GRAVEN HILL, BICESTER

Initial Demolition Contract for MOD Building E3, Former Garrison Theatre, Romney Huts and Rodney House Social Club Out Buildings

DEMOLITION SPECIFICATION

21st September 2015 Rev A02

Waterman Infrastructure & Environment Limited

5th Floor, 1 Cornwall Street, Birmingham B3 2DX

www.watermangroup.com

Client Name:	Graven Hill Village Development Company Limited
Document Reference:	WIC15119-W4000-100GT-A02
Project Number:	WIC15119

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2008, BS EN ISO 14001: 2004 and BS OHSAS 18001: 2007)

Issue	Date	Prepared by	Checked by	Approved by
A00 DRAFT	07 Aug 2015	Martin Fairlie Technical Director	Martin Fairlie Technical Director	Graven Hill Village Development Company Limited
A01 DRAFT	01 Sept 2015	As above	As above	As above
A02	21 Sept 2015	As above	As above	As above
Tender Issue				

Comments	
A00 DRAFT	To Graven Hill Village Development Company Limited (GHVDC) for comment and approval.
A01	Clause 24 "Complying With Planning Conditions" added plus changes following Friday 11th Sept 2015 meeting with MOD re disconnection of utilities and services etc. Awaiting GHVDC input, comment and approval.
A02	Waterman's draft NFDC Conditions of Contract deleted and replaced by a separate document prepared by Trowers & Hamlins LLP, Solicitors, entitled *"National Federation of Demolition Contractors Form of Direct Contract (2012 edition) as amended".* Other minor amendments & additions following Design Team Meeting on Friday 18 Sept 2015.

Disclaimer

This document has been prepared for the sole and exclusive use of **Graven Hill Village Development Company Limited,** the Client, from whom it was commissioned and has been prepared in response to their particular requirements and brief.

This report has been prepared by **Waterman Infrastructure & Environment Limited** with reasonable skill and care in accordance with the agreed; brief, scope of works, fee proposal, contract, subsequent agreed instructions and requirements of the Client, taking into account the available timescale and resources devoted to it, all as agreed with the Client.

We disclaim any responsibility to the Client and others in respect of any matters outside the scope of this report.

This report is not intended for and should not be relied on by any third party and no responsibility is undertaken to any third party.

This document is confidential to the Client and we accept no responsibility of whatsoever nature to third parties to whom this document, or any part thereof, is made known. Any such party relies on the document at its own risk.

The Contracts (Rights of Third Parties) Act 1999 shall not apply to this document and the provisions of the said Act are expressly excluded from this document.

This document may not be used for any purpose other than that for which it was commissioned.

Much of the information, conclusions and recommendations presented in this document are based on information provided by others. None of that information has been checked nor independently verified by Waterman.

The information, conclusions and recommendations presented in this document are not necessarily indicative of future conditions, or operating practices; at, beneath or adjacent to the Site.

It is possible that other ground conditions, contamination or geo-environmental conditions may exist and consequently reliance on the findings of this document must be limited accordingly.

Content

SPECIFICATION

1. INTRODUCTION

1.1. This specification shall be read in conjunction with all the other contract documents.

1.2. The Contractor shall carefully study the contents of the contract documents and satisfy themselves on all matters associated with the Works.

1.3. All Tendering Contractors shall be invited to, and are expected to, visit the Site prior to tendering.

1.4. The Tendering Contractor shall be deemed to have inspected the Site and considered all site conditions when preparing their tender.

1.5. It is assumed the Contractor shall undertake sufficient site visits to familiarise themselves with the Client's Requirements, the Specification Requirements and the Scope of Works.

Who's Who

Employer = Client means:	Graven Hill Village Development Company Limited
Principal Designer (CDM 2015) means:	Graven Hill Village Development Company Limited
Engineer means:	Waterman Infrastructure & Environment Limited
Architect means:	Glenn Howells Architects Ltd
Mechanical & Electrical Consultant means:	Hoare Lea
Asbestos Consultant means:	Amicus Environmental Ltd

Graven Hill Village Development Company Limited

Adrian Unitt, Operations Director, c/o Cherwell District Council, Bodicote House, Bodicote, Banbury, Oxfordshire OX15 4AA

T: 01295 753700

Waterman Infrastructure & Environment Limited

Martin Fairlie, Technical Director, 5th Floor, 1 Cornwall Street, Birmingham B3 2DX

T: 0121 212 7700

Glenn Howells Architects Ltd

Darren Barbier, Director, 321 Bradford Street, Birmingham B5 6ET

T: 0121 666 7640

Hoare Lea

Clive Higham, Partner, 6th Floor West, 54 Hagley Road, Edgbaston, Birmingham B16 8PE

T: 0121 450 4800

Amicus Environmental Ltd

Unit C1, New Yatt Business Centre, New Yatt, Witney, Oxford, Oxfordshire OX29 6TJ

T: 01993 869320

2. SITE LOCATION & DESCRIPTION OF THE SITE

2.1. The Graven Hill Site, are located near Bicester, Oxfordshire, off the A41.

2.2. Bicester town centre is located approximately 1.5km north of the Site.

2.3. A large part of the Graven Hill Site has been designated for redevelopment as housing with associated facilities and infrastructure.

2.4. The Graven Hill Site is currently operational and occupied by the Ministry of Defence (MOD).

2.5. Part of the Graven Hill Site is also referred to as **Land Transfer Area (LTA) 1.**

2.6. In this Specification "The Site" refers to all the demolition sites.

2.7. The National Grid Reference of the access to the Graven Hill Site is approximately:

OS X (Eastings)	**459047**
OS Y (Northings)	**221152**

2.8. The existing MOD St David's Barracks, located on the southern side of Graven Hill, does NOT fall within the Site.

Site Location:	MOD Graven Hill, Bicester, Oxfordshire
Nearest Post Code:	**OX26 6HE**

MOD Building E3:	Approx. OS X (Eastings)	458815
	Approx. OS Y (Northings)	220995

The Contractor shall be required to construct a new access route / haul road to access Building E3, unless an agreement can be made with the MOD to access the E3 Site from inside the MOD security fence, but this is considered very unlikely.

Former Garrison Theatre:	Approx. OS X (Eastings)	458990
	Approx. OS Y (Northings)	220875

Access via existing tarmac "public access" roads, Westacott Road.

Romney Huts:	Approx. OS X (Eastings)	459150
	Approx. OS Y (Northings)	220985

Access via existing tarmac "public access" roads, Westacott Road.

Rodney House Social Club:	Approx. OS X (Eastings)	458855
	Approx. OS Y (Northings)	221265

Access via existing very narrow single track tarmac "public access" road.

3. OUTLINE SCOPE OF WORK

3.1. This "Initial Demolition Contract for MOD Building E3, Former Garrison Theatre, Romney Huts and Rodney House Social Club Out Buildings" is for the demolition of various buildings at Graven Hill, an operational MOD site, in advance of the main Infrastructure Contract for Land Transfer Area No 1.

3.2. The Scope of Works includes the demolition of:

- MOD Building E3;
- Former Garrison Theatre;
- Romney Huts, also referred to as the Bolero Buildings, used to accommodate American troops;
- Rodney House Social Club Out Buildings;
- associated; basements, foundations, hard standings, disused utilities, etc.;
- and some additional relatively small brick build minor structures.

And includes:

- minimal site clearance;
- crushing of concrete (6F1, 6F2) to be retained and stockpiled on the Site;
- either crushing brickwork and:
    - leaving on Site for use by a future LTA 1 Infrastructure Contractor for haul roads etc., but not to be incorporated into the permanent works;
    - OR take off Site and dispose;
    - OR take off Site and re-cycle;
    - the most cost advantageous, or a combination of options, will most likely be chosen;
- removal of overhead and underground utilities / services;
- earthworks, filling of excavation voids, basements etc.;
- removal of all other demolition materials off Site;
- at MOD Building E3, careful retention of a live electricity sub-station in the NE corner; located both externally and internally to Building E3. BUT, Refer to Hoare Lea's "Graven Hill, Bicester - Utilities Infrastructure New Supplies Engineering Services: Employers Requirements, Rev 02, September 2015" in Annex 5.

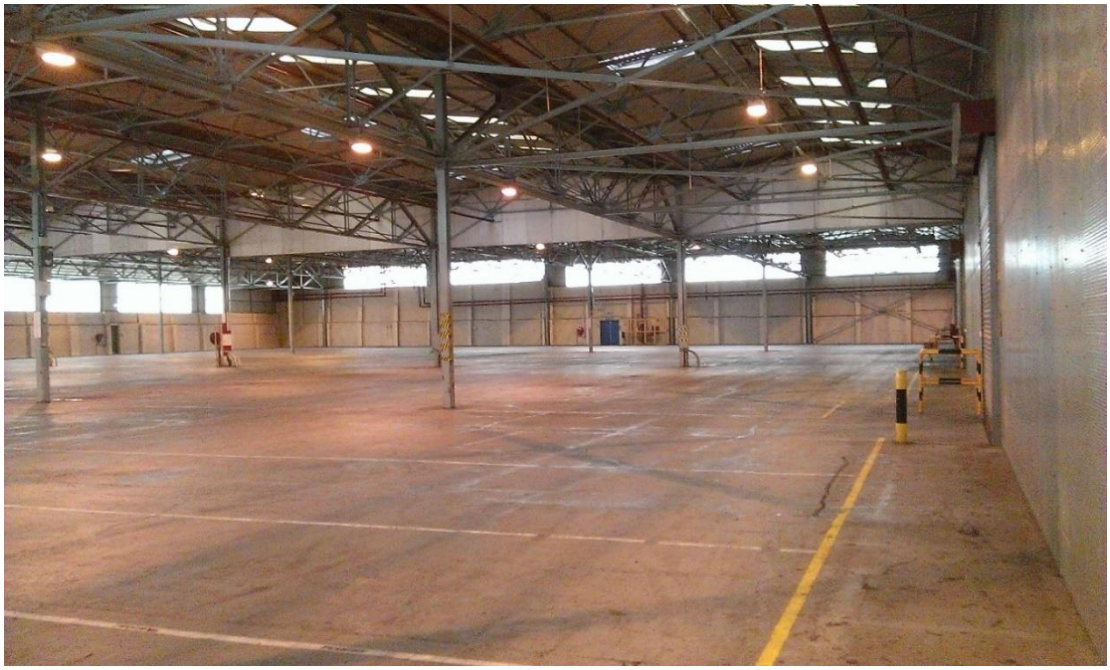
Not Including:

- Tarmac surfaces shall NOT be removed, they shall all be left in situ.

Some existing concrete hard standings outside buildings which may he retained as a base for stockpiled crushed concrete, most likely at Building E3.

Illustrative Photographs of the Key Buildings

Typical photo of MOD Building E3 – External



Typical photo of MOD Building E3 – Internal

Typical photo of Former Garrison Theatre – Front Elevation - Includes a basement

Typical photo of Former Garrison Theatre – End Elevation - Includes a basement

Typical photo of Rodney House Social Club Out Buildings

Refurbishment / Demolition Asbestos Surveys

3.3. The Employer / Client, Graven Hill Village Development Company Limited, has commissioned a “Refurbishment / Demolition Asbestos Survey” at all the key buildings from Amicus Environmental Ltd.

3.4. They will be made available to the Tendering Contractors. Included in Annex 1.

Specification Requirements

3.5. All demolition works shall conform with all relevant legislation, and in particular the legislation dealing with health and safety, safe access, safe places of work and hazardous substances.

3.6. All demolition works shall generally be in accordance with:

- **Construction (Design and Management) Regulations 2015;**
- **BS 6187:2011** “Code of practice for full and partial demolition”.
- **BS 5228-1:2009+A1:2014** Code of practice for noise and vibration control on construction and open sites. Noise
- **BS 5228-2:2009+A1:2014** Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration
- **BS 7385-2:1993** Evaluation and measurement for vibration in buildings - Part 2: Guide to damage levels from groundborne vibration;
- **BS 6472-1:2008** Guide to evaluation of human exposure to vibration in buildings Part 1: Vibration sources other than blasting.
- **BS EN 1992-1-1:2004+A1:2014 “Eurocode 2:** Design of concrete structures. General rules and rules for buildings”.
- **BS EN 1993-1-1:2005+A1:201 “Eurocode 3**. Design of steel structures. General rules and rules for buildings”.
- **BS EN 1995-1-1:2004+A2:2014 “Eurocode 5:** Design of timber structures. General. Common rules and rules for buildings”.
- **BS EN 1996-1-1:2005+A1:2012 “Eurocode 6:** Design of masonry structures. General rules for reinforced and unreinforced masonry structures”.
- **BS EN ISO 9001** "Quality management system";
- **BS EN ISO 14001** "Environmental management systems" and;
- **BS OHSAS 18001** "Occupational Health and Safety".
- Control of Pollution Act 1974
- Environmental Protection Act 1990
- Environment Act 1995
- Public Health Act, 1961

- Construction Industry Publications Limited: “Construction Health and Safety Manual Volume E, Section 6 Demolition, June 2015”.
- Environment Agency: “Working at construction and demolition sites: PPG6 Pollution Prevention Guidelines, 23 April 2014”.
- wrap: “CON900-001: Final Report, Construction, demolition and excavation waste arisings, use and disposal for England 2008”.
- BRE, dti: “Control of dust from construction and demolition activities, Vina Kukadia, Stuart Upton, David Hall, February 2003”.
- BRE, DETR: Deconstruction and reuse of construction materials, 2001.

4. METHOD OF MEASUREMENT

4.1. The Contract shall be:

FIXED PRICE / LUMP SUM.

4.2. Tendering Contractors shall price the attached "**Activity Schedule**", i.e. the attached Excel Spreadsheet version. The Tendering Contractors may expand the Activity Schedule to reflect more detailed activities as deemed necessary to assist in pricing the Works and to improve monthly payment applications throughout the contract period.

4.4. Otherwise, payment shall be made only on 100% completion of the activities defined in the Priced Activity Schedule.

4.5. The Contractor shall only be entitled to payment in relation to items of work set out in the Priced Activity Schedule which are fully complete as at the date the Contractor's statement.

