

# Havant Thicket Reservoir Project

## Environmental Statement Volume 2 - Main Report Chapter 13 Traffic and Transport

Portsmouth Water Ltd.

02/09/20

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# Notice

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## Document history

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## Client signoff

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# 13. Traffic and Transport

## Competent expert evidence

13.1. This Traffic and Transport chapter has been prepared by competent experts in the field of traffic, transport and environmental assessment, who are members of relevant transport planning bodies. The following individuals who have used their knowledge and professional judgement to undertake this assessment:

- a Graduate Transport Planner (member the Transport Planning Society, BSc Geography) with 4 years' experience in transport planning.
- a Managing Transport Planning Consultant (member of the Chartered Institute of Highways and Transportation, MSc Sustainability, Planning and Environmental Policy) with 13 years' experience in transport planning, including on EIAs for major infrastructure projects.
- a Managing Consultant (Chartered Member of the Institute of Logistics and Transportation, MSc Transport and Planning) with 15 years' experience in the field of transport planning and environmental appraisal.

## Legislative and policy framework

13.2. The following legislation and policies govern the assessment of Traffic and Transport and have been consulted in preparing this chapter, with the relevant portions summarised in Table 13-1.

**Table 13-1 - Legislation, regulatory, and policy framework for the Traffic and Transport assessment**

| Legislation/ Regulation/ Policy                 | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| National                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| National Planning Policy Framework (NPPF), 2019 | <p>The NPPF sets out the requirements and objectives of the Government for planning policies in England and how they should be applied.</p> <p>It states that:</p> <p><i>"All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account whether:</i></p> <ul style="list-style-type: none"> <li><i>• The opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;</i></li> <li><i>• Safe and suitable access to the site can be achieved for all people; and</i></li> <li><i>• Improvements can be undertaken within the transport network that cost effectively limits the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual impacts of development are severe".</i></li> </ul> |
| Planning Practice Guidance (PPG), 2014          | <p>PPG was launched on March 6th, 2014 and provides an internet-based source of all national planning guidance. Two guidance documents relevant to Traffic and Transport include: 'Transport evidence bases in plan-making and decision-taking' and</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                       | <p>'Travel plans, transport assessments and statements in decision-taking'.</p> <p>'Transport evidence bases in plan-making and decision-taking', states that it is important for Local Planning Authorities (LPAs) to undertake assessments of the transport implications of developments in developing or reviewing their Local Plan. This is for the purpose of developing a robust transport evidence base that can support the preparation and / or review of the Local Plan.</p> <p>'Travel plans, transport assessments and statements in decision-taking' describes how Travel Plans (TPs), TAs and Statements (TS) are ways of assessing and mitigating the negative transport impacts of development.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| The Guidelines for the Environmental Assessment of Road Traffic, 2004 | <p>The methodology for assessing the Traffic and Transport effects of the Scheme is based on the Institute of Environmental Management and Assessment (IEMA) guidelines, set out in 'The Guidelines for the Environmental Assessment of Road Traffic' (Institute of Environmental Management and Assessment).</p> <p>The guidelines are primarily for the assessment of off-site traffic impacts associated with major new developments are intended to complement professional judgement.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Local                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Hampshire Local Transport Plan 2011-2031                              | <p>The Hampshire Local Transport Plan 2011-2031 (LTP) outlines how HCC will enable '<i>safe, efficient and reliable ways to get around a prospering and sustainable Hampshire over the next 20 years</i>'. Of particular note, Chapter seven of the LTP provides a joint strategy for 'South Hampshire', incorporating HCC, Portsmouth City Council (PCC) and Southampton City Council (SCC).</p> <p>It outlines that the vision for South Hampshire is to create: '<i>a resilient, cost effective, fully-integrated sub-regional transport network, enabling economic growth whilst protecting and enhancing health, quality of life and the environment</i>'. Within the strategy seven outcomes have been developed, which are:</p> <ul style="list-style-type: none"> <li>• Reduced dependence on the private car through an increased number of people choosing public transport and the 'active travel' modes of walking and cycling;</li> <li>• Improved awareness of the different travel options available to people for their journeys, enabling informed choices about whether people travel and how;</li> <li>• Improved journey time reliability for all modes;</li> <li>• Improved road safety within the sub-region;</li> <li>• Improved accessibility within and beyond the sub-region;</li> </ul> |

