



*Contaminated Land
Air Quality
Environmental Audit*

Partnership No: OC 300776

WATERPARK DRIVE, STOCKBRIDGE

Remediation Earthworks Completion Report

For: Urban Regen Ltd

January 2019

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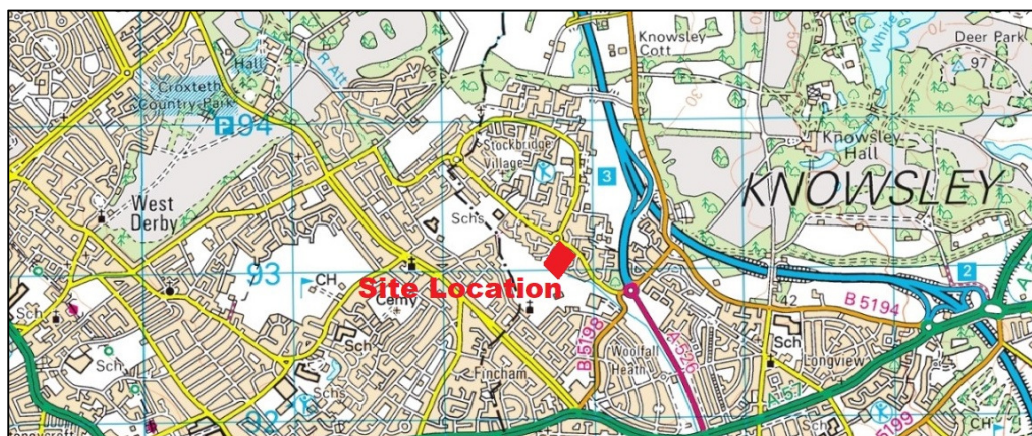
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1. Introduction

- 1.1. Planning permission for the redevelopment of a parcel of land off Waterpark Drive, Stockbridge, was granted to Barratt Manchester (BM) by Knowsley Council (KC), reference: 17/00053/FUL. Urban Regen Ltd (URL) were instructed on behalf of BM to undertake preparatory remediation works at the site to prepare it for the construction-stage of development.
- 1.2. A Remediation Strategy (Ref: 30118/1_Rev1, May 2017) was subsequently prepared by ALM Consult Ltd (ALM) for BM and was approved by TMBC subject to additional recommendations set out in the Planning Conditions requiring further soil analysis following demolition of the onsite substation (6A), implementation of the approved Remediation Scheme (6b), the reporting of any unexpected contamination (6c) and testing of imported soil/materials (6d). URL subsequently instructed SGP to validate the completed remediation works and to provide a verification report, as recommended within the Remediation Strategy.
- 1.3. The site comprises a parcel of land bound by the B5198 / Waterpark Drive to the northwest and northeast, residential dwellings to the east and west and open land to the south. The site boundaries are shown on Drawing D01.

Figure 1.1 Site Location



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- 1.4. SGP has undertaken inspections and carried out validation testing to determine the suitability of the land for future residential use. This report describes the works carried out, drawing conclusions as to their adequacy and making recommendations concerning the further works required by BM in order to fully discharge the Planning Condition relating to land contamination. This report does not consider geotechnical aspects of the site preparation.

2. Remediation Strategy

- 2.1. The site originally constituted several fields before development of the site sometime between 1951 and 1972 involving the construction of an educational facility, Brookside County Primary School. The historical mapping shows that the school buildings occupied the central areas of the site, directly to the north of which an electricity substation was present. With the exception of the substation all of the onsite buildings / structures were demolished by 2014.
- 2.2. Identified known or potential contamination sources determined from the historical uses of the site and site investigations were generally found to be minor. These were limited to isolated incidences of elevated lead and dibenzofuran/other PAHs in the made ground topsoil and ashy made ground, respectively. All of the exceeding samples were obtained from made ground in the central / southern parts of the site in the vicinity of the former school buildings. Chemical testing demonstrated that the natural and cohesive made ground site soils as well as the made ground topsoil present in the southwest and along the southern boundary were free from any significant contamination. Due to the necessity to demolish the electricity substation as part of the redevelopment of the site a provision was made for the subsequent assessment of PCBs within the building footprint.
- 2.3. It was noted that fill materials were anticipated in the vicinity of the culverted River Alt in the south of the site, used as backfill around and above the culvert however significant quantities of degradable organic wastes were not reported and ground gas risks were assessed as low following completion of a monitoring programme. The assessment assigned the site a ground gas risk classification of NHBC 'Green' / Ciria Characteristic Situation 'CS1'.
- 2.4. Exceedances of the adopted soil Generic Assessment Criteria (GAC) for human health were identified in data acquired in previous site investigations mainly pertaining to PAHs but also isolated incidences of lead and dibenzofuran in made ground soils in the vicinity of the former school buildings. The report concluded that these soils present a potentially unacceptable risk to future residents if retained at shallow depth in either private gardens or landscaped areas; however, it was determined that these materials could be retained beneath hardstanding, buildings or 600mm of clean soil cover on site.
 - 2.4.1. It was recommended that during the preparatory earthworks that dedicated inspections would be required to confirm the absence of contamination, with testing if deemed necessary, in the following locations:
 - In the footprint of the demolished substation;
 - where subsoil/topsoil was recovered for reuse in garden cover soils, and;
 - where aggregate (site generated or imported) was placed in road footprints / piling mats.

2.5. Remediation Objectives

2.5.1. The remediation objectives and implementation plan determined by URL for the preparatory-stage remediation earthworks were to address any potential contamination that may persist on site and was considered to present a risk to human health receptors, controlled waters and development which would be introduced following redevelopment for residential use. Key remediation objectives were therefore:

- break significant or potentially significant future pollutant linkages resulting from the change of land use;
- Remove/remediate significant pollution sources if identified during the works, that pose a risk to man and/or the environment;
- respond appropriately to contingencies, in particular the discovery of currently uncharacterised contamination;
- recover materials with the potential for re-use within the development (specifically soils which may be used in gardens, although recovery of aggregates may be considered);
- manage all emissions to air and water to protect local residents, surface waters, groundwater and the atmosphere during the remediation works, and;
- allow appropriate additional protection measures to be implemented during construction (if required).

2.6. Scope of Remediation Earthworks

2.6.1. Remediation and preparatory works within the scope of the Remediation Strategy included:

- establishment of security fencing and welfare facilities;
- provision of health and safety inductions and adherence to CDM Regulations;
- general site clearance;
- strip of topsoil / made ground topsoil, segregation and stockpiling for assessment;
- turnover of site soils in all accessible made ground/fill areas and in-situ replacement of suitable inert material subject to an appropriate degree of compaction;
- demolition of remaining above ground structures, removal of hardstanding and tarmac surfaces, and excavation of relict structures and other sub-structures which could provide obstructions to development;
- investigation of shallow soils within the footprint of the former sub-station and collection of validation samples for PCB analysis;
- regrading of the site to appropriate formation with inspection of ground conditions to identify currently uncharacterised areas of soil contamination;
- in areas of the site where low-level residual contamination can be anticipated (such as made ground topsoil, ashy soils or demolition arisings), provision of 600mm clean cover soils.

- 2.6.2. The culvert of the River Alt beneath the southern part of the site as part of the original redevelopment plans, however it is understood that an agreement has been made that allows the culvert to remain in place.
- 2.6.3. The Strategy required that records of all inspections and the results of all verification and validation testing be submitted to the Regulatory Authority.

3. Description of Works

3.1. General Approach

- 3.1.1. The works described within this report, including site preparatory works, were undertaken over two phases with the first phase of work carried out between October 2017 and December 2017; URL then remobilised to site in March 2018 and all of the works were completed by the end of April 2018. A record of SGP's inspections of the works is provided in Section 4, with information provided by BM used to supplement SGP's observations with regards to general preparatory works, as summarised below.
- 3.1.2. Removal of surface wastes was initially carried out followed by a vegetation strip in the northern and central areas of the site; the stripped vegetation was subsequently placed in a stockpile along the southeast boundary ('Stockpile 2'). Approximately 2,170m³ of topsoil was then recovered from the northern, undeveloped part of the site which was placed in a segregated stockpile ('Stockpile 1') adjacent to the stockpile of stripped vegetation. Turnover of soils in the central areas then commenced in the location of the former school buildings. The depth of turnover is detailed in URL Drawings 292-002-01 and 292-002-02: Depth of excavation (Sheets 1 & 2). A small volume of hardstanding from relict foundations was recovered, as were small volumes of peat, which were then placed stockpiles pending offsite removal.
- 3.1.3. Road construction then took place in the northern part of the site involving the placement of imported aggregate as road base. Concurrent to these works a vegetation strip in the west of the site began which progressed to the south / southwest; this material was then added to the pre-existing vegetation stockpile which remains onsite and totals approximately 1,050m³. Made ground topsoil was recovered from these areas and placed in stockpiles in the west of the site (Stockpiles '3' and '4') which have a total estimated volume of approximately 1,560m³. After completion of these works road construction commenced in these areas, during which an excess 483m³ of clay soils were recovered and are now stockpiled in the southeast corner of the site ('Stockpile 5'). All onsite stockpile locations are shown on URL Drawings 292-001-01 and 292-001-02: As built topographic survey and constraints (Sheets 1 & 2).
- 3.1.4. The onsite substation was then demolished which was the only potential hotspot identified on site due to the potential for PCB contamination of the shallow soils. SGP attended site on the 04th April 2018 to observe the breakout and removal of the substation slab and to collect samples from the underlying soils for PCB analysis.
- 3.1.5. Approximately 2,270m³ of aggregate comprising crushed recycled hardcore was imported for use on the development as permanent capping in roadways, all of which was supplied by CCC Group (Waste Management), Liverpool.

