

**THIS IS SCHEDULE 2 REFERRED TO IN THE FOREGOING AGREEMENT BETWEEN  
TIE AND THE MUDFA CONTRACTOR**

**SCHEDULE 2**

**TECHNICAL REQUIREMENTS**

**1. MANAGEMENT SYSTEMS**

1.1 The MUDFA Contractor shall implement and comply with the following management systems:

1.1.1 a "quality management system" in accordance with ISO 9001;

1.1.2 a "safety management system" in accordance with ISO 18001 or HSG65; and

1.1.3 an "environmental management system" in accordance with ISO 14001.

**2. INSTRUCTION AND TRAINING**

2.1 The MUDFA Contractor shall ensure that its employees, Sub-Contractors, agents and others on Site undertake a number of inductions. These shall comprise:

2.1.1 **tie's** project-specific induction;

2.1.2 project-specific induction for the MUDFA Works (provided by the MUDFA Contractor);

2.1.3 area-specific induction (on road, off road, ~~and~~ railway land and airport land), (provided by the MUDFA Contractor); and

2.1.4 worksite and task-specific-induction including a method statement briefing and toolbox talk, (provided by the MUDFA Contractor).

2.2 Any persons who have not received the induction, for example visitors, shall be escorted on Site by a competent inducted person.

2.3 The MUDFA Contractor shall maintain induction and training records in order that **tie** can inspect them. These records shall identify the scope of the induction and training and the persons who received them.

### 3. SAFE SYSTEMS

#### 3.1 Risk Assessments

3.1.1 The MUDFA Contractor shall prepare risk assessments for all work activities being undertaken.

3.1.2 Each risk assessment shall include as a minimum the following details:

##### 3.1.2.1 Document control

- (a) document title and number;
- (b) revision status;
- (c) authorisation for use; and
- (d) reference to supplementary documentation.

3.1.2.2 identification of any hazards;

3.1.2.3 identification of those who might be harmed, and how; and

3.1.2.4 an evaluation of the risks and, in relation to each risk, the control measures required to reduce the risk to an appropriate level.

#### 3.2 Method Statements

3.2.1 The MUDFA Contractor shall prepare method statements for all work activities which fall within the definition of "construction work" under the Construction (Design & Management) Regulations 1994. Each method statement shall relate to the relevant work location.

3.2.2 Each method statement shall include as a minimum the following details:

##### 3.2.2.1 Document control

- (a) document title and number;
- (b) revision status;
- (c) authorisation for use; and

- (d) reference to supplementary documentation.

#### 3.2.2.2 General information

- (a) description and scope of work;
- (b) location and boundaries (including sketch or site plan if appropriate); and
- (c) access routes for personnel and materials and equipment.

#### 3.2.2.3 Resources

- (a) number of personnel (including function and role);
- (b) contacts; and
- (c) lines of communication.

#### 3.2.2.4 Details of work activities

- (a) detailed work sequence;
- (b) plant, equipment and tools to be used;
- (c) personal protective equipment required;
- (d) delivery requirements;
- (e) wastes produced, and means of disposal; and
- (f) inspection and testing requirements, including details of:
  - (i) acceptance criteria;
  - (ii) quality control checklists and record forms to be used;
  - (iii) frequencies of inspections and testing; and
  - (iv) documentation which is required prior to the issue of a Certificate of Substantial Completion in respect of the relevant Works Section.

3.2.2.5 Specific control measures

- (a) permits and authorisations required; and
- (b) temporary amended systems.

3.2.2.6 Emergency procedures

- (a) Evacuation and rescue.

3.2.2.7 Supplementary documentation

- (a) risk assessments; and
- (b) COSHH assessments.

3.2.3 The documentation referred to in paragraph 3.2.2 above shall be developed so that it is specific to the MUDFA Works. The MUDFA Contractor shall ensure that revisions and updates can be identified.

3.2.4 The MUDFA Contractor shall issue a copy of its procedure for the production of method statements and risk assessments to **tie** for approval in accordance with the Review Procedure.

**3.3 Submission of Risk Assessments & Method Statements**

3.3.1 A 4-week "look ahead" schedule identifying the required scope of works shall be issued to **tie** by the MUDFA Contractor. This schedule shall identify the relevant risk assessments and method statements which are required in respect of each such scope. **tie** shall identify which risk assessments and method statements require to be provided by the MUDFA Contractor to **tie** in accordance with paragraph 3.3.1 below.

3.3.2 In so far as not submitted as part of any ~~Works Order Proposals~~Work Order Proposals, the MUDFA Contractor shall issue risk assessments and method statements to **tie** a minimum of 5 Business Days prior to the commencement of the works which are the subject of the method statements and risk assessments.

- 3.3.3 In so far as not included within a Works Order Confirmation Notice, **tie** shall review the risk assessments and method statements and issue comments to the MUDFA Contractor within 5 Business Days of receipt.
- 3.3.4 The MUDFA Contractor shall not undertake any works for which a risk assessment or method statement has been requested without the agreement of **tie**.
- 3.3.5 Irrespective of whether or not **tie** has reviewed all risk assessments and method statements produced by the MUDFA Contractor, the MUDFA Contractor shall issue one copy of each risk assessment and method statement to **tie** for information purposes before any work commences.

#### 3.4 **Access Permit**

- 3.4.1 The MUDFA Contractor shall comply with **tie**'s system for controlling access to undertake work activities, which shall require the MUDFA Contractor to obtain an approved access permit from tie ("**Access Permit**") for each ~~works-Work site-Site~~ within each ~~Works-Section~~ Work Section.
- 3.4.2 In so far as not included within any ~~Works-Order-Proposals~~ Work Order Proposals, the MUDFA Contractor shall submit a form for each required Access Permit ("**Access Permit Form**") which is required, to **tie** a minimum of 5 Business Days in advance of the access being required.
- 3.4.3 The MUDFA Contractor shall advise **tie** of the persons within its organisation who are competent to authorise the Access Permits.
- 3.4.4 Each Access Permit Form shall identify the risk assessments, method statements and permits to work which have been raised under the MUDFA Contractor's safety management system.
- 3.4.5 Each Access Permit Form shall identify any requirements for system interruption or isolation.
- 3.4.6 The MUDFA Contractor shall identify within each Access Permit Form any special control measures which require to be implemented including:

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- 3.4.6.1 requirements for witnessing system interruptions and/or isolations and subsequent re-energisation;
  - 3.4.6.2 traffic management requirements under Chapter 8 of the Traffic Signs Manual;
  - 3.4.6.3 specific time limits on working hours;
  - 3.4.6.4 methods for segregating the Work Site;
  - 3.4.6.5 specific requirements regarding noise and dust;
  - 3.4.6.6 requirements for protection of the works;
  - 3.4.6.7 requirements for removal, obstruction, or disablement of street furniture;
  - 3.4.6.8 requirements for liaison with other parties, such as CEC and SEPA;
  - 3.4.6.9 requirements for compliance with the various plans and documents prepared by the SDS Provider and the MUDFA Contractor, for example the waste management plan, construction site drainage plan, landscape and habitat management plan, and the archaeological and heritage mitigation plan; and
  - 3.4.6.10 any other requirements expressed in the relevant Works Order.
- 3.4.7 The MUDFA Contractor shall agree with **tie** the "start work date" and "stop work date" for each work activity or group of work activities to be included in each Access Permit.
- 3.4.8 On completion of the work activity or group of work activities, or the "stop work date" (which ever is sooner) the MUDFA Contractor shall return the relevant Access Permit to **tie** for cancellation (for completed work activities) or reauthorisation (for ongoing work activities). The Access Permit shall be reauthorized by **tie** on no more than five occasions.
- 3.4.9 In the event that the work is not completed once the Access Permit ~~form~~ Form has been reauthorized for the fifth time, the Access Permit shall be closed and a subsequent Access Permit Form by the MUDFA Contractor.

3.4.10 The MUDFA Contractor's authorised or persons shall be required to undergo training by **tie** in the operation of the Access Permit system.

### 3.5 **Permits to Work**

3.5.1 The MUDFA Contractor shall implement a "permit to work" system for the following activities as a minimum:

3.5.1.1 hot works;

3.5.1.2 entry into confined spaces;

3.5.1.3 work on services;

3.5.1.4 access to live facilities; and

3.5.1.5 works on land controlled by third parties.

3.5.2 The MUDFA Contractor shall issue a copy of its permit to work procedure to **tie** for approval in accordance with the Review Procedure.

3.5.3 The MUDFA Contractor shall advise **tie** of the competent persons within its organisation who shall be competent to authorise permits to work.

### 3.6 **Personal Protective Equipment**

3.6.1 The MUDFA Contractor shall provide all necessary personal protective equipment ("**PPE**") for its employees and provide them with all necessary information, instruction and training on its use.

3.6.2 The MUDFA Contractor shall ensure that all persons on the Work Site (including Sub-Contractors and visitors) wear the necessary PPE.

3.6.3 **tie's** specific requirements for PPE with regard to particular tasks are as follows:

3.6.3.1 head protection conforming to BS 5240 or BS EN 397;

3.6.3.2 protective footwear complying with BS EN 345 (safety boots which provide ankle support and contain steel midsoles shall be required for works which are carried out on railway land);

3.6.3.3 yellow high visibility clothing to comply with BS EN 471:1994, Table 1, Class 2 or 3, which shall be worn at all times; the clothing shall comply with the requirements of Clause 4.2.3(b) in all cases; jackets with sleeves in accordance with Clause 4.2.4 and to Class 3 shall be worn on dual carriageway roads with a speed limit of 50 mph or above, unless operatives stay within the working space at all times; and

3.6.3.4 orange high visibility clothing complying with GO/RT 3279 shall be worn where any works are carried out on railway land.

### 3.7 Work Site Completion Certificates

3.7.1 The MUDFA Contractor shall comply with **tie's** system for certifying the completion of the relevant work activities within each Work Site, which shall require the MUDFA Contractor to complete a completion certificate ("**Work Site Completion Certificate**") for each Work Site that is to be handed back to **tie**.

3.7.2 The Work Site Completion Certificate shall be completed by the MUDFA Contractor to identify and cross reference the quality control records, testing and commissioning records and any other records identified within this Schedule 2 (*Technical Requirements*), together with details of any outstanding works which are required and the timescales for undertaking them.

