

# A303 Amesbury to Berwick Down

TR010025

**Deadline 2**  
**8.10.17 Waste and Materials Management (WM.1)**

APFP Regulation 5(2)(q)

Planning Act 2008

The Infrastructure Planning (Examination Procedure) Rules 2010

May 2019



# Infrastructure Planning

Planning Act 2008

## The Infrastructure Planning (Examination Procedure)

Rules 2010

### A303 Amesbury to Berwick Down

Development Consent Order 20[\*\*]

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#### Waste and Materials Management (WM.1)

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## 17 Waste and Materials Management (WM.1)

### Question WM.1.1

#### On-site reuse of tunnel arisings

There is an apparent contradiction between the plans presented within Figure 4-1 [APP-285] and Work Plan (Work No. 8) [APP-008] in respect of how the land east of Parsonage Down NNR has been represented.

Can the Applicant confirm the correct area for the placement of the 500,000m<sup>3</sup> of tunnel arisings; and what, if any, effect the anomalous detail in the plans has on the assessments in the ES?

### Response

1. With respect to the Works Plans [APP-008], placement of tunnel arisings will be carried out in both the area marked as "Work No. 8" in [APP-008], and also in the area between Work No. 8 and Work No. 1A (which lies within the Order limits). The DCO application allows for placement of tunnel arisings in both of these areas.
2. With respect to Figure 4-1 [APP-285], the extent of the land east of Parsonage Down is indicative only, for the purposes of the comparative assessment between different options in the vicinity of the Scheme that is presented in the Tunnel Arisings Management Strategy [APP-285].
3. If the Examining Authority intended to refer to Figure 4-2 [APP-285], then this figure illustrates how tunnel arisings are proposed to be placed both within the non-linear work boundary of Work No. 8, and within the area lying to the south of Work No. 8, but within the Order Limits.
4. The Applicant confirms that the detailed assessments presented in the ES are based on the extent of tunnel arisings placement shown in Figure 4-2 [APP-285], and this does not extend beyond the Order limits as shown on the Works Plans [APP-008]. The Applicant can therefore confirm that the anomalous details on the plans do not have any effect on the assessments in ES.

## Question WM.1.2

### On-site reuse of tunnel arisings

With reference to [APP-267] OLEMP section 5.6, can the Applicant:

- i. Provide information detailing the processes involved in how the 500,000m<sup>3</sup> of tunnel arisings will be placed on the land east of Parsonage Down NNR?
- ii. Explain the extent to which the placement of the 500,000m<sup>3</sup> of tunnel arisings and associated vehicle movements could disturb un-recorded archaeological assets?
- iii. Outline any mitigation that would be required?

### Response

- i. Provide information detailing the processes involved in how the 500,000m<sup>3</sup> of tunnel arisings will be placed on the land east of Parsonage Down NNR?**
  1. In response to point (i), once the moisture content of the tunnel arisings has been reduced to a suitable level (20-28%) at the slurry treatment plant (as noted at paragraph 2.4.52 of the ES [APP-040]), it will be transported by haul road to the land east of Parsonage Down.
  2. The finished slopes of the compacted arisings will be shaped to fit easily with the surrounding landscape, with rolling slopes and a variety of uneven gradients typical of the surrounding downs and the neighbouring Parsonage Down SSSI. The contours of the finished surface will also take account of the anticipated long term settlement of the bulk earthworks. Highways surface water drainage features will be created in this area. These elements will be controlled pursuant to requirements 8 and 10 of the draft DCO (paragraphs 8 and 10 of Schedule 2 to the draft DCO) [APP-020].
  3. Finally the surface of the newly landscaped area will be treated to ensure its suitability for development as calcareous grassland in accordance with the provisions of section 5.6 and 6 of the Outline Landscaping and Ecology Management Plan [APP-267], which is secured by requirement 8 of the draft DCO (paragraph 8 of Schedule 2 to the draft DCO) [APP-020]. The low nutrient level will encourage the growth of low-growing herb species, including the food plants for butterflies of calcareous grassland, without excessive growth of grasses. Using only a shallow depth of topsoil would support a relatively open sward of grasses and herbs which is the target for the calcareous grassland. The intention is to avoid deep soil and nutrient-rich conditions which would lead to rapid development of habitats dominated by large coarse grasses and scrub, and loss of the low-growing herbs which are characteristic of calcareous grassland at Parsonage Down.

