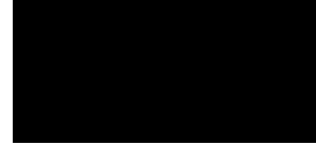


15th June 2021

Our reference: 27621 L71 (00)

Mr Gary Biggs

CALA Homes (South Home Counties) Limited
Tilford House
Farnham Business Park
Weydon Lane
Farnham
Surrey
GU9 8QT



FORMER WEST END NURSERY, ANGMERING – POST REMEDIATION VALIDATION OF SOUTH EASTERN AND CENTRAL PUBLIC OPEN SPACES, AND NORTH EASTERN BUND

Dear Gary,

1. BACKGROUND

RSK Environment Limited (RSK) was commissioned by CALA Homes (South Home Counties) Limited (CALA) to carry out garden validation testing of South Eastern, Central Public Open Spaces (POS), and North Eastern Bund of the former West End Nursery site off Roundstone Lane, Angmering, BN16 4AX. These areas are shown on Figure 1. The site was previously occupied by a commercial nursery.

Several phases of site investigation, risk assessments, remedial strategies and post remediation verification reports (Phase 1A, Phase 1B, Phase 2A and Phase 2B) have been completed for the former West End Nursery site by RSK. The following reports contain information relevant to the site.

- RSK, 2015a. Geo-environmental site investigation, report ref: 27621 R01 (02), May 2016;
- RSK, 2015b. Additional geo-environmental site investigation and remediation, report ref: 27621 R02 (00), June 2015;
- RSK, 2016a. Remedial Strategy, report ref: 27621 R03 (02), August 2017 (previous issue 01 dated January 2016);
- RSK, 2016b. Supplementary geo-environmental site assessment, report ref: 27621 R04 (01), June 2016;
- RSK 2016c. Tank validation, report ref: 27621 L01/ad, August 2016;
- RSK 2017a. Post-remediation validation report - Phase 1A, report ref: 27621 R06 (00), May 2017;
- RSK 2017b. Downgrading of ground gas regime, report ref: 27621-L19-dbj, November 2017;
- RSK 2018a. Supplementary site investigation and remedial strategy – South east landscaped area, report ref. 27621 R08 (00), January 2018;
- RSK 2018b. Post-remediation validation report – Phase 1B, report ref: 27621 R09 (00), April 2018;

- RSK, 2019. Post-remediation validation report – Phase 2A, report ref: 27621 R10 (00), February 2019; and
- RSK, 2019. Post-remediation validation report – Phase 2B, report ref: 27621 R11 (00), May 2019.

A number of impacted areas were found previously across the site including elevated concentrations of pesticides (one location), hydrocarbons, asbestos and metals.

A first phase of remediation was undertaken at the site by Keltbray in accordance with recommendations contained within the approved Remedial Strategy for the site (RSK report ref: 27621 R03 (02), August 2017, prior issue (01) dated September 2015). The remedial works undertaken by Keltbray were documented in the Keltbray Completion Report, ref: 6033.CR.LH.08072016V3, dated August 2016. Throughout the Keltbray remedial works, RSK attended site on an ad-hoc basis to verify the works carried out.

Validation works completed by RSK at the site are detailed within the preceding post-remediation validation reports produced for Phases 1A, 1B, 2A and 2B referenced on page one of this letter report, which have been submitted and the conclusions within agreed with the Local Authority.

In the most recent post-remediation verification report completed for the site – Phase 2B report, RSK report ref: 27621 R11 (00), dated May 2019 the following validation works were listed as outstanding at the site:

- Re-validation of the central POS area capping materials following placement of further 'clean' site won subsoil to raise levels in this area and imported topsoil;
- Validation of the south eastern POS area capping materials following placement of further 'clean' site won subsoil and imported topsoil;
- Re-validation of the north east bund clean capping layer following installation of cut throughs in accordance with design layout changes (Phase 2B);
- Garden and soft landscaping validation sampling and reporting Phase 2B; and
- Post remediation validation reporting for all of the above.