## 4. REPORTING

4.1 The MUDFA Contractor shall report the following information to **tie** within 24 hours of the event occurring:

4.1.1 details of any accident or incident which requires notification to the Health & Safety Executive (the MUDFA Contractor shall copy Form 2508 to **tie**);

4.1.2 details of any environmental event which requires notification to the Scottish Environmental Protection Agency ("**SEPA**"); and

4.1.3 details of any visit by either the Health & Safety Executive or SEPA, together with details of any report issued or enforcement action that resulted.



4.2 The MUDFA Contractor shall include the following information within its four weekly progress report which is to be provided to **tie** as part of the Construction Services:

4.2.1 an update on any events referred to in paragraphs 4.1.1 to 4.1.3;

4.2.2 details of any near misses;

4.2.3 details of any accident investigation reports raised by the MUDFA Contractor, including details of corrective and preventative actions which have been taken;

4.2.4 the accident incident rate ("**AIR**") and accident frequency rate ("**AFR**") for the MUDFA Works (including details of total hours worked and number of persons employed);

4.2.5 a summary of the monitoring and internal auditing activities undertaken by the MUDFA Contractor in the period, including details of any corrective or preventative actions raised or closed out; and

4.2.6 details of the programme of monitoring and auditing planned for the subsequent four-weekly period.

## 5. **AUDITING AND MONITORING**

5.1 The MUDFA Contractor shall be responsible for carrying out, auditing and monitoring of its site establishment and work activities.

5.2 **tie** shall undertake regular auditing and monitoring of the MUDFA Contractor's activities and site establishment and documentation records, and the MUDFA Contractor shall action any findings which are raised by **tie**.

## 6. **NON-CONFORMANCE, COMPLAINTS AND DISCIPLINARY MATTERS**

6.1 **tie** shall implement a process for recording and processing breaches by the MUDFA Contractor of the requirements of this Schedule 2 (*Technical Requirements*) and complaints.

6.2 The MUDFA Contractor shall take such steps as are required by **tie** to remedy any such infringement or address any such complaint and the following priority levels for action shall apply:

<b>Level of Urgency</b>	<b>Category of Notification</b>	<b>Required Response Time</b>
1	High urgency. Involves an immediate threat to persons or property or the circumstances otherwise require immediate rectification.	Immediate action required. If response not completed by the MUDFA Contractor within 4 hours, <b>tie</b> may procure that the relevant work is carried out and the costs of so doing shall be recovered from the MUDFA Contractor.
2	Medium urgency. No immediate threat to persons or property, but circumstances require rectification within 24 hours.	Remedial action requires to be completed within 24 hours. If the MUDFA Contractor does not complete the required response within 24 hours, <b>tie</b> may procure that the relevant work is carried out and the costs of so doing shall be recovered from the MUDFA Contractor.
3	Issue requires rectification, but no immediate threat to persons or property and the circumstances do not otherwise require immediate rectification.	Timescales for rectification to be agreed between the MUDFA Contractor and <b>tie</b> . In the event that the MUDFA Contractor does not comply with the agreed timescales, <b>tie</b> may procure that the relevant work is carried out and the costs of so doing shall be recovered from the MUDFA Contractor.

If the MUDFA Contractor fails to take any remedial action required by **tie** pursuant to the table above, **tie** shall be entitled to employ and pay other persons to carry out the same and all costs incurred by **tie** shall be recoverable from the MUDFA Contractor by **tie** and may be deducted by **tie** from any monies due or to become due to the MUDFA Contractor or, alternatively, recoverable from the MUDFA Contractor as a debt.

6.3 Subject to Clauses 12.6 and 16, of the Agreement, **tie** shall implement a process for initiating disciplinary actions which could arise from complaints received in respect of MUDFA Contractor staff or breach by any member of the MUDFA Contractor's

staff in respect of the requirements of Schedule 1 (*Scope of Works and Services*) or this Schedule 2. These comprise:

6.3.1 Black Card: issued for gross misconduct, or the aggregation of two Red Cards or three Yellow Cards - results in employment on the Edinburgh Tram project being terminated for the individuals involved.

6.3.2 Red Card: issued for serious misconduct, or the aggregation of two Yellow Cards.

6.3.3 Yellow Card: issued for misconduct.

## 7. IDENTIFICATION

7.1 The MUDFA Contractor shall ensure that all site construction staff are easily identifiable to the public by use of photo identity cards, which shall be issued at the **tie** induction.

7.2 The MUDFA Contractor shall ensure that all site construction staff wear the "Edinburgh Tram" branded high visibility waistcoat (unless the risk assessment identifies that it is not safe to do so). The high visibility waistcoats shall be supplied free of charge by **tie** and shall be returned to **tie** at the end of the MUDFA Contractor's involvement on the project.

7.3 The MUDFA Contractor shall ensure that all site construction staff identify their employer by means of their company logo on their safety helmet.

## 8. HOURS OF WORKING

8.1 Normal hours of working for the MUDFA Works shall be:

**Monday – Saturday-Friday 0700 – 1900 hours.**

**Saturday.....0800 - 1300 hours**

8.2 These hours of work shall not apply to equipment which is required to operate continuously (e.g. for safety or environmental reasons) or to work undertaken within fully enclosed areas such as buildings.

8.3 In certain circumstances, work outside of these hours may be undertaken by the MUDFA Contractor with the prior approval of **tie** and CEC. These circumstances

may include Sunday and evening and night working on public roads and adjacent to the railway, where such working is required to minimise disruption to other traffic. Application for prior approval shall be made by the MUDFA Contractor at least two weeks in advance.

8.3.1 In certain circumstances work outwith these hours may be undertaken with the prior approval of **tie** and CEC. These circumstances may include:-

8.3.1.1 Sunday and evening/night working on public roads and in the vicinity of the railway network, where such working is required to minimise disruption to other traffic; or

8.3.1.2 where, through consultation with local residents and businesses adjacent to the proposed works to be undertaken outwith the normal hours of working, it is deemed by the MUDFA Contractor acting reasonably and having due and proper regard to the said consultation to be less disruptive to those businesses and residents by having the MUDFA Contractor working extended hours outwith the normal hours of working, or

8.3.1.3 where works are taking place in areas where there are no residents adjacent to the proposed works.

8.3.2 Application for prior approval must be made by the MUDFA Contractor at least two weeks in advance.

8.4 Where Sunday or evening and night working has the potential to disturb nearby land users and occupiers, the MUDFA Contractor shall notify such users and occupiers seven days in advance with a description of the work to be carried out, measures which will be taken to control noise or other disturbance, and proposed hours of working.

8.5 No works shall be undertaken between Haymarket at Magdala Crescent to Leith Street Junction of London Road from and including the following dates:

Festival 06<sup>th</sup> August 2006 until 03<sup>rd</sup> September 2006;

Festival 05<sup>th</sup> August 2007 until 02<sup>nd</sup> September 2007;

Christmas 03<sup>rd</sup> December 2006 until 02<sup>nd</sup> January 2007; and

Christmas 02<sup>nd</sup> December 2007 until 02<sup>nd</sup> January 2008.

## 9. SITE ARRANGEMENTS

### 9.1 Site Housekeeping

9.1.1 A 'good housekeeping' policy shall be applied by the MUDFA Contractor at all times; this shall include, but not necessarily be limited to, the following requirements:

9.1.1.1 all working areas shall be kept in a clean and tidy condition;

9.1.1.2 all working areas shall be a no-smoking area; specific areas within the Site shall be designated as smoking areas and shall be equipped with containers for smoking waste; these shall not be located at the boundary of the Site and adjacent to neighbouring land;

9.1.1.3 open fires shall be prohibited at all times;

9.1.1.4 all necessary measures shall be taken to minimise the risk of fire and the MUDFA Contractor shall comply with the requirements of the local fire authority;

9.1.1.5 radios (other than two-way radios used for the purposes of communication related to the works) and other forms of audio equipment shall not be operated on the Site;

9.1.1.6 any waste susceptible to spreading by wind or liable to cause litter shall be stored in enclosed containers;

9.1.1.7 rubbish shall be removed at frequent intervals and the Site kept clean and tidy;

9.1.1.8 hoardings shall be frequently inspected, repaired and re-painted as necessary;

9.1.1.9 eating and drinking shall only permitted within the MUDFA Contractor's designated welfare area;

9.1.1.10 adequate toilet facilities shall be provided for all Site staff;

9.1.1.11 food waste shall be removed frequently;

9.1.1.12 the MUDFA Contractor's personnel (including any Sub-Contractors) shall be required to conform to a reasonable dress code;

9.1.1.13 any behaviour that is lewd or likely to cause offence shall not be permitted; and

9.1.1.14 wheel washing areas shall be brushed clean frequently.

9.1.2 The MUDFA Contractor shall inspect all working areas at least weekly and shall provide a four weekly written report on compliance with paragraph 9.1.1 above. **tie, tie's** Representative or any other party authority by either of them may carry out inspections of the Site at any time without prior notice of time and place of the inspections. Access to all areas of the MUDFA Works shall be given to visiting inspectors and the MUDFA Contractor shall give inspectors all reasonable assistance during their Site inspection.

9.1.3 The MUDFA Contractor shall register the project with the Considerate Constructors Scheme.

## 9.2 **Welfare**

9.2.1 The MUDFA Contractor shall be responsible for ensuring that adequate welfare facilities are provided; adequate facilities shall comprise:

9.2.1.1 sufficient toilet facilities for all staff at readily accessible locations;

9.2.1.2 facilities for changing, storing and drying clothes, for heating water and for washing and drinking (the latter must have seating for each person and wipe-clean mess table tops);

9.2.1.3 washing facilities near every toilet facility and changing room; the washing facilities shall include a supply of hot and cold or warm water, soap or cleaning agent and towels or hot air drier;

9.2.1.4 clean, wholesome drinking water, clearly marked as such;

9.2.1.5 a means of heating food; and

9.2.1.6 rest facilities.

9.2.2 The MUDFA Contractor shall keep all welfare facilities clean and shall not use them for the storage of materials, plant and other working equipment.

9.2.3 The MUDFA Contractor shall provide suitable and sufficient fire fighting equipment for all on-site accommodation.

9.2.4 Where there is the possibility of female employees or visitors being present on the Site, the MUDFA Contractor shall provide separate toilet, washing and changing facilities.

