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Our Ref: WIB14723-100-170814-MA-CS
Your Ref:

Date: 14 August 2017

Ralph Chakadya
Senior Planning Officer
Reading Borough Council
Planning, Development and Regulatory Services
Bridge Street
Reading
RG1 2LU

Dear Ralph,

RE: Planning Condition 61 (a) and (b) Application No: 151944 – Geo-environmental Completion Statement

Condition 61: Contamination

a) Implementation of Approved Remediation Scheme

The remediation scheme for within the Detailed Element shall be implemented following recommendations made in Waterman Report (Ref: WIB14723-100-R-1-5-1-GH) and in accordance with the approved timetable of works. A validation report (that demonstrates the effectiveness of the remediation carried out) must be submitted to and approved by the Local Planning Authority prior to occupation of the development.

b) Reporting of Unexpected Contamination

In the event that contamination not previously identified is found at any time when carrying out the approved development within the Detailed Element, development must be halted on that part of the site and it must be reported in writing to the Local Planning Authority. Following that an assessment of the nature and extent of contamination must be undertaken and where remediation is necessary a remediation scheme, together with a timetable for its implementation, must be submitted to and approved in writing by the Local Planning Authority. The measures in the approved remediation scheme must then be implemented in accordance with the approved timetable. Following completion of measures identified in the approved remediation scheme a validation report must be submitted to and approved in writing by the Local Planning Authority.

It is intended to present evidence to allow the discharge of the above planning condition of Reading Gateway. It is considered that the information presented below is sufficient to allow the discharge of the conditions with respect to the site wide enabling works.

Brief

Waterman Infrastructure & Environment were appointed to undertake periodic site inspections to inspect and monitor the progress of the enabling works. A total of 5No. inspections were undertaken between October 2016 and March 2017 whilst enabling works were on-going.

The information presented within this report is based on observations made during site visits to monitor the ground works, and information relating to the development supplied by Kier Construction.

Waterman's Site Inspection Notes can be found in Appendix A.

Waterman has endeavoured to assess all information provided to them during this project, but makes no guarantees or warranties as to the accuracy or completeness of this information. The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the Site.

Conceptual Site Model

Historically the Site was agricultural land until the early 1960's when the Site formed part of the Worton Grange Industrial Estate. Most recently the Site was used as a data centre. Ground investigations and associated chemical testing (completed by Waterman in 2014) on soil samples had identified isolated asbestos impact within shallow Made Ground Soils.

The Site is underlain by up to 1.5m of Made Ground which comprises loose yellow sand and gravel sub-base including brick, concrete, flint, granite and sandstone. Made Ground sequentially overlies cohesive soils (unclassified) consisting of Clay and Silt. The underlying bedrock geology consists of London Clay consisting of soft yellow brown very sand clay at shallower depths underlain by firm to stiff dandy gravelly clay becoming stiff to very stiff with depth.

The London Clay is classified as an unproductive Strata. The nearest surface water to the Site is a small man made swale located at the south-eastern boundary of the Site.

The phase of ground investigation undertaken at the Site has highlighted two potential pollutant linkages:

- The risk of asbestos exposure to construction workers during ground works; and
- The risk to buried water supply pipes and buried concrete.

Remediation Strategy

Following submission of the Waterman Geo-Environmental Risk Assessment, and correspondence with Reading Borough Council, it was considered that no formal remediation strategy was required based on the low level of risk associated with the ground conditions and groundwater.

Instead recommendations made in Section 13 of the Waterman report (ref: WIB14273-100-R-1-5-1-GH dated October 2015) should be adopted and undertaken to ensure adequate mitigation measures are implemented during the construction works.

The recommendations included in the Geo-Environmental Assessment report, ref: WIB14273-100-R-1-5-1-GH dated October 2015 are as follows:

- Topsoil may be required to be imported as a growing medium in soft landscaping areas, this will need to be confirmed with the landscape architect.
- Measures will be required to break the pollutant linkages. In order to minimise the need to dispose of material off-Site, it is recommended that material is re-used where possible, subject to suitable mitigation measures being in place;
- Asbestos was observed in two out of thirty one soil samples analysed. Where asbestos was observed in two locations within the commercial development area construction workers should adopt appropriate mitigation measures, should there be a requirement to remove shallow soils within these areas then they could be placed under buildings or areas of hardstanding if deemed geotechnically suitable;
- It is recommended that construction personnel follow standard health and safety procedures during Site work including the utilisation of appropriate Personal Protective equipment (PPE) commensurate with the contaminants present and the activities being undertaken. Appropriate hygiene practices and use of appropriate welfare facilities should also be adopted. This information should be made available to all Site personnel during any Site inductions;
- Good working practices, including the damping down of soils, should also be employed during construction to minimise the potential for offsite migration of dust;

- Using the guidance contained within BS 8485 and CIRIA report C665, available monitoring data places the site overall as Characteristic Situation 1, requiring no gas protection measures.
- It is recommended that the requirements for radon protection and the absence of ground gas (carbon dioxide) protection measures are confirmed with the Local Authority; and
- Barrier pipes should offer sufficient protection to the drinking water supply at the Site. It is recommended that this approach is discussed and agreed in advance with the utilities supplier.

