

Issue Date: June 2010	<b>UNCLASSIFIED</b> DIRECTORATE MAJOR PROJECT	Issue No: FINAL 2
16. Sustainability	<b>Hydrus Defence Exempt Environmental Appraisal Volume I</b>	Reference: MER-110-009290

## 16. SUSTAINABILITY

### 16.1 Introduction

As part of the Government Estate, the Atomic Weapons Establishment (AWE) has a commitment to adopt the principles of sustainability in all new developments. These principles are adopted from Government policy on sustainability, with the aim of achieving sustainable development, i.e. *“development which meets the needs of the present, without compromising the ability of future generations to meet their own needs”* (Brundtland Commission, 1987) (Ref. 16-1).

This chapter describes how the Proposed Development has adopted these principles of sustainability. This chapter has been written by RPS Group and URS Corporation Limited (URS).

### 16.2 Policy Context

#### 16.2.1 National Policies and Legislation

##### 16.2.1.1 Government Strategies

In the United Kingdom (UK), the concept and values of Sustainable Development have been translated into the UK Sustainable Development Strategy, ‘A Better Quality of Life’ (Ref. 16-2). This strategy has been developed around the following four objectives:

- Social progress which recognises the needs of everyone;
- Effective protection of the environment;
- Prudent use of natural resources; and
- Maintenance of high and stable levels of economic growth and employment.

As a result of the five-year review of ‘A Better Quality of Life’, ‘Securing the Future: Delivering UK Sustainable Development Strategy’ (Ref. 16-3) was released in March 2005. This document aims to build on the 1999 Strategy but has stronger international and societal dimensions. It identifies the following four agreed priority areas:

- Sustainable Consumption and Production;
- Climate Change and Energy;
- Natural Resource Protection and Environmental Enhancement; and
- Sustainable Communities.

##### 16.2.1.2 Ministry of Defence Policy

One of the actions to come out of ‘Securing the Future’ was a review of the ‘Framework for Sustainable Development on the Government Estate’ (Ref. 16-4) which had previously set out operational targets for travel, energy, waste and water. From this review, targets were derived for all Government departments on

Sustainable Operations on the Government Estate (SOGE) (Ref. 16-5). These targets concentrate on a number of priority areas which are intended to drive a significant improvement in the way the Government manages its land and buildings in a sustainable manner. The three key areas which the targets focus on are climate change and energy, sustainable consumption and production, and natural resource protection.

Being a major Government department with a particularly large and varied estate, the Ministry of Defence (MoD) is required to set an example in working towards UK Sustainable Development objectives and performance. To this end, MoD Defence Estates (DE) has developed a Sustainability Appraisal process, as set out in the MoD Sustainability and Environmental Appraisal Tool Handbook (Ref. 16-6). The Secretary of State for Defence mandated as early as 1996, that the MoD should undertake assessments of the effects of the Department’s projects and activities. Current MoD Policy states that they will:

*“Carry out sustainability appraisals and environmental assessments, as appropriate, for new or revised policies, programmes (including acquisition programmes) office relocations, new projects and training activities”* (Ref. 16-7).

In addition the MoD also published long-term objectives in the ‘Sustainable Development Action Plan 2007 – 2012’ (SD Action Plan 2007) (Ref. 16-8). The most relevant objectives for sustainable development in regards to the Proposed Development are as follows:

- All new build and major refurbishment construction projects will be designed to achieve an ‘excellent’ rating against the Defence Related Environmental Assessment Methodology (DREAM), Building Research Establishment’s Environmental Assessment Method (BREEAM) or equivalent;
- Reduce carbon emissions by 12.5% by 2010-11, relative to 1999/2000 levels;
- Increase their energy efficiency per m<sup>2</sup> by 15% by 2010, relative to 1999/2000 levels;
- Increase their energy efficiency per m<sup>2</sup> by 30% by 2020, relative to 1999/2000 levels;
- Source at least 15% of electricity from Combined Heat and Power CHP (2010);
- Become a zero waste to landfill organisation by 2020;
- Ensure that the MoD estate is suitable for use and land contamination does not pose an unacceptable risk to human health or the wider environment; and
- Decrease water use (from consumption and leakage) by 25% by 2020 (from 2005/06).

Progress against the SD Action Plan 2007 is reported in the Sustainable Development Report and Action Plan 2009 (Ref. 16-9).

#### 16.2.1.3 Planning Policy

The Planning and Compulsory Purchase Act (Ref. 16-10) came into force in July 2004 and is at the heart of a reform of the UK planning system. Delivering sustainable communities is at the centre of this reform. As part of this reform Planning Policy Guidance (PPGs) notes are currently being replaced by Planning Policy Statements (PPSs) (see *Chapter 3: Planning Policy Context* of this DEEA) with the main objective of contributing to the achievement of sustainable development and building sustainable communities across the UK.

In addition, under the Planning and Compulsory Purchase Act regional planning bodies and Local Planning Authorities are required to ensure that any development plan contributes to sustainable development and is subject to a sustainability appraisal.

PPS1: Delivering Sustainable Development (Ref. 16-11) sets out overarching policies for the delivery of sustainable development through the planning system and describes the Government’s vision for principles that should form the foundation of the planning system. PPS1: Delivering Sustainable Development places the achievement of sustainable development as the main objective for Local Planning Authorities and recognises the need for positive planning to achieve this. The role of Local Planning Authorities should go beyond regulation and control, having a more proactive role in the management of development by providing much more specific policies in local plans that encourage, or require, sustainable development. This approach has already begun and has been applied in the development of Regional Planning Policy.

In December 2007, ‘Planning and Climate Change – Supplement to PPS1’ (Ref. 16-12) was published. This document supplements PPS1 by setting out how planning should contribute to reducing emissions and stabilising climate change.

PPS4: Planning for Sustainable Economic Growth (Ref. 16-13) sets out the Government’s policy framework for planning for sustainable economic development in urban and rural areas. This document outlines how regional and local planning bodies are to create a clear economic vision and strategy for their area which positively and proactively encourages sustainable economic growth.

PPS7: Sustainable Development in Rural Areas (Ref. 16-14) sets out the Government’s planning policies for rural areas, including largely undeveloped countryside up to the fringes of urban areas. The Government’s objectives for rural areas include the continued protection of open countryside; the focusing of development in or next to existing towns and villages; sustainable economic growth; and the discouragement of development of greenfield land.

PPS10: Planning for Sustainable Waste Management (Ref. 16-15) sets out the Government’s policy for sustainable waste management, which seeks to protect human health and the environment by producing less waste and using it as a resource wherever possible. New developments are required to make sufficient provision for waste management and waste management facilities, without adverse impacts on the street scene or, in less developed areas, the local landscape.