### 9.3 **Fencing and Hoardings**

9.3.1 The MUDFA Contractor shall ensure that all working areas are sufficiently and adequately fenced to prevent the public and animals from straying on to the working area; hoardings shall be provided to suit the individual location by carrying out an appropriate risk assessment, but may be:

9.3.1.1 a wire mesh fence, where appropriate for minimum security needs; or

9.3.1.2 a 2.4 m minimum height, plywood faced, timber framed boundary hoarding, of a surface density of not less than 7kg/m<sup>2</sup> or other hoarding providing equivalent security and noise attenuation, in the vicinity of noise sensitive neighbours; or

9.3.1.3 other designs, where a particular level of risk mitigation appearance or acoustic rating is considered to be required and is agreed with **tie** and CEC.

- 9.3.2 Hoardings that create poorly lit pedestrian routes shall have appropriate lighting fitted by the MUDFA Contractor, and these shall be illuminated at all times when the adjacent street lighting is lit.
- 9.3.3 The MUDFA Contractor shall ensure that the location and design of Site boundaries, hoarding and temporary structures on the public road shall permit adequate visibility at junctions and proper forward visibility along the roads in accordance with the National Roads Directorate advice notes and the requirements of CEC.
- 9.3.4 The MUDFA Contractor shall ensure that where hoardings are provided, they are painted on the side facing away from the working area in a colour and style to be approved by **tie** and CEC, and that the public side of the hoarding carries signs which identify the project and give appropriate contact information for the MUDFA Contractor.
- 9.3.5 All hoardings shall be maintained by the MUDFA Contractor in a neat and tidy condition.
- 9.3.6 The MUDFA Contractor shall be expressly prohibited from displaying or allowing to be displayed any advertisement or notice including illicit bill or fly posting on the hoardings. The MUDFA Contractor shall ensure that all graffiti, fly posting or defacement to the hoardings is removed and made good or obscured within 24 hours.
- 9.3.7 An information board shall be provided by the MUDFA Contractor at each working area detailing information on the work programme and estimated duration of the MUDFA Works at that working area, together with the location of the information centre, the web address and a 24-hour telephone number for use by members of the public who wish to lodge complaints or comments.
- 9.3.8 All fencing and hoarding shall be removed as soon as reasonably practicable after the completion of any part of the MUDFA Works.

9.4 **Lighting and Visual Intrusion**

- 9.4.1 The MUDFA Contractor shall site construction buildings, equipment and lighting so as to minimise visual intrusion and light spillage at nearby



residential properties, in so far as is consistent with the safe and efficient operation of each Work Site. Lighting shall be removed as soon as is consistent with the safe and efficient operation of each Work Site.

- 9.4.2 Site lighting shall be positioned and directed by the MUDFA Contractor so as to minimise nuisance to residents and to minimise distractions or confusion to passing drivers on adjoining public roads. This provision shall apply particularly to working areas where work after dark will be carried out and the MUDFA Contractor shall provide appropriate lighting for these sites.
- 9.4.3 So far as is practicable, all power to temporary traffic signals, lighting and the like shall be taken by the MUDFA Contractor from mains supplies rather than from portable generators. Where portable generators are used, industry best practice shall be followed to minimise noise and pollution from such generators.
- 9.4.4 The MUDFA Contractor shall comply with the Institute of Lighting Engineers' document *Guidance Notes on Reduction of Light Pollution 2000* in so far as is reasonably practicable and applicable to the MUDFA Works.

## 9.5 Access and Loading

- 9.5.1 The MUDFA Contractor shall ensure that lorries shall enter and exit the Site in a forward direction at designated locations, except where space restriction does not permit this. If the reversing of vehicles into public spaces is required, then a responsible person observing the rear of the vehicle shall properly control the movement. The sounding of audible reversing alarms shall not be permitted outside normal working hours, except where this has been approved by **tie** and CEC in connection with works permitted under paragraph 8.3 above). Entry and exit conditions shall be subject to prior approval by **tie**, CEC and the Lothian and Borders Police before implementation.
- 9.5.2 Access to and egress from the Site shall be carried out by initiating a left turn wherever reasonably practicable.
- 9.5.3 All loading and unloading of vehicles shall take place off the public road as far as is reasonably practicable.

9.6 **Security**

9.6.1 Adequate security shall be exercised by the MUDFA Contractor to protect the public and prevent unauthorised entry to or exit from the Site. Site gates, where used, shall be closed and locked when there is no Site activity and Site security measures shall be implemented.

9.6.2 Site security cameras, where used, shall be placed in locations which will not unduly infringe upon the privacy of local residents.

9.7 **Living Accommodation**

9.7.1 No living accommodation shall be provided by the MUDFA Contractor within any construction working area. Mess rooms, locker rooms, toilets and showers shall be permitted at Work Sites.

9.8 **Clearance of Site on Completion**

9.8.1 The MUDFA Contractor shall clear and clean all Apparatus, working areas and accesses as work proceeds and when no longer required for the carrying out of the MUDFA Works.

9.8.2 All surplus soil and materials, rubbish, Temporary Works including temporary roads and hardstandings, plant~~plant~~MUDFA Contractor's Equipment, sheds, offices and temporary fencing shall be removed, post holes filled and the surface of the ground restored as near as practicable to its original condition, or to such condition as has previously been agreed with **tie** and CEC in accordance with the relevant Works Order and/or Schedule 3 (*Specification*) (as appropriate).

9.9 **Pest Control**

9.9.1 The MUDFA Contractor shall ensure that the risk of infestation by pests or vermin is minimised by adequate arrangements for the disposal of food waste or other material attractive to pests. If infestation occurs, the MUDFA Contractor shall take such action to deal with it as required by **tie** and CEC.

10. **REQUIREMENTS RELATING TO WORKS AFFECTING EDINBURGH AIRPORT**

- 10.1 The MUDFA Contractor shall comply with the requirements of Edinburgh Airport Limited in relation to aerodrome safeguarding, including those requirements included within the Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) (Scotland) Direction 2003 (SEDD Circular 2/2003).
- 10.2 The MUDFA Contractor shall have regard to, and comply (where relevant) with all BAA and CAA guidelines, including, (but not necessarily limited to):
- 10.2.1 CAP 168 Licensing of Aerodromes.
  - 10.2.2 CAP 680 Aerodrome Bird Control.
  - 10.2.3 CAA Safeguarding of Aerodromes Advice Note 1 (Safeguarding – An Overview).
  - 10.2.4 CAA Safeguarding of Aerodromes Advice Note 2 (Lighting near Aerodromes).
  - 10.2.5 CAA Safeguarding of Aerodromes Advice Note 4 (Cranes and Other Construction Issues).
  - 10.2.6 BAA Standard Conditions for Aerodrome Safeguarding.
- 10.3 The MUDFA Contractor shall prepare for approval by tie and Edinburgh Airport Limited a "Construction Management Strategy" as defined within CAA Safeguarding of Aerodromes Advice Note 4 (Cranes and Other Construction Issues). The Construction Management Strategy shall address as a minimum the following issues:
- 10.3.1 use of cranes or other tall construction equipment;
  - 10.3.2 control of activities likely to produce dust or smoke clouds
  - 10.3.3 the design of temporary lighting to avoid distracting pilots (see Advice Note 2);
  - 10.3.4 storage of materials, particularly compliance with height limits;
  - 10.3.5 control and disposal of waste, to prevent attraction of birds; and
  - 10.3.6 site restoration, to prevent attraction of birds.

## 11. REQUIREMENTS RELATING TO WORKS AFFECTING THE RAILWAY

11.1 The MUDFA Contractor shall comply with the requirements of Network Rail in relation to railway safeguarding.

11.2 The MUDFA Contractor shall comply with all Network Rail standards and guidelines, including but not limited to "*Requirements for Constructional Work On or Near Railway Operational Land*" and "*Health and Safety Management of Third Party Works (RT/LS/P/043)*".

## 12. HEALTH & SAFETY REQUIREMENTS

### 12.1 Safety Signage

The MUDFA Contractor shall be responsible for the provision of all safety signage required for the work activities being undertaken. Safety signage shall comply with the Health and Safety (Safety Signs and Signals) Regulations 1996.

### 12.2 Hazardous Substances

12.2.1 The MUDFA Contractor shall maintain a register of safety data sheets for all materials and substances used.

12.2.2 The MUDFA Contractor shall be responsible for undertaking "COSHH" assessments for materials and substances used or with which contact will be made on the Site.

12.2.3 The MUDFA Contractor shall liaise with **tie** regarding proposals for storage of hazardous substances in open air, in buildings, within the workplace and the decanting, disposal of empty containers, tanks and cylinders.

### 12.3 Electricity

12.3.1 The MUDFA Contractor shall use electrical tools and equipment which operate at a voltage no greater than 110V. Where there is a requirement to operate tools and equipment using a voltage greater than 110V, the approval of **tie** shall be obtained in writing.

12.3.2 Electrical tools shall be double insulated and used in conjunction with a RCD.

12.3.3 Tools shall be connected to a 240V supply via a portable 110V centre tapped transformer.

12.3.4 The lead between the 240V supply and the transformer shall be as short as is reasonably possible.

12.3.5 All temporary electrical systems shall possess a current inspection certificate.

12.3.6 All tools shall have passed an electrical safety test and shall be identified with a label which states the unique identification, the test date, the next test date and the organisation which carried out the electrical safety test.

#### 12.4 **Provision and Use of Work Equipment**

12.4.1 The MUDFA Contractor shall be responsible for ensuring the inspection of all work equipment. Records of inspections shall be retained at the Site.

12.4.2 Work equipment shall only be used by authorised personnel, who have received appropriate training and certification.

#### 12.5 **Lifting Operations and Lifting Equipment**

12.5.1 The MUDFA Contractor shall be responsible for ensuring that all lifting equipment is accompanied by current test and examination certificates.

12.5.2 Safe working loads shall be shown on all lifting equipment.

12.5.3 Lifting equipment and lifting operations shall only be used by authorised personnel, who have received appropriate training and certification.

### 13. **FIRE PREVENTION**

13.1 The requirements of the document "*Fire Prevention on Construction Sites: The Joint Code of Practice on the Protection from Fire of Construction Sites and Buildings Undergoing Renovation*" (published by the Construction Confederation and the Fire Protection Association) shall apply to the MUDFA Works.

13.2 All temporary protective coverings shall comply with the requirements of the Loss Prevention Standard LPS 1207 'Fire Requirements for Protective Covering Materials'.