This letter report documents validation works completed in the South Eastern and Central POS, and North Eastern Bund. The outstanding garden and soft landscaping (near the residential apartment blocks) validation works mentioned above, have been documented under separate cover (RSK letter reports 27621 L48-L70, dated between June 2019 and December 2020).

2. CAPPING LAYER REMEDIAL REQUIREMENTS

Upon the basis of the impacts previously identified at the site, it was recommended that a capping layer be incorporated into private garden areas to minimise risk to human health from any impacted soils. The specification for the capping layer, agreed with Arun District Council is as follows:

The capping layer in areas of identified impact (remaining bund materials, pesticide hotspot and made ground containing asbestos) and in the central and south eastern landscaped areas should be 600 mm thick to include a minimum of 150 mm clean imported topsoil and 450 mm clean imported/site-won subsoil with a geo- marker membrane at the base, which will act as a physical break layer. In lower risk areas (i.e. no impacts identified during the previous phases of works) the capping layer should be 450 mm to include a minimum of 150 mm clean imported topsoil and 300 mm clean imported/site-won subsoil.

Validation of the capping layer should consist of the following:

- In private gardens, testing should be carried out on the basis of one sample for every 50 m³ area of garden; and

- In communal soft landscaping areas, testing should be carried out on the basis of one sample for every 250 m³ of soft landscaping.

Based upon the recommendations above, this letter report represents a verification of the appropriate implementation of capping layer construction across the South Eastern & Central POS, and North Eastern Bund.

The comments given in this report and the opinions expressed are based on the ground conditions encountered during the site work, on the results of laboratory analysis on soil samples and on available information. All works undertaken at the site are in accordance with the RSK service constraints presented in **Appendix A**.

3. SITE INSPECTION

3.1 North Eastern Bund

RSK originally attended site on the 25th July 2016 to undertake 4 No. hand dug pits (NEBV1 – NEBV4) along the north eastern bund to allow inspection of the subsoil component of the capping layer prior to Keltbray's site works concluding, as reported in RSK letter report 27621 L02, dated 24th October 2016. Four representative subsoil samples were collected during the bund validation works in 2016.

In accordance with site level changes, the north eastern bund required a cut through from the top to the bottom of the bund to allow for the construction of a footpath, to be undertaken by the Principal Groundworks Contractor.

RSK returned to site on 8th October 2019 upon the completion of these works including implementation of the clean capping layer, to undertake 7 No. further hand dug pits (P2B-NE Bund HP1 – P2B NE Bund HP7). In accordance with the remedial strategy specification, validation pits were hand-excavated to a minimum depth of 600 mm below the existing ground level, to allow for sampling of soils. The inspection pit logs and photographic evidence is presented in **Appendix B** and **Appendix C** respectfully. The locations of the inspection pits are presented on **Figure 1**.

The topsoil generally comprised at least 250 mm dark brown gravelly very clayey fine to coarse SAND with abundant organic matter, where gravel is subrounded fine to medium flint. The topsoil was followed by at least 400 mm of subsoil. The subsoil generally comprised orangish brown gravelly sandy CLAY, where sand is fine to coarse, and gravel is subangular to subrounded fine to coarse flint.

The depth of the capping layer within the north east bund was found to be at least 600 mm and underlain by a geo-marker membrane. It is considered that this demonstrates compliance with the specified capping layer remedial measures.

3.2 Central Public Open Space

A subsoil and geo-marker membrane elements of the clean capping layer were placed across the central POS following the Keltbray remedial works in 2016. RSK attended site on the 7th July 2016 and 22nd August 2016 to validate the capping layer in the Central POS as detailed in RSK report 27621 R06 (00), dated May 2017. The validation works found the clean capping layer across the Central POS to be compliant with the specified capping layer remedial measures, with exception of the topsoil to be placed later on in the development.

RSK attended site on the 18th and 20th December 2018 to undertake 16 No. hand dug pits within the central open space. At the time of the works inspection pits were only able to be undertaken within the western

half of the Central POS as the remainder of the POS was in use as the site compound. Subsequently upon the completion of the construction of the residential dwellings RSK returned to site on 15th March 2021 and undertook an additional 5 No. inspection pits within the former site compound area.