Issue Date: June 2010	<b>UNCLASSIFIED</b> DIRECTORATE MAJOR PROJECT	Issue No: FINAL 2
16. Sustainability	<b>Hydrus Defence Exempt Environmental Appraisal Volume I</b>	Reference: MER-110-009290

PPG13: Transport (Ref. 16-16) establishes the Government's objective of integrating planning and transport at the national, regional and local level in order to:

- Promote more sustainable transport choices for both people and for moving freight;
- Promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling; and
- Reduce the need to travel, especially by car.

In order to deliver the objectives of sustainable transport when assessing planning applications, Local Planning Authorities are required to ensure that development involving employment offers a realistic choice of access by public transport, walking and cycling, whilst recognising that this may be less achievable in some rural areas. The guidance also encourages the implementation of Travel Plans amongst businesses and organisations. Travel Plans should aim to reduce car usage and increase the use of more sustainable transportation methods such as public transport, walking and cycling.

PPS22: Renewable Energy (Ref. 16-17) sets out the Government's approach to the use of renewable energy in proposals. It states that:

*"...the wider environmental and economic benefits of all proposals for renewable energy projects, whatever their scale, are material considerations that should be given significant weight in determining whether proposals should be granted planning permission".*

PPS22 also states that Local Planning Authorities should specifically encourage the incorporation of renewable energy projects in all new developments.

### 16.2.2 Regional Planning Policy

The Regional Spatial Strategy (RSS) for south east England is known as the South East Plan (Ref. 16-18). This plan sets out the planning strategy for the region for the years 2006-2026 which are expected to be carried forward into the new Local Development Framework (LDF) documents produced by Local Planning Authorities.

A policy of particular importance to sustainability is the cross cutting policy CC1 Sustainable Development, which describes the priorities for achieving this in the South East as follows:

- i. achieving sustainable levels of resource use*
- ii. ensuring the physical and natural environment of the South East is conserved and enhanced*
- iii. reducing greenhouse gas emissions associated with the region*
- iv. ensuring that the South East is prepared for the inevitable impacts of climate change*
- v. achieving safe, secure and socially inclusive communities across the region, and ensuring that the most deprived people also have an equal opportunity to benefit from and contribute to a better quality of life".*

Policy CC4 Sustainable Design and Construction which describes how the construction of new buildings, and the redevelopment/refurbishment of existing buildings, will be expected to adopt and incorporate sustainable construction standards and techniques, including:

- i. consideration of how all aspects of development form can contribute to securing high standards of sustainable development including aspects such as energy, water efficiency and biodiversity gain*
- ii. designing to increase the use of natural lighting, heat and ventilation, and for a proportion of the energy supply of new development to be secured from decentralised and renewable or low-carbon sources*
- iii. securing reduction and increased recycling of construction and demolition waste and procurement of low-impact materials*
- iv. designing for flexible use and adaptation to reflect changing lifestyles and needs and the principle of 'whole life costing'".*

It also states how Local Planning Authorities will promote best practice in sustainable construction and help to achieve the national timetable for reducing carbon emissions, and demonstrate the local requirements for sustainable buildings.

Other specific policies relating to sustainability include:

- Policy RE3 – Employment and Land Provision - describes how provision should be made *'...in locations that are or will be accessible to the existing and proposed labour supply, and that make efficient use of existing and underused sites and premises, through increasing the intensity of use on accessible sites'.*
- Policy NRM1 - Sustainable Water Resources and Groundwater Quality describes how water supply and ground water will be maintained and enhanced through avoiding adverse effects of development on the water environment. An approach of demand management and water resource development will be pursued, which will:

- i. assist the UK in achieving the objectives of the Water Framework Directive by delivering appropriate actions set out in River Basin Management plans.*
- ii. identify any circumstances under which new development will need to be supported by water efficiency standards exceeding extant Building Regulations standards*
- iii. set out the circumstances under which sustainable drainage solutions should be incorporated into new development*
- iv. encourage winter water storage reservoirs and other sustainable land management practices which reduce summer abstraction, diffuse pollution and runoff, increase flood storage capacity and benefit wildlife and recreation*
- v. direct new development to areas where adequate water supply can be provided from existing and potential water supply infrastructure. In addition ensure, where appropriate, that development is phased to allow time for the relevant water infrastructure to be put in place in areas where it is currently lacking but is essential for the development to happen."*

- Policy NRM4 - Sustainable Flood Risk Management states *"In the preparation of Local Development Documents and considering planning applications, Local Planning Authorities in conjunction with the Environment Agency, should also ... (ii) Require incorporation and management of Sustainable Drainage Systems (SuDS), other water retention and flood storage measures to minimise direct surface run-off, unless there are practical or environmental reasons for not doing so".*
- Policy NRM11 - Development Design for Energy Efficiency and Renewable Energy – states that Local Planning Authorities should promote and secure greater use of decentralised and renewable or low-carbon energy in new development, and use design briefs and/or supplementary planning documents to promote development design for energy efficiency, low carbon and renewable energy.
- Policy W2 - Sustainable Design, Construction and Demolition describes how Local Development Documents will require development design, construction and demolition which minimises waste production and associated impacts through:
  - The re-use of construction and demolition materials;
  - The promotion of layouts and design that provides adequate space to facilitate storage, re-use, recycling and composting.
- Policy M1 Sustainable Construction – states *"Local Development Documents should promote the use of construction materials that reduce the demand for primary minerals, by requiring new projects to include a proportion of recycling and secondary aggregates wherever practicable".*

### 16.2.3 Local Planning Policy

The West Berkshire District Local Plan 1991 – 2006 Saved Policies (Ref. 16-19) has several policies which relate to sustainability. These will remain applicable until such time that the Local Development Framework (LDF) is approved, following implementation of the Planning and Compulsory Purchase Act (Ref. 16-20)

A number of policies have been saved that relate to sustainability, these include:

- Policy OVS.1 *"The Council will follow the existing settlement pattern and hierarchy found within the district area in seeking sustainable locations for development which minimise the need to travel and with appropriate access to public transport services and other community facilities. In this context the Council would prefer to see the redevelopment of brownfield sites (land previously developed) than the use of 'greenfield' (undeveloped) land".*
- Policy Env 20: *"Proposals for the redevelopment of existing buildings in the countryside will be permitted where the proposal is in a sustainable location and particularly where it will assist the diversification of the rural economy and secure environmental improvements..."*

Further sustainability policy and guidance is found in the 'Quality Design – West Berkshire' Supplementary Planning Document (SPD) series. This series of SPD's supports the policies of the West Berkshire District Local Plan 1991-2006 Saved

Issue Date: June 2010	<b>UNCLASSIFIED</b> DIRECTORATE MAJOR PROJECT	Issue No: FINAL 2
16. Sustainability	<b>Hydrus Defence Exempt Environmental Appraisal Volume I</b>	Reference: MER-110-009290

Policies and the forthcoming LDF and its associated Local Development Documents (LDDs). Part 4, Sustainable Design Technologies (Ref. 16-21) provides a range of methods, techniques and technologies as examples of solutions to sustainable building design for all developments, its purpose is to maximise the opportunity for developments to be energy and resource efficient. This includes a requirement to achieve EcoHomes/BREEAM (or equivalent) 'Excellent' rating.