Validation Information

Additional Soil Validation

Waterman undertook additional ground investigation at the Site in March 2016 comprising sampling and testing of soils recovered from the perimeter landscaped bunds and on-site crush concrete stockpiles to assess the suitability of the material to be re-used on Site. Laboratory analysis was undertaken to determine the chemical quality and engineering properties of the soils. The analysis concluded that:

- The landscaped bunds and crushed concrete stockpiles would be environmentally suitable to be re-used on site as part of the future development; No visible asbestos was noted within any geotechnical or environmental samples obtained from the crushed concrete stockpiles or landscaped bunds (confirmed via analytical testing); and
- Based upon the full suite of results obtained, it is considered that all materials could potentially be used as an engineered fill, subject to other suitability considerations.

Materials Management Plan

A Materials Management Plan (MMP) was completed by Provectus Remediation on behalf of Kier Construction, dated September 2016, to identify and promote the reuse of materials onsite and thus reduce offsite disposal of material.

The MMP outlined potential areas in which materials can be reused at the Site, as well as detailing the measures that Kier Construction were to adopt to control risks associated with the cut and fill works, which were to include watching brief on earthworks to monitor for unexpected contamination.

The Provectus Remediation MMP is included in Appendix B.

Unforeseen Contamination

Kier Construction and their sub-contractors undertook a watching brief during all excavation works. No evidence of unforeseen contamination was observed during the works. No visible asbestos was noted during any of the cut and fill works. The Waterman Site Visit Reports in Appendix A document this.

Water Supply Pipes

Kier Construction have confirmed that all incoming water supply pipes will be PE barrier pipes for potable water distribution through brownfield land, in compliance with the WRAS guidelines. PE barrier pipes are industry standard for such sites that are accepted by local water utility providers.

Clean Cover System

Kier Construction will be importing soils to be used in areas of soft landscaping, the soils will be validated as clean to meet the Landscape Architects specification.

Ground Gas and Radon

Kier Construction have confirmed that there are no requirements for ground gas or radon protection.

Exported Waste

All general waste generated during the construction works were separated into various waste streams for off-site disposal at licensed waste facilities. Waste was stored within dedicated skips located within the Contractor's compound.

All other waste such as metal, concrete and waste soils were documented within SMARTWaste Monitoring Tool and removed off-site to licensed landfills under appropriate duty of care. A SMARTWaste output is contained within Table 1 below:

Table 1: SMARTWaste Output Values Per Product

Phase	Waste Type	Waste Management Route	Destination	Amount (m³)
Demolition	Iron and steel (17 04 05)	Recycled	European Metal Recycling Ltd	91.74
	Metals (17 04 07)			30.58
	Topsoil (17 05 04)		Eversley Haulage Park	102
	Soils (17 05 04)			95.7
	Timber (17 02 01)			168.2
	Structural (17 02 01)			61.16
Excavation	Topsoil (17 05 04)	Recycled	Eversley Haulage Park	48
	Timber (17 02 01)			183.48
Modular	Metals (17 04 07)	Recovery	Eversley Haulage Park	0.61
	Timber (17 02 01)			1.22
	Canteen/Office/Adhoc waste (20 03 01)			2.45

Revised Conceptual Model

Following mitigation measures implemented during the enabling works, the pollutant linkages identified during the Geo-Environmental Risk Assessment have been re-evaluated and reclassified in relation to the additional information obtained. The results of the reassessment are summarised in Table 2 below.

Table 2: Estimation of environmental risks associated with the subject site following construction completion

Receptor	Sources	Pathways	Justification / Mitigation	Risk after mitigation
Human Health				
Future Site Users	Asbestos in the soils beneath the site	Direct contact, ingestion and inhalation	Two historic soil samples obtained from the Made Ground across the Site contained asbestos in the soil matrix. The Site is now overlain by new hardstanding, and large commercial buildings. Small areas of soft landscaping will be present around the Site boundary; however, these will be made up of clean imported soils.	Low

Receptor	Sources	Pathways	Justification / Mitigation	Risk after mitigation
			No Made Ground will be exposed at the Site. This will maintain the absence of a contaminant pathway, therefore there is not considered a human health risk.	
Future ground workers	Asbestos in the soils beneath the site	Direct contact, ingestion and inhalation	If intrusive works are required e.g. new buried services, these are likely to be installed within the clean fill used to raise site levels and therefore present no significant risk. Should intrusions extend deeper then ground workers can review past soil testing to assess the potential risks associated with their specific proposed works. It is considered that standard dust control measures and personal protective equipment would mitigate potential risk.	Low

Conclusions

The current works undertaken by Kier Construction to complete the cut and fill works, site levelling, drainage and enabling works are considered to demonstrate general compliance with the Materials Management Plan and recommendations made within the Waterman Geo-Environmental Report. The works were carried out with appropriate environmental controls in place and effects on adjacent properties and residents were appropriately controlled and managed.

