Twyford Embankment Waste Recovery Permit Application EPR/LB3404MV/A001

Waste Recovery Plan

EKFB Joint Venture

JER9490
Twyford Embankment Waste Recovery Permit Application, Waste Recovery Plan
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1 INTRODUCTION

1.1.1 This document constitutes the Waste Recovery Plan (WRP) in support of an application for an environmental permit for a waste recovery activity allowing the permanent deposit of waste on land.

1.1.2 The WRP covers the deposit of waste in constructing a landscape and visual bund (landscape bund) at Twyford Embankment to mitigate impacts associated with the HS2 rail line development. The landscape bund at Twyford Embankment provides for noise and visual mitigation from the operational railway line.

1.1.3 Without mitigation measures, forecast increases in noise from the railway are likely to cause a moderate adverse effect on the acoustic character of the area around the closest properties, including circa 10 dwellings in the vicinity of Grange Close and Church Street, and their associated shared community open areas (local playing fields with clubhouse) (see the Acoustic Mitigation Design Report, Appendix I). The installation of an acoustic barrier is, therefore, required to protect residents from the acoustic impact of the railway. The landscape bund at Twyford Embankment is required to provide visual mitigation of the acoustic barrier for receptors in the areas surrounding Twyford Embankment.

1.1.4 The Twyford Vale Land Condition Assessment (LCA) (Landscape and Visual Assessment Report provided in Appendix I) describes the landscape as highly sensitive to change due to the good landscape condition, featuring a well-maintained hedgerow pattern and few visual detractors, combined with the high level of tranquillity and district value. The landscape value is largely attributed to an extensive public rights of way network which includes the Cross Bucks Way and the Bernwood Jubilee Way.

1.1.5 The landscape condition is predicted to be significantly affected in the assessment years of 1 and 15 of the operational phase of the railway. By operational year 60 (2086) fully matured planting will serve to replace that lost during construction and will provide greater integration of the scheme. Overall, the magnitude of change by operational year 60 is considered to be low, resulting in a minor adverse effect.

1.2 Background

1.2.1 HS2 is Britain's new high speed rail line being built from London to the North-West.

1.2.2 The route of the rail line will intercept some historic landfill sites, including the historic Finmere landfill which will require partially or completely excavating and removal of the deposited waste. As part of the required mitigation for the scheme a number of landscape bunds need to be formed, including the landscape bund at the Twyford Embankment section of the development. Suitable waste excavated from the Finmere landfill site is to be used to form part of the landscape bund and it is proposed will be placed using a bespoke deposit for recovery permit.

1.2.3 The landscape bund at Twyford Embankment is required to mitigate against landscape and visual impacts generated by HS2 during operation and to also assist with noise screening. This is further discussed in sections 3.6.25 to 3.6.32.

1.3 The Applicant

1.3.1 The applicant and operator is the joint venture Eiffage, Kier, Ferrovial and Bam (EKFB) JV.

1.4 Pre-application Discussions

1.4.1 Initially the intent was to reuse the suitable wastes under a Material Management Plan (MMP) following treatment via a Mobile Plant Licence and approved Deployment Form. However, the Environment Agency has confirmed that they are no-longer accepting the reuse of such treated wastes originating from certain former historic landfill sites under an MMP.

1.4.2 Basic pre-application advice was sought, and a nature and heritage conservation screening report received relating to the proposed area of waste use (reference EPR/HP3524SS/P001). The Nature and Heritage Conservation Report is appended to this report as Appendix J

1.4.3 Further discussions then took place with the EA with regard to permitting the waste recovery activity and the obligation in this Waste Recovery Plan.

1.4.4 These pre application discussions with the EA agreed the waste code that reflected the waste type and determined that the presence of fines within the waste material meant that a Standard Rules 2015 No39 permit was not applicable. Furthermore, the use of waste with the European Waste Code designation of 19 12 12 within the SR permit is restricted to crushed bricks, tiles, concrete and ceramics only. This Waste Recovery Plan will, therefore, support the application for a bespoke environmental permit.

1.5 Structure of the Waste Recovery Plan

1.5.1 This section provides an overview of the proposals. This is supplemented by further details in Sections 2 – 5 as follows:

- Section 2 gives a description of the site,
- Section 3 demonstrates why this is a recovery activity,
- Section 4 details the suitability of the waste to be used for the recovery activity,
- Section 5 summarises the conclusions of the waste recovery plan.

2 SITE DESCRIPTION

2.1 Site Location

2.1.1 The deposit of waste within the landscape bund subject to this WRP is located at the Twyford Embankment site, Portway, Twyford, Buckinghamshire, MK18 4EB and is centred at National Grid Reference SP 67000 26635SP. Site plans can be found in Appendix A.