|                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                      | <ul style="list-style-type: none"> <li>Improved air quality and environment, and reduced greenhouse gas emissions; and</li> <li>Promoting a higher quality of life.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Hampshire Cycling Strategy           | <p>The HCC Cycling Strategy accompanies the LTP and covers how the Authority will achieve the following vision for cycling in Hampshire: <i>'In 2025, cycling will be a convenient, safe, healthy, affordable and popular means of transportation and recreation within Hampshire'</i>. The vision for cycling in Hampshire will be met by 2025 through achieving the following objectives:</p> <ul style="list-style-type: none"> <li>To make cycling a daily travel choice for more people;</li> <li>To reduce cyclist casualties and safety concerns;</li> <li>To encourage regular cycling as part of a healthy lifestyle;</li> <li>To enable more people to enjoy Hampshire by cycling; and</li> <li>To ensure an appropriate balance between the needs of all road users.</li> </ul>                                                                                                                                                                                        |
| Hampshire Walking Strategy           | <p>The HCC Walking Strategy has also been produced to accompany the LTP and sets a range of objectives and aims to achieve an overall vision for walking in Hampshire. The vision for walking in Hampshire is: <i>'By 2025, walking will be the travel mode of choice for short trips and the most popular and accessible means of recreation'</i>. This vision for walking in Hampshire will be achieved through the following objectives:</p> <ul style="list-style-type: none"> <li>To make walking the most popular mode of travel for short trips;</li> <li>To improve the quality and usability of the main walking routes within our urban and rural settlements (including links to the countryside);</li> <li>To promote walking as a healthy means of travel and recreation;</li> <li>To improve the perceived and actual safety and security of pedestrians; and</li> <li>To improve the quality of rural walking routes of local and strategic importance.</li> </ul> |
| Draft Havant Borough Local Plan 2036 | <p>The Draft Havant Borough Local Plan 2036 went through a public consultation exercise from February 4th to March 18th, 2019.</p> <p>The Havant Local Plan, when adopted, is expected to set out a vision and framework for future development, growth and prosperity in the administrative area. Ultimately, the Havant Local Plan seeks to meet the development needs for the Authority in a sustainable way.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

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|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                            | <p>Policy KS8 in the local plan relates to the Havant Thicket winter storage reservoir, comprising recreational provision including a visitor centre. It refers to the importance of minimising construction and public visitor traffic through residential areas where possible and highlights the importance of providing a network of paths within the site for walking, cycling and horse-riding. It also refers to the access being taken off the B2149, outside of the Havant borough, though this pre-dates the current access option appraisal process.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Draft East Hampshire District Council Local Plan 2017-2036 | <p>The Draft East Hampshire District Council Local Plan sets out the priorities and policies for development, and was adopted in 2014, however a new Draft Local Plan, covering 2017-2036 is currently being developed.</p> <p>The Draft Local Plan states that the vision for the area is: 'By 2036 our communities' sense of place will have been maintained and reinforced, respecting their unique individual needs. We will have provided a good quality home to meet the differing needs of all our residents, a successful and growing local economy and achieved environmental excellence'.</p> <p>The Draft Local Plan 2017-2036 has three main objectives:</p> <ul style="list-style-type: none"> <li>• Core Objective A: Provide sustainable levels of growth in the LPA area</li> <li>• Core Objective B: Provide well-designed new developments that are in the right location and adaptable to climate change</li> <li>• Core Objective C: Enabling infrastructure in the local planning authority's area to improve and support growth</li> </ul> <p>Policy S30 sets transport objectives for the area and states development should seek to minimise the need to travel, promote opportunities for sustainable transport modes, and improve accessibility to local facilities and linkages with the surrounding pedestrian and cycle network. Policy S31 relates to Havant Thicket Reservoir, and refers to the need to minimise construction traffic through residential areas, the need to establish an appropriate means of access to the satisfaction of the LHA and to ensure that the recreation provision within the site includes a network of paths for walking, cycling and horse riding.</p> |