It is considered that suitable procedures were implemented and adequate supporting documentation has been provided to Waterman as confirmation that the recommendations outlined in the Geo-Environmental Assessment report, ref: WIB14723-100-R-1-5-1-GH dated October 2015, have been actioned appropriately. Furthermore, during the cut and fill and site levelling works, there were not any instances where unforeseen contamination was encountered. Therefore, Waterman would recommend that Condition 61 (a) and (b) of planning Permission 151944 can be discharged.

Yours sincerely



Mark Amos

Principal Consultant

For and On Behalf of Waterman Infrastructure & Environment Ltd.

Enc. Appendices



Appendix A Waterman Site Inspection Reports

Our Ref: WIB14723-100-161108-C-MA.
Your Ref:

Date: 7th November 2016

SITE VISIT REPORT – READING WORTON GRANGE

Waterman Site Visit 26th October 2016

Waterman Representative: Mark Amos Senior Consultant (Land Quality)

Kier Construction Representative: Paul Bandy Project Manager

Waterman accompanied around site by Paul Bandy of Kier Construction (KC)

Following appointment of the Principal Contractor (KC), Waterman were retained as the Client's environmental consultant, appointed to monitor compliance of the construction works, to verify they were completed and validated in accordance with the recommendations made in the Waterman Geo-Environmental Assessment and to support the discharge of Planning Condition 61 (a) and (b).

1.1 Current Site Activities

Enabling works undertaken by Collard Demolition sub-contractor to KC.

Enabling works comprising breaking up and crushing of concrete and tarmac hard standing into DoT Type 6F3 fill. Excavating and removal of large below ground concrete pad and strip foundations. Removal of vegetation from surrounding soil bunds and excavation of soil bunds for early drainage works. Segregation and screening of existing demolition rubble stockpiles for use as fill.

1.2 Site Condition

General environmental management of the Site is good, with designated work and welfare areas. Dust is being suitably managed via dampening down of the areas during dry periods. A single contractor compound is established adjacent the Site entrance with H&S signage, waste skips, muster points, spill kits and fire marshal area. Perimeter hoarding was being erected to demark the Site boundary and the area assigned for the external MRT works.

1.3 Site Inspection

During the inspection the enabling works were creating large stockpiles of crushed materials. Historic stockpiles of demolition crush showed no signs of contamination and in some cases the material was of good quality consistent with a Type 6F3 specification.

No visible signs of dust were evident during the site inspection however weather was overcast and the air was damp.

Where hardstanding had been removed and large foundations excavated and backfilled large areas of exposed Made Ground Soils were present within the western area of Site. No visible evidence of contamination was present at the soil surface. Topsoil had been stripped from the landscaped bunds along the western Site boundary and around the culvert. The topsoil has been disposed of off-site. Where there are exposed soils along the perimeter bunds no visible signs of contamination are present.

Water from the below ground attenuation tank is being pumped and discharged to foul sewer under consent by Thames Water. Existing manhole access covers to the foul sewer have been exposed awaiting connection.

Below the main ground slab within the east of the Site, piled foundations have been exposed, these are to remain in-situ and adopted into future foundation design. All other large foundations excavated, relating to the historic development and multi-storey car park have been excavated and crushed.

To date no visible asbestos ACM material has been observed during the topsoil removal of the landscaped bunds and concrete/tarmac hardstanding removal across the Site.

1.4 Site Documents Reviewed

- Environmental Management Plan
- Materials Management Plan

1.5 Verification - Condition 61 (a) Consent Ref 151944

KC are adopting best practice to mitigate against potential environmental and human health risks associated with the enabling works. KC are working in accordance with the Environmental Management Plan, Materials Management Plan and Construction Management Plan. All duty of care documents are being filed for future reference.

1.6 Unforeseen Contamination – Condition 61 (b) Consent Ref 151944

KC have not reported to date any unforeseen contamination during the ongoing cut and fill works and continuing minor excavations.

Mark Amos

Senior Consultant

For and On Behalf of Waterman Infrastructure & Environment Ltd

Our Ref: WIB14723-100-161115-C-MA.
Your Ref:

Date: 15th November 2016

SITE VISIT REPORT – READING WORTON GRANGE

Waterman Site Visit 9th November 2016

Waterman Representative: Mark Amos Senior Consultant (Land Quality)

Kier Construction Representative: Paul Bandy Project Manager

Waterman accompanied around site by Paul Bandy of Kier Construction (KC)

Following appointment of the Principal Contractor (KC), Waterman were retained as the Client's environmental consultant, appointed to monitor compliance of the construction works, to verify they were completed and validated in accordance with the recommendations made in the Waterman Geo-Environmental Assessment and to support the discharge of Planning Condition 61 (a) and (b).

1.1 Current Site Activities

Enabling works undertaken by Collard Demolition, sub-contractor to KC.

Enabling works comprising breaking up and crushing of concrete and tarmac hard standing into DoT Type 6F3 fill. Removal of cylindrical tank/soakaway, next to site entrance off Basingstoke Road. Preparation of ground for improvement works.