- 13.3 All scaffold cladding materials shall comply with the requirements of the Loss Prevention Standard LPS 1215 'Flammability Requirements for Scaffold Cladding Materials'.
- 13.4 The MUDFA Contractor shall, as appropriate to the work activities, appoint "a fire marshall" who shall be responsible for day to day fire safety.
- 13.5 A permit to work shall be implemented for all "hot works".
- 13.6 The use of halogen lighting shall be prohibited.

14. **FIRST AID**

- 14.1 the MUDFA Contractor shall be responsible for providing first aid provision for its personnel (including any Sub-Contractors) in accordance with the Health and Safety (First Aid) Regulations ("Regulations") 1981. This shall include the provision of:
  - 14.1.1 a first aid box, the size of which shall be commensurate with the number of workers on Site; and
  - 14.1.2 the required number of first aiders or appointed persons required by the Regulations.

15. **INSPECTIONS**

- 15.1 The MUDFA Contractor shall be responsible for undertaking the statutory inspections required in terms of the Construction (Health, Safety and Welfare) Regulations 1996 that relate to the MUDFA Works being carried out. The records of the inspections shall be retained on the Site.

16. **ROADS AND FOOTPATHS, CYCLEWAYS AND BRIDLEWAYS**

16.1 **General**

- 16.1.1 The MUDFA Contractor shall submit to **tie** and the SDS Provider a statement setting out the proposed measures (including specified traffic routes) to be taken with respect to traffic and road safety for the duration of the MUDFA Works, to enable the development of the Temporary Traffic Regulation Orders ("**TTROs**") and equivalent of such orders as are applicable to third parties for example Edinburgh Airport Limited, for

approval before the MUDFA Works commence. The MUDFA Contractor shall circulate the approved statement to all bodies identified by **tie** and CEC and any other bodies affected by the MUDFA Works.

16.1.2 The measures to be taken with respect to traffic and road safety shall include, but not necessarily be limited to:

16.1.2.1 use of TTROs; the MUDFA Contractor shall consult with the SDS Provider, **tie**, CEC and other third parties on the arrangements for agreeing and implementing TTROs to facilitate road closures and the like; the use of TTROs shall take into account the requirement for, and availability of, suitable alternative routes;

16.1.2.2 use of temporary signing and lining where required by **tie** and CEC to identify places where construction is taking place;

16.1.2.3 use of temporary signing to restrict vehicle types and sizes and define routes for construction traffic;

16.1.2.4 use of appropriate temporary signing and lighting wherever works are in progress to ensure the safety of all road users; and

16.1.2.5 preparation and implementation of a programme agreed by the SDS Provider with **tie** and CEC for road closures and temporary traffic signal arrangements.

## 16.2 Temporary Road Closures And Diversions

16.2.1 The MUDFA Contractor shall assist the SDS Provider to finalise the arrangements for required closures and diversions of specified highways, footpaths and cycle ways with **tie** and CEC, BAA or any private landowner, to suit its Construction Programme.

16.2.2 Before breaking up, closing or otherwise interfering with any street or footpath to which the public has access, the MUDFA Contractor shall make such arrangements with **tie** and CEC as may be reasonably necessary to cause as little interference with the traffic in that street or footpath during the construction works as shall be reasonably practicable.

- 16.2.3 Temporary road closures which result in the diversion of bus routes shall be agreed by the SDS Provider with the relevant bus operators who will in turn notify the Traffic Commissioner.
- 16.2.4 Pedestrian access to properties shall be maintained at all times where practicable, unless otherwise agreed with **tie** and CEC and the owners and tenants of affected properties. Access to and from public facilities shall be maintained at all times unless otherwise agreed with the relevant administrating bodies.
- 16.2.5 Wherever the MUDFA Works interfere with the existing public or private roads or other ways over which there is a public or private right of way for any traffic, the MUDFA Contractor shall construct diversion ways as necessary. The standard of construction and lighting shall be suitable in all respects for the class or classes of traffic using the existing ways and the widths of the diversions shall not be less than that of the existing way unless otherwise agreed with **tie** and CEC or the owner of the private road.
- 16.2.6 Diversion routes shall be constructed in advance of any interference with the existing ways, shall be kept as short as reasonably practicable and shall be maintained by the MUDFA Contractor to provide adequately for the traffic flows. All diversion routes shall be removed and the road returned to **tie** and CEC as soon as is reasonably practical after completion of the MUDFA Works. Liaison shall be undertaken with **tie** and CEC regarding any special events such as the Edinburgh Festival, Christmas, New Year, sporting events and filming which might interact with the diversions.
- 16.2.7 Adequate horizontal clearance of 0.6 metres minimum shall be provided from the kerb line, to avoid fouling by vehicles. The minimum headroom beneath any projection over the road shall be 5.3 metres.

### 16.3 **Parking Provision for Construction Traffic**

- 16.3.1 Areas and locations of parking provision for site and construction traffic shall be agreed by the MUDFA Contractor with **tie** and CEC prior to the commencement of MUDFA Works.



16.3.2 No daytime or overnight parking of site or construction vehicles outside any construction compounds or work sites shall be allowed except where the delivery or removal of materials is taking place at that location and with prior agreement with **tie** and CEC, as required under paragraph 8.3 above.

#### 16.4 **Pedestrian Routes, Cycle Routes and Bridleways**

16.4.1 The MUDFA Contractor shall ensure that all existing pedestrian routes, cycle routes and bridleways are maintained throughout the MUDFA Works unless otherwise agreed with **tie** and CEC. Any temporary replacement footway or cycleway shall meet the following requirements:

16.4.1.1 all temporary and diverted footways, which replace footways which are currently accessible to wheelchairs and pushchairs, shall continue to be usable by such users where reasonably practicable and take into account DDA access requirements;

16.4.1.2 tactile paving shall be used where present on existing pedestrian facilities unless otherwise agreed with **tie** and CEC;

16.4.1.3 any temporary footways and cycle ways shall have uniform surfaces; there shall be no steps and any longitudinal gradients shall be suitable for the prevailing conditions, preferably 1 in 20 and no greater than 1 in 12; cross-falls shall be suitable for disposal of surface water run off, but ideally shall not exceed 1 in 30;

16.4.1.4 ramps shall be provided at all junctions of footways and cycle ways with carriageways; gradients shall be appropriate to the circumstances, not exceed 1 in 12, and the base of the ramps shall be flush with the carriageway; all temporary footways and cycle way ramps shall be surfaced in non-slip material and kept free from mud and debris; the MUDFA Contractor shall ensure that there is no ponding at any junction;

16.4.1.5 existing footway and cycle way widths shall be maintained where practicable; footway and cycle way widths shall not be reduced without the prior agreement and approval of The City of Edinburgh Council;

16.4.1.6 clear signing and protection measures shall be provided at all times for each pedestrian and cycle route or bridleway affected by the MUDFA Works, in accordance with Chapter 8 of the Traffic Signs Regulations and General Directions 1981 and relevant safety legislation; the MUDFA Contractor shall liaise and agree the signing requirements of all pedestrian and cycle routes affected by the MUDFA Works with **tie** and CEC, and shall provide any additional signage and/or protection measures required and agreed with **tie** and CEC; and

16.4.1.7 headroom clearance over footways and cycle ways shall be appropriate for the circumstances and a minimum of 2.3 metres; a horizontal clearance of 0.6 metres shall be provided from the kerb line, where practicable, for any hoarding to avoid fouling by vehicles; the minimum headroom beneath any projection over the highway shall be 5.3 metres, but will be higher for abnormal load routes; where a path is a designated bridleway, headway clearance shall be appropriate for the circumstances and a minimum of 3.6 metres; all pedestrian routes diverted onto the carriageway shall be clearly defined by continuous barriers, constructed to the reasonable requirements of **tie** and CEC.

## 16.5 Maintenance and Repair of the Road

16.5.1 The MUDFA Contractor shall carry out a pre-construction inspection and take photographs of the public roads, footpaths and cycle ways in the vicinity of the Site in conjunction with **tie** and CEC. The MUDFA Contractor shall produce a report of the results of the joint inspection. The report shall establish the general road conditions within and in the vicinity of the Site, the residual life of the road and the level of reinstatement likely to be required in order to comply with the requirements of the relevant Works Order and Schedule 3 (*Specification*), as appropriate. The report shall be agreed and signed by both the MUDFA Contractor, **tie** and CEC as appropriate.

16.5.2 The MUDFA Contractor shall take every reasonable precaution to prevent its operations from unnecessarily damaging the roads and footpaths within the Site and in the vicinity of the MUDFA Works.

16.5.3 The MUDFA Contractor shall carry out all maintenance works as are necessary to maintain the roads and footpaths affected by the MUDFA Works in a safe and serviceable condition to the reasonable satisfaction of CEC and **tie**.

#### 16.6 Existing Street Furniture

16.6.1 No street furniture or other features within the vicinity of the Site and the MUDFA Works, but outwith the area covered by the Tram Legislation shall be unnecessarily disturbed or altered by the MUDFA Works. Any damage to street furniture consequent upon construction activities connected with the MUDFA Works shall be reported to **tie** and the appropriate owner or authority (unless the appropriate owner cannot be identified) immediately on discovery of the damage. Any damage shall be replaced or made good as soon as practicably possible and to the reasonable satisfaction of the owner of the street furniture or other feature.

16.6.2 Any street furniture or other obstructions outside the area to be occupied by the MUDFA Contractor but which are required to be moved in order to gain access to the Site shall, subject to the prior consent of the owner thereof, be removed and reinstated or replaced as appropriate, on completion of the MUDFA Works. Any costs associated therewith shall be borne by the MUDFA Contractor, including the costs of reinstatement or replacement.

#### 16.7 Vehicle Movements and Access to the Site

16.7.1 The MUDFA Contractor and its Sub-Contractors and suppliers moving loads, construction plant, materials and spoil (including vehicles used for carrying such when empty) shall limit the use of the public roads for such purposes as far as reasonably practicable.

16.7.2 All access routes shall be agreed with **tie** and CEC prior to the commencement of the relevant works.

16.7.3 Vehicles arriving or leaving the Site shall do so during the normal working hours as specified in paragraph 8.1 above, unless otherwise agreed with **tie** and CEC. Access (which is deemed to include both the route and entrance to any Work Site) by lorries shall be as agreed with **tie**, CEC and the Lothian

and Borders Police. Access to and egress from the Site shall be carried out by initiating a left turn wherever reasonably practicable.