#### 16.2.4 AWE Policy

##### 16.2.4.1 Corporate Sustainability Plan: Shaping the Vision

In July 2007, AWE produced the first in its series of Public Information Leaflets describing AWE's commitments to establishing and delivering long-term goals for sustainable development. AWE's Corporate Sustainability Plan: 'Shaping the Vision' (Ref. 16-22) recognises that AWE has a number of major development projects proposed for both its Burghfield and Aldermaston sites, and that the challenge is to manage these effectively whilst minimising the impact on our local communities. In recognition of the investment programme the leaflet presents the AWE aim to:

*"...run our business in a way that reduces our environmental impact, but that also provides social and economic progress in the communities in which we operate".*

Shaping the Vision sets out four key themes in which AWE has listed commitments and targets: Climate Change and Energy, Waste Management, Travel and Transport, and Construction and the Built Environment. All themes were considered whilst undertaking this chapter, however, of particular importance is Key Theme 3: Construction and the Built Environment. This theme outlines AWE's objective to create a vibrant working environment that is consistent with AWE's world class reputation for science and technology. It is recognised that sustainability principles are fundamental to the design of new-built assets and that these assets must be delivered in a responsible way, in line with environmental best practice.

##### 16.2.4.2 Sustainability Appraisals

As part of the Government Estate, AWE has a commitment to adopt the principles of sustainability in all new developments. Sustainability is a core part of the Site Development Context Plan 2008 (SDCP08) (Ref. 16-23) and the original version published in 2005 was subject to a Strategic Sustainability Appraisal (SSA) (Ref. 16-24). AWE has also developed several internal strategies in order to support this objective throughout the delivery of the SDCP08. These strategies will guide the implementation of the Proposed Development, as detailed below:

- Energy and water efficient building design and reduction of CO2 emissions through the AWE Energy Strategy;
- Minimising environmental impact and disruption to local residents during construction through the AWE Code of Construction Practice (CoCP) (Ref. 16-25) (part of the Planning Application documentation) and development of an Construction Environmental Management Plan (CEMP);

- Reducing single occupancy car travel and encouraging sustainable transport modes through the AWE Travel Plan;
- Managing surface water runoff through the AWE Surface Water Drainage Strategy;
- Managing and minimising construction waste through the CoCP; and
- Delivering the SDCP08 and maintaining biodiversity.

The AWE Board also made a commitment to apply the Sustainability Appraisal process, outlined in the MoD Sustainability and Environmental Appraisal Tool Handbook, across all development projects at AWE Aldermaston and Burghfield.

#### 16.3 Methodology

This chapter identifies the measures and targets within the Proposed Development that will be adopted by AWE in order to meet the principles of sustainability. A summary of sustainability measures which have been incorporated into the Proposed Development are described below for each area outlined within the Sustainability Appraisal Handbook for the MoD Estates. The Sustainability Appraisal Handbook for the MoD Estates employs a checklist approach, grouping themes under the following 16 categories:

1. Air quality;
2. Travel and transport;
3. Energy and climate change;
4. Noise and vibration;
5. Water;
6. Waste;
7. Construction and the built environment;
8. Geology and soils;
9. Biodiversity and nature conservation;
10. Historic environment;
11. Landscape and townscape;
12. Health, safety and wellbeing;
13. Communities and social values;
14. Infrastructure and amenities;
15. Economy and employment; and
16. Sustainable procurement.

The themes are further divided into construction and operational phases.

In addition, this assessment summarises the results of preliminary (Survey and Design Stage) Defence Related Environmental Assessment Method (DREAM) assessments undertaken for the Proposed Development. Further details of this report can be found within the Planning Supporting Statement of this planning application.

#### 16.4 Summary of Sustainability Measures

As part of the Government Estate, AWE has a commitment to adopt the principles of sustainability in all new developments. Sustainability is a core part of the SDCP08 and the original version published in 2005 was subject to a Strategic Sustainability Appraisal. AWE has also developed several internal strategies in order to support this objective throughout the delivery of the SDCP08. These strategies are submitted in support of the Planning Application. The main sustainability measures adopted for the Proposed Development are described below.

##### 16.4.1 Air Quality

*Objective: Minimise greenhouse gas emissions and pollution of air with gases and particulates*

The mitigation measures to minimise impact on local air quality are described in *Chapter 10: Air Quality* of this DEEA. This includes control of dust generation during construction, as defined in the CoCP, which will be adopted for all construction activities associated with the Proposed Development. During construction no properties are expected to be affected by dust. Concentrations of NO<sub>2</sub> and PM<sub>10</sub> from haulage vehicles are expected to have a negligible impact in terms of air quality.

There will be no change in the number of staff vehicle movements during the operation of the Proposed Development compared to the existing facility, consequently there will be no operational traffic impact upon local air quality. All atmospheric discharges will be filtered and monitored to demonstrate to the Environment Agency compliance with regulatory requirements. A stack height of 23.5m above ground level ensures that doses are well within acceptable limits. Overall, the Proposed Development is not predicted to have significant air quality effects at any sensitive receptors.

The transport measures for both construction and operation, as described below and in Chapter 9: Transport of this DEEA would also contribute to reducing the impact on local air quality.

##### 16.4.2 Travel and Transport

*Objective: Minimise amount of travelling required, particularly via roads and private cars*

The Proposed Development will provide a facility that will replace activities carried out elsewhere on the AWE Aldermaston Site. It is estimated that up to 50 operational staff will work in the building all of whom currently work at AWE Aldermaston. Accordingly, the application proposals will not generate any additional operational worker vehicle movements over and above the existing facility and the only additional vehicle movements will be generated by construction activity.

As explained in *Chapter 9: Transport* of this DEEA, the AWE Travel Plan (part of the Planning Application documentation) has been produced, to address staff movements to and from work and on-site. The Travel Plan aims to reduce the number of single occupancy vehicular trips from 72% to 65% at AWE Aldermaston and includes:

Issue Date: June 2010	<b>UNCLASSIFIED</b> DIRECTORATE MAJOR PROJECT	Issue No: FINAL 2
16. Sustainability	<b>Hydrus Defence Exempt Environmental Appraisal Volume I</b>	Reference: MER-110-009290

- Passenger transport initiatives;
- Cycling and walking initiatives;
- A car share scheme;
- Initiatives to reduce travel;
- Initiatives to communicate travel options to the operational workforce; and
- Specific construction logistics initiatives.