4.6. The Contractor shall price for all works defined in the Contract Documents.

4.7. It is the intention that the Tendering Contractors fixed price lump sum to complete all of the Works as set out in the Specification, Employer's Requirements and the Drawings shall be covered by, and included in, their completed and Priced Activity Schedule.

4.8. If the Tendering Contractors consider that there are other major, significant key activities that are not covered in the attached "**Activity Schedule**" they may add such additional items. **A separate "Activity Schedule" is required for each Building to be demolished.**

5. NORMATIVE REFERENCES

5.1. Normative references are as in:

BS 6187:2011 “Code of practice for full and partial demolition”.

6. TERMS AND DEFINITIONS

6.1. Terms and definitions are as in:

BS 6187:2011 “Code of practice for full and partial demolition”.

7. LIST OF DRAWINGS INCLUDED IN THE CONTRACT

7.1. Revisions to Drawing Numbers are **NOT** indicated in the list below. The Contractor shall satisfy himself as to the most up to date version of each drawing. If in doubt clarify with the Engineer.

7.2. Drawings are in Annex 2.

Drawing Number	Title	Prepared By
CIV15119CSA80_100_A01	Site Location Plan	Waterman
1982-A-L-050-L [Land Transfer Areas]	Land Transfer Areas (LTA 1 & LTA 2) For information only.	Glenn Howells
1982-A-L-010-H [Proposed Masterplan] & 1982-A-L-011-I [Proposed Masterplan Northern Area]	Masterplan For information only.	Glenn Howells
C-SA-05-D100	Topographical Survey MOD Building E3 For information only.	Waterman
C-SA-05-D101	Topographical Survey Former Garrison Theatre For information only.	Waterman
C-SA-05-D102	Topographical Survey Romney Huts For information only.	Waterman
C-SA-05-D103	Topographical Survey Rodney House Social Club Out Buildings For information only.	Waterman
C-SA-05-D104	Existing Utilities MOD Building E3	Waterman
C-SA-05-D105	Existing Utilities Former Garrison Theatre	Waterman
C-SA-05-D106	Existing Utilities Romney Huts	Waterman
C-SA-05-D107	Existing Utilities Rodney House Social Club Out Buildings	Waterman
C-SA-05-D108	Cut or Fill MOD Building E3 For information only.	Waterman
C-SA-05-D109	Cut or Fill Former Garrison Theatre	Waterman

Drawing Number	Title	Prepared By
	For information only.	
C-SA-05-D110	Cut or Fill Romney Huts For information only.	Waterman
NB: There is no Cut or Fill drawing for Rodney House Social Club Out Buildings and finished ground levels there are not yet known.		
C-SA-05-D111	Site Boundary - MOD Building E3	Waterman
C-SA-05-D112	Site Boundary - Former Garrison Theatre	Waterman
C-SA-05-D113	Site Boundary - Romney Huts	Waterman
C-SA-05-D114	Site Boundary - Rodney House Social Club Out Buildings	Waterman
C-SA-05-D115	Site Boundaries, Site Access Routes, Go – No Go Areas	Waterman
1982-A-L-605 [DRAFT MOD E3 Demolition]	Proposed End Use MOD Building E3 For information only.	Glenn Howells
1982-A-L-606 [DRAFT Former Garrison Theatre Demolition]	Proposed End Use Former Garrison Theatre For information only.	Glenn Howells
1982-A-L-607 [DRAFT Romney Huts Demolition]	Proposed End Use Romney Huts For information only.	Glenn Howells
1982-A-L-604 [DRAFT Rodney House Demolition]	Proposed End Use Rodney House Social Club Out Buildings For information only.	Glenn Howells

8. PRE-CONSTRUCTION INFORMATION

8.1. In accordance with CDM 2015, “Pre-construction information” is information already in the Client’s possession (such as an existing health and safety file, an asbestos survey, structural drawings etc.) or which is reasonable to obtain through sensible enquiry (regulation 2(1)).

8.2. The information must be relevant to the project, have an appropriate level of detail and be proportionate to the nature of the risks.

8.3. The Client has the main duty for providing pre-construction information.

8.4. This must be provided as soon as practicable to each designer (including the principal designer) and contractor (including the principal contractor) who is bidding for work on the project or has already been appointed.

8.5. For projects involving more than one contractor, the Client should expect the principal designer to help bring the pre-construction information together and provide it to the designers and contractors involved.

8.6. Available “Pre-construction information” is listed below.

Document Number	Pre-Construction Information - Title
Electronic copy Annex 1	**Amicus Environmental Ltd Refurbishment / Demolition Asbestos Surveys**
Electronic copy Annex 2	**Drawings**
Electronic copy Annex 3	**Topographical Survey & Sub-Scan of Utilities:** A 3D Topographical Survey of the Site plus overhead and underground utilities / services (including a sub scan survey)
Electronic copy Annex 4	**UXO/UXB BACTEC Report**: BACTEC Report 3063TA Rev_1 dated 14th January 2011 states that there is a Low-Medium Risk of UXO at the MOD Graven Hill site. The BACTEC UXO Report is contained in the ENTEC Report entitled “Additional Sites at Sites D&E, DSDC Bicester, Land Quality Assessment, Phase One: Desk Study, DE Project No.: 13014, Final LQA Report, dated 25 March 2011”.
Electronic copy Annex 5	**Hoare Lea’s “Graven Hill, Bicester - Utilities Infrastructure New Supplies Engineering Services: Employers Requirements, Rev 02, September 2015”** This Annex forms part of this Specification.

Document Number	Pre-Construction Information - Title
Report Ref: 30378	**GI & Land Contamination Factual Report** entitled: *"Graven Hill New Urban Community, Bicester - Factual Report On Ground Investigation Prepared For Graven Hill Village Development Company"* by Geotechnical Engineering Ltd, Centurion House, Olympus Park, Quedgeley, Gloucester. GL2 4NF. T: 01452 527743, w: www.geoeng.co.uk NOT included in the Tender / Contracts Documents. A large report. Available on request. Tendering Contractors shall be deemed to have been made aware of this source of information.

9. GEOLOGY AND GROUND CONDITIONS

Difficult ground conditions:	None anticipated.
Difficult groundwater conditions:	None anticipated.
Farm Crops:	None.
Topsoil.	Yes, present.
Made Ground:	Yes, some anticipated.
Superficial Deposits:	Yes, present.
Bedrock Deposits:	The **Oxford Clay Formation** covers the whole MOD Graven Hill site.

10. MINISTRY OF DEFENCE (MOD) AND OTHER SPECIAL REQUIREMENTS

10.1. It is understood that Land Transfer Area No 1, including the Demolition Sites, shall be formally handed over from the MOD to the Employer prior to the start of demolition on Site.

10.2. It is understood that the demolition shall NOT start on the Site until that has happened.

10.3. Nevertheless, in the very unlikely event that it is agreed that demolition can start on the Site prior to this handover happening, the Contractor shall be required to comply with the following special MOD requirements.

MOD Special Requirements [May not be required]

Disclosure Scotland / CBR Forms

10.4. All personnel working on the Site shall be required to have obtained clearance from Disclosure Scotland before anyone arrives on the Site to commence work. Appropriate forms can be obtained from: www.disclosurescotland.co.uk

10.5. The Tendering Contractors shall allow in their rates for this additional cost.

10.6. Individuals are required to apply online at a cost of £25.00.

How long will it take to receive certificates?

10.7. At the 31st of March 2015, the Disclosure Scotland states:

*10.8. "Disclosure Scotland works within a Service Level Agreement to produce 90% of all types of Disclosure, for a correctly completed application with no further enquiries, within **14 calendar days.** This is measured from the day we receive the application to the day of dispatch. Certificates are dispatched 1st class Royal Mail postage.*

10.9. As of 22 March 2015 we are working inside our performance target of processing applications within 14 days. Our average turnaround time for applications processed last week was 99.9% within 14 days.

10.10. As some applications may require further enquiries, these applications may take longer than our quoted average turnaround time."

4Cs MOD Site Induction

10.11. All staff working on the Site shall be required to undergo:

- maximum of 6 persons at a time.
- a brief PRIDE / Carillion Site Induction at the DIO building located at MOD Bicester Site C, directions below, and;
- a 20 minute MOD 4Cs induction for security and safety reasons, at the MOD Graven Hill site, in Building E25, immediately on the left, past the entrance security gate.

- the Tendering Contractors shall allow in his programme and rates for **all** personnel to attend.

10.12. All site staff shall adhere to the MOD Graven Hill Site rules presented in the 4Cs induction. Failure to do so may result in personnel being removed from the Site.

10.13. MOD will provide an electronic authorisation form for all to complete and return before they arrive on the Site.

10.14. Authorisation forms shall be completed and returned to the MOD office given below before anyone arrives on the Site to commence work.

10.15. **Forms shall be obtained from and returned for the attention of:**

Caroline E Thompson

Site Risk Compliance Manager/4C's MS Duty Holder

Logistic Services, Bicester, E 25, E Site

E mail: Caroline.thompson595@mod.uk

Tel: 01869 259363 / Mil 94240 5363

Fax: 94240 5366

10.16. **Personnel shall require 2 forms of ID on the day of arrival and 4Cs induction:**

- passport or another acceptable form of photographic ID;
- driving licence (photocard with paper counterpart);
- National Insurance Number;
- plus a recent utility bill or bank statement.

10.17. All photographic ID (passport and driving licence) shall have at least 6 months left till expiry.

10.18. Each 4Cs induction will take approx. 20 minutes.

10.19. Additional personnel due to attend the Site after the initial start date shall give the MOD as much notice for their 4Cs induction as possible, minimum of 24 hours' notice.

10.20. All site staff shall, where required, report to the MOD Graven Hill Site security gates for sign in and out at the start and end of each shift.

10.21. One member of the Contractor's site personnel shall sign the Contractor's site staff in and out each day at the DIO building located at Bicester Site C. This is so that DIO have a record of which contractors are currently working on the Site.

10.22. The DIO building can be reached by following Ploughley Road from the A41 (just east of Graven Hill), through Ambrosden and turning left immediately before the railway level crossing.

10.23. Site personnel shall ensure that any MOD security passes are kept on their person **at all times**.

10.24. Failure to do so may result in personnel being removed from the Site.

10.25. Normally, such passes should be on display using a lanyard, however it is noted that for some activities, this could pose a hazard to operatives working with plant that has moving – and in particular

rotating parts. Such personnel shall carry their passes on their person, but are exempt from having it on display when working in the vicinity of plant / machinery.

Photograph Restrictions

10.26. The use of a camera must be justified.

10.27. A Camera Pass must be obtained from the DES LCS LS-OPS-BIC-Permits Office at the time of the 4Cs induction.

10.28. All photographs taken shall be viewed and authorised, or otherwise, every day before individuals leave the Site, by the MOD Duty Security Officer.

10.29. Photographs of the perimeter security fence are **NOT** permitted.

10.30. Each individual member of the Contractor's site staff that shall be required to take photographs shall obtain a photography permit from the MOD security office on site. Failure to do so may result in personnel being removed from the Site if they are seen to be taking unauthorised photographs.

10.31. The Contractor shall take note of any specific photography restrictions imposed by the MOD during site 4Cs inductions. However, as minimum guidance, the Contractor shall ensure that any photographs taken are for the purpose of the Works only.

10.32. Direct photographs of MOD buildings, equipment, personnel, etc. shall be avoided. Specifically, the MOD do **NOT** allow any photos to be taken of their site boundary (i.e. security fencing), therefore operatives shall aim to orientate their photographs to avoid including the MOD Graven Hill Site boundary.

Vehicle Details

10.33. The Contractor shall provide, in advance, a list of vehicles and vehicle registration numbers to be used on the MOD Graven Hill Site to the MOD Security Office. The DES LCS LS-OPS-BIC-Permits Office.

Emergency Number

10.34. The initial emergency number on the MOD Graven Hill Site is: **01869 256222**

10.35. Failing this, try: **999**

Employer's Special Requirements

Lone Working

10.36. Lone working is **NOT** allowed on the Site for health and safety reasons. The Contractor's personnel shall work in groups of no less than two. This will normally require personnel to stay in sight of each other. Personnel may separate in order to carry out surveys or collect equipment and supplies etc. from elsewhere on Site so long as they have an agreed method of communication (e.g. mobile phone) and anticipated time of return. Where a person fails to make contact by an agreed time and

is non-contactable via the agreed method, emergency procedures shall be followed according to the Contractor's own Risk Assessment and Method Statement.

Mobile Phones

10.37. Mobile phone can be used on Site, but **NOT** within any MOD buildings or within 5 meters of any PC or IT Cabinets.

Radios

10.38. Radios are **NOT** allowed on Site as there is a possibility of interference with the Ministry of Defence Police radios, and the Military Guarding Service radios that are used on the MOD Graven Hill Sites in Bicester.

Breached Barriers, Walls etc.

10.39. If any barriers, walls etc., are required to be breached or removed in order to complete the Works, the Contractor shall obtain clear instructions from the Employer or the Engineer, with the full assurance that agreement has been given by the land / property owner and that the Contractor does not become liable for damages.

10.40. Any barriers breached or otherwise disturbed during the Works shall be immediately repaired or replaced to the same standard by the Contractor and the cost reimbursed by the Employer / Client through pre-agreed rates.

24 Hour Site Security

10.41. All excavations, plant, machines and equipment shall be supervised at all times and the Site kept secure and tidy.

10.42. The Contractor shall be responsible for the security of all plant, personnel and compounds.

10.43. The Contractor shall secure the working areas during the entirety of the Works both during the working day and at the end of each working shift as well as overnight.

10.44. The Contractor shall be responsible for the provision, installation and maintenance of any additional security, overnight security guarding and fencing for separate compounds as is necessary to meet their own requirements over and above these measures detailed.

Traffic Management Measures

10.45. The entrance to the main MOD Graven Hill site is off the A41, Rodney House Roundabout.

10.46. This will be a shared access route to the Demolition Sites and in particular along Westacott Road that joins into the A41, Rodney House Roundabout and crosses the main entrance into the MOD Graven Hill Site.

10.47. Graven Hill is an operational MOD site, therefore the Contractor shall take all appropriate traffic management measures required by and agreed with the MOD to keep the MOD property / cars safe and secure and keep the Works safe and secure.