16.7.4 All vehicles operating on the Site shall be fitted with roof mounted yellow flashing beacons.

16.7.5 The MUDFA Contractor shall take all reasonable measures to ensure that delivery vehicles do not remain stationary on the road unnecessarily prior to entering the Site. In exceptional circumstances, for example where the Site is very constrained, it may be necessary to have the potential for a limited number of vehicles to stand on the road. The location of such standing areas their size and the duration of any standing periods shall be subject to prior agreement with **tie**, CEC and the Lothian and Borders Police.

16.7.6 The MUDFA Contractor shall ascertain and comply with any restrictions in respect of abnormal load routes as they may affect access to the Site.

#### 16.8 **Mud on Roads**

16.8.1 The MUDFA Contractor shall take strict measures to minimise the spillage of mud and loose materials on roads arising from all works and ensure that the roads are safe at all times. These shall include, but not necessarily be limited to:

16.8.1.1 the provision of easily cleaned hard standings for vehicles entering, parking and leaving the Site or construction compound;

16.8.1.2 the provision of wheel washing facilities at construction compounds and construction sites, including, where practicable, mechanical wheel spinners, adequate provision for drainage via settlement tanks and regular maintenance of settlement tanks;

16.8.1.3 where mechanical wheel wash facilities are not practicable at construction sites, the use of manual techniques to ensure that the wheels of vehicles are clean prior to them leaving the construction site;

16.8.1.4 the use of mechanical road sweepers and surface flushing apparatus to clean the hard standing and to remove any mud or debris

deposited by site vehicles on roads, footpaths, and in gullies or drains in the vicinity of the Site; the road sweepers or other equipment shall be readily available whenever the need for cleaning arises;

16.8.1.5 the loading and sheeting vehicles are in such a manner as to prevent material falling off during their journey;

16.8.1.6 compliance with the requirements regarding the control of dust outlined in paragraph 19 below; and

16.8.1.7 compliance with the requirements regarding the control of waste water, mud, debris from wheel washing outlined in paragraph 21 below.

16.9 **Provision, Erection and Maintenance of Traffic Safety and Control (Traffic Safety Measures)**

16.9.1 The MUDFA Contractor shall provide, erect and maintain such traffic signs, road markings, lamps, barriers and traffic control signals and such other measures as may be necessitated by the construction of the MUDFA Works in accordance with the requirements of the Agreement and to the approval of **tie** and CEC. The MUDFA Contractor shall not commence any work which affects the public road until all traffic safety measures necessitated by the work are fully operational.

16.9.2 The MUDFA Contractor shall keep clean and legible at all times all traffic signs, road markings, lamps, barriers and traffic control signals and shall position, replace, reposition, cover or remove them as required by the progress of the MUDFA Works and to the reasonable requirements of **tie** and CEC.

16.9.3 The MUDFA Contractor shall ensure that all barriers, footpath space and temporary footpaths (including the requirement for kerb ramps where use has to be made of the carriageway) shall comply with the requirements of the document *Inclusive Mobility A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure* issued by the Mobility and Inclusion Unit of the Department for Transport.

16.9.4 So far as practicable, all power to temporary traffic signals and lighting shall be taken by the MUDFA Contractor from mains supplies rather than from portable generators. Where portable generators are used all reasonable measures will be taken to minimise noise and pollution from such generators.

**16.10 Implementation of the Closure of Roads and Access to Frontages**

16.10.1 The MUDFA Contractor shall not close any roads or private accesses until immediately before the area is required for construction in accordance with the relevant Work Order and the Construction Programme. The construction of the MUDFA Works shall follow in the area of a temporary closure expeditiously and shall be carried out efficiently and in a continuous manner to ensure that all temporary closures are re-opened as quickly as possible.

16.10.2 The MUDFA Contractor shall, in carrying out the MUDFA Works, take all reasonable precautions to prevent or reduce any disturbance or inconvenience to the owners, tenants or occupiers of adjacent properties, and to the public generally. The owners, tenants or occupiers of affected properties shall be informed of the works to be undertaken, their planned duration, road and access closures and alternative access routes (where required) in writing and by locally posted public notices at least one calendar month prior to work starting.

16.10.3 The MUDFA Contractor shall render all necessary assistance to occupiers of premises affected by the MUDFA Works so as to enable them to accept and send out deliveries to and from their premises during their normal working hours.

**16.11 Access for Emergency Vehicles**

16.11.1 The routes proposed by the MUDFA Contractor for emergency service vehicles and personnel to gain access to Work Sites, the construction corridor and neighbouring sites along the route shall be agreed by the SDS Provider with the emergency services and **tie** and CEC prior to the start of construction. The MUDFA Contractor shall provide the necessary assistance to the SDS Provider to enable these agreements to be reached.

17. **NOISE**

17.1 **Noise Control**

17.1.1 The MUDFA Contractor to take all practicable measures to minimise nuisance from noise. The noise limits specified in this paragraph 17.1 or which may be otherwise agreed with The City of Edinburgh Council shall not be regarded as a licence to make noise up to the stated limit.

17.1.2 Subject to the specific requirements of The City of Edinburgh Council and {other Stakeholders – [Who is this referring to?]} affected third parties the following minimum requirements shall be met:

17.1.2.1 during normal working hours, as defined in paragraph 8.1 above the maximum noise levels measured 1 metre from any occupied dwelling or other building used for residential purposes, generated by construction plant and equipment shall not exceed the following limit:

Monday to Saturday (inc.) 0700-1900 hours  $L_{Aeq\ 12\ hour}$  75 dB

17.1.2.2 outside normal working hours, the following limits shall apply:

(a)	Period	Hours	Limit
	Monday to Saturday (inc.)	1900-2200	$L_{Aeq\ 3\ hours}$ 65 dB
	Sunday & Bank Holidays	0800-2000	$L_{Aeq\ 12\ hours}$ 65 dB

17.1.2.3 the default noise limit for any night time (2200 to 0700 hours) construction work shall be  $L_{Aeq\ 1\ hour}$  55dB at residential buildings; higher noise levels may be permitted where ambient noise levels are higher.

17.1.2.4 the maximum noise levels measured 1 metre from any school, college or other teaching facility resulting from construction work shall not exceed the following limits:

At any time when occupied  $L_{Aeq\ 1\ hour}$  65 dB

17.1.2.5 the maximum noise level measured 1 metre from any office building or other building used for office purposes during normal working hours shall be as defined in paragraph 17.1.2.1 above.

17.1.3 In order to ensure that the best practicable means are used to meet the levels set out above, a programme of on-site monitoring by a suitably qualified practitioner shall be agreed between the MUDFA Contractor, **tie** and CEC. This monitoring programme shall include the location and frequency of readings, and shall define to whom the results shall be made available. Monitoring shall be undertaken by the MUDFA Contractor at locations identified in the Environmental Statements as those where mitigation measures may be necessary to avoid significant noise disturbance.

17.1.4 In exceptionally difficult circumstances, essential work causing noise above these limits may be permitted with the prior approval of **tie** and CEC. Where not including within any ~~Works--Order--Proposals~~Work Order Proposals, application for prior approval must be made at least two weeks in advance of the relevant works commencing, and shall be fully justified and kept to the minimum necessary. Conditions may be attached to any permission for such works.

17.1.5 In the event that measurements indicate noise has exceeded the limits in paragraph 17.1.2 above of this clause, the MUDFA Contractor shall stop the operation in a safe manner and take all practicable measures to prevent recurrence. If this does not enable the limits to be met, exceptional permission must be applied for under the terms of paragraph 17.1.4 above.

17.1.6 Without prejudice to the other requirements of this paragraph 17, the MUDFA Contractor shall comply with the recommendations set out in BS 5228, '*Noise Control on Construction and Open Sites*'; insofar as these are reasonably practicable and applicable to the MUDFA Works, and in particular with the following requirements:

17.1.6.1 all vehicles and mechanical plant used for the purpose of the work shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order;



- 17.1.6.2 all compressors and generators shall be 'sound reduced' models fitted with properly lined and sealed acoustic covers, which shall be kept closed whenever the machines are in use, and all pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers;
  - 17.1.6.3 all machines in intermittent use shall be shut down in the intervening periods between work or throttled down to a minimum; noise emitting equipment which is required to run continuously shall be housed in a suitable acoustic enclosure (see BS5228 Part 1:1997, Figures B.1, B.2 and B.3 (or later issue));
  - 17.1.6.4 stationary equipment with significant noise output shall be sited away from sensitive site boundaries as far as is practicable;
  - 17.1.6.5 temporary noise barriers shall be used to reduce noise levels where appropriate and practicable; barriers shall be located as close to the plant as possible, and shall have a mass per unit area of at least  $7\text{kg/m}^2$ ;
  - 17.1.6.6 no deliveries shall arrive at the Site before 0700 hours;
  - 17.1.6.7 the engines of all parked vehicles or vehicles waiting to enter any work area shall be switched off within two minutes of arrival; and
  - 17.1.6.8 work compounds shall be laid out so that accesses and loading areas are located as far away from sensitive neighbours as practicably possible and so that temporary structures screen noisy areas where practicable.
- 17.1.7 Without prejudice to the requirements of this paragraph 17 set out above, the MUDFA Contractor shall comply with the City of Edinburgh Department of Environmental and Consumer Service's document *Construction Site Noise: A Guide for Contractors*, August 2000 (or current issue, if subsequent amendments have been issued), and shall liaise with that department in accordance with the requirements therein.

## 18. VIBRATION

## 18.1 Vibration Control

18.1.1 Subject to the specific requirements of **tie** and CEC, the following minimum requirements shall be met:

18.1.1.1 to protect residents and users of buildings from nuisance and harm the MUDFA Contractor shall, as far as practicable, not exceed the Vibration Dose Values specified in BS6472:1992 as resulting in a ‘low probability of adverse comment’; and

18.1.1.2 to protect buildings and other structures from physical damage, peak particle velocity levels shall not exceed 5mm/sec except for particularly sensitive buildings or structures where the level shall not exceed 3mm/sec.

18.1.2 If vibration levels are predicted to exceed the criteria specified in paragraph 18.1.1 above, then the MUDFA Contractor shall procure that a suitably qualified practitioner undertakes monitoring during the activity and the MUDFA Contractor shall adopt alternative methods of working to reduce vibration levels to those prescribed in above. The monitoring programme shall be agreed between the MUDFA Contractor, **tie** and CEC. This programme shall include the location and frequency of readings and will identify to whom the results should be made available.