In accordance with the remedial strategy specification, validation pits were excavated to a minimum depth of 600 mm below the existing ground level, to allow for sampling of soils. The inspection pit logs and photographic evidence is presented in **Appendix B** and **Appendix C** respectfully.

Please note, the exact locations of the 2018 inspection pits completed in the western part of the Central POS are unknown as the engineers who undertook these works are no longer working at RSK and their site records only document the area validated rather than the individual locations. The area covered by the 2018 inspection pits and individual 2021 inspection pit locations are presented on **Figure 1**.

The topsoil generally comprised at least 200 mm dark brown slightly gravelly very clayey fine to coarse SAND with abundant organic matter, where gravel is subrounded fine to medium flint. The topsoil was followed by at least 400 mm of subsoil. The subsoil generally comprised orangish brown gravelly sandy CLAY, where sand is fine to coarse, and gravel is subangular to subrounded fine to coarse flint.

The depth of the capping layer within the central POS was found to be at least 600 mm, it is noted that the geo-marker membrane was observed in HP18 only. Given that the presence of a geo-marker membrane across the Central POS was proven during preceding works (refer to RSK report 27621 R06 (00), May 2017), RSK consider that the validation works completed to date demonstrate compliance with the specified capping layer remedial measures.

3.3 South Eastern Public Open Space

RSK attended site on 13th, 15th and 21st August 2019 to undertake 18 No. inspection pits within the south eastern public open space. In accordance with the remedial strategy specification, validation pits were hand-excavated to a minimum depth of 600 mm below the existing ground level, to allow for sampling of soils. The inspection pit logs and photographic evidence is presented in **Appendix B** and **Appendix C** respectfully. The inspection pit locations are presented on **Figure 1**.

The topsoil generally comprised at least 200 mm dark brown slightly gravelly very clayey fine to coarse SAND with abundant organic matter, where gravel is subrounded, fine to medium flint. The topsoil was followed by at least 400 mm of subsoil. The subsoil generally comprised orangish brown gravelly sandy CLAY, where sand is fine to coarse, and gravel is subangular to subrounded, fine to coarse flint.

The depth of the capping layer within the south eastern POS was found to be at least 600 mm and underlain by a geo-marker membrane. It is considered that this demonstrates compliance with the specified capping layer remedial measures.

3.4 Material sources

The import tickets for the topsoil are presented in **Appendix D**. The subsoil used at the site was site won 'clean' subsoil from the Central and South Eastern POS borrow pit excavations in accordance with the agreed remedial strategies for the site.

4. VERIFICATION TESTING

Soil samples were submitted for chemical laboratory testing comprising a standard suite of potential contaminants. Soil samples were submitted for the following suite of analysis:

- Selected heavy/semi/non-metals (including chromium VI);
- pH and sulphate;
- Speciated Total Petroleum Hydrocarbons (TPH)- with Criteria Working Group banding with Benzene, Toluene, Ethyl Benzene and Xylene (BTEX) and Methyl *Tert* Butyl Ether (MTBE) determination;
- Speciated Polycyclic Aromatic Hydrocarbons (PAH); and
- Asbestos screen.

A summary of the capping layer volumes is presented in **Table 1**.

Table 1: Summary of capping layer volumes

Location	Combined topsoil/subsoil volume m ³ based the minimum capping layer thickness of 600 mm	Samples Tested	Material tested (Topsoil/Subsoil)
NE Bund	1572	7	topsoil / subsoil
Central POS	5260	21	topsoil / subsoil
SE POS	4450	19	topsoil / subsoil

A total of 47 No. validation soil samples were collected from the NE bund, central POS and SE POS. based upon the testing strategy of 1 sample per 250 m³ for communal soft landscaping areas it is considered that an appropriate number of samples have been obtained. The chemical results are presented in **Appendix E** and indicate that concentrations of analytes are below the RSK GAC presented in **Appendix F**.

