

Earthworks Strategy Design Statement

and

Materials Management Plan Support Document

**Harbour Place Development
Forty Acre Farm Site
Bedhampton
Hampshire**

Client

BDW Southampton

J16120

March 2020



Project title	Harbour Place Development / Forty Acre Farm Site, Bedhampton, Hampshire		Project ref J16120
Report prepared by	Dominic Brightman BSc MSc DIC FGS CGeol ARSM		
Issue No	Status	Date	Approved for Issue
1	Draft	14 October 2019	
2	Revised Draft	12 November 2019	
3	Revised Draft	18 February 2020	
4	Final	31 March 2020	

This report has been prepared to a defined scope and under the terms and conditions of the contract agreed with the Client. In preparing this report, we have exercised reasonable skill, care and diligence, taking into account the project objectives, the agreed scope of work, prevailing site conditions and the degree of manpower and resources devoted to it in agreement with the Client. Wilson Bailey Partnership Limited accepts no responsibility to any parties whatsoever following the issue of the report for any matters arising outside of the agreed scope of work.

This report is personal and confidential to the Client and may only be relied upon by the Client to whom it is addressed. The benefit of the report or any part may not be assigned by the Client to any third party without the consent of Wilson Bailey Partnership Limited. We accept no responsibility whatsoever to any third parties to whom this report or any part thereof is made known. Any such parties rely upon the report at their own risk.

This report may provide advice based on an interpretation of legislation, guidance notes and codes of practice. Wilson Bailey Partnership Limited does not however provide legal advice and if specific legal advice is required a lawyer should be consulted.

Unless specifically assigned or transferred within the terms of agreement, Wilson Bailey Partnership Limited retains all Copyright, and other Intellectual Property Rights, in and over the Report and its contents.

CONTENTS

1.0	INTRODUCTION	4
1.1	Scope and Context	4
1.2	Register of Involved Parties	4
1.3	Summary of Contractors Responsibilities	5
2.0	GENERAL PLANS AND SCHEMATICS	6
3.0	SCHEMATIC OF MATERIALS MOVEMENT	6
4.0	EARTHWORKS SPECIFICATION FOR PLACEMENT	7
4.1	Definition of Earthworks Suitable Fill	7
4.2	Placement of Earthworks Suitable Fill	7
4.3	Earthworks Testing to Confirm the Suitability of Placed Materials	8
5.0	CHEMICAL SUITABILITY REQUIREMENTS FOR REUSE	9
6.0	LOCAL AUTHORITY INFORMATION	10
7.0	TRACKING SYSTEM	10
8.0	RECORD KEEPING AND DATA MANAGEMENT	11
9.0	VERIFICATION PLAN	11

APPENDIX

1.0 INTRODUCTION

This document is provided to accompany the materials Management Plan that has been produced as part of the CLAIRE Definition of Waste Protocols to facilitate the importation and reuse of Inert excavation arisings as part of a planning consented earthworks that are to form part of a new planning consented residential development that is to be carried out by Barratt David Wilson Homes Southampton as part of the construction of the Harbour Place Development.

This document has been produced to demonstrate that the appropriate lines of evidence required as part of a Materials Management Plan have been suitably marshalled in order to present a comprehensive support document.

1.1 Scope and Context

The requirement for the importation of fill materials has been established by the Civil Engineers as part of a flood risk mitigation strategy and to facilitate the formation of suitable development levels that support a gravity based drainage system.

The volume of the overall volume of the filling exercise required as part of these works has been assessed by the Civil Engineers to be in the region of 80,000m³.

The fill materials are to be sourced from three green field residential development sites that are operated by the developer within the vicinity of the Harbour Place Site. Ground Investigation reports for each site are appended to this document.

