



Specialists In Ground Engineering & Energy

Consultant Technical Summary

Date: 24th 2026

Project No: NX131

Project: Phase 3 Calderstones Park

From: Mark Newton

Job No: NX131

For Attention of:

Email / Fax

To: Rob Allen Taylor Wimpey Manchester Limited

Introduction

This Consultant Technical Summary has been prepared by NX Consulting in respect of the outstanding discharge of Condition 7 attached to planning permission ref. 3/2014/0717 at Calderstones Park, Clitheroe (the "Site").

Latest correspondence from Taylor Wimpey indicates that the Case Officer has confirmed that the Council would particularly welcome commentary in a technical note on the plots in question, specifically setting out why a validation report is not required. It has been noted, following a brief review of the original GL and FFL data in the table provided on Page 41 of the NX remediation strategy, that level changes may indicate imported material on these plots. If this is the case, could evidence be provided to demonstrate that the material was appropriately tested and that no contaminants were identified.

It was highlighted by NX, in a meeting between representatives of Ribble Valley Council, Taylor Wimpey and Turley that given the period of time that has passed since the construction works information, photographs, laboratory data may not be currently available to provide a comprehensive site wide verification report. In good faith, NX have attempted to address Ribble Valley concerns and the following document should be read in this regard.

Background

In July 2012, NX Consulting Limited (NX) were commissioned by Taylor Wimpey Manchester Limited to provide a Remediation Strategy at the former Phase 3 Calderstones Hospital residential housing development. The site was redeveloped with 46 residential houses with associated gardens, landscaped areas, car parking and associated access roads. Proposals included raising site levels, to allow adequate site drainage as shown on RSK Land and Development Engineering Limited Drawing No 06RevP7; provided within Appendix A of the NX remediation strategy report.

Prior to redevelopment the site occupied by a former building yard comprising a relic access road/track, leading from Pendle Drive, and tarmacadam hardstanding, situated central and



easterly within the site. The remainder of the site comprised a cover of vegetation (grass and marsh) over a layer of topsoil/made ground. Outside of hardstanding areas the ground was soft with marshy conditions encountered where heavy highly plastic slightly organic clays were present. Relic infrastructure remained in-situ, following the demolition of the former isolation unit; comprising infilled basements/cellars, former roads, paving and underground services/drainage, within the upper 1.00m to 3.00m of strata.

NX Consulting Investigation

Soil samples are summarised below from the NX 2012 site investigation works. A column of the current NX Tier 1 criteria for a *residential* end use with plant uptake scenario has been provided for context. Tier 1 thresholds were not exceeded within the majority of samples analysed within the made-ground or natural soils with respect to the end use of the site.

BH No	Strata Type	Determinant	Recorded Value mg/kg	LQM/CIEH 2 nd Edition 2009 PAH GAC values at 2.5% SOM (residential end use)	LQM / CIEH S4ULs
TP1.1 (0.05m)	TS – Coal Fragments	Benzo(a)pyrene	1.2	1.0	5
TP2.1 (0.20m)	MG –Gravel Brick, ash Clinker	Benzo(a)pyrene	2.1	1.0	5
TP5.1 (0.30m)	MG –Gravel Brick, ash, Tarmacadam Clinker	Benzo(a)anthracene	14.2	5.9	11
		Chrysene	12.5	9.3	22
		Benzo(b) fluoranthene	15.9	7.0	3.3
		Benzo(a)pyrene	11.7	1.0	5
		Indeno(123cd)pyrene	5.8	4.2	36
		Dibenz(ah)anthracene	1.3	0.9	0.28
TP7.1 (0.20m)	MG –Gravel Brick, ash, Tarmacadam Clinker	Chrysene	12.5	9.3	22
		Benzo(b) fluoranthene	10.5	7.0	11
		Benzo(a)pyrene	9.6	1.0	5
		Indeno(123cd)pyrene	3.5	4.2	36
		Dibenz(ah)anthracene	1.2	0.9	0.28
TP10.1 (0.10m)	TS – brick, coal gravel.	Benzo(a)pyrene	1.3	1.0	5

Table 1.1 NX Tier 1 exceedances 2012

LQM /CIEH S4ULs Copyright Land Quality Management Limited. Reproduced with permission Publication No. S4UL3671. All right reserved.

The LQM/CIEH S4ULs are intended for use in assessing the potential risks posed to human health by contaminants in soil and has transparently-derived and cautious ‘trigger’ values above which further assessment of the risks or remedial action may be needed. The LQM/CIEH Suitable 4 Use Levels (S4ULs) were published in January 2015, and this 2015 publication



replaced the previous LQM/CIEH Generic Assessment Criteria (GAC), including the 2006 and 2009 editions.

The average soil organic matter (SOM) values for the made-ground gravel and topsoil across the development site 9.35%. For risk assessment purposes made ground types are assessed as 2.5%. The pH of the soils is generally slightly alkaline (mean value of 8.16).

An assessment of the sample demonstrates that the recorded elevations are marginal and typically where ash, clinker, tarmacadam and/or coal fragment were present; and at shallow depth.

Ground Gas Monitoring

Seven rounds of ground gas monitoring was undertaken between September 2011 and April 2012. Barometric pressure was recorded between at 976 to 1027mb.

In line with NHBC Guidance on Methane and Carbon Dioxide (Rev4 March 2007). The site was to be developed for low-rise housing and the ground gas investigation has identified a maximum carbon dioxide concentration of 4.5% with a worst-case flow rate of 1.7l/hr.

With a GSV of 0.0765l/hr and a maximum concentration of carbon dioxide of 4.5%, the site will be characterised as 'Green' and as such no special protection measures are required for the proposed building.

Remediation Strategy

The remediation strategy was developed by NX and was based upon a single philosophy which provided a detailed understanding of the chemical and physical properties of the ground, groundwater, surface water and ground gas. This was established by way of Phase 1 desk study, intrusive ground investigations, laboratory testing and monitoring. The remediation works were conducted as part of the main contract by John Reilly Civil Engineering Limited and aimed to involve a 'best sustainable approach' to remediation of contamination; involving a cut and fill balance that minimized the removal and disposal of contaminated materials from site.

During the site investigation works, carried out in April 2012, locally elevated concentrations of heavy metals (lead) and PAH were recorded in the made ground soils beneath the site. Upfilling of the majority of the site and the provision of a 600mm clean cover system in selected garden and landscaped areas along with the proposed building footprints and hardstanding cover which were deemed to be sufficient to limit migration pathways for low level localised contaminants to both human health and controlled water receptors.

No special ground gas protection measures were required for the proposed buildings. Additionally, no visual or olfactory evidence of hydrocarbon/solvent contamination was established during the site investigation works and migration pathways for volatilisation to indoor air was deemed to be low.



To protect end users from isolated localised areas of heavy metal and PAH contamination, a soil cover system (consisting of a minimum 600mm thick layer) was deemed to be required over deposits of made ground, in all gardens and landscaped areas. However, site preparation works entailed raising site levels by as much as 2.50m in the north of the site; reducing to circa 200mm within the vicinity of Plots 1, 2, 3, 4, 5, 6, 8, 9, 12, 14, 15 & 20. Where proposed plots did not have sufficient cover as a result of the upfilling works; namely Plots 1 to 6, 8, 9, 12, 14, 15 & 20, levels were to be reduced (or reduced to expose natural clay strata) and be replaced to ensure a 600mm clean cover system was provided. Details of the plots requiring a 600mm cover system were detailed in the table provided in Appendix A of the NX remediation strategy document. Thus, breaking contaminant linkages to future site occupiers, in the majority of plots. This was highlighted on Pages 31 & 41 of the NX remediation strategy document and issued to Ribble Valley Council for approval prior to commencement. The justification for reduced number of cover system inspections being that the majority of contamination was to be screened and removed and in large areas of the site; made ground would be reduced to natural strata and replaced with validated soils. Photographic evidence of site screening and removal is provided in Appendix A of this document.

The NX site investigation report highlighted that the majority of topsoil/subsoils present on site were considered suitable for re-use in gardens and landscaped areas. Stockpiling and screening of unacceptable topsoil/subsoil was recommended on-site and NX were to be notified to take further validation sampling taken to confirm that it is suitable for re-use; prior to placement in gardens and landscaped areas. The NX remediation strategy report provided guidance on the frequency of such testing.