The AWE Construction Logistics Team will organise and control construction worker movement and construction material and plant deliveries. The main aims are to:

- Avoid congestion on the local road infrastructure;
- Reduce the impact on the local community;
- Reduce the impact on AWE's core business or staff; and
- Implement effective programme delivery.

A number of planning and optioneering exercises take place ahead of construction activities to make certain that all materials used are minimised and the number of vehicle deliveries to the site is reduced as far as practicable. Material and resource use has been considered as part of the design of the Hydrus Facility and includes utilising modular components.

In order to reduce traffic congestion on and off site, all deliveries will adhere to a pre-agreed schedule following an advance booking request. The proximity of suppliers, waste disposal sites etc will be a consideration during tender analysis and AWE will favour the use of local suppliers where practicable and fair.

The Proposed Development has sought to re-use spoil wherever possible, both within the Application Site and elsewhere within AWE Aldermaston.

#### 16.4.3 Energy and Climate Change

*Objective: Minimise total energy consumption and support the use of renewable energy rather than fossil fuel sources, and improve resilience to climate change*

During construction phase there will be up to 245 construction workers on site and there will be a need to use generators. Energy use will be monitored during construction.

Energy usage throughout the lifecycle of the Hydrus Facility has been considered from design, through construction, to operation and final decommissioning. The detailed design of the proposals would be developed in line with the AWE Energy Strategy (further details of this report can be found within the Planning Supporting Statement of this planning application.). This sets objectives to manage energy demand across the whole site and includes the following objectives:

- All new and refurbished buildings will be energy efficient; and
- All new plant and equipment selected will be energy efficient.

The building and associated services will comply with Part L2 of the Building Regulations (Ref. 16-26) and Building Research Establishment (BRE) best practice. To this end, building elements have been designed to ensure energy efficiency. This will include double glazed, low emissivity windows and thermally efficient roofing, floors, walls and doors.

The building has been designed to monitor energy consumption throughout. Localised temperature and light control will be available to all occupants in office areas and where appropriate, motion activated lighting will be employed. Effective use of natural lighting has also been incorporated into the Support Building design.

Within the Operations and Support Buildings there will be zone controlled lighting with an Intelligent Control System (ICS). The Induction Voltage Adder (IVA) halls will also be fitted with an ICS but due to safety requirements they will have full lighting rather than zoned lighting. Internal and external lighting will generally exceed the standards laid down in Part L of the 2006 Building Regulations: High frequency electronic ballasts will be installed on fluorescent luminaires throughout both buildings except in the IVA Hall where non electronic lamps are to be used due to safety requirements. Electrical sub-metering will be provided for substantial energy uses and zoned areas within the building.

Heating and cooling within the buildings will be achieved by the use of a Variable Refrigerant Flow (VRF) system within the Support Building which moves heat around the building by extracting the heat from one area that requires cooling and using it to heat another area that requires heating. Fresh air into the Operations Building will be drawn through the IVA Halls during the winter heating season. This method utilises the heat dissipated from the IVA machines to pre-heat the incoming fresh air to the facility. Practically all of the air handling systems within the Operations Building re-circulate the air within the building, in turn recovering the heat within the system.

All insulating materials used in the Proposed Development will have a Global Warming Potential (GWP) of less than 5 and an ODP (Ozone Depleting Potential) of zero. All internal finishes including painted surfaces, floor and wall covering, adhesives, sealants and preservatives will contain low solvent and other volatile organic chemicals.

It is proposed to use air source heat pump for space heating demand load. This technology will satisfy approximately 0.6% of the energy demand for the Operations Building and approximately 16.7% of the energy demand for the Support Building. For the Proposed Development as whole, this will equate to 2.3% of the energy demand. Domestic hot water will be provided by instantaneous 'point of use' water heaters which will have an efficiency of over 85%. The Energy Resources Statement for the Proposed Development is included within *Technical Appendix H* Volume II of this DEEA.

#### 16.4.4 Noise and Vibration

*Objective: Minimise disturbance and annoyance to people and wildlife and stress to historic buildings caused by uncontrolled noise and vibration*

*Chapter 11: Noise and Vibration* of this DEEA has identified mitigation measures relevant to the Proposed Development to minimise the noise impact. This

includes the adoption of noise control measures during construction, as described in the CoCP.

Extensive planning will take place in advance of construction in order to reduce the amount of materials used and to reduce the number of deliveries to the Application Site. Measures will be taken to minimise the numbers of personnel vehicles travelling to the AWE Aldermaston Site. All personnel will be encouraged as far as possible to practice car sharing and cycling to reduce the number of personnel vehicles requiring parking on the AWE Aldermaston Site. Deliveries to the Application Site will be scheduled for off-peak hours.

The Proposed Development has a low probability to cause minor noise impacts on local noise sensitive receptors (NSRs). With regards to fixed plant in non-firing operation periods, the following mitigation will be implemented:

- A procurement specification strategy for selecting the quietest, appropriate plant;
- Provision of dedicated plant-rooms away from the building boundary for noisy plant items;
- Attenuated services connections to plant-room louvres;
- In-line duct attenuators, strategically positioned to prevent flanking (noise break-in to ventilation ductwork post attenuator);
- Anti-vibration mountings will be provided on equipment;
- Flexible duct connections will be provided between distribution ductwork and fans;
- Regular maintenance of noisy plant to ensure that there is no increase in noise; and
- Regular assessment of the effectiveness of noise control measures.

Mitigation measures will be implemented to reduce the effects of the audible warnings associated with experiments and testing of the IVA machines. Where practicable, the use of external audible warning devices will be limited and the positioning and orientation of audible warning devices will be directed away from the nearest NSRs. The noise level of external audible warnings and the noise levels will be limited to the amount required to alert the relevant areas of the Proposed Development.

#### 16.4.5 Water

*Objective: Reduce total water consumption, maximise efficiency of use and encourage reuse whilst minimising the risks of water pollution and flooding*

*Chapter 7: Ground Conditions* and *Chapter 8: Water Resources* of this DEEA describe the measures to be adopted to minimise pollution and control surface water runoff. This includes a description of Sustainable Drainage System (SuDS) techniques which will be incorporated into the design.

During construction and operation, the risks of pollution will be controlled through relevant measures as described in the CoCP and in accordance with the Environment Agency's Pollution Prevention Guidance Notes (Ref. 16-27).

Issue Date: June 2010	<b>UNCLASSIFIED</b> DIRECTORATE MAJOR PROJECT	Issue No: FINAL 2
16. Sustainability	<b>Hydrus Defence Exempt Environmental Appraisal Volume I</b>	Reference: MER-110-009290

All temporary stores of fuel will be engineered to comply with the standards required by the Control of Pollution (Oil Storage) (England) Regulations 2001 (the Oil Storage Regulations) (Ref. 16-28) and any plant or equipment that show any sign of leakage etc. shall be removed from the Hydrus Development Site immediately. In addition, suitable contingency arrangements (e.g. spill kits) will be available onsite for both construction and operational phases.