- ii. Explain the extent to which the placement of the 500,000m<sup>3</sup> of tunnel arisings and associated vehicle movements could disturb un-recorded archaeological assets?**
4. In areas where the placed landscape fill is less than 2m deep the topsoil will be left in situ to preserve any archaeological remains (for example Site 10.1 in Appendix D: Action Areas Preservation In Situ, in the draft Detailed Archaeological Mitigation Strategy (DAMS) submitted at Deadline 2). Where fill depth is greater than 2m the topsoil will be stripped, stockpiled and reused in suitable locations around the Scheme. The draft DAMS (submitted at Deadline 2) sets out the proposals for archaeological mitigation in these areas (for example Site 11 in the draft DAMS, Appendix E: Action Areas: Proposed archaeological fieldwork areas). Regarding vehicle movements, the section on 'All Weather Roads', paragraphs 4.2.18 – 4.2.21 in the draft DAMS, submitted at Deadline 2, details how archaeological remains will be preserved in situ and protected from vehicle movements from the Main Compound to the tunnel deposition area. The draft DAMS also states at paragraphs 5.2.5-5.26 that the Contractor will include in the CEMP methods that they intend to use to protect sensitive buried archaeological remains, including measures to prevent damage (such as deep rutting) caused by vehicles or plant in areas of fill. The DAMS will be a certified document and its implementation is secured by Requirement 5 of Schedule 2 of the draft Development Consent Order [APP-020].
- iii. Outline any mitigation that would be required?**
5. Preservation in situ for archaeological remains will be the preferred mitigation option where the proposed fill depth is less than 2m and topsoil is to be retained. Ploughzone artefact collection will be undertaken and a suitable barrier membrane will be placed over the retained topsoil, and a suitable working method developed to bury and protect sites, to ensure that they are not disturbed. During the detailed design stage the design team will ensure that the intended loading values will not adversely affect the buried archaeological resource, following guidance provided by Historic England 'Preserving Archaeological Remains' (Historic England, 2016) (see the draft DAMS submitted at deadline 2, paragraphs 4.3.10 – 4.3.11), and the method of deposition will be developed in consultation with the Heritage Monitoring Advisory Group (HMAG) / Wiltshire Council Archaeological Service (WCAS) to ensure archaeological remains in these areas are preserved for future generations as part of the method statement for such works, as noted above. On-site monitoring of fill areas will be the responsibility of the Archaeological Clerk of Works as set out in the Outline Environmental Management Plan (OEMP) [APP-187], particularly at item MW-CH7.
6. Where the fill depth will be greater than 2m, topsoil ploughzone artefact collection will be undertaken prior to removal of the topsoil and deposition of fill material. Archaeological mitigation outlined in the draft DAMS includes additional trial trenching to inform mitigation requirements, which may include detailed

excavation (see Sites 44 and 45 in Appendix E Action Areas: Proposed archaeological fieldwork areas of the draft DAMS submitted at Deadline 2).

### Question WM.1.3

#### **On-site reuse of tunnel arisings**

Can the Applicant provide information detailing the processes involved in how the 400,000m<sup>3</sup> of tunnel arisings will be placed to provide the embankments for the Winterbourne Stoke Bypass?

#### **Response**

1. Arisings from the bored tunnel would not be used in the structural embankments of Winterbourne Stoke Bypass. The 400,000m<sup>3</sup> of tunnel arisings referred to in the Tunnel Arisings Management Strategy [APP-285] paragraph 3.3.12 would be placed as landscape fill against the side of the previously constructed highway embankment in the manner explained in Highways England's response to question WM.1.2(i)



## Question WM.1.4

### On-site reuse of tunnel arisings

If a phased approach is utilised for the placing the 900,000m<sup>3</sup> of tunnel arisings can the Applicant provide a plan setting out how the phased earth works will occur and state any anticipated significant effects associated with a phased approach?