Any non-natural imported subsoils would also require chemical validation to demonstrate that they are suitable for a residential end use with plant uptake and contain materials used which are capable to support root growth. NX were not instructed to verify any imported subsoils to be used within the upper 600mm of garden and landscaped areas and understand that The Contractor used verification Stockpile 1 soils only.

The remediation strategy was approved by Ribble Valley Council and the NHBC. NX were instructed by Taylor Wimpey to provide clean cover inspection reports for plots requiring cover system inspections.

Earthworks

A review of the reports uploaded to the NHBC Portal indicate that in September 2013 NX the following soils were imported and exported from site:



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Exported Site Won Spoil

Between 1st July 2013 and 9th July 2013 approximately 197 wagon loads (1970m³) of soil was disposed off site to Sita Clifton Marsh (55 Loads), Bradley Hall (1 Load) and Sita Jameson Road, Fleetwood (142 loads). This equates to approximately 3950m³ of soils disposed to suitably license landfills/treatment stations.

Imported Cotton Mills Class 2a to 2c Under Specification of Highways Works Series 600

Between 5th November 2012 and 11th June 2013 approximately 162 wagon loads were imported from Cotton Mills Hyde which equates to 1620m³. This was carried out under an Environment Agency U1 Exemption (Ref: EPR/GE5752XZ/A001) that allows 5000m³ of suitable soils to be imported from this source for upfill the site in line with approved planning levels. NX carried out verification testing of these soils which show that the results are below Tier 1 values provided within the NX remediation strategy report. However, because of trace concentrations of asbestos recorded in 3 samples they were considered suitable for use beneath road, paving and hardstanding areas only. A copy of these results are provided within Appendix B of this document.

Imported Natural 6F5 Limestone Gravel

Between 6th February 2013 and 12th March 2013 approximately 90 wagon loads (900m³) of natural 6F5 limestone was imported from Whinney Hill Quarry Accrington by Park Royal Haulage under 'Direct Transfer'. No validation testing of these soils were requested due to their natural nature and the fact that they were to be used under roads, cover systems and paved areas.

Summary of Upfill Works Provided by John Riley Civil Engineering (JCE)

The following provides a summary of a technical response to the NHBC in relation to the upfilling works, carried out on site circa February 2013. NX were not employed in a full time capacity to review and validate their works.

As of the May 2014, permanent up-filling works have been conducted around Plots 1 to 23. The depth of land raise around these plots being between 0.11m and 1.74m; as depicted in the Plotting Depth table, presented within Appendix A, of the NX Consulting Remediation Strategy Report (Ref: NX131 Remediation Strategy Report, Phase 3 Calderstones Hospital, Whalley, BB7 9JT, dated 17th July 2012).

NX records show that as of the May 2014, approximately 480m³ of soils have been imported to site under Environment Agency Waste Management Exemption Ref: EPR/GE5752XZ/A001.

Within garden and landscaped areas, 'site won' soils Stockpile 1 bulk fill soils were proposed



to be used following a period of screening and removal of deleterious materials; where practicable.

With regards to the remainder of the plots on site (i.e. Plots 30 to 46), the Contractor (John Reilly Civil Engineering Limited) has confirmed that they reduced level to expose natural ground and upfilling the materials with imported 6F5 natural limestone fill. Compaction of the materials has been carried out to underside of ground beam and is being validated with independent UKAS accredited laboratories via the use of CBR tests on compacted layers. Once complete a final updated report relating to site upfill will be provided for Plots 30 to 39 respectively.

Lime stabilisation has not been used to date and the 'site won' highly plastic clays will be not be treated with lime/cement stabilisation techniques.

Summary of Up-filling Works in Hardstanding Areas

Plots 1 & 2

Plots 7 have been raised by up to 500mm (200mm outside piling matt areas) with Class 2A & 2B fill imported from Cotton Mills, Hyde. The Contractor's supervisor confirmed that the materials were compacted in line with our specification utilising a Benford 1200 Vibrating Roller. Assuming that this is the case, it is considered that settlements will be within acceptable limits; due to the shallow depths of fill placement/overburden loading and compaction achieved.

Plots 8 to 15

The contractor has imported Class 6B natural sand (DOT Highways Spec - Series 600) to be used for up fill in superficial hardstanding areas and driveways around Plots 8 to 15 inclusive. The Contractor's supervisor confirmed that the materials were compacted in line with our specification utilising a Benford 1200 Vibrating Roller. Assuming that this is the case, it is considered that settlements will be within acceptable limits; due to the shallow depths of fill placement/overburden loading and compaction achieved.

Plots 16 to 20

Raised external levels above 1.00m have only been conducted around Plots 16, 17, 18, & 19 (1.03m to 1.74m). Initial maximum consolidation settlements of the underlying clays within these plots were recorded within the order of 30mm to 45mm (50% of which are likely to be immediate settlement).

Photographs provided within Appendix A of our report (reference NX131 TW 2013-02-26 OUT Re NHBC Conditions Response Calderstones Phase 3 (1)) dated 26th February 2013, show that



external garden areas of Plots 16 to 20 were initially up-filled with Class 2A & 2B fill imported from Taylor Wimpey's Cotton Mills site in Hyde. However, during a site meeting on January 8th 2013 the placed soils were observed to be very wet/soft following a significant period of inclement wet weather and it would obviously not be possible to achieve the compaction criteria set out in the NX Consulting geotechnical specification. Taylor Wimpey and the contractor agreed to remove the materials and replace, under Duty of Care', with approximately 660m³ of naturally sourced 6F5 granular limestone replacement fill; from Whinney Hill Road Quarry, Accrington. An NX Consulting engineer attended site over a 3 day period to record the up filling works. The materials were placed in 150mm layers and compacted in line with our specification utilising a Benford 1200 Vibrating Roller.

It is considered that settlements will be within acceptable limits; due to the shallow depths of fill placement/overburden loading and compaction achieved.

Plots 21, 22, 23, 24, 25, 26, 27, 28, 29, 40, 41, 42, 43, 44, 45 & 46

The contractor has imported 6F5 natural limestone (DOT Highways Spec - Series 600), from Whinney Hill Road Quarry, Accrington, used for up fill in superficial hardstanding areas and driveways around the above plots. NX Consulting appointed an independent MCERTS accredited testing laboratory to carry out 600mm diameter plate load tests on driveways of the above plots and recorded equivalent California Bearing Ratio (CBR) results generally in the order of 5 to 30% indicating an adequate state of compaction.

Clean Cover Systems & Verification

A clean cover system (also called a soil cover, clean soil cap, or engineered cover) is a layer of uncontaminated soil or protective material placed over contaminated ground to:

- Prevent human or ecological exposure to contaminants
- Reduce the likelihood of ingestion, inhalation, or dermal contact
- Limit erosion and dust generation
- Minimize infiltration of water that could spread contaminants

The Environment Agency Land Contamination Risk Management (LCRM) is now the primary UK guidance on assessing and managing land contamination, including when clean cover systems are appropriate. Clean cover systems provide a physical barrier designed to prevent exposure to contaminants. They are widely recognised by regulators and local authorities as an effective remedial measure.

Harbour Lane Warton Topsoil – Validated by WSP Group on behalf of John Reilly Civil Engineering

Validation of cover systems within the rear garden of Plots **1, 2, 8, 9, 10, 11, & 12** and front



garden of Plot 8 was undertaken between 30th April and 2nd May 2013. A 600mm+ cover system was present comprising up to 250mm of topsoil, overlying 400mm+ of Stockpile 1 type site won subsoils. The WSP verification report is appended to this document.

NX Consulting conducted 2no validation tests of the Warton topsoil, within Plot 1 & 8 in line with the agreed remediation strategy with Ribble Valley Council. All concentrations fell below remedial target values agreed with the NHBC and Ribble Valley Council. Validation testing within the rear garden of **Plot 20** was undertaken on 24th July 2013 by an engineer from NX Consulting Limited. A 600mm+ cover system was present comprising up to 250mm of topsoil, overlying 400mm+ of Stockpile 1 type site won subsoils.

Validation testing within the rear garden of **Plots 15** was undertaken on 12th September 2013 by an engineer from NX Consulting Limited. A 600mm+ cover system was present comprising up to 250mm of topsoil, overlying 400mm+ of Stockpile 1 type site won subsoils.