There is a need to complete dewatering works during the construction phase, prior to the construction of the Operations Building. The dewatering works will encircle the Operations Building with sheet piling driven into the London Clay, thus hydraulically isolating the internal areas from the outer area. Dewatering will take three forms: well-points will be situated within the sheet pile perimeter to lower groundwater levels; ejector wells will be situated within the excavation to lower porewater pressure; and sump pumps within the perimeter to remove any surface waters and minor groundwater seepages, as described in *Chapter 6: Construction Phase* and considered in *Chapter 7: Ground Conditions* of this DEEA.

The Flood Risk Assessment (FRA) in *Technical Appendix B* of this DEEA gives details on the proposed dewatering methodology. This provides information on the regulation and storage of groundwater removed during the dewatering works through the use of the proposed SuDS scheme. The FRA confirms that the discharge limit from the outfall will not exceed the limits of 10.9 l/sec, as set by the Environment Agency.

An appropriate surface water drainage strategy is included in the construction phase. This is to ensure that surface water runoff from the site does not exceed existing runoff rates and volumes, thus ensuring no detrimental impacts to flooding or degradation to receiving drainage systems both in the local area and also elsewhere in the catchment as follows:

- A detention basin is to be constructed on the Hydrus Development Site along the route of the existing open drainage channel;
- A shallow cut-off ditch around the Hydrus Development Site perimeter that intercepts surface water runoff, with this draining to the detention basin;
- Two swales will be included within the surface water drainage strategy, to the south and south-east of the Hydrus Development Site. These provide an additional attenuation volume, and also convey water to the detention basin;
- Roads within the Hydrus Development Site are to be of an impermeable construction with a sub-surface attenuation facility below; and
- The outfall to the detention basin is fitted with a hydrobrake to control the rate of release, and a high level overflow. The swale in the south-east of the Hydrus Development Site has a control weir at the mid-point.

Petrochemical interceptors will also be provided within the surface water drainage system to ensure that no contaminants are discharged from the Proposed Development. Construction lay-down areas will be fitted with a hydrodynamic separator to remove silts from the surface water runoff. All temporary stores of fuel will be engineered to comply with the standards required by the Oil Storage

Regulations. The Contractor will ensure that suitable contingency arrangements e.g. spill kits are in place.

The AWE Energy Strategy, which will be adopted for the design, construction and operation of existing, refurbished and new buildings and infrastructure, has incorporated the management of water use within buildings within its scope. One of the objectives included in this strategy is the efficient use of water within all buildings. The Proposed Development will provide a number of low water usage fittings. A pulsed water meter will be fitted, together with a leak detection system and proximity detection shut-off on all WCs and urinals.

Water saving measures to be included within the Operations Building include:

- Taps for wash hand basins will be specified as either hand detecting spray taps or push button spray taps with timed shut-off;
- Shower heads will be specified with < 9L/s flow;
- Urinals will be specified complete with proximity detection devices;
- All WCs will be specified as 6/4 litre dual flush;
- Use of 15 minute cut-off valve for water within toilets and kitchens to prevent leaks; and
- Water meters will be provided on all incoming supplies to the buildings and on all items with a major consumption. Each meter will be capable of remote monitoring via the Building Automation System (BAS).

Petrochemical interceptors will be included in the drainage route from the loading bays of the Proposed Development. These areas will have an impermeable surface and be graded so that surface waters drain to the interceptors.

A SuDS is incorporated into the surface water drainage strategy for the operational phase of the Proposed Development and includes the detention basin and swales established at the construction phase. All sections of the Support Building and Electrical Substation will incorporate living Sedum 'green' roofs, adding to the biodiversity interests of the Hydrus Development Site and also helping to reduce surface water runoff rates.

#### 16.4.6 Waste

*Objective: Reduce waste production and promote reuse, recycling and recovery*

The Proposed Development aims to be as sustainable as practicable, whilst maintaining high standards of safety, security and environmental performance. As such, due consideration has and will continue to be given to the waste generated by the Proposed Development during all phases, from design, construction and operation, through to its eventual decommissioning. The Proposed Development aims to achieve the following:

- Wherever possible, to contribute towards achieving current and long-term government vision for waste minimisation, recycling and reuse;
- To ensure that all legal requirements for handling operational waste management are complied with; and

- To provide a clean and efficient waste management system that enhances the operation of the Hydrus Facility and promotes waste minimisation and high levels of recovery and recycling.

The Proposed Development will generate solid, aqueous and gaseous forms of radioactive and non radioactive waste. All opportunities for waste minimisation, segregation, recovery and/or re-use will be considered within the design, construction and operational phases of the Proposed Development, according to established AWE procedures.

In accordance with its nuclear licence, AWE produced an Integrated Waste Strategy (Ref 16-29) which defines how it will optimise its approach to sustainable waste management across the AWE Aldermaston Site. The document addresses the management of all wastes produced by AWE and sets objectives to ensure that the Strategy will be uniformly delivered across all operations. Consequently, waste generation is minimised through implementing the principles of the waste hierarchy as outlined within the Integrated Waste Strategy. This ensures that where possible waste is managed in the most environmentally sensitive manner.

The overall quantity of radioactive waste generated, within the Proposed Development will be significantly less than that produced within the existing facilities. This is due to the implementation of the waste hierarchy within the design and in particular a reduction in the number of experiments which will take place. In particular, the proposed Hydrus Facility will result in a reduction in the quantity of Low Level Waste (LLW) produced per open firing and contained firing. Approximately 1,400m<sup>2</sup> of the Operations Buildings is dedicated to ensuring that the waste generated within the Operations Building will be processed to maximise re-use, recycling and appropriate disposal. The Hydrus Facility's waste management processes will ensure that radioactive waste is characterised and segregated on the basis of its physical and chemical properties. Storage of the waste will be in accordance with environmental and safety principles prior to final disposal.

The majority of the radioactive waste produced by the Hydrus Facility will be LLW. This is mainly produced during open firings but is also produced during contained firings. Wherever possible, the containment vessel used during the contained firings will be decontaminated for reuse within the facility. Reuse of other materials used within the Hydrus Facility has been integrated into the waste management strategy. This will include wall plates, protection rings and ducting used within open firings. Where LLW cannot be recovered or decontaminated to allow for disposal via non radioactive routes, it will be consigned to the existing LLW repository (LLWR) near Drigg, for final disposal.

Very low quantities of Intermediate Level Waste (ILW) waste will be generated within the Hydrus Facility during certain very infrequent contained firings. The UK strategy for management of ILW has been reviewed by the Committee on Radioactive Waste Management (CoRWM). In July 2006 CoRWM published its recommendations (Ref. 16-30) in favour of geological disposal with safe and secure interim storage until such a time as a repository is available. Disposal of ILW waste will be undertaken in accordance with NDA, NII and EA approval.