### Response

1. The detailed construction methodology and programme will be developed by the contractor. However, for assessment purposes it is assumed that the contractor will always seek to minimise the need for double handling of material and will place excavated material or treated tunnel spoil in its final location as soon as it becomes available rather than stockpiling. To allow for temporary stockpiling as a contingency measure, storage capacity equivalent to 7 days of tunnel arisings generation has been included in the indicative layout of the tunnel production area compound, shown in Figure 2.7b of the ES [APP-061]. The management of materials of tunnel arisings will be set out in the Materials Management Plan required by item MW-MAT2 of the OEMP [APP-187] (noting that item MW-GEO7 specifically requires such a plan to deal with arisings).
2. The placing of tunnel arisings would therefore be programmed to match the advance rate of the tunnel boring machine and would be continual during the duration of the tunnelling activities. There would therefore not be a 'phased approach' as such; rather, an on-going approach.
3. The landscape and visual assessment concluded that during the construction phase (with the approach being taken to management as set out above) the local landscape character area of Parsonage Down would be significantly affected, as set out in Table 7.6 of Chapter 7 of the ES (Landscape and visual effects) [APP-045]. Similarly, in visual terms, recreational users of Parsonage Down National Nature Reserve (NNR) and occupants of/visitors to Cherry Lodge would also experience significant impacts, as set out in Table 7.8 of Chapter 7 of the ES [APP-045]. The air quality, noise and biodiversity effects of placing tunnel arisings east of Parsonage Down, as set out in Chapter 5 (Air Quality) [APP-043], Chapter 8 (Biodiversity) [APP-046] and Chapter 9 (Noise and Vibration) [APP-047], also reflect the on-going approach described above, and mitigation measures are set out in items MW-NOI1, MW-NOI3, MW-NOI6 and MW-BI01 of the OEMP [APP-187], which is secured in paragraph 4 of Schedule 2 to the draft DCO [APP-020].

## Question WM.1.5

### On-site reuse of tunnel arisings

If a phased method will not be implemented, can the Applicant state if and where the excavated materials will be stored, and any significant effects likely to occur from storing the soils, with respect to potential loss of soil nutrients and in-combination effects with [APP -044] Chapter 7: Landscape and Visual Effects and [APP-045] Chapter 8: Biodiversity?

### Response

1. Tunnel arisings will be placed on a continual basis during tunnelling works, and as such there is no anticipated need for long-term storage of the arisings pending placement.
2. A storage capacity equivalent to 7 days of tunnel arisings generation has been included in the indicative layout of the tunnel production area compound, shown in Environmental Statement Figure 2.7b [APP-061]. This includes areas marked as “slurry ponds” for temporary storage of untreated tunnel slurry and areas marked as “spoil storage” for the treated arisings prior to transport to the deposition area. The storage areas will provide contingency storage provision to allow for temporary unavailability of the slurry processing facility and to allow the tunnel boring machine (TBM) to operate 24 hours a day while restricting placement to day time work only.
3. The effects associated with establishing and operating the tunnel production area, including those parts of the tunnel production area used for temporary storage of tunnel arisings, are included in the ES.
4. Regarding biodiversity, the indicative positions of topsoil storage areas were taken into account during the environmental assessment Chapter 8: Biodiversity [APP-046], paragraph 8.9.22. The topsoil storage areas would be placed around the site compounds as set out in the Outline Environmental Management Plan (OEMP) [APP-187] MW-G28(b). This would provide some mitigation for visual disturbance from human activity for birds, including great bustard. The topsoil storage areas would support vegetation as temporary habitat and foraging areas for farmland invertebrates and birds.
5. As required by the Outline Environmental Management Plan (OEMP) [APP-187], the contractor will prepare and implement a Soils Management Strategy (MW-GEO3), which will include a soil handling strategy and soil resources plan (MW-GEO7) to manage soils, including a requirement that soils should be reused as soon as is practicable and stored in such a way as to minimise structural damage (so far as reasonably practicable). Managing topsoil in accordance with the Soils Management Strategy is also expected to mitigate any potential impacts on soil nutrients.

6. Regarding landscape and visual effects, the effects associated with the tunnel production area compound (which include the temporary storage of tunnel arisings) are taken into account in [APP-045], including in paragraph 7.4.2 and 7.7.2 and in the schedule of landscape effects tables (APP-227) and schedule of visual effects (APP-228).
7. There are therefore not expected to be any in-combination effects associated with the removal of topsoil from the tunnel production area to allow for processing and temporary storage of the tunnel arisings.

## Question WM.1.6

### On-site reuse of tunnel arisings

Can the Applicant:

- i. Describe the methods to be used to manage noise and dust emissions associated with the placement of 500,000m<sup>3</sup> of tunnel arisings on the land east of Parsonage Down NNR?
- ii. Explain how this would avoid significantly impacting the biodiversity within the Parsonage Down NNR?
- iii. Explain how any measures would be secured through the DCO?