Drapers topsoil storage yard off, Stopgate Lane, Bickerstaff – Validated by Cooper Associates on behalf of Taylor Wimpey Manchester.

Validation of cover systems within Plots 3, 4, 5, 6 was carried out on 2nd & 9th October 2013. A 600mm cover system, comprising up to 150mm of topsoil, imported initially by John Reilly Civil Engineering Limited overlying 400mm+ of Stockpile 1 type subsoils. The Coopers Report is provided within Appendix A.

Clive Hurst Plant, Preston Topsoil

Plot 14 - Validation testing within the rear garden of **Plot 14** was undertaken on 24th July 2013. A 600mm+ cover system was present comprising up to 250mm of topsoil, overlying 400mm+ of Stockpile 1 type site won subsoils. NX were requested by Taylor Wimpey to carry out 4no verification tests of these soils. All concentrations fell below remedial target values agreed with the NHBC and Ribble Valley Council.

Subsoils comprise 'site won' cohesive soils validated as chemically suitable for use by NX Consulting, as bulk upfill within garden areas.

Site Won Subsoil

Taylor Wimpey requested that NX carry out verification sampling of Stockpile 1 sub soils for use in the upper 600mm of all garden and landscaped areas. The only plan we can find in archive shows the area of the treated and screened Stockpile 1 subsoils equating to circa 2000m³ of soils. 8no. samples were analysed by NX which equates to a sample density of 1 sample per 250m³ and the results indicate that they are below the NX Tier 1 values for a residential end use with plant uptake scenario. This is in line with the NX remediation strategy report where 1 sample per 250m³ of site won/screened subsoils is deemed acceptable. The



subsoils comprised grey green/brown slightly organic sandy clay soil with fine to coarse gravel of brick, timber, plastic and other inert deleterious materials. NX recommended to Taylor Wimpey Manchester that screening and hand picking out these deleterious materials would required prior to placement across site.

A summary table showing the results from 8No. samples taken from Site won Stockpile 1 subsoils, assessed against their relevant GACs (residential with home grown produce scenario), are shown below.

Site Won Stockpile 1 Subsoil					
Solid Contamination Results					
Determinands	No. of Samples	Range	Average	GAC	Exceeded Allowable Limit
Inorganics and Asbestos					
Asbestos Quantification (%)	8	Not Detected – <0.001%		None	0
pH	8	7.09-7.6	7.6	-	-
Total Sulphate	8	0.04 to 0.16	505	-	-
Total Cyanide	8	<1.00	<1.0	60 ⁽²⁾	0
Sulphide	8	<10.00	<10.00	-	-
Metals and Semi-Metals					
Arsenic	8	10 to 18	14.1	37	0
Boron	8	<1	1.0	290	0
Cadmium	8	<1	1.0	11	0
Chromium	8	23 to 36	30.5	910	0
Copper	8	30 to 42	35.3	2400	0
Lead	8	36 to 260	89.8	200 ¹	0
Mercury	8	<1	1.0	1.2	0
Nickel	8	26 to 52	41.8	130	0
Selenium	8	3	3.0	250	0
Zinc	8	66 to 140	105.8	3700	0
Polynuclear Aromatic Hydrocarbons (PAHs)					
Naphthalene	8	0.1	0.1	2.3	0
Acenaphthylene	8	0.1	0.1	170	0
Acenaphthene	8	0.1 to 0.6	0.2	210	0
Fluorene	8	0.1 to 0.5	0.2	170	0
Phenanthrene	8	0.1 to 2.7	0.7	95	0
Anthracene	8	0.1 to 0.8	0.2	2400	0
Fluoranthene	8	0.1 to 3.4	1.3	280	0
Pyrene	8	0.1 to 2.7	1.1	620	0
Benzo(a)anthracene	8	0.1 to 1.2	0.5	7.2	0
Chrysene	8	0.1 to 1.3	0.5	15	0
Benzo(b,k)fluoranthene	8	0.1 to 1.8	0.7	2.6	0
Benzo(a)pyrene	8	0.1 to 0.9	0.4	5	0
Indeno(1,2,3-cd)pyrene	8	0.1 to 0.3	0.2	27	0



Dibenz(a,h)anthracene	8	0.1 to 0.2	0.1	0.24	0
Benzo(ghi)perylene	8	0.1 to 0.3	0.1	320	0
Total PAH (Sum of USEPA 16)	8	0.1 to 16	5.6	-	0
Phenols					
Total Phenols (monohydric)	8	<1.00	<1.00	110	0

The chemical test results have been compared to LQM/CIEH Sutable 4 Use Levels' and with respect to lead, the current Category 4 Screening Level has been used for a residential development; with gardens scenario. For risk assessment purposes a soil organic matter value of 1% has been used. The results confirm that the Site won Stockpile 1 subsoils are suitable for use across all soft landscaped / garden areas. This is consistent with the finding of the NX 2012 site investigation and remediation strategy report.

Conclusions

NX Consulting understand that the Stockpile 1 Subsoil has been sourced from site and has been placed within all garden and landscaping areas within the upper 600mm (as a minimum). NX's proposals to carry out verification works within specified plots are considered consistent with verification works at the time. Low levels and localised areas of contamination were recorded during the site investigation works and proposals were to significantly raise site levels following a cut and fill balance to achieve final levels.

Details of the plots requiring a 600mm cover system were detailed in the table provided in Appendix A of the NX remediation strategy document. Thus, breaking contaminant linkages to future site occupiers. This was clearly highlighted on Pages 31 & 41 of the NX remediation strategy document and issued to Ribble Valley Council and the NHBC for approval prior to commencement. The justification for reduced number of cover system inspections being that the majority of contamination was to be screened and removed from site; and in large areas of the site, made ground screened and reduced to natural strata and replaced with validated site won subsoil and imported topsoil.

JCE did not report any further contamination sources during construction which is consistent with observations made by NX's engineers at the time, during the clean cover inspections.

Information provided by Taylor Wimpey and trial pit excavations provided by JCE indicate that the enabling works has provided significant betterment at this site; and the risk to identified receptors post construction are deemed to be low. The inspected cover systems have been installed in line the NX Remediation Strategy and on the basis that approved soils were used in all gardens and landscaped areas, all site plots are deemed suitable for occupation in terms of contaminant risk to potential receptors post construction.



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Disclaimer

This advice note has been prepared for Taylor Wimpey Manchester Limited in connection with our previous appointment. This advice note is not intended for and must not be relied upon by any third party without written approval from NX Consulting Limited.

Any information required outside of NX's scope of works should be sought from Taylor Wimpey Manchester Limited and/or the groundworks contractor John Riley Construction Limited (JCE).



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APPENDICES

Appendix A – Drawings & Site Photographs

Appendix B – NX Calderstones Site Won Subsoil Stockpile 1 Laboratory Testing Results