1.2 Register of Involved Parties

Developer:
Barratt David Wilson Homes Southampton Tollbar House Tollbar Way Hedge End Southampton SO30 2UH
Contact:
Gary Webster (Technical Director)

Consultant:	Consultant;
Wilson Bailey Partnership Limited Northdown Farmhouse Donhead St Mary Wiltshire SP7 9DD	Rogers Cory Partnership Ltd Architectural & Civil Consultants The Old School Old School Road Hook Hampshire RG27 9NJ
Contact:	Contact:
Dominic Brightman (Chartered Geologist)	Terry Seymour (Engineering Director)

Earthworks Contractor;
Not yet appointed

1.3 Summary of Contractors Responsibilities

It is important that all Contractors are aware of the expected requirements relating to Health, Safety and Welfare. In addition to statutory requirements and standard requirements of working on construction sites, particular attention shall be paid to the following;

- Provision of proper information, instruction, training and supervision of all site workers;
- site workers shall be made aware of the site history and the potential for contaminated soils to be present;
- all equipment, plant, machinery and apparatus shall be in a safe condition and may be used without risk to health; and
- appropriate protective clothing and/or equipment shall be available and shall be used in accordance with the manufacturer's guidelines.

BDW Southampton, Wilson Bailey Partnership and RCP retain the right to stop any operation, or the action at this site if it is considered that there is a hazard to safety and health. In the event of any such action site representatives shall be notified orally and then given confirmation in writing by the duly authorized representative.

The earthworks contractor will be required to import or accept importation of the source fill materials from the identified Donor Sites and to then place these materials on the Receptor site in accordance with the requirements of this document.

Upon importation materials will either need to be directly placed in accordance with the specification under supervision to record the suitability of the materials in accordance with the Tracking System, or placement materials into temporary stockpiles in accordance with the Stockpile Requirements excavate, segregate and appropriately stockpile soils. Separated stockpiles of segregated soils shall be formed within the designated area identified on the appended drawing.

The Earthworks Contractor shall be required to assist with the initial visual identification of any potentially unacceptable soils and to bring them to the attention of Wilson Bailey Partnership.

The earthworks contractor shall be required to identify any unsuitable soils that may be included within the materials imported to site, such as materials with inclusions of topsoil, vegetation or potentially deleterious construction materials. In the unlikely event that any such materials are imported, they shall be segregated and identified immediately to the Wilson Bailey Partnership and all material imports from the Donor Site shall be halted until the source of unsuitable materials has been identified. Any potentially unacceptable soils that are deemed suitable for treatment, such as segregation, to render them acceptable, may be formed into a separate stockpile for additional consideration, with any such additional stockpile clearly identified and separated from any earthwork suitable material stockpiles.

The Earthworks Contractor will also be responsible for all material movements and the procurement of materials and equipment as necessary.

The Earthworks Contractor shall be responsible for the formation and maintenance of any stockpiles of materials that are formed, in order to ensure that any stockpiled materials remain suitable for reuse on site and are not allowed to degrade. Reference to the DEFRA guidance on soil reuse may be of assistance in this regard.

