

FORMER BISON CONCRETE PLANT, SWADLINCOTE

TECHNICAL SPECIFICATION FOR DEMOLITION OF BUILDINGS

SEPTEMBER 2021



FAIRHURST

CONTROL SHEET

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1. PART 1 INTRODUCTION

General

The Works comprise the demolition of the site of two production buildings, all associated temporary buildings and external areas. The site is located in Tetron Point, Swadlincote with access gained via a roundabout on William Nadin Way.

The site was formerly used to manufacture precast concrete products for the construction industry, and various chemicals were stored for use in the processes. The Contractor should ensure that he has fully assessed the potential Health and Safety implications of the former use. The existing site layout & extent of the Works and the boundary to the site is indicated on PHP Architects drawing numbers XXXXX whilst an existing topographical survey, is included within the tender package. Below ground services have not been surveyed by the Client but a selection of existing record drawings are available. The contractor must take his own steps to ensure the adequacy of these drawings and any surveys.

Any restrictions on access to areas of the site will be clarified within the Invitation to Tender documents.

The buildings are to be demolished down to underside of the ground floor structural slab levels and all existing foundations are to be broken out in full and the resulting void backfilled with a compacted engineered fill as noted in this specification. All external slabs are to be broken out and crushed for re-use as described within this Specification.

It is envisaged that all concrete will be crushed to either 6F2 or Type 1, and the contractor's particular attention is drawn to the need for early sampling and testing of the material to inform the Client, well in advance of completion.

The site area is self contained with access only to be gained from the main entrance located at the North East corner of the site.

The Contractor should satisfy himself as to the accessibility of the site, full extent and character of the site, the availability of supplies of water, gas and electricity for temporary lighting and power, and of other services required in the execution of the Works, and of all local conditions and restrictions.

The Contractor is advised to satisfy himself as to the full extent and character of the Works, the supply of and conditions affecting labour and the conditions affecting the supply of materials and all local conditions and restrictions affecting the Works.

The Contractor should also understand that surrounding buildings may impose limitations to the Contractor's method of working. The Contractor's method of

working must fully respect the presence of all adjoining occupants and ensure that their ability to continue their trade is not disrupted at any time.

The Contractor's attention is drawn to the possible presence of materials containing asbestos on the site, including the potential presence of bulk or fibrous asbestos within Made Ground. A demolition asbestos survey will be carried out to the buildings and will be issued to the demolition Contractor during the tender period. As the buildings date from 2002, it is considered less likely that any asbestos will be found within the buildings, but may exist. The Contractor should not carry out any demolition work prior to removal of any asbestos found. Method statements for Asbestos removal to the works should be issued to both the Contract Administrator and the Local Environmental Health Department. The Contractor should include for taking all precautions and complying with all recommendations, regulations and statutes in connection with hazardous materials. Works are to be undertaken in compliance with the Control of Asbestos Regulations 2012.

The Contractor's attention is drawn to the possible presence of contamination in the ground as noted in the historic ground investigation reports. A new investigation will be progressed during the tender period, and a Preliminary Risk Assessment is available. The Contractor must include for protective measures, in accordance with current regulations, to protect his operatives when working in close proximity to any contaminated material. Should the Contractor encounter any suspect contaminated material on site, he must immediately make the local area safe and inform the CA and arrange that the material can be inspected, tested and recommendations be made for remedial measures.

The amount of noise made on the Works is to be kept to a minimum. Generators, compressors and other noisy plant are to be muffled at all times by means of silencers, screens and the like. The Contractor shall comply with all requirements of the Local Authority in respect of working hours and restrictions and is deemed to have taken these into account in his tender and programme.

The amount of dust generated by the Works is to be kept to an absolute minimum. Demolitions are to be thoroughly damped down at all times. Attention is drawn to the possibility of operational air conditioning plant existing on nearby buildings and measures should be included in the costs and actioned on site to protect this plant from all forms of damage including that caused by dust.

The Contractor's attention is drawn to the Control of Pollution Act 1974 including any amendments/updates related to the Act with particular reference to the provision of Parts II and III of the Act.

The Contractor shall comply with the Construction Design & Management Regulations (2015) in all respects. An F10 notice will require to be served to the local department of the HSE.

No access to adjacent buildings will be permitted.

The Contractor is to inspect, repair and retain existing fencing around the site and provide additional fencing where none exists at present or is in poor condition. The fencing is to provide protection to the adjacent areas during demolition of the site buildings and surrounding area. The Contractor is to review the locations of fencing and confirm that sufficient working space for the demolition works will be provided. The Contractor is to advise, in writing, if this is not possible. On completion of the demolition works, the fencing shall be left in a condition sufficient to maintain the security of the site.

All demolition to be carried out from within the contractor's site unless agreed otherwise in writing.

All Contractor's plant and equipment to be located within the contractors site boundary. No vehicular access is permitted to the adjacent Properties.

Prior to start on site, any incoming connections to the building are to be isolated. The Contractor is to include for liaison with the CA and the relevant utilities in relation to the disconnection of services.

The Contractor is to take note that no demolition is to take place until a detailed method statement for the works has been submitted and formally approved by the CA.

The contractor shall include for daily liaison with any Security if and as required.

The Contractor shall submit the following:

- a) A Method Statement for the Works to include a marked up plan noting demolition sequencing, intended method of demolition of roof structure, floor slabs, walls, frames, ground slabs followed by breaking out of foundations and filling back to underside of slab level.
- b) A Programme for the Works.
- c) Evidence of his suitability to act as Principal Contractor as defined by the Construction Design & Management Regulations 2015.
- d) Any queries or clarification of information contained in the tender documents and any assumptions made in the preparation of the tender.

All Contractor's site staff responsible for supervision and control of demolition shall be experienced & competent in this type of work.

All demolition plant shall be:

- a) Of suitable types and standards for the location and type of work.
- b) In the charge of competent operators.
- c) Maintained in good and efficient working condition.

All structures and services to be retained on the site and any adjoining property or services visible and liable to be affected by demolition shall be examined by

the Contractor and their condition recorded before demolition commences. Any existing cracks or other evidence of damage shall be notified to the Supervising Officer. Sketches, photographs and measurements shall be taken to record the extent of any damage and “tell-tales” shall be fixed where instructed.