1.2 Site Condition

General environmental management of the Site is good, with designated work and welfare areas. Dust is being suitably managed via dampening down of the areas during dry periods. A single contractor compound is established adjacent to the Site entrance with H&S signage, waste skips, muster points, spill kits and fire marshal area. Perimeter hoarding is now complete.

1.3 Site Inspection

During the inspection the enabling works were creating large stockpiles of crushed materials. These had been separated into material types and specifications in preparation for ground improvement and cut and fill works.

No visible signs of dust were evident during the site inspection, however, materials and exposed ground were wet due to recent rain event.

No visible evidence of contamination was present on exposed surface soils. Topsoil had been stripped from the landscaped bunds along the western Site boundary and around the culvert. Approximately 900m³ of topsoil has been disposed of off-site to a transfer station at Eversley, operated by the demolition contractor Collards.

Landscaped bunds have been scraped away from the site boundary to allow the boundary hoarding installation.

Where there are exposed soils along the perimeter bunds, no visible signs of contamination are present.

Water has been pumped from the below ground attenuation tank in preparation for its excavation. All water was discharged to foul sewer under Trade Effluent Consent Ref. TRDG0BK3.

To date no visible asbestos ACM material has been observed during the topsoil removal of the landscaped bunds and concrete/tarmac hardstanding removal across the Site.

1.4 Site Documents Reviewed

- Environmental Action Plan
- Waste Management Plan
- Construction Phase Plan

1.5 Verification - Condition 61 (a) Consent Ref 151944

KC are adopting best practice to mitigate against potential environmental and human health risks associated with the enabling works. KC are working in accordance with the Environmental Management Plan, Materials Management Plan and Construction Management Plan. All duty of care documents are being filed for future reference. KC Environmental Advisor Andrew Staufenbiel undertakes regular site visits.

1.6 Unforeseen Contamination – Condition 61 (b) Consent Ref 151944

KC have not reported to date any unforeseen contamination during the ongoing cut and fill works and continuing minor excavations.

Mark Amos

Senior Consultant

For and On Behalf of Waterman Infrastructure & Environment Ltd

Our Ref: WIB14723-100-161208-C-MA.
Your Ref:

Date: 8th December 2016

SITE VISIT REPORT – READING WORTON GRANGE

Waterman Site Visit 2nd December 2016

Waterman Representative: Mark Amos Senior Consultant (Land Quality)

Kier Construction Representative: Paul Bandy Project Manager

Waterman accompanied around site by Paul Bandy of Kier Construction (KC)

Following appointment of the Principal Contractor (KC), Waterman were retained as the Client's environmental consultant, appointed to monitor compliance of the construction works, to verify they were completed and validated in accordance with the recommendations made in the Waterman Geo-Environmental Assessment and to support the discharge of Planning Condition 61 (a) and (b).

1.1 Current Site Activities

All concrete slabs and strip/pad foundations crushed, all tarmac and concrete hardstanding crushed. Collard Demolition demobilised.

Geofirma on site undertaking ground improvement and levelling works.

1.2 Site Condition

General environmental management of the Site is good, with designated work and welfare areas. Dust is being suitably managed via dampening down of the areas during dry periods. A single contractor compound is established adjacent to the Site entrance with H&S signage, waste skips, muster points, spill kits and fire marshal area. Perimeter hoarding is complete along south and west boundaries.

1.3 Site Inspection

During the inspection Geofirma were undertaking ground improvement and levelling works to create competent formation levels. Lime was being spread and then covered by site won cohesive materials proof rolled and compression tested, then layers of crushed materials (6F spec) was being placed on top, proof rolled and compression tested. All site won hardstanding material was crushed and placed in stockpiles. KC awaiting specification testing prior to use.

No visible signs of dust were evident during the site inspection, however, materials and exposed ground were wet due to recent rain event. Significant surface flooding had recently occurred owing to heavy rainfall. KC had implemented a pumping system and had utilised straw bales to act as a sediment filter. Water was pumped into a bowser for disposal to foul sewer.

Some large pieces of concrete had been excavated from within landscaped bunds along the western and southern boundaries. They had been stockpiled for crushing. No visible evidence of contamination was present on exposed surface soils.

Where there are exposed soils along the perimeter bunds, no visible signs of contamination are present.

KC have excavated the bellmouth to new site access road and discovered soft spots in natural clays around 0.6mbgl. They have excavated a further 500mm, but still very soft. This is in an area historically under a landscaped bund. PB undertaking remedial design for this area to allow road construction to commence.

Geofirma have completed ground works for Units A and B and are working on Trade City.

Electricity Board due on site to undertake cabling decommissioning and installation of new cable.

To date no visible asbestos ACM material has been observed during the topsoil removal of the landscaped bunds and concrete/tarmac hardstanding removal across the Site.