2.0 GENERAL PLANS AND SCHEMATICS

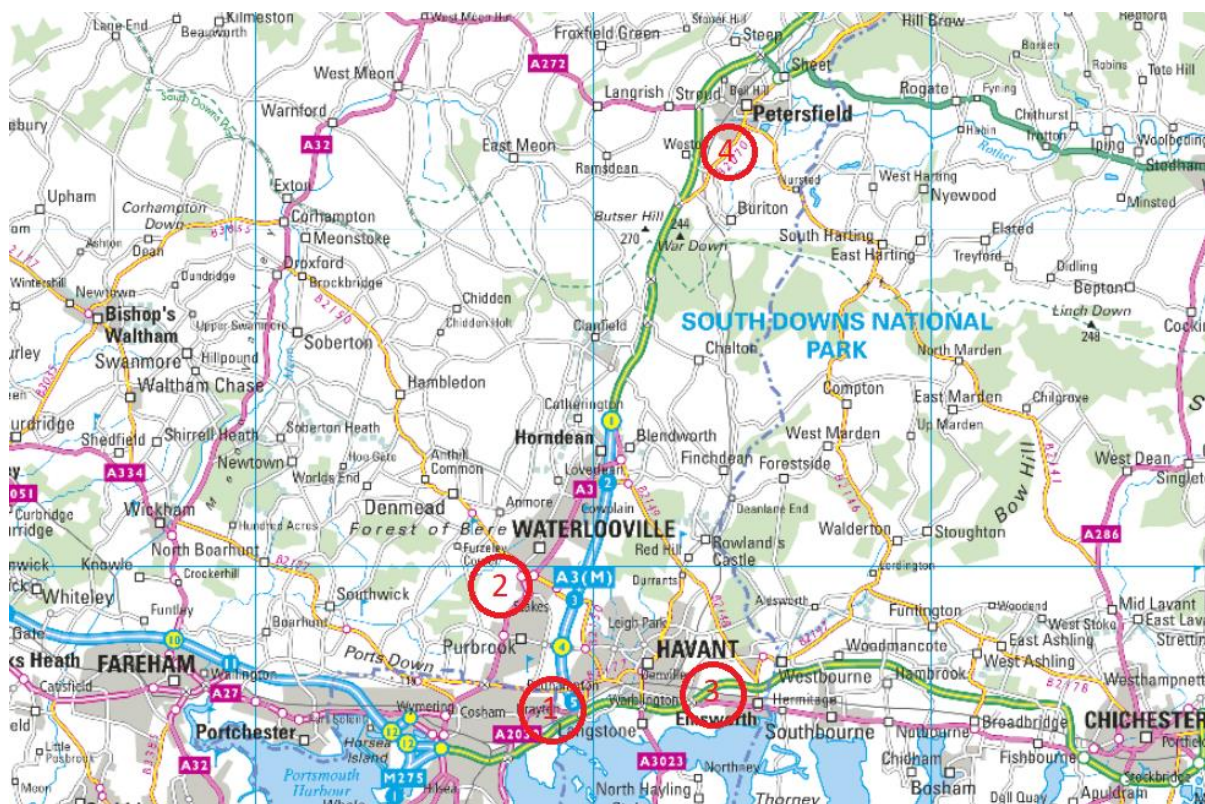
The plan below indicates the locations of the four sites that are considered as part of this materials management plan.

Site No 1 – Harbour Place Development / Forty Acre Farm Site – Receptor Site

Site No 2 – Phase 3b & 8, Berewood Development Site, Waterloooville – Donor Site

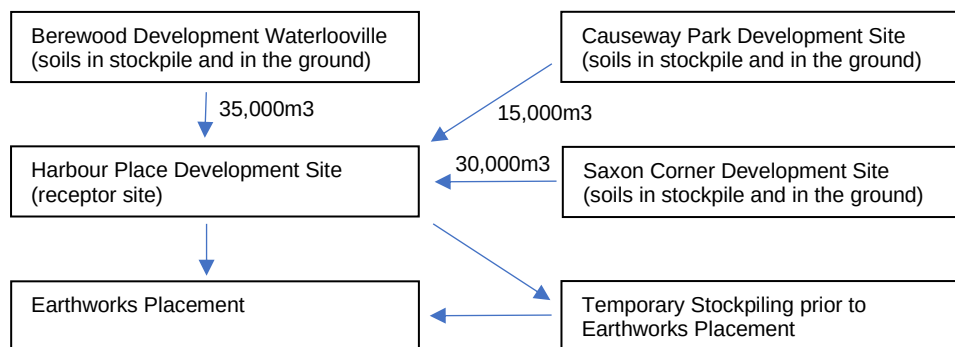
Site No 3 – Saxon Corner Development Site, Emsworth – Donor Site

Site No 4 – Causeway Park Development Site, Petersfield – Donor Site



3.0 SCHEMATIC OF MATERIAL MOVEMENT

Only Inert and Geotechnically suitable sub soils shall be transferred from the Donor Sites to the Receiving Site, there is no requirement for any form of treatment or remediation to render these soils suitable. Estimated volumes available from each donor site are also provided.



4.0 EARTHWORKS SPECIFICATION FOR PLACEMENT

4.1 Definition of Earthworks Suitable Fill

In order to ensure that the development platform is formed in such a way to ensure geotechnical stability and longevity, the earthworks materials are required to comply with the requirement for acceptable materials in accordance with Table 6/1: Acceptable Earthworks Material: Classification and Compaction Requirements of the 'Manual of Contract Documents for Highways Work. Volume 1. Specification for Highways Works. Series 600. Earthworks'.