The Demolition Contractor shall keep an accurate record, clearly marked on a site plan of the positions at which all underground electric cables, water and gas mains leave the site and also the actual point at which each service has been cut or stopped off by the Authority concerned so that the state (i.e. disused or in use) of the services which may be exposed by future excavations can be ascertained.

It is the intention that private drainage runs, exclusively servicing the buildings to be demolished shall be removed upon demolition of the buildings and ground slabs & existing surface drainage to yard areas shall be removed further to break up of the associated hardstanding areas. Drainage to the perimeter of the site shall remain in place for review and consideration for re-use. The scope of drainage to be retained shall be agreed in writing prior to commencement of the demolition works.

Attention is drawn to the presence of adopted sewers passing beneath the site which must be located, marked, protected as necessary and retained throughout the works.

Manholes, gullies and existing drainage pipes still in-use shall be adequately protected from damage at all times. Where existing drainage pipes have been exposed as a result of the demolition or removal of redundant connections from pipes still in use, the exposed pipe shall be protected as instructed by the CA prior to backfilling and compaction of infill materials. Any damage caused by the execution of the Works shall be made good in accordance with the Supervising Officer's instructions.

It is the intention that all incoming and outgoing services to the site shall be stopped off inside the site boundary, to current regulations, and locations shall be protected and marked on site and recorded on plans. Any utility services crossing the site and serving other users shall be protected and remain in place until confirmation is obtained that these are no longer required. Feeds to existing substations shall be protected and remain in place subject to further review.

The Contractor shall provide and maintain all requisite fans, screens, casings, tarpaulins, dust sheets, barriers and notices. He shall take any other measures necessary for the protection from damage, dust and adverse weather conditions of any structures or services and for the protection from injury of the public generally. He shall alter and adapt as necessary, clear away when no longer required and make good any damage. He shall keep dust to a minimum by spraying the demolition works with water as necessary, where safe to do so.

The Contractor shall take all precautions to prevent the risk of fire and fire-fighting equipment is to be provided on site at all times & maintained.

The Contractor is to arrange to carry out the Works so as to cause no interference or interruption to the use of the adjacent properties including roads, footpaths and other access.

The Contractor shall give notice prior to commencing demolition to as listed below, but not necessarily limited to:

- The Local Authority Highways Department;
- The Local Authority Petroleum Officer;
- The Building Control Officer;
- The Health and Safety Executive;
- All statutory undertakers and those responsible for other installations.

All demolition work practices and procedures must conform to the requirements of the Health and Safety at Work Act 1974 and any subsequent amendments and with the requirements and recommendations of the Health & Safety Executive and the Construction Design & Management Regulations. The Contractor shall be the Principal Contractor for the demolition contract as defined in the CDM regulations and must provide evidence to the Employer of his competence to fulfil this role.

Demolition work practices and procedures must conform to any special Local Authority regulations or requirements and to any conditions imposed under the terms of the Demolition Warrant.

The Contractor shall provide and maintain all shoring and strutting necessary to ensure the safety of any structures and services. He shall alter, adapt as necessary, clear away when no longer required and make good any damage.

The Contractor shall be responsible for ensuring that all shores and struts employed are sound, of adequate strength for the purpose used and properly braced, secured and maintained.

The Contractor shall provide calculations for any temporary Works which he considers necessary to deploy in the course of the demolition. The Contractor shall retain the overall responsibility for the design of the temporary works and ensuring that no damage results to existing structures which could in anyway affect their future usage.

When carrying out demolition against any structures and services to be retained on site and any adjoining property and services, the Contractor shall leave adequate support and protection at each stage and shall not proceed from one stage to the next, until such support and protection has been provided and approval of the Supervising Officer has been obtained.

During demolition the Contractor shall ensure that the support to adjoining structures, if required, is not removed or disturbed.

In the event that parts of existing structures are required to be retained, the retained area of the structure shall be adequately protected. Those areas to be cut away and stripped out shall be done so with due care and attention, and reduce the amount of making good to a minimum.

The Contractor shall be responsible for upholding adjoining roads and footpaths, maintaining these in a good and clean condition. He shall provide all necessary protection to the general public using footpaths and roadways adjoining the site.

Fire exits or fire escape routes from adjoining properties shall be maintained at all times and under no circumstances shall these be stopped off or impede the access to and from these properties. Escape routes immediately adjacent to the Works shall be adequately protected to maintain safe access to the general public. Details of any such protection is to be agreed with the tenant of the adjacent property prior to commencement.

On no account shall any timber and rubbish arising from demolition Works be burnt on site.

The Contractor shall prevent debris from overloading any part of the structures.

The Contractor shall take precautions to prevent fire or explosion caused by gas or vapour.

The Contractor shall comply with any notices which may be served upon him or upon the Employer by any Local Authority under Sections 60 and 61 of the Control of Pollution Act 1974 (hereinafter in this clause referred to as "the said Act") or under Section 68 of the said Act in relation to the period prior to practical completion.

The Contractor shall make all applications and obtain all such consents as are required under Sections 60 and 61 of the said Act. The Contractor shall comply with all or any conditions or limitations that may be imposed on the granting of such consents.

If the Contractor shall be guilty of any offence under Sections 60 and 61 aforesaid, the Contractor shall himself pay all fines imposed by the Court or Courts by which he has been convicted, and shall not be entitled to be indemnified by the Employer in respect of any such fines.

The Contractor shall inform the CA in writing of any contravention of Sections 60 and 61 of the said Act whether by himself, his servants or agents or by his sub-contractors, or suppliers, their servants and agents, within three days of any such contravention. The CA shall have power thereupon or upon the said contravention coming to his notice to issue such instructions as he may think fit to abate, avoid or halt any such contravention and the Contractor shall comply with such instructions at his own cost.

The Contractor shall not be entitled to reimbursement by the Employer of any costs, damage, loss or expense to which the Contractor has been or may be put which has been occasioned or caused directly or indirectly by compliance with any such notice, consent, limit or condition or instruction as aforementioned. The Contractor shall not be entitled to extension of time for delays caused by such compliance.

