

## 17. CUMULATIVE IMPACTS

### 17.1 Introduction

This chapter of the Defence Exempt Environmental Appraisal (DEEA) assesses the impact of the Proposed Development in combination with potential cumulative environmental effects with other developments in the area and has been prepared by RPS Group. The cumulative scenario assessed comprises the proposals detailed in the AWE Site Development Context Plan (SDCP08) (Ref. 17-1), a copy of which is submitted in support of the Hydrus Planning Application, and a number of external developments within the surrounding area.

By definition, cumulative impacts are those that result from incremental changes caused by reasonably foreseeable future developments together with the Proposed Development. For the cumulative assessment, two types of impact have been considered:

- The combined effect of individual impacts from the Proposed Development (for example noise, airborne dust and traffic) on a single receptor; and
- The combined impacts of several development schemes which may, on an individual basis be insignificant but, cumulatively, have a significant effect.

This chapter describes the scope of the cumulative assessment in terms of the other schemes considered and the potential for cumulative impacts and mitigation measures (if applicable) required to prevent, reduce or offset the impacts identified.

### 17.2 Methodology and Assessment Criteria

#### 17.2.1 Combined Effects of Individual Impacts

The combined effects of individual impacts from the Proposed Development on a particular receptor have been assessed within each of the individual technical assessment chapters, and predominantly relate to the construction phase of the development.

#### 17.2.2 Combined Effects with Other Developments

The SDCP08 sets out the new build projects scheduled for the AWE Aldermaston site between 2005 and 2015 and these form the basis for the assessment of cumulative effects. This includes the New Office Accommodation (NOA) providing a total of approximately 21,000 m<sup>2</sup> gross floorspace, High Explosives Fabrication Facility (HEFF), providing a total of approximately 4,000 m<sup>2</sup> gross floorspace, and Pegasus providing a total of 18,489 m<sup>2</sup> gross floorspace. NOA was granted planning permission from West Berkshire Council in January 2007 and is now complete, HEFF was granted planning permission in February 2008, and Pegasus was granted planning permission in February 2010. Therefore, NOA, HEFF, and Pegasus have been assessed as part of the baseline and do not form part of the cumulative assessment. Therefore the cumulative scenario

comprises the remaining Projects scheduled in the SDCP08. Table 17-1 sets out those AWE schemes to be considered within the cumulative impact assessment.

Table 17-1: AWE Schemes Considered within the Cumulative Assessment

Aldermaston New Build Projects – identified in the SDCP08	Indicative Floorspace
Manufacturing/Production	14,500 m <sup>2</sup>
Testing/Research	-
Computing/Communications	4,500 m <sup>2</sup>
Other Office and Business Support Accommodation	12,000 m <sup>2</sup>
Environmental Proposals and Programmes	N/A floorspace

In addition to the forthcoming developments at AWE Aldermaston, external schemes have been considered as part of the cumulative assessment. The West Berkshire Council, Reading Borough Council, Basingstoke and Deane Borough Council and Wokingham Borough Council Planning Registers have been reviewed for consented major planning applications that that may have a cumulative effect in conjunction with the Proposed Development and the other SDCP08 proposed developments. The only scheme considered to have a potential for cumulative impacts, is the development at Padworth Railway Sidings, Padworth Lane, Lower Padworth. This development is a change of use of land and erection of buildings to form new Integrated Waste Management Facility (IWMF) to comprise; Waste Transfer Station (WTS), Material Recovery Facility (MRF), Household Waste Recycling Centre (HWRC), In-Vessel Composting Facility (IVC), municipal depot with workshop, fuelling and washing facilities, administration and visitor centre, weighbridge; formation of associated parking, roadways and vehicular access; landscape works, including tree removals and additional planting, formation of earth bunding and surface water drainage swales; erection of new fencing. The development was granted planning permission in March 2009.

Each technical specialist has reviewed the SDCP08 and the above development external to AWE and has determined any potential cumulative impacts and key issues when assessed along with the proposals of the Proposed Development. Where no cumulative impacts have been identified, this is stated in the DEEA chapter.

### 17.3 Impact Assessment and Mitigation

This section presents the findings of the cumulative impact assessment, detailing mitigation measures, to minimise or remove impacts, where applicable.

#### 17.3.1 Combined Effects of Individual Impacts

The combined effects of individual impacts from the development on a particular receptor have been assessed using the experience and judgement of each technical specialist.