Water used within the Hydrus Facility waste management processes will be sourced from the AWE Radioactive Aqueous Waste Treatment Plant (RAWTP). Use of water has been minimised as far as practicable within the waste

Issue Date: June 2010	<b>UNCLASSIFIED</b> DIRECTORATE MAJOR PROJECT	Issue No: FINAL 2
16. Sustainability	<b>Hydrus Defence Exempt Environmental Appraisal Volume I</b>	Reference: MER-110-009290

management process. Any radioactive waste water generated will be held temporarily within settlement tanks in the Hydrus Facility prior to characterisation and then transfer to the RAWTP facility for treatment and final disposal.

Aerial discharges from the Hydrus Facility will be minimised through the use of a wet scrubber followed by a two stage HEPA filter system. All radioactive aerial discharges will be monitored in accordance with the statutory requirements, as dictated by the RSA93. This methodology will provide the most appropriate safety and environmental controls.

The Proposed Development will generate a number of controlled waste routes. Controlled waste can comprise inert, non-hazardous and hazardous wastes which are separated into office, construction and demolition, hazardous waste and asbestos waste streams at AWE Aldermaston. The majority of waste produced by the Hydrus Facility will be non-hazardous and classified as general office waste i.e. paper, cardboard, plastics, cans and glass. In order to maximise the capture and recycling of this material, dedicated containers will be provided for the separation and storage of these waste streams, prior to disposal via recycling/ recovery routes.

Hazardous wastes, such as oils, chemicals, fluorescent tubes, batteries etc will also be recycled/ recovered where practicable. These will be stored during use and prior to disposal in appropriate containers within safe and secure areas. Those which cannot be recycled or recovered will be disposed of through the most appropriate route.

Disposal of any controlled waste generated by the Hydrus Facility will be undertaken in accordance with the relevant waste regulations including specifically the Environmental Protection (Duty of Care) Regulations 1991 (Ref. 16-31). AWE has a list of approved disposal sites which will be used by the Hydrus Facility for all waste consignments.

Foul water will be discharged from the Hydrus Facility into the existing AWE Aldermaston foul water system. This water is discharged from the AWE Aldermaston Site to an off site local water treatment works under authorisation.

It is not anticipated that any trade effluent will be generated from the Hydrus Facility under normal operations. In accident scenarios any effluent generated will be contained and disposed of via a tanker arrangement to the AWE Aldermaston Trade Effluent facility. For further information on waste water see *Chapter 8: Water Resources*.

In accordance with the Site Waste Management Plan (SWMP) Regulations 2008 (Ref. 16-32), during construction of the Proposed Development, all materials will be obtained, where possible, firstly through re-use schemes (either from material obtained as a result of the AWE Aldermaston on site decommissioning programme or other recycled materials), before seeking fresh materials. Opportunities to reuse the spoil onsite will be investigated. However, if none are available then a local, off-site reuse option will be identified. Specifically for the management of construction waste, the CoCP includes waste management measures which will be adopted during construction. The Construction Environmental Management Plan (CEMP) will include further measures in minimising the impact of the movement of waste offsite.

#### 16.4.7 Construction and the Built Environment

*Objective: Minimise expansion onto green sites, explore refurbishment before building fresh, design sustainability features into new buildings and promote recycling of materials*

The Proposed Development meets the objective of minimising expansion onto green sites as it will be located on a brownfield site. Options studies have indicated that the construction of a new facility is the best way to meet AWE's requirements whilst balancing costs and benefits (see *Chapter 4: Alternatives and Design Evolution* of this DEEA). In addition, a new build presents the opportunities to construct a new facility to modern standards and using sustainable materials.

All construction materials for the hard landscaping and boundary protection specifications will aim to achieve an 'A' rating in the Building Research Establishment (BRE) Green Guide to Specification.

A SWMP will be prepared to minimise and control waste arisings. As previously described, the recycling of construction material will be promoted. Opportunities to reuse the spoil onsite will be investigated. However, if none are available then a local, off-site reuse option will be identified.

#### 16.4.8 Geology and Soils

*Objective: Identify, reduce, manage and mitigate the introduction of threats to soil which can reduce soil extent, diversity or quality*

*Chapter 7: Ground Conditions* of this DEEA includes measures to minimise the spread of contamination. This includes control measures during construction, as defined in the CoCP.

A detailed dewatering strategy has been produced for the Hydrus Development Site to enable the safe construction of the foundations required for the Operations Building and eight associated LPS masts, and involves dewatering an area contained within a cofferdam constructed around the entire footprint of the Operations Building.

Appropriate groundwater management precautions will be adopted to mitigate the risk posed by the dewatering and excavation associated with foundation construction, both to human health and controlled waters. Detailed groundwater management precautions to be used on the Hydrus Development Site will be specified in a Groundwater Management Plan (GWMP) produced by a suitably qualified specialist. The GWMP will be included as part of the CEMP and shall be based on the dewatering strategy proposed for the Hydrus Development Site. Discharge arrangements will be specified within the GWMP developed for the Proposed Development.

Opportunities to reuse the spoil within the Hydrus Development Site and elsewhere within AWE Aldermaston Site will be investigated. However, if none are available then a local, off-site reuse option will be identified.

During the operation of the Hydrus Facility, all external storage areas will be subject to strict environmental controls (i.e. bunding etc) and will be continually monitored in the context of the management of the AWE Aldermaston Site as a

whole. All hazardous substances will be stored appropriately with appropriate mitigation measures available locally in the event of a spillage.

Provided that proposed mitigation is implemented, based on available information, the soil and groundwater contamination on site is considered not to represent unacceptable risks to human health or the environment.

The Hydrus Development Site is considered to exhibit forms and general levels of contamination that are broadly typical of sites that have been involved in 'industrial' type land use. The underlying ground conditions and observed levels of contamination have been shown not to present any significant health and environmental risks requiring additional mitigation measures other than the excavation of soils in the north-east corner of the Hydrus Development Site. It is therefore considered that the Proposed Development can be implemented without unacceptable, significant, adverse impacts. As the Proposed Development offers the opportunity to better understand ground conditions and to deal with any individual cases of contamination there are beneficial impacts for the ground at the Hydrus Development Site.

#### 16.4.9 Biodiversity and Nature Conservation

*Objective: Seek to protect habitats and species and promote opportunities to enhance and conserve wildlife*

*Chapter 15: Ecology* of this DEEA includes measures to minimise the impact on ecology. This includes control measures during construction, as defined in the CEMP and CoCP. Most of the Hydrus Development Site consists of neutral grassland which in places can be considered flower-rich with patches of acid grassland. This grassland has developed over aggregate and broken ground is effectively "brownfield" in nature. A small deciduous copse is located in the southeast corner of the Hydrus Development Site with a field layer which is dominated by bramble. There are scattered trees over the remainder of the Hydrus Development Site and a veteran oak is located adjacent to the copse.