10.48. There was a recent “near miss” accident reported at this location. Thus extra care is required.

10.49. The access route from the A41, Rodney House Roundabout to the Rodney House Demolition Site is very narrow and the Contractor shall be required to provide appropriate traffic controls and management at this location, possibly including traffic control by temporary traffic lights, banksmen with Stop Go sign etc.

Normal Working Hours

10.50. Normal working hours shall be:

0800 to 1800 hrs Monday to Friday

0800 to 1300 hrs Saturday

10.51. There shall be no work on Sundays or Bank Holidays, or outside the periods above that will be audible at the Site boundary.

10.52. Exceptionally, consent for work outside these hours may be given after any necessary consultation. 3 days’ notice is required from the Contractor when seeking such consent.

Trainee Site Operatives

10.53. Trainee operatives are **NOT PERMITTED** on this contract.

10.54. Qualifications for site operatives shall be as specified. As a minimum, this shall include:

- All site workers shall hold valid, current and appropriate NVQs and CSCS cards or equivalent.
- All site workers shall hold an identification card, including a photograph, which provides formal recognition of their competence.

10.55. Plant operatives using plant covered by the Construction Plant Competence Scheme (CPCS), e.g. excavators, dumpers, etc., employed on the contract shall hold an appropriate card as issued by CPCS or a CSCS card endorsed for that particular plant item.

11. TEMPORARY ACCOMMODATION AND WELFARE FACILITIES

Welfare Facilities for the Contractor

11.1. As a minimum the Contractor shall provide welfare facilities in accordance with CDM 2015 Regulations 4(2)(b), 13(4)(c) and 15(11).

Accommodation for the Employer / Engineer:

11.2. Dedicated, separate accommodation and welfare facilities are NOT required for the Employer / Engineer

11.3. The Employer / Engineer shall share accommodation and welfare facilities with the Contractor.

12. INFORMATION BOARDS

12.1. The Contractor shall, prior to the commencement of the Works erect four (4) information boards adjacent to each building to be demolished, displaying the:

- Demolition Contractor's Name, address and contact details;
- Demolition Contractor's emergency contact telephone number/s.

13. QUALITY MANAGEMENT SYSTEM

13.1. **The Quality Plan** shall be submitted not later than **twenty one (21)** days after award of the Contract to the Employer / Client, the Engineer, the Principal Designer (CDM 2015) for its acceptance.

The Contractor shall submit Method Statements etc. prior to commencement of any related work or activity and to a timetable included in the Quality Plan.

13.2. **The Quality Plan** shall include details on the following as a minimum.

(i) Contractor's Organisation and Management: Including the organisation of the contract, line command and communication links between parties involved in the Contract on and off site. Names, roles, responsibilities and authority of principals and key personnel.

(ii) Contractor's Quality Management System: Identification of the parts of the Contractor's Quality Management System relevant to the Works.

(iii) Supply Chain Management: Including details of control and communications processes, assessment of the supplier's and sub-contractor's quality management systems and quality control capabilities, monitoring arrangements, review and acceptance of work items being undertaken by the sub-contractor or supplier. Details and scheduling of Quality Plans required by relevant National Highways Sector Schemes or other quality management schemes. Details of registration to relevant National Highway Sector Schemes or other quality management schemes.

(iv) Document Control: Controls relevant to the Works, including the control and processing of testing results, materials and workmanship certification and quality records. The management of quality records. The control and scheduling of all documentation to be submitted to the Employer / Client, the Engineer, the Principal Designer (CDM 2015) as required by the Specification throughout the Works.

(v) Resource Management: Including details of relevant skills and experience of personnel involved in the Works. The relevant training and/or competency assessment certificates and/or registration/skills cards, or scheduling of when they will be provided.

(vi) Method Statements: Method Statements for initial items of work and scheduling for all other Method Statements required. This scheduling shall include times for submission of Method Statements such that they are submitted a minimum of 14* days prior to the commencement of the relevant work.

Quality Management System Minimum Requirements

13.3. Quality management required to:

BS EN ISO 9001	"Quality management system";
BS EN ISO 14001	"Environmental management systems" and;
BS OHSAS 18001	"Occupational Health and Safety".

13.4. Records to demonstrate compliance shall be made available to the Engineer on request.

14. CONTAMINATION AVOIDANCE AND / OR AQUIFER PROTECTION MEASURES

14.1. The Contractor shall, as part of their **Risk Assessment and Method Statement (RAMS)**, prepare an action plan for the decontamination, and where necessary disposal, of any tools and equipment that encounter radioactive materials.

14.2. While radioactive materials are **NOT** anticipated, nor have been found during the Intrusive Ground Investigation, albeit that no GI was carried out inside any buildings, due to the former use of the MOD Graven Hill Site their presence cannot be entirely ruled out.

14.3. The Contractor shall carry out spot check for radiation during demolition.

14.4. The underlying aquifer in the Great Oolite Formation that lies at depth and is not expected to be encountered within the specified Works.

14.5. The Contractor shall, as part of the **Risk Assessment and Method Statement (RAMS)**, demonstrate measured to prevent contamination of Controlled Waters; groundwater and surface water; ditches, swales, road gullies and the surface water drainage system.

15. EXISTING GROUND LEVELS AND UNDERGROUND UTILITIES

Topographical Survey

15.1. A 3D Topographical Survey of the Site plus overhead and underground utilities / services (including a sub scan survey) is available electronically and shall be supplied to the Contractor, Annex 3.

Underground Utilities

15.2. The recorded locations are indicative only.

15.3. Underground services / utilities searches shall be carried out by the Contractor at all excavation points and demolition areas to factually demonstrate that the area is clear of all u/g services / utilities.

16. LIVE UTILITIES / SERVICES ON THE SITE AND IN BUILDINGS

16.1. Waterman, is responsible for, and has provided a specification for dealing with surface water drainage and foul water drainage only.

16.2. Hoare Lea, is responsible for, and has provided a specification for dealing all other utilities and services.

Surface & Foul Drainage – Waterman Are Advising

16.3. Waterman has been advised by the MOD [Meeting Friday 11 Sept 2015] that:

- All surface water drainage, roof drainage, downpipes etc., from all buildings to be demolished are dead and redundant, and can be, and shall be, removed and demolished with the buildings, both above ground and below ground within each Demolition Site Boundary.
- All foul water drainage, from all buildings to be demolished are dead and redundant, and can be, and shall be, removed and demolished with the buildings, both above ground and below ground within each Demolition Site Boundary.

16.4. The Contractor shall cap-off, dead and redundant drainage and sewage pipes at, or close to the Site boundary (either inside or outside the Sits, at a convenient, sensible manhole or other location.

16.5. Nevertheless, the Contractor shall make all necessary enquiries to the MOD regarding the status of existing services on, at beneath and to the Site.

Utility Searches

16.6. Underground services / utilities searches shall be carried out by the Contractor at all excavation points and demolition areas to factually demonstrate that the area is clear of all live u/g services / utilities.

All other Utilities – Hoare Lea Are Advising

16.7. Refer to Hoare Lea's "Graven Hill, Bicester - Utilities Infrastructure New Supplies Engineering Services: Employers Requirements, Rev 02, September 2015" in Annex 5.

Utilities & Services at Building E3

16.8. There will be live services to and from the existing water tank and diesel water pump house to the NW of Building E3. See photo below. These shall not be demolished, are to remain operational and therefore utilities and services to and from them shall remain live and operational.

16.9. BUT, Refer to Hoare Lea's "Graven Hill, Bicester - Utilities Infrastructure New Supplies Engineering Services: Employers Requirements, Rev 02, September 2015" in Annex 5.

Existing water tank and diesel water pump house. Building E3 is immediately to the right of and behind the brick garage building on the RHS of the photo, which is also to be retained.

17. INDIRECT DETECTION OF BURIED UTILITIES / SERVICES

17.1. Responsibility for confirming the locations and protecting services on the Site rests with the Contractor regardless of any information provided to assist in their location.

17.2. The Contractor is advised that existing services / utilities drawings, surveys etc. for the Site have been compiled from a number of sources and no guarantee can be provided regarding their accuracy or lack thereof. These drawings, surveys etc. shall therefore be used as a guide only.

17.3. There remains the possibility of unknown or inaccurately recorded services / utilities and the Contractor shall be responsible for confirming the locations of and protecting services on the Site.

17.4. It is critical that services / utilities supplying the MOD facilities at Graven Hill are not interrupted as this could impact the operation of the base.

17.5. Underground services / utilities searches shall be carried out by the Contractor at all excavation points and demolition areas to factually demonstrate that the area is clear of all live u/g services / utilities. That shall require:

- CAT scan, and / or;
- hand dug inspection pits to 1.2m minimum depth begl, and / or;
- soil vacuum soil removal, or;
- similar methods.

17.6. Further guidance on avoiding the dangers from underground services is given in the HSE publication HSG 47 (2000).

CAT Scans

17.7. The use of locating devices shall wherever possible prove the positive presence of services shown **or not shown** on the drawings rather than purely their absence. For the avoidance of doubt, this means that the position of any services **at or near** the proposed Works locations shall be pinpointed as accurately as possible by means of a locating device, the principle type being a Cable Avoidance Tool (CAT) and generator operated by a suitably trained person. CAT scanning shall be carried out prior to commencement, at frequent intervals during and on completion of the Works.

17.8. Although CAT scanning shall be one of the principle means for the passive detection of services, consideration shall also be given to the use of other passive techniques including - but not limited to

- sondes;
- ground-probing radar (GPR) and;
- other geophysical methods.

Service Clearance Methodology

17.9. The Tendering Contractor shall prepare a detailed **Service Clearance Proposal** at the point of tender for consideration by the Employer / Client and the Engineer. This proposal shall present the

Contractors approach using the most appropriate method of clearing the Site of services, some of which are listed above.

17.10. The Contractor is reminded that all reasonable effort must be made to avoid damage to services / utilities supplying MOD facilities. Therefore a robust approach to service clearance **is required.**

18. EXPLOSIVES AND BLASTING

18.1. Explosives and blasting are **NOT** permitted, anywhere.

18.2. The Contractor's attention is drawn to the Specification requirements for the control of noise, vibration, air quality (dust) & smoke.

19. HAZARDOUS MATERIALS

19.1. **Summary of Known Hazardous Materials**

- Hazardous Ground: **None known. See below.**
- Mine Workings: **No.**
- Contaminated Land (i.e. EPA Part IIA, determined by LA: **No.**
- Land Contamination: **Yes, some minor anticipated.**
- Notifiable and/or Invasive Weeds: **None known. See below.**
- Hazardous Materials in Buildings: **See below.**

19.2. **Hazardous Ground**

- There are no specific areas of known hazardous ground within the Site.
- However, the MOD Graven Hill site has been used for a range of military activities in the past and localised spots of hazardous ground may exist as a result.
- These include, but are not limited to:

19.3. **Unexploded Ordnance (UXO/UXB)**

- BACTEC Report 3063TA Rev_1 dated 14th January 2011 states that there is a Low-Medium Risk of UXO at the MOD Graven Hill site.
- The BACTEC UXO Report is contained in the ENTEC Report entitled “Additional Sites at Sites D&E, DSDC Binormatcester, Land Quality Assessment, Phase One: Desk Study, DE Project No.: 13014, Final LQA Report, dated 25 March 2011”.
- BACTEC make the following recommendations:
    - Explosive Ordnance Safety and Awareness Briefings to all personnel conducting intrusive works.
    - The provision of Unexploded Ordnance Site Safety Instructions.
- The Contractor shall provide both Explosive Ordnance Safety and Awareness Briefings, and Unexploded Ordnance Site Safety Instructions, to all personnel working on the Site.
- There is no known Unexploded Ordnance at this Site.

19.4. **Radiological materials**

- A Land Quality Assessment - Phase 1: Desk Study Report undertaken by ENTEC, 25th March 2011 highlights that DSDC Bicester has stored a number of items of military equipment over the years that contained radioactive components. The report considers there to be a moderate risk that radioactive material could be present in previously unknown areas of the MOD Graven Hill site.
- As part of the Entec Report a desk based radiological assessment was commissioned.

- DSTL Environmental Services Department conducted the assessment, concluding that a large number of standard military equipment containing radiological material have been stored at the Site from at least 1994 to the present day.
- This was followed by a radiological walkover survey and subsequent intrusive investigation undertaken by Entec.
- The results of the intrusive assessment identified a damaged luminised dial exhibiting elevated readings of radioactive contamination in an area outside of the subject Site.
- No other elevated results were recorded within the current Site boundary.
- However, as a precaution, during the recent intrusive ground investigation, Geotechnical Engineering Limited used a hand held contamination and radiation monitor at each borehole and trial pit location to screen soil samples.
- At no point did radiation levels at exploratory hole locations exceed normal background levels.
- One of the Romney Huts has a radiation warning notice. We have no further information. Nevertheless, the Contractor shall take all appropriate precautions and investigations.
- The Contractor shall carry out spot check for radiation during demolition.
- There are no known radiological materials on this Site.

19.5. **Land Contamination**

- There is no known areas of the Site that would be considered as "contaminated land" as defined under Part IIA of the Environmental Protection Act 1990.
- However, the historical use of the MOD Graven Hill site for military activities means that previously unidentified localised areas of land contamination may exist on the MOD Graven Hill site.
- Nevertheless, the Contractor shall be vigilant for any evidence of gross contamination that could constitute hazardous ground and inform the Engineer.
- A Land Quality Assessment Report for the Graven Hill site is available on request.

19.6. **Notifiable and Invasive Weeds**

- No known notifiable and invasive weeds have been recorded on the Site.
- Should any be encountered or suspected, the Contractor shall immediately inform the Engineer.

19.7. **Hazardous Materials in Buildings**

- None known.
- **Possible Explosives:** On Friday 11th September 2015, the Asbestos Consultant, Amicus Environmental Ltd called in a risk of having found possible explosives on the surface inside one of the Romney Huts. The MOD fire brigade and the local police were in attendance. Westacott Road was temporarily closed. We have no further information at this stage. Nevertheless, the Contractor shall make further enquiries to the MOD and shall take all appropriate precautions and investigations.
- It is understood that this is non-hazardous material used for training purposes.
- It is understood that the MOD shall remove this material prior to demolition.