Importation and placement of Chalk shall not be acceptable as part of the earthworks at this site.

The above referenced document defines the geotechnical suitability and material properties of Earthworks Suitable Fill. Any such soils deemed geotechnically suitable for import and placement at this site will also need to comply with the requirements of Section 5 of this document which sets out the chemical acceptability requirements of materials to be imported and placed as part of the proposed works.

In order to demonstrate the ongoing geotechnical and contaminated land suitability of materials imported from the identified Donor Sites, further testing shall be carried out at a rate of 1 sample per 500m³ per Donor Site with a minimum of three samples per Donor Site.

4.2 Placement of Earthworks Suitable Fill

The placement of the earthworks fill within the areas of designated fill placement is to be carried out by the Earthworks Contractor in accordance with the appropriate combination of roller type, layer thickness and number of passes for the identified Earthworks Suitable Material in accordance with the Specification for Highways Works. Series 600.

It is the responsibility of the contractor to ensure that appropriate plant and equipment is used in accordance with the above placement methodology and written confirmation of the selected combination of plant, layer thickness and number of passes shall be provided to Wilson Bailey Partnership.

Wilson Bailey Partnership shall, from time to time, inspect the placement of materials and confirm the adherence to the confirmed placement methodology.

Cobbles, boulders, rocks or fragments whose largest dimension is greater than two-thirds of the loose layer thickness shall not be incorporated into the Earthworks Material.

Any softened cohesive materials shall be removed and not incorporated into the fill. Potentially deleterious materials shall not be incorporated into the stockpiles.

The Earthworks Contractor shall take all necessary steps to ensure that the fill is placed at the moisture content necessary to achieve the specified level of compaction and shall, where necessary, add water to or dry the fill, in order to obtain this value. Where it is necessary to add water, this shall be done as a fine spray and in such a way that there is time for the water to be absorbed into the fill before being rolled by the plant. The use of additives such as lime as a drying agent shall be permitted.

The Earthworks Contractor shall be responsible for recording the movement of materials either from on site temporary stockpiles or from direct importation from the Donor Site to the location

of placement and confirming that only Earthworks Suitable fill materials are used. The earthwork fill materials shall be inspected on placement.

No fill shall be placed and left uncompacted at the end of the working day. All fill material shall be placed and compacted in layers that shall be graded to a gentle fall to ensure free runoff of rainwater without ponding. At the boundaries of the Earthworks Construction Areas the placement of fill shall be stepped up in layers to ensure the safety and stability of any level changes from filled areas to unfilled areas and ensure a safe working area.

If weather conditions are such that the specified moisture content and density values cannot be achieved, the ground works contractor shall cease work until such time that the fill can be placed, and compaction meets specification requirements.

No placement shall be permitted when the ground is subject to frost, standing water or snow, or where such conditions may be considered imminent.

4.3 Earthworks Testing to Confirm the Suitability of Placed Materials

In order to confirm the suitability and compaction of the placed earthworks materials the following testing shall be carried out; by a suitability qualified and accredited Laboratory Site Technician. The laboratory testing shall be carried out by an independent UKAS accredited soils testing laboratory.

Nuclear Density Meter testing with moisture content measurements and site specific calibration (or Sand Replacement Density test as an alternative option):

Minimum 1 test per layer per 1000 m² of placement.

The location of the testing shall be recorded to an accuracy of not less than 1.00m

Tests shall be performed in accordance with BS1377 Part 9.

Hand Shear Vane

Minimum 1 test per layer per 1000 m² of placement.

The location of the testing shall be recorded to an accuracy of not less than 1.00m

The locations where samples have been recovered and where insitu testing has been carried out shall be recorded to an accuracy of not less than 1m and the locations shall be included on the results sheets or on a separate sheet with clear reference to sample results / testing location references.

Copies of the in situ and laboratory test results shall be sent to the appointed Geotechnical Engineer.