## Study area

- 13.3. The study area has been established during consultation with the Local Highway Authority (LHA) and includes roads and junctions that form the key highway links surrounding the site. For the purpose of this chapter, the key highway links included within the assessment are presented in Table 13-5, and indicated in Figure 13-1 Key highway links included within the assessment below.

Figure 13-1 - Key highway links included within the assessment



## Assessment methodology

- 13.4. This chapter has been informed by a Transport Assessment (TA) which has been produced in support of the planning application and is provided as Appendix A13.1 Transport Assessment in ES Volume 4. The TA should therefore be referred to for further technical information on transport analysis.
- 13.5. The Scoping opinion provided by the LPA established that a Traffic and Transport chapter would need to be included within the ES.
- 13.6. The scope of the TA, informing this chapter, has been the subject of discussions with the local highway authority (LHA) Hampshire County Council (HCC) and Highways England.
- 13.7. This chapter assesses the potential impact of the scheme during both construction and operation, and subsequently considers two assessment years:
- Construction – 2023 (commencement of main construction period in traffic generation terms; and
  - Operation – 2029 (the earliest year of opening for the full reservoir and visitor centre).

## Establishment of baseline

- 13.8. To establish the baseline for vehicular traffic movements, traffic data was collected at suitable locations, based on discussions with the LHA. The programme of surveys contained a combination of junction and link (between junction) surveys between the 7<sup>th</sup> and 20<sup>th</sup> March 2020.
- 13.9. An examination of the existing active travel links, including Public Rights of Way (PRoW), was undertaken to understand the existing accessibility of the Site, in addition to a review of the existing public transport network in the area.
- 13.10. To establish the future baseline conditions for the assessment years of 2023 and 2029, growth factors were obtained from the Department for Transport's TEMPro (Version 7.2) software, for the areas within the visitor catchment for the reservoir site. The catchment is discussed further in paragraph 2.38.
- 13.11. The future year baseline traffic also includes a consideration of the cumulative impacts of surrounding developments, which were established during discussion with the LHA.

## Establishment of development Traffic and Transport considerations

- 13.12. An estimate of development traffic was derived using a first principles approach, with reference to other comparable developments and best practice. This assessment considered the potential impact of both construction and operational traffic on the surrounding transport network.

### Construction traffic

- 13.13. The volume of construction traffic, for both the reservoir site and pipeline, was estimated based on the required construction activities and an assumed construction programme as stated in the indicative construction programme pipeline corridor. The number of construction vehicles likely to be required for each activity has been established based on typical vehicle payloads and known material requirements for the reservoir construction. The assessment has applied an indicative peak construction day, whereby there are assumed to be concurrent activities generating HGV movements associated with both the construction of the reservoir and of the pipeline. As described in Chapter 2 Description of the Development in ES Volume 2, the main welfare facilities and laydown areas for the pipeline will be located within the red line boundary of the reservoir site, requiring pipeline construction traffic to route between the reservoir and the relevant section of the pipeline.

### Reservoir site and access roads

- 13.14. It is anticipated that during the peak construction period there would be a potential for 200 HGVs a day (100 arrivals, and 100 departures) associated with the construction of the reservoir, which would be undertaken during the main embankment construction activity in 2023.
- 13.15. In addition to construction HGVs, there would also be staff trips to and from the reservoir, with up to 125 staff expected to be on site at the peak of construction. For assessment purposes it has been assumed that all staff would arrive to the reservoir site as the single occupant of a car, which is

considered a reasonable worst-case assumption. Reservoir construction staff would remain on site for the duration of the working day.