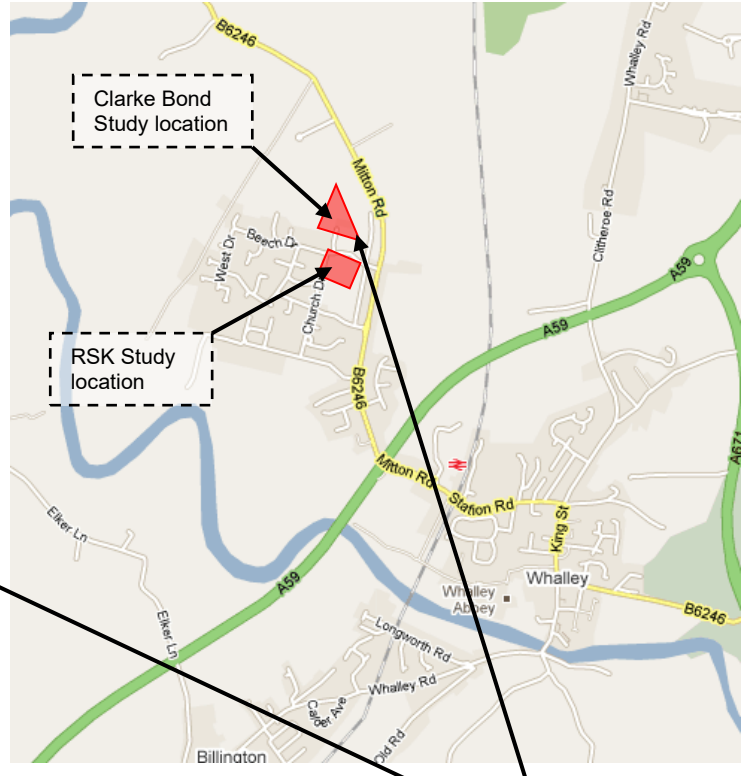
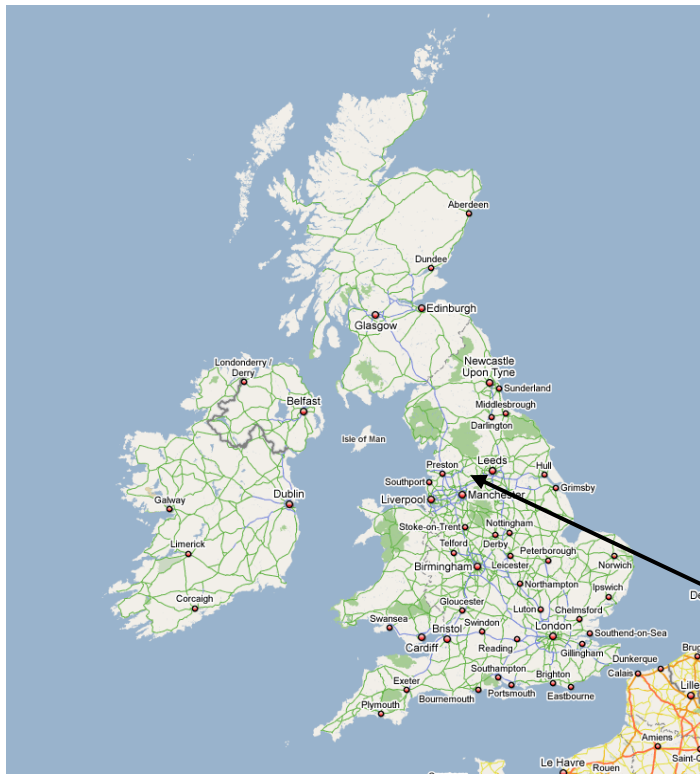
Appendix C – Imported Cotton Mills Subsoils Stockpile Testing Results

Appendix D – Environment Agency U1 Exemption



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Appendix A – Drawings & Site Photographs



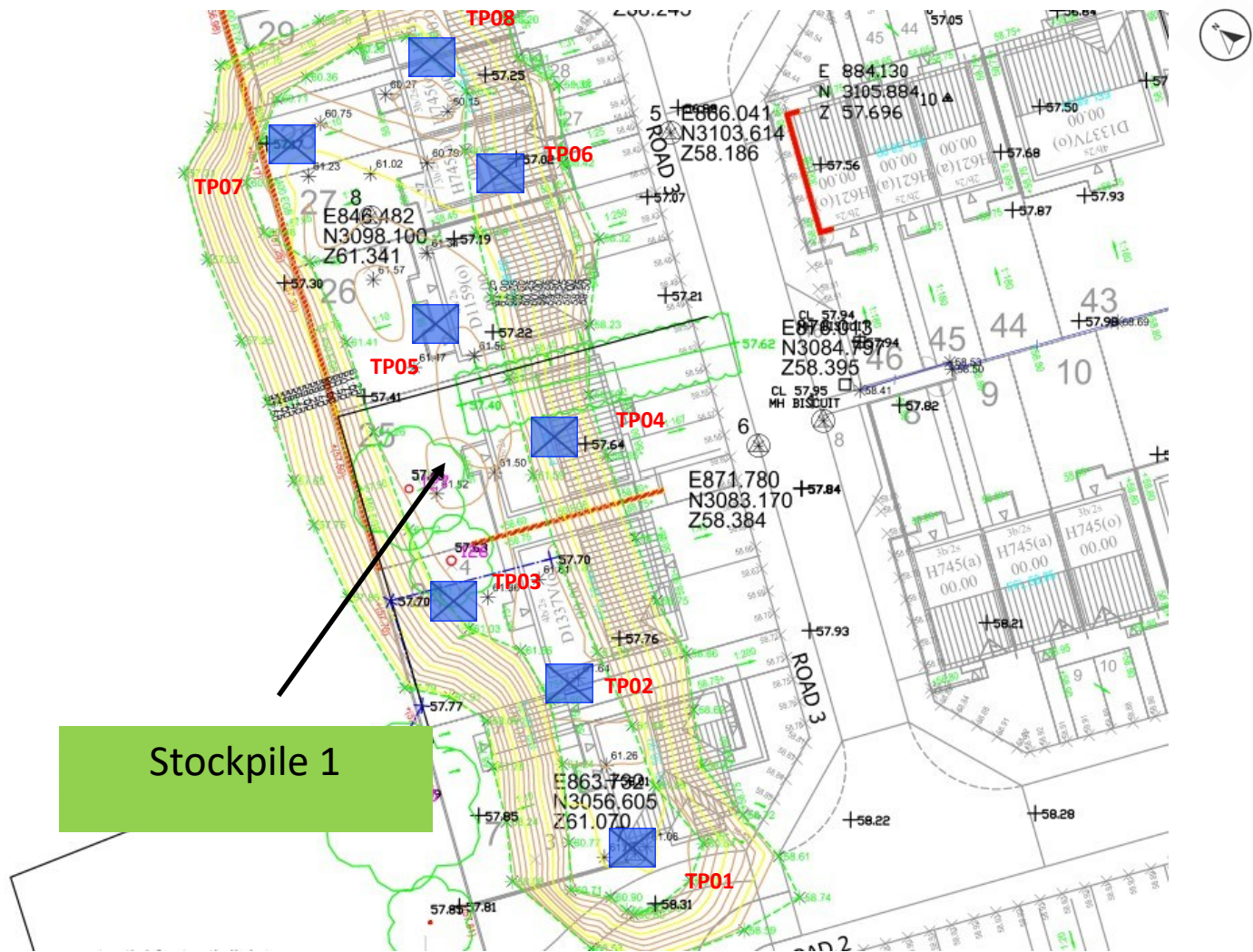
SITE

Site Centre:
OS X (Eastings) 372540
OS Y (Northings) 437521



Project: PHASE 1 GEOENVIRONMENTAL ASSESSMENT Calderstone Hospital Development	Drawn: BC	Scale: NTS
	Checked: MN	Date: February 2011
	Status: FINAL	
	Title: SITE LOCATION MAP	Drawing No: NX131 Figure 1

Note:



Key	
	NX Consulting Window Sampler Boreholes (WS)
	NX Excavated Trial pit (TP)
	NX Consulting CT Boreholes (BH)
i	Denotes NX groundwater/ gas installation

	Ref: NX131 Figure 1	Project: Caldestones Park Phase 3
		Title: Stockpile 1 Subsoils Location Plan



CIVIL / STRUCTURAL DESIGN RISK MANAGEMENT

Abnormal or unusual residual risks associated with the design outcomes shown on this drawing are:-

RSK LDE LTD has followed its Design Risk Management process for Hazard Elimination and Risk reduction in developing the designs shown on this drawing. Abnormal or unusual residual risks may be shown above where it is considered that such risk may not normally be expected by competent persons engaged on work of this nature or type.

Notes:

1. This drawing is to be read in conjunction with all relevant Architects and Engineers drawings.

2. All levels quoted are in metres A.O.D.

3. For Drainage Layout see Drawing No. 01.

4. The Groundworks contractor shall ensure that no flat spots remain after the installation of the final road wearing course.

5. All road gullies shall be located away from proposed entrances to houses.

Levels Legend:

300 LIP

600 Steps

650 LOG

300 EGB

450 SOE

56.475

(56.475)

1:20

FFL ???