1.4 Site Documents Reviewed

- Topographic Survey (revised to include all crush piles and landscaped bunds)
- Waste Management Plan (chain of custody documents)

1.5 Verification - Condition 61 (a) Consent Ref 151944

KC are adopting best practice to mitigate against potential environmental and human health risks associated with the enabling works. KC are working in accordance with the Environmental Management Plan, Materials Management Plan and Construction Management Plan. All duty of care documents are being filed for future reference and documented in SMART waste. KC Environmental Advisor, Andrew Staufenbiel, undertakes regular site visits.

1.6 Unforeseen Contamination – Condition 61 (b) Consent Ref 151944

KC have not reported to date any unforeseen contamination during the ongoing cut and fill works and continuing minor excavations.

Mark Amos

Senior Consultant

For and On Behalf of Waterman Infrastructure & Environment Ltd

Our Ref: WIB14723-100-170206-C-MA.
Your Ref:

Date: 6th February 2017

SITE VISIT REPORT – READING WORTON GRANGE

Waterman Site Visit 18th January 2017

Waterman Representative: Mark Amos Principal Consultant (Land Quality)

Kier Construction Representative: Paul Bandy Project Manager

Waterman accompanied around site by Paul Bandy and Tristan Surtell of Kier Construction (KC)

Following appointment of the Principal Contractor (KC), Waterman were retained as the Client's environmental consultant, appointed to monitor compliance of the construction works, to verify they were completed and validated in accordance with the recommendations made in the Waterman Geo-Environmental Assessment and to support the discharge of Planning Condition 61 (a) and (b).

1.1 Current Site Activities

Collard Demolition demobilised.

Geofirma returned on site undertaking ground improvement and levelling works.

Completed areas of the Car Sow rooms 1 and 2, Trade City area. Piling matt for hotel (600mm thick) complete. Trenching for new electrical cable is being excavated, due on installation 6th February.

1.2 Site Condition

General environmental management of the Site is good, with designated work and welfare areas. Dust is being suitably managed via dampening down of the areas during dry periods. A single contractor compound is established adjacent to the Site entrance with H&S signage, waste skips, muster points, spill kits and fire marshal area. Perimeter hoarding is complete.

1.3 Site Inspection

During the inspection Geofirma were undertaking ground improvement and levelling works to create competent formation levels. Currently working on areas of existing site roads. Roads were being broken out and loose rubble left in-situ then covered with site won soils and crushed concrete. Geofirma have provided an engineered solution, using lime stabilisation and crush concrete, to the encountered soft spots within the new access road bell mouth, off Imperial Way.

All boundary soil mounds are removed and stockpiled on site. No visible evidence of contamination was present on exposed surface soils.

Geofirma will return to site following installation of electric cable and removal of below ground tank to finish formation works within the south of the site.

Collards will return to site after the electrical cable has been removed and diverted to remove the below ground tank and finish the remaining concrete crushing.

1.4 Site Documents Reviewed

- Waste Management Plan (chain of custody documents)

1.5 Verification - Condition 61 (a) Consent Ref 151944

KC are adopting best practice to mitigate against potential environmental and human health risks associated with the enabling works. KC are working in accordance with the Environmental Management Plan, Materials Management Plan and Construction Management Plan. All duty of care documents are being filed for future reference and documented in SMART waste. KC Environmental Advisor, Andrew Staufenbiel, undertakes regular site visits.

1.6 Unforeseen Contamination – Condition 61 (b) Consent Ref 151944

KC have not reported to date any unforeseen contamination during the ongoing cut and fill works and continuing minor excavations.

Mark Amos

Principal Consultant

For and On Behalf of Waterman Infrastructure & Environment Ltd

Our Ref: WIB14723-100-170327-C-MA.
Your Ref:

Date: 27th March 2017

SITE VISIT REPORT – READING WORTON GRANGE

Waterman Site Visit 14TH March 2017

Waterman Representative: Mark Amos Principal Consultant (Land Quality)

Kier Construction Representative: Paul Bandy Project Manager

Waterman accompanied around site by Paul Bandy of Kier Construction (KC)

Following appointment of the Principal Contractor (KC), Waterman were retained as the Client's environmental consultant, appointed to monitor compliance of the construction works, to verify they were completed and validated in accordance with the recommendations made in the Waterman Geo-Environmental Assessment and to support the discharge of Planning Condition 61 (a) and (b).

1.1 Current Site Activities

Collard Demolition demobilised and all works completed.

Geofirma underway with final site area (below Toys R Us Unit C), undertaking ground improvement and levelling works.

Completed areas over the Car Sow rooms 1 and 2, Trade City area. Piling matt for hotel (600mm thick) complete.

1.2 Site Condition

General environmental management of the Site is good, with designated work and welfare areas. Dust is being suitably managed via dampening down of the areas during dry periods. A single contractor compound is established adjacent to the Site entrance with H&S signage, waste skips, muster points, spill kits and fire marshal area. Perimeter hoarding is complete.

1.3 Site Inspection

During the inspection Geofirma were undertaking ground improvement and levelling works to create competent formation levels with area of Unit C. Ground will be re-compacted in layers to match surrounding site levels (piling matt) to achieve a final CBR of 15%, to allow founding direct at set level with no requirement to reduce dig to natural strata.