#### Pipeline

- 13.16. For assessment purposes, it has been assumed that the pipeline construction would be undertaken concurrently with the embankment section of the reservoir, which is expected to generate up to 30 HGV movement a day (15 arrivals and 15 departures).
- 13.17. There would also be staff trips associated with the pipeline construction, with up to 125 staff likely to be constructing the pipeline at the peak. Pipeline construction staff would be transported to and from the pipeline using minibuses, or a comparable light goods vehicle (LGV). This would result in approximately 20 trips a day using the reasonable worst-case assumption that staff would be transported back to the reservoir welfare facilities for lunch and then returned back to the pipeline.

#### Combined construction

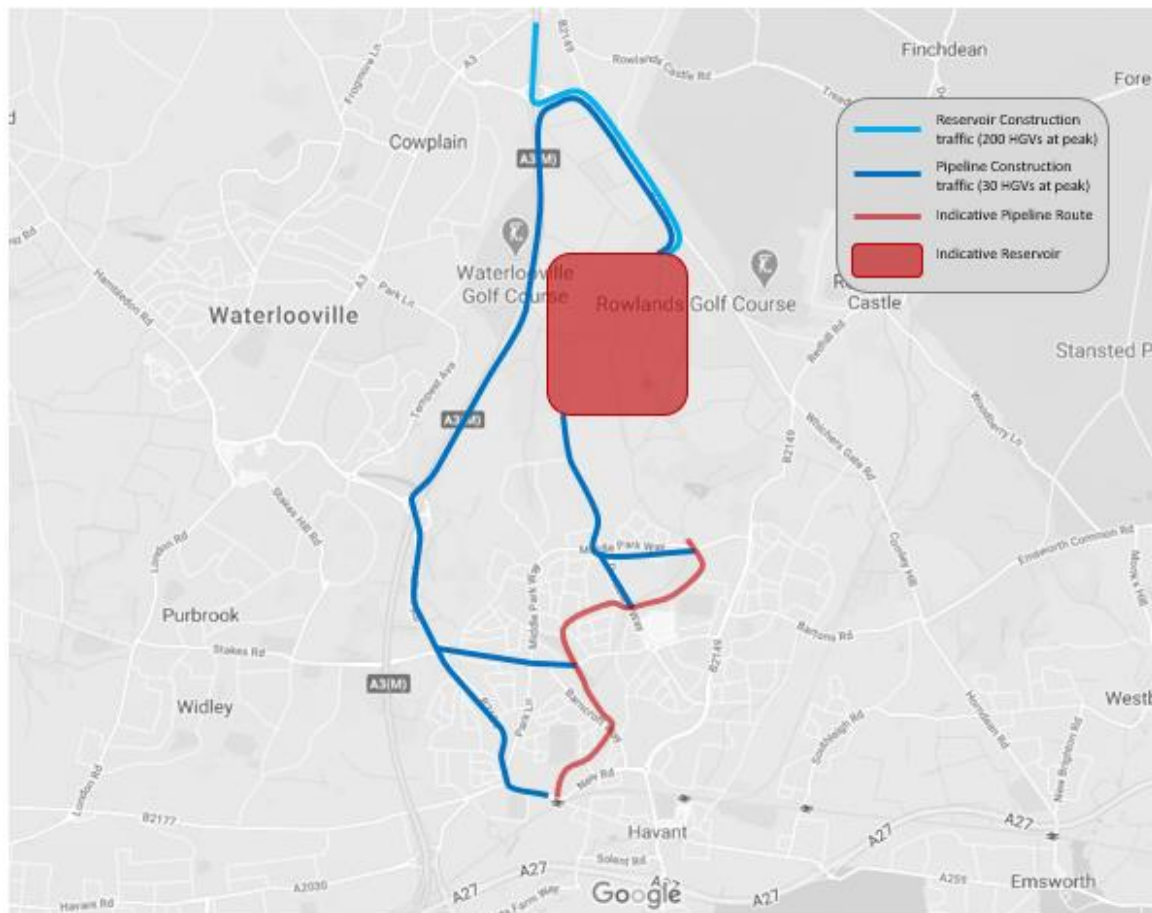
- 13.18. A summary of all construction traffic assessed for the reasonable worst case is provided in Table 13-2.

