# Southampton to London Pipeline Project

## Deadline 2

Appendix 9.5 Archaeological Mitigation Strategy (clean)

Application Document: 6.4

Planning Inspectorate Reference Number: EN070005

APFP Regulation No. 5(2)(a)

Revision No. 2.0

November 2019

# Southampton to London Pipeline Project

Esso Petroleum Company, Limited

## Archaeological Mitigation Strategy

B2325399-JAC-000-ENV-APP-000075

November 2019

| | |
|---|---|
| Project No: | B2325300 |
| Document Title: | Archaeological Mitigation Strategy |
| Document No: | B2325300-JAC-000-ENV-APP-000075 |
| Revision: | R2.0 |
| Date: | November 2019 |

Prepared by:
Jacobs U.K. Limited

Simpson House
6 Cherry Orchard Road
Croydon CR9 6BE
United Kingdom
T +44 (0)20 8686 8212
www.jacobs.com

## Contents

# 1 Introduction

1.1.1 Esso Petroleum Company, Limited (Esso) is making an application for development consent to replace 90km (56 miles) of its existing 105km (65 miles) aviation fuel pipeline that runs from the Fawley Refinery near Southampton, to the Esso West London Terminal storage facility in Hounslow.

1.1.2 The replacement pipeline is 97km (60 miles) long, and is referred to as the project within this Archaeological Mitigation Strategy (AMS). The areas of land to be permanently or temporarily used for the project are known as the Order Limits.

1.1.3 The project will replace the existing pipeline, which has an internal diameter of about 25cm, with a new pipeline that has an internal diameter of about 30cm. Replacement of the pipeline will maintain the supply of aviation fuel for years to come.

1.1.4 The route and Order Limits are broken down into eight separate sections:

- Section A – Boorley Green to Bramdean;
- Section B – Bramdean to South of Alton;
- Section C – South of Alton to Crondall;
- Section D – Crondall to Farnborough;
- Section E – Farnborough to Bisley and Pirbright Ranges;
- Section F – Bisley and Pirbright Ranges to M25;
- Section G – M25 to M3; and
- Section H – M3 to the West London Terminal storage facility.

1.1.5 The AMS has been produced to support the application for development consent and the accompanying Environmental Statement (ES). The AMS is a good practice measure which is included in the Register of Environmental Actions and Commitments (REAC, included in Chapter 16 Environmental Management and Mitigation) and secured through Development Consent Order (DCO) requirements.

1.1.6 The design principles combined with considered design development has resulted in the project avoiding the majority of known heritage assets. Where this has not been possible or there is the potential for unknown archaeological remains, this document provides the means for determining archaeological requirements associated with the project. It sets out the aims and objectives, methodologies and process by which the programme of archaeological investigations would be delivered, including on-site (fieldwork) and off-site (post-excavation) works. The ES outlines areas of archaeological potential and known existing archaeological remains.

1.1.7 The two overarching principles regarding mitigation are:

- to either protect or preserve *in situ* any significant archaeological remains that may be found; or
- to record (preservation by record) any significant archaeological remains that may be found.

1.1.8 A programme of investigations is required to establish the extent and significance of archaeological remains. This would be achieved by a combination of desk research, geophysical survey and trial trenching. The results of the investigation phase would be used to determine where preservation *in situ* can be applied and define the type of archaeological mitigation by record which would be required.

# 2 Archaeological Work

2.1.1 This document sets out the steps that would be undertaken to deliver the measures set out in the REAC in relation to the predicted effects of the project on archaeological remains, as outlined in Chapter 9 Cultural Heritage.

2.1.2 The preferred archaeological mitigation should be preservation *in situ* of identified heritage assets. Where this is not practicable, a range of archaeological techniques can be used to make a permanent documentary record of any archaeological remains removed or damaged by the project.

2.1.3 Where known or unknown archaeological remains would not be directly affected by the project, such remains would be left *in situ*. The preference for the developer will always be to route the pipeline within the Limits of Deviation so that identified heritage assets can be left where they are to avoid time and cost to the project.

2.1.4 The archaeological work outlined by this AMS relates to works within the Order Limits, and to works that take place prior to or during installation of the pipeline, with post-excavation analysis continuing after installation.

2.1.5 All commitments are listed within the REAC, within Chapter 16 Environmental Management and Mitigation. Commitments include embedded design measures, good practice measures, and mitigation required to reduce a significant effect. The most relevant commitments to the historic environment are the good practice measures set out in Table 2.1.