5.0 CHEMICAL SUITABILITY REQUIREMENTS FOR REUSE

In addition to complying with the requirements of the geotechnical suitability of the proposed earthworks materials, it will be necessary to ensure that the soils are chemically suitable. Proposed earthwork suitable materials should be tested at a frequency of 1 sample per 500m³ with a minimum of three samples per site as standard. The results of which shall be assessed with regards to the chemical acceptability criteria proposed for this project as detailed below;

Determinant	Acceptability Criteria (mg/kg)
Asbestos	No quantifiable asbestos
Arsenic (As)	32
Cadmium (Cd)	10
Chromium (hex)	4.3
Chromium (Cr)	910
Copper (Cu)	2330
Lead (Pb)	200
Mercury (Hg)	1.0
Nickel (Ni)	130
Selenium (Se)	350
Zinc (Zn)	3750
Benzo(a)pyrene	1.0
Total Phenols (mono)	420
Aliphatic >C5 - C6	42
Aliphatic >C6 - C8	100
Aliphatic >C8 - C10	27
Aliphatic >C10 - C12	130
Aliphatic >C12 - C16	1100
Aliphatic >C16 - C21	6500
Aliphatic >C21 - C34	6500
Aromatic >C5 - C7	13
Aromatic >C7 - C8	22
Aromatic >C8 - C10	8.6
Aromatic >C10 - C12	13
Aromatic >C12 - C16	23
Aromatic >C16 - C21	46
Aromatic >C21 - C35	370

The above table of proposed acceptability criteria are derived from the most conservative land use assessed as part of the available C4SLs, supplemented with the available S4ULs adopted by the CIEH. The selected values are at or below the published values. Laboratory testing for the presence of contaminants shall be carried out at an independent MCRETS and UKAS accredited specialist soils testing laboratory.

6.0 LOCAL AUTHORITY INFORMATION

Havant Borough Council have confirmed support for the scheme through provision of a Resolution to Grant the Planning Application.

Preliminary planning conditions have been issued by Havant Borough Council and these include a requirement for the provision of a Materials Management Plan which will require submission to the Local Authority for approval.

We have held preliminary discussions with Havant Borough Council Contaminated Land Officer in support of the proposals.

Contact Details for Havant Borough Council Contaminated Land Officer

Jonathan Driver - Environmental Control Officer

Havant Borough Council Environmental Health, Public Service Plaza, Civic Centre Road,
Havant, Hants PO9 2AX

Tel (Direct Dial): 023 9244 6677

Tel (Team Admin): 023 9244 6670

Email: jonathan.driver@havant.gov.uk

Planning Reference Number: APP/18/00450

Site Address: Land at Forty Acres Farm, Havant Road, Havant

Description: Erection of 320 dwellings (including a 30% provision of affordable homes), 66 bed care home, provision of public open space, habitat mitigation zone, allotments, closure of existing access and creation of 2 new access points and associated infrastructure following demolition of existing buildings. (Approved by Havant Borough Council on 17.1.2020).

7.0 TRACKING SYSTEM

A tracking system is required in order to demonstrate that the soils imported to site have only come from the identified Donor Sites and that the imported materials are suitable for the proposed use.

In order to demonstrate that imported materials come only from the identified Donor Sites, each and every lorry load of imported soil will need to arrive on site with a tracking sheet. A copy of the tracking sheet is included within the appendix to this report. The first half of the tracking sheets requires completion prior to leaving the Donor Site, with the second half of the sheet completed upon arrival and inspection at the Receptor Site.

In order to confirm suitability for reuse, any excavated materials will also be required to demonstrate compliance with the adopted soil screening values with regards to soil contamination and geotechnical properties. An entry on the Sample Control Sheet will be required for each and every soil sample. A copy of the Sample Control Sheet is appended.

The acceptability criteria are proposed to provide an initial screen, should soils fail, it does not necessarily mean that they are contaminated and cannot be used. Failure of the adopted criteria indicates a requirement for further assessment of these soils to determine appropriate actions.

Soil sampling is to be carried out for the presence of soil contamination shall be carried out on the basis of one sample per layer per 100m by 100m grid square of placed material, with the location of the soil sampling recorded to an accuracy of not less than 1m.

