Given the limitation of sub-surface scanning for UXO beneath existing hardstanding, additional surveys or Watching Brief will be required during future redevelopment.
DOCUMENTATION	There may be a requirement to submit this document in support of a planning application to satisfy regulatory requirements and accord with the planning conditions. A Verification Report, Materials Management Plan, Waste Classification Assessments and Health and Safety documentation may also be required.

EXECUTIVE SUMMARY

SITE LOCATION	The site is located on the Gosport Peninsula, situated adjacent to the west of Broom Way / B3885 in Lee-on-the-Solent, Hampshire , PO13 9YA, with National Grid Reference of 456002E, 102050N.
ENVIRONMENTAL SETTING	The geological sequence at the site typically consists of Made Ground, overlying Superficial Deposits (Brickearth and River Terrace Deposits) followed by the Bracklesham Beds. London Clay is likely to underlay the Bracklesham Beds. The environmental sensitivity of the site is summarised as follows: **Medium** sensitivity with respect to hydrogeology due to the nature of the Superficial and Bedrock Aquifers (Secondary A Aquifers). **High** sensitivity with respect to hydrology due to the proximity to the nearest surface water receptor (The Solent <50m west and south west). **High** sensitivity with respect to sensitive land uses due to the presence of water bodies (The Solent) categorised as Special Protection Areas (SPA), Ramsar and Site of Special Scientific Interest (SSSI).
CURRENT USE AND HISTORY	The site was first established in 1917 as RNAS Lee-on-Solent and has been operational by the Royal Navy until 2006 when the site was acquired by SEEDA (now part of the Homes and Communities Agency, HCA) and the Maritime Coastguard Agency (MCA). Since then, the HCA have acquired the airfield (north of Waterfront) and the adjacent DIO site from the MCA. The Waterfront site is currently comprised of two areas: • **Commercial Area** - utilised by tenants for a variety of commercial/ industrial uses; • **Conservation Area** - largely derelict / unutilised with a number of conservation buildings present. The proposed redevelopment of the Waterfront zone has not been fully defined, although it is understood that it will be for residential or commercial/ industrial use.
CONTAMINATION ISSUES	**Soils** – Soil contamination has been principally encountered within Made Ground, whereby for residential end land use, hydrocarbons were considered to pose a potentially unacceptable risk across the site (a site wide risk) and metals considered to pose a risk in localised areas hotspots of contamination. The risk posed by contamination was significantly lower for proposed industrial/ commercial land use, which corresponds to localised hotspots only. The presence of asbestos has also been detected in a number of locations within Made Ground - in the vicinity of previous borehole EBH310 adjacent to the DIO site, LWPWS05, WFBH01, WFBH13, WFTP04, WFTP05 and WFWS13. Further occurrences of as yet unidentified asbestos contamination in the ground may require similar measures. Hotspots of radioactive contaminated soils have previously been identified and also require additional verification and appropriate risk mitigation measures as necessary. **Groundwater** – a dissolved phase tetrachloroethene (PCE) plume has been identified within the underlying groundwater spreading across the majority of the site and is considered to pose a potentially significant risk to adjacent surface waters and their sensitive ecology (SSSI, SPA and Ramsar designations). In addition, localised hydrocarbon contamination was identified encompassing the former MT Section. **Ground Gas** – Ground gas regime for a Situation A (all development types except those in Situation B) was deemed to be a Characteristic Situation 2 for carbon dioxide. The ground gas regime for Situation B (low rise housing with a ventilated under floor void) was deemed to be Amber 1. No gaseous phase contamination

	(VOCs) was identified within areas of the identified PCE plume.
ENVIRONMENTAL RISK ASSESSMENT	The risk assessment has been based undertaken for Plot 1 (located in the north east of the Waterfront) which may be utilised for commercial/industrial use; and, Plot 2 – for either residential or commercial use. **Construction Workers - LOW-MODERATE RISK** posed by contamination on site, specifically with regards to hydrocarbon contamination **End Users (Residential) - MODERATE RISK** posed by contamination on site to residential users particularly in areas of proposed soft landscaping in the final development. **End Users (Commercial) - LOW RISK** posed by contamination on site to commercial/ industrial users, which was attributed to hardstanding largely precluding access of the receptor to come into contact with contamination identified sub-surface. **Controlled Waters – MODERATE-HIGH RISK** for groundwater due to the presence of PCE contamination within groundwater. **Buildings - LOW - MODERATE RISK** based predominately on carbon dioxide levels across the site. It should be noted that additional ground gas assessment in Plot 2 may be required to adequately characterise the ground gas regime. **Adjacent Receptors – LOW-MODERATE** based upon the presence of residential properties within immediate proximity of the site.
RECOMMENDATIONS	Remediation of soil contamination within by Made Ground will be largely driven by proposed end use (i.e. residential gardens or commercial/ industrial landscaping). The management of the risk posed by asbestos across the site should be considered with regards to construction/ maintenance workers in addition to future site end users and in accordance with CIRIA C733. Removal of radioactive contaminated soils should be undertaken and disposed of at a suitably licensed facility. Investigation and remediation of the PCE groundwater plume on site is recommended in order to mitigate risks posed to off-site hydrological and ecological receptors. The presence of a source of PCE contamination on site should be established as part of this process. Groundwater contamination posed by hydrocarbons at the former MT Section is likely to be remediated through removal of residual soil contamination from the location. However, localised remediation of groundwater may be necessary to facilitate this process. Ground gas venting measures should be incorporated into building design (irrespective of proposed end land use) in accordance with current guidance (i.e. CIRIA C665). It should be noted that additional ground gas monitoring may be required.