The copse and veteran oak tree will be retained within the Proposed Development. The magnitude of effect on these two features is considered to be neutral, thus the significance of effect is assessed as negligible.

*Chapter 15: Ecology* of this DEEA includes measures to minimise the impact on ecology. This includes control measures during construction, as defined in the CoCP. Best practice guidelines will be adhered to, including material storage and handling, siting of construction plant and restricted vehicular movements away from the woodland boundaries, retained grassland verges and tree root systems, plus covering of construction materials and operational control.

Measures to safeguard ecology will include:

- A Landscape and Biodiversity Management Plan has already been prepared and will be submitted with the planning application; and
- Identification of key responsibilities and with whom these responsibilities lie, e.g. owner, landlord, occupier, Facility Manager etc.

Measures to reduce the effects of the Proposed Development and provide new habitat have been included in the design proposals. Mitigation measures have

Issue Date: June 2010	<b>UNCLASSIFIED</b> DIRECTORATE MAJOR PROJECT	Issue No: FINAL 2
16. Sustainability	<b>Hydrus Defence Exempt Environmental Appraisal Volume I</b>	Reference: MER-110-009290

been provided for the protected species that have been recorded within the Hydrus Development Site. Ecological enhancement measures will create habitats, provide connectivity and safeguard the longevity of the existing wildlife on the Hydrus Development Site but also attract other species from the surrounding area. Ecological enhancements included as part of the Proposed Development are as follows:

- Creation of semi-mature hornbeam (*Carpinus betulus*) hedging around the Operations and Support Buildings;
- All roof sections of the Support Building and Electrical Substation will incorporate a 'green' Sedum roof; and
- A Sustainable Drainage System (SuDS) scheme has been incorporated into the scheme design and will comprise swales and a detention basin. These are expected to be dry during periods of low flow. Suitable native plant species will be planted to provide habitat enhancement for the running wet ditch and compensation for loss of associated grassland that reptiles and invertebrates currently use on the Hydrus Development Site.

Both mitigation and enhancement measures will be specified within the CEMP for the Proposed Development. The CEMP will be permanent for the operational phase after project completion for both landscape and ecology.

#### 16.4.10 Historic Environment

*Objective: To protect and where possible enhance the MOD historic environment in recognition that it is an integral part of cultural heritage and the role it plays in supporting defence capability*

*Chapter 14: Cultural Heritage and Archaeology* of this DEEA includes measures to minimise the impact of the Proposed Development on heritage assets, and the adjacent Aldermaston Court Registered Park and Garden in particular.

The evolution of the design proposals has been the result of extensive formal consultations and discussions with the Principal Design and Conservation Officers of West Berkshire Council (WBC). Details of the how the design has been evolved to minimise visual impacts are described in detail in *Chapter 4: Alternatives and Design Evolution* of this DEEA. A number of alternative site locations both on and off site were considered during the initial phase of the project.

An eight-trench archaeological evaluation across the Hydrus Development Site was conducted in 2007. Despite the area's background archaeological potential, the evaluation revealed only two features of note. These were an undated east-west boundary ditch, probably associated with the medieval / post-medieval manorial Aldermaston Court estate, and an undated possible boundary ditch or peri-glacial channel. No finds pre-dating the Second World War were noted. Most trenches revealed evidence of significant war-time and post-war disturbance, including truncation and levelling, with layers containing buried services and discarded steel window frames, wire hawsers and broken tarmac, concrete and brick. These results indicate that the potential for significant remains is likely to be low.

The largest residual impacts of the Proposed Development will be on the historic character of AWE Aldermaston and on the historic setting of Aldermaston Court Registered Park and Garden. Taking into account the baseline conditions (including existing impacts and AWE Aldermaston buildings consented but not yet constructed) and also the mitigation measures described above, there are no significant adverse effects on any heritage assets.

#### 16.4.11 Landscape and Townscape

*Objective: To protect and enhance the character of landscapes and townscapes.*

Temporary effects on landscape are associated with construction works and will include the materials, topsoil and subsoil storage and any cranes used to construct the buildings. The impacts will be minimised through the implementation of good housekeeping measures as defined in the CoCP.

The Proposed Development is located adjacent to the northern edge of the AWE Aldermaston Site. Its central location along this vegetated boundary means that in views from the south, west and east, the buildings and LPS masts will, in most cases, be seen in the context of the existing built development and infrastructure on the AWE Aldermaston Site, such as the chimney stacks (48.9m tall; 150.8m AOD) associated with the existing Boiler House located adjacent to the AWE Aldermaston eastern boundary, and also with the 33.9m high chimney stacks at the new Energy Centre to the south west of the Proposed Development, in the central area of the AWE Aldermaston Site.

The modern design of the new buildings and structures, together with the landscape proposals (which will provide an attractive hard and soft landscape setting to the Proposed Development), including the retention of the existing copse and other trees, will result in a neutral effect on the local character of the site.

The permanent visual effects of this development will relate to the introduction of the building rooflines (20m and 12m AGL) and the Lightning Protection System (LPS) masts (40m AGL) as additional elements on the ridgeline just above the tree canopy in some short to long distant views. However, these will be seen in the context of the existing AWE Aldermaston buildings and clusters of stacks across the AWE Aldermaston Site. The rooflines and the LPS will be seen just above the ridgeline and tree canopy in some short to long distant views.

New lighting will be included within the Proposed Development but will be viewed in the context of the existing site lighting. The use of flat glass lanterns for road areas and directional down lighting, together with limited inclination, will help minimise light spill in to the night sky.

The modern design of the new buildings and structures, together with the landscape proposals will provide an attractive hard and soft landscape setting to the Proposed Development, including the retention of the existing copse, other trees and the exiting open ditch.

The project will deliver an increase in tree and shrub planting within the Hydrus Development Site and will promote and deliver site-wide enhancements. The landscape strategy for the Proposed Development is part of a wider landscape strategy for the whole of the AWE Aldermaston Site which will ensure continuity of design across AWE Aldermaston. Information on the specific landscape

proposals for the Proposed Development is provided in *Chapter 5: The Proposed Development* and *Chapter 13: Landscape and Visual* in this DEEA.

In summary there will be no long term adverse landscape effects and no significant adverse visual effects as a result of the Proposed Development.

#### 16.4.12 Health, Safety and Well-being

*Objective: Maximise opportunities to promote healthy, safe and secure environments in which to live and work.*

The Proposed Development is within the AWE Aldermaston Site boundary therefore the public will not have access to the construction enclave areas. Further, construction site access will be limited to people with Construction Skills Certification Scheme (CSCS) card.

Prior to construction, contractors are required to produce a Safe System of Work (SSoW) statement, which will include a method statement and an environmental risk assessment. Health and safety induction and regular briefings will be carried out throughout the construction phase for all workers attending the Application Site.