3.1.6. The remediation formation levels in garden and landscaped areas were left -600mm below finished ground levels to accommodate the agreed soils required to dress the site and provide a growing medium or sub-base to areas of hardstanding. The extent of placed aggregate and remediation formation levels have been provided by URL in Drawings 292-001-01 and 292-001-02: As built topographic survey and constraints (Sheets 1 & 2).

3.2. Site Waste and Materials Management

3.2.1. Regrade to remediation formation levels was achieved by the cutting and movement of materials in accordance with the site MMP.

3.2.2. The 2,170m³ of natural topsoil recovered from the northern, undeveloped part of the site during the earthworks is intended for re-use as garden / landscaping soils during the construction phase of the development. This material has undergone validation testing by SGP as described in section 4.2.

3.2.3. Made ground topsoil has been recovered from the south / southwestern parts of the site which has undergone preliminary testing by SGP as described in sections 4.3 and 4.4; however, if this material is intended for reuse within gardens / landscaped areas it will require further validation testing as detailed in section 6.3.

3.2.4. The vegetation stockpile is assumed to be waste which will require removal from the site. Clay has also been recovered which has not been tested and will therefore require validation testing if it is to be used onsite as either landscaping or garden soils.

3.3. Unforeseen Contamination

3.3.1. Soils exposed during turnover of made ground were consistent with the previous site characterisation and did not require additional assessment or revisions to the agreed Remediation Strategy.

3.3.2. No other previously unidentified or uncharacterised sources of contamination were identified during the remediation and preparatory earthworks.

4. Inspections and Testing

4.1. Site Attendance and Testing

4.1.1. SGP attended site on 7 occasions over a period of 7 months (from November 2017 to April 2018) when remediation and site preparatory works were being carried out. SGP undertook general inspections of the areas being turned over and regraded and collected samples of recovered site soils, imported aggregate and exposed soils in the location of the former substation. Following completion of the remediation works, SGP carried out an additional site visit on the 7th June 2018 to collect samples of the recovered made ground topsoil.

4.1.2. A summary of the dates and records of specific activities, cross referenced to laboratory certificates and photographic records, is presented below:

Table 4.1 Summary of SGP attendance/inspection records

Date	Remediation Works	SGP Activities	Records
14.11.2017	Vegetation / topsoil strip in central / northern parts of site completed prior to inspection; digging out of road footprint along northwest boundary; turnover of soils in centre-west part of site. Stockpiles of stripped vegetation ('Stockpile 2'), topsoil ('Stockpile 1') and recovered hardstanding in central / eastern parts of site.	Walkover and sampling of recovered topsoil.	App A: 1-15 App C: 697291-1
23.11.2017	Vegetation / topsoil strip in central / northern parts of the western section of site; crushed aggregate laid in road positions in northern part of site prior to inspection; construction of substation along northwest boundary. Stockpiles of stripped vegetation consolidated into a single stockpile along southeast boundary, recovered hardstanding stockpile expanded.	Walkover and intrusive investigation of potential culvert diversion area inclusive of sampling of made ground subsoil for contamination suite testing.	App A: 16-22 App B: 1-17 App C: PSL17/5772 & 699319-1.
30.11.2017	Footprints of roads dug out in central / eastern parts of site prior to inspection; laying crushed aggregate in road positions in centre of site; turnover of soils in in centre-south of site.	Walkover and sampling of imported aggregate.	App A: 23-27 App C: 700966-1

Date	Remediation Works	SGP Activities	Records
18.12.2017	Crushed aggregate placed in plot footprints in central / northern parts of the site prior to inspection; turnover of soils, excavation of peat and peat stockpiles in the northern part of the western section of site.	Walkover	App C: 28-32
15.01.2018	Topsoil / vegetation strip and turnover of soils completed in southern / western parts of site; construction of substation along northwest boundary complete. Recovered topsoil stockpiles present in west of site (Stockpiles '3' and '4').	Walkover and sampling of recovered topsoil and imported aggregate.	App A: 33-38 App C: 709629-1
04.04.2018	Breakout of electricity substation slab.	Site inspection. Soil sampling within the footprint of the demolished substation for PCB analysis.	App A: 15-18 App C: 727485
25.04.2018	Site works complete.	Walkover and sampling imported 6F2 to road capping	App C: 18-12003
07.06.2018	Site works complete.	Sampling of recovered made ground topsoil (Stockpiles '3' and '4').	App C: 743219-1

4.1.3. A photographic record of the works has been made with representative images of the general works carried out which is presented in Appendix A.

4.2. Validation of Site Generated Topsoil – 'Stockpile 1'

4.2.1. Supplementary sampling and analysis was carried out under the instruction of URL to determine the potential of the 2,170m³ of topsoil recovered from the northern undeveloped part of the site and stockpiled in the east for reuse as garden soil. Seven samples (SW-TS-1 to SW-TS-7) were collected and submitted for analysis to Concept Life Sciences Laboratory (CLS). The results are provided in laboratory certificates 697291-1 & 709629-1 (Appendix C).

4.2.2. The results are summarised in Table 4.2 below and are compared to screening criteria consistent with those utilised in the ALM Supplementary Geo-Environmental Appraisal (ref: 30118/001) which details the results of the preliminary testing carried out on the material. Sources of information with regards to the screening criteria values predominantly include the LQM/CIEH 'Suitable 4 Use Levels' (S4ULs) for residential soils with plant uptake where applicable; other sources include the 'Category 4 Screening Level' (C4SL) published by CL:AIRE for Lead, and the BS3882:2015 'Specification for Topsoil and Requirements for Use' for Copper and Zinc:

Table 4.2 Topsoil Testing Results ('Stockpile 1').

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)*	Exceedances Concentration & location
Asbestos	7	NAD	Presence	None
pH	7	5.7-7.5	-	N/A
Arsenic	7	11-17	37 LQM / CIEH S4UL	None
Cadmium	7	<1	11 LQM / CIEH S4UL	None
Chromium	7	29-38	910 LQM / CIEH S4UL	None
Chromium VI	7	<1	6 LQM / CIEH S4UL	None
Copper	7	32-43	200 BS3882:2015	None
Lead	7	56-72	200 C4SL	None
Mercury	7	<1	40 LQM / CIEH S4UL	None
Nickel	7	24-30	130 LQM / CIEH S4UL	None
Zinc	7	63-79	300 BS3882:2015	None
Naphthalene	7	<0.1	2.3 LQM / CIEH S4UL	None
Acenaphthylene	7	<0.1	170 LQM / CIEH S4UL	None
Acenaphthene	7	<0.1	210 LQM / CIEH S4UL	None
Fluorene	7	<0.1	170 LQM / CIEH S4UL	None
Phenanthrene	7	<0.1	95 LQM / CIEH S4UL	None
Fluoranthene	7	<0.1-0.2	2400 LQM / CIEH S4UL	None
Anthracene	7	<0.1	280 LQM / CIEH S4UL	None
Pyrene	7	<0.1-0.2	620 LQM / CIEH S4UL	None
Benzo(a)anthracene	7	<0.1	7.2 LQM / CIEH S4UL	None
Chrysene	7	<0.1	15 LQM / CIEH S4UL	None
Benzo(b)fluoranthene	7	<0.1	2.6 LQM / CIEH S4UL	None
Benzo(k)fluoranthene	7	<0.1	77 LQM / CIEH S4UL	None
Benzo(a)pyrene	7	<0.1	2.2 LQM / CIEH S4UL	None
Indeno(123cd)pyrene	7	<0.1	27 LQM / CIEH S4UL	None
Dibenzo(ah)anthracene	7	<0.1	0.24 LQM / CIEH S4UL	None
Benzo(ghi)perylene	7	<0.1	320 LQM / CIEH S4UL	None
Aliphatic C5-C6	7	<0.1	42 LQM / CIEH S4UL	None
Aliphatic C6-C8	7	<0.1	100 LQM / CIEH S4UL	None
Aliphatic C8-C10	7	<0.1	27 LQM / CIEH S4UL	None
Aliphatic C10-C12	7	<1	130 LQM / CIEH S4UL	None
Aliphatic C12-C16	7	<2	1100 LQM / CIEH S4UL	None
Aliphatic C16-C21	7	<1	65,000 LQM / CIEH S4UL	None
Aliphatic C21-C35	7	<4	65,000 LQM / CIEH S4UL	None
Aromatic C6-C7	7	<0.1	70 LQM / CIEH S4UL	None
Aromatic C7-C8	7	<0.1	130 LQM / CIEH S4UL	None
Aromatic C8-C10	7	<0.1	34 LQM / CIEH S4UL	None
Aromatic C10-C12	7	<2	74 LQM / CIEH S4UL	None
Aromatic C12-C16	7	<1	140 LQM / CIEH S4UL	None