18.1.3 In order to ensure that these levels are not exceeded, a programme of on-site monitoring by a suitably qualified practitioner shall be agreed between the MUDFA Contractor, **tie** and CEC. This programme shall include the location and frequency of readings, and to whom the results should be made available and, as a minimum, shall cover all locations identified as ‘significantly affected’ in the Environmental Statement. **[MUDFA to procure and pay costs?]**

## 18.2 Inspection of Buildings and Other Structures

18.2.1 All buildings or other structures, including scheduled monuments and listed buildings that are located within ~~Edinburgh-Tram-working-areas~~Work Sites, or which are located directly adjacent to such ~~working-areas~~Work Sites, which may be at risk of physical damage or damage caused by vibration

generated during the construction works, shall be listed in a schedule compiled by the SDS Provider. The said schedule is to be subject to agreement with the CEC, CEC having the power to add, or subtract, buildings from the schedule as they deem fit. The agreed schedule is to be published in accordance with the requirements of part 5 of Schedule 1 (*Scope of Works and Services*). A notice of inclusion within the schedule is to be delivered to each scheduled building, attachment of a notice to the building shall be sufficient evidence that notice has been served. Subject to the granting to the SDS Provider of free and unhindered access to the building or structure, a record of the condition and survey of any defects in the building or structure shall be prepared prior to the commencement of any Construction Works. Certified copies of the building record and condition survey shall be made available free of charge by the SDS Provider to the owners of the examined buildings or structures, on their presentation of proof of title to the building. The best practicable means shall be undertaken by the SDS Provider to avoid damage, or to minimise damage where it is unavoidable. The condition of the buildings and other structures listed in the schedule shall be monitored at reasonable intervals during the MUDFA Works [by whom?] and for a period of one year after the completion of the said MUDFA Works. The results of the aforesaid monitoring shall be made available free of charge by the SDS Provider to the owners of the examined buildings, on their presentation of proof of title to the building.

18.2.2 The results of this record of the conditions and survey of any defects shall be provided to the CEC, the property owner and occupier and, in the case of scheduled or listed features, to CEC and Historic Scotland by the SDS Provider.

18.2.3 Subject to the provisions of Clause ~~50-42~~ (~~MUDFA Contractor to Search~~), after the MUDFA Works have been completed and at any time up to two years after their completion, the owners of properties identified under paragraph 18.2.1 above may, upon providing reasonable evidence of damage, request that a second defects survey is undertaken. Any damage which is identified as being caused by the MUDFA Works shall be repaired by the MUDFA Contractor within a reasonable time of identification at the expense of the MUDFA Contractor to the reasonable satisfaction of the property

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owner and so that the property is returned no worse than the standard of repair and stability existing before the MUDFA Works commenced.

## 19. DUST AND AIR POLLUTION

### 19.1 Dust and Other Air Pollution

19.1.1 The MUDFA Contractor shall take all necessary measures to avoid creating a dust nuisance during the MUDFA Works.

19.1.2 Particular consideration shall be taken by the MUDFA Contractor to works effecting the operations of Edinburgh Airport Limited. Details of the specific mitigation measures shall be included within the Construction Management Strategy identified under paragraph 10.3 above.

19.1.3 Measures to prevent dust shall include the following:

19.1.3.1 the provision of easily cleaned hardstandings for vehicles;

19.1.3.2 the enclosure of material stockpiles at all times and damping down of dusty materials, using water sprays during dry weather;

19.1.3.3 the hard surfacing of heavily used areas which will be kept clean by regular brushing and water spraying;

19.1.3.4 control of dust released from cutting or grinding of materials on the Site; any mobile crushing plant which is used during the MUDFA Works shall be appropriately licensed and sited so as to minimise dust annoyance to any persons who may be liable to be affected by emissions; the MUDFA Contractor shall notify SEPA in advance of any mobile crushing plant being brought onto the Site;

19.1.3.5 the complete sheeting of all vehicles carrying spoil and other dusty materials;

19.1.3.6 watering of unpaved surfaces and roads; and

19.1.3.7 a limit on vehicle speeds on unpaved surfaces of 20 kph.

- 19.1.4 Where dust generating works (such as excavation and demolition) are undertaken close to buildings so that there is a potential for soiling of windows and ledges with dust, the MUDFA Contractor shall clean such windows and ledges as frequently as is necessary (and as a minimum, at least once per week) during periods of dust generating work and on completion of the MUDFA Works. The MUDFA Contractor shall take precautions to prevent damage occurring as a consequence of cleaning works.
- 19.1.5 The MUDFA Contractor shall take precautions to prevent the emission of smoke or fumes from construction vehicles, site plant and stored materials including volatile substances. Vehicles and plant shall be well maintained and measures shall be taken by the MUDFA Contractor to ensure that engines and motors are not left running for long periods when not directly in use.
- 19.1.6 The engines of all parked vehicles or vehicles waiting to enter any work area shall be switched off within two minutes of arrival.
- 19.1.7 Work compounds shall be laid out by the MUDFA Contractor so that accesses and loading areas are located as far away from sensitive neighbours as is practicably possible, and so that temporary structures screen noisy areas where practicable.
- 19.1.8 There shall be no burning of waste on the Site.

## 20. DISPOSAL OF WASTE AND CONTAMINATED MATERIALS

### 20.1 Waste

20.1.1 The SDS Provider shall develop a waste management plan ("**WMP**") shall be developed in accordance with "*Site Waste Management Plans: Guidance for Contractors and Clients*" (DTI 2004). The SDS Provider shall be responsible for the preparation of the WMP to address all of the approvals and consents which require to be obtained. Thereafter, the MUDFA Contractor shall be responsible for the development of the WMP to document the control measures and mitigation measures that shall be implemented. The plan shall in particular identify:

20.1.1.1 responsibilities for waste management;

- 20.1.1.2 the types and quantities of waste materials likely to be generated;
  - 20.1.1.3 measures to be taken to minimise generation of waste;
  - 20.1.1.4 proposals for recycling and/or re-use;
  - 20.1.1.5 measures to be adopted for management of waste on the Site including enclosure, segregation, secure storage, sorting for recovery, and other on-site handling;
  - 20.1.1.6 proposed treatment and disposal routes; and
  - 20.1.1.7 licensing arrangements.
- 20.1.2 The MUDFA Contractor shall implement and comply with the WMP.
- 20.1.3 The MUDFA Contractor shall undertake monthly audits to demonstrate compliance with Statutory Requirements and the WMP. The MUDFA Contractor shall set out its audit programme in the WMP.
- 20.1.4 Spoil or other waste materials arising from the MUDFA Works shall be used, wherever reasonably practicable, in the MUDFA Works.
- 20.1.5 The disposal of waste, including any surplus spoil, shall be managed by the MUDFA Contractor, so far as is reasonably practicable, to maximise the environmental and development benefits from the use of surplus material to minimise the removal of surplus spoil from the Site and to reduce any adverse environmental effects of disposal.

## 20.2 **Contaminated Land and Materials**

- 20.2.1 The MUDFA Contractor shall identify all areas within the Site where contaminated land, including land contaminated by invasive alien species listed in Part 2 of Schedule 9, of the Wildlife and Countryside Act 1981 (as amended), may be encountered. In each of these areas, the MUDFA Contractor shall:
- 20.2.1.1 carry out appropriate additional site investigations as instructed by **tie** to the satisfaction of **tie** and CEC to determine the extent and type of contaminants present on the Site;

- 20.2.1.2 identify potential sources, pathways and receptors and assess the risk of harm to receptors;
  - 20.2.1.3 liaise with **tie**, CEC and SEPA to address their reasonable requirements and to agree control or protection measures necessary for dealing with identified risks;
  - 20.2.1.4 obtain any necessary licences for the storage, treatment and disposal of contaminated material (including dewatering discharge); and
  - 20.2.1.5 ensure that removal and disposal of contaminated materials complies with a strict consignment note system and that delivery is to appropriately licensed disposal facilities.
- 20.2.2 The MUDFA Contractor shall develop management procedures to be followed in the event that contaminated or hazardous materials are discovered on the Site during construction.
- 20.2.3 If the MUDFA Contractor identifies contamination on the Site which has not been previously identified , no further development shall take place (except to the extent that would not disturb that contamination) until a site investigation has been carried out in accordance with paragraph 20.2.1 above.
- 20.2.4 The MUDFA Contractor shall comply with the guidance in the Health & Safety Executive document "*Protection of Workers and the General Public during the Development of Contaminated Land*" (1991) and to the DEFRA document "*Helping to Prevent the Spread of Invasive Non-native Species, Horticultural Code of Practice*" (March 2005), in so far as this is reasonably practicable and applicable to the MUDFA Works. Invasive alien species listed on Schedule 9, Part II of the Wildlife and Countryside Act 1981 as amended by the Nature Conservation (Scotland Act) 2004, will be treated in accordance with the Environmental Protection Act 1990. Japanese knotweed and giant hogweed and soils containing particles of these plants are regarded as controlled waste.

20.2.5 Appropriate precautions shall be taken if materials containing asbestos are encountered. The MUDFA Contractor shall observe the exposure limits and measurement methods for asbestos, set out in the Health & Safety Executive Guidance Note EH 10 (2001), and shall also comply with Health & Safety Executive "*Guideline Note MS13 - Asbestos*" (2005), the Health & Safety Commission document "*Approved Code of Practice and Guidance Note Work with Asbestos Insulation, Asbestos Coating and Asbestos Insulating Board*" (2002), in so far as these are applicable to the MUDFA Works.

## 21. PROTECTION OF THE WATER ENVIRONMENT

### 21.1 Waste Water and Run-off

21.1.1 ~~The SDS Provider shall prepare a~~ construction site drainage plan ("**CSDP**") ~~shall be prepared~~, in consultation with SEPA. ~~The SDS Provider shall be responsible for the preparation of the CSDP to address all of the approvals and consents which require to be obtained. Thereafter, the MUDFA Contractor shall be responsible for the development of the CDDP to document the control measures and mitigation measures that shall be implemented.~~ The Plan CSDP shall include measures to ensure that surface water runoff is contained and managed appropriately and that appropriate measures are taken to prevent inundation of the Site. "Sustainable Urban Drainage System" ("**SUDS**") measures shall be included within the MUDFA Works where reasonably practicable and applicable, in accordance with the guidance in:

21.1.1.1 "*Interim Code of Practice for SUDS*" (CIRIA 2004);

21.1.1.2 "*Sustainable Urban Drainage System – Design Manual for Scotland and Northern Ireland*" (CIRIA C521); and

21.1.1.3 "*Sustainable Urban Drainage Systems – Best Practice Manual*" (CIRIA C523).