AWE has very stringent health and safety policies and procedures which will be implemented during the construction of the Proposed Development and its future operation. The Hydrus Facility layout has been designed for ease of access and use, including minimisation of the requirement to work in radiologically designated areas.

Staff employed to work long-term within the Proposed Development will undergo a comprehensive training programme over a period of time in order to be suitably qualified / experienced to work with the specialist equipment and materials which will be installed within the Proposed Development.

Construction of a modern standards facility will ensure that dangerous materials, especially radioactive materials, are controlled effectively, health and safety standards are met and a positive working environment is promoted.

The building is designed to meet Counter Terrorism Measures (CTM) requirements.

#### 16.4.13 Communities and Social Values

*Objective: Promote the MOD as a good neighbour which works with local communities to minimise disturbance and maximise positive social impacts*

AWE has an established procedure for liaising with the local community. A local liaison committee (LLC) is held every three months at which AWE updates local members of the community on its upcoming plans. This liaison will continue through the delivery of the Proposed Development.

Disturbance during construction will be minimised by measures set out in *Chapter 6: Construction Phase, Chapter 9: Transport, Chapter 10: Air Quality* and *Chapter 11: Noise and Vibration* of this DEEA.

Issue Date: June 2010	<b>UNCLASSIFIED</b> DIRECTORATE MAJOR PROJECT	Issue No: FINAL 2
16. Sustainability	<b>Hydrus Defence Exempt Environmental Appraisal Volume I</b>	Reference: MER-110-009290

#### 16.4.14 Infrastructure and Amenities

*Objective: To support the welfare, cultural, recreational and infrastructure needs of military and civilian communities*

Welfare facilities will be provided on the Hydrus Development Site for construction workers. However, there will be a temporary increase in the use of local facilities due to the workforce (maximum 245 construction workers) although the average number during the main construction activities will be slightly lower).

An options study for the Proposed Development concluded that new build was advantageous on operational and environmental grounds compared to significant refurbishment of the existing facility at AWE Aldermaston (*Chapter 4: Alternatives and Design Evolution* of this DEEA).

The operation of the Proposed Development will be staffed by existing AWE Aldermaston employees. Therefore, there will be no overall effect on infrastructure and amenities, as the Hydrus Facility will replace the existing facility within the existing AWE Aldermaston Site boundary.

#### 16.4.15 Economy and Employment

*Objective: Maintain and encourage a strong, diverse and stable economy with rewarding employment opportunities open to all*

*Chapter 12: Socio-economics* of this DEEA states that the Proposed Development will generate approximately 75 net additional employment positions and 16 indirect jobs during the construction phase. This is considered to have a minor beneficial impact on the local economy in the medium term.

Once the Hydrus Facility is in operation it will continue to develop the individual skills of a local workforce and will safeguard the existing jobs.

#### 16.4.16 Sustainable Procurement

*Objective: Ensure that all Departmental procurement takes full account of sustainable development principles and helps meet sustainable development targets and objectives*

AWE has a 'part tender evaluation' for construction contractors, which assesses the contractor's sustainability record. This includes suppliers of materials which are expected to meet specific requirements i.e. timber.

The proximity of suppliers, waste disposal sites etc will be a consideration during tender analysis and AWE will favour the use of local suppliers where practicable and fair.

All construction materials for the hard landscaping and boundary protection specifications will aim to achieve an 'A' rating in the BRE Green Guide to Specification.

Temporary timber used on the Hydrus Development Site will be reused or recycled. There is also a procurement opportunity to try to use local resources during construction whenever possible. The AWE Procurement Policy will be adhered to.

#### 16.4.17 Summary of Defence Related Environmental Assessment Method (DREAM)

It is an AWE site requirement that all new projects must achieve an "Excellent" rating for the design stage in BRE Environmental Assessment Method (BREEAM) or equivalent such as DREAM. The Proposed Development has adopted the DREAM assessment approach. The DREAM tool follows four stages; Survey; Design; Construction and Operation. A predicted environmental performance assessment rating can be generated and maintained throughout the design process, with the objective of ensuring that environmental considerations are fully addressed. The Operation assessment is required to establish a final rating following the occupation and use of the building for one year.

Within the four stages, the DREAM questions are arranged under the following categories, which are based on Sustainable Development in Government (SDiG) categories:

- Biodiversity and Environmental Protection;
- External Environmental Quality;
- Energy;
- Internal Environmental Quality;
- Procurement;
- Travel;
- Water; and
- Waste.

The overall numerical scores awarded to proposed developments correspond to a performance rating of:

- Pass 25%
- Good 40%
- Very Good 55%
- Excellent 70%

The results of the preliminary DREAM Design Stage assessment completed for the Proposed Development indicates that both the Operations and Support buildings score an 'Excellent' rating as indicated below:

- Support Building 79.75%
- Operations Building 74.67%

The results of the preliminary DREAM Survey Stage assessment also scored an 'Excellent' rating:

- Support Building 85.71%
- Operations Building 85.71%

Further details of this report can be found within the Planning Support Statement of the planning application.

#### 16.5 Conclusions

This chapter has been based primarily on the requirements identified in Regional and Local planning policy and sustainability themes as defined in the Sustainability Appraisal Handbook for the MoD Estates. The key beneficial impacts of the scheme in relation to sustainability can be summarised as follows:

- Use in part of a previously developed site;
- Provision of modern building together with retention of existing trees and additional landscaping that will result in a scheme that is visually integrated into the context of AWE Aldermaston;
- High quality environmental design that achieves a DREAM Excellent score;
- A development that uses energy efficient building techniques and a reduction in carbon emissions compared to Building Regulations Part L2 2006;
- Provision of water-efficient water fittings;
- Minimisation of noise sources during construction and operation;
- The incorporation of pollution prevention measures such as oil separators/interceptors;
- Provision of a building (the Support Building) that is accessible to all, including the disabled, and a development that overall promotes pedestrian and cycle access;
- Maximisation of recycling and implementation of the best practicable environmental options for non-recyclable residual waste;
- Commitment by contractor to:
  - Develop and implement a Site Waste Management Plan (SWMP);
  - Prepare and implement a Construction Environmental Management Plan (CEMP);
  - Sign up to the Considerate Constructors Scheme; and
  - Reduce construction site impacts.
- Provision of a development that will not generate additional car travel and that incorporates sustainable transport measures such as secure safe, waterproof cycle storage space and a travel plan; and

Issue Date: June 2010	<b>UNCLASSIFIED</b> DIRECTORATE MAJOR PROJECT	Issue No: FINAL 2
16. Sustainability	<b>Hydrus Defence Exempt Environmental Appraisal Volume I</b>	Reference: MER-110-009290

- Provision of a development that is economically sustainable in terms of maintaining existing jobs and the creation of additional temporary employment during construction.

## 16.6 References

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