**Table 2.1 Project Good Practice Measures Relating to the Historic Environment**

| Ref. | Commitment |
|---|---|
| G67 | Measures presented within the Archaeological Mitigation Strategy would be taken to protect or preserve in situ or by record any significant archaeological remains that may be found. |
| G68 | An archaeological contractor would carry out archaeological trial trenching, prior to the start of construction in areas set out in the AMS. This would examine a representative sample of the areas of potential or known archaeological remains within the Order Limits. The trenching would be scoped as necessary to quantify, characterise and date any archaeological remains found and allow for appropriate mitigation.<br>The information gained by the archaeological trial trenching would be used to refine the programme of archaeological mitigation and determine the appropriate mitigation for any archaeological remains found. The level of mitigation would be agreed with the local authority archaeologists as advisors to the relevant planning authorities in accordance with the principles set out in the AMS and NPS-EN1. The archaeological mitigation would comprise either a full or sample excavation, stripping, mapping and sampling prior to construction, or an archaeological watching brief during construction. |
| G70 | Where there is known archaeology that is not being removed and recorded, appropriate protection measures would be implemented. This could include signage and fencing, and reduction of topsoil stripping where practicable. |

2.1.6 This AMS sets out the broad principles of the archaeological work. Where appropriate the proposed work would comprise the following targeted activities:

- archaeological trial trenching;
- archaeological excavation;
- archaeological strip, map and sample;
- topographic survey of earthworks within the Order Limits;
- palaeoenvironmental sampling and analysis;
- archaeological watching brief;
- preservation *in situ* of archaeological remains; and
- post excavation work and appropriate and proportionate reporting and publication.

2.1.7 Where archaeological work is required, a site-specific Written Scheme of Investigation (WSI) would be prepared in consultation with the local authority archaeologist and submitted to and approved by the relevant planning authorities.

2.1.8 The extent of archaeological trial trenching are set out in Annex A and in Figures A9.5.1. The location and form of archaeological mitigation will be informed by the results of desk-based study, geophysical survey, ground investigations and trial trenching, where available.

2.1.9 Where there is the potential for significant archaeological remains to be impacted, an archaeological watching brief shall be carried out as the minimum level of mitigation.

## 2.2 Archaeological Trial Trenching

2.2.1 The aim of trial trenching is to determine the extent, complexity and state of preservation of archaeological remains. This will inform the detail of subsequent stages of mitigation.

2.2.2 Trial trenching will be carried out prior to the construction phase. This may include work ahead of development consent being granted.

2.2.3 A flexible and targeted approach has been developed for the trial trenching. This comprises the following proposals:

- a higher density of trenching in areas of no known disturbance and unknown archaeological potential;
- a lower density of trenching in areas where strip, map and sample has been committed to, for example extensive field systems on the South Downs National Park; and
- a lower density of trenching where the three existing pipelines (dating from c.1962 and 1969-72) are assumed to have caused disturbance. This assumption will be tested by the trial trenching.

2.2.4 Full excavation of features would not be undertaken at this stage. Care would be taken not to damage archaeological deposits through excessive use of mechanical excavation. Complex structural features would be left *in situ*. In some cases, it may be necessary simply to define their presence on the surface, e.g. ovens or kilns, without trying to excavate partially-defined features. Masking deposits, e.g. surface deposits, would be appropriately sampled by hand. The strategy for environmental sampling would be in accordance with Historic England's environmental archaeology guidance (Historic England, 2011).

2.2.5 The locations of archaeological trial trenching are set out in Annex A and Figures A9.5.1.

## 2.3 Archaeological Mitigation

2.3.1 The results of the archaeological trial trenching, desk-based survey and geophysical survey will be used to design the most appropriate mitigation. The following sets out the range of mitigation techniques to be used.

### Archaeological Excavation

2.3.2 Archaeological excavation is a targeted programme of controlled, intrusive fieldwork with defined objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design.

2.3.3 The aim of archaeological excavation is to preserve by record, archaeological remains that may be altered, damaged or destroyed by construction works.

2.3.4 A proportionate approach would be applied to each area of archaeological excavation. The excavation would record the significance of the asset so that information is available to this and future generations.

### Archaeological Strip, Map and Sample

2.3.5 An archaeological controlled strip aims to remove topsoil to depth of potential impact of the scheme, under the direction of a suitably qualified archaeologist, within the development footprint. This can also be referred to as 'strip, map and sample'.

2.3.6 The objective is to allow the monitoring archaeologist a clear view of previously undisturbed horizons which may reveal archaeological features, sites, artefacts or structures. These shall be mapped, and a sample archaeologically excavated and recorded.

2.3.7 Where strip, map and sample reveals complex archaeological remains where practicable, given other site constraints, the pipeline would be routed within the Limits of Deviation to avoid them.

2.3.8 Locations provisionally identified for further controlled strip will be subject to appropriate consultation with the local authority archaeologists as advisors to the relevant planning authorities, prior to field work commencing.

### Topographic Survey

2.3.9 A topographic survey could be carried out where earthwork remains associated with heritage assets are visible within the Order Limits. This would comprise a measured survey of the visible earthwork remains within the Order Limits.