The drainage ditch has now been fully cleared and is awaiting fencing to segregate the area from the development. Silt traps will be installed by KC to protect the ditch from surface runoff and possible contamination.

Collards have removed underground surface water tank and area has been backfilled with site won crushed material, and rolled by Geofirma. Concrete from tank and internal stone columns has been crushed and will be re-used on Site. Silt at base of tank has been pumped and is being contained with a makeshift holding area (within void of previously excavated foul tank). A sample of this material has been taken and test results to allow disposal off site are awaited.

All historic internal road tarmac has been removed and crushed with the exception of the lowest level section which was broken up and left in-situ below site won re-compacted material to make current site levels.

No unforeseen contamination was observed or has been observed by KC and their sub-contractors during the works.

Area immediately north of piling mat is lower and therefore surface rain water has collected in this area. KC are making enquiries with Thames Water to allow them to discharge the water to foul sewer.

Old electric cable has been removed and new electrical cable is installed.

1.4 Site Documents Reviewed

- Waste Management Plan (chain of custody documents)

1.5 Verification - Condition 61 (a) Consent Ref 151944

KC are adopting best practice to mitigate against potential environmental and human health risks associated with the enabling works. KC are working in accordance with the Environmental Management Plan, Materials Management Plan and Construction Management Plan. All duty of care documents are being filed for future reference and documented in SMART waste. KC Environmental Advisor, Andrew Staufenbiel, undertakes regular site visits.

1.6 Unforeseen Contamination – Condition 61 (b) Consent Ref 151944

KC have not reported to date any unforeseen contamination during the ongoing cut and fill works and continuing minor excavations.

Mark Amos

Principal Consultant

For and On Behalf of Waterman Infrastructure & Environment Ltd



- NOTES
- 1 © Saunders Architects LLP
 - 2 Figured dimensions must be taken in preference to scaled dimensions and site dimensions are to be checked before work is put in hand
 - 3 This drawing has been compiled from Ordnance Survey data © Crown Copyright; information from Peter Brett Associates LLP, Reading
Drawing No.'s 28791/001/002, dated 08.01.14 & 326818-001-004E, dated 27.10.15;
Topographical Survey data provided by Greenhatch Group, Derby
Drawing No. 211220GL Rev. 0, dated 06-14.11.14

KEY TO RELEVANT PARTS

- PART 1
S278 & S38 Works
- PART 2
- PART 3
- PART 4
- PART 5

A Unit D omitted from Part 4 following separate Approval. Site Plan revised to co-ordinate with Approved plan 1894-P-22 rev. K 06.03.17

AMENDMENTS

SAUNDERS ARCHITECTS
COVENTRY SOUTHAMPTON

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RELEVANT PARTS PLAN

Proposed Development at
Worton Grange, Imperial Way
READING
for Kier Reading LLP

SCALE 1:1250 @ A3	
Drawn PAR	Date Dec. 2016
DRAWING No 1894 -P-39	REVISION A





Appendix B Provectus Materials Management Plan

Materials Management Plan

100981/MMP/RD002

Kier Construction Control



Materials Management Plan Reading Gateway, Imperial Way, Reading

September 2016

Project Quality Assurance Information Sheet

Report Type : Materials Management Plan

Site Location : Reading Gateway, Imperial Way, Reading

Report Number : 100981/MMP/RD002

Report Status : Issue 1

Report Date : September 2016

Prepared for : Kier Construction Control

Prepared by : Provectus Remediation Limited
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APPENDICES

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1 INTRODUCTION

Table 1.0 Project and Site Details

Project Description	Removal of vegetation roots and topsoil on site. Breaking out and crushing of concrete slabs Lifting and crushing of car park and site roadways Removal of soil around building footprints Placing of crushed concrete to form spine road Stabilisation and backfilling of excavated soils below buildings and to infill void left by redundant water storage tank Placing 100mm layer of 6F2 above footprint of buildings
Address	Reading Gateway, Imperial Way, Reading, RG2 0TO
Area	4.92 hectare (Ha)
Access	Access to the site is currently from Imperial Way in the north, but from the end of November will be from Basingstoke Rd in the south.
Site History	The Site was historically agricultural land, before being incorporated into the wider Worton Grange Industrial Estate. Recently the site was occupied by offices and a data centre. The site currently comprises extensive areas of hardstanding, soft landscaping and a number of stockpiles of crushed aggregates.

Site investigations undertaken by Waterman have indicated that the site is not heavily contaminated and that any contamination pathway can be broken by backfilling isolated hotspots beneath areas of future hardstanding

The site is to be developed into a commercial development whilst the adjacent land to the north is to be developed for residential end use.

The Waterman report (Worton Grange, Imperial Way, Reading, Geo-Environmental Assessment, EED 14273-100-R-1-3-1-GH. Waterman September 2014) was submitted to Reading Borough Planning and on the basis of the information and recommendations contained within the report it was agreed that a separate remediation strategy was not required for the commercial portion of the development, which is the area covered by this MMP. No Remediation Strategy or Remedial Method Statement documents have been submitted to the council regarding this portion of the development, principally as no contamination other than limited asbestos lagging to a pipe has been identified at the site.