21.1.2 The MUDFA Contractor shall implement and comply with the CSDP.

21.1.3 The MUDFA Contractor shall ensure that there shall be no washout from temporary construction laydown and storage areas into watercourses.



- 21.1.4 No water shall be discharged into watercourses, but shall be stored in settlement lagoons or tanks, or filtered prior to discharge, or discharged onto a grassy area to soak away.
- 21.1.5 Waste water and site discharges to surface water or sewer shall only be permitted where the effluent quality and discharge location is acceptable to SEPA or Scottish Water (as appropriate). COPA discharge consent shall be obtained by the MUDFA Contractor if required prior to discharge.
- 21.1.6 The MUDFA Contractor shall ensure that all treatment facilities are regularly inspected and maintained and that a full record is kept of inspection, maintenance and other measures to maintain equipment performance.
- 21.1.7 Approval from SEPA shall be obtained by the MUDFA Contractor prior to any excavation below the water table, including any site de-watering and discharge. Application for prior approval must be made at least two weeks in advance of the relevant works commencing. Cut-off ditches may be used to prevent water from entering excavations.
- 21.1.8 The MUDFA Contractor shall comply with BS 6031: 1981 "*Code of Practice for Earthworks*", regarding the general control of site drainage is so far as this is applicable to the MUDFA Works.
- 21.1.9 The MUDFA Contractor shall ensure that areas of exposed ground and stockpiles are minimised to reduce silty runoff. Geotextiles or other equivalent measures shall be used by the MUDFA Contractor where necessary to prevent silty run-off from soil mounds close to watercourses.
- 21.1.10 The MUDFA Contractor shall ensure that any water that has come into contact with contaminated materials is disposed of in accordance with the requirements of SEPA or Scottish Water (as appropriate).
- 21.1.11 The MUDFA Contractor shall take suitable precautions to prevent the entry of pollutants into any bodies of water, and report any incidents to SEPA and Scottish Water.
- 21.1.12 Procedures for responding to potentially polluting incidents or inundation of the site by floodwaters shall be implemented in accordance with SEPA guidance (with reference to paragraph 21.6 below).

21.1.13 Cementitious mixtures are highly alkaline and corrosive and shall be prevented from entering watercourses and drains. The MUDFA Contractor shall make suitable provision for washing out ready mix concrete lorries, skips, concrete pumps and the like.

## 21.2 **Storage of Polluting Materials**

21.2.1 The MUDFA Contractor shall make provision to ensure that oil drums and containers or other potential contaminants stored on the Site are properly isolated and banded and that no oil or other contaminants are allowed to reach watercourses or groundwater, including aquifers. Oil storage shall comply with the Water Environment (Oil Storage) (Scotland) Regulations 2006 (Draft) insofar as these are reasonably practicable and applicable to the MUDFA Works. Drip trays and other secondary containment measures shall be used by the MUDFA Contractor where necessary to prevent spills during refuelling and operation of small static and mobile equipment. Storage locations for such materials shall be positioned away from watercourses. All surface water or other contaminated water which accumulates in bunds shall be removed by the MUDFA Contractor by manually controlled positive lift pumps, and not by means of a gravity drain.

21.2.2 Refuelling shall be carried out by the MUDFA Contractor in a designated area which is away from watercourses and drains.

21.2.3 Spill response kits containing equipment appropriate to the quantity and types of materials present on site shall be available for use by the MUDFA Contractor in the event of a fuel spillage. Personnel shall be trained in their use.

## 21.3 **Protection of Aquifers**

21.3.1 The MUDFA Contractor shall have due regard for protection of underlying aquifers and adhere to the SEPA "*Groundwater Protection Policy for Scotland*". In all instances, measures to ensure appropriate protection of aquifers shall be undertaken, subject to prior approval of SEPA. Prior approval shall be sought by the MUDFA Contractor in writing, prior to commencement of the relevant works.

#### 21.4 **Control and Management of Foul Drainage**

21.4.1 Where permanent facilities are not accessible foul water and sewage effluents produced by the construction workforce shall be contained by temporary foul drainage facilities. A licensed contractor engaged by the MUDFA Contractor shall dispose of all foul water collected off-site.

#### 21.5 **Works in the Vicinity of Water**

21.5.1 The MUDFA Contractor shall take suitable precautions to prevent the entry of pollutants, including sediments and dusts, into any bodies of water, and report any incidents to SEPA.

21.5.2 Crossings of watercourses shall be constructed by the MUDFA Contractor so as not to impede the flow, obstruct the movement of floodwater or exacerbate erosion of the channel and banks.

21.5.3 In watercourses which support migratory fish, works shall be avoided during upstream and downstream fish migration, spawning, incubation and hatching periods.

21.5.4 Where bankside habitat is temporarily affected, it shall be reinstated by the MUDFA Contractor to its original form on completion of the works.

21.5.5 Areas of bankside adjacent to working areas shall be fenced off during construction to prevent damage to the banksides.

21.5.6 Stripping of surface vegetation near water by the MUDFA Contractor shall be kept to a minimum. Exposed surfaces shall be seeded or reinstated by the MUDFA Contractor with vegetation, as soon as is practical after construction in that working area is complete.

21.5.7 Where culverting is required as Temporary Works it shall be designed by the MUDFA Contractor and constructed to permit the passage of fish and other aquatic fauna under normal flow conditions.

#### 21.6 **Guidance**

21.6.1 The MUDFA Contractor shall comply with all relevant SEPA "pollution prevention" guidelines, including, but not necessarily limited to:

21.6.1.1	PPG1	General guide to the prevention of water pollution.
21.6.1.2	PPG2	Above ground oil storage tanks.
21.6.1.3	PPG3	The use and design of oil separators.
21.6.1.4	PPG4	Disposal of sewage where no mains drainage is available.
21.6.1.5	PPG5	Works in, near or liable to affect watercourses.
21.6.1.6	PPG6	Working at construction and demolition sites.
21.6.1.7	PPG7	Refuelling facilities
21.6.1.8	PPG8	Storage and disposal of used oils.
21.6.1.9	PPG13	High pressure water and steam cleaners.
21.6.1.10	PPG18	Control of spillages and fire fighting runoff.
21.6.1.11	PPG19	Garages and vehicle service centres.
21.6.1.12	PPG21	Pollution incident response planning.
21.6.1.13	PPG22	Dealing with spillages on roads.
21.6.1.14	PPG23	Maintenance of structures over water.
21.6.1.15	PPG26	Pollution prevention storage and handling of drums and intermediate bulk containers.

## 21.7 **Water Environment (Controlled Activity) (Scotland) Regulations 2005**

The MUDFA Contractor shall be aware that new licensing requirements under the Water Environment (Controlled Activity) (Scotland) Regulations 2005 (currently in draft) may come into force prior to or during the MUDFA Works and shall affect many activities in or around water. The Contractor shall use best endeavours to inform himself of the date that these Regulations come into force.

## 22. **ECOLOGY**

## 22.1 Encroachment into Wildlife Areas

22.1.1 The MUDFA Contractor shall take all reasonably practicable measures to minimise harm to and disturbance of wildlife caused by noise and vibration, dust and other air pollution, including:

22.1.1.1 minimising habitat loss by keeping the working corridor and extent of working areas to the minimum necessary for the MUDFA Works; removal of habitats and new planting shall be undertaken in consultation with Scottish Natural Heritage ("**SNH**"), **tie** and CEC;

22.1.1.2 fencing off adjacent habitat to prevent unnecessary incursion or damage; staff shall be made aware of the need to avoid damage to adjacent retained areas;

22.1.1.3 the reinstatement or replacement of areas of habitat disturbed during construction in areas not required for the MUDFA Works on completion of the MUDFA Works in accordance with the Landscape and Habitat Management Plan ("**LHMP**"). The SDS Provider shall be responsible for the preparation of the LHMP to address all of the approvals and consents which require to be obtained. Thereafter, the MUDFA Contractor shall be responsible for the development of the LHMP to document the control measures and mitigation measures that shall be implemented which shall be prepared by the SDS Provider; and

22.1.1.4 compliance with the guidelines set out in British Standard (BSI *Code of Practice for Earthworks* (BS6031) in relation to soil stripping, storage and placing.

22.1.2 Approval shall be obtained by the MUDFA Contractor from **tie**, SNH, SEPA, Scottish Executive Environment Group Wildlife Habitats Division ("**SEEG WHD**") and The City of Edinburgh Council, for detailed method statements for any works proposed in designated sites, including Special Protection Areas (SPA)/Ramsar sites, Sites of Special Scientific Interest (SSSI), Sites of Interest for Nature Conservation (SINC) and Wildlife Sites.

22.1.3 Applications for approval shall be made by the MUDFA Contractor at least one calendar month prior to relevant works commencing.

## 22.2 Protected Species

22.2.1 In advance of any works, the SDS Provider shall employ suitably qualified professionals to check all working areas and any land within 30 metres of the boundary of the working area (unless there is a boundary with a private third party within the 30 metres, in which case no checks shall be taken within the private land, or 100m from any piling operations or use of explosives) for the presence of species protected by statute. Where protected species are identified, appropriate mitigation measures shall be agreed in advance with the relevant authorities and in accordance with any requirements for licensing, and these measures shall be implemented. The MUDFA Contractor shall be responsible for satisfying itself that the SDS Provider has obtained any required licences from the relevant authority and shall carry out any required mitigation measures.

22.2.2 Where any habitat has to be cleared in the breeding bird season, typically March to June or July for most species, the habitat must be checked prior to removal for the presence of nesting wild birds, their nests and eggs and young. If found, no habitat shall be removed until nesting is complete, or unless other suitable mitigation is agreed in advance with SNH.

22.2.3 The SDS Provider shall be responsible for obtaining a licence from SNH for any work that may cause disturbance to a badger or involves the damage or destruction of a sett. Licence applications shall be made for any works within 10m, heavy machinery operating within 30m, and for piling or use of explosives within 100m, and no works shall proceed until the required licences are obtained. Alternative setts shall be provided in the event of and in advance of any loss.