Should soils identified as potentially contaminated or unsuitable soils be encountered importation from the relevant Donor Site shall be halted and additional soil sampling carried out by Wilson Bailey Partnership on both the imported and placed materials and at the Donor Site to determine the source of the unsuitable or contaminated materials. In the albeit unlikely occurrence of this event, the regime of tracking may be altered for the relevant Donor Site with an increased regime of inspection and testing and potentially quarantined stockpiling and testing of future imports.

8.0 RISK ASSESSMENT FOR PLACEMENT AT RECEPTOR SITE

A qualitative risk assessment has been carried out to determine whether the placement of the proposed Inert imported fill could pose an unacceptable risk to groundwater, human health and the wider environment at the Receptor Site.

The Receptor Site is to be developed through the construction of a residential housing development and the Chemical Acceptability Criteria have been established on the basis of this sensitive end use. Providing the imported Inert soil also comply with the requirements of the acceptability criteria, an unacceptable risk to Human Health is not anticipated to occur.

The existing ground conditions at the Receptor Site comprise Topsoil over Brickearth Clay overlying Upper Chalk. The topsoil will be removed prior to earthworks commencement and the placement of the imported fill will be upon the upper layers of the residual Brickearth Clay.

The chalk beneath the site is classified as a Principal Aquifer although the site is not located within any class of source protection zone associated with licensed groundwater abstraction. The site is also located within a tidal flooding zone, which forms part of the requirement to raise ground levels as part of the consented residential development.

Where imported fill is to be placed on site, it will be placed over the existing Brickearth Clay capping that has been identified overlying the Upper Chalk below such that the placement of Inert fill with chemical properties in compliance with the acceptability criteria are not anticipated to present an unacceptable risk to groundwater or the wider environment.

9.0 DESIGN STATEMENT SUMMARY

As the import of earthworks suitable fill materials complying with the requirements of the Chemical Acceptability Criteria established for this site will not require any remediation works due to the absence of elevated concentrations of potential chemicals of concern, a Remediation Strategy is not required.

This Design Statement is evidenced by the appended reports that demonstrate the absence of contamination and the information contained within this document to demonstrate proposals for testing, segregation, placement and verification of the imported soils and earthworks.

10.0 VERIFICATION PLAN SCOPE OF WORKS

Wilson Bailey Partnership shall be responsible for the auditing of the earthworks operations leading to the provision of a Materials Management Plan Verification Report. that shall include records and test results detailed in Section 8.0 obtained as part of the tracking procedures outlined in Section 7.0.

It is anticipated that the Verification Report will be available late October 2020 following anticipated commencement of earthworks placement in March 2020.

A site manager on the receiving site shall provide daily supervision of the works and will be responsible for ensuring that the works are carried out in accordance with the Materials Management Plan and the Earthworks Strategy.

The Verification Plan shall include the following information

Introduction

Site Works Log

- Site Diary will cover the following;
- Movement of material stockpiled on site;
- Placement of material;
- Records of any testing undertaken as required by earthworks specification;
- Records of any loads rejected due to unsuitability - where these will be stockpiled and where they will be relocated to;
- Photographic record of material placement;

Verification

- Confirmation of soil quality and suitability for use as specified in Earthworks Specification;
- Performance testing of made ground following placement to prove suitability for use;
- Photographic record of fill layers as they are placed.

Recommendations

- Aftercare;
- Project Management;
- Visual inspection;

Conclusions

- Confirmation of completion of the earthworks on the receiving site in accordance with the consented development plans.

On the basis of the above information Wilson Bailey Partnership shall provide a clear and concise statement to confirm the material classification of the soils that have been relocated under this Materials Management Plan.

APPENDIX

Ground Investigation Report for Phase 3b & 8, Berewood Development Site, Waterloo
Ground Investigation Report for Saxon Corner Development Site, Emsworth
Ground Investigation Report for Causeway Park Development Site, Petersfield

Soil geotechnical and contaminated land testing from donor sites

Receiving Site Development Plans

Imported Materials Lorry Tracking Sheet

On-site Soil Sampling Control Sheet