2.1.2 The protected species below have been recorded within 500m of the site:

- Bullhead Cottus Gobio
- Spined loach Cobitis Taenia
- Water Vole Arvicola Amphibius

2.1.3 Deciduous woodland lies within 50m of the site.

2.1.4 There are no designated sensitive ecological receptors identified within a 2km screening distance of the site. Sheephouse Wood (SSSI) is the closest designated site and lies approximately 3.7km to the southeast of the Twyford Embankment landscape bund.

2.1.5 The closest human receptor is a farmhouse near Portway Farm,100m to the southwest.

2.1.6 Relevant viewpoints described in the Landscape and Visual Assessment (Appendix I) are:

- 155.4.002: View north from Main Street, south-east of Twyford,
- 155.2.002: View north-east from Portway Farm,
- 155.4.001: View north from West Street, east of Twyford,
- 155.2.001: View north from Portway Road, Twyford,
- 156.3.001: View south-west from the Cross Bucks Way PRoW (Footpath PB1/15) near Three Bridge Mill, Twyford,
- 157.2.001: View north-east from Church Gate, Twyford,

2.1.7 The geology at the site is as follows:

- The bedrock geology at the site is formed of Peterborough Member Mudstone, a member of the Oxford Clay Formation.
- Superficial geology at the site is also formed of Alluvium and River Terrace Deposits.

2.1.8 The Twyford Embankment landscape bund is not within Groundwater Source Protection Zones 1 or 2. Groundwater vulnerability at the site is classified as medium. The bedrock is classified as an unproductive aquifer with low permeability and negligible significance for water supply or river base flow. However, the site does partially overlay a secondary A superficial aquifer.

2.1.9 There is no current groundwater or surface water abstraction within 1km. The nearest watercourse is an unnamed stream or dyke, approximately 115m from the northwest boundary of the site, which feeds into Padbury Brook. Padbury Brook is located approximately 250m from the site to the north of the most northerly point of the site boundary.

2.1.10 The EA flood risk maps[1] have been consulted and it is shown that the areas of the site to be used for the waste recovery activity are located in flood zone 1. This means it has a low probability of flooding from rivers and the sea. The area between the site and Padbury Brook is classified as Flood Zones 2 and 3.

2.1.11 The receptors plan, included in Appendix A, confirms that the nearest historic landfill is at what is now Calvert Jubilee Nature Reserve, approximately 1km to the southeast.

2.2 Site History

2.2.1 Historical maps indicate that no development of the land has taken place since the earliest map in 1880 and the site appears to have been in agricultural use since that time.

2.2.2 The closest historical land use identified is 21m west of the site and is a sewage works present from 1982. The sewage works is still present on current mapping.

2.3 Proposed Development

2.3.1 The Twyford Embankment site is being developed as part of the HS2 rail scheme.

2.3.2 The landscape bund at the Twyford Embankment site is required to mitigate landscape and visual and noise impacts generated by HS2. The landscape bunds will need to be developed in accordance with the approved plans and also need to be constructed in accordance with the Environmental Memorandum, Environmental Minimum Requirements (Appendix B) and Code of Construction Practice Environmental Minimum Requirements (Appendix C) (see section 3 below). EKFB are required to comply with these Environmental Minimum Requirements set out within High-Speed Rail (London-West Midlands) Environmental Minimum Requirements Annex 1: Code of Construction Practice.

2.3.3 An example of a typical section of the railway with a landscape bund is shown in Appendix A. Please note this is not representative of the railway or the landscape bund at Twyford Embankment but can be used to understand how they interact.

2.4 Planning Permission

2.4.1 The High-Speed Rail (London - West Midlands) Act 2017 [the Act][2] provides the powers to construct, operate and maintain Phase One of HS2 and make necessary changes to existing legislation to facilitate the project.

2.4.2 Under paragraph 26(1) of Schedule 17 of the Act the Secretary of State can issue statutory guidance ("the Guidance") to planning authorities about the exercise of their functions under Schedule 17 – Conditions of Deemed Planning Permission (the Planning Conditions Schedule). A planning authority is required to have regard to this Guidance when considering a request for approval made under Schedule 17 to the Act (paragraph 26(2) of Schedule 17).

2.4.3 Specifically, the works at Twyford Embankment, AVDC P14 Schedule 17, has been approved by Buckinghamshire Council (BC Reference 21/03691/HS2).