Exposed brickwork below DPC

Step within FFL

Log retaining wall

Height retained using additional gravel boards below fence panel. (Max 450)

Height retained using Slab on edge (Max 450)

Proposed banking

Proposed level

Existing level

Fall and gradient

Finished floor level

P7	29.06.12	Land drainage layout shown	DJH	CB	ISC
P6	25.06.12	Revised levels to rear gardens Plot 30 to 31 and 35 to 36. Parking court 27-33 amended.	DJH	CB	ISC
P5	14.06.12	Revised to new FFL layout as per clients appraisal	TF	CB	ISC
P4	29.05.12	Existing levels added to bottom of proposed batters.	TF	CB	ISC
P3	10.05.12	Base X amended in line with clients request.	TF	CB	ISC
P2	13.04.12	Revised in line with clients comments	TF	CB	ISC
P1	28.03.12	Issued for Approval	TF	CB	ISC
Rev.	Date	Amendment	Drawn	Chkd.	Appd.

RSK

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Client

Taylor Wimpey (Manchester) Ltd

Project Title

Calderstones Phase 3

Drawing Title

External Works Layout

Drawn	Date	Checked	Date	Approved	Date
TF	March 12	CB	March 12	ISC	March 12
Scale	1:250	Orig Size	A1	Dimensions	

Project No.	880209	Drawing File	
Drawing No.	06	Rev.	P7

Scale
0 2.5 5 7.5 10 12.5m

File Location: L:\01 JOBS LIVE\880209 - CALDERSTONES PH3 DESIGN\GRAPH\INFRASTRUCTURE\DESIGN DRAWINGS\EXTERNAL WORKS.DWG



Next Generation Engineering Consultancy Services

Plot No	Original Ground Level (mAOD)	Proposed ffl following TW review 7/6/12	Approximate Increase in Level from EGL	Revised Differential FFL - 150 mm to EGL	Deepening Required to create capping (Yes/No)
Plot 1	58.36	59.00	0.49	0.49	Yes
Plot 2	58.27	59.00	0.58	0.58	Yes
Plot 3	58.29	58.65	0.21	0.21	Yes
Plot 4	58.26	58.80	0.39	0.39	Yes
Plot 5	58.29	58.65	0.21	0.21	Yes
Plot 6	58.26	58.65	0.24	0.24	Yes
Plot 7	58.01	58.90	0.74	0.74	No
Plot 8	58.21	58.90	0.59	0.54	Yes
Plot 9	58.2	58.90	0.6	0.55	Yes
Plot 10	58.15	58.90	0.65	0.60	No
Plot 11	58.03	58.95	0.77	0.77	No
Plot 12	58.23	58.95	0.57	0.57	Yes
Plot 13	58.25	59.00	0.7	0.60	No
Plot 14	58.4	59.00	0.55	0.45	Yes
Plot 15	58.35	58.85	0.45	0.35	Yes
Plot 16	57.42	58.40	1.03	0.83	No
Plot 17	56.55	58.10	1.6	1.40	No
Plot 18	56.86	58.75	1.74	1.74	No
Plot 19	57.06	58.30	1.24	1.09	No
Plot 20	58.04	58.30	0.26	0.11	Yes
Plot 21	58.05	58.85	0.75	0.65	No
Plot 22	58.28	59.10	0.67	0.67	No
Plot 23	58.45	59.10	0.5	0.50	No
Plot 24	57.76	58.75	0.99	0.84	No
Plot 25	57.64	58.60	0.96	0.81	No
Plot 26	57.22	58.45	1.23	1.08	No
Plot 27	57.03	58.45	1.42	1.27	No
Plot 28	57.25	58.45	1.2	1.05	No
Plot 29	57.18	58.45	1.27	1.12	No
Plot 30	56.54	58.50	1.91	1.81	No
Plot 31	56.54	58.50	1.91	1.81	No
Plot 32	56.54	58.50	1.91	1.81	No
Plot 33	56.54	58.50	1.91	1.81	No
Plot 34	56.54	58.60	2.06	1.91	No
Plot 35	56.54	58.60	2.21	1.91	No
Plot 36	56.23	58.60	2.52	2.22	No
Plot 37	56.29	58.70	2.46	2.26	No
Plot 38	56.37	58.40	2.08	1.88	No
Plot 39	57.64	58.55	0.96	0.76	No
Plot 40	57	58.70	1.75	1.55	No
Plot 41	57.22	58.75	1.53	1.38	No
Plot 42	57.51	58.80	1.24	1.14	No
Plot 43	56.84	58.70	1.91	1.71	No
Plot 44	57.3	58.60	1.45	1.15	No
Plot 45	57.3	58.60	1.45	1.15	No
Plot 46	57.3	58.60	1.45	1.15	No



Plate 1 Placement of Piling Mats beneath Plots 1 to 23



Plate 2 – Placement of Piling Matt Beneath Plot 8 to 17



Plate 3 – Reduced Levels & Piling Mats Beneath Plots 16 & 18



Plate 4 – Piling Matt Placement & Membrane Beneath Plots 20 to 23



Plate 5 – Plot 18 Class 2A/2B ‘wet’ Soils Removed to be removed and Replaced with 6F5



Plate 6 – As per Plate 5



Plate 7 Removal of Soft Ground and Replacement with 6F5 Around Plots 16 to 18



Plate 7 – Replacement of Soils Around Plots 16 to 20 with 6F5 Limestone Gravel



Plate 8 & 9 - Replacement of Soils Around Plots 16 to 20 with 6F5 Limestone Gravel





Plate 10 - Replacement of Soils Around Plots 19 & 20 with 6F5 Limestone Gravel



Plate 11 - Replacement of Soils Around Plots 8 to 15 with Class 2B Sand



Plate 12 - Replacement of Soils Around Plots 8 to 15 with Class 2B Sand



Plate 12 – Compacted 6F2 Around Plots 1 to 2



Plate 13 & 14 – Compacted 6F2 Around Plots 1 to 2



Plate 13 – Compacted 6F2 & 6f5 Around Plots 1 to 5



Plate 1 Placement of External Areas around Plot 4



Plate 2 – Placement of 6F5 Around Plots 24 to 29



Plate 3 – Placement of 6F5 around Plots 24 to 29



Plate 4 – Placement of 6F5 around Plots 24 to 29



Plate 5 – Placement of 6F5 around Plots 24 to 29



Plate 6 – Excavation of Temporary Fill materials around Plots 42 to 46



Plate 7 - Placement of 6F5 Fill materials around Plots 42 to 46



Plate 8 - Placement of 6F5 Fill materials around Plots 42 to 46



Plate 9 – CBR Position on Drive of Plot 43



Plate 10 - CBR Position on Drive of Plot 44



Plate 11 - CBR Position of Plot 45/46



Plate 12 - CBR Positions of Plot 40 & 41



Plate 13 – CBR Positions of Plot 42



Plate 14 – CBR Positions of Plot 43



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Appendix B – NX Calderstones Site Won Subsoil Stockpile 1 Laboratory Testing Results



Scientific Analysis Laboratories is a
limited company registered in England and
Wales (No 2514788) whose address is at
Hadfield House, Hadfield Street, Manchester M16 9FE

Scientific Analysis Laboratories Ltd

Certificate of Analysis

Hadfield House
Hadfield Street
Cornbrook
Manchester
M16 9FE
Tel : 0161 874 2400
Fax : 0161 874 2468

Report Number: 291840-1

Date of Report: 28-Aug-2012

Customer: Nx Consulting Limited
Thorpe House
11 Thorpe Close
Altrincham
WA14 7WZ

Customer Contact: Mr Mark Newton

Customer Job Reference: NX131
Customer Purchase Order: 161
Date Job Received at SAL: 16-Aug-2012
Date Analysis Started: 20-Aug-2012
Date Analysis Completed: 28-Aug-2012

The results reported relate to samples received in the laboratory
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs



Report checked
and authorised by :
Mr Ross Walker
Customer Services Manager
(Land)

Issued by :
Mr Ross Walker
Customer Services Manager
(Land)