Without prejudice to his duty to comply with the Control of Pollution Act 1974 the Contractor is to allow for complying with the Control of Noise (Code of Practice for Construction and Open Sites) Order 2015 along with the Local Building Control requirements in relation to Control and Pollution & Noise from Demolition & Construction sites and for indemnifying the Employer against any claim or fine.

The Contractor shall take measures to prevent excessive noise, all in accordance with BS 5228. In addition, hand held pneumatic breakers shall meet EC legislation on noise levels. Excavators, Dozers and Loaders shall meet the noise limits specified in European Directive 86/662/EEC.

Hours of working shall be in accordance with the requirements of the Local Authority and on no account shall operation be carried out overnight between 18:00 hours and 08:00 hours or at weekends without prior approval of the CA and Local Authority in writing.

The Contractor shall provide the CA with a record drawing in reproducible form showing the level, size, position and contents where appropriate of any abandoned services, foundations, underground chambers, vaults, wells, storage tanks or any other underground Works discovered during demolition.

Except where otherwise specified, materials arising from the demolition shall become the property of the Contractor and shall be cleared away as the work proceeds. The Contractor shall ensure that all surplus materials and rubbish arising from the demolition is transported off site to an appropriate registered disposal facility. The Contractor shall submit written confirmation to this effect.

Where and if certain materials arising from the demolition are to remain the property of the Employer they are to be carefully dismantled to avoid damage and such materials are to be stacked on site where directed by the CA. The Contractor shall be responsible for the salvage operations and for the safe custody of the salvaged materials under their removal by the Employer or until the end of the Contract whichever is the earlier.

Where shown on the drawings, old buildings, structures and superficial obstruction shall be demolished, broken up and disposed of. They shall be demolished by a method and in a sequence of stages which have been reviewed by the CA. The Contractor shall prepare drawings and calculations as necessary and submit them to the CA for his review giving him adequate opportunity for interpretation and comment.

Where underground chambers, wells, etc., are discovered these shall be reported to the CA and no action shall be taken pending his instructions unless required for Health & Safety reasons.

Where underground structures are to be filled-in these will be inspected by the CA before filling commences. Voids are to be filled with suitable granular engineered fill (Class 6F2, SHW 600 or Class 1A materials with gradings to suit 6F2 requirements), subject to the location, extent of fill & existing ground conditions & placed and compacted to Table 6/4 and series 600 of the DoT Specification for Highway Works. This shall include, inter alia, all voids created by the removal of foundations, pits, tanks, services, drainage etc. The fill material can be suitably tested site won material compliant with this Specification. Any infill materials shall be suitably benched into surrounding ground.

The CA is to be advised of all articles of value or of antiquarian or archaeological interest which may be found or exposed on the site and these are to be adequately protected awaiting instruction from the CA.

The latest editions of the following British Standards and Codes of Practice referred to below together with all current amendments and additions shall be referred to by the Demolition Contractor;

BS 5228:2009: Parts 1 and 2 Code of Practice for Noise Control on
Construction and Demolition Sites

BS EN 1991-1-1: 2002 & BS EN 1991-1-7: 2006 + A1 2014
Loading on buildings

BS 6187: 2011 Demolition

BS 8000: Workmanship on Construction Sites

BS 5975: 2008 + A1: 2011 Code Of Practice For Temporary Works

BS 8004: 2015+A1: 2020 Code Of Practice For Foundations

BS 6031: 2009: Code of Practice for Earthworks

All technical queries by the Contractor shall be submitted to the Supervising Officer on a Technical Query Sheet. Any additional information related to the query may be referred to on and attached to the sheet.

All suitable material (concrete, brick and stone) shall be crushed on site to form 6F2 (SHW, Series 600) material. The Contractor shall include within his price for crushing suitable concrete material to DMRB Type 1, subject to sampling and testing to show compliance. He should state in his tender minimum anticipated volumes of 6F2 and Type 1 to be provided. It is anticipated that All crushed materials are to be in accordance with the grading specified within the

Specification for Highway Works and free of deleterious materials. Stockpiles are to be left on site and free of asbestos, in locations to be agreed with the CA. Differing materials shall be separated and stored in different stockpiles. Certificates of the grade of crush to be provided to the Client Representative. All steel is to be separated on site and recycled. All material shall be tested and certified by a UKAS accredited laboratory at the Contractors expense prior to backfilling of voids, basements, pits, etc. All non-suitable material shall be taken from site to a registered waste disposal facility. All materials arising from the site clearance which are not required for use in the Permanent Works shall become the property of the Contractor and shall be disposed of by him.

The Contractor shall submit a licence for the concrete crusher to the Local Authority Environmental Health Department to check with compliance prior to commencement of demolition works. The crusher must be operated in accordance with the licence to ensure no nuisance is caused.

The Contractor must include for a trial crush of concrete to assess whether the material is likely to be capable of meeting the requirements of this Specification for Type 1 material. This should include frost resistance testing which are known to be longer duration tests and three suites of trial tests will be carried out which are additional to the specified number of tests included within the Specification. These trials shall be carried out within four weeks of access being provided on site, by the CA.

The stripping of all topsoil from soft landscaped areas. All topsoil arising from site clearance shall be retained on site.

A grid of levels shall be taken upon completion. Site demolition areas to be left level with surrounding ground level. Stock piles of differing materials shall be surveyed to allow accurate volumes to be assessed.

The Contractor shall provide proposals for salvage and re-use of building materials and simultaneously shall comply with the requirements of the Institute of Civil Engineers' (ICE) Demolition Protocol. The Contractor shall provide an index of recycled materials to the Client's Representative.

The Contractor is allowed to salvage any materials from the above ground demolition works and this should be considered in the final contract sum.

Excavate, remove and crush all existing below ground structures, foundations, service roads / yards, car parks, kerbs, footpaths and the like, manholes, chambers, underground storage tanks / swimming pools and redundant drains up to the point of the public sewers. The excavation of below ground structures is to include any associated made ground, sub-base and hardcore, that is necessary to be removed, but all steps should be taken to minimise this. The Contractor is to ensure that any reinforcement or steel mesh from the arisings is removed.