[1] Flood map for planning - GOV.UK (flood-map-for-planning.service.gov.uk)

[2] https://www.legislation.gov.uk/ukpga/2017/7/contents/enacted

2.4.4 The Twyford Embankment and its associated mitigation including the landscape bund is an integral design feature linked to the HS2 rail development.

2.4.5 A copy of the Decision Notice is shown in Appendix D

2.5 Site Remediation

2.5.1 There is no requirement for any site remediation prior to the construction of Twyford Embankment landscape bund.

3 DEMONSTRATION OF RECOVERY

3.1 Overview

3.1.1 This section details the evidence to demonstrate that the waste deposit is a recovery activity, and the works could and would be carried out using non-waste material and follows the principles detailed in the Environment Agency guidance for waste recovery[3].

3.1.2 The waste to be used is from a single source and has been excavated from the Finmere Quarry historic landfill site and physically screened prior to its proposed use in the area of the deposit for recovery activity. The physical treatment has been undertaken using a separate mobile plant treatment permit. The treatment of the waste takes place off site prior to being delivered to the site. Unsuitable wastes will be segregated from the material to be used under the WRP and they will be taken off site either for further treatment or disposal at an appropriately authorised site. The remaining suitable for use wastes are to be sampled and analysed to demonstrate that it meets set chemical and geotechnical parameters.

3.2 Purpose of the Work

3.2.1 The site is being developed for the HS2 scheme which will link London to Birmingham. To develop the scheme a number of railway embankments alongside the HS2 line are required to be constructed, the waste will be used in the landscape bund at Twyford Embankment.

3.2.2 The purpose of the landscape bund at Twyford Embankment is part of the mitigation strategy associated with the HS2 project.

3.2.3 It is relevant to note that as part of the scheme crosses the Finmere landfill there is a need to excavate material from the former landfill site and that the proposals are to use suitable wastes from the Finmere landfill that has been treated offsite as part of the material to construct the landscape bund.

3.2.4 The landscape bund will be constructed of circa 10% of the suitably treated waste and circa 90% of non-waste material.

3.3 Type and Volumes of Waste

3.3.1 The total volume of waste to be deposited in the formation of the landscape bund is 40,000m^3.

3.3.2 The waste to be recovered at Twyford Embankment within the landscape bund has been excavated from the Finmere Quarry historic landfill site and has been physically screened/ treated prior to the proposed use. The waste types to be accepted and recovered in constructing the landscape bund will be limited to inert wastes from this single source.

3.3.3 The Waste Classification Report (Appendix E) produced prior to excavation and treatment identified that the wastes from Finmere quarry to be used at the site are non-hazardous and would be classified as 17 05 04 if not for the mechanical treatment undertaken by the mobile plant prior to the waste material being moved from Finmere Quarry.

[3] https://www.gov.uk/government/publications/deposit-for-recovery-operators-environmental-permits/waste-recovery-plans-and-deposit-for-recovery-permits

3.3.4 The waste will undergo mechanical treatment at Finmere Quarry prior to being exported to the Twyford Embankment site and, therefore, is categorised as a Chapter 19 code.

3.3.5 The waste type to be used according to its European Waste Catalogue (EWC) code is detailed in Table 3.1 below:

Table 3.1: Waste Types

Waste Code	Description of the Waste
19 12 12	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11

3.4 Evidence the Waste is Serving a Useful Purpose.

3.4.1 The waste recovery plan guidance requires that it must be considered if a waste is suitable in principle for the proposed use. Within the Environment Agency Guidance, 'Check if your waste is suitable for deposit for recovery' (Updated 31 October 2022), waste code 17 05 04 has an acceptable use for landscaping associated within construction work and general fill material which meets the use of this operation. The waste as dug prior to processing is classified as 17 05 04, however, after processing it is classified as 19 12 12. Although the waste code accepted at the site is 19 12 12 the properties are similar to that of 17 05 04 and therefore it is considered suitable for use for the same purpose. 19 12 12 is deemed as similar as only simple screening has resulted in the waste being classified as chapter 19 and not 17.

3.4.2 The HS2 Specification for Engineering Works (SCEW) Series 0600: Earthworks, Document Number: HS2-HS2-CV-SPE-000-010600 presents part of the Specification for Civil Engineering Works (Appendix F).

3.4.3 As described in the SCEW the treated waste from Finmere Quarry is a combination of Class 2 and Class 4 materials, specifically falling under the following fill classes: 2A4, 2B4, 2C4, 2D4 and 4A1.

3.4.4 Class 2 materials can be used for general cohesive fill. Class 4 materials can be used for landscape fill. The waste being excavated from Finmere quarry will be subject to testing prior to use which will determine if it will be Class 2 or Class 4. Class 2 and Class 4 materials will have slightly different uses and therefore will be used in different locations within the bund.