SAL Reference: 291840												
Customer Reference: NX131												
Soil		Analysed as Soil										
ICRCL (Maxi)												
SAL Reference					291840 001	291840 002	291840 003	291840 004	291840 005	291840 006	291840 007	291840 008
Customer Sample Reference					STOCKPILE 1 S1	STOCKPILE 1 S2	STOCKPILE 1 S3	STOCKPILE 1 S4	STOCKPILE 1 S5	STOCKPILE 1 S6	STOCKPILE 1 S7	STOCKPILE 1 S8
Date Sampled					15-AUG-2012	15-AUG-2012	15-AUG-2012	15-AUG-2012	15-AUG-2012	15-AUG-2012	15-AUG-2012	15-AUG-2012
Type					Topsoil	Clay	Clay	Clay	Clay	Clay	Clay	Clay
Determinand	Method	Test Sample	LOD	Units								
Moisture	T277	AR	0.1	%	19	21	23	16	21	28	33	24
Moisture @ 105 C	T162	AR	0.1	%	20	23	24	17	28	28	34	24
Arsenic	T6	M40	2	mg/kg	14	16	14	12	10	12	18	17
Boron (water-soluble)	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
Cadmium	T6	M40	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	T6	M40	1	mg/kg	30	36	27	30	33	23	29	36
Chromium VI	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
Copper	T6	M40	1	mg/kg	34	35	42	34	33	30	40	34
Lead	T6	M40	1	mg/kg	260	73	71	37	41	70	130	36
Mercury	T6	M40	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
Nickel	T6	M40	1	mg/kg	47	52	35	46	39	26	37	52
Selenium	T6	M40	3	mg/kg	<3	<3	<3	<3	<3	<3	<3	<3
Zinc	T6	M40	1	mg/kg	130	100	110	110	92	66	140	98
Cyanide(Total)	T546	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
Cyanide(free)	T546	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
pH	T7	AR			7.8	7.8	7.5	7.8	7.6	7.5	7.6	7.0
Phenols(Mono)	T546	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
SO4(Total)	T6	M40	0.01	%	0.07	0.04	0.11	0.06	0.05	0.11	0.16	0.06
Sulphide	T4	AR	10	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10
Sulphur(Free)	T2	M40	500	mg/kg	<500	<500	<500	<500	<500	<500	<500	<500
Thiocyanate	T4	AR	10	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10
Naphthalene	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	T207	M105	0.1	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.6	<0.1
Fluorene	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.5	<0.1
Phenanthrene	T207	M105	0.1	mg/kg	0.2	1.3	0.5	0.3	<0.1	0.7	2.7	<0.1
Anthracene	T207	M105	0.1	mg/kg	<0.1	0.3	0.2	<0.1	<0.1	<0.1	0.8	<0.1
Fluoranthene	T207	M105	0.1	mg/kg	0.7	2.8	0.7	0.7	<0.1	1.7	3.4	<0.1
Pyrene	T207	M105	0.1	mg/kg	0.7	2.3	0.6	0.6	<0.1	1.4	2.7	<0.1
Benzo(a)Anthracene	T207	M105	0.1	mg/kg	0.3	1.1	0.3	0.2	<0.1	0.4	1.2	<0.1
Chrysene	T207	M105	0.1	mg/kg	0.3	1.1	0.3	0.3	<0.1	0.5	1.3	<0.1
Benzo(b/k)Fluoranthene	T207	M105	0.1	mg/kg	0.5	1.8	0.4	0.4	<0.1	0.9	1.6	<0.1
Benzo(a)Pyrene	T207	M105	0.1	mg/kg	0.3	0.9	0.2	0.2	<0.1	0.5	0.8	<0.1
Indeno(123-cd)Pyrene	T207	M105	0.1	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1	0.2	0.3	<0.1
Dibenzo(ah)Anthracene	T207	M105	0.1	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	0.2	<0.1
Benzo(ghi)Perylene	T207	M105	0.1	mg/kg	0.2	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PAH(total)	T207	M105	0.1	mg/kg	3.2	13	3.2	2.7	<0.1	6.3	16	<0.1

Index to symbols used in 291840-1

Value	Description
M105	Analysis conducted on an "as received" aliquot. Results are reported on a dry weight basis where moisture content was determined by assisted drying of sample at 105C
AR	As Received
M40	Analysis conducted on sample assisted dried at no more than 40C. Results are reported on a dry weight basis.
S	Analysis was subcontracted
M	Analysis is MCERTS accredited
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Method Index

Value	Description
T207	GC/MS(MCERTS)
T7	Probe
T162	Grav (1 Dec) (105 C)
T27	PLM
T6	ICP/OES
T4	Colorimetry
T277	Grav (1 Dec) (40 C)
T546	Colorimetry (CF)
T2	Grav

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Asbestos Quantification Stage 1	T27	AR	0.001	%	SU	001-008
Moisture	T277	AR	0.1	%	N	001-008
Moisture @ 105 C	T162	AR	0.1	%	N	001-008
Arsenic	T6	M40	2	mg/kg	M	001-008
Boron (water-soluble)	T6	AR	1	mg/kg	N	001-008
Cadmium	T6	M40	1	mg/kg	M	001-008
Chromium	T6	M40	1	mg/kg	M	001-008
Chromium VI	T6	AR	1	mg/kg	N	001-008
Copper	T6	M40	1	mg/kg	M	001-008
Lead	T6	M40	1	mg/kg	M	001-008
Mercury	T6	M40	1	mg/kg	M	001-008
Nickel	T6	M40	1	mg/kg	M	001-008
Selenium	T6	M40	3	mg/kg	M	001-008
Zinc	T6	M40	1	mg/kg	M	001-008
Cyanide(Total)	T546	AR	1	mg/kg	M	001-008
Cyanide(free)	T546	AR	1	mg/kg	M	001-008
pH	T7	AR			M	001-008
Phenols(Mono)	T546	AR	1	mg/kg	M	001-008
SO4(Total)	T6	M40	0.01	%	N	001-008
Sulphide	T4	AR	10	mg/kg	N	001-008
Sulphur(Free)	T2	M40	500	mg/kg	N	001-008
Thiocyanate	T4	AR	10	mg/kg	N	001-008
Naphthalene	T207	M105	0.1	mg/kg	M	001-008
Acenaphthylene	T207	M105	0.1	mg/kg	U	001-008
Acenaphthene	T207	M105	0.1	mg/kg	M	001-008
Fluorene	T207	M105	0.1	mg/kg	M	001-008
Phenanthrene	T207	M105	0.1	mg/kg	M	001-008
Anthracene	T207	M105	0.1	mg/kg	U	001-008
Fluoranthene	T207	M105	0.1	mg/kg	M	001-008
Pyrene	T207	M105	0.1	mg/kg	M	001-008
Benzo(a)Anthracene	T207	M105	0.1	mg/kg	M	001-008
Chrysene	T207	M105	0.1	mg/kg	M	001-008
Benzo(b/k)Fluoranthene	T207	M105	0.1	mg/kg	M	001-008
Benzo(a)Pyrene	T207	M105	0.1	mg/kg	M	001-008
Indeno(123-cd)Pyrene	T207	M105	0.1	mg/kg	M	001-008
Dibenzo(ah)Anthracene	T207	M105	0.1	mg/kg	M	001-008
Benzo(ghi)Perylene	T207	M105	0.1	mg/kg	M	001-008
PAH(total)	T207	M105	0.1	mg/kg	U	001-008



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Appendix C – Imported Cotton Mills Subsoils Stockpile Testing Results



Scientific Analysis Laboratories is a
limited company registered in England and
Wales (No 2514788) whose address is at
Hadfield House, Hadfield Street, Manchester M16 9FE

Scientific Analysis Laboratories Ltd

Certificate of Analysis

Hadfield House
Hadfield Street
Cornbrook
Manchester
M16 9FE
Tel : 0161 874 2400
Fax : 0161 874 2468

Report Number: 294860-1

Date of Report: 19-Sep-2012

Customer: Nx Consulting Limited
Thorpe House
11 Thorpe Close
Altrincham
WA14 7WZ

Customer Contact: Mr Mark Newton

Customer Job Reference: NX131
Customer Purchase Order: 170
Date Job Received at SAL: 08-Sep-2012
Date Analysis Started: 11-Sep-2012
Date Analysis Completed: 19-Sep-2012

The results reported relate to samples received in the laboratory
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs



Report checked
and authorised by :
Mr Ross Walker
Customer Services Manager
(Land)

Issued by :
Mr Ross Walker
Customer Services Manager
(Land)

Customer Reference: NX131

Soil
ICRCL (Maxi)