20. TRAFFIC SAFETY AND MANAGEMENT

20.1. Submission of Traffic Safety and Management Proposals

Before the start of works on Site the Contractor shall submit to the Engineer their proposals for managing traffic safely along:

- the existing very narrow single track access track from Rodney House Roundabout (A41) to the site of Rodney House Social Club Out Buildings;
- the road from Rodney House Roundabout (A41) and along Westacott Road to the site of the Romney Huts and the Garrison Theatre.

20.2. Traffic Safety and Management Requirements and Constraints

(i) Site specific requirements and constraints, to including the following:

(a) Any restrictions on the phasing of the Works.

Yes. See elsewhere in Specification.

(d) Any site specific requirements for the use of traffic signals, width of lanes, working areas or safety zones.

Yes, possibly as in Specification Clause 22.1 above.

(e) Embargo periods such as holiday periods, stating additional restrictions for these periods.

None. Not applicable.

(f) Any local events or conditions likely to affect traffic, stating any additional restrictions that would apply.

Yes.

Bicester Outlet Village, on the north side of the east-west A41 can create additional traffic on specific days.

There is an overflow car park and a Park & Ride facility on the MOD Graven Hill Site outside the MOD security fence. There can therefore on specific days be additional traffic from the Park & Ride facility, along Westacott Road and Rodney House A41 Roundabout.

(ii) Traffic data – data required for traffic management design, such as:

- Traffic flows, peak and off peak;
- Percentage HGVs;
- Use of routes by buses.

None. Not applicable.

20.3. 3. Traffic Safety and Control Officer (TSCO)

(i) State if a TSCO is not required.

(ii) State if the TSCO is not required to be on the Site at all times.

(iii) Give details of traffic management control centre or other parties with which the TSCO is required to liaise.

None. Not applicable.

20.4. 4. Temporary Traffic Regulation Orders and other Statutory Orders

(i) Details of any orders applied for prior to time of tender.

(ii) State if the Contractor is not required to apply for orders.

(iii) State any procedural requirements, for example, if order applications need to be made through the Engineer.

(iv) Notice periods required if orders are to be made through the Engineer.

None. Not applicable.

21. ROUTEING OF VEHICLES

Permitted Access Routes to and from the Site

21.1. Refer to Contract Drawings: "Site Boundary, Site Access Routes, Go – No Go Areas."

The Use of the Permanent Works by Construction Traffic

21.2. The Permanent Works shall NOT be damaged by Construction Traffic.

21.3. The Contractor shall programme his works accordingly.

Movement of Machinery and Plant Across Public Roads

21.4. Refer to the Contractor's Construction Management Travel Plan.

Construction Management Travel Plan – Planning Condition

21.5. Planning Condition 57 states:

> *"No development shall commence on site for the Graven Hill development until a Construction Management Travel Plan providing full details of the phasing of the development and addressing each construction activity within each phase has been submitted to and approved in writing by the Local Planning Authority (in consultation with the Local Highway Authority) prior to the commencement of development. This plan is to include wheel washing facilities, a restriction on construction & delivery traffic during and routes to the Graven Hill development site. The approved Plan shall be implemented in full during the entire construction phase and shall reflect the measures included in the Construction Method Statement received.*
>
> *Reason - In the interests of highway safety and to mitigate the impacts of the development during the construction phase and to protect the amenities of the Bicester, Ambrosden and Arncott during the construction period and to comply with Policy ENV1 of the adopted Cherwell Local Plan."*

21.6. In accordance with Planning Condition 57, prior to the commencement of any Works on Site, the Contractor shall prepare and submit to the Employer, a Construction Management Travel Plan providing full details of the phasing of the Works and addressing each construction activity.

21.7. The Contractor's Construction Management Travel Plan shall be submitted to and approved in writing by the Local Planning Authority (in consultation with the Local Highway Authority) prior to the commencement of any demolition Works on Site.

21.8. The Contractor's proposals shall include:

- wheel washing facilities;
- a restriction on construction & delivery traffic during and routes to the Site.

21.9. The approved Construction Management Travel Plan shall be implemented by the Contractor in full during the entire Works.

22. COMPLYING WITH PLANNING CONDITIONS

22.1. Planning Condition No. 71 states:

> *"Prior to any demolition and the commencement of the development at Graven Hill a professional archaeological organisation acceptable to the Local Planning Authority shall prepare an Archaeological Written Scheme of Investigation, relating to the Graven Hill application site area, which shall be submitted to and approved in writing by the Local Planning Authority."*

22.2. Waterman's report EED13983-106-1-1-3-TM has been submitted to and approved Richard Oram Planning Archaeologist at Oxfordshire County Council, on 27/02/15.

22.3. Planning Condition No. 72 states:

> *"Prior to any demolition on the Graven Hill site and the commencement of the development hereby approved on Graven Hill, and following the approval of the Written Scheme of Investigation referred to in condition 71, a staged programme of archaeological evaluation and mitigation shall be carried out by the commissioned archaeological organisation in accordance with the approved Written Scheme of Investigation."*

22.4. Archaeological trenching and investigation is currently being carried out on the wider MOD Graven Hill Site.

22.5. There are no archaeological trenches being carried out within the Demolition Site Boundaries.

22.6. Planning Condition No. 47 states:

> *"A Construction Environment Management Plan (CEMP), in relation to Graven Hill, shall be submitted to and approved in writing by the Local Planning Authority, prior to the commencement of development on Graven Hill. Thereafter, the development shall be carried out in accordance with the approved CEMP unless otherwise agreed in writing by the Local Planning Authority."*

22.7. Planning Condition No. 76 states:

> *"Prior to the commencement of the development hereby approved at Graven Hill, including any demolition and any works of site clearance, a Construction Environmental Management Plan (CEMP), which shall include details of the measures to be taken to ensure that construction works do not adversely affect biodiversity, shall be submitted to and approved in writing by the Local Planning Authority for each phase of development. Thereafter, the development shall be carried out in accordance with the approved CEMP."*

22.8. The Contractor shall be required to prepare and submit a **Construction Environmental Management Plan (CEMP)** for each phase of demolition **t**hat shall comply with Planning Condition No. 76 and in particular shall include details of the measures to be taken by the Contractor to ensure that construction works do not adversely affect biodiversity.

22.9. The Contractor shall initially submit their Construction Environmental Management Plan (CEMP) to the Employer / Client.

22.10. The Employer / Client shall submit the Contractor's Construction Environmental Management Plan (CEMP) to the Local Planning Authority.

22.11. Demolition shall not start until the Local Planning Authority has approved the Contractor's Construction Environmental Management Plan (CEMP) in writing.

22.12. Demolition shall then be carried out in accordance with the approved Construction Environmental Management Plan (CEMP).

23. PERMITS, CONSENTS AND LICENCES ETC.

Building	Permits, Consents and Licences etc. Required
All buildings	**Demolition Notices:** Approximately six (6) weeks, before demolition starts, the Contractor shall issue the appropriate Demolition Notice/s to the Local Authority under Sections 80 to 83 of the Building Act 1984. The demolition shall not commence until either the six weeks have elapsed or a Notice is served by the Local Authority under Section 81 of the Act. Link to the Building Act 1984: http://www.legislation.gov.uk/ukpga/1984/55
Building E3	None other required. A self-contained Site within Land Transfer Area (LTA) 1.
Theatre	Depending on the Contractor's Method of Working a total or partial road closure of Westacott Road may be required from time to time. If required, any permits, consents and licences etc. shall be obtained by the Contractor. NB: Westacott Road is open to the public and takes traffic from and to the Bicester Outlet Village, on the north side of the east-west A41. NB: This can create additional traffic on specific days. NB: There is an overflow car park and a Park & Ride facility on the MOD Graven Hill Site outside the MOD security fence. There can therefore on specific days be additional traffic from the Park & Ride facility, along Westacott Road and Rodney House A41 Roundabout.
Romney Huts	None other required. A self-contained Site within Land Transfer Area (LTA) 1.
Rodney House	None other required. A self-contained Site within Land Transfer Area (LTA) 1.

24. HEALTH AND SAFETY & CDM 2015

Health and Safety

24.1. Details of known specific or extraordinary hazards or risks that would require particular or unusual precautions and would place limitations on the methods of working.

Asbestos

- Refer to Amicus Environmental's "Refurbishment / Demolition Asbestos Surveys" one for each of the three key buildings.
- It is the Demolition Contractor's responsibility to satisfy himself that all asbestos has been identified and if it has not all been identified, to identify the remaining asbestos, and remove it.
- Fully trained operatives shall be employed to remove any asbestos in a manner that is compliant with all current safety regulations.

Utilities / Services

- Overhead and underground utilities.

Underground military optical fibre communications networks

- The Contractor is advised that there are underground military optical fibre communications networks at the MOD Graven Hill Site – for communications and fire detection purposes. The Contractor shall advise the Engineer and the MOD immediately should any optical fibres be damaged during the course of the Works.

Constraints in Programme of Works

- Refer to constraints listed in Programme of Works.

24.2. Details of known required actions or precautions.

- Current best practice.

24.3. Details of notifications required to and from the Employer / Client, the Engineer, the Principal Designer (CDM 2015) or other parties.

- None known.
- Details of any specific monitoring requirements and submission of records to the Employer / Client, the Engineer, the Principal Designer (CDM 2015), the Local Authority or other parties.

- Refer to Specification Clause "CONTROL OF NOISE, VIBRATION, AIR QUALITY (DUST) & SMOKE"

CDM 2015

24.4. CDM 2015 Regulation 20 "Demolition or dismantling", states:

> *"(1) The demolition or dismantling of a structure must be planned and carried out in such a manner as to prevent danger or, where it is not practicable to prevent it, to reduce danger to as low a level as is reasonably practicable.*
>
> *(2) The arrangements for carrying out such demolition or dismantling must be recorded in writing before the demolition or dismantling work begins."*

24.5. The Works shall be carried out in accordance with CDM 2015 Regulation 20.

24.6. CDM 2015 Regulation 6 "Notification", states:

> *"(1) A project is notifiable if the construction work on a construction site is scheduled to:*
>
> *(a) last longer than 30 working days and have more than 20 workers working simultaneously at any point in the project; or*
>
> *(b) exceed 500 person days.*
>
> *(2) Where a project is notifiable, the Client must give notice in writing to the Executive as soon as is practicable before the construction phase begins.*
>
> *(3) The notice must:*
>
> *(a) contain the particulars specified in Schedule 1;*
>
> *(b) be clearly displayed in the construction site office in a comprehensible form where it can be read by any worker engaged in the construction work; and*
>
> *(c) if necessary, be periodically updated.*
>
> *(4) Where a project includes construction work of a description for which the Office of Rail Regulation is the enforcing authority by virtue of regulation 3 of the Health and Safety (Enforcing Authority for Railways and Other Guided Transport Systems) Regulations 2006, the Client must give notice to the Office of Rail Regulation instead of the Executive.*
>
> *(5) Where a project includes construction work on premises which are or are on:*
>
> *(a) a GB nuclear site (within the meaning given in section 68 of the Energy Act 2013);*
>
> *(b) an authorised defence site (within the meaning given in regulation 2(1) of the Health and Safety (Enforcing Authority) Regulations 1998); or*
>
> *(c) a new nuclear build site (within the meaning given in regulation 2A of those Regulations), the Client must give notice to the Office for Nuclear Regulation instead of the Executive."*

24.7. The Contractor's Programme (duration on the Site) Method of Working (number of workers on Site at any point in the project and total person days) shall determine whether or not the Works are "notifiable" under CDM 2015.

Construction Phase Plan

24.8. CDM 2015 requires that a Construction Phase Plan for the project is prepared by the Contractor before the construction phase begins.

24.9. A "Construction Phase Plan" means a plan drawn up under CDM 2015 regulations 12 or 15.

24.10. The Construction Phase Plan outlines the health and safety arrangements, site rules and specific measures concerning any work involving the particular risks listed in Schedule 3 of CDM 2015.

24.11. For single contractor projects, the contractor must ensure the plan is prepared.

24.12. For projects involving more than one contractor, it is the principal contractor's duty.

24.13. Appendix 3 of "*Managing health and safety in construction - Construction (Design and Management) Regulations 2015 - Guidance on Regulations",* provides further guidance on the requirements relating to Construction Phase Plans.

24.14. The Contractor shall prepare, and submit to the Employers / Client and Principal Designer a **Construction Phase Plan** before the Works start on Site.

24.15. The Construction Phase Plan shall be reviewed, updated and revised from time to time by the Contractor so that it continues to be sufficient to ensure that construction work is carried out, so far as is reasonably practicable, without risks to health or safety.

Reporting Dangerous Conditions

24.16. Everyone involved in a project (including workers) has a duty to report instances where they or others are working in a way that puts them or anyone else in danger.

24.17. The Contractor shall report all such instances to the Employer / Client and the Principal Designer.

24.18. The Contractor shall report encourage workers to stop work and report dangerous conditions when they see them.

25. RAMS, DP & SWMP TO BE PREPARED BY CONTRACTOR

25.1. The Contractor shall prepare and submit to the Principal Designer (CDM 2015):

25.2. Prior to starting any work on the Site:

- Site Specific Risk Assessments (RA)
- Site Specific Method Statements (MS)
- Site Specific Demolition Plan (DP) in accordance with BS 6187 Clause 5.2.2.4
- Site Specific Initial Site Waste Management Plan (SWMP)

25.3. After completion of work on the Site:

- An Final Site Specific Site Waste Management Plan (SWMP)

26. PROGRESS PHOTOGRAPHS BY THE CONTRACTOR

26.1. Specific times required, including the first set if it is required in a shorter time than the given interval.

A comprehensive set of pre-construction photographs shall be taken to record all existing conditions.

In particular pre-construction photographs of the existing Leda Properties Access Track from Rodney House Roundabout (A41) to the Site in combination with an “Existing Condition Survey” shall be done in conjunction with Leda Properties and the Employer.

A pre-construction set of at least 40 (forty) **photographs**, 10 (ten) at each building to be demolished.

A weekly set of at least 40 (forty) **progress photographs**, 10 (ten) at each building to be demolished, showing key aspects of the Works.