### Response

- i. Describe the methods to be used to manage noise and dust emissions associated with the placement of 500,000m<sup>3</sup> of tunnel arisings on the land east of Parsonage Down NNR?**
  1. In response to (i), the methods for management of dust emissions associated with the placement of tunnel arising on the land east of Parsonage Down NNR are described in the Appendix 5.4 Construction Air Quality and Mitigation of the ES [APP-193]. The mitigation measures for air quality (such as the use of best practicable means and good practice measures (items MW-AIR1 and MW-AIR2)) set out in the OEMP will apply equally to the spreading of arisings as they do to other construction activities, as they form part of the construction process for the Scheme that is controlled through the OEMP.
  2. The same logic also applies to construction noise mitigation measures set out in the OEMP [APP-187], including the requirement for the contractor to adopt Best Practicable Means (BPM) (MW-NOI1), develop and implement a Noise and Vibration Management Plan (MW-NOI3), and monitor noise during the works (MW-NOI6).
- ii. Explain how this would avoid significantly impacting the biodiversity within the Parsonage Down NNR?**
  3. In response to (ii), the control of dust emissions detailed above will avoid the deposition of dust onto vegetation within the Parsonage Down NNR/SSSI which, if not mitigated, would affect photosynthesis of vegetation if heavily coated with dust. If no mitigation was incorporated, noise would have the potential to cause some disturbance to ground-nesting birds, if these were close to the boundary of the NNR.
  4. In addition to the methods described in i) above, other factors that would minimise impacts include:
    - a. The existing landform, which slopes down from the SSSI towards the dry valley at east of Parsonage Down, provides a natural barrier to noise and dust;

- b. It is unlikely that birds such as skylark or meadow pipit would be nesting along the eastern edge of the NNR (closest to the Scheme), as there is already a level of disturbance associated with the well-used farm access track that runs along the eastern boundary. It is likely that the birds would be nesting in less disturbed locations further west of the track (and the Scheme);
  - c. Exclusion zones would be enforced, whereby site staff would not access the SSSI during deposition of arisings and human activity adjacent to the boundary of the SSSI would be kept to a minimum during the breeding season for birds as detailed within item MW-BIO1 of the OEMP [APP-187].
- iii. Explain how any measures would be secured through the DCO?**
- 5. In response to (iii), the relevant mitigation measures are described in the OEMP [APP-187] as set out in the preceding paragraphs of this response. The OEMP [APP-187] is secured by paragraph 4 of Schedule 2 to the draft DCO.

## Question WM.1.7

### On-site reuse of tunnel arisings

- i. Please indicate what consideration was given to soil stripping, stockpiling, stockpile management and subsequent redistribution for the existing top soil at land east of Parsonage Down NNR.
- ii. Please justify why this approach has been discounted (expanding upon the current reasoning given, as the implementation of this approach for other projects does not necessarily mean it is the most appropriate approach for the proposed development).

## Response

1. If soil stripping, stockpiling, stockpile management and subsequent redistribution for the existing top soil at land east of Parsonage Down National Nature Reserve (NNR) was undertaken it would result in damage to archaeological remains of at least regional importance which would require archaeological mitigation and would still result in significant adverse archaeological effects.
2. The area contains evidence of Bronze Age barrows, a Romano-British settlement, and field systems. The archaeological mitigation design requires the preservation in situ of these remains wherever possible by retaining the topsoil in place beneath the tunnel excavated materials.
3. The only exception is where the fill (i.e. the deposited arisings) would be more than 2m deep. Here preserving the archaeology in situ would not be achieved and any archaeology requiring mitigation would need to be excavated before the fill was deposited. The topsoil from these areas would be excavated and would be available for re-use within the Scheme.
4. The agricultural land to the east of Parsonage Down NNR is classified as mostly Grades 2 and 3a with smaller areas of Grade 1 and Subgrade 3b (see [APP-179]). It is limited primarily by soil depth and droughtiness, with a gradient limitation on steeper slopes. However, these limitations apply to soil profiles that have developed over a permeable and rootable chalk substrate, often a chalk rubble.
5. The excavated material from the tunnel boring machine, following processing, would be spread out over the land east of Parsonage Down NNR.
6. The resulting surface would be of low permeability and would require subsoiling and ripping (loosening the subsoil by drawing a tined, winged implement through it) to break up the surface hard pan and introduce fissures into the chalk for any vegetation to establish. However, the extent to which the fissuring was effective would affect the permeability of the restored land. As there are no examples of agricultural land being restored over this substrate, the quality of any restoration cannot be guaranteed.