Hard materials will be crushed to a 6F2 or similar specification on site by the specialist sub-contractor and will be used to form the base of the spine road and to form a capping layer over the site area and building footprints. Any surplus will be used in the main works.

2 SCOPE & OBJECTIVES

The proposed end use of the site is as a commercial development consisting of a number of building and car parks. The proposed enabling earth works and remediation activities are to provide a suitable development platform for the proposed development.

The proposed formation level earthworks plan and topography of the site are presented in Appendix 1.

The main works are as follows:

- Removal of vegetation and top soil off site
- Breaking out concrete slabs
- Lifting of asphalt /tarmac forming the current car park and site roads
- Keeping a watching brief for any asbestos during earth works
- Crushing of hard material to 6F2
- Strip fill material below footprint of buildings, (with 2 m external margin all round) to the depth of the London clay below
- Excavation of future spine road
- Placing of crushed concrete to form basis of spine road.
- Stabilisation and backfilling of excavated fill including backfilling a void left by a redundant water storage tank
- Placement and compaction of crushed capping material over the site area.

Table 2.1: Reuse of Soils within Earthworks

Type of Contaminated Soil	Volume (m3)
Soil without impact noted, including bunds /stockpiles already on site	8100
Asbestos	Trace only
Reuse of crushed 6F2 (depending on obstruction volumes)	9450
Total	17550

The earthworks strategy for this site is outlined in an e-mail from Paul Bandy (30/08/2016) which is shown in Appendix II. This is supported by scope documents for the Demolition package and Fill and Ground Stabilisation, which can also be found in Appendix II. This Material Management Plan (MMP) forms part of the supporting documentation for implementation of the site works.

3 PLAN OF THE SITE

Plans of the site are provided in Appendix 1. These include:

- Site Location
- Waterman Site Plan
- Kier Proposed Site Plan (1894-79)
- Topographical survey
- PCS Capping level drawings (15-007-1005/1006/1007)
- PCS Cut and Fill Drawing (15/007-1009)

4 IDENTIFICATION OF PARTIES INVOLVED WITH THE PLANNED MOVEMENT, USE, TREATMENT OF WASTES AND MATERIALS

Kier Construction have been appointed Principal Contractor to undertake the earth works on site. They have yet to appoint sub-contractors to undertake the work.

Waterman Infrastructure Environment have been appointed as environmental consultants for the project.

The demolition contractors and the specialist fill and ground stabilisation contractors have still to be appointed.

5 ROLES & RESPONSIBILITIES

Table 5.1 identifies the various contractual arrangements associated with the site. Elements of the contract documentation can be made available if deemed appropriate by Kier Construction). Contact details of the MMP authors have been provided within the quality assurance sheet at the beginning of the report.

Table 5.1 Contractual Roles & Responsibilities

Parties		Contract reference and date signed	Comments
Kier Reading LLP	Responsible for all of the site and retained land post remediation.	Shahab Ahmad	Employer
PCS Consulting Engineers	Engineer to the contract	Peter Sturdy	Engineer
Gardiner & Theobald LLP	Principal Designer/ CDM advisor to client	Tim Barnes	Principal Designer/ CDM advisor
Kier Construction	Responsible for all of the site and construction works.	Paul Bandy	Principal Contractor
TBC	Remediation Contractor for removal of top soil/vegetation lifting up and crushing of concrete/asphalt		Sub contractor Demolition package
TBC	Remediation Contractor for removal/ Treatment of fill and backfilling fill and crush		Sub contractor Fill and Ground Stabilisation package
Waterman Infrastructure Environment	Responsible for designing remedial works	Mark Amos	Environmental Consultant

6 GENERIC QUANTITATIVE RISK ASSESSMENT

6.1 Offsite Material Disposal

It is currently intended to remove vegetation roots and topsoil from site

A watching brief will be kept for asbestos in the localised area of site that it has been identified during earth works. Any identified Asbestos material will be removed from soils and placed in a lockable skip and sent to hazardous landfill.

6.2 Reuse Excavated Material On-site.

A total volume of 17,550 m³ of materials requires reuse as per Table 2.1 comprising both soils and crushed products

6.3 Remediation of Onsite Material

Some of the excavated fill material is to be cement/lime stabilised as part of the back filling. . Method statements for undertaking this work will be provided once the specialist sub-contractor has been appointed.

6.4 Utilisation of cut and fill material/crush material

The crushed material formed during this phase of the work and that already present on site will be used as the formation of the spine road. The treated fill material will be backfilled over the footprint of the buildings and to backfill a void left by removal of a redundant water storage tank. This fill will be completed by the placing of 100mm of crushed material over the building footprints, and 200 mm over the external car park area.

Appendix 1 details the final site levels and the locations of the spine road and of the proposed buildings.