### Palaeoenvironmental and Geoarchaeological Sampling and Analysis

2.3.10 A programme of recording, assessment and analysis is proposed where there is potential for palaeoenvironmental and geoarchaeological interest within the Order Limits.

2.3.11 An assessment would be undertaken of sub-samples to determine the preservation diversity within the samples. This would examine:

- pollen;
- diatoms;
- foraminifera; and
- plant macro remains.

### Targeted Watching Brief

2.3.12 The Chartered Institute for Archaeologists' definition and purpose of a watching brief (CIfA, 2014b) is:

- *'...a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons.'*
- *'...to allow, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) in advance of development or other potentially disruptive works.*
- *to provide an opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard'.*

### Preservation *in situ* of Archaeological Remains

2.3.13 Where the conservation of the whole or a material part of a heritage asset's significance is justified (e.g. for assets of demonstrably equivalent significance to a designated heritage asset), and where preservation *in situ* is achievable, the following techniques would be considered:

- avoidance of the heritage asset through a minor variation (within the Limits of Deviation) in the proposed working area;
- use of non-open cut techniques, where practicable; and
- protection of subsoil within the working area (e.g. trackway panels, topsoil retention, or other suitable technique).

2.3.14 Implementation of any of the above techniques will be undertaken in consultation with Esso, the Project Team, the contractor(s), the archaeological contractor, and the local authority archaeologists as advisors to the relevant planning authorities; and could be influenced by other environmental constraints.

2.3.15 The contractor(s) will be provided with the locations and descriptions of all known heritage assets within and adjacent to construction works, including restrictions to construction methods to protect heritage assets.

### Protected Military Remains

2.3.16 The project will undertake preliminary metal detecting in areas within Order Limits which are due to be excavated (including trial trenches) and that are within 300m of the recorded site of a crash asset. This will be undertaken prior to the excavation and any potential items investigated by the project to determine if they could be of archaeological significance. Further to section 2.4 of this AMS, an assessment of the significance of the archaeological remains would be made according to the criteria for the selection of important sites, set out in 'Military Aircraft Crash Sites, Archaeological guidance on their significance and future management' (English Heritage 2002). If significant archaeological remains from these crash sites are identified during the metal detecting or further archaeological work, the relevant local authority archaeologists, Historic England and the Ministry of Defence would be consulted in line with section 2.4.4 of this AMS.

## 2.4 Unexpected Archaeological Discoveries

2.4.1 The AMS has been designed to establish a robust predictive model that reduces the likelihood of unexpected archaeological discoveries during construction.

2.4.2 In the event of unexpected archaeological discoveries during construction, work will cease in the vicinity and an archaeologist will be contacted immediately. The area must be made safe, sufficient for the archaeologist to inspect the remains and advise on what, if any, further investigations are required.

2.4.3 In the case of small-scale routine remains, the archaeological team may be able to investigate and record them immediately, so that construction work may continue.

2.4.4 In the case of more extensive or significant discoveries the archaeologist will liaise with Esso and statutory consultees in order that suitable mitigation may be agreed and implemented with minimum delay.

## 2.5 Post Excavation, Publication and Archive Deposition

2.5.1 In accordance with the principles of Management of Research Projects in the Historic Environment (Historic England 2006) and the Management of Archaeological Projects, (Historic England 1991), an updated methodology (referred to as a project design in the Historic England documents) will be produced, a staged programme of post-excavation analysis, assessment and reporting will be undertaken, to commence on completion of archaeological mitigation fieldwork.

2.5.2 A site archive will be prepared in accordance with the standards in 2.5.1. This will contain all the data collected during the archaeological investigations. Arrangements for the deposition of the archive at an appropriate repository will be agreed with the local authority archaeologist as advisor to the relevant planning authorities.

2.5.3 In line with EN-1 para 5.8.20 (DECC 2011) the developer is required to publish the results of the archaeological work. This may range from technical volumes (thematic or period-based) to popular booklets, and could include temporary exhibitions, work with schools or web-based initiatives.

# References

Chartered Institute for Archaeologists (CIfA) (2014a). Standard and Guidance for Archaeological Excavation.

Chartered Institute for Archaeologists (CIfA) (2014b). Standard and Guidance for Archaeological Watching Brief.

Department of Energy and Climate Change (DECC). 2011. Overarching National Policy Statement for Energy (EN-1). London: The Stationery Office.

Historic England. (1991). The Management of Archaeological Projects, 2nd Ed (MAP2).

Historic England. (2006). Management of Research Projects in the Historic Environment (MoRPHE).

Historic England (2011). Environmental Archaeology. 2nd edition.

# Annex A: Trial Trenching Locations

The Applicant is currently confirming locations for trial trenching with the relevant authorities. An updated Annex A and accompanying figures will be provided to the Examining Authority, once these locations are confirmed.