7. The quantity of topsoil that would be necessary to restore the land to best and most versatile (BMV) condition depends on the permeability of the substrate, and could vary between 350mm and 800mm (in depth). Since there is no precedent for the restoration of BMV agricultural land on tunnel arisings generated from a tunnel boring machine (TBM), the Applicant cannot be certain of whether this would be possible at all, or (if possible) of the quantities of topsoil that may be required.
8. Since preservation in situ is required where possible for mitigation of archaeological impact, there is unlikely to be sufficient topsoil from land to the east of Parsonage Down to allow for the restoration of BMV agricultural land by simply stripping and returning the topsoil from this area.
9. As a result of these factors, the Applicant cannot guarantee that stripping, storage and replacement of topsoil would be successful in delivering restoration to BMV agricultural land. The preferred option is instead restoration to calcareous grassland.
10. Restoration to calcareous grassland would also deliver net ecological benefits in terms of creating new habitats of conservation value.

## Question WM.1.8

### Off-site disposal of tunnel arisings

- i. Notwithstanding the information provided in the Tunnel Arisings Management Strategy [APP-285] and the MW-GEO7 of the OEMP [APP-187], can the Applicant explain the disposal processes (including storage and transportation) that would be implemented in the event that not all of the 900,000m<sup>3</sup> of excavated tunnel material can be re-used within the Order limits?
- ii. How would this be secured through the DCO?

### Response

- i. **Notwithstanding the information provided in the Tunnel Arisings Management Strategy [APP-285] and the MW-GEO7 of the OEMP [APP-187], can the Applicant explain the disposal processes (including storage and transportation) that would be implemented in the event that not all of the 900,000m<sup>3</sup> of excavated tunnel material can be re-used within the Order limits?**
  1. The proposed area for tunnel arisings deposition within the Order limits provides ample space for re-use of tunnel arisings (and is required to do so pursuant to Requirement 8 of the draft DCO (paragraph 8 of Schedule 2 to the draft DCO [APP-020]), and the Applicant therefore anticipates that only under exceptional circumstances might small quantities of tunnel arisings require transportation to off-site disposal locations. In the unlikely event that this was necessary, the tunnel arisings would be loaded directly from the temporary storage location within the tunnel arisings processing area (which are shown in [APP-061]) onto lorries and transported directly to the disposal location using public highways.
- ii. **How would this be secured through the DCO?**
  2. The transport of small quantities of tunnel arisings off-site, if necessary, would be in accordance with the measures set out in the OEMP [APP-187], including item MW-TRA2 (requirement for traffic management plan).



## Question WM.1.10

### Off-site disposal of tunnel arisings

Can the Applicant provide justification for why the potential effect of a 10-300% increase in HGV movements for off-site disposal of tunnel arisings is classified as small adverse in [APP-285]?

In providing the answer please consider the potential effects from noise, air pollution and traffic that may occur from a 300% increase in HGV movements.

### Response

1. The noise and air quality issues associated with off-site disposal of tunnel arisings are assessed separately within Table 3-3 of the Tunnel Arisings Management Strategy [APP-285]. The “small adverse” classification relates solely to impacts from the additional traffic on the functions of the highway network.
2. The traffic increases are proportionally higher on the smaller roads leading to the nominal off-site disposal locations, whereas the increases on the main routes are lower (since the background level of HGV traffic on these main routes is higher). The “small adverse” classification for traffic therefore reflects the overall assessment that:
  - a. There is an increase in HGV traffic, which would constitute an adverse effect; but
  - b. The increases in HGV movements are not sufficiently large to cause significant capacity issues on the strategic highway network.
3. Highways England also notes that these impacts relate to off-site disposal, which is not proposed as part of the Scheme. As highlighted in the Mitigation Schedule [APP-186], on-site disposal is secured, pursuant to Requirement 8 of the DCO (paragraph 8 of Schedule 2 to the draft DCO) [APP-020].

## Question WM.1.11

### Off-site disposal of tunnel arisings

For a worst-case scenario where off-site disposal of the tunnel arisings is required, can the Applicant:

- i. Describe the measures that would be used to mitigate the adverse air quality, traffic and noise effects on receptors along the route; and
- ii. set out how the measures would be secured?