The Contractor shall suitably fill and compact any pits or openings in the ground as a result of the demolition works to match the remaining site levels.

Any existing manholes covers to be retained shall be left bedded and in place with any loose manhole covers to be reset.

All stockpiles onsite to be sited to prevent nuisance to neighbours and covered in Geotextile or similar membrane to prevent dust.

The Contractor shall give a minimum of 48 hours notice to the Local Authority prior to the disconnection, sealing and removal of any sewers or drains.

The Contractor shall give a minimum of 24 hours notice to the Local Authority prior to backfilling the voids caused as a result of removing any sewers or drains.

The Contractor shall locate and identify all services and utility connections on site by means of clear identification. These markers are to remain after completion of the contract.

The Contractor shall install and maintain as necessary all temporary drainage facilities to ensure the Site, the Works, the adjacent land and existing facilities are adequately drained during the course of the Works.

The mains electrical supply into the building is to be checked that it has been isolated prior to commencement.

REQUIREMENTS FOR ACCEPTIBILITY & TESTING ETC OF CRUSHED MATERIALS

(Clause References to 'Specification for Highway Works Volume 1)

The testing required for Type 1 materials is described in the table below which is adapted from Table 8/2, Series 800.

Clause	Work, Goods or Material	Test	Frequency of Testing	Comments
803	Type 1	Grading	1 per 1000m ³ (min 3 per source)	Material should also adhere to Clause 710 (Series 800)
		Plastic index	1 per 1000m ³ (min 3 per source)	
		Water absorption	1 per 1000m ³ (min 3 per source)	
		Sulphate	1 per 1000m ³ (min 3 per source)	
		Freeze Thaw Resistance (magnesium sulphate soundness)	1 per 1000m ³ (min 3 per source)	
		Resistance to fragmentation (Los Angeles test)	1 per 1000m ³ (min 3 per source)	
		Frost Heave	1 per 1500m ³ (min 3 per source)	
		CBR (remoulded)	1 per 1000m ³ (min 3 per source)	
		Asbestos Screen	1 per 500m ³ (min 3 per source)	

The testing required for 6F2 materials is described in the table below:

Clause	Work, Goods or Material	Test	Frequency of Testing	Comments
613	6F2 Any material or combination of materials (other than colliery spoil, argillaceous rock or chalk). Recycled aggregate, additional restrictions as defined in SHW Table 6/1.	Grading (Tab 6/2, SHW 600)	1 per 1000m ³ (min 3 per source)	Material should also adhere to all relevant clauses, tables and Appendices of Series 600, including grading and compaction requirements.
		OMC	1 per 1000m ³ (min 3 per source)	
		Moisture Content (+/- OMC 2%)	1 per 1000m ³ (min 3 per source)	
		Sulphate	1 per 1000m ³ (min 3 per source)	
		Los Angeles coefficient (UL = 50)	1 per 1000m ³ (min 3 per source)	
		Class Ra (ashphalt) (UL = 50%)	1 per 1000m ³ (min 3 per source)	
		Bitumen Content (UL = 2%)	1 per 1500m ³ (min 3 per source)	
		Asbestos Screen	1 per 500m ³ (min 3 per source)	

No material is anticipated to be imported.

Secondary Aggregate – Chemical laboratory testing of secondary aggregate is not practically achievable. However, such materials must be validated to be free of gross contamination and / or deleterious. Testing suites dependent on the source and characteristics of the material may be required, all aggregate must be tested for asbestos. Where a positive asbestos identification is made, quantification of asbestos should be undertaken. All results are to be provided to the CA prior to completion of the works.

Soils – Any non aggregate materials, including Made Ground or soft landscaping materials, should be tested at 1 per 500m³ and minimum of 3 No. per source for concentrations of the following determinants; Copper, Nickel, Zinc, Arsenic, Cadmium, Chromium III and Chromium VI, Lead, Iron, Mercury, Nickel, Selenium, Vanadium, Cyanide. pH, Sulphate, PAH (USEPA 16), Total Phenol, Total Petroleum Hydrocarbons (CWG Speciated) and Volatile Organic Compounds. In addition, an asbestos identification test shall be carried out for each soil test and, where asbestos is identified, quantification of the asbestos.

The CA reserves the right to ask for additional sampling and testing, including leachate analysis depending on the results of laboratory results provided.

Copies of all test results shall be forwarded to the CA prior to the materials being accepted by the Client's Representative.

RETENTION OF MATERIAL ARISING FROM SITE CLEARANCE

Description	Location	Requirement
Concrete material. NB. No plaster, wood, organics, polythene sheets, compressible materials or other deleterious matter.	Arising from excavation demolition areas.	The Contractor shall crush and grade the material and store in stockpiles (no more than 2m high) on site as agreed with the Client's Representative. All crushed materials are to be placed in clearly separate defined storage areas (different from bituminous, brick and masonry) on prepared clean free draining surface in agreed areas with the Client's Representative. Records of the quantities of and certificates of grade of crush of each material are to be forwarded to the Client's Representative.
Brick and Masonry material. NB. No plaster, wood, organics, polythene sheets, compressible materials or other deleterious matter.	Arising from and in all excavation demolition areas.	The Contractor shall crush and grade the material and store in stockpiles (no more than 2m high) on site as agreed with the Client's Representative. All crushed materials are to be placed in clearly separate defined storage areas (different from bituminous and concrete) on prepared clean free draining surface in agreed areas with the Client's Representative. Records of the quantities of and certificates of grade of crush of each material are to be forwarded to the Client's Representative.

The Contractor shall provide crushing facilities to crush to Type 1 in quantities to be specified by the Client's Representative. All crushed materials are to be in accordance with the grading specified within the Specification for Highway Works and WRAP protocol.

The Contractor shall provide proposals for salvage and re-use of building materials and simultaneously shall comply with the requirements of the Institution of Civil Engineers' (ICE) Demolition Protocol. The successful contractor shall provide an index of recycled materials to both the BREEAM assessor and the CA.