It is considered that the construction phase of the Proposed Development will have the greatest potential to contribute to impact interactions. With the exception of the positive impacts associated with the combination of the development's

design, and new facilities, there are not considered to be any significant completed development impact interactions.

During the construction phase, potential impacts exist for the sensitive receptors, as detailed in *Chapter 2: DEEA Methodology*. The receptors considered most sensitive to cumulative impacts during the construction phase are the adjacent registered historic park and garden at Aldermaston Court, the local road network, and existing residents in nearby properties, and users of the Manor House Hotel. The criteria for identifying those receptors that are considered to be potentially sensitive include the nature of the receptor, proximity to the works, and extent of exposure to impacts and impact interactions.

Potential impact interactions are largely related to noise, vibration, dust, traffic, landscape and visual, and cultural heritage and archaeology. Interactions will take place during the construction phase. Compliance with the mitigation measures as detailed in *Chapter 6: Construction Phase* of this DEEA will reduce these impact interactions as far as possible.

Overall it is anticipated that there will be temporary minor adverse interactions during the construction phase.

#### 17.3.2 Combined Effects with other Schemes

The following provides an assessment of the potential cumulative impacts associated with each environmental aspect and their likely significance. Where no cumulative impact has been identified, this is stated.

##### 17.3.2.1 Ground Conditions

As schemes come forward for development the land planned for development and any new and unanticipated soil contamination will undergo assessment to evaluate risks and the significance of impacts posed by the development. Following this assessment, any identified requirement for remediation should be completed prior to the start of, or as a justified part of, the construction phase.

The principal cumulative impacts that relate to ground conditions include:

- Cumulative deterioration in groundwater quality as a result of construction and operation on the Hydrus Development Site, which may impact sensitive down-gradient receptors; and
- Significant alteration to groundwater levels, flow volumes and flow directions resulting from change in land-use, which may impact groundwater underlying the site and sensitive down-gradient receptors.

As no impact is anticipated on groundwater underlying the Hydrus Development Site, no additional deterioration to baseline water quality is predicted.

Although an increase in the hardstanding is anticipated within the Hydrus Development Site, the overall change in land use currently proposed over the entire AWE Aldermaston Site will not substantially change the recharge quantity and distribution over the site. The cumulative significance of the impact on groundwater levels and flows is therefore considered negligible relative to baseline conditions.

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Assuming the land proposed for on and off-site development is adequately assessed, remediated and mitigated, it is considered that cumulative ground conditions impacts posed to the Proposed Development will be of negligible significance overall.

#### 17.3.2.2 Water Resources

An assessment of cumulative impacts has been undertaken for the Proposed Development with other new build projects scheduled for the AWE Aldermaston Site as set out in SDCP08. It is considered that the cumulative impact of the identified developments on water resources will be negligible provided that standard practices are adopted in the design and that appropriate mitigation measures are applied.

#### 17.3.2.3 Traffic and Transport

A cumulative impact of the Investment Programme to sustain key skills and facilities at AWE Aldermaston and AWE Burghfield, as announced by the Secretary of State for Defence on 19 July 2005 (Ref. 17-2) has been carried out.

The results of this exercise are summarised in the document entitled "Preliminary Evaluation of the Transport Implications of the SDCP" (PETIS) (Ref. 17-3).

The PETIS document has been reviewed in the light of updated circumstances and the results of this confirm that the impact of the Investment Programme as a whole, at AWE Aldermaston, will be very similar to the peak transport impacts associated with this planning application. Accordingly, no separate reporting is considered necessary.

#### 17.3.2.4 Air Quality

The SDCP08 describes a number of proposals for new buildings at the AWE Burghfield and AWE Aldermaston Sites, plus demolition or refurbishment of existing buildings.

Due to the distance between AWE Burghfield and AWE Aldermaston, construction activities within the respective site boundaries will not cause a significant cumulative impact on air quality at sensitive receptors.

It is possible that traffic associated with construction activities will share a portion of the major transport routes as they approach AWE Aldermaston. The air quality effects associated with these vehicle movements are considered to be insignificant compared to that associated with base traffic flows along these major routes.

It is important to note that for both AWE Aldermaston and AWE Burghfield, it is expected that the implementation of the programme outlined in the SDCP08 will not lead to levels of employment greater than those already associated with the sites. Traffic levels will not lead to significant cumulative air pollution impacts at receptors in the vicinity of the two sites.