5. CONCLUSIONS

The results of the site inspection and laboratory testing have demonstrated that the topsoil and subsoil are chemically suitable for the sites proposed residential end-use and the capping layer has been completed to the required specification, comprising at least 600 mm topsoil and subsoil in the NE bund, central POS and SE POS. It is therefore considered that no further verification of these POS areas is required.

It is considered that the inspection data for the public open space is sufficient and that this letter report may be submitted to the Local Authority, in support of satisfying conditions 27 of the decision notice for the site pertaining to verification reporting.

We trust that the information discussed above is acceptable and recommend this report be submitted to Local Authority. Should you require RSK to submit this information on your behalf, please do not hesitate to contact us.

Yours sincerely,

For RSK Environment Limited

Emily Chissell

Geo-environmental Consultant

Cathy Cussell

Principal Geo-environmental Consultant

Enc.

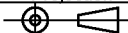
Figure 1	Validation works locations plan
Appendix A	Service constraints
Appendix B	Photographic log
Appendix C	Inspection pit logs
Appendix D	Topsoil import tickets
Appendix E	Laboratory certificates
Appendix F	RSK Generic Assessment Criteria

FIGURES

LEGEND:

- Site boundary
- Portion of central public open space validated December 2018
- Portion of public open space validated March 2021
- Validation location



A	19.05.21	FIRST ISSUE	HD	CC	CC
REV	DATE	DESCRIPTION	BY	CHD	APR.
Dimensions		Projection	Scale	Orig Size	
m			NTS	A3	
					
Unit 36 Beechwood Abbey Industrial Estate Preston Way Abbey Park Industrial Estate Ratcliffe, SO14 9AQ			Tel: +44 1798 529276		
CLIENT					
CALA HOMES (SOUTH HOME COUNTIES) LTD					
PROJECT					
FORMER WEST END NURSERY, ANGMERING					
TITLE					
VALIDATION WORKS LOCATION PLAN					
JOB No.:			DRAWING FILE:		
27621			27621-L71(00)D001A		
BY:	DATE:	CONTRACT NO.	FIGURE 1		REV:
HD	19.05.21				A

APPENDIX A

SERVICE CONSTRAINTS

1. This report and the site investigation carried out in connection with the report (together the "Services") were compiled and carried out by RSK Environment Limited (RSK) for CALA HOMES (South Home Counties) Limited (the "Client") in accordance with the terms of a contract RSK and the Client. The Services were performed by RSK with the reasonable skill and care ordinarily exercised by an environmental consultant at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the Client.
2. Other than that, expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.
3. Unless otherwise agreed in writing, the Services were performed by RSK exclusively for the purposes of the Client. RSK is not aware of any interest of or reliance by any party other than the Client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. **Any such party would be well advised to seek independent advice from a competent environmental consultant and/or lawyer.**
4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date of this report, RSK shall be entitled to additional payment at the then existing rates or such other terms as agreed between RSK and the client.
5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the Client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between RSK and the client.
6. The observations and conclusions described in this report are based solely upon the Services which were provided pursuant to the agreement between the Client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off site of asbestos, invasive plants, electromagnetic fields, lead paint, heavy metals, radon gas, persistent, bioaccumulative or toxic chemicals (including PFAS/ PFOS) or other radioactive or hazardous materials, unless specifically identified in the Services.
7. The Services are based upon RSK's observations of existing physical conditions at the Site gained from a visual inspection of the site together with RSK's interpretation of information, including documentation, obtained from third parties and from the Client on the history and usage of the site, unless specifically identified in the Services or accreditation system (such as UKAS ISO 17020:2012 clause 7.1.6):
 - a. The Services were based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely.

- b. The Services were limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the visual inspection.
- c. The Services did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services.

RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the Client and RSK.