A final as completed set of at least 40 (forty) **photographs**, 10 (ten) at each building to be demolished.

Consideration could also be given to the use of **video recordings** of the key aspects the Works.

26.2. Specific work items or events that photographs are required for.

No specific items.

26.3. Details of media required for submission of photographs to the Engineer.

Digital photographs.

A4 sized paper copies of each photo.

26.4. The designation of the person to accompany the photographer.

Not required.

26.5. State if the photographer is not required to be a professional photographer.

Professional photographer is **NOT** required.

27. PROGRAMME OF WORKS AND KNOWN CONSTRAINTS

27.1. The Contractor shall provide the Programme in the following form to comply with the constraints below:

The Contractor shall propose a form of programme for the acceptance by the Engineer.

Ideally the Programme should:

- be prepared in Excel, Microsoft Project or Oracle's Primavera P6 Enterprise Project Portfolio Management;
- show “Duration in Weeks”, “Start Date”, “End Date” of individual tasks;
- show the critical path;
- be updated regularly and issued to the Engineer.

Schedule of Known Constraints

27.2. The following is a list of applicable programming constraints, it is not exhaustive and all work elements should be considered for their programming requirements and constraints.

27.3. Work to privately and publicly owned services and supplies.

- Yes.
- Refer to the MOD Site Closure Plans.
- Carillion / Kelda Water are responsible for MOD’s private potable water supply.
- Thames Water are the foul sewage utility.

27.4. Possession (rail, property, etc.

None known.

NB: There is a live, operational MOD railway that operates close to MOD Building E3, and crosses Westacott Road just south of the Romney Huts demolition Site. The train may run several times a day.

27.5. Traffic safety and management including notice requirements.

None known.

27.6. Restrictions arising from particular health and safety requirements.

None known.

27.7. Environmental constraints including seasonal restrictions and provision of environmental protection prior to the main construction operations (environmental barriers, etc.).

Environmental & Ecological Constraints:

1. **Bats** and / or bar roosts may be present in:
    a. MOD Building E3: No.

b. Former Garrison Theatre: Yes.

c. Romney Huts: No.

d. Rodney House Social Club Out Buildings: Yes.

2. Demolition, and removal of asbestos, of both the Former Garrison Theatre and Rodney House Social Club Out Buildings shall be carried out using the methodology set out within a Natural England European Protected Species Licence with regards to bats. It is possible that these buildings shall require a soft strip demolition under the supervision of an appropriately licenced Ecologist.

3. It is the intention that the Bat Licence will be in place before demolition works start on Site.

4. **Great Crested Newts (GCN)** in landscape, grassed areas etc.:

   a. Waterman's Ecologist may be required to carry out fingertip searches in landscape, grassed areas etc. prior to any Work activity.

5. **Asbestos** is present in:

   a. MOD Building E3: Yes.

   b. Former Garrison Theatre: Yes.

   c. Romney Huts: Yes.

   d. Rodney House Social Club Out Buildings: Yes.

   e. all to a greater or lesser extent;

   f. refer to Amicus Environmental's "Refurbishment / Demolition Asbestos Surveys" one for each of the three key buildings, Annex 1.

   g. NB: The Asbestos Consultant, Amicus Environmental Ltd, think they have identified asbestos shuttering under hard-standing / around manholes in the Romney Huts Site.

6. **Heritage Photographs:** Waterman's Heritage Consultant shall require access to the Garrison Theatre for one (1) day after the wooden security window covers have been removed and when daylight can get into the building and after asbestos has been removed, to take internal heritage photographs before demolition starts.

27.8. Trials and demonstrations in advance of main construction.

Not applicable. None.

27.9. Restrictions with respect to avoidance of pollution due to noise and vibration.

Refer to Specification section headed: "Control of Noise, Vibration And Air Quality (Dust)".

27.10. Land Contamination Constraints.

Possible delays / programming requirement re the sampling and testing of demolition materials to be retained on Site.

28. CONTROL OF NOISE, VIBRATION, AIR QUALITY (DUST) & SMOKE

General

28.1. The Local Authority having responsibility for the topic is:

Cherwell District Council, Bodicote House, Bodicote, Banbury, Oxfordshire OX15 4AA

Contact person: Richard Atherton – Environmental Protection Officer

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28.2. The Contractor should undertake consultation with the Local Authority in order to agree their strategy prior to the commencement of the Works.

28.3. The Contractor shall decide whether to seek the Local Authority's formal consent to their proposed methods of work and to the steps they propose in order to minimise noise, vibration and dust.

28.4. Data/Local Authority information/requirements.

None.

28.5. Restrictions on Working Hours:

Refer to where this information is given elsewhere in this Specification.

28.6. The Contractor shall take precautions to minimise nuisance to third parties caused by noise, vibration and dust.

28.7. The Contractor shall allow for and deal with any complaints from third parties caused by noise, vibration and dust.

28.8. The Contractor shall temporarily suspend operations if required to do so.

28.9. Work shall be carried out in accordance with the requirements of:

- BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Part 1: Noise;
- BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration;
- Control of Pollution Act 1974;
- Environmental Protection Act 1990;
- Environment Act 1995;
- Public Health Act, 1961.

28.10. If vibration is likely to be a problem or becomes a problem during the contract, reference shall be made to:

- BS 7385-2:1993 Evaluation and measurement for vibration in buildings - Part 2: Guide to damage levels from groundborne vibration;

- BS 6472-1:2008 Guide to evaluation of human exposure to vibration in buildings Part 1: Vibration sources other than blasting.

Measures to Minimise Noise and Vibration

28.11. Below is a summary of the measures that shall be used to minimise noise and vibration:

28.12. The Contractor and their Sub-Contractors shall at all times apply the principle of Best Practicable Means as defined in Section 72 of the Control of Pollution Act 1974 and shall carry out all work in such a manner as to reduce any disturbance from noise and vibration to a minimum.

28.13. The following order of priority shall be considered as the general principle for following best practicable means:

- control noise, vibration and dust at source;
- selecting quiet and low vibration emitting equipment;
- locate plant within the Site,;
- work within operational hours;
- enclose equipment by suitable and effecting means;
- screening either by site perimeter, site welfare offices or specific hoarding or enclosures.

28.14. Implementation of specific mitigation measures as standard:

- use of modern, well maintained plant and equipment that complies with the noise limits quoted in the relevant European Commission Directive 2000/14/EC/United Kingdom Statutory Instrument (SI) 2001/1701 and in the mode and a manner that minimises noise and vibration;
- location of mobile construction plant, as far as is reasonably practicable, away from adjacent occupied buildings or as close as possible to the Site hoarding to provide additional screening from sensitive noise receptors;
- siting and orientation of all static equipment, as far as is reasonably practicable, away from occupied buildings and, where feasible, will be fitted with suitable enclosures;
- staggering of noisy activities in time and space where feasible;
- shutting down of plant and equipment when not in use;
- employment of temporary local acoustic screens to further attenuate noise emission from the noisiest plant items; and
- off-site prefabrication where appropriate.

28.15. The Contractor shall liaise with the occupants of adjacent commercial and residential properties potentially most affected by noise or vibration from on-site activities.

28.16. The occupants shall be informed by the Contractor of the nature of the Works, proposed hours of work and anticipated duration prior to the commencement of activities.

28.17. They shall also be given contact details of the individual or individuals responsible for ensuring complaints and enquiries are dealt with fairly and expeditiously.

Construction Management Plan (CMP)

28.18. Prior to the commencement of the Works, a Construction Management Plan (CMP) shall be prepared by the Contractor which shall set out the actions that shall be taken by the Contractor to consider, measure, evaluate and mitigate against noise and vibration during the construction of the project, including demolition and Site preparation activities.

Pre-Works Background Noise & Vibration Surveys

28.19. Pre-Works Background Noise & Vibration Surveys are NOT required.

28.20. Sensitive receptors surrounding the following buildings to be demolished are:

MOD Building E3:

- **Vibration:** The existing water tank and pump house to be retained, immediately to the west of MOD Building E3.
- **Noise & Dust:** None nearby. The nearest operational MOD building.

Former Garrison Theatre:

- **Vibration:** None nearby. The nearest operational MOD building.
- **Noise & Dust:** None nearby. The nearest operational MOD building.

Romney Huts:

- **Vibration:** None nearby. The nearest operational MOD building or habited house.
- **Noise & Dust:** None nearby. The nearest operational MOD building or habited house.

Rodney House Social Club Out Buildings:

- **Vibration:** None nearby. The nearest operational MOD building or habited house.
- **Noise & Dust:** None nearby. The nearest operational MOD building or habited house.

28.21. If required, the calculation methodology outlined in BS 5228:2009 +A1: 2014 shall be used to evaluate the potential impact of operations on identified nearby sensitive receptor, and thereby determine the requirements for mitigation.

28.22. If required, requirements for mitigation of vibration shall be based on the guidance within BS 6472: 2008 Part 1.

Monitoring Requirements

28.23. Monitoring is required for:

Noise: **Not required,** unless complaints received.

Vibration: **Not required,** unless complaints received.

Air Quality. **Not required,** unless complaints received.

28.24. If required, the number and specific siting of monitoring locations for the nearby sensitive receptor shall be agreed by the Contractor with the Engineer and the Local Authority.

28.25. If required, monitoring data shall be downloaded, as required, and reported to the Engineer and the Local Authority within 24 hours.

Noise Monitoring Requirements

28.26. If required, the following method shall be used to determine excessive / unacceptable noise:

- Pre-existing ambient +5dB.

28.27. The Local Authority has NOT set any site specific noise limits.

28.28. Noise levels relate to free field conditions. Where noise monitoring is undertaken at nearby sensitive receptor where sound level meters are located at least 1 m from façades of buildings.

		Total Noise Levels at Control Stations	
When?	**Pre-Construction Ambient Noise Level, Leq Measured at Control Stations: dB(A)**	**Period of Hours over which Leq is applicable**	**Maximum Sound Level (see Note (iv) below) measured at Control Station: dB(A)**
Normal Working Hours	If required, to be measured and provided by the Contractor before the Works start.	10 hours	80 **dB(A)**
Outside Normal Working Hours	n/a	n/a	n/a

28.29. **The Pre-Construction Ambient noise level**, LAeq, at a nearby noise sensitive is the total LAeq from all the noise sources in the vicinity over the representative period prior to the commencement of the Works.

28.30. **The Total Noise level,** LAeq, at a nearby noise sensitive is the total LAeq from all the noise sources in the vicinity over the representative period plus the construction noise.

28.31. **The Ambient Noise Level,** Leq (see Note (ii) below) from all sources when measured 2.0m above the ground at noise control stations/nearest noise sensitive dwelling shall either not exceed the appropriate level given in the Table above or not exceed by more than 3dB(A) the existing ambient noise level, Leq (see note (iii) below), at the control station measured over the same period, whichever level is the greater.

28.32. If required, the maximum sound level at any noise control station shall not exceed the level given in the Table above, provided that 3 days' notice of the date and timing of these works is given to the Engineer and the Contractor demonstrates that he intends to take all reasonable measures to mitigate the noise nuisance.

28.33. After consultations with the Local Authority and any other interested bodies a decision will be given within 3 days of receipt of the notice.

28.34. The Contractor shall notify the Engineer within one week of the Date of Commencement of the Works, of the name, address and telephone number of an employee who shall be available to respond, outside of normal office hours, to complaints arising from any alleged excessive sound emissions.

28.35. The Contractor shall achieve the lowest reasonably practicable noise levels by providing and using items of plant and equipment which have been specifically designed and/or modified to reduce the noise of normal operations.

28.36. All static plant shall be so located and installed as to minimise nuisance to persons living or working in the vicinity.

28.37. All compressors shall be 'noise reduced' models fitted with properly lined and sealed acoustic covers which shall be kept closed when the machines are in use, and all ancillary pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers.

28.38. All vehicles and mechanical plant used for the purpose of the Works shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order so that extraneous noise shall be reduced to a minimum.

28.39. Machines in intermittent use shall be shut-down in the intervening periods between work or throttled down to a minimum.

28.40. The Contractor should be aware of the location of Schools within the vicinity. The Contractor should liaise closely with the school and the Local Education Authority to ensure phasing of the Works, such that noise levels are kept to a minimum during examination periods.

28.41. If required, and at the request of the Engineer and before starting any operation, the Contractor shall submit the following information:-

28.42. A Method Statement and Programme giving the type of plant and the numbers of each type to be used for the operation.

28.43. Details of any other plant engaged on operations affecting the noise level.

28.44. Documentation from manufacturers' literature establishing the sound power level of the plant.

28.45. **Notes:**

(i) Noise levels relate to free field conditions. Where noise control stations are located 1m from facades of buildings, the permitted noise levels can be increased by 3 dB(A).

(ii) The ambient noise level, Leq, at a noise control station is the total Leq from the noise sources in the vicinity over the specified period.

(iii) The existing ambient noise level, Leq, at a control station is the total Leq from all the noise sources in the vicinity over the specified period prior to the commencement of the Works.

(iv) Maximum sound level is the highest value indicated on a sound level meter which meets the requirements of BS EN 60651 Type 1 or 2 set to SLOW response and frequency weighting A or an integrating – averaging sound level meter to BS EN 60804.

Vibration Monitoring Requirements

28.46. Based on historical field measurements undertaken by Waterman, the distances at which specified activities may give rise to 'just perceptible' levels of vibration are presented as Table 1.

Table 1: Distance at vibration may be just perceptible

Construction Activity	Distance from Activity when Vibration may Just be Perceptible (metres)[1]
Heavy vehicles	5 to 10 m
Excavation	10 to 15 m
CFA Piling	15 to 20 m
Rotary Bored Piling	20 to 30 m
Vibratory Piling	40 to 60 m

[1] Distances for perceptibility are only indicative and dependent upon a number of factors, such as the radial distance between source and receiver, ground conditions, and underlying geology.

28.47. Unless the Contractor can demonstrate otherwise, construction activity shall not be carried out closer to buildings than tabulated above.

28.48. If required, vibration monitoring shall be undertaken by the Contractor during periods of work that have the potential to result in excessive / unacceptable vibration from the work being felt at the Site boundaries.