3.4.5 After testing, the classes of waste material will be determined and the waste will be placed appropriately, according to the use for which it is approved.

3.5 Design and Construction

3.5.1 The waste material, making up approximately 10% of the landscape bund, will be placed in layers of 100mm – 200mm thick and rolled in position.

3.5.2 Non-waste will be used in the construction of the remainder of the landscape bund.

3.6 Obligations to Complete the Scheme

3.6.1 The justification to support the recovery of waste is being made on the basis of an obligation to carry out the scheme. Evidence to support this obligation is set out below.

High Speed Rail (London – West Midlands) Act 2017

3.6.2 As stated in section 2.4, the High-Speed Rail (London - West Midlands) Act 2017 provides the powers to construct, operate and maintain Phase One of HS2.

3.6.3 The High-Speed Rail Act grants deemed planning permission for HS2 Phase One of the route, but elements of the detailed design and construction are subject to further approval in accordance with Schedule 17 of the Act. It puts a process in place for the approval of certain matters relating to the design and construction of the railway.

3.6.4 Under schedule paragraph 26(1) of Schedule 17 of the High-Speed Rail Act 2017 the Secretary of State can issue statutory guidance ("the Guidance") to planning authorities about the exercise of their functions under Schedule 17 – Conditions of Deemed Planning Permission (the Planning Conditions Schedule). A planning authority is required to have regard to this Guidance when considering a request for approval made under Schedule 17 to the Act (paragraph 26(2) of Schedule 17).

3.6.5 Schedule 17 submissions are not the same as planning applications - planning permission for the proposed work has already been granted by the High-Speed Rail Act.

3.6.6 It requires that the nominated undertaker (HS2 Ltd) seeks approval for matters of construction and design from the appropriate planning authority. Planning approval related to Twyford Embankment is provided within AVDC Schedule 17.

Schedule 17 Submission (Deemed Planning Permission)

3.6.7 Schedule 17 submission grants the approval for the structures, earthworks and other work required for the construction of the HS2 Line, including Twyford Embankment.

3.6.8 For the works at Twyford Embankment, AVDC P14 Schedule 17 has been approved by Buckinghamshire Council (BC Reference 21/03691/HS2). A copy of the decision notice is included Appendix C.

3.6.9 The plans approved within the Schedule 17 submission are listed below and provided in Appendix G.

- 1MC06-CEK-TP-DSE-CS06_CL09-000049 - Landscape Cross Sections Sheet 5 of 6 (1)

3.6.10 The above plans show the extent of the Twyford Embankment landscape bund and therefore establishes a requirement for material to form the landscape bund in accordance with the approved plans. The above approved plans also show the embankment at Twyford upon which the railway track is being built, thus creating the need to screen the railway visually as well as acoustically at Twyford Embankment.

3.6.11 As such this WRP relies not on the fact that planning permission is in place via the Act, but the Conditions imposed in the issued Schedule 17 Notice, including the specific plans relating to Twyford Embankment and specifically the required landscape bund. Now that the plans have been issued and implementation has started, the approved plans are enforceable conditions which provide an obligation to carry out the specified works.

High Speed Rail (London-West Midland) – Environmental Minimum Requirements – General Principles

3.6.12 The High Speed Two (HS2) Phase One Environmental Statement (ES) was published in November 2013. A number of additional volumes have supplemented the ES as additional

information has become available and due to proposed changes. The ES defines and explains the relevant minimum requirements, which are referred to as the 'Environmental Minimum Requirements' (EMR). The EMRs and the HS2 Act and the Undertakings given by the Secretary of State, will ensure that impacts assessed in the ES will not be exceeded. Hence those requirements that relate to Twyford are specific obligations that must be complied with.

3.6.13 Section 1.1.1 states "It is the intention of the Secretary of State to carry out the project so that its impact is as assessed in the ES. The Secretary of State will require the nominated undertaker to adhere to the arrangements provided for in the Environmental Minimum Requirements (EMRs) in designing and constructing the Phase One of High Speed Two Works."

3.6.14 Section 1.1.4 of the EMR goes on to state, "*Any nominated undertaker will be contractually bound to comply with the controls set out in the EMRs and as may be developed during the passage of the Act through Parliament*."

3.6.15 The EMR specifically mentions "*obligations*" with regard to the proposed construction in Section 1.1.5 in that "*The nominated undertaker will in any event, and apart from the controls and obligations referred to in paragraph 1.1.3, use reasonable endeavours to adopt mitigation measures that will further reduce any adverse environmental impacts caused by Phase One of HS2, insofar as these mitigation measures do not add unreasonable costs to the project or unreasonable delays to the construction programme*." This specifically applies to the landscape bund at Twyford embankment.