REQUIREMENTS FOR DEALING WITH CLASS U2 UNACCEPTABLE MATERIAL

If materials are encountered which are suspected to be contaminated (based on visual or other sensory assessment), the CA shall be immediately notified.

The criteria for materials to be classified as U2 will be the Environment Agency Interim Guidance on the disposal of 'Contaminated soils', 2nd Edition (1/5/97), Series 600 SHW and Hazardous Waste (England Wales) Regulations.

The Contractor shall undertake testing of the material and submit written proposals for remediation or disposal of the Class U2 material with the test results to the CA for review prior to undertaking any remediation. The Contractor shall be responsible for the disposal or remediation of Class U2 unacceptable material.

No suspected Class U2 material shall be removed from Site without instruction from the Client's Representative.

If any material is determined to be Class U2 material then it is required to be treated to render it suitable. If no suitable treatment method is possible, the material is required to be removed offsite to a suitable waste management facility. The Contractor shall be responsible for obtaining all necessary licenses, permits and consents for these processes (e.g. Mobile Plant Licenses and Exemptions). Where practical and safe, perishable material, such as timbers or vegetative matter, shall be handpicked from the stockpile and disposed of to a suitable licensed off site receptor.

Material which is not capable of being compacted (either as excavated or following processing) to the required Target End Product Compaction including particles in excess of 250mm size (or lesser size as defined in paragraph 2.4) together with all vegetable, perishable or contaminated material or with >30% glass shall be classed as unacceptable.

Chemically unacceptable material may not be made acceptable by means of mixing with acceptable material.

The Contractor to undertake and provide pre-commencement / post completion condition surveys and produce a condition schedule with photographs of all existing boundaries with adjoining land/ tenancies. To also include a condition schedule of any existing defects to retained site areas, boundary fencing,

pavements adjacent to the site, roads adjacent to the site and any other structures around the site. Contractor to notify Client's Representative of date for condition surveys in order that they can attend if required.

The Contractor shall provide "Demolition Record" drawings (As Built) including and indicating the following information:

- A 3D Topographical Survey of the site with a 20m grid of levels post demolition;
- Building structures demolished and removed from site;
- Termination point of the services to the buildings / structures demolished;
- Location of voids (due to removal of foundations), basements and pipe trenches backfilled with material and the depth of infill;
- Type, location, depth and route of any services that have been located whilst undertaking the demolition works;
- Location, depth and size of piles and any other foundations that are not removed;
- Location of the area where the crushed material is stored and its volume.
- "Demolition Record" drawings shall be produced by the Contractor. Off-sets of cables and associated ducting shall be recorded at 5.0m intervals along their line;
- PDF's of the drawings shall be supplied to the Client's Representative within two weeks of the date of issue of the Certificate of Completion for the works.

It is known that underground fuel infrastructure, including underground fuel storage tanks, fuel interceptors or pipework, exist and the following procedures should be adopted:

- The Local Authority Petroleum Officer should be contacted and notified of the intention to remove fuel infrastructure and an outline strategy shall be agreed.
- Guidance PPG27 should be consulted and a Risk Assessment and Method Statement prepared by the Principal Contractor (or their suitably qualified sub-contractors) describing how the infrastructure is to be inspected in relation to confirming its integrity, gas safety, and whether the tank/pipework contains any fuel/liquid or gaseous residues;
- Once the tank has been confirmed as gas free, the tank can be opened for inspection. Liquids and sediments identified within the features shall be sampled and tested to identify the nature of the materials to enable appropriate disposal;
- Any liquid contents should be removed direct to tanker for offsite disposal by an appropriately licensed waste carrier;
- All associated pipelines shall be traced, made non-functional/decommissioned, and where necessary removed from site;

- Prior to dismantling and disposal from the site, all features should be made inert;
- A photographic record of the decommissioning works should be taken by the Contractor, with photos of the features, associated infrastructure and underlying ground surface (on removal of the features) taken both pre and post decommissioning;
- On making the features non-operation and/or removal of the features, visual inspection of the soils surrounding the tanks shall be undertaken by a suitably qualified Geo-Environmental Engineer and Contractor to identify the presence of visual/olfactory evidence of hydrocarbon contamination. These inspections are to be recorded and included in the validation report. Should contaminated material be identified they will initially be delineated, and the excavation extended laterally and vertically, by visual and/or olfactory observations such that remaining soils exhibit only minor hydrocarbon sheen;
- In respect to the removal of the tank contents/infrastructure itself and any surrounding impacted soil, a bunded area incorporating Visqueen sheeting should be formed to allow the excavated materials to be placed at ground level without presenting a risk of run-off or cross contamination of surrounding/underlying ground. The materials should also be covered with a suitable membrane to protect them from the elements and reduce the risk of windblown contamination while their offsite disposal is awaited;
- Impacted excavated materials surrounding the fuel infrastructure, as identified, shall be subject to appropriate waste classification testing to inform their offsite disposal by an appropriately licensed waste carrier and disposal records and waste transfer information retained by the Contractor for inclusion in the validation report for the works;
- Should free product be discovered, the contractor shall stop works and ensure that it is contained. Absorbent materials (such as booms and matting) should be kept on site in case of the requirement for emergency containment. The Principal Contractor will liaise with the CA, notify the Local Authority of the presence of unexpected contamination in free phase form, and a risk assessment and remediation strategy will be required to determine the extent of removal of free phase and, where appropriate, treatment of any dissolved phase contaminants;
- Following removal of soils and decommissioning infrastructure, validation sampling of the sides and base of excavation will be required. The sample location/type will be proposed by the Contractor and agreed with the CA as will the laboratory analysis. The sampling and testing shall be the responsibility of the the Principal Contractor.