28.49. Excessive / unacceptable vibration is defined as **in excess of 1.0mm/s.**

28.50. BS 5228:2009 +A1: 2014 suggests that the threshold of perceptibility for vibration in residential settings is in the range of 0.15 to 0.3mm/s, with complaints likely at 1.0mm/s.

28.51. If required, vibration monitoring shall, as a minimum, comprise the continuous monitoring of vibration.

Air Quality (including dust) Monitoring Requirements

28.52. Enclosure sheeting, together with water sprays, shall be used to reduce dust nuisance.

28.53. If required, dust monitoring shall be undertaken by the Contractor during periods of work that have the potential to result in excessive / unacceptable dust being released from the Site boundaries.

28.54. If required, dust monitoring shall, as a minimum, comprise the continuous monitoring of particulates (PM10 and Total Suspended Particulates (TSP)).

Smoke

28.55. Fires and burning on Site are **NOT permitted.**

29. TESTING TO BE CARRIED OUT BY THE CONTRACTOR

29.1. Geotechnical Testing and Land Contamination Testing shall be in accordance with the ***"UK Specification for Ground Investigation Second Edition (2011)"*** published by ICE Publishing, with information, amendments and additions as in this Specification.

Imported Materials –Contamination Testing

29.2. No imported soils are anticipated.

- Nevertheless, if any soil materials are imported, to the Site, and will, or are intended to, form part of the Permanent Works, they shall be tested for contamination in accordance with the specification requirements.

Test	Number of Tests	In Accordance With:
Suite D BRE SD1	Minimum of 5 tests per source	Waterman Specification 30. Limiting Values for Harm to Human Health 39. Sampling and Testing of Soils for Contamination
Suite E Option 1 Metals	Minimum of 5 tests per source	As above.
Suite E Option 2 TPH	Minimum of 5 tests per source	As above.
Suite E Option 3 PAHs	Minimum of 5 tests per source	As above.
Suite E Option 4 Soil Properties	Minimum of 5 tests per source	As above.
Suite E Option 5 Asbestos Screening	Minimum of 5 tests per source	As above.
Suite E Option 6 Asbestos Quantification	Minimum of 5 tests per source	As above.
Suite E Option 7 VOCs	Minimum of 5 tests per source	As above.
Suite E Option 8 Chlorinated Aliphatics	Minimum of 5 tests per source	As above.
Suite E Option 9 PCBs	Minimum of 5 tests per source	As above.

Crushed Concrete etc. Geotechnical Testing

29.3. All crushed brickwork, concrete etc. that is to be stockpiled on the Site, and will, or are intended to, form part of the Permanent Works, shall be tested for geotechnical properties as listed below.

29.4. The requirements for acceptability, testing and compaction shall be as in MCHW Specification Table 6/1 and reproduced below.

29.5. Tables and Clauses referred to in the table below are those in the Manual of Contract Documents for Highway Works (/ Volume 1 - Specification for Highway Works, Series 0600 Earthworks.

Test	Number of Tests	In Accordance With:	Lower Acceptable Limit	Upper Acceptable Limit	Compaction Requirements
grading	Min. 5 No. tests per stockpile.	BS 1377: Part 2	Table 6/2	Table 6/2	Table 6/4 Method 6
optimum mc	Min. 5 No. tests per stockpile.	BS 1377: Part 4 (vibrating hammer method)	-	-	
mc	Only required if placed as fill. Min. 5 No. tests per location.	BS 1377: Part 2	OMC - 2%	OMC	
Los Angeles coefficient for Particle Soundness	Min. 5 No. tests per stockpile.	Clause 635 BS EN 1097-2.	-	6F1 = 60 6F2 = 50	
Class Ra (asphalt) content. (Testing for constituent materials in recycled concrete aggregate.)	Min. 5 No. tests per stockpile.	Clause 710	-	50%	

Test	Number of Tests	In Accordance With:	Lower Acceptable Limit	Upper Acceptable Limit	Compaction Requirements
bitumen content	Min. 5 No. tests per stockpile.	BS EN 12697-1 or BS EN 12697-39	-	2.0%	

30. LIMITING VALUES FOR HARM TO HUMAN HEALTH

30.1. The limiting values for harm to human health and the environment are given below.

Generic Quantitative Risk Assessment Criteria

Residential With Plant Uptake

30.2. This is intended as a comprehensive list of determinants with corresponding limiting values for a residential end use.

30.3. Not all determinants listed are require to be tested.

30.4. The determinants that are required to be tested are as listed in the Specification Appendices or as instructed from time to time by the Engineer.

Proposed End Use	Units	Residential With Plant Uptake			Source
Soil Organic Matter Content	**%**	**1%**	**2.5%**	**6%**	
Arsenic	mg/kg	37	37	37	DEFRA C4SLs
Antimony	mg/kg				CL:AIRE 2009
Barium	mg/kg				CL:AIRE 2009
Beryllium	mg/kg	1.7	1.7	1.7	LQM S4ULs 2015
Boron (Water Soluble)	mg/kg	290	290	290	LQM S4ULs 2015
Cadmium	mg/kg	22	22	22	DEFRA C4SLs
Chromium (Total)	mg/kg	910	910	910	LQM S4ULs 2015
Chromium (VI)	mg/kg	21	21	21	DEFRA C4SLs
Copper	mg/kg	2,400	2,400	2,400	LQM S4ULs 2015
Lead	mg/kg	200	200	200	DEFRA C4SLs
Mercury	mg/kg	1.2	1.2	1.2	LQM S4ULs 2015
Molybdenum	mg/kg				CL:AIRE 2009
Nickel	mg/kg	180	180	180	LQM S4ULs 2015
Selenium	mg/kg	250	250	250	LQM S4ULs 2015
Vanadium*	mg/kg	410	410	410	LQM S4ULs 2015
Zinc	mg/kg	3,700	3,700	3,700	LQM S4ULs 2015
Cyanide (Free)	mg/kg	26	26	26	Waterman GAC - CLEA v1.06

Proposed End Use	Units	Residential With Plant Uptake			Source
Soil Organic Matter Content	**%**	**1%**	**2.5%**	**6%**	
Complex Cyanide	mg/kg	63,000	63,000	63,000	Waterman GAC - CLEA v1.06
Thiocyanate	mg/kg	230	230	230	Waterman GAC - CLEA v1.06
Aliphatic EC5 - EC6	mg/kg	42	78	160	LQM S4ULs 2015
Aliphatic EC6 - EC8	mg/kg	100	230	530	LQM S4ULs 2015
Aliphatic EC8-EC10	mg/kg	27	65	150	LQM S4ULs 2015
Aliphatic EC10-EC12	mg/kg	130	330	760	LQM S4ULs 2015
Aliphatic EC12-EC16	mg/kg	1,100	2,400	4,300	LQM S4ULs 2015
Aliphatic EC16-EC35	mg/kg	65,000	92,000	110,000	LQM S4ULs 2015
Aliphatic EC35-EC44	mg/kg	65,000	92,000	110,000	LQM S4ULs 2015
Aromatic C5-C7	mg/kg	70	140	300	LQM S4ULs 2015
Aromatic C7-C8	mg/kg	130	290	660	LQM S4ULs 2015
Aromatic C8-C10	mg/kg	34	83	190	LQM S4ULs 2015
Aromatic C10-C12	mg/kg	74	180	380	LQM S4ULs 2015
Aromatic C12-C16	mg/kg	140	330	660	LQM S4ULs 2015
Aromatic C16-C21	mg/kg	260	540	930	LQM S4ULs 2015
Aromatic C21-C35	mg/kg	1,100	1,500	1,700	LQM S4ULs 2015
Aromatic C35-C44	mg/kg	1,100	1,500	1,700	LQM S4ULs 2015
Benzene	mg/kg	0.087	0.17	0.37	LQM S4ULs 2015
Toluene	mg/kg	130	290	660	LQM S4ULs 2015
Ethyl Benzene	mg/kg	47	110	260	LQM S4ULs 2015
Xylene - o	mg/kg	59	140	320	LQM S4ULs 2015
Xylene - m	mg/kg	60	140	330	LQM S4ULs 2015
Xylene - p	mg/kg	56	130	310	LQM S4ULs 2015
MTBE (Methyl tert-butyl ether)	mg/kg	49	84	160	CL:AIRE 2009
Naphthalene	mg/kg	2.3	5.6	13	LQM S4ULs 2015
Acenaphthylene	mg/kg	170	420	920	LQM S4ULs 2015

Proposed End Use	Units	Residential With Plant Uptake			Source
Soil Organic Matter Content	**%**	**1%**	**2.5%**	**6%**	
Acenaphthene	mg/kg	210	510	1,100	LQM S4ULs 2015
Fluorene	mg/kg	170	400	860	LQM S4ULs 2015
Phenanthrene	mg/kg	95	220	440	LQM S4ULs 2015
Anthracene	mg/kg	2,400	5,400	11,000	LQM S4ULs 2015
Fluoranthene	mg/kg	280	560	890	LQM S4ULs 2015
Pyrene	mg/kg	620	1,200	2,000	LQM S4ULs 2015
Benzo(a)anthracene	mg/kg	7.2	11	13	LQM S4ULs 2015
Chrysene	mg/kg	15	22	27	LQM S4ULs 2015
Benzo(b)fluoranthene	mg/kg	2.6	3.3	3.7	LQM S4ULs 2015
Benzo(k)fluoranthene	mg/kg	77	93	100	LQM S4ULs 2015
Benzo(a)pyrene	mg/kg	2.2	2.7	3	LQM S4ULs 2015
Indeno(1,2,3-cd)pyrene	mg/kg	27	36	41	LQM S4ULs 2015
Di-benzo(a.h.)anthracene	mg/kg	0.24	0.28	0.3	LQM S4ULs 2015
Benzo(g.h.i.) Perylene	mg/kg	320	340	350	LQM S4ULs 2015
Phenol	mg/kg	280	550	1,100	LQM S4ULs 2015
Pentachlorophenol (PCP)	mg/kg	0.22	0.52	1.2	LQM S4ULs 2015
1,1,2,2 Tetrachloroethane	mg/kg	1.6	3.4	7.5	LQM S4ULs 2015
1,1,1,2 Tetrachloroethane	mg/kg	1.2	2.8	6.4	LQM S4ULs 2015
1,1,1 Trichloroethane	mg/kg	8.8	18	39	LQM S4ULs 2015
Trichloroethene	mg/kg	0.016	0.034	0.075	LQM S4ULs 2015
Tetrachloromethane (Carbon Tetrachloride)	mg/kg	0.026	0.056	0.13	LQM S4ULs 2015
1,2- Dichloroethane	mg/kg	0.0071	0.011	0.019	LQM S4ULs 2015
Chloroethene (Vinyl chloride)	mg/kg	0.00064	0.00087	0.0014	LQM S4ULs 2015
Trichloroethene	mg/kg	0.016	0.034	0.075	LQM S4ULs 2015

Proposed End Use	Units	Residential With Plant Uptake			Source
Soil Organic Matter Content	**%**	**1%**	**2.5%**	**6%**	
Tetrachloroethene	mg/kg	0.18	0.39	0.9	LQM S4ULs 2015
Trichloromethane (Chloroform)	mg/kg	0.91	1.7	3.4	LQM S4ULs 2015
Sum of PCDDs, PCDFs and dioxins like PCBs	mg/kg			8	CLEA SGVs 2009
Isopropylbenzene	mg/kg	11	27	64	CL:AIRE 2009
Propylbenzene	mg/kg	34	82	190	CL:AIRE 2009
Styrene	mg/kg	8.1	19	43	CL:AIRE 2009
Bromobenzene	mg/kg	0.87	2	4.7	CL:AIRE 2009
1,1,2 Trichloroethane	mg/kg	0.6	1.2	2.7	CL:AIRE 2009
1,1-Dichloroethane	mg/kg	2.4	3.9	7.4	CL:AIRE 2009
1,1-Dichloroethene	mg/kg	0.23	0.4	0.82	CL:AIRE 2009
1,2,4-Trimethylbenzene	mg/kg	0.35	0.85	2	CL:AIRE 2009
1,2-Dichloropropane	mg/kg	0.024	0.042	0.084	CL:AIRE 2009
2-Chloronaphthalene	mg/kg	3.7	9.2	22	CL:AIRE 2009
Bromodichloromethane	mg/kg	0.016	0.03	0.061	CL:AIRE 2009
Bromoform	mg/kg	2.8	5.9	13	CL:AIRE 2009
Chloroethane	mg/kg	8.3	11	18	CL:AIRE 2009
Chloromethane	mg/kg	0.0083	0.0098	0.013	CL:AIRE 2009
Cis 1,2 Dichloroethene	mg/kg	0.11	0.19	0.37	CL:AIRE 2009
Dichloromethane	mg/kg	0.58	0.98	1.7	CL:AIRE 2009
Hexachloroethane	mg/kg	0.2	0.48	1.1	CL:AIRE 2009
Trans 1,2 Dichloroethene	mg/kg	0.19	0.34	0.7	CL:AIRE 2009
Bis (2-ethylhexyl) phthalate	mg/kg	280	610	1,100	CL:AIRE 2009
Butyl benzyl phthalate	mg/kg	1,400	3,300	7,200	CL:AIRE 2009
Diethyl Phthalate	mg/kg	120	260	570	CL:AIRE 2009
Di-n-butyl phthalate	mg/kg	13	31	67	CL:AIRE 2009

Proposed End Use	Units	Residential With Plant Uptake			Source
Soil Organic Matter Content	**%**	**1%**	**2.5%**	**6%**	
Di-n-octyl phthalate	mg/kg	2,300	2,800	3,100	CL:AIRE 2009
Biphenyl	mg/kg	66	160	360	CL:AIRE 2009
2,4-Dinitrotoluene	mg/kg	1.5	3.2	7.2	CL:AIRE 2009
2,6-Dinitrotoluene	mg/kg	0.78	1.7	3.9	CL:AIRE 2009
Tributyl tin oxide	mg/kg	0.25	0.59	1.3	CL:AIRE 2009

31. LIST OF BUILDINGS, ETC., TO BE DEMOLISHED

Demolition Notices

31.1. Approximately six (6) weeks, before demolition starts, the Contractor shall issue the appropriate Demolition Notice/s to the Local Authority under Sections 80 to 83 of the Building Act 1984.