3.6.16 The High-Speed Rail (London-West Midlands) EMR Annex 4 identify principles by which future environmental decisions on Phase One of HS2 will be taken. This includes requirements for re-use of excavated materials and waste management.

Re-use of Excavated Materials

3.6.17 Section 4.12 of Annex 4 of the EMR states that the "*The nominated undertaker will utilise excavated materials in the construction of Phase One of HS2 (which includes the Twyford Embankment and its associated mitigation such as landscaping bunds) where feasible and reasonably practicable, in accordance with the Contaminated Land: Applications in Real Environments (CL: AIRE) 1 Definition of Waste: Development Industry Code of Practice*".

3.6.18 In this instance, because the recovered waste is from a former historic landfill, the waste cannot be reused under CL: AIRE because of the Environment Agency's changed position (unpublished). However, this WRP seeks to alternatively meet the intent of this requirement via re-use under a deposit for recovery permit. At the time of the passage of the Bill and subsequent Act through the Houses of Parliament the draftspersons were of the view that the DoWCoP would apply to the reuse of such treated wastes.

3.6.19 The EMR also discourages the deposit of this material in landfill through stating that "*Where it is not feasible or reasonably practicable to use excavated materials in the construction the nominated undertaker will minimise the quantity of excavated materials that are disposed of to landfill. This may include providing surplus materials for use in other construction projects including environmental improvement projects*." (Section 4.12.2).

3.6.20 This section also states that "*Where the off-site transport of surplus excavated material would result in significant environmental effects sustainable placement may be used. Where sustainable placement is to be undertaken this will be permitted in line with the Environmental Permitting Regulations (England and Wales) 2016 and approval may be required in accordance with Schedule 17 Planning Conditions Schedule of the HS2 High Speed Rail (London - West*

Midlands) Act 2017". It should be noted that planning and the Schedule 17 submission has already been granted.

3.6.21 This section of Annex 4 clearly identifies that there is an obligation for EKFB to utilise excavated materials as well as minimising the quantity of excavated materials deposited at landfill. The approved plans for the landscape bund at Twyford Embankment set out where materials are required during construction providing a mechanism for delivery of this obligation i.e., the approved plans listed above and the need for the landscaping bund.

Waste Management

3.6.22 Furthermore, section 4.13 of Annex 4 of the EMR states that "*All waste generated from the design, construction and operation of Phase One of HS2 will be managed in accordance with the waste hierarchy as described in the Government Review of Waste Policy in England 2011*".

3.6.23 The waste hierarchy sets out the preferred approach to the management of waste from waste prevention, to reuse, recycling, energy recovery and landfill. It supports the need to achieve efficient use of material resources, minimise the amount of waste produced (or otherwise increase its value as a resource) and reduce, as far as possible, the amount of waste that is disposed to landfill, in keeping with the HS2 Sustainability Policy. More information is available in Information Paper E3: Excavated material and waste management (Appendix H).

3.6.24 This paper outlines the approach for managing excavated material and waste that will arise from the construction of the Proposed Scheme. This is addressed under the Waste and Material Resources topic of the Environmental Statement (ES) written in support of the hybrid Bill.

HS2 Phase One Environmental Statement, published 25 November 2013

3.6.25 The Environmental Statement (ES) accompanies the Hybrid Bill for Phase One of the HS2. The ES sets out the proposed scheme and its likely significant environmental effects. The ES is produced in accordance with the Environmental Impact Assessment (EIA) Directive (92/2011/EU).

3.6.26 Noise effects from the scheme, including the Twyford Embankment section, were considered within the London-West Midlands Environmental Statement. Within Volume 5, Technical Appendices, is a Baseline report for noise, noise and vibration, report SV-0002-013 (Appendix I). This report identified that the baseline sound environment for this area is generally typical of a rural area, with some variation due to local sound sources. The area contains a number of small villages such as Twyford and Calvert in addition to isolated residential dwellings and farms.

3.6.27 Measures that have been incorporated into the design of the Proposed Scheme to attenuate noise from the railway include embankment and cuttings.

3.6.28 In order to reduce significant noise effects from the HS2 scheme 5m high noise barriers are generally required to protect the amenity of residents affected by increased noise from the railway. The operational assessment, in Volume 5, Table 5 of the ES, reported that at Twyford there are "*approximately 10 dwellings in the vicinity of Grange Close and Church Street closest to the route and their associated shared community open areas (local playing fields with clubhouse). Forecast increases in sound from the railway are likely to cause a moderate adverse effect on the acoustic character of the area around the closest approximately five properties. The effect on the acoustic character around the properties in this area that are*

located further from the railway would be a minor effect." Therefore, an acoustic barrier is required at the Twyford Embankment to protect the amenity of local residents.