#### 17.3.2.5 Noise and Vibration

As with Air Quality, due to the distance between AWE Burghfield and AWE Aldermaston, construction activities within the respective site boundaries will not cause a significant cumulative impact on noise at sensitive receptors.

It is possible that traffic associated with construction activities will share a portion of the major transport routes as they approach AWE Aldermaston. Noise generated by these vehicles is considered to be insignificant compared to that associated with base traffic flows along these major routes.

The SDCP08 indicates that the implementation of the programmes will result in no overall change in operational traffic. As such, the noise from cumulative operational traffic is expected to be limited to an impact of negligible significance.

#### 17.3.2.6 Socio-Economics

Individually, each of the developments which forms part of the cumulative scenario has a beneficial socio-economic impact in terms of job creation or contributing to the local economy. Where there is an adverse impact, this has been mitigated through on site service provision and financial contributions to off-site facilities. None of these developments would have an adverse impact on each other. If anything, they complement each other and contribute to the sustainability of the wider area. It is therefore concluded that cumulatively they have a moderate beneficial long-term socio-economic impact.

#### 17.3.2.7 Landscape and Visual

There may potentially be overlap between the construction periods of the proposed future projects.

The permanent effects of the combination of future developments may slightly change the skyline views of the AWE Aldermaston Site to some extent.

The quality of the buildings at AWE Aldermaston is improving with redevelopment. The Landscape Strategy for the site prepared by RPS in 2006 (Ref. 17-4) should improve localised views of the AWE Aldermaston Site in the longer term. The overall character of the AWE Aldermaston Site and its influence on the landscape character of adjacent areas will remain consistent in the short term. In the longer term the quality of the built and landscaped environment should improve.

#### 17.3.2.8 Cultural Heritage and Archaeology

Cumulative impacts for the historic environment in this instance may result from further intrusion on setting or from severance of the main components of a heritage site and consequent loss of integrity of that resource.

There may potentially be overlap between the construction periods of the proposed future projects. The permanent effects of the combination of present and future developments will change the 'Cold War' appearance of the AWE Aldermaston facility and lead to some minor changes to skyline views of the AWE Aldermaston Site. The effects of the Proposed Development on sites within the Kennet valley and to its north will be negligible when added cumulatively to the consented AWE Aldermaston buildings and the Integrated Waste Management Facility (IWMF) at Padworth railway sidings.

#### 17.3.2.9 Ecology

A Biodiversity Strategy for AWE was produced in May 2006 (Ref. 17-5) which includes an Ecological Constraints Plan which identifies habitats and species of biodiversity value associated with the AWE Aldermaston Site and identifies

habitats and species of value. The strategy identifies actions required to maintain and where possible enhance features of value. The AWE Aldermaston Site Framework Plan incorporates a large proportion of the features of biodiversity value that have been identified. The public information leaflet Sites Development Strategy Update 2005 (Ref.17-6) also stated that: "*natural habitats will remain protected as havens for wildlife*".

Where there would be unavoidable losses, it is proposed that new habitats will be created and/or other existing features are enhanced to compensate (AWE Biodiversity Strategy). Providing an appropriate level of ecological assessment is carried out for future projects at AWE, and the Biodiversity Strategy is implemented, the cumulative impacts of proposed developments across the AWE Aldermaston Site would be of negligible significance in the medium to long-term.

## 17.4 Conclusion

The cumulative impacts of the Proposed Development have been assessed during the construction and operational phases of the project.

By addressing the cumulative impacts from the Proposed Development, it is considered that there will be temporary adverse impact interactions during the construction stage.

When addressing the combined effects of the Proposed Development, the proposals contained within the SDCP08 and identified external schemes, it is considered that the provision of Proposed Development and modern buildings in a landscaped setting will have positive impacts particularly in relation to the quality of the built and landscaped environment and socio-economics.

## 17.5 References

- Ref. 17-1 RPS (2008) AWE Aldermaston & Burghfield: Site Development Context Plan 2005-2015, AWE.
- Ref. 17-2 Written Ministerial Statement by Dr John Reid, the Secretary of State for Defence, 19 July 2005.
- Ref. 17-3 AWE (2006) Preliminary Evaluation of the Transport Implications of the SDCP.
- Ref. 17-4 RPS (October 2006) Landscape Strategy. AWE, Aldermaston
- Ref. 17-5 Atkins Consultants Ltd. (May 2006) A Biodiversity Strategy for the Atomic Weapons Establishment.
- Ref. 17-6 Defence Estates (2006) The Defence Estate Strategy 2006 – In Trust and On Trust.