22.2.4 The SDS Provider shall be responsible for obtaining a licence from SEEG WHD for any work which may cause disturbance to otters or involve damage or destruction to an otter holt or lying up site or if any works are proposed within 30m of an otter holt or lying up site. Alternative holts or lying up sites shall be provided in the event of and in advance of any loss.

- 22.2.5 The SDS Provider shall be responsible for ensuring that all bridges and other built structures and mature and dead trees within the working area shall be checked by a licensed bat handler for their use by roosting or hibernating bats prior to felling or other potentially damaging operations. If found, mitigation measures shall be agreed with SNH and SEEGWHD and implemented, including review of the design to seek ways of avoiding loss of the roost. If avoidance is not possible, a licence shall be applied for by the SDS Provider from SEEG WHD for disturbance to a European Protected Species and / or destruction or damage to a breeding site or resting place. Alternative roost sites shall be provided in advance of any loss. Any loss of feeding habitat shall be compensated for by new habitat creation as detailed in the LHMP. All mitigation measures for protected species shall be installed as early as possible during the construction process so that use can be established at an early stage.
- 22.2.6 Where appropriate use of mitigation measures by target species will be positively encouraged using a variety of techniques e.g. feeding.
- 22.2.7 Permanent mitigation structures for protected species including mammal fencing and tunnels and artificial badger setts shall be checked during construction and approved on completion by a suitably qualified ecologist and reported to SNH. Should these structures not be to the required standard specified, remedial measures shall be taken by the MUDFA Contractor .
- 22.2.8 Mitigation shall aim to compensate for loss of foraging specifically for badgers through creation of appropriate grassland and scrub habitat wherever possible within the Limits of Deviation in the Tram Legislation in line with the Civil Aviation Authority Advice Note 3 – *"Potential Bird Hazards from Amenity Landscaping and Building Design"*.
- 22.2.9 The MUDFA Contractor's personnel and personnel engaged by any Sub-Contractors shall be briefed by a suitably qualified professional on measures for protected species as part of site induction.

### 22.3 **Protection of Mature Trees**

- 22.3.1 For the purposes of this paragraph, "trees" are defined as trees with a diameter of over 10cm girth at a height of 1.5 m above ground level.

- 22.3.2 Loss of trees shall be avoided as far as reasonably practicable. The MUDFA Contractor shall comply with the guidelines set out in British Standard (BS) 5837:1991 "Trees in Relation to Construction" insofar as these are reasonably practicable and applicable to the MUDFA Works.
- 22.3.3 All tree surgery operations shall comply with the British Standard (BS) 3998 "*Recommendations for Tree Work*" and a method statement addressing safety of workers and the public shall be prepared and implemented.
- 22.3.4 Felling shall be carried out in accordance with the Forestry Commission document "*Forest and Water Guidelines 2004*", which relates to the influence that woodland and trees can have on the freshwater environment, insofar as this is reasonably practicable and to the extent that they are applicable to the MUDFA Works.
- 22.3.5 Prior to felling, trees suitable as bat roosts shall be checked by a licensed bat handler for roosting and hibernating bats, and should any be identified required, licences and mitigation measures shall be agreed by the MUDFA Contractor with SNH and SEEG WHD.
- 22.3.6 Woody material generated shall be retained on the Site as far as is reasonably possible and used as part of habitat creation measures.
- 22.3.7 Adverse effects on all trees within or in the vicinity of the Site shall be minimised by the adoption of suitable mitigation measures. These may include, but shall not be limited to, the following:
- 22.3.7.1 selective removal of lower branches in an approved manner, to reduce mechanical damage by construction plant;
- 22.3.7.2 control of construction activities to minimise compaction of the ground beneath the entire canopy of the tree; no heavy materials or plant shall be stored, and construction traffic movements shall be controlled, by fencing or other means, so as to minimise vehicle movement within the canopy;
- 22.3.7.3 the use of matting around the root zone to minimise soil compaction; and



22.3.7.4 the use of chestnut paling around the trunk to prevent damage.

#### 22.4 **Tree Replacement**

Where trees are removed, damaged or die as a consequence of the MUDFA Works, they shall be replaced by the MUDFA Contractor by at least an equal number of trees of similar or approved size and in a location as close as possible to the original position. All tree planting shall be agreed with ~~the~~ CEC, and shall be in accordance with the LHMP. The supply, storage, handling, planting and maintenance of new planting shall be undertaken in accordance with the appropriate British Standards, including, but not necessarily limited to;

22.4.1 (BS5837) "Trees in Relation to Construction";

22.4.2 (BS3998) "Recommendations for Tree Works"; and

22.4.3 (BS4428) "Code of Practice for General Landscape Operations (excluding hard surfaces)".

#### 22.5 **Control of Invasive and Alien Species [By the MUDFA Contractor?]**

22.5.1 If any invasive alien species listed in Schedule 9, Part II of the Wildlife and Countryside Act 1981 (as amended), are identified along the route, including Japanese Knotweed (*Fallopia japonica*), Giant Hogweed (*Heracleum mantegazzianum*) or Himalayan Balsam (*Impatiens glandulifera*), a strategy shall be developed and implemented by the SDS Provider prior to the commencement of the Construction Works to manage their presence. The strategy will ensure appropriate treatment of invasive alien species in advance of construction in accordance with approved methodology and will prevent the spread of the species within and outside the development area. The soil containing these species or plants thereof shall be dealt with as contaminated material and disposed of in accordance with paragraph 20.2 above;

22.5.2 The MUDFA Contractor shall comply with the strategy for the control of invasive and alien species.

23. **ARCHAEOLOGY AND CULTURAL HERITAGE**

23.1 **Archaeological and Heritage Mitigation Plan**

23.1.1 In advance of the commencement of the Construction Works, ~~the SDS Provider shall prepare an "Archaeological and Heritage Mitigation Plan" ("AHMP") shall be prepared.~~ The SDS Provider shall be responsible for the preparation of the AHMP to address all of the approvals and consents which require to be obtained. Thereafter, the MUDFA Contractor shall be responsible for the development of the AHMP to document the control measures and mitigation measures that shall be implemented. The ~~plan~~ AHMP will identify the level of mitigation proposed at each site of archaeological or historic significance (as defined by statute and/or Historic Scotland), taking into account the measures outlined in the Environmental Statements. These may include:

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- 23.1.1.1 prior archaeological evaluation by trial excavations;
- 23.1.1.2 a detailed photographic record prior to construction;
- 23.1.1.3 a watching brief during construction;
- 23.1.1.4 a detailed standing building survey and salvage;
- 23.1.1.5 archaeological excavation;
- 23.1.1.6 preservation in situ;
- 23.1.1.7 further documentary research and archiving; or
- 23.1.1.8 other such measures as may be approved.

23.1.2 The MUDFA Contractor shall implement and comply with the ~~Archaeological and Heritage Mitigation Plan~~ AHMP.

23.1.3 No development within or immediately adjacent to an area which is, in the opinion of ~~tie~~ and CEC, of known or suspected archaeological importance, shall commence until a scheme to deal with any archaeological remains on the Site has been submitted to and approved by ~~tie~~ and CEC and implemented. Application for prior approval shall be made by the SDS

Provider at least two calendar months in advance of the relevant works commencing.

- 23.1.4 No development within or adjacent to an area which is designated as a Scheduled Ancient Monument shall commence without the SDS Provider confirming whether Scheduled Monument Consent is required from Historic Scotland, and where necessary obtaining such consent. The ~~Archaeological and Heritage Mitigation Plan~~ AHMP shall identify the Scheduled Ancient Monuments and Listed Buildings which shall be affected, and shall outline the works that can take place in proximity to them and will detail the necessary mitigation.
- 23.1.5 All records obtained through the mitigation shall be lodged with the National Monuments Record of Scotland ("NMRS").
- 23.1.6 The ~~Archaeological and Heritage Mitigation Plan~~ AHMP shall outline the appropriate procedures that shall be followed should any significant archaeological remains be found during the pre-construction excavations.
- 23.1.7 Any archaeological works carried out on the Site by the MUDFA Contractor shall be undertaken by a suitably qualified investigating body acceptable to **tie** and CEC. The results shall be provided to the property owner and occupier and, in the case of scheduled or listed features, to **tie**, CEC and Historic Scotland.
- 23.1.8 The MUDFA Contractor shall take all reasonable precautions to prevent employees, any Sub-Contractors, their employees, or any other persons from removing or damaging any fossils, coins, articles of value or antiquity, structures or other remains or any other thing of archaeological or historical interest during investigations and during all the MUDFA Works. The ~~Archaeological and Heritage Mitigation Plan~~ AHMP shall outline the legal obligations placed on those who discover portable antiquities or disturb human remains.
- 23.1.9 The SDS Provider will have appointed a suitably qualified professional person, to record the condition of all scheduled and listed buildings and structures or parts thereof, within or adjacent to the construction working areas which are identified as at risk from physical damage or vibration. This

will have been carried out in accordance with the Institute of Field Archaeologists Standards and Guidance. The results shall be provided to the property owner and occupier and in the case of scheduled or listed features, to CEC and Historic Scotland.

23.1.10 At least one month prior to commencement of the relevant excavation works, a copy of each survey undertaken under paragraph 23.1.9 above shall be provided by the SDS Provider to **tie**, the property owner and occupier and, in the case of scheduled or listed features, to **tie**, CEC and Historic Scotland.

23.1.11 After the MUDFA Works have been completed and at any time up to two years after the opening of the tram, the above parties may, upon providing **tie** or the MUDFA Contractor with reasonable evidence of damage, request that a second defects survey is undertaken. Any damage which is identified as being caused by the MUDFA Works shall be repaired within a reasonable time of identification at the expense of the MUDFA Contractor to the reasonable satisfaction of the property owner and such that the property is returned to the standard of repair and stability existing before the MUDFA Works commenced.

## 23.2 **Guidance**

23.2.1 All archaeological investigations, watching briefs or other activities shall be carried out in accordance with the following guidance from the Institute of Field Archaeologists, particularly – but not necessarily limited to standards and guidance for:

23.2.2 field evaluation;

23.2.3 excavation;

23.2.4 archaeological watching brief;

23.2.5 archaeological investigation and recording of standing buildings or structures;

23.2.6 collection, documentation conservation and research of archaeological materials;

23.2.7 the IFA policy statement on Environmental Protection;

23.2.8 the IFA Code of Conduct; and

23.2.9 the British Archaeologists and Developers Liaison Group Code of Practice.