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)*	Exceedances Concentration & location
Aromatic C16-C21	7	<1-2	260 LQM / CIEH S4UL	None
Aromatic C21-C35	7	<1-4	1100 LQM / CIEH S4UL	None
Benzene	7	<0.01	0.08 LQM / CIEH S4UL	None
Toluene	7	<0.01	130 LQM / CIEH S4UL	None
Ethyl-benzene	7	<0.01	47 LQM / CIEH S4UL	None
m/p-xylene	7	<0.01	56 LQM / CIEH S4UL	None
o-xylene	7	<0.01	60 LQM / CIEH S4UL	None

4.2.3. No exceedances of the adopted screening criteria were detected within any of the samples confirming the findings of the ALM Supplementary Geo-environmental Appraisal that the material is likely to be suitable for use onsite within future gardens / landscaped areas. The total sampling frequency carried out to date equates to 1 sample per 180m³ for asbestos, metals and poly-aromatic hydrocarbons (PAHs), and 1 per 310m³ for petroleum hydrocarbons and BTEX. Due to the absence of contamination within any of the samples and the previous characterisation of this material as 'natural topsoil', it is considered that no further contamination testing is required with regards to this material to demonstrate its suitability for use in gardens.

4.3. Validation of Site Generated Made Ground Topsoil – 'Stockpile 3'

4.3.1. Sampling and analysis was carried out under the instruction of URL to determine the potential of the approximate 930m³ of made ground topsoil recovered from the south / southwestern parts of the site and stockpiled in the southwest corner for reuse as garden soil. Three samples (TSSP3 S1 – TSSP3 S3) were collected and submitted for analysis to Concept Life Sciences Laboratory (CLS). The results are provided in laboratory certificate 743219-1 (Appendix C).

4.3.2. The results are summarised in Table 4.3 below and are compared to screening criteria consistent with those utilised in the ALM Supplementary Geo-Environmental Appraisal, as detailed in section 4.2.2.

Table 4.3 Topsoil Testing Results ('Stockpile 3').

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)*	Exceedances Concentration & location
Asbestos	3	NAD	Presence	None
pH	3	7.5-8.3	-	N/A
Arsenic	3	10-15	37 LQM / CIEH S4UL	None
Cadmium	3	<1	11 LQM / CIEH S4UL	None

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)*	Exceedances Concentration & location
Chromium	3	24-27	910 LQM / CIEH S4UL	None
Chromium VI	3	<1	6 LQM / CIEH S4UL	None
Copper	3	37-53	200 BS3882:2015	None
Lead	3	68-76	200 C4SL	None
Mercury	3	<1	40 LQM / CIEH S4UL	None
Nickel	3	23-35	130 LQM / CIEH S4UL	None
Zinc	3	100-110	300 BS3882:2015	None
Naphthalene	3	<0.1	2.3 LQM / CIEH S4UL	None
Acenaphthylene	3	<0.1	170 LQM / CIEH S4UL	None
Acenaphthene	3	<0.1	210 LQM / CIEH S4UL	None
Fluorene	3	<0.1	170 LQM / CIEH S4UL	None
Phenanthrene	3	<0.1-0.2	95 LQM / CIEH S4UL	None
Fluoranthene	3	<0.1-0.5	2400 LQM / CIEH S4UL	None
Anthracene	3	<0.1	280 LQM / CIEH S4UL	None
Pyrene	3	<0.1-0.5	620 LQM / CIEH S4UL	None
Benzo(a)anthracene	3	<0.1-0.2	7.2 LQM / CIEH S4UL	None
Chrysene	3	<0.1-0.2	15 LQM / CIEH S4UL	None
Benzo(b)fluoranthene	3	<0.1-0.2	2.6 LQM / CIEH S4UL	None
Benzo(k)fluoranthene	3	<0.1-0.2	77 LQM / CIEH S4UL	None
Benzo(a)pyrene	3	<0.1-0.2	2.2 LQM / CIEH S4UL	None
Indeno(123cd)pyrene	3	<0.1-0.1	27 LQM / CIEH S4UL	None
Dibenzo(ah)anthracene	3	<0.1	0.24 LQM / CIEH S4UL	None
Benzo(ghi)perylene	3	<0.1-0.1	320 LQM / CIEH S4UL	None
Aliphatic C5-C6	3	<0.1	42 LQM / CIEH S4UL	None
Aliphatic C6-C8	3	<0.1	100 LQM / CIEH S4UL	None
Aliphatic C8-C10	3	<0.1	27 LQM / CIEH S4UL	None
Aliphatic C10-C12	3	<1	130 LQM / CIEH S4UL	None
Aliphatic C12-C16	3	<1	1100 LQM / CIEH S4UL	None
Aliphatic C16-C21	3	<1	65,000 LQM / CIEH S4UL	None
Aliphatic C21-C35	3	<2-11	65,000 LQM / CIEH S4UL	None
Aromatic C6-C7	3	<0.1	70 LQM / CIEH S4UL	None
Aromatic C7-C8	3	<0.1	130 LQM / CIEH S4UL	None
Aromatic C8-C10	3	<0.1	34 LQM / CIEH S4UL	None
Aromatic C10-C12	3	<2	74 LQM / CIEH S4UL	None
Aromatic C12-C16	3	<1-1	140 LQM / CIEH S4UL	None
Aromatic C16-C21	3	2-5	260 LQM / CIEH S4UL	None
Aromatic C21-C35	3	8-15	1100 LQM / CIEH S4UL	None
Benzene	3	<0.01	0.08 LQM / CIEH S4UL	None
Toluene	3	<0.01	130 LQM / CIEH S4UL	None
Ethyl-benzene	3	<0.01	47 LQM / CIEH S4UL	None

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)*	Exceedances Concentration & location
m/p-xylene	3	<0.01	56 LQM / CIEH S4UL	None
o-xylene	3	<0.01	60 LQM / CIEH S4UL	None

4.3.3. No exceedances of the adopted screening criteria were detected within any of the samples indicating that the material, which has been sampled at a frequency equating to 1 sample per 310m³ for all determinants, is likely to be suitable for use onsite within future gardens / landscaped areas. However, due to the characterisation of this material as 'Made Ground' further testing to achieve a higher frequency is necessary to confirm that this material is suitable for its intended use.

4.4. Validation of Site Generated Made Ground Topsoil – 'Stockpile 4'

4.4.1. Sampling and analysis was carried out under the instruction of URL to determine the potential of the approximate 630m³ of made ground topsoil recovered from the south / southwestern parts of the site and stockpiled along the centre of the southern boundary for reuse as garden soil. Two samples (TSSP4 S1 & TSSP4 S2) were collected and submitted for analysis to Concept Life Sciences Laboratory (CLS). The results are provided in laboratory certificate 743219-1 (Appendix C).

4.4.2. The results are summarised in Table 4.4 below and are compared to screening criteria consistent with those utilised in the ALM Supplementary Geo-Environmental Appraisal, as detailed in section 4.2.2.

Table 4.4 Topsoil Testing Results ('Stockpile 4').

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)*	Exceedances Concentration & location
Asbestos	3	NAD	Presence	None
pH	3	7.1-7.6	-	N/A
Arsenic	3	9-10	37 LQM / CIEH S4UL	None
Cadmium	3	<1	11 LQM / CIEH S4UL	None
Chromium	3	18-22	910 LQM / CIEH S4UL	None
Chromium VI	3	<1	6 LQM / CIEH S4UL	None
Copper	3	30-40	200 BS3882:2015	None
Lead	3	54-79	200 C4SL	None
Mercury	3	<1	40 LQM / CIEH S4UL	None
Nickel	3	17-20	130 LQM / CIEH S4UL	None