## Response

- i. **Describe the measures that would be used to mitigate the adverse air quality, traffic and noise effects on receptors along the route; and**
  1. As set out in the Tunnel Arisings Management Strategy [APP-285], the approach of depositing tunnel arisings to the east of Parsonage Down as proposed in the Application has been adopted to avoid the need for off-site disposal, and the Applicant does not envisage any reasonable scenario (even under worst-case assumptions) in which a significant proportion of the tunnel arisings would be required to be transported off-site for disposal.
- ii. **set out how the measures would be secured?**
  2. Mitigation of effects on receptors along off-site disposal routes would be problematic, since the effects would be dependent on the actual off-site disposal site used, and the routes taken by traffic to these disposal sites. Whilst in theory it could be feasible to mitigate impacts by mandating the use of specified disposal sites and routes, in practice this would be very problematic, not least because the disposal sites are owned and operated by third-parties on a commercial basis, and it would therefore not be feasible to guarantee that any particular site would be available for Highways England to use at the time of construction. For these reasons, the Applicant does not consider that it would be feasible to secure effective mitigation measures for the adverse effects associated with off-site disposal of tunnel arisings, in the event that all or most of the tunnel arisings needed to be transported off-site.

## Question WM.1.12

### Off-site disposal of waste

In respect of the depositing of excavated material, can the Applicant state the locations of the sensitive noise receptors assessed within [APP-285] TAMS Appendix B?

### Response

1. As noted in [APP-285] TAMS Appendix B, noise assessment comprised a high-level analysis of the potential impacts on existing traffic noise levels along the relevant routes. The predicted increases in noise levels along the highway links leading to the potential off-site disposal locations were assessed, but the specific impacts on individual noise sensitive receptors along these routes were not assessed.

## Question WM.1.13

### Off-site disposal of waste

- i. Can the Applicant provide a robust justification for utilising the entirety of the waste management and infrastructure sites within the South West and South East regions, (as set out in [APP-050] section 12.4) as the study area?
- ii. Why was a smaller, more localised waste infrastructure study area/ region, not utilised?
- iii. If a smaller study area were utilised what effect would this have on the significance of the environmental effects associated with the transportation of waste?
- iv. Can the Applicant explain how it proposes to assess the impact of utilising waste infrastructure across the whole of the South West and South East regions in terms of transport and traffic, air quality, and noise and vibration?

## Response

- i. **Can the Applicant provide a robust justification for utilising the entirety of the waste management and infrastructure sites within the South West and South East regions, (as set out in [APP-050] section 12.4) as the study area?**
  1. Since the Scheme is based within the South West region but close to the boundary of the South East region, it is feasible that waste for disposal could be transported to the South East as well as the South West.
- ii. **Why was a smaller, more localised waste infrastructure study area/ region, not utilised?**
  2. The landfill sector is becoming increasingly consolidated as smaller landfills close, and waste is typically managed on a regional basis. The Environment Agency's landfill capacity data for the South East and South West shows a marked discrepancy between landfill capacities in individual waste disposal authorities. Although the preference would be for a contractor to use the closest suitable site (to reduce transport costs), the assessment recognises that in practice, contractors may choose to use more distant sites.
- iii. **If a smaller study area were utilised what effect would this have on the significance of the environmental effects associated with the transportation of waste?**
  3. In response to this question, three sizes of study area have been considered, using the same Environment Agency dataset for 2016 that was used in [APP-050]:
    - 1) Wiltshire only;

- 2) Wiltshire and the contiguous counties of Berkshire, Oxfordshire, Gloucestershire, Hampshire, Somerset and Dorset; and
- 3) the South East and South West regions combined (as reported in [APP-050]).