31.2. The demolition shall not commence until either the six weeks have elapsed or a Notice is served by the Local Authority under Section 81 of the Act.

31.3. Link to the Building Act 1984: http://www.legislation.gov.uk/ukpga/1984/55

31.4. A Demolition Notice is required under Section 80 when demolition work greater than 50m^3 in volume (some exemptions apply) is proposed.

31.5. This volume is approximately the size of a two storey residential rear extension.

31.6. The Demolition Notice shall include all of the information stipulated in Section 80. Specifically, the following details under point 3 of the act are required:

> *"A notice under subsection (2) above shall specify the building to which it relates and the works of demolition intended to be carried out, and it is the duty of a person giving such a notice to a local authority to send or give a copy of it to:*
>
> *(i) the occupier of any building adjacent to the building;*
>
> *(ii) any public gas supplier in whose authorised area the building is situated;*
>
> *(iii) the public electricity supplier in whose authorised area the building is situated and any other person authorised by a licence under that part to supply electricity to the building."*

31.7. Following receipt of a Section 80 notice, the Local Authority will issue a counter notice under Section 81 of the Building Control Act 1984 which will detail various conditions which are intended to ensure that the work is carried out safely.

31.8. Demolition shall not commence unless:

- the Local Authority has given a notice under Section 81; or,
- six weeks has elapsed since the Section 80 notice was made to the Local Authority.

Buildings to be Demolished

31.9. All buildings are to be fully demolished.

31.10. No buildings are to be partly demolished.

31.11. The buildings to be demolished are:

1. **MOD Building E3,** and the one (1) small brick building on the west side of E3, see photos below.

Building E3 on LHS. Brick garage building to be retained. Existing water tank diesel pump house on RHS to be retained.

Foreground - Former diesel generator building to be retailed. Brick garage building to be retained on LHS. Existing water tank and diesel pump house in background to be retained.

Former brick diesel Generator Building to be demolished. Building E3 on LHS.

31.12. The Interserve heating oil tank and boiler container, shown below, have alreasdy been removed by the MOD, Interserve etc.

2. **Former Garrison Theatre** and the entire surrounding area as shown on the Demolition Site boundary as marked in red on the Site Boundary Drawings.
3. **Romney Huts**, also referred to as the Bolero Buildings, and all the adjacent brick buildings and water storage tank etc. and the entire surrounding area as shown on the Demolition Site boundary as marked in red on the Site Boundary Drawings.
4. **Rodney House Social Club** and the entire surrounding area as shown on the Demolition Site boundary as marked in red on the Site Boundary Drawings.

Special Requirements / Comments

31.13. **Possible Radiation:** One of the Romney Huts has a radiation warning notice. We have no further information. Nevertheless, the Contractor shall take all appropriate precautions and investigations.

31.14. **Possible Explosives:** On Friday 11th September 2015, the Asbestos Consultant, Amicus Environmental Ltd called in a risk of having found possible explosives on the surface inside one of the Romney Huts. The MOD fire brigade and the local police were in attendance. Westacott Road was temporarily closed. We have no further information at this stage. Nevertheless, the Contractor shall make further enquiries to the MOD and shall take all appropriate precautions and investigations.

31.15. It is understood that this is non-hazardous material used for training purposes.

31.16. It is understood that the MOD shall remove this material prior to demolition.

31.17. Street Lights: Street lights on the west side of Westacott Road, within the Demolition Site Boundary, shall NOT be removed, they are to be retained.

31.18. **Access:** The MOD may require ongoing occasional access to the NW side of E3 to the existing water tank diesel pump house for an oil tanker to refuel the pump. The Contractor shall afford all reasonable access.

31.19. **BT Telegraph Poles & Cables:** It is understood that BT telegraph poles & cables remain the property of BT. The Contractor shall contact BT to confirm whether BT wish to remove poles & cables themselves, or whether the Contractor can remove then, but leave then for BT to collect, or some other arrangement.

Demolition Priority Order

31.20. The priority of demolition is:

- **MOD Building E3 & the Former Garrison Theatre** first to get as much crushed concrete as possible, as soon as possible, as it may be used as engineered fill on the adjacent Demonstrator Infrastructure Project.
- Followed by, or possibly in tandem with, the other buildings, depending on the Contractor's programme and method of working etc. .

Future End Use Beneath Footprint

Building	Future End Use Beneath Footprint	**Future Cut or Fill** (from egl to fgl)
Building E3	Beneath E3 footprint, mostly school playing fields. Southern quarter of E3 footprint will be surfaced car parking. **North:** School playing fields, and new road beyond. **East**: School playing fields, and Apartment Block (A) beyond. **South:** Apartment Block (A), and new road beyond. **South-west:** New school building will be just outside E3 building footprint, just outside SW corner of E3. **West:** School playing fields.	Essentially future finished levels will be at existing ground levels. Minimal Fill, approx. 0.0m to 1.5m
Theatre	Beneath theatre footprint, mostly new terraced housing and associated front and back gardens. Beneath northern end of theatre footprint, new road, fronting terraced housing, **North:** Apartment Block (E), **East:** Detached houses and gardens, and new road beyond. **South:** New terraced housing and associated front and back gardens. **West:** New terraced housing and associated front and back gardens.	Essentially future finished levels will be at existing ground levels. Minimal Cut & Fill. Up to 1.0m Cut. Up to 1.0m Fill.
Romney Huts	Beneath building footprints, new terraced and detached housing and associated front and back gardens. **North:** Housing. **East:** Housing. **South:** Housing, and new road along existing railway. **West:** Housing.	Essentially future finished levels will be at existing ground levels. Minimal Fill, approx. 0.0m to 0.5m
Rodney House	Still to be determined.	

Site Visit

31.21. All Tendering Contractors shall be invited to, and are expected to, visit the Site.

31.22. The Tendering Contractor shall be deemed to have inspected the Site and considered site conditions when preparing their tender.

31.23. It is assumed the Contractor shall undertake sufficient site visits to familiarise themselves with the Client's Requirements, the Specification Requirements and the Scope of Works.

Building Inspections

31.24. Before any demolition takes place the buildings shall be carefully examined by the Contractor to establish the form and materials of construction. If necessary, construction shall be carefully exposed locally to establish the nature and position of structural connections and the method of support.

Adjoining Building, Highways, Footpaths etc. - Schedule of Condition Reports

31.25. Prior to the start of the Works, the Contractor shall make inspections and records of the condition of adjoining building, highways, footpaths etc. in the company of representatives of all interested parties.

31.26. Agreed records of the existing condition shall be prepared and circulated by the Contractor to all interested parties, together with copies of record photographs of existing condition.

31.27. Written confirmation of acceptance of the **Contractor's Schedule of Condition Reports** will be required by all interested parties prior to commencement of the Works.

31.28. The above reports shall be used as an accepted record of site condition prior to commencement of the Works.

31.29. The adjoining buildings shall be examined by the Contractor to confirm the form and materials of construction as necessary to execute the demolition works.

31.30. The Contractor shall ensure his demolition methods and sequencing are compatible with the form of construction of the adjacent properties.

Trees to be Protected

31.31. All trees shall be protected.

31.32. Where appropriate fences shall be placed around trees, fencing to coincide with the extent of the tree canopy and the extent of root system.

31.33. Fencing may be orange Netlon type plastic geo-grid or similar.

Restrictions on When Buildings, etc. Can Be Demolished, or Partially Demolished

31.34. Refer to Specification Clause "**Demolition Priority Order**".

Any Particular Precautions to Be Taken During Demolition

31.35. MOD Building E3:

- careful retention of a live electricity sub-station in the NE corner; both externally and internally; BUT, Refer to Hoare Lea's "Graven Hill, Bicester - Utilities Infrastructure New Supplies Engineering Services: Employers Requirements, Rev 02, September 2015" in Annex 5.
- live, operational MOD railway operates close to MOD Building E3.

31.36. Rodney House Social Club Out Buildings:

- existing, adjacent, two storey brick building, former boiler house etc., shall NOT be demolished, and shall NOT be damaged.

31.37. No other special or particular precautions to be taken during demolition other than H&S, current best practice etc.

Extent of Demolition

31.38. The extent of demolition shall be:

Complete above ground demolition.

Removal of all asbestos.

If asbestos or asbestos containing materials are found associated in any way with the MOD former above ground heating pipes (some, but not all of which, have been removed by the MOD) other than asbestos inside buildings or buried in the ground, the Client may wish to recover all costs associated with disposal from the MOD, and therefore the Contractor shall be required to provide justifiable costs associated with the specific removal of such asbestos that should have been removed previously by the MOD.

Removal and crushing of all building concrete foundation slabs and other concrete.

Refer to Drawings for which external concrete slabs are to be removed and crushed. Some external concrete slabs may be retained as a hardstanding storage area for crushed concrete.

Removal of all foundations and in ground obstructions to a depth of **2.5 m** begl.

If deeper foundations are encountered it is the intention that they too shall be completely removed, but this shall be discussed and agreed in advance with the Engineer.

Tarmac surfaces shall NOT be removed, they shall all be left in situ.

All other demolition materials shall be removed from Site by the Contractor.

Former Garrison Theatre:

Note:

- is constructed on sloping ground, is cut into the existing ground profile, and has a basement;
- the basement shall be completely removed,
- the basement excavation shall be infilled with engineered compacted fill in accordance with the Manual of Contract Documents for Highway Works (MCHW) / Volume 1 - Specification for Highway Works, Series 0600 Earthworks, Clause 612 Compaction of Fills.

Romney Huts:

Note:

- there is a steel extension to be demolished and removed, to the south of the most south-westerly Romney Hut (not shown on the topo survey);
- there is a circular water tank, possible containing water, to be demolished and removed;
- all the buildings, brick and corrugated steel etc. are to be demolished and removed.

Method of Filling Voids

31.39. Voids, excavations etc. shall be infilled with engineered compacted fill in accordance with the Manual of Contract Documents for Highway Works (MCHW) / Volume 1 - Specification for Highway Works, Series 0600 Earthworks, Clause 612 Compaction of Fills.

Material to be Retained

31.40. Only crushed concrete.

Treatment of Adjoining Properties, Waterproofing, etc.

Not applicable, other than possibly in connection with MOD Building E3, and possible waterproofing of a live electricity sub-station in the NE corner; located internally to Building E3. BUT, Refer to Hoare Lea's "Graven Hill, Bicester - Utilities Infrastructure New Supplies Engineering Services: Employers Requirements, Rev 02, September 2015" in Annex 5.

Identification of any Hazardous Materials

31.41. Refer to Specification Clause 20 “Hazardous Materials”.

Party & Boundary Walls

None.

Façade Support and Restraint

None.

Non Structural Demolition/Stripping Out

31.42. All non-structural materials (other than specifically identified below) and plant, equipment, fittings, fixtures etc. (other than specifically identified below) shall be removed, with the disposal of all materials off site.

31.43. Additional lateral restraint to exposed walls shall be provided by the Contractor where necessary to resist wind and other loads. Restraints shall be designed and installed by the Contractor.

31.44. All incoming statutory utilities or services and other building utilities or services shall be secured and protected and left in a safe manner.

31.45. Any public access routes and walkways shall be provided with temporary safety lighting in compliance with local Authority requirements both during and upon the completion of the Works. The access ways, protection, lighting and all associated cabling etc. shall be maintained in good order throughout the entire works until the façade restraint is no longer required.

32. SITE SECURITY BOUNDARY FENCING

32.1. The Contractor shall provide, erect, maintain and remove on completion Site Security Boundary Fencing.

32.2. Refer to Drawings for where security fencing is required and type.

32.3. Generally Site Security Boundary Fencing shall be:

- existing MOD security fencing;
- OR new Heras or similar fencing;
- OR special fencing or wooden hoarding as proposed by the Contractor.

33. NEW ASSESS ROUTE TO BUILDING E3

33.1. The Contractor shall be required to construct a new access route / haul road to access Building E3, unless an agreement can be made with the MOD to access the E3 Site from inside the MOD security fence, but this is considered very unlikely.

33.2. If a new access route / haul road is required to access Building E3, the Contractor shall provide and maintain a new temporary works access / haulage route from Westacott Road to Building E3.

33.3. The actual alignment shall be determined and agreed on site.

34. REMOVAL OF ASBESTOS

34.1. The Contractor shall be responsible for the safe removal and disposal of all asbestos in accordance with current best practice and legislation.

35. FILLING OF TRENCHES AND PIPES

35.1. Filling of trenches and pipes shall generally be in accordance with the Manual of Contract Documents for Highway Works (MCHW) / Volume 1 - Specification for Highway Works.

35.2. Removal of pipes, services, etc. less than **2.5 m** below formation. As encountered.

35.3. Filling and compaction in layers of excavations etc. less than 2.5 m begl. As encountered.

35.4. Removal of pipes, services, etc. over **2.5 m** below formation. None anticipated.

35.5. Filling of pipes, services, etc. over **2.5 m** below formation. None anticipated.

35.6. Trenches arising from existing drainage ditches to be removed shall be:

- cleared of vegetation;
- cleaned of silt, soft soil, unacceptable material;
- backfilled and compacted in layers with: **Class1, General Granular Fill to TABLE 6/1.**

35.7. Trenches arising from the removal of disused sewers, pipes, ducts and cables etc. shall be backfilled and compacted as detailed below:

- backfilled and compacted in layers with: **Class1, General Granular Fill to TABLE 6/1.**

35.8. Retention of pipes, services, etc. within 1 m of formation. None anticipated.

36. RETENTION OF MATERIAL ARISING FROM SITE CLEARANCE

36.1. Retention of material arising from site clearance: Not required.

37. RETENTION OF MATERIAL ARISING FROM DEMOLITION

Crushed Concrete

37.1. Demolition concrete shall be crushed on the Site, to form materials that complies with the Manual of Contract Documents for Highway Works (MCHW), Volume 1 - Specification for Highway Works (SHW).

37.2. Demolition concrete shall be crushed on the Site to form Sub-formation and Capping Material in accordance with the MCHW Specification, Clause 613.

37.3. Sub-formation and Capping Material shall comply with Class 6F1, 6F2 material as required or permitted in MCHW Specification Appendix 6/7 and complying with MCHW Specification Table 6/1.