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)*	Exceedances Concentration & location
Zinc	3	86-190	300 BS3882:2015	None
Naphthalene	3	<0.1	2.3 LQM / CIEH S4UL	None
Acenaphthylene	3	<0.1	170 LQM / CIEH S4UL	None
Acenaphthene	3	<0.1	210 LQM / CIEH S4UL	None
Fluorene	3	<0.1	170 LQM / CIEH S4UL	None
Phenanthrene	3	0.1-0.5	95 LQM / CIEH S4UL	None
Fluoranthene	3	<0.1-0.1	2400 LQM / CIEH S4UL	None
Anthracene	3	0.2-1.4	280 LQM / CIEH S4UL	None
Pyrene	3	0.2-1.4	620 LQM / CIEH S4UL	None
Benzo(a)anthracene	3	<0.1-0.8	7.2 LQM / CIEH S4UL	None
Chrysene	3	0.1-0.8	15 LQM / CIEH S4UL	None
Benzo(b)fluoranthene	3	<0.1-0.8	2.6 LQM / CIEH S4UL	None
Benzo(k)fluoranthene	3	<0.1-0.8	77 LQM / CIEH S4UL	None
Benzo(a)pyrene	3	<0.1-0.9	2.2 LQM / CIEH S4UL	None
Indeno(123cd)pyrene	3	<0.1-0.5	27 LQM / CIEH S4UL	None
Dibenzo(ah)anthracene	3	<0.1-0.2	0.24 LQM / CIEH S4UL	None
Benzo(ghi)perylene	3	<0.1-0.7	320 LQM / CIEH S4UL	None
Aliphatic C5-C6	3	<0.1	42 LQM / CIEH S4UL	None
Aliphatic C6-C8	3	<0.1	100 LQM / CIEH S4UL	None
Aliphatic C8-C10	3	<0.1	27 LQM / CIEH S4UL	None
Aliphatic C10-C12	3	<1	130 LQM / CIEH S4UL	None
Aliphatic C12-C16	3	<1	1100 LQM / CIEH S4UL	None
Aliphatic C16-C21	3	<1	65,000 LQM / CIEH S4UL	None
Aliphatic C21-C35	3	<2-6	65,000 LQM / CIEH S4UL	None
Aromatic C6-C7	3	<0.1	70 LQM / CIEH S4UL	None
Aromatic C7-C8	3	<0.1	130 LQM / CIEH S4UL	None
Aromatic C8-C10	3	<0.1	34 LQM / CIEH S4UL	None
Aromatic C10-C12	3	<2	74 LQM / CIEH S4UL	None
Aromatic C12-C16	3	<1-1	140 LQM / CIEH S4UL	None
Aromatic C16-C21	3	<1-12	260 LQM / CIEH S4UL	None
Aromatic C21-C35	3	1-44	1100 LQM / CIEH S4UL	None
Benzene	3	<0.01	0.08 LQM / CIEH S4UL	None
Toluene	3	<0.01	130 LQM / CIEH S4UL	None
Ethyl-benzene	3	<0.01	47 LQM / CIEH S4UL	None
m/p-xylene	3	<0.01	56 LQM / CIEH S4UL	None
o-xylene	3	<0.01	60 LQM / CIEH S4UL	None

4.4.3. No exceedances of the adopted screening criteria were detected within any of the samples indicating that the material, which has been sampled at a frequency equating to 1 sample per 315m³ for all determinants, is likely to be suitable for use onsite within future gardens /

landscaped areas. However, due to the characterisation of this material as 'Made Ground' further testing to achieve a higher frequency is necessary to confirm that this material is suitable for its intended use.

4.5. Validation of Made Ground Subsoil

4.5.1. On the 23rd November 2017 a trial pitting exercise was carried out to determine the ground conditions within the originally planned culvert diversion area. Photographs of the trial pits and the logs are presented in Appendix A and Appendix B, respectively, and the locations are shown on drawing D01. During this exercise a stratum of made ground subsoil was encountered comprising an orangish brown grey-mottled sandy clay with occasional gravel. Three samples (TP2-S1 (1.4m), TP3-S1 (0.7m) and TP4-S1 (1.4m)) were collected from this material and submitted for analysis to Concept Life Sciences (CLS) to determine its potential for reuse as garden soil. The results provided in laboratory certificate 699319-1 (Appendix C) are summarised in Table 4.5 below and are compared to screening criteria consistent with those utilised in the ALM Supplementary Geo-environmental Appraisal.

Table 4.5 Made Ground Subsoil Testing Results

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)*	Exceedances Concentration & location
Asbestos	3	NAD	Presence	None
pH	3	7.3-7.5	-	None
Arsenic	3	9-20	37 LQM / CIEH S4UL	None
Cadmium	3	<1	11 LQM / CIEH S4UL	None
Chromium	3	22-37	910 LQM / CIEH S4UL	None
Chromium VI	3	<1	6 LQM / CIEH S4UL	None
Copper	3	25-54	200 BS3882:2015	None
Lead	3	42-90	200 C4SL	None
Mercury	3	<1	40 LQM / CIEH S4UL	None
Nickel	3	19-32	130 LQM / CIEH S4UL	None
Zinc	3	51-110	300 BS3882:2015	None
Naphthalene	3	<0.1	2.3 LQM / CIEH S4UL	None
Acenaphthylene	3	<0.1	170 LQM / CIEH S4UL	None
Acenaphthene	3	<0.1	210 LQM / CIEH S4UL	None
Fluorene	3	<0.1	170 LQM / CIEH S4UL	None
Phenanthrene	3	<0.1-0.2	95 LQM / CIEH S4UL	None
Fluoranthene	3	0.2-0.5	2400 LQM / CIEH S4UL	None
Anthracene	3	<0.1	280 LQM / CIEH S4UL	None
Pyrene	3	0.2-0.4	620 LQM / CIEH S4UL	None
Benzo(a)anthracene	3	<0.1-0.2	7.2 LQM / CIEH S4UL	None
Chrysene	3	<0.1-0.2	15 LQM / CIEH S4UL	None

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)*	Exceedances Concentration & location
Benzo(b)fluoranthene	3	<0.1-0.1	2.6 LQM / CIEH S4UL	None
Benzo(k)fluoranthene	3	<0.1-0.2	77 LQM / CIEH S4UL	None
Benzo(a)pyrene	3	<0.1-0.2	2.2 LQM / CIEH S4UL	None
Indeno(123cd)pyrene	3	<0.1	27 LQM / CIEH S4UL	None
Dibenzo(ah)anthracene	3	<0.1	0.24 LQM / CIEH S4UL	None
Benzo(ghi)perylene	3	<0.1	320 LQM / CIEH S4UL	None
Aliphatic C5-C6	3	<0.1	42 LQM / CIEH S4UL	None
Aliphatic C6-C8	3	<0.1	100 LQM / CIEH S4UL	None
Aliphatic C8-C10	3	<0.1	27 LQM / CIEH S4UL	None
Aliphatic C10-C12	3	<1	130 LQM / CIEH S4UL	None
Aliphatic C12-C16	3	<1	1100 LQM / CIEH S4UL	None
Aliphatic C16-C21	3	1-2	65,000 LQM / CIEH S4UL	None
Aliphatic C21-C35	3	<2-2	65,000 LQM / CIEH S4UL	None
Aromatic C6-C7	3	<0.1	70 LQM / CIEH S4UL	None
Aromatic C7-C8	3	<0.1	130 LQM / CIEH S4UL	None
Aromatic C8-C10	3	<0.1	34 LQM / CIEH S4UL	None
Aromatic C10-C12	3	<2	74 LQM / CIEH S4UL	None
Aromatic C12-C16	3	<1	140 LQM / CIEH S4UL	None
Aromatic C16-C21	3	<1-3	260 LQM / CIEH S4UL	None
Aromatic C21-C35	3	1-5	1100 LQM / CIEH S4UL	None
Benzene	3	<0.01	0.08 LQM / CIEH S4UL	None
Toluene	3	<0.01	130 LQM / CIEH S4UL	None
Ethyl-benzene	3	<0.01	47 LQM / CIEH S4UL	None
m/p-xylene	3	<0.01	56 LQM / CIEH S4UL	None
o-xylene	3	<0.01	60 LQM / CIEH S4UL	None

4.5.2. No exceedances were detected and based on the testing carried out to date this material is considered suitable for use within garden areas, however, this would be subject to further testing. In any case, as it is understood that the culvert diversion is no longer taking place, it is now considered unlikely that this material will be recovered for such a purpose.

4.6. Validation of Imported Aggregate

4.6.1. A total of eleven samples were collected from an estimated 2,270m³ of imported aggregate during the preparatory earthworks to determine the suitability of the material for use within the development. SGP attended site and collected in-situ aggregate samples over three days, the 30th November 2017, 16th January 2018 and 25th April 2018; the samples were then submitted to CLS Laboratory for an asbestos screen. The results provided in laboratory certificates 700966-1 (Agg1-Agg5), 709629-1 (AGG-IMP-6 & AGG-IMP-7) and 18-12003 (IMP6F2 S01-

S04) (Appendix C) are summarised in table 4.6 below and are compared against the common quantification threshold (<0.001%):

Table 4.6 Asbestos Screening Summary for Imported Aggregate.

Contaminant	Samples	Range of Concentrations	Residential Use	
			Screening criteria	Exceedances Concentration
asbestos	11	NAD	<0.001% by mass	None

4.6.2. No asbestos was detected within the samples of imported aggregate which has been sampled at a frequency of approximately 1 sample per 206m³; this material has therefore been deemed suitable for its use as road base within the development.

4.7. Inspection of Former Sub-Station Area

4.7.1. SGP attended site on 04th April 2018 to collect samples from the underlying made ground and natural soils following breakout and removal of the electricity substation slab. No observations of oil staining were noted within the underlying soils from which a total of 4 samples were collected, 2 from the made ground directly beneath the removed slab (ELEC-SS-S1 & ELEC-SS-S2) and 2 from the underlying natural soils (ELEC-SS-S3 & ELEC-SS-S4); these samples were then tested for PCB congener analysis (Appendix C: CLS, 727485).