The results are presented below.

|  | <b>Volume<br/>(cubic<br/>metres)</b> | <b>Percentage<br/>of capacity<br/>required</b> |
|--|--------------------------------------|--|
| Waste from proposed development                            | 30,000                               | -  |
| 2016 landfill capacity - Wiltshire only                    | 6,032,858                            | 0.50%  |
| 2016 landfill capacity - Wiltshire and contiguous counties | 34,231,940                           | 0.09%  |
| 2016 landfill capacity – South East and South West regions | 103,876,154                          | 0.03%  |

4. This analysis shows that, even in the worst-case assumption that all project waste requires landfill disposal within Wiltshire, this would still require only 0.5% of the remaining capacity, i.e. below the significance threshold by a factor of 2. Using an intermediate study area of Wiltshire and the contiguous counties, the corresponding capacity requirement is 0.09%, i.e. below the significance threshold by a factor of 10.
  5. This analysis demonstrates that the use of a smaller study area would have no effect on the assessment of significance.
- iv. **Can the Applicant explain how it proposes to assess the impact of utilising waste infrastructure across the whole of the South West and South East regions in terms of transport and traffic, air quality, and noise and vibration?**
6. The air quality and noise and vibration chapters [APP-043 and APP-047] include consideration of construction traffic, and this construction traffic includes both vehicles delivering materials to site and taking away waste (noting that the construction traffic assessment does not include transporting tunnel arisings to off-site disposal locations since this does not form part of the Application).

## Question WM.1.15

### Waste management

The ES confirms that professional judgement has been applied to estimate the quantity of waste likely to arise as a result of the development. Can the Applicant explain:

- i. What, if any, assumptions were made in applying this judgement and if any uncertainties in the findings exist?
- ii. The extent to which the assessment is sensitive to the assumptions applied (and whether any sensitivity analysis has been undertaken on this basis).
- iii. If, during construction, it became apparent that there had been an underestimation, what, if any mitigating measures would be required and how would this be secured through the DCO?

### Response

- i. **What, if any, assumptions were made in applying this judgement and if any uncertainties in the findings exist?**
  1. The estimate of waste quantities was carried out by experienced civil engineering contractors, based on the application design of the Scheme, on consideration of the materials necessary for construction, and on the likely wastage rate based on typical construction industry practice. The wastage rates can only be estimates prior to construction actually occurring, and to this extent there is an inevitable degree of uncertainty, although as described below the Applicant does not consider that this degree of uncertainty has a material effect on the assessment in the ES.
- ii. **The extent to which the assessment is sensitive to the assumptions applied (and whether any sensitivity analysis has been undertaken on this basis).**
  2. No sensitivity analysis was undertaken, since the quantities of waste were greatly below the significance threshold (0.03% of available capacity, against a significance threshold of 1% - i.e. a factor of 30 below the significance threshold). The assessment is therefore not considered to be sensitive to the assumptions made regarding construction waste generation.
- iii. **If, during construction, it became apparent that there had been an underestimation, what, if any mitigating measures would be required and how would this be secured through the DCO?**
  3. Item MW-MAT1 of the Outline Environmental Management Plan (OEMP) [APP-187] requires the main works contractor to develop and implement a Site Waste Management Plan which will include a requirement to report waste quantities to Highways England and define measures to minimise waste arisings from the Scheme and to recover waste materials in accordance with the principles of the waste hierarchy. This process, which is secured through Requirement 4 in

paragraph 4 of Schedule 2 to the draft DCO [APP-020], will allow waste quantities generated during construction to be compared to pre-construction estimates, and necessary measures to be put in place in the event that waste quantities are larger than predicted. The Applicant therefore considers that no further mitigation measures are required.

## Question WM.1.16

### Use of materials

- i. Can the Applicant explain whether it considered applying the higher South East region target for alternative materials (secondary and recycled aggregates) to the design of the Proposed Development?
- ii. In addition, can the Applicant also explain the extent to which the higher target would be achievable for the Proposed Development?

### Response

- i. **Can the Applicant explain whether it considered applying the higher South East region target for alternative materials (secondary and recycled aggregates) to the design of the Proposed Development?**
  1. Use of the higher South East region target was considered but was deemed to be not appropriate. The Applicant considers that this higher target reflects the more urban nature of the South East region and the fact that recycled aggregates are more readily available within urban areas where there is typically a large amount of demolition activity.
- ii. **In addition, can the Applicant also explain the extent to which the higher target would be achievable for the Proposed Development?**
  2. Given the distance of the Scheme from major urbanised areas, the Applicant anticipates that it could be difficult to achieve the higher target without entailing additional costs, for example by needing to source material from much further afield than would otherwise be the case, with consequential environmental effects.