3.6.29 The landscape and visual assessment (section 9.5.2) states that "*where it is considered that a noise fence barrier will create a visual impact on neighbouring residential properties, such as to the east of Twyford, planting will be provided for screening*". The landscape bund will be provided to visually screen the noise barrier. The EKFB design team have confirmed that planting will take place on top of the landscape bund. The planting supports keeping the size of the landscape bund and, therefore, the amount of waste in the landscape bund, to a minimum.

3.6.30 Furthermore, the HS2 Context Report, prepared for Aylesbury Vale District Council states that "screen planting will be incorporated into the design along new embankments or cuttings in order to provide a combination of landscape integration, visual screening, and or ecological habitat connectivity".

3.6.31 The London to West Midland Environmental Statement Volume 2, Community Forum Area Report, CFA13, Calvert, Steeple Claydon, Twyford and Chetwode states in section 2.6.51 that "*The noise assessment has led to an increase in the height of the noise fence barriers in this location to 5m above the rail line and 4m above the rail line on viaduct sections to further mitigate the noise effects in this area and this has been adopted into the scheme*." It goes on to say that "*as part of the work to develop the noise mitigation the length of the bunds has been increased from the Twyford Sewage Treatment Works past Twyford. Planting of both the bunds and the former GCML will provide a visual screen to mitigate the visual effects of raising the height of the barriers in this location, and this has also been adopted in the Proposed Scheme*." Section 2.6.53 details that the embankments that are provided are not as high as requested by the community, demonstrating that landscape bunds are not being made artificially larger to accommodate more waste. The ES in section 9.3.10 identified that residential receptors located in the main villages of Calvert, Steeple Claydon, Twyford and Chetwode, have a high sensitivity to change.

3.6.32 The Acoustic Mitigation Design Report, Twyford Viaduct to Turweston Cutting, (1MC06-CEK-EV-REP-CS06-000002), as included within Appendix I (Noise) recommends an acoustic mitigation solution based on an evaluation of the whole-life costs and benefits of noise barrier options that are used to specify the acoustic mitigation design and consideration of material change. This report is an addendum to the ES and explains how the assessment from ES to Addendum ES evolved and how the Design has progressed and changed through Scheme Design.

Code of Construction Practice

3.6.33 A Code of Construction Practice (CoCP) is in place for HS2 works (Appendix C). The CoCP contains control measures and the standards to be implemented throughout Phase One of HS2. The CoCP forms a component of the HS2 Environmental Minimum Requirements (EMRs). As stated above, this is an obligation flowing from the Secretary of State / Government.

3.6.34 Section 3.1.9 states "*the nominated undertaker shall adopt and implement the CoCP, which is set out in Annex 1 and shall develop and implement the Local Environmental Management Plans*".

3.6.35 The CoCP will be implemented during the planning and undertaking of construction works. The provisions of the CoCP will be imposed by the nominated undertaker on the lead contractors by means of the works contracts.

3.6.36 Section 15 (Waste and Materials) of the CoCP states that "*The principal objectives of sustainable resource and waste management are to use material resources more efficiently, reduce waste at source and reduce the quantity of waste that requires final disposal to landfill in accordance with the waste hierarchy*."

3.6.37 The measures to reduce potential impacts from waste are as follows:

"*All waste will be managed in accordance with the waste hierarchy (i.e., prevention, preparing for re-use, recycling, other recovery and disposal as set out in the Waste (England and Wales) Regulations 2011) and in such a way as to prevent harm to human health, amenity and the environment. Waste management measures will be prepared that facilitate the re-use and recovery of excavated material and diversion of waste from landfill in line with the waste hierarchy.*

Excavated material that is uncontaminated (or can be remediated to a suitable standard and can be used for site engineering and restoration purposes) will be managed in accordance with the controls specified by the CL: AIRE Definition of Waste: Development Industry Code of Practice or in accordance with an appropriate environmental permit or exemption from permitting."

3.6.38 The proposed development is required to achieve the following requirements relevant to this operation, as set out in Section 12, landscape and visual, of Annex 1: Code of Construction Practice of the Environmental Minimum Requirements, to protect the landscape and visual amenity:

- Re-usable excavated material will be handled in an appropriate manner to ensure it is of sufficient quality to be used for either structural embankments, environmental mitigation earthworks or agreed third-party use.