- 8. The intrusive environmental site investigation aspects of the Services are a limited sampling of the site at pre-determined locations based on the known historic / operational configuration of the site. The conclusions given in this report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the properties of the materials adjacent and local conditions, together with the position of any current structures and underground utilities and facilities, and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters (as stipulated in the scope between the client and RSK, based on an understanding of the available operational and historical information) and it should not be inferred that other chemical species are not present.
- 9. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan but is (are) used to present the general relative locations of features on, and surrounding, the site. Features (intrusive and sample locations etc) annotated on site plans are not drawn to scale but are centred over the approximate location. Such features should not be used for setting out and should be considered indicative only.
- 10. The comments given in this report and the opinions expressed are based on the ground conditions encountered during the site work and on the results of tests made in the field and in the laboratory. However, there may be conditions pertaining to the site that have not been disclosed by the investigation and therefore could not be taken into account. In particular, it should be noted that there may be areas of made ground not detected due to the limited nature of the investigation or the thickness and quality of made ground across the site may be variable. In addition, groundwater levels and ground gas concentrations and flows, may vary from those reported due to seasonal, or other, effects and the limitations stated in the data should be recognised.
- 11. Asbestos is often observed to be present in soils in discrete areas. Whilst asbestos-containing materials may have been locally encountered during the fieldworks or supporting laboratory analysis, the history of brownfield and demolition sites indicates that asbestos fibres may be present more widely in soils and aggregates, which could be encountered during more extensive ground works.
- 12. Unless stated otherwise, only preliminary geotechnical recommendations are presented in this report and these should be verified in a Geotechnical Design Report, once proposed construction and structural design proposals are confirmed.

APPENDIX B

PHOTOGRAPHIC LOG

PHOTOGRAPHIC LOG

Site Location: Land at West End Nursery, Angmering

Photo No.
1

Date:
08/10/2019

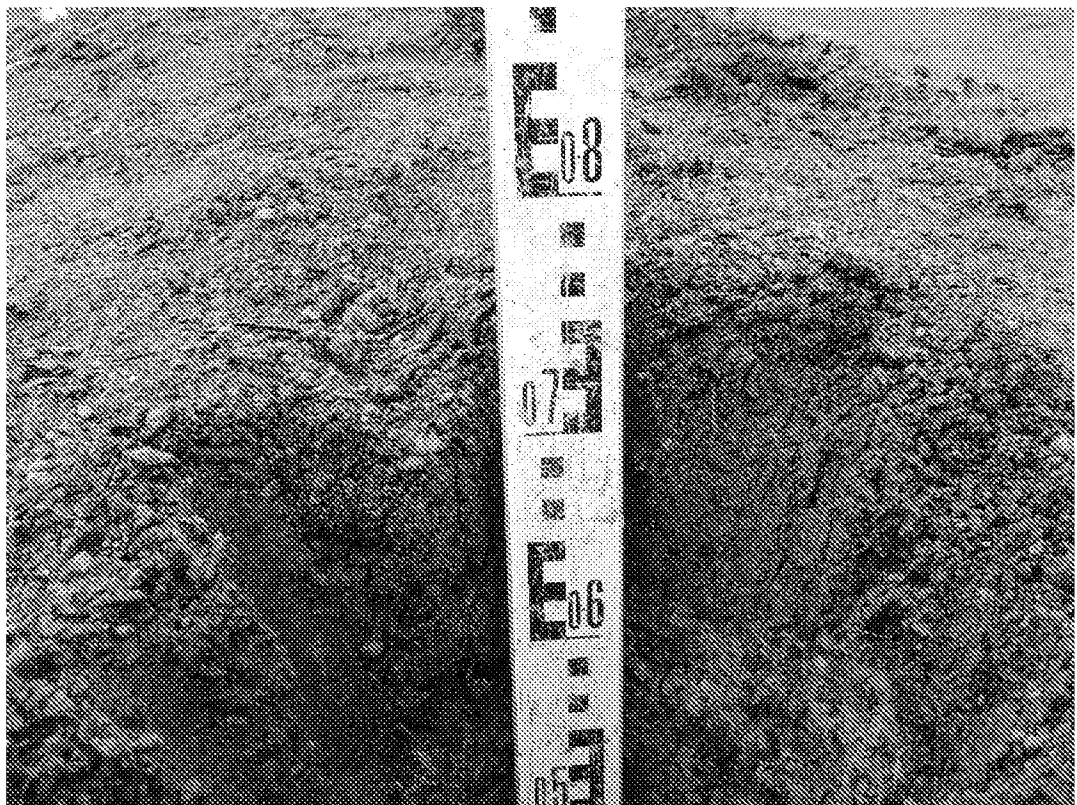
Overview of
P2B-NE
Bund HP1.