37.4. Class 6F1, 6F2 properties shall comply with MCHW Specification TABLE 6/1: (11/09) Acceptable Earthworks Materials: Classification and Compaction Requirements.

37.5. Class 6F1, 6F2 grading shall comply with MCHW Specification TABLE 6/2: (05/04) Grading Requirements for Acceptable Earthworks Materials.

37.6. The following table is an extract of only part of MCHW Specification TABLE 6/1: (11/09) Acceptable Earthworks Materials: Classification and Compaction Requirements. Refer to the remainder of TABLE 6/1.

Class	**General Material Description**	**Typical Use Permitted Constituents (All Subject**	**Permitted Constituents (All Subject to Requirements of Clause 601 and Appendix 6/1)** Refer to MCHW Specification for the remainder of TABLE 6/1.
6F1	Selected granular material (fine grading)	Capping	Any material, or combination of materials - including recycled aggregates with not more than 50% by mass of recycled bituminous planings and granulated asphalt, but excluding materials that contain tar and tar-bitumen binders, unburnt colliery spoil, argillaceous rock and chalk. Property (vi) in the next column shall not apply if the Class Ra (asphalt) content of any recycled aggregate is 20% or less.
6F2	Selected granular material (coarse grading)	Capping	Any material, or combination of materials - including recycled aggregates with not more than 50% by mass of recycled bituminous planings and granulated asphalt, but excluding materials that contain tar and tar-bitumen binders, unburnt colliery spoil and argillaceous rock. Property (i) in the next column shall not apply to chalk.

Class	General Material Description	Typical Use Permitted Constituents (All Subject	Permitted Constituents (All Subject to Requirements of Clause 601 and Appendix 6/1) Refer to MCHW Specification for the remainder of TABLE 6/1.
			Property (vi) in the next column shall not apply if the Class Ra (asphalt) content of any recycled aggregate is 20% or less.

38. SITE RECORDS – CONTRACTOR'S COMPLETION REPORT

38.1. As-built (As-Demolished) records shall be produced by the Contractor, separately for each building, and made available to the Engineer, the Employer.

38.2. The Contractor shall prepare a Completion Report at the end of the Works with, as a minimum, the following information / topics / headings.

38.3. The following information shall be recorded:

1. Building Name / Reference.
2. Demolition Start Date.
3. Demolition End Date.
4. Demolition Duration – Start to Finish.
5. Demolition Technique / Techniques Used.
6. Any structural hazards encountered during demolition.
7. Any health hazards encountered during demolition.
8. Any hazards materials encountered during demolition and how they were treated, disposed of.
9. Records of any foundations, other than known basements, or other obstructions in the ground, encountered during demolition.
    a. **If left in situ:** records and drawings of their; type, material, plan location, elevation (m AOD) and other relevant information.
    b. **If excavated and removed:** records and drawings of their; type, material, plan location, elevation (m AOD), plus similar details of any backfilled void (topographical surveying of the excavated void before backfilling, including plan location, cross sections, shape, volume, elevation (m AOD), type and nature of the backfilled material (geotechnical properties, layer thickness, type of compaction plant, number of passes etc.) and other relevant information.
10. Record of accidents RIDDOR - Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013.

39. SAMPLING AND TESTING OF SOILS FOR CONTAMINATION

39.1. The Specification shall be the "UK Specification for Ground Investigation Second Edition (2011)" published by ICE Publishing, with information, amendments and additions as described below.

Sampling Depths

39.2. Non-targeted samples shall be taken as stated in Schedule S1.12 and in accordance with BS10175:2011 (7.6.2.7). Targeted (judgmental) samples shall be taken at locations where there is clear visual, olfactory or other evidence for contamination.

39.3. Individual samples shall not be bulked or composited.

Prevention of Cross Contamination during Sampling

39.4. Refer to BS10175:2011 (8.2.3.3).

Collection of Soil Samples

39.5. Appropriate size soil samples and containers shall be used, as stated in Schedule S1.12, in accordance with BS10175:2011 (8.3.2).

39.6. Each sample container shall be accurately labelled (refer to BS10175:2011, 8.6).

Decontamination Procedures for Sampling

39.7. Cleaning equipment shall be available to use between sampling locations on the Site where contaminated soil and / or groundwater is anticipated. This equipment usually comprises pressure jet or steam-cleaning equipment on sites contaminated with organic chemicals (refer to BS10175, 8.2.3.3).

Sample Handling

39.8. Methods of preservation and handling of soils and groundwater shall be carried out in accordance with BS10175 (8.6) and in accordance with BS6068: Section 6.3 (Clauses 5 & 6).

39.9. Attention shall be given to sample packaging. All samples being transported from the Site to the laboratory shall be dispatched with chain of custody documents.

Pre-approved Chemical Testing Laboratories

Environmental Scientifics Ltd

Head Office: ESG House, Bretby Business Park, Ashby Road, Burton-Upon-Trent, Staffordshire, DE15 0YZ

Chemtest Ltd

Head Office: Depot Road, Newmarket, CB8 0AL

Severn Trent Laboratories

Head Office: Severn Trent Centre, 2 St Johns Street, Coventry, CV1 2LZ

Alcontrol Laboratories

Head Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, Flintshire, CH5 3US

39.10. The use of an alternative laboratory shall require the permission of the Investigation Supervisor.

Engineer or Contractor to Schedule Testing

39.11. The Contractor shall supply the Engineer with a test schedule pre-populated with all available samples.

39.12. The Engineer shall schedule all of the required testing using the supplied test schedules.

UKAS Accreditation to be Adopted

39.13. UKAS accreditation is required where available.

39.14. If the Contractor's laboratory is not UKAS accredited for applicable tests, the Engineer's approval shall be sought in writing prior to any testing being carried out.

39.15. If approval for non-UKAS accredited testing is not granted, the Contractor shall be responsible for any costs associated with having the samples transported to and tested by a UKAS accredited laboratory.

Chemical Testing for Aggressive Ground / Groundwater for Concrete

39.16. Test Suite D (Brownfield pyrite present) testing required.

SCHEDULE 1.19.6 (Derived from BRE Special Digest SD1)

Chemical Tests on Potentially Aggressive Ground

SUITE D Brownfield Site (pyrite present)			
Sample type	**Determinand**	**Recommended test methods**	**Test method offered** To be completed by the Tendering Contractors if different to recommended method.
Soil	pH in 2.5:1 water/soil extract	BR 279 Electrometric	
		BS 1377 Part 3, Method 9	
	SO_4 in 2:1 water/soil extract	BR 279 Gravimetric method, cation exchange or ion chromatography	
		BS 1377 Part 3 Method 5.3 + 5.5	
		TRL 447 Test 1	
	Acid soluble SO_4	BR 279 Gravimetric method	
		BS 1377 Part 3, Method 5.2 + 5.5	
		TRL 447 Test 2	
	Total sulphur	BR 279 Ignition in oxygen	
		TRL 447 Test 4A	
		TRL 447 Test 4B	
	Mg (only required if soluble SO_4 >3,000mg/l	BR 279 AAS[2] method	
		Commercial lab in-house procedure – variant of BR 279 using ISP-AES[3]	
	NO_3 in 2:1 water/soil extract (only required if pH <5.5)	BR 279	
	Cl in 2:1 water/soil extract (only required if pH <5.5)	BR 279	
		BS 1377 Part 3, Method 7.2	

Accreditation Required

39.17. MCERTS where available, otherwise UKAS.

39.18. If the Contractor's laboratory is not MCERTS accredited for applicable tests, the Engineer's approval shall be sought in writing prior to any testing being carried out.

39.19. If approval for non-MCERTS accredited testing is not granted, the Contractor shall be responsible for any costs associated with having the samples transported to and tested by a MCERTS accredited laboratory.

39.20. Geo-Environmental laboratory testing shall be carried out to International Standard BS EN ISO / IEC 17025.

Chemical Testing for Contamination

39.21. **Test Suite E** testing is required.

39.22. For Test Suite E the Contractor shall detail what test methods can be offered to comply with the accreditation requirements unless otherwise stated.

39.23. **Test Suites E** includes several "options", comprising groups of similar or related determinands. The Engineer shall specify which options are required to be tested on any given sample. Test suite options are listed individually in the Bill of Quantities.

39.24. Tendering Contractors shall indicate their proposed chemical laboratory for contamination testing.

39.25. Required testing turnaround times unless otherwise specified shall be: 10 working days.

SUITE E Soil Samples			
Determinand	**Limit of detection required [1]** **(mg/kg)**	**Recommended test methods**	**Test method offered** To be completed by the Tendering Contractors if different to recommended method.
Option 1 – Metals in Soil			
Arsenic	0.3	IHM Aqua regia extract / ICPMS	
Barium	1	IHM Aqua regia extract / ICPOES	
Beryllium	0.1	IHM Aqua regia extract / ICPOES	
Boron (water soluble)	0.5	IHM water extraction / ICPOES	

SUITE E Soil Samples			
Determinand	**Limit of detection required [1]** **(mg/kg)**	**Recommended test methods**	**Test method offered** To be completed by the Tendering Contractors if different to recommended method.
Cadmium	0.1	IHM Aqua regia extract / ICPMS	
Chromium (total)	0.5	IHM Aqua regia extract / ICPMS	
Chromium (hexavalent)	0.1	IHM water extraction / discrete colorimetric analysis	
Cobalt	0.1	IHM Aqua regia extract / ICPMS	
Copper	0.5	IHM Aqua regia extract / ICPMS	
Iron	36	IHM Aqua regia extract / ICPOES	
Lead	0.5	IHM Aqua regia extract / ICPMS	
Mercury	0.1	IHM Aqua regia extract / ICPMS	
Molybdenum	0.5	IHM Aqua regia extract / ICPMS	
Nickel	0.5	IHM Aqua regia extract / ICPMS	
Selenium	0.5	IHM Aqua regia extract / ICPMS	
Vanadium	0.6	IHM Aqua regia extract / ICPMS	
Zinc	3	IHM Aqua regia extract / ICPMS	
Option 2 – TPH CWG in Soil			
Full TPH (UK class fractions: C5 to C44) to include GRO/BTEX for (nC5 to nC10) plus extractables as aliphatic and aromatic class separation with Carbon Banding	GRO - 0.2 BTEX – 0.01 Xylenes – 0.02 4 to 12/fraction	IHM by: Headspace GCFID (GRO/BTEX) Extraction, column chromatography and GCFID analysis Banding based on UK banding.	
Option 3 – 16 PAHs plus Coronene			
USEPA 16 PAHs	0.08	Solvent extract / GCMS	
Coronene	0.08	Solvent extract / GCMS	

SUITE E Soil Samples			
Determinand	**Limit of detection required [1]** **(mg/kg)**	**Recommended test methods**	**Test method offered** To be completed by the Tendering Contractors if different to recommended method.
Option 4 – Soil Properties			
Total Organic Carbon (TOC)	0.02%	IHM carbonate removal with sulphurous acid / combustion at 800°C/NDIR	
Soil Organic Matter (SOM)	0.1%	Calculation based on TOC	
pH	n/a	IHM pH electrode	
Moisture content	0.2%	IHM-TMSS, Gravimetric Method Drying @ 105°C	
Loss on Ignition / ash residue @ 450°C	0.2%	IHM Furnace Combustion	
Calorific value (spiked)	0.1MJ/kg		
Option 5 – Asbestos Screening			
Asbestos Screening and ID	n/a		UKAS
Option 6 – Asbestos Quantification			
Asbestos ID and Quantification	0.001%		UKAS
Option 7 – VOCs Target List in Soils			
VOCs (Target List)	0.001 to 0.005	HSA/MS Analysis for 60compounds from USEPA 8260 target list. Method performance is monitored by 3 surrogate compounds.	MCERTS (54 TALs) UKAS (57 TALs)
Option 8 – Chlorinated Aliphatics			

SUITE E Soil Samples			
Determinand	**Limit of detection required [1]** **(mg/kg)**	**Recommended test methods**	**Test method offered** To be completed by the Tendering Contractors if different to recommended method.
VOCs (Target List); 1,1,2,2	0.001 to 0.005	HSA/MS Analysis for 60compounds from USEPA 8260 target list. Method performance is monitored by 3 surrogate compounds.	
Tetrachloroethane 1,1,2,2			
Tetrachloroethene 1,1,1			
Trichloroethane			
Trichloroethene			
Tetrachloromethane (Carbon Tetrachloride)			
1,2-Dichloroethane			
Chloroethene (Vinyl Chloride)			
Trichloroethene			
Dioxins and Furans	0.000001		-
Option 9 – PCBs in Soils			
PCBs, ICES 7 Congeners (PCB: 28, 52, 101, 118, 138, 153, 180)	0.001		

Notes:

1 Either the Engineer shall specify the test method (except testing under MCERTs), limit of detection and accreditation required or the Contractor shall detail what can be offered under each of these categories. See also Specification Note for Guidance 15.3.

2 Optional determinands do not form part of the main test suite, but may be scheduled by the Engineer in addition to the main list of determinands.

APPENDICES

A. ANNEXES AVAILABLE ELECTRONICALLY

Annex 1 Amicus Environmental Ltd Refurbishment / Demolition Asbestos Surveys

Building	Date	File	Surveyor	Scope
MOD Building E3	August 2015	S11519	Amicus	Refurb and demolition survey.
Romney Huts	August 2015	To be provided.	Amicus	Refurb and demolition survey.
Rodney House Social Club Out Buildings and single storey and boiler room	August 2015	S11516	Amicus	Refurb and demolition survey.
Garrison Theatre	August 2015	S11515	Amicus	Refurb and demolition survey, excluding roof space due to bats.
Garrison Theatre	August 2010	270810	ABP	Management survey and materials testing including roof space (Part 1).
Garrison Theatre	August 2010	270810	ABP	Management survey and materials testing including roof space (Part 2).

Annex 2 Drawings

Annex 3 Topographical Survey & Sub-Scan of Utilities

Annex 4 UXO/UXB BACTEC Report

Annex 5 Hoare Lea's "Graven Hill, Bicester - Utilities Infrastructure New Supplies Engineering Services: Employers Requirements, Rev 02, September 2015"

UK and Ireland Office Locations