3.6.39 Furthermore, section 4.6.2 of the Environment Minimum Requirements Annex 4: Environmental Memorandum states that the nominated undertaker "will design the landscape and external spaces in line with the principles and promoter's requirements as set out in HS2 Information Paper D1: Design Policy. In particular, DfT[4] and the nominated undertaker will seek to ensure that:

- the design of all landscape and external spaces will be safe, efficient, and meet the requirements of whole-life operation and maintenance alongside initial buildability.
- the design of all landscape and external spaces will contribute to the government's pursuit of sustainable development, as set out in the National Planning Policy Framework, which involves seeking positive improvements in the quality of the built, natural and historic environment, as well as in people's quality of life.
- the design of all landscape and external spaces will limit adverse environmental and visual impacts during design construction and operation.

3.7 Conclusions

3.7.1 The landscape bund at Twyford Embankment is to be constructed to mitigate against the landscape and visual impacts generated by the railway and the noise barriers.

3.7.2 There is an obligation to undertake the scheme as detailed in the High-Speed Rail (London - West Midlands) Act and this is detailed as a key national infrastructure by the UK government.

[4] The Department for Transport

3.7.3 The HS2 Act provides the powers to construct Phase One of HS2 and grant development consent. The Act requires further approval for elements of the detailed design and construction which are subject to approval in accordance with Schedule 17 of the Act by the Local Planning Authority. Planning approval related to Twyford Embankment is provided within AVDC Schedule 17.

3.7.4 The plans approved within the Schedule 17 submission demonstrate that there is a requirement for material to be used in the construction of the landscape bund at Twyford Embankment. The waste forms a small part of the overall construction of the landscape bund (waste deposited within the bund represents circa 10% of the total volume of material required).

3.7.5 Minimum quantities of waste are being used for the scheme and only waste generated at Finmere Quarry, from the scheme itself, is being considered. No waste will be imported other than that that generated by the HS2 construction scheme. The majority of the material used to form Twyford Embankment is non-waste.

3.7.6 The HS2 Phase One Environmental Statement (ES) defines EMRs for the works associated with HS2. There are two sections of the ES which are related to this Waste Recovery Plan. As previously stated, section 4.12 of Annex 4 of the ES requires that excavated materials are utilised and that the deposit of material in landfill are discouraged. This section of Annex 4 clearly identifies that there is an obligation for EKFB to preferentially utilise excavated materials as well as minimising the quantity of excavated materials deposited at landfill.

3.7.7 It is also worth reiterating the statement within the EMR that "*It is the intention of the Secretary of State to carry out the project so that its impact is as assessed in the ES. The Secretary of State will require the nominated undertaker to adhere to the arrangements provided for in the Environmental Minimum Requirements (EMRs) in designing and constructing the Phase One of High Speed Two Works*." Hence the EMR are an obligation from the Secretary of State. Section 3.1.9 states "*The nominated undertaker shall adopt and implement the CoCP, which is set out in Annex 1 and shall develop and implement the Local Environmental Management Plans*." Therefore, compliance with the CoCP, as it applies to the Twyford Embankment, is mandatory.

3.7.8 Section 4.13 of the ES requires that all waste generated from the construction of HS2 is managed in accordance with the waste hierarchy. The recovery of waste is higher up the waste hierarchy than disposal at landfill, which supports the deposition for recovery of waste within the scheme.

3.7.9 The above demonstrates that there is both a requirement for material to reach the approved levels in the plans and an obligation to recover waste material within the works.

3.7.10 As the scheme will generate waste as part of the construction, it is sensible to utilise this waste material, where appropriate, in the scheme under a waste recovery permit.

3.7.11 There is a requirement for the landscape bund at Twyford Embankment. It will be constructed if wastes are not utilised.

4 EVIDENCE OF SUITABILITY OF THE WASTE

4.1 Overview

4.1.1 All the material to be used in preparing the landscape bund will be generated from construction of the HS2 scheme itself. Only waste materials which are suitable for the intended purpose will be used in the construction of the landscape bund.

4.1.2 The waste materials to be used in the development of the site are shown in Table 3.1 above.

4.1.3 No additional waste materials from off-site are proposed, therefore, the risk of contaminated materials being incorporated in the development are low, as all materials used have undergone screening and assessment.

4.1.4 The waste has been through several phases of testing to demonstrate suitability, further details are provided in sections 4.2 and 4.3 below.

4.2 Physical Properties

4.2.1 The physical properties of wastes to be recovered in the landscape bund is detailed within the Specification for Civil Engineering Works (SCEW) Series 600 in Appendix F. Two classes of materials have been identified and based on their gradings and other properties, classify as follows:

- Class 2 – General cohesive fill
- Class 4 – Landscape fill

4.2.2 Testing is yet to be undertaken and only materials that meet the specification post testing will be used. The tests to take place are detailed within the Specification for Civil Engineering Works (SCEW) report included in Appendix F.