Photo No.
2

Date:
08/10/2019

View of hand
dug pit P2B-
NE Bund
HP1, capping
layer
observed to
be at least
600 mm
thick.



PHOTOGRAPHIC LOG

Site Location: Land at West End Nursery, Angmering

Photo No.
3

Date:
08/10/2019

View of hand dug pit P2B-NE Bund HP1, capping layer observed to be underlain by a geomarker membrane.



Photo No.
4

Date:
08/10/2019

Overview of P2B-NE Bund HP2.



PHOTOGRAPHIC LOG

Site Location: Land at West End Nursery, Angmering

Photo No. 5	
Date: 08/10/2019	
View of hand dug pit P2B-NE Bund HP2, capping layer observed to be at least 600 mm thick.	
Photo No. 6	
Date: 08/10/2019	
View of hand dug pit P2B-NE Bund HP2, capping layer observed to be underlain by a geomarker membrane.	

PHOTOGRAPHIC LOG

Site Location: Land at West End Nursery, Angmering

Photo No.
7

Date:
08/10/2019

Overview of
P2B-NE
Bund HP3.



Photo No.
8

Date:
08/10/2019

View of hand
dug pit P2B-
NE Bund
HP3, capping
layer
observed to
be at least
600 mm
thick.



PHOTOGRAPHIC LOG

Site Location: Land at West End Nursery, Angmering

Photo No. 9 Date: 08/10/2019 View of hand dug pit P2B-NE Bund HP3, capping layer observed to be underlain by a geomarker membrane.	
Photo No. 10 Date: 08/10/2019 Overview of P2B-NE Bund HP4.	

PHOTOGRAPHIC LOG

Site Location: Land at West End Nursery, Angmering

Photo No.
11

Date:
08/10/2019

View of hand dug pit P2B-NE Bund HP4, capping layer observed to be at least 600 mm thick.



Photo No.
12

Date:
08/10/2019

View of hand dug pit P2B-NE Bund HP4, capping layer observed to be underlain by a geomarker membrane.



PHOTOGRAPHIC LOG

Site Location: Land at West End Nursery, Angmering

Photo No.
13

Date:
08/10/2019

Overview of
P2B-NE
Bund HP5.



Photo No.
14

Date:
08/10/2019

View of hand
dug pit P2B-
NE Bund
HP5, capping
layer
observed to
be at least
600 mm
thick.



PHOTOGRAPHIC LOG

Site Location: Land at West End Nursery, Angmering

Photo No.
15

Date:
08/10/2019

View of hand dug pit P2B-NE Bund HP5, capping layer observed to be underlain by a geomarker membrane.



Photo No.
16

Date:
08/10/2019

Overview of P2B-NE Bund HP6.



PHOTOGRAPHIC LOG

Site Location: Land at West End Nursery, Angmering

Photo No.
17

Date:
08/10/2019

View of hand dug pit P2B-NE Bund HP6, capping layer observed to be at least 600 mm thick.



Photo No.
18

Date:
08/10/2019

View of hand dug pit P2B-NE Bund HP6, capping layer observed to be underlain by a geomarker membrane.



PHOTOGRAPHIC LOG

Site Location: Land at West End Nursery, Angmering

Photo No.
19

Date:
08/10/2019

Overview of
P2B-NE
Bund HP7.



Photo No.
20

Date:
08/10/2019

View of hand
dug pit P2B-
NE Bund
HP7, capping
layer
observed to
be at least
600 mm
thick.



PHOTOGRAPHIC LOG

Site Location: Land at West End Nursery, Angmering

Photo No.
21

Date:
08/10/2019

View of hand dug pit P2B-NE Bund HP7, capping layer observed to be underlain by a geomarker membrane.