SAL Reference					294860 001	294860 002	294860 003	294860 004	294860 005	294860 006	294860 007	294860 008
Customer Sample Reference					TP1 - 0.50	TP1 - 2.00	TP2 - 1.00	TP2 - 3.00	TP3 - 0.50	TP3 - 2.00	TP4 - 1.00	TP4 - 3.00
Depth					0.50	2.00	1.00	3.00	0.50	2.00	1.00	3.00
Date Sampled					05-SEP-2012	05-SEP-2012	05-SEP-2012	05-SEP-2012	05-SEP-2012	05-SEP-2012	05-SEP-2012	05-SEP-2012
Type					Clay	Sandy Soil	Sandy Soil	Sandy Soil	Sandy Soil	Sandy Soil	Sandy Soil	Sandy Soil
Determinand	Method	Test Sample	LOD	Units								
Moisture	T277	AR	0.1	%	18	17	14	13	16	15	16	16
Moisture @ 105 C	T162	AR	0.1	%	20	18	9.5	11	16	15	17	15
Arsenic	T6	M40	2	mg/kg	10	6	10	9	9	10	10	11
Boron (water-soluble)	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
Cadmium	T6	M40	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	T6	M40	1	mg/kg	17	12	18	15	15	15	16	15
Chromium VI	T6	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
Copper	T6	M40	1	mg/kg	33	24	33	37	33	33	37	38
Lead	T6	M40	1	mg/kg	42	40	72	82	72	73	72	77
Mercury	T6	M40	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
Nickel	T6	M40	1	mg/kg	19	11	19	16	16	17	19	18
Selenium	T6	M40	3	mg/kg	<3	<3	<3	<3	<3	<3	<3	<3
Zinc	T6	M40	1	mg/kg	83	60	82	130	110	110	150	150
Cyanide(Total)	T546	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
Cyanide(free)	T546	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
pH	T7	AR			7.8	7.3	9.7	9.8	10.2	8.9	7.9	7.6
Phenols(Mono)	T546	AR	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1
SO4(Total)	T6	M40	0.01	%	0.12	0.12	0.22	0.30	0.27	0.24	0.19	0.21
Sulphide	T4	AR	10	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10
Sulphur(Free)	T2	M40	500	mg/kg	<500	<500	<500	<500	<500	<500	<500	<500
Thiocyanate	T4	AR	10	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10
Naphthalene	T207	M105	0.1	mg/kg	<0.1	<0.1	0.3	0.3	0.1	1.0	0.1	0.3
Acenaphthylene	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	T207	M105	0.1	mg/kg	<0.1	0.3	0.4	0.8	0.2	1.4	<0.1	0.5
Fluorene	T207	M105	0.1	mg/kg	<0.1	0.4	0.3	0.6	0.1	1.1	<0.1	0.5
Phenanthrene	T207	M105	0.1	mg/kg	0.7	3.0	2.5	4.0	1.6	7.9	0.7	4.2
Anthracene	T207	M105	0.1	mg/kg	0.2	1.1	0.8	1.1	0.4	2.0	0.2	1.4
Fluoranthene	T207	M105	0.1	mg/kg	1.0	2.8	2.9	3.7	1.8	6.8	0.9	5.2
Pyrene	T207	M105	0.1	mg/kg	0.9	2.4	2.7	3.3	1.6	6.3	0.9	4.7
Benzo(a)Anthracene	T207	M105	0.1	mg/kg	0.5	1.3	1.5	2.0	0.6	2.2	0.4	2.1
Chrysene	T207	M105	0.1	mg/kg	0.5	1.4	1.7	2.0	0.8	2.6	0.4	2.2
Benzo(b/k)Fluoranthene	T207	M105	0.1	mg/kg	1.0	1.9	2.8	3.4	1.4	3.4	0.7	3.3
Benzo(a)Pyrene	T207	M105	0.1	mg/kg	0.5	0.9	1.3	1.6	0.6	1.5	0.4	1.7
Indeno(123-cd)Pyrene	T207	M105	0.1	mg/kg	0.2	0.3	0.5	0.6	0.3	0.8	0.1	0.6
Dibenzo(ah)Anthracene	T207	M105	0.1	mg/kg	<0.1	0.1	0.2	0.3	0.2	0.3	<0.1	0.3
Benzo(ghi)Perylene	T207	M105	0.1	mg/kg	0.2	0.3	0.6	0.7	0.3	0.8	0.1	0.6
PAH(total)	T207	M105	0.1	mg/kg	5.7	16	19	25	10	38	4.9	28

Soil	Analysed as Soil
Total Petroleum Hydrocarbons CWG	

SAL Reference: 294860 Customer Reference: NX131													
Soil		Analysed as Soil											
Miscellaneous													
SAL Reference					294860 001	294860 002	294860 003	294860 004	294860 005	294860 006	294860 007	294860 008	
Customer Sample Reference					TP1 - 0.50	TP1 - 2.00	TP2 - 1.00	TP2 - 3.00	TP3 - 0.50	TP3 - 2.00	TP4 - 1.00	TP4 - 3.00	
Depth					0.50	2.00	1.00	3.00	0.50	2.00	1.00	3.00	
Date Sampled					05-SEP-2012	05-SEP-2012	05-SEP-2012	05-SEP-2012	05-SEP-2012	05-SEP-2012	05-SEP-2012	05-SEP-2012	
Type					Clay	Sandy Soil	Sandy Soil	Sandy Soil	Sandy Soil	Sandy Soil	Sandy Soil	Sandy Soil	
Determinand	Method	Test Sample	LOD	Units									
Asbestos Quantification Stage 1	T27	AR	0.001	%	<0.001	<0.001	-	<0.001	-	-	<0.001	<0.001	
Asbestos Quantification Stage 3	T413	AR	0.001	%	-	-	Chrysotile Detected	-	Chrysotile Detected	Chrysotile Detected	-	-	
							-		-	-			
							<0.001		<0.001	<0.001			

Value	Description
M105	Analysis conducted on an "as received" aliquot. Results are reported on a dry weight basis where moisture content was determined by assisted drying of sample at 105C
AR	As Received
M40	Analysis conducted on sample assisted dried at no more than 40C. Results are reported on a dry weight basis.
S	Analysis was subcontracted
M	Analysis is MCERTS accredited
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Method Index

Value	Description
T277	Grav (1 Dec) (40 C)
T6	ICP/OES
T2	Grav
T7	Probe
T207	GC/MS(MCERTS)
T546	Colorimetry (CF)
T27	PLM
T206	GC/FID (MCERTS)
T8	GC/FID
T413	PLM/Grav
T209	GC/MS(Head Space)(MCERTS)
T162	Grav (1 Dec) (105 C)
T4	Colorimetry