4.7.2. Soil samples collected for PCB analysis were placed in appropriate containers and were stored in a chilled cool box pending delivery to an accredited laboratory (CLS, Manchester) for chemical testing within 48 hours.

4.7.3. The results of dioxin-like PCB congener concentrations are summarised within Table 4.7 below:

Table 4.7 Verification of Electrical Substation Footprint

Contaminant	Samples	Range of Concentrations (µg/kg)
PCBs BZ#28	4	<1-<2
PCBs BZ#52	4	<1-<2
PCBs BZ#101	4	<1-<2
PCBs BZ#118	4	<1-<2
PCBs BZ#153	4	<1-<2
PCBs BZ#138	4	<1-<2
PCBs BZ#180	4	<1-<2

4.7.4. The results indicate that PCB contamination in the footprint of the demolished electrical substation is absent with all four samples recording PCB values below the limit of detection for all congeners tested. No further remedial actions are therefore necessary.

5. Conclusions

- 5.1. Preparatory remediation earthworks at Waterpark Drive, Stockbridge, have been carried out by URL in accordance with the approved Remedial Strategy. SGP has undertaken independent inspections and testing of materials in accordance with the Strategy.
- 5.2. The shallow ground conditions encountered were consistent with that described within previous intrusive reporting. No revisions to the agreed Remediation Strategy have been required as a result of the inspections, investigations and assessments carried out contemporaneously with the remediation earthworks. The Remediation Strategy required placement of a soil cover system only in areas where made ground was present; such conditions are not present in the northern, greenfield parts of the site (Plots 42-62), therefore no specific depth of cover soils is required, although the site has been regraded to -600mm from finished garden levels and validated soils are required to make up levels and act as a growing medium.
- 5.3. Turnover has been completed in the areas of the former school buildings involving the excavation of relict foundations. Due to the small volume of hardstanding recovered onsite, processing of these arisings to produce aggregate was deemed impractical and was removed offsite.
- 5.4. Imported aggregate has been sampled in situ following placement within the development. No incidences of asbestos fibres were reported in any of the samples analysed. This material is considered suitable for its use as road base and is not considered to pose any significant risks or constraints for the remaining development works and future use of the site.
- 5.5. The potential PCB hotspot in the footprint of the demolished electrical substation has been inspected by SGP and samples have been collected from this area which indicate that PCB impacted soils were absent. No further assessment or mitigation to address the risks is deemed necessary.
- 5.6. Validation testing has been carried out on the recovered 'natural' topsoil ('Stockpile 1') at a total frequency of 1 sample per 180m³ for asbestos, metals and poly-aromatic hydrocarbons (PAHs), and 1 per 310m³ for petroleum hydrocarbons and BTEX to assess its potential suitability for reuse as garden soil within the development. No exceedances of the screening criteria have been reported which would preclude the use of this material for its intended purpose as garden soils and it is considered that no further contamination testing is required.
- 5.7. Approximately 1,560m³ of made ground topsoil has been recovered from the south / southwest parts of the site (Stockpiles '3' and '4'). This material has undergone preliminary testing by SGP at a frequency of approximately 1 sample per 310m³ which has indicated that it is likely to be suitable for use within gardens / landscaped areas; however, if it is to be used for this purpose

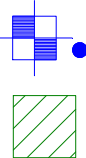
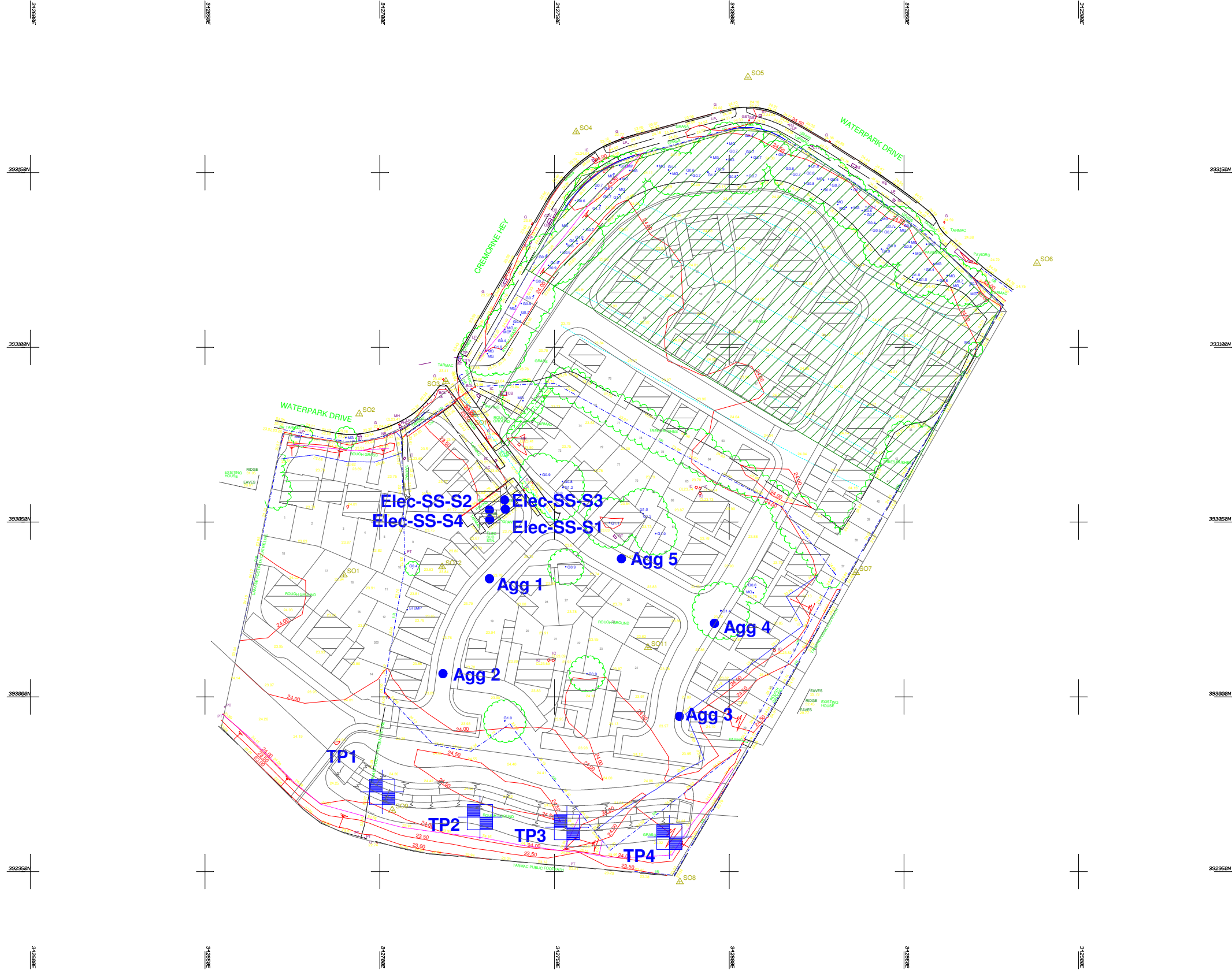
- further validation testing will be required to achieve the necessary sampling frequency as detailed in section 6.3.
- 5.8. The 483m³ of recovered untested clay ('Stockpile 5') will also require validation sampling if it is to be used for these purposes, however this material is considered suitable for use in less sensitive areas and as bulk fill, external to gardens and under structures and areas of hardstanding.
- 5.9. Sampling of made ground subsoil was undertaken during a trial pitting exercise undertaken in the location of the originally planned culvert diversion route. The preliminary testing indicated that the material would be suitable for use within gardens / landscaped areas, although this would be subject to further testing. Now that the culvert is to remain in place it is now considered unlikely that the material will be used for this purpose, however the results do not contradict the findings of the previous testing of made ground on the site and provide additional confidence that mitigation measures to fully isolate future residents from exposure to the residual soils on the site is not required.
- 5.10. Remediation formation levels in garden and landscaped areas have been left -600mm below finished ground levels to accommodate soils required to provide a growing medium or sub-base to paved areas.
- 5.11. No indications of any requirement to revise the ground gas risk classification of NHBC 'Green' / CIRIA Characteristic Situation 'CS1' have been encountered during the works.
- 5.12. A detailed assessment of the geotechnical properties of the ground and the impacts of physical constraints to development lie outside the scope of SGP's assessment.

