

Millwood House Developments Ltd
Creating Connections in Construction
Structural Engineering Consultants

Our Ref : CS/42010
25th July 2018

LADY BEE ENTERPRISE CENTRE, SHOREHAM PORT, SOUTHWICK

CONTAMINATION ASSESSMENT

1. Millwood House Developments Ltd were appointed by Shoreham Port to undertake structural and civil consultancy design services in connection with the construction of three new business units on land which had been reclaimed from the Shoreham Harbour Canal in 2004.
2. These services included procuring a Geotechnical and Geo-Environmental site investigation, testing and reporting. This work was carried out by Leap Environmental Ltd from their Burgess Hill office.
3. The Leap report is the first attachment. It sets out the recent investigation undertaken during June and July of 2018. It also succinctly summarises two previous investigations.
4. The first previous investigation, was a comprehensive intrusive investigation in preparation of and after the reclamation of the site from the canal, which was infilled with material which was vibro improved with stone columns in 2004. This was carried out by Structural Soils Ltd.
5. The second previous investigation was a Phase 1 desk study carried out in September 2017 by Ashdown Site Investigation Ltd as a precursor to the currently proposed development.
6. All the reporting data from these two investigations is attached to this document.

7. Importantly from a geotechnical viewpoint, the Leap investigation identified that there was very little evidence of the vibro stone columns from the 2004 improvement, so it was decided to provide a further round of vibro-improvement to ensure sound support for the proposed new buildings. The foundation methodology was to be by way of concrete raft slabs spreading loads evenly on to the newly improved ground. This would also mean only shallow excavations would be required for the buildings.
8. After extensive chemical testing, the Leap report determined that the only potential contamination source which may impact the site was associated with the made ground and its potential impact on ground workers and as a potential source of ground gases. The potential risk to ground workers could be mitigated by good hygiene, welfare facilities and practices during the works.

9. It was considered that there was a moderate risk from ground gases on the proposed structures. In their " Land Gas Assessment " they concluded that, from the CL:AIRE Research Bulletin RB 17, it would be appropriate to provide CS 3 Protection Measures.

The Studio Millwood House Littlehampton Road Ferring West Sussex BN12 6PG
Managing Director : Christopher Self, C Eng F I Struct E
Company Secretary : Rafia Self, Dip Int. Design
Contamination/Environmental Consultant : Andrew Garnham BSc(Hons) MSc FGS
International Project Management Consultant ¡ Middle East : Andrew Turner BSc(Hons)

Tel. 01903 503481 Mob. 07860 547459 E. chris@millwoodconsultants.co.uk
Registered office: 1 Harbour House, Harbour Way, Shoreham-by Sea, West Sussex, BN43 5HZ
Registered in England & Wales No 7284566 VAT Registration No: 995 5361 69

10. CS 3 Protection Measures require two levels of protection which should include a reinforced concrete cast insitu floor slab with a 2000 gauge reinforced gas membrane with all joints and penetrations sealed. The following is the proposed make up under the buildings:-

    150mm Finishes Zone (Concrete Topping or Raised Access Floor)
    250mm Concrete Slab to Engineers details.
    125 Micron Vapour Control Layer with lapped and taped joints – Product TBC
    Kingspan Kooltherm K103 Insulation as noted below:

- Block 1 (Units 01-04): P/A = 66m/265m2 = 0.249 = 30mm
- Block 2 (Units 05-10): P/A = 82m/383m2 = 0.214 = 25mm
- Block 3 (Units 11-14): P/A = 96m/308m2 = 0.312 = 30mm

    2000 gauge Visqueen Gas Barrier membrane with lapped and taped joints plus VOC blok under toes/edges.
    50mm Sand blinding
    Engineered Subbase as Engineers details.

11. Summing up,
    - The contamination risk assessment has indicated that the made ground soils are not significantly impacted with any of the most common contaminants.
    - The identified contamination is considered to pose a low risk to human health and controlled water receptors.
    - Following a pragmatic gas risk assessment the site has been classified as requiring gas protection measures assuming a Characteristic Situation 3.
    - Remediation is not required.
    - A discovery strategy will be put in place for hitherto undetected contamination.
    - The main contractor for the project, Pilbeam Construction, will be advised regarding the hygiene requirements and welfare facilities for their ground workers.

Christopher Self C Eng FIStructE
Chartered Structural Engineer.
On behalf of Millwood House Developments Ltd