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Benzene	T209	M105	10	µg/kg	M	001-008
Toluene	T209	M105	10	µg/kg	M	001-008
EthylBenzene	T209	M105	10	µg/kg	M	001-008
M/P Xylene	T209	M105	10	µg/kg	M	001-008
O Xylene	T209	M105	10	µg/kg	M	001-008
Methyl tert-Butyl Ether	T209	M105	10	µg/kg	M	001-008
TPH (C5-C6 aliphatic)	T209	M105	0.100	mg/kg	N	001-008
TPH (C6-C8 aliphatic)	T209	M105	0.10	mg/kg	N	001-008
TPH (C8-C10 aliphatic)	T209	M105	0.100	mg/kg	N	001-008
TPH (C10-C12 aliphatic)	T206	M105	1	mg/kg	N	001-008
TPH (C12-C16 aliphatic)	T206	M105	2	mg/kg	N	001-008
TPH (C16-C21 aliphatic)	T206	M105	1	mg/kg	M	001-008
TPH (C21-C35 aliphatic)	T206	M105	4	mg/kg	M	001-008
TPH (C6-C7 aromatic)	T209	M105	0.100	mg/kg	N	001-008
TPH (C7-C8 aromatic)	T209	M105	0.100	mg/kg	N	001-008
TPH (C8-C10 aromatic)	T209	M105	0.100	mg/kg	N	001-008
TPH (C10-C12 aromatic)	T8	M105	1	mg/kg	N	001-008
TPH (C12-C16 aromatic)	T8	M105	1	mg/kg	N	001-008
TPH (C16-C21 aromatic)	T206	M105	1	mg/kg	M	001-008
TPH (C21-C35 aromatic)	T206	M105	1	mg/kg	M	001-008
Asbestos Quantification Stage 1	T27	AR	0.001	%	SU	001-008
Asbestos Quantification Stage 3	T413	AR	0.001	%	SU	001-008
Moisture	T277	AR	0.1	%	N	001-008
Moisture @ 105 C	T162	AR	0.1	%	N	001-008
Arsenic	T6	M40	2	mg/kg	M	001-008
Boron (water-soluble)	T6	AR	1	mg/kg	N	001-008
Cadmium	T6	M40	1	mg/kg	M	001-008
Chromium	T6	M40	1	mg/kg	M	001-008
Chromium VI	T6	AR	1	mg/kg	N	001-008
Copper	T6	M40	1	mg/kg	M	001-008
Lead	T6	M40	1	mg/kg	M	001-008
Mercury	T6	M40	1	mg/kg	M	001-008
Nickel	T6	M40	1	mg/kg	M	001-008
Selenium	T6	M40	3	mg/kg	M	001-008
Zinc	T6	M40	1	mg/kg	M	001-008
Cyanide(Total)	T546	AR	1	mg/kg	M	001-008
Cyanide(free)	T546	AR	1	mg/kg	M	001-008
pH	T7	AR			M	001-008
Phenols(Mono)	T546	AR	1	mg/kg	M	001-008
SO4(Total)	T6	M40	0.01	%	N	001-008
Sulphide	T4	AR	10	mg/kg	N	001-008
Sulphur(Free)	T2	M40	500	mg/kg	N	001-008
Thiocyanate	T4	AR	10	mg/kg	N	001-008
Naphthalene	T207	M105	0.1	mg/kg	M	001-008
Acenaphthylene	T207	M105	0.1	mg/kg	U	001-008
Acenaphthene	T207	M105	0.1	mg/kg	M	001-008
Fluorene	T207	M105	0.1	mg/kg	M	001-008
Phenanthrene	T207	M105	0.1	mg/kg	M	001-008
Anthracene	T207	M105	0.1	mg/kg	U	001-008

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
Fluoranthene	T207	M105	0.1	mg/kg	M	001-008
Pyrene	T207	M105	0.1	mg/kg	M	001-008
Benzo(a)Anthracene	T207	M105	0.1	mg/kg	M	001-008
Chrysene	T207	M105	0.1	mg/kg	M	001-008
Benzo(b/k)Fluoranthene	T207	M105	0.1	mg/kg	M	001-008
Benzo(a)Pyrene	T207	M105	0.1	mg/kg	M	001-008
Indeno(123-cd)Pyrene	T207	M105	0.1	mg/kg	M	001-008
Dibenzo(ah)Anthracene	T207	M105	0.1	mg/kg	M	001-008
Benzo(ghi)Perylene	T207	M105	0.1	mg/kg	M	001-008
PAH(total)	T207	M105	0.1	mg/kg	U	001-008





Specialists In Ground Engineering & Energy

Appendix D – Environment Agency U1 Exemption

Company Registration No: 7771087
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Mob: 07808 67 00 68
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Next Generation Engineering Consultancy Services

3rd October 2012

F.A.O. Neil Clarke
Environment Agency
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 4WF

Dear Neil

RE: NX131 APPLICATION NO 3/2011/0837 LAND OFF PENDLE DRIVE, CALDERSTONES PARK – WEX001 U1 WASTE EXEMPTION REGISTRATION

Following our discussions with your Technical Officer Lee Collins, please find attached carbon copy of your form WEZ001 Registering Exempt Waste Operations, relating to the above site. At the time of issue the EA website was experiencing technical difficulties.

Can you please ensure any correspondence relating to the above is issued to myself at the above address.

Please do not hesitate to call if you have any queries.

Yours Sincerely
for and on behalf of NX Consulting Limited

A handwritten signature in blue ink, appearing to read 'Mark Newton', written over a faint rectangular box.

Mark Newton
(Managing Director)

CC Simon Devine (Taylor Wimpey Manchester Limited)

Mr Mark Newton
11 Thorpe Close,
Timperley,
ALTRINCHAM,
Cheshire,
WA15 7WZ,
England

Our ref: XLET7 Confirmation of Registration

Your ref:

Reg. Customer I.D. No: a300184074

Date: 09/10/2012

Dear Mr Newton

**The Environmental Permitting (England and Wales) Regulations 2010
Confirmation of Registration**

Exemption Ref: EPR/GE5752XZ/A001
Location of the Former Calderstone Hospital Phase 3, Pendle Drive, Whalley, BB7
Operation: 9JT, England

Following receipt of your submission, we can confirm that we have now registered the operation(s) listed on the attached schedule, as exempt under the above Regulations, at the site shown above.

However you should be aware that this/these activities is/are only lawful where you:

- comply with the conditions of the exemption(s) that you have registered (these conditions can be seen at <http://www.environment-agency.gov.uk/exemptions>) and,
- carry out the activity without endangering human health or harming the environment and, in particular:
 - (a) without risk to water, air, soil, plants or animals;
 - (b) without causing a nuisance through noise or odours; and
 - (c) without adversely affecting the countryside or places of special interest.

I must warn you that if you fail to comply with the conditions of the exemptions, endanger human health or the environment, then regardless of your registration and this letter, you may be acting unlawfully and may face enforcement action. In addition, please note that this registration(s) only confirms an exemption(s) from environmental permitting and does not absolve you from the need to comply with other legislative requirement such as:

- the need to obtain appropriate **planning permission** for your activity.
The granting of an exemption by the Environment Agency does not mean that the activity in question does not require planning permission. Planning permission may still be required for an exempt waste operation. It is your responsibility to obtain planning permission, if needed, before any waste operations are commenced. I need to warn you that failure to have appropriate planning permission may result in enforcement action by the local planning authority. It is your responsibility therefore to contact your

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If you have any queries about your registration please contact:-
Environment Agency, National Customer Contact Centre, 99 Parkway Avenue, Parkway Business Park, Sheffield, S9 4WF
Customer Services Line: 03708 506 506
Fax: 01142 626 697
Email: enquiries@environment-agency.gov.uk
2011 track change

2133_EPS_Permission_E December

local planning authority at an early stage to ascertain whether a planning application is required.

- the need to have a **Flood Defence Consent**.

You may need a flood defence consent if you intend to raise ground levels within a flood plain - this is particularly relevant if you have registered a U1 or D1 exemption to raise ground levels within the flood plain of a main river. This consent may also be required where the development may obstruct flood flows or maintenance access to a main river or you propose works directly to the river, such as outfalls or access crossings. In all cases, you will have to demonstrate that flood risk in the locality will not be worsened by your actions, and if it would be then consent may be refused.

You can see whether your development is in a flood plain or near a main river by looking at "What's in my backyard" on our website (<http://www.environment-agency.gov.uk/homeandleisure/37793.aspx>). You can get more information on whether you need a Flood Defence Consent by phoning us on **03708 506 506** and speaking to the local Development and Flood Risk team.

You should note that failure to obtain a flood defence consent where it is needed may result in enforcement action. It is your responsibility to obtain this consent, where it is needed, before you begin operations. Our booklet 'Living On The Edge' gives more information about consents and is available online at <http://www.environment-agency.gov.uk/homeandleisure/floods/31626.aspx>

If any of these exempt operations were previously authorised by an environmental permit which you now consider to be redundant, please contact our Customer Services on 03708 506 506 so that we can explain what will happen to your permit.

The exemption(s) will remain valid at this site until 07/10/2015. We will remind you that the exemption(s) are due for renewal at least one month before this date. You can renew at any time during the month prior to expiry but if you fail to renew during this period, you will have to make a new application.

If your operations change at any time during the registration period and you wish to add or remove exemptions at your site, you can do this by contacting one of our customer service providers on 03708 506 506.

If you have any queries about this matter please contact us by telephone on 03708 506 506 or email us at enquiries@environment-agency.gov.uk quoting your customer reference number a300184074 and site reference number EPR/GE5752XZ/A001.

Yours sincerely



Jo Price
Customer Operations Manager

The Environment Agency does not endorse any business. You cannot use our logo on your website or promotional literature or say that we specifically recommend or approve you. However you can state that you are registered by the Environment Agency, if this is the case, and have a link to our website <http://www.environment-agency.gov.uk>.

If you have any queries about your registration please contact:-
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Customer Services Line: 03708 506 506
Fax: 01142 626 697
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