6. Recommendations

- 6.1. It is not currently proposed that further remediation earthworks to remove or reduce residual contamination sources is required.
- 6.2. Garden levels have been left at -600mm in order to allow placement of clean soil cover. It is assumed that the topsoil and clay subsoil present in stockpiles on the site are to be utilised for this purpose which have undergone varying levels of testing.
- 6.3. Testing of imported soils from well characterised 'Greenfield' sources should be undertaken at a frequency of 1 sample per 250m³; imported soils from 'Brownfield' or uncharacterised sources, including the site generated made ground topsoil (and subsoil, if required), will require a more intensive testing regime at 1 sample per 50m³. Further testing of the site-won made ground topsoil (Stockpiles '3' and '4') to a frequency of 1 per 50m³ is therefore a requirement if these are to be utilised in the upper 600mm of gardens / landscaped areas. If the site-won clay is under consideration for use in gardens this should similarly be tested.
- 6.4. Soil testing detailed above should be for a standard suite including TPHCWG hydrocarbons, PAHs, metals and asbestos, with concentrations compared to appropriate contemporaneous generic assessment criteria for residential soils as detailed within the Remediation Strategy.
- 6.5. Due to the absence of contamination in the northern, undeveloped part of the site as determined during this, and previous, site investigations, independent depth validation of soils in gardens within this area are not recommended. The extent of this area is indicated on Drawing 01. Plots 1-41 & 63-79 therefore require a validated 600mm simple soil cover system. Plots 42-62 do not require any specific depth of soils or independent validation of depths, although an inspection of the formation should be carried out and reported prior to placement of the soil dressing if inspection pits are to be avoided. Where depth validation is required, this should be undertaken by an independent environmental consultant at a frequency of 1 depth test per 3 plots.
- 6.6. With the adoption of the above normal practices for Brownfield development, and on the information available to it, SGP concludes that the preparatory remedial works for Waterpark Drive, Stockbridge have been completed in accordance with the agreed strategy and development may commence without further dedicated mitigation measures to address contamination issues.
- 6.7. SGP reserves the right to alter any of the foregoing information in the event of new information being disclosed or provided and in the light of changes to legislation, guidelines and responses by the statutory and regulatory authorities.
- 6.8. This report has been prepared by Smith Grant LLP, for the sole and exclusive use of Urban Regen Ltd and Barratt Homes, the benefit of this report may not be assigned to any third party

without the prior agreement in writing of Smith Grant LLP. Reasonable skill, care and diligence has been exercised within the timescale and budget available, and in accordance with the technical requirements of the brief. Notwithstanding the efforts made by the professional team in undertaking the assessment and preparing this report, it is possible that other ground conditions and contamination as yet undetected may exist. Reliance on the findings of this report must therefore be limited accordingly. Such reliance must be based on the whole report and not on extracts which may lead to incomplete or incorrect conclusions when taken out of context.

DRAWINGS



Validation Sample
/Entry

Former Greenfield
Areas: No cover
system required
(subject to
inspection of formation
and confirmation
natural soils present)

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Ruabon, Wrexham LL14 6DL

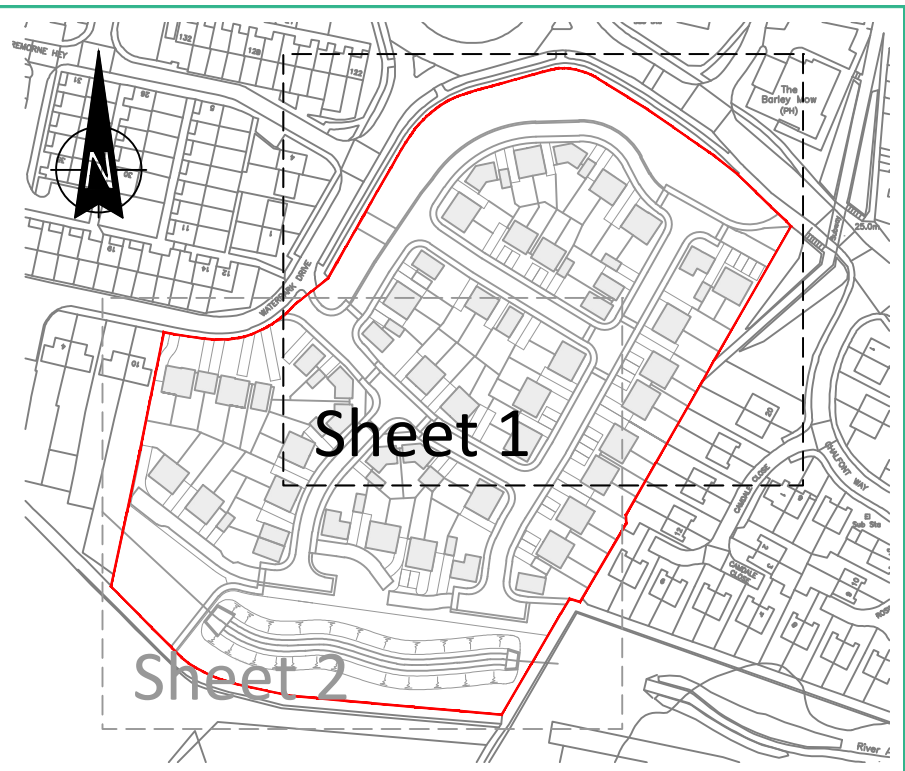
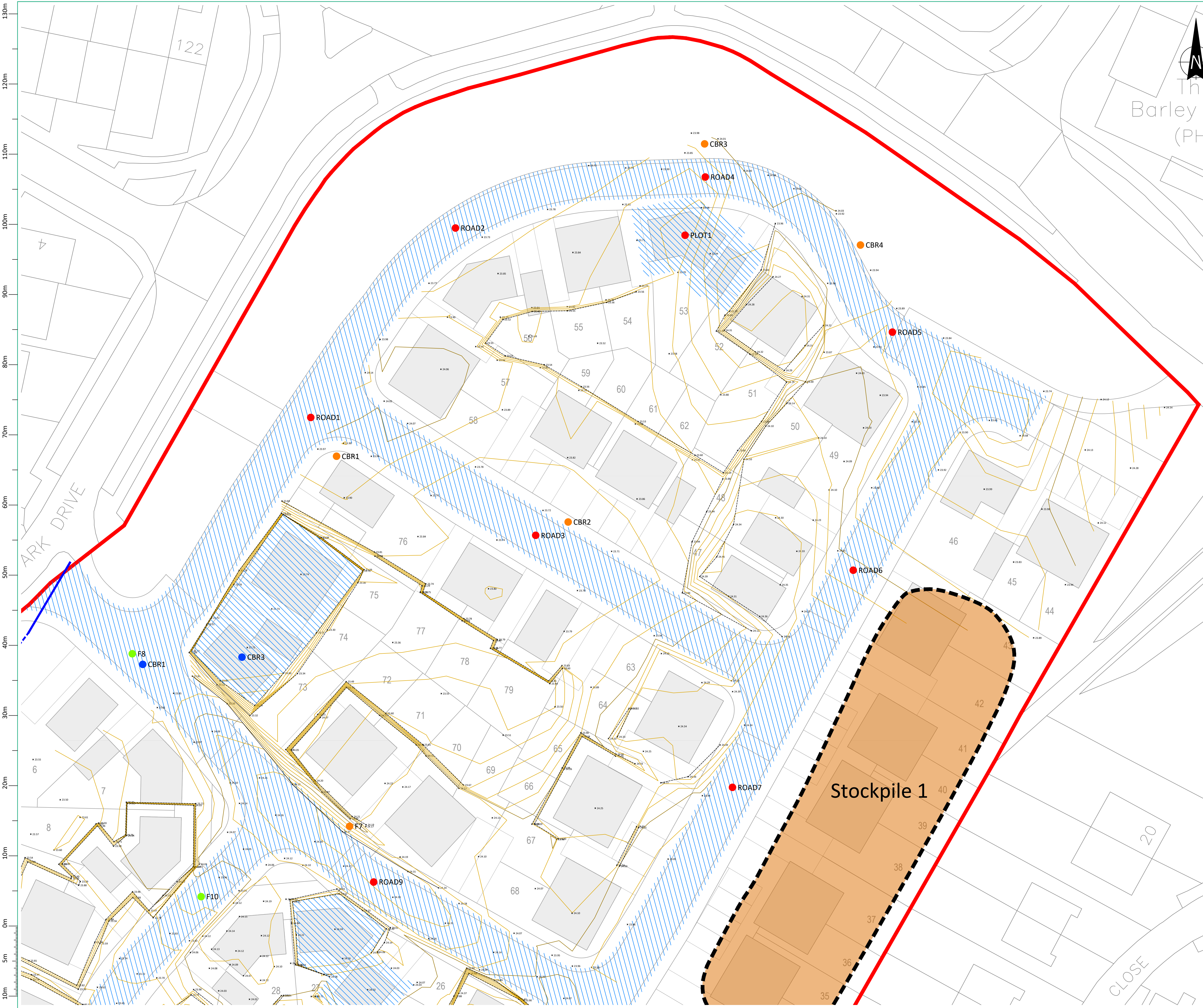
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Project:
Waterpark Drive, Stockbridge

Drawing:
Culvert Diversion Trial Pit Locations

Drawn: SM	Checked: BJT
Date: 07/12/2017	Scale: 1:1,250
Job No: R2469	Drg No: D01



Sheet PlanScale NTS

Notes:

Site boundary

Major contour

Minor contour

Spot level

Bottom / top of bank

Proposed plot and road footprints (see note 2)

Crush (pile mats and road sub-base)

CBR tests carried out 14th Dec 2017 (see note 3)

CBR tests carried out 15th Dec 2017 (see note 3)

CBR tests carried out 11th Apr 2018 (see note 3)

CBR tests carried out 1st May 2018 (see note 3)

Existing live clay sewer (see note 4)

Temporary uPVC corrugated sewer (see note 4)

Culvert - trial pit (see note 5)

Culvert - exposed

Culvert - assumed alignment (see note 6)

Vegetation stockpile

Stockpile 2

Crush (pile mats and road sub-base)

CBR tests carried out 14th Dec 2017 (see note 3)

CBR tests carried out 15th Dec 2017 (see note 3)

CBR tests carried out 11th Apr 2018 (see note 3)

CBR tests carried out 1st May 2018 (see note 3)

Existing live clay sewer (see note 4)

Temporary uPVC corrugated sewer (see note 4)

Culvert - trial pit (see note 5)

Culvert - exposed

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Proposed plot and road footprints (see note 2)

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Culvert - trial pit (see note 5)

Culvert - exposed

Culvert - assumed alignment (see note 6)

Vegetation stockpile

Stockpile 2

Crush (pile mats and road sub-base)

Notes:

1. This plan is to be read in conjunction with the SGP Completion Report R2469-R01-v2.

2. The residential layout depicted on this plan is extracted from the digital layout '463-PL01 Planning layout rev M' supplied digitally by Barratt Homes.