4.2.3 The remediated material from Finmere cutting will be used as a portion of the fill within the landscape bund.

4.2.4 The actual fill class is determined by:

- the zone of the bund that the fill is used, which requires different geotechnical properties.
- Zone 1 - slopes facing the high-speed railway – 2A3, 2B3, 2C3, 2D3.
- Zone 2 – landscape core fill – 2A4, 2B4, 2C4, 2D4
- Class 4 – slopes facing away from high-speed railway – 4A1, 4A2.

4.2.5 Zone 1 has the most onerous geotechnical requirements with Class 4 having the least onerous. The difference in fill classes is based on moisture content, grading and effective stress parameters, which govern compaction characteristics and slope stability.

4.3 Chemical Properties

4.3.1 The classification report in Appendix E demonstrates that materials excavated from the Finmere Quarry historic landfill have been fully characterised using the HazWasteOnline software and are classified as non-hazardous waste (17 05 04 in the List of Waste).

4.3.2 Only 2 out of the 109 samples characterised by their chemical composition using the HazWasteOnline software were classified as hazardous waste. It is confirmed that the waste

that has been classified as hazardous will not be included in the materials to be used as part of the deposit for recovery activity and have been segregated and removed. This will be achieved by excavating the waste, testing it and then sorting. Any material that tests as hazardous will be clearly segregated from non-hazardous waste.

4.3.3 Sorting of the waste materials will be undertaken to ensure that the materials comply with both the chemical and geotechnical re-use criteria, to produce an engineering fill, compliant with one of the fill classes stated above.

5 CONCLUSIONS

5.1.1 This waste recovery plan assesses the activity following the Environment Agency guidance on Waste recovery plans and permits[5][6].

5.1.2 The Waste Framework Directive (WFD)[7] states that the recovery of waste and the use of recovered materials as raw materials should be encouraged in order to conserve natural resources. This proposed reuse of waste within the Twyford landscape bund meets these fundamental requirements.

5.1.3 The proposed scheme will allow waste to move up the waste hierarchy by enabling recovery and reuse instead of disposal. The use of waste as a replacement for non-waste materials will conserve natural resources in line with Article 1 of the Waste Framework Directive.

5.1.4 The proposed use of the waste meets all the requirements to be deemed a waste recovery activity rather than waste disposal.

5.1.5 The approved plans provide for an obligation to carry out the works flowing from the Act and granted under Schedule 17. The embankment and its associated landscape bund is an integral part of the construction of the railway line and is required to mitigate against the landscape and visual impacts of the railway and the barriers required to mitigate noise. The obligation is strengthened by the guidance issued by the Secretary of State that obliges the construction works to comply with that guidance in its design and use of wastes and materials.

5.1.6 It is important to note that the landscape bund at Twyford Embankment will be constructed to the permitted design without wastes if the WRP is not accepted.

[5] https://www.gov.uk/government/publications/deposit-for-recovery-operators-environmental-permits/waste-recovery-plans-and-deposit-for-recovery-permits

[6] https://www.gov.uk/government/publications/deposit-for-recovery-operators-environmental-permits/check-if-your-waste-is-suitable-for-deposit-for-recovery

[7] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0098

References

1. Geology of Britain Viewer' - Geology of Britain viewer - British Geological Survey (bgs.ac.uk)
2. Flood Maps - https://flood-map-for-planning.service.gov.uk
3. Historical Landfill Maps - https://environment.data.gov.uk/DefraDataDownload/?mapService=EA/HistoricLandfill&Mode=spatial
4. Waste Recovery Plans Guidance - https://www.gov.uk/government/publications/deposit-for-recovery-operators-environmental-permits/waste-recovery-plans-and-deposit-for-recovery-permits
5. Check if your waste is suitable for deposit for recovery Guidance - https://www.gov.uk/government/publications/deposit-for-recovery-operators-environmental-permits/check-if-your-waste-is-suitable-for-deposit-for-recovery
6. The Waste Framework Directive - https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0098

Appendices

Appendix A

Site Plans

Appendix B

Environmental Minimum Requirements

Appendix C

Code of Construction Practice

Appendix D

Decision Notice

Appendix E

Waste Classification Report

Appendix F

SCEW

Appendix G

Schedule 17 Plans

Appendix H

Information Paper E3: Excavated material and waste management

Appendix I

Environmental Statement Extracts

Appendix J
Pre-application Screening Assessment