2. PART 2; TECHNICAL

DEMOLISHING STRUCTURES

- 110 SURVEY: Before starting work, examine all available information, carry out a survey of the structure(s), site and surrounding area, and submit a report and method statement to the Contract Administrator (CA) covering all relevant matters listed below and in the Health and Safety Executive Guidance Note GS29/1 paragraph 32:
- The form, condition and demolition methods of the structure(s).
 - The form, location and removal methods of any toxic or hazardous materials.
 - The type and location of adjoining or surrounding premises which may be adversely affected by noise, vibration, dust or removal of structure.
 - The identification and location of services above and below ground.
- 120 EXTENT OF DEMOLITION: Subject to any specific retention of features, facades, structures, retaining walls, etc., specified elsewhere, demolish structure(s) down to levels as shown or described on the contract drawings or documents.
- 130 GROUNDWORKS: Where specifically indicated, break out old foundations, slabs, etc. to the extent stated on the drawings. Remove contaminated earth and disinfect as required by the Local Authority. Backfill any voids as specified in Section D20.
- 140 BENCH MARKS: Report to the Engineer any bench marks and other survey information found on structure(s) to be demolished. Do not remove or destroy unless instructed.
- 150 FEATURE(S) TO BE RETAINED: Refer to the Contract Drawings.
All features are to be kept in place and adequately protected.

SERVICES AFFECTED BY DEMOLITION

- 210 SERVICES REGULATIONS: Any work carried out to or which affects new or existing services must be in accordance with the byelaws or regulations of the relevant statutory authority.
- 220 LOCATION OF SERVICES: Locate and mark the positions of services affected by the work. Arrange with the appropriate authorities for the location and marking of the positions of mains services.
- 230 DISCONNECTION OF SERVICES: Before starting demolition confirm with the CA if any incoming services have been isolated and if necessary arrange with the appropriate authorities for the disconnection of any other noted services and removal of fittings and equipment.

- 240 DISCONNECTION OF DRAINS: Locate and disconnect all disused drain connections not required for future use within the building footprint. Excavate out or seal and plug to approval.
- 250 DRAINS IN USE: Protect drains, manholes, gullies, vent pipes and fittings still in use and ensure that they are kept free of debris at all times. Make good any damage arising from demolition work and leave clean and in working order at completion of works.
- 260 BYPASS CONNECTIONS: Provide as necessary to maintain continuity of services to occupied areas of the same and adjoining properties. Give a minimum 72 hours notice to occupiers if shutdown is necessary during changeover.
- 270 SERVICES WHICH ARE TO REMAIN: Notify the Engineer and service authority or owner of any damage. Make all arrangements for repair to the satisfaction of the Engineer and service authority or owner. Bear any costs arising.

DEMOLITION WORK

- 310 WORKMANSHIP GENERALLY:
- Demolish structure(s) in accordance with BS 6187 and Health and Safety *Executive Guidance Notes GS29/1, 3 and 4.*
 - Operatives must be appropriately skilled and experienced for the type of work and hold or be training to obtain relevant CITB Certificates of Competence.
 - Site staff responsible for supervision and control of the work are to be experienced in the assessment of the risks involved and in the methods of demolition to be used.
- 320 GAS OR VAPOUR RISKS: Take adequate precautions to prevent fire or explosion caused by gas or vapour.
- 330 DUST: Reduce dust by periodically spraying demolition works with water, where considered safe to do so.
- 340 HEALTH HAZARDS: Take adequate precautions to protect site operatives and the general public from health hazards associated with dangerous fumes and dust arising during the course of the Works.
- 350 ADJOINING PROPERTY:
- Demolish structure(s) causing a minimum of damage to adjoining property and leave no unnecessary or unstable projections.
 - Do not disturb support to foundations of adjoining property unless otherwise instructed.
 - Report to the Engineer any defects exposed or becoming apparent in adjoining property.

- Promptly repair any damage caused to adjoining property by demolition work. Make good to ensure safety, stability, weather protection and security.
- 370 PARTLY DEMOLISHED STRUCTURE(S):
- Leave partly demolished structure(s) in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrolled collapse.
 - Prevent debris from overloading scaffolding platforms.
 - Prevent access of unauthorised persons to partly demolished structure(s). Leave areas safe outside working hours.
- 380 DANGEROUS OPENINGS: Illuminate and protect as necessary.
- 390 ASBESTOS BASED MATERIALS:
- Asbestos based materials are to be identified by procurement of a Demolition / Refurbishment Asbestos Survey which is required to all areas to be demolished or altered prior to any works commencing.
 - Asbestos Removal is to be carried out by an appropriate licensed Contractor by the Health and Safety Executive.
- 391 ASBESTOS BASED MATERIALS: Report immediately to the CA any suspected asbestos based materials discovered during demolition work. Avoid disturbing such materials. Agree with the Asbestos Specialist methods for safe removal and forward on proposals to the CA and Local Environmental Health Department for review.
- 410 UNKNOWN HAZARDS: Inform the CA of any unrecorded voids, tanks, chemicals, etc. discovered during demolition work. Agree with the CA, methods for safe removal, filling, etc.
- 442 COMPLETION:
- Clear away all debris and leave the site in a tidy condition on completion.
 - Grade the site to follow the levels of adjacent areas as agreed with the CA.

MATERIALS ARISING

- 510 OWNERSHIP: Components and materials arising from the demolition works are to become the property of the Contractor except where otherwise provided. Remove from site as work proceeds.
- 511 OWNERSHIP: Components and materials which are to remain the property of the Employer are described on the drawings or in the Contract Documents. Carefully remove and store on site where directed. Protect until removed by the Employer, reused in the works, or end of the Contract.

- 520 **HARDCORE:** Brick, stone and concrete rubble arising from demolition work may be reused as hardcore for infilling on site subject to compliance with section D20 and appropriate sampling and testing.