3. All CBR tests were carried out by TC Construction Testing Ltd.

4. A manhole associated with the live sewer (185mm - 275mm) entering onto site was removed during remediation works. A length of uPVC corrugated 225 mm dia' pipe was installed to enable a temporary repair.

5. Trial pits were excavated at the locations indicated to prove the position of the culvert passing through the south of the site.

6. The ASSUMED alignment of the culvert has been interpolated from the available trial pit information.

7. The extents of all stockpiles detailed on this drawing are indicative only.

8. Surplus clays were partially deposited in a depression located to the south of the site. The remaining clays were stockpiled adjacent.

9. All survey and thematic information detailed on this drawing was provided by Urban Regen Ltd. WSMS Ltd. cannot be held responsible for any inaccuracies therein.

Survey Information:

Co-ord System:

Co-ord Type:

Primary Survey Control:

Secondary Survey Control:

OSGB36(2)

Grid

Leica SmartNet

Site

Rev

Date

Amendment

Drawn

Checked

Woodrow Surveying and Management Services Ltd.

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Project:

Waterpark Drive, Knowsley

Title:

As built topographic survey and
constraints (Sheet 1 of 2)

Scale:

First Issue:

Drawn:

Checked:

1:250 @ A1

23rd May 2018

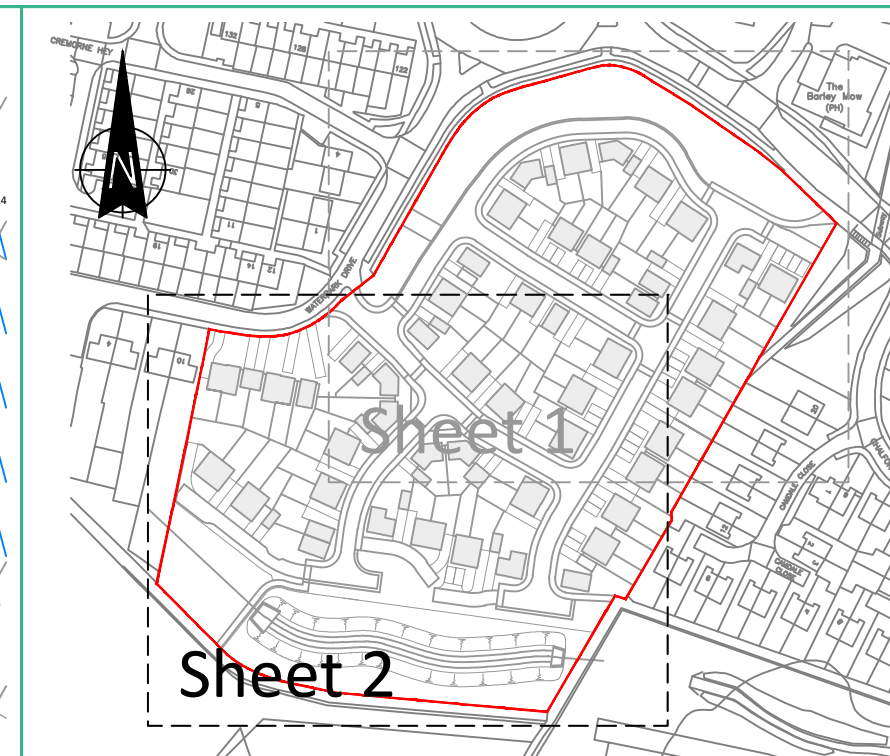
D.J.Woodrow

J.Verheyden

Drawing No:

Revision:

292-001-01



Sheet Plan

Scale NTS

Notes:

- | |
|--|
| Site boundary |
| Major contour |
| Minor contour |
| Spot level |
| Bottom / top of bank |
| Proposed plot and road footprints (see note 2) |
| Crush (pile mats and road sub-base) |
| CBR tests carried out 14th Dec 2017 (see note 3) |
| CBR tests carried out 15th Dec 2017 (see note 3) |
| CBR tests carried out 11th Apr 2018 (see note 3) |
| CBR tests carried out 1st May 2018 (see note 3) |
| Existing live clay sewer (see note 4) |
| Temporary uPVC corrugated sewer (see note 4) |

Vegetation stockpile

Stockpile 2	1,050m³
<u>Topsoil stockpiles</u>	
Stockpile 1	2,170m³
Stockpile 3	928m³
Stockpile 4	629m³
<u>Clay stockpile / placed (see note 8)</u>	
Stockpile 5	483m³

Notes

1. This plan is to be read in conjunction with the SGP Completion Report R2469-R01-V2.
2. The residential layout depicted on this plan is extracted from the digital layout of ***"463-101 Planning layout rev M"*** supplied digitally by Barratt Homes.
3. All CBR tests were carried out by TC Construction Testing Ltd.
4. The culvert associated with the level 100 (100.00 - 75mm) entering onto site was removed during remediation works. A length of uPVC corrugated 225 mm dia' pipe was installed to enable a temporary repair.
5. Trial pits were excavated to the level indicated to prove the position of the culvert passing through the south of the site.
6. The ASSUMED alignment of the culvert has been interpolated from the available trial pit information.
7. The contents of all stockpiles detailed on this drawing are indicative only.
8. Surplus plants were partially deposited in a depression located to the south of the site.
9. The remaining plants were stockpiled adjacent.
10. The drawings and schematics were prepared by this drawing was provided by Urban Regen Ltd. WSM5 Ltd. cannot be held responsible for any inaccuracies therein.

Survey Information:

Co-ord System: OSGB36(2)		Co-ord Type: Grid		Primary Survey Control: Leica SmartNet		Secondary Survey Control: Site	
Rev	Date	Amendment				Drawn	Checked