## Question WM.1.17

### Use of materials

The ES confirms that professional judgement has been applied to estimate the quantity of materials required for the construction of the development. Can the Applicant explain:

- i. What, if any, assumptions were made in applying this judgement and if any uncertainties in the findings exist?
- ii. The extent to which the assessment is sensitive to the assumptions applied?
- iii. If, during construction, it became apparent that there had been an underestimation, what, if any mitigating measures would be required and how would this be secured through the DCO?

### Response

- i. **What, if any, assumptions were made in applying this judgement and if any uncertainties in the findings exist?**
  1. The estimate of materials required that is presented in the ES Chapter 12 Materials [APP-050] was carried out by experienced civil engineering contractors, based on the design of the application design of the Scheme and on consideration of the materials necessary for construction. The materials required can only be estimated prior to construction actually occurring, and to this extent there is an inevitable degree of uncertainty, although the Applicant does not consider that this degree of uncertainty has a material effect on the assessment in the ES for the reasons described below.
- ii. **The extent to which the assessment is sensitive to the assumptions applied?**
  2. The assessment of impacts on materials is not sensitive to the quantity of construction materials required for the Scheme. The significance criteria are based on the proportion of secondary or recycled material used and the likely recycling rate, and not on the absolute quantity of material required.
- iii. **If, during construction, it became apparent that there had been an underestimation, what, if any mitigating measures would be required and how would this be secured through the DCO?**
  3. Since the materials assessment is not sensitive to the absolute quantity of material required for construction, it is not considered that mitigation measures would be required if the actual quantities of material required for construction were higher than estimated.

## Question WM.1.18

### Use of materials

- i. If the National and regional guidelines for aggregates provision in England 2005-2020 is updated prior to the start of construction, has the Applicant considered the need to alter the alternative materials targets (secondary and recycled aggregates)?
- ii. In addition, has any assessment been made for the potential that a higher percentage of alternative materials is required to that set out in ES Chapter 12 Table 12.4?
- iii. If not, please provide this and set out how this matter could be secured as part of the DCO?

### Response

- i. **If the National and regional guidelines for aggregates provision in England 2005-2020 is updated prior to the start of construction, has the Applicant considered the need to alter the alternative materials targets (secondary and recycled aggregates)?**
  1. Because of the need to incorporate alternative materials targets into the contract documentation for the Scheme, it may not be feasible to alter these targets prior to construction after the contract is let, without entailing excessive additional costs, since contractors may have based their project planning, procurement and pricing on the existing targets. However, if legally binding targets were to come into force, Highways England and their contractor would be obliged to comply. The Applicant is not aware of any intention to introduce such legally binding targets.
- ii. **In addition, has any assessment been made for the potential that a higher percentage of alternative materials is required to that set out in ES Chapter 12 Table 12.4?**
  2. The Applicant has not assessed the potential of increasing the target as set out in the Environmental Statement.
- iii. **If not, please provide this and set out how this matter could be secured as part of the DCO?**
  3. Since there is no statutory requirement to incorporate a particular percentage of alternative materials in a project, the proposed target is based on the Applicant's commitment to support the Government's sustainability objectives. If a higher target were to be set (for example, if new mandatory targets were to be introduced by Government) prior to the letting of the contract to the main works contractor, then this would be done by incorporating the target into the Outline Environmental Management Plan (OEMP) [APP-187] and requiring the contractor to meet the new target.

## Question WM.1.19

### Use of materials

- i. Can the Applicant state the confidence they have in achieving the target of using 22% secondary or recycled aggregates?
- ii. What would be the implications if this target could not be reached and, if so, would any mitigation need to be secured?

### Response

- i. **Can the Applicant state the confidence they have in achieving the target of using 22% secondary or recycled aggregates?**
  1. The Applicant has a moderate degree of confidence that this target can be achieved, since as stated in Section 12.8.9 of the Environmental Statement, Chapter 12: Material assets and waste [APP-050], the rural location of the project means there are fewer local sources of recycled aggregate.
- ii. **What would be the implications if this target could not be reached and, if so, would any mitigation need to be secured?**
  2. As set out in Section 12.9.1 of [APP-050], failure to achieve the target would have an adverse impact on regional policy, in that the Scheme would not contribute to achieving the regional policy target to the fullest extent, but there would be no direct adverse impacts on sensitive receptors in the vicinity of the proposed development itself. For this reason, the Applicant is of the view that specifying this target as item MW-MAT4 in the Outline Environmental Management Plan (OEMP) [APP-187] provides sufficient mitigation and no additional mitigation would be required.

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