7 CHARACTERISATION

Waterman have issued a number of reports relating to the site including:

- Worton Grange, Imperial Way, Reading, Geo-Environmental Assessment, EED 14273-100-R-1-3-1-GH. Waterman September 2014
- Worton Grange Reading – Commercial Development, Geo-Environmental Assessment to Aid Enabling Works WIE14723-100-R-3-3-3-MA. Waterman April 2016

These have indicated that the soil profile across the Site comprises made ground consisting of concrete or tarmac underlain by a yellow sand and gravel sub-base including brick, concrete, flint, granite and sandstone to a depth ranging from 0.3m to 2.8m. London Clay soils were encountered below this at a starting depth of between 0.4m and 2.8m bgl to a maximum depth of 15m bgl and comprised soft yellow brown very sandy clay underlain by firm to stiff sandy gravelly clay, becoming stiff to very stiff with depth, with occasional sand and shell bands. No significant concentrations of contaminants were identified within the groundwaters beneath the site.

Waterman undertook a risk assessment based upon the final use of the site as a commercial development and found no exceedances of any of the tested chemical determinants when soil samples from the landscaped bunds and crushed concrete stockpiles were compared against Waterman Generic Assessment Criteria for a commercial end use. Based on this assessment the soils from the landscaped bunds and crushed concrete stockpiles would be environmentally suitable to be re-used on site as part of the future development.

8 QUANTITIES

The current topography of the site (prior to earthworks) is shown as a series of spot levels on the topographical drawing included in Appendix 1, while the final levels are shown in the Kier proposed site plan. Both drawings are shown in Appendix I.

It is estimated that 38,450 m³ of total earth moving/filling will be required to achieve the required final levels within the scope of works. This has been broken down below;

- Approximately 9450 m³ of hard materials will be crushed by the demolition contractor and will be in the capping and construction as appropriate
- Approximately 29,000 m³ of cut and fill will be needed to achieve formation levels.

It is currently intended to only dispose of sundry topsoil, vegetation and deleterious material from site, such as, timber/plastics/metals, etc., and possibly traces of asbestos encountered during site clearance.

9 COMPACTION

Backfilling will be undertaken as per the contract requirements between Kier and the sub-contractor. The formation will require a CBR level of 5% under the building slabs and 5% under the externals.

Compaction will be as per standard methods in the Highways Agency Specification as appropriate for the classification of materials produced.

The made ground to be recompacted is predominately granular in nature. However a small fraction will be cohesive/clay based. The cohesive soils are to be cement/ lime stabilised and it is currently proposed to place these materials at depth to backfill the redundant water tank feature.

10 TRACKING SYSTEM

In order to comply with the protocol set out in the CL:AIRE Definition of Waste Code of Practice, a tracking system register needs to be compiled and adhered to. The exact system will need to be drawn up by the appointed specialist sub-contractors and agreed with Kier, but should include;

- A unique identification number for each stockpile from the creation to the end of the stockpile;
- Details relating to the date of creation, material type, contamination status, volume, proposed endues/destination and information of chemical and/or geotechnical testing;
- A schematic diagram showing the location, size, movement and ultimate destination of each stockpile, to be updated as required, daily if necessary; and
- Number of samples taken per stockpile and results of analysis.

Each stockpile should be clearly labelled to allow plant drivers and other Site staff and operatives to easily identify them.

Where off-site licensed disposal is required, (for example top soil and vegetation) appropriate waste classification testing has/will be undertaken to allow an accurate disposal route to be determined. A record of the quantities of materials disposed off-Site should be kept, along with consignment notes for the materials.

If any material is imported onto Site this need to be suitable for the proposed use in accordance with the relevant legislation and subject to agreement with regulators.

11 TREATMENT PROCESS

Treatment on site will be limited to the crushing of excavated hard material, and the stabilisation of the excavated fill. Details of the proposed stabilisation process are not yet available as the specialist sub-contractor has not been appointed.

If any asbestos is encountered this material will be quarantined and the asbestos hand-picked before being disposed off at an appropriate facility.

12 RECORD KEEPING & VERIFICATION

Using the data collated below for each remedial zone, the contractor will prepare a summary report clearly referencing the origin of the materials used, testing carried out to confirm its suitability for use and prepare a final contour plan/as built drawings.

The contractor will collate the following information in to a verification report:

- Characterisation of the site
- Confirmation of soil samples against the Waterman risk assessment targets
- Copy of Consignment Notes relating to movement of wastes to all offsite waste disposal/treatment facilities
- Plans of placed materials

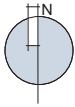
Upon completion of the reuse of excavated materials the contractor will provide this data to the Employer Client Project Manager within 3 months of project completion.

Records associated with this development – specific to the CoP – will be stored by the contractor at their head office. This will be for 12 years upon the completion of the Verification Report and in line with contractual obligations.

APPENDIX 1. DRAWINGS & FIGURES



 Site Boundary



Project Details	EED14723-100: Worton Grange, Imperial Way, Reading
Figure Title	Figure A2: Site Plan
Figure Ref	EED14723-100_GR_PERA_A2A
Date	July 2014
File Location	\\nt-lncs\weed\projects\eed14723\100\graphics\pera\issued figures