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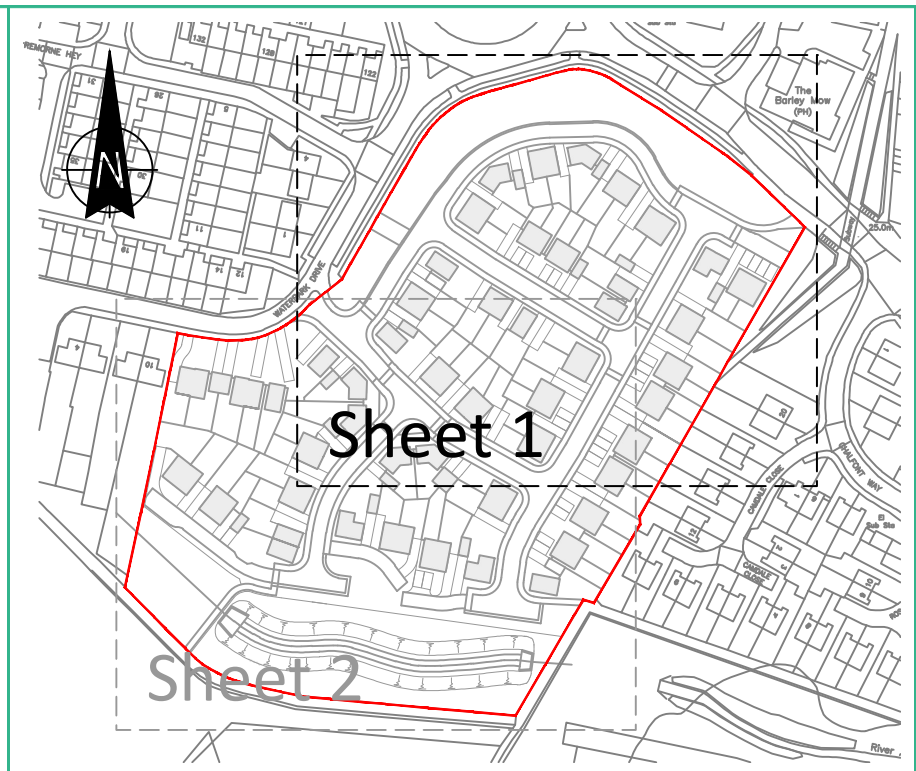
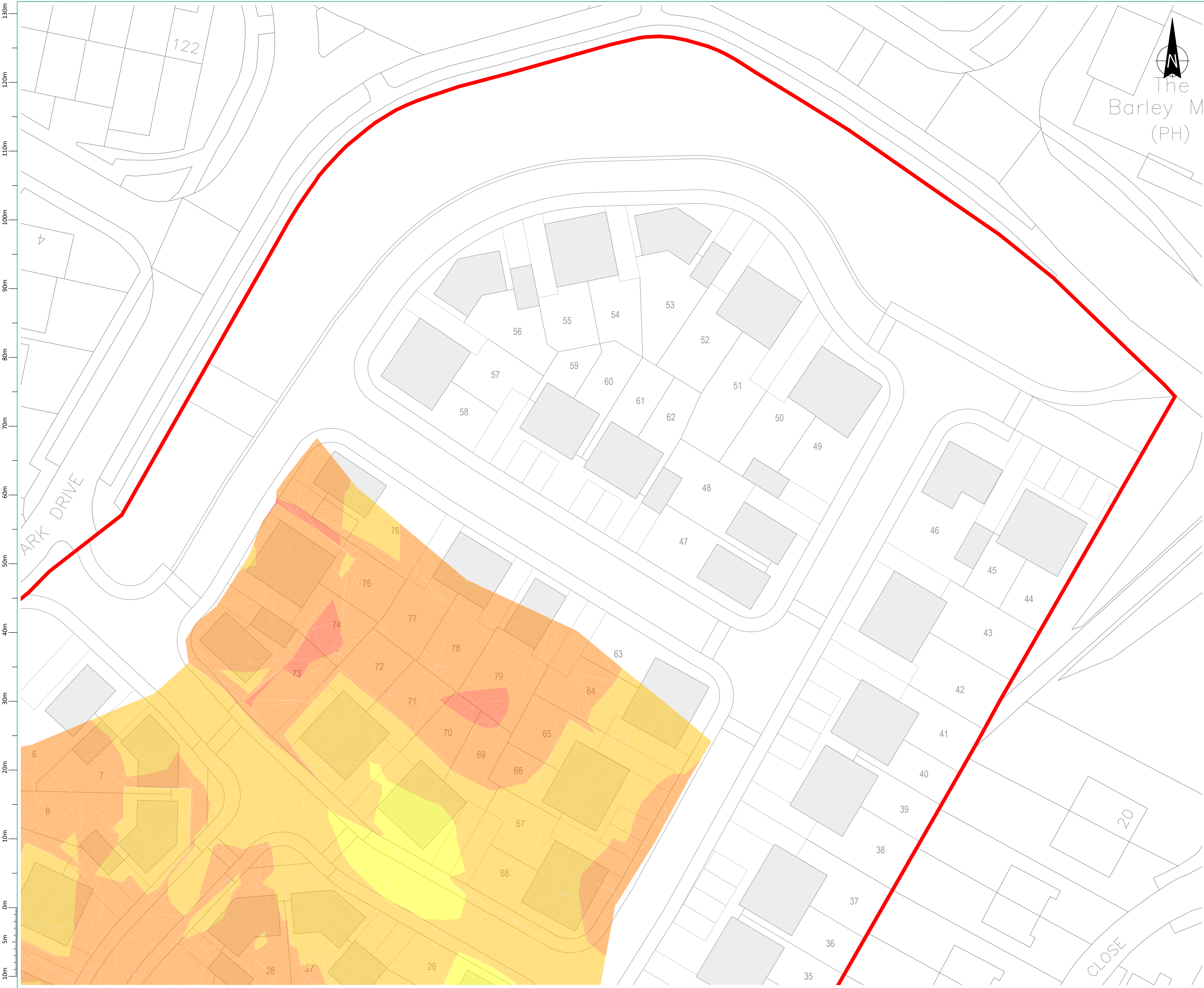
Project:

Waterpark Drive, Knowsley

Title: As built topographic survey and constraints (Sheet 2 of 2)

Scale: 1:250 @ A1	First Issue: 23rd May 2018	Drawn: D.J.Woodrow	Checked: J.Verheyden
Drawing No:			Revision:

292-001-02



Sheet Plan Scale NTS

Notes:	
Legend	
Site boundary	
Proposed plot footprints (see note 2)	
Depth of excavation (see note 3)	
0.5m - 1.0m	
1.0m - 1.5m	
1.5m - 2.0m	
2.0m - 2.5m	
2.5m - 3.0m	
3.0m - 3.5m	

- Notes**
- This plan is to be read in conjunction with the associated SGP Completion Report R2469-R01-v2.
 - The residential layout depicted on this plan is extracted from the digital layout '463-PL01 Planning layout revM.dwg' supplied digitally by Barratt Homes.
 - The depth of excavation detailed on this drawing is referenced from the as built surface as detailed on drawing '292-001-01 As built topographic survey and constraints (Sheet 1 of 2)'.

Survey Information:			
Co-ord System:	Co-ord Type:	Primary Survey Control:	Secondary Survey Control:
OSGB36(2)	Grid	Leica SmartNet	Site

Rev	Date	Amendment	Drawn	Checked
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Project:

Waterpark Drive, Knowsley

Title:

Depth of excavation (Sheet 1 of 2)

Scale:	First Issue:	Drawn:	Checked:
1:250 @ A1	23rd May 2018	D.J.Woodrow	J.Verheyden

Drawing No: 292-002-01

APPENDIX A

Photologs

1.



14.11.17 –View of northeast corner of site; vegetation and topsoil strip completed prior to inspection.

2.



14.11.17 –View northwest across site from northern part of southeast boundary; vegetation and topsoil strip completed prior to inspection.

3.



14.11.17 –View west-northwest across site from northern part of southeast boundary; vegetation and topsoil strip completed prior to inspection and small stockpiles of stripped vegetation visible.

4.



14.11.17 –View west across site from north of southeast boundary; vegetation and topsoil strip completed prior to inspection and stockpile of stripped vegetation visible.

5.



14.11.17 –View west across site from centre of southeast boundary; extent of vegetation / topsoil strip and stockpile of stripped vegetation visible.

6.



14.11.17 – View of southernmost part of the site including parts of the southeast and southern boundaries; extent of vegetation / topsoil strip visible.

7.



14.11.17 – Topsoil stockpile positioned long southeast boundary, stripped from northern, greenfield parts of site.

8.



14.11.17 – View south along western boundary.

9.



14.11.17 – View north along western boundary.

10.



14.11.17 – View northeast across site from centre of western boundary.

11.



14.11.17 – View west-northwest from centre of site; small stockpiles of stripped vegetation and recovered hardstanding visible following turnover of made ground soils in area.

12.



14.11.17 – View west from centre of site; electricity substation visible.

13.



14.11.17 – Turnover of made ground soils with excavator in centre-west part of site.

14.



14.11.17 – Turned over made ground soils in centre-west part of site prior to recompaction.

15.



14.11.17 – Digging out of road footprint with excavator along northwest boundary.

16.



23.11.17 – Laid crushed aggregate in road positions in north of site.

17.



23.11.17 – Laid crushed aggregate in road positions in centre-north of site.

18.



23.11.17 - Vegetation and topsoil strip in the northern part of the western section of site completed prior to inspection.

19.



23.11.17 - Vegetation and topsoil strip in the central part of the western section of site.

20.



23.11.17 – Stockpile of hardstanding in centre of site recovered from turnover of made ground soils in central parts of site.

21.



23.11.17 – Stockpile of consolidated stripped vegetation positioned along southeast boundary.

22.



23.11.17 – Construction of electricity substation located along centre of northwest boundary in progress.

23.



30.11.17 – Footprints of roads dug out in central / eastern parts of site (1/3).

24.



30.11.17 – Footprints of roads dug out in central / eastern parts of site (2/3).

25.



30.11.17 – Footprints of roads dug out in central / eastern parts of site (3/3).

26.



30.11.17 – Laying crushed aggregate in road positions in centre of site with excavator.

27.



30.11.17 – Turnover of soils in in centre-south of site with excavator (in far distance).

28.



18.12.17 – Crushed aggregate placed in plot footprints in central/northern parts of the site (1/3).

29.



18.12.17 – Crushed aggregate placed in plot footprints in central/northern parts of the site (2/3).

30.



18.12.17 – Crushed aggregate placed in plot footprints in central/northern parts of the site (3/3).

31.



18.12.17 – Turnover of soils and excavation of peat in the northern part of the western section of site; peat stockpiles visible in background.

32.



18.12.17 – Clay / peat stockpile excavated from the northern part of the western section of site.

33.



15.01.18 – Topsoil / vegetation strip and turnover of soils completed in southern part of site; placed 6F2 aggregate for basal road construction in south east visible in foreground.

34.



15.01.18 – Topsoil / vegetation strip and turnover of soils completed in the central part of the western section of site; placed 6F2 aggregate for basal road construction in south east visible in foreground.

35.



15.01.18 – Topsoil / vegetation strip and turnover of soils completed in in the northern part of the western section of site; peat stockpiles visible.

36.



15.01.18 – Topsoil stockpile in southwest of site.