SHORING/TEMPORARY

- 110 **DESK STUDY/SURVEY:**
- Before starting work: Examine available information. Carry out a survey of the structure, site and surrounding area.
 - Report and method statements: Submit, describing any relevant matters raised in the design brief.
 - Statutory notices and licences: Ensure issued and obtainment.
 - Design coordination: Liaise with others as necessary to ensure full integration of all aspects.
- 140 **SUPPORT WORK DESIGNED BY CONTRACTOR:**
- Scope: As required in order to carry out a safe demolition of the buildings / structures.
 - Design standard: Comply with:
 - Design brief.
 - Code of practice for Temporary Works - BS 5975:2008 + A1:2011
 - Design proposals: Submit in detail and resolve any amendments before starting work, including:
 - Drawings.
 - Calculations.
 - Adequacy, stability, integrity, rigidity: Accept responsibility for support system and structure for the duration of the Works.
- 210 **WORKMANSHIP:**
- Standard: Comply with:
 - HSE Guidance Note GS51.
 - Code of practice for Foundations - BS 8004, section 9.7.
 - BS 5975:2008 + A1:2011
 - Operatives skill and experience: Appropriate for the type of work.
 - Evidence: Submit prior to commencement.
- 230 **UNFORESEEN HAZARDS:** Inform the CA of any unrecorded voids, flues, services, etc. discovered during erection of support systems. Agree with the CA methods for infill, making good, relocation of support connections, etc.
- 310 **MAINTAINING SUPPORT SYSTEMS:**
- Provide safe access and safe places of work in the support systems for inspection and maintenance.
 - Regularly inspect and maintain support systems, making good ties, wedges, connections, corrosion protection, etc. as necessary.
 - Adequately protect support systems from impact damage by vehicles, plant and site operations.
 - Prevent access of unauthorised persons onto support systems. Leave safe outside working hours.

- 320 MAINTAINING SUPPORTED STRUCTURE:
- Regularly inspect and monitor supported structure to ensure stability. Report any significant movement or deterioration of the fabric of supported structure to the CA.
 - Agree any necessary remedial work with the CA.
 - Adequately protect supported structure from damage by site operations.
- 440 COMPLETION: Clear away all support systems and leave the site and any working areas beyond the site boundary in a tidy condition on completion.

EXCAVATING AND FILLING

GENERAL

- 110 SITE INVESTIGATION: A preliminary geotechnical and environmental site investigation report has been procured and made available for review. Further ground investigation works are proposed.
- 145 VARIATIONS IN GROUND WATER LEVEL: Give notice if levels encountered are significantly different from levels in the Site Investigation Report.
- 150 EXISTING SERVICES/FEATURES/STRUCTURES: Refer to contract drawings and services information.

CLEARANCE/EXCAVATING

- 181 SITE CLEARANCE:
- Timing: Before top soil stripping, if any
 - Generally: Clear site of rubbish, debris and vegetation.
 - Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
 - Chipping and shredding: Permitted.
 - Treatment: Confirm with CA.
- 240 ADJACENT EXCAVATIONS: Where an excavation encroaches below a line drawn at an angle of 45 degrees for stable soils, or 30 degrees for wet clays, from the horizontal from the nearest formation level of another higher excavation, the lower excavation, all work within it and backfilling thereto must be completed before the higher excavation is made.
- 250 ACCURACY: Permissible deviations from formation levels, if excavation or filling required:
- Beneath mass concrete foundations: +/- 25 mm
 - Beneath ground bearing slabs and r.c. foundations: +/- 15 mm
 - Embankments and cuttings: +/- 50 mm
 - Ground abutting external walls: +/- 50 mm, but such as to ensure that finished level is not less than 150 mm below dpc.

- 255 **ACCURACY – LINEAR DIMENSIONS**
- Permissible deviations from linear dimensions generally as indicated on drawings.
- 260 **INSPECTING FORMATIONS:**
- Make advance arrangements with the CA for inspection of formations for the following:
 - Infill of Excavations
 - Remove the last 150 mm of excavations just before inspection. Trim excavations to required profiles and levels, and remove all loose material.
 - Unless otherwise instructed seal formations within 4 hours of inspection with concrete or other specified fill material.
- 310 **UNSTABLE GROUND:**
- Generally: Ensure that excavations remains stable at all times.
 - Give notice: Without delay if any newly excavated faces are too unstable to allow earthwork support to be inserted.
 - Take action: If instability is likely to affect adjacent structures or roadways, take appropriate emergency action.
- 320 **RECORDED FEATURES:** Break out where and to the extent stated on the drawings. Seal off drain ends, remove contaminated earth, where instructed by the CA and disinfect as required by local authority. Backfill as specified on drawings.
- 330 **UNRECORDED FEATURES:** Where old foundations, beds, voids, basements, filling, tanks, pipes, cables, drains, manholes, watercourses, ditches, etc. not shown on the drawings are encountered, do not disturb or enter and obtain instructions before proceeding.
- 350 **EXISTING WATERCOURSES:** Which have been diverted and are to be filled must be cleared of all vegetable growths and soft deposits before filling.
- 360 **EXCESS EXCAVATION:** Backfill any excavations taken:
- Wider than required with the material specified for backfilling.
 - Deeper than required with well graded granular material or lean mix concrete.

DISPOSAL OF MATERIALS

- 450 **WATER:**
- Generally: Keep all excavations free from water until:
 - Formations are covered.
 - Drainage: Form surfaces of excavations and fill to provide adequate falls.
 - Removal of water: Provide temporary drains, sumps and pumping as necessary.
 - Do not pollute water courses with silt laden water.

- 454 GROUND WATER LEVEL/RUNNING WATER
- Give notice if it is considered that the excavations are below the water table.
 - Spring/running water: give notice immediately if encountered.
- 457 PUMPING:
- General: Do not disturb excavated faces or stability of adjacent ground or structures.
 - Pumped water: Discharge without flooding the site, or adjoining property.
 - Sumps: Construct clear of excavations. Provide adequate filters to avoid pumping of fines material from excavation. Remove pumps and fill with DTp Type 1 compacted in layers to SHW on completion.
- 460 PERMANENT DRAINAGE SYSTEM:
- Disposal of water from the excavations through the system: Refer to CA for instructions.

FILLING

- 500 PROPOSED FILL MATERIALS
- Details: Submit full details of proposed fill materials to demonstrate compliance with specification, including:
 - Type and source of imported fill.
 - Proposals for processing and rescue of material excavated on site.
 - Test reports as required elsewhere.
 - Timing: At least 21 days before starting filling.
- 510 HAZARDOUS, AGGRESSIVE OR UNSTABLE MATERIALS:
- General: Do not use fill materials which would, either in themselves or in combination with other materials or grounds water, give rise to a health hazard, damage to building structures or instability to the filling, including material that is:
 - Frozen or containing ice.
 - Organic
 - Contaminated or Noxious.
 - Susceptible to spontaneous combustion.
 - Likely to erode or decay and cause voids.
 - With excessive moisture content, slurry, mud or from marshes or bogs.
 - Clay of liquid limit exceeding 80 and/or plasticity index exceeding 55.
 - Unacceptable, class U2 as defined in the Highways Agency 'Specification for Highway Works', clause 601.
- 520 FROST SUSCEPTIBILITY:
- GENERAL: Except as allowed below, fill must be non frost-susceptible as defined in Highways Agency "Specification for Highway Works, clause 801.7
 - Test reports: If the following fill materials are proposed, submit a laboratory report confirming they are non frost-susceptible:
 - Fine grained soil with plasticity index less than 20%.

- Course grained soil or crushed granite with more than 10% retained on a 0.063 mm sieve.
- Crushed chalk
- Crushed limestone fill with average saturation moisture content in excess of 3%.
- Burnt colliery shale.
- Frost-susceptible fill: Under pavement areas frost-susceptible fill may only be used @ a depth greater than 450mm below yard level. Protect from frost during construction.

525 TESTING OF SUITABILITY OF FILL MATERIALS BEFORE START OF FILLING

- Laboratory: UKAS/NAMAS accredited laboratory.
- Submit report to Engineer.
- Timing: 21 days before starting filling.
- Samples; Deliver to laboratory as required.
- Tests: Refer to Engineer.
- Frequency: Refer to CA.

530 PLACING FILL:

- Excavations and areas to be filled: Free from loose soil, rubbish and standing water.
- Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and recompact if not damaged after thawing.
- Adjacent structures, membranes and buried services:
 - Do not overload, destabilise or damage.
- Submit proposals for temporary support necessary to ensure stability during filling.
- Allow 14 days minimum before backfilling against in-situ concrete structures.
- Layers: Place so that only one type of material occurs in each layer.
- Earth moving equipment: vary route to avoid rutting.
- Materials to be suitably benched into surrounding ground;

535 COMPACTION

- General: Compact fill as soon as possible after placing and should be compacted using the methods appropriate for the material specification and in accordance with Series 600 SHW.
- After compaction: Surface of each layer must be well closed, showing no movement under compaction plant, and without cracks, holes, ridges, loose material and the like.
- Defective areas: Remove and re-compact to full thickness of layer using new material.

540 BENCHING IN FILL: Where, during the progress of the work, the difference in level between adjacent areas of filling exceeds 600 mm, cut into edge of higher filling to form benches having a minimum width of 600 mm and a height equivalent to the depth of a layer of compacted filling. Spread and compact new filling to ensure maximum continuity with the previous filling.

- 617 HIGHWAYS AGENCY TYPE 1 GRANULAR FILLING
- Fill: To Highways Agency 'Specification for highway works', clause 803:
 - Crushed rock (other than argillaceous rock).
 - Crushed concrete.
 - Crushed non-expansive slag to clause 801.2.
 - Well-burned non-plastic colliery shale.
 - filling: To Highways Agency 'Specification for highways works'. Clause 801 and 802.
- 618 HIGHWAYS AGENCY TYPE 2 GRANULAR FILLING
- Fill: to Highways Agency 'Specification for highways works', clause 804.
 - Crushed rock (other than argillaceous rock).
 - Crushed concrete.
 - Crushed non-expansive slag to clause 801.2.
 - Well-burned non-plastic colliery shale.
 - Natural gravel.
 - Natural sand.
 - Filling: To highways Agency 'Specification for highways works'. Clause 801 and 802.
- 620 SUBGRADE IMPROVEMENT LAYER (CAPPING)
- Fill: To highways Agency 'Specification for highways works', Table 6/1, class 6F1 or 6F2.
 - Filling: Place and compact to Highways Agency Specification for highway works, table 6/1, clause 612 and clause 613.3, 613.9 and 613.10.
- 625 COMPACTED GENERAL FILLING/EARTHWORKS:
- Comply with Highways Agency 'Specification for Highway Works', Earthworks section 600 series clauses.
- Definition: References to the 'Overseeing Organisation' are deemed to be to the issuer of this specification.
- 640 STARTER LAYER OF COMPACTED FILLING:
- Fill: suitable hard granular material thoroughly compacted.
- Thickness: Refer to Contract Drawings.
- 650 PROTECTION OF COMPACTED FILLING:
- Do not allow construction traffic on compacted cohesive soil filling until the level has been raised not less than 150 mm above formation level by properly compacted temporary protective filling, over geotextile membrane.
 - Remove temporary protective filling from site before beginning permanent construction.
- 700 BACKFILLING AROUND FOUNDATIONS & STRUCTURES to remain (where indicated on drawings)
- Under oversite concrete and pavings: DoT Type 1 material compacted in layers or lean mix concrete where access is restricted for compaction.

- Under grassed or landscaped areas: material excavated from the trench, laid and compacted in layers not exceeding 300 mm thick.

710 **HARDCORE FILLING:**

- Fill: Granular material, free from dust and plaster, well graded, all pieces less than 75 mm in any direction, minimum 10% fines value of 50kN when tested in a soaked condition to BS 812-111 and in any one layer only one of the following:
 - Crushed rock (other than argillaceous rock) or quarry waste with not more binding material than is required to help hold the stone together.
 - Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
 - Crushed non-expansive slag.
 - Gravel or hoggin with not more clay content than is required to bind the material together, and with no large lumps of clay.
 - Well-burned non-plastic colliery shale.
 - Natural gravel.
 - Natural sand.
- Filling: Spread and level in 150 mm maximum layers. Thoroughly compact each layer.

730 **BLINDING:**

- Surfaces to receive sheet overlays or concrete:
Blind with:
 - Concrete where shown on drawings; or
 - Sand, fine gravel, or other approved fine material applied to fill interstices.
 Moisten as necessary before final rolling to provide a flat, close smooth surface.
- Sand for blinding: To BS 882 table 4, type C or M or to BS EN 12620, grade 0/4 or 0/2 (MP).
- Permissible deviations on surface level: +0 –25 mm.

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