**Table 13-2 – Construction traffic trip generation for assessment**

| Activity  | Daily HGVs (two-way) | Daily cars / LGVs (two-way) |
|-----------|----------------------|-----------------------------|
| Reservoir | 200                  | 250                         |
| Pipeline  | 30                   | 270                         |

- 13.19. The construction HGV traffic has been distributed across the highway network, on the principle that construction vehicles would take the most suitable and direct route to the principal road network (i.e. the A3(M)). Traffic routing will be set out in the appointed contractor's Construction Environmental Management Plan (CEMP), as requirement included in the Record of Environmental Actions and Commitments (REAC) as part of the Outline Environmental Management Plan (OEMP) in Appendix A2.1 in ES Volume 4 for the appointed contractors to follow. Whilst it is expected that both the north and south access points would provide site access, the HGV construction traffic would be required to use the northern access as the main access point, with the southern access only being used for part of the pipeline construction.
- 13.20. All reservoir HGV traffic is therefore expected to use the B2149 to access the A3(M) directly via junction 2, routing through the Dell Piece East roundabout. HGV traffic associated with the pipeline is expected to be split into three time periods where the peak HGV generation would occur. During Period One, the pipeline HGV traffic would route between the northern site access and the A3(M) at junction 2, before routing south to leave the A3(M) at junction 3, accessing the pipeline construction area principally via Purbrook Way. During Period Two, the pipeline HGV traffic would route between the northern site access and the A3(M) at junction 2, before routing south to leave the A3(M) at junction 3; accessing the pipeline construction area principally via the B2150 and Bedhampton Way. During Period Three, pipeline HGV traffic would access the northern part of the pipeline using the southern reservoir access, Swanmore Road and principally Middle Park Way. A summary of the construction HGV traffic used within the assessment is presented in Figure 13-2 Construction HGV routes, below.
- 13.21. It should be noted that the pipeline assessment of 30 HGVs (two-way) has been assessed on each construction link, however the pipeline construction routes presented in Figure 13-2 Construction HGV routes, below, will not be in use concurrently.

### Figure 13-2 – Construction HGV Routes



## Diversions and road closures

- 13.22. During construction of the reservoir site and access roads it would be necessary to divert a PRoW (Bridleway Havant 120).
- 13.23. For the pipeline, it may also be necessary to introduce a temporary diversion of PRoW or public highway, which is unrelated to the volume of construction traffic. The potential impact of this is discussed further in Sections 13.67 to 13.80.
- 13.24. Consideration has been given to potential road closures that would be required during construction of the pipeline. A reasonable worst case approach has been taken, whereby a road closure is assumed if the pipeline is running along the length of road; however further development of the construction sequencing and methodology may allow a partial lane closure within a section of road removing the need for a full closure.
- 13.25. Whilst it is acknowledged that any road closure would have a local impact, there is no prescribed assessment of the impact of diversions and therefore, reference has been made to guidance documents and Scope and Methodology Reports for other large infrastructure projects nationwide such as HS2 and Crossrail, to determine the potential significance of a road closure. It is generally considered that a diversion may be considered significant in environmental assessment terms where it is in place for more than four consecutive weeks in any 12-month period that leads to a journey length increase of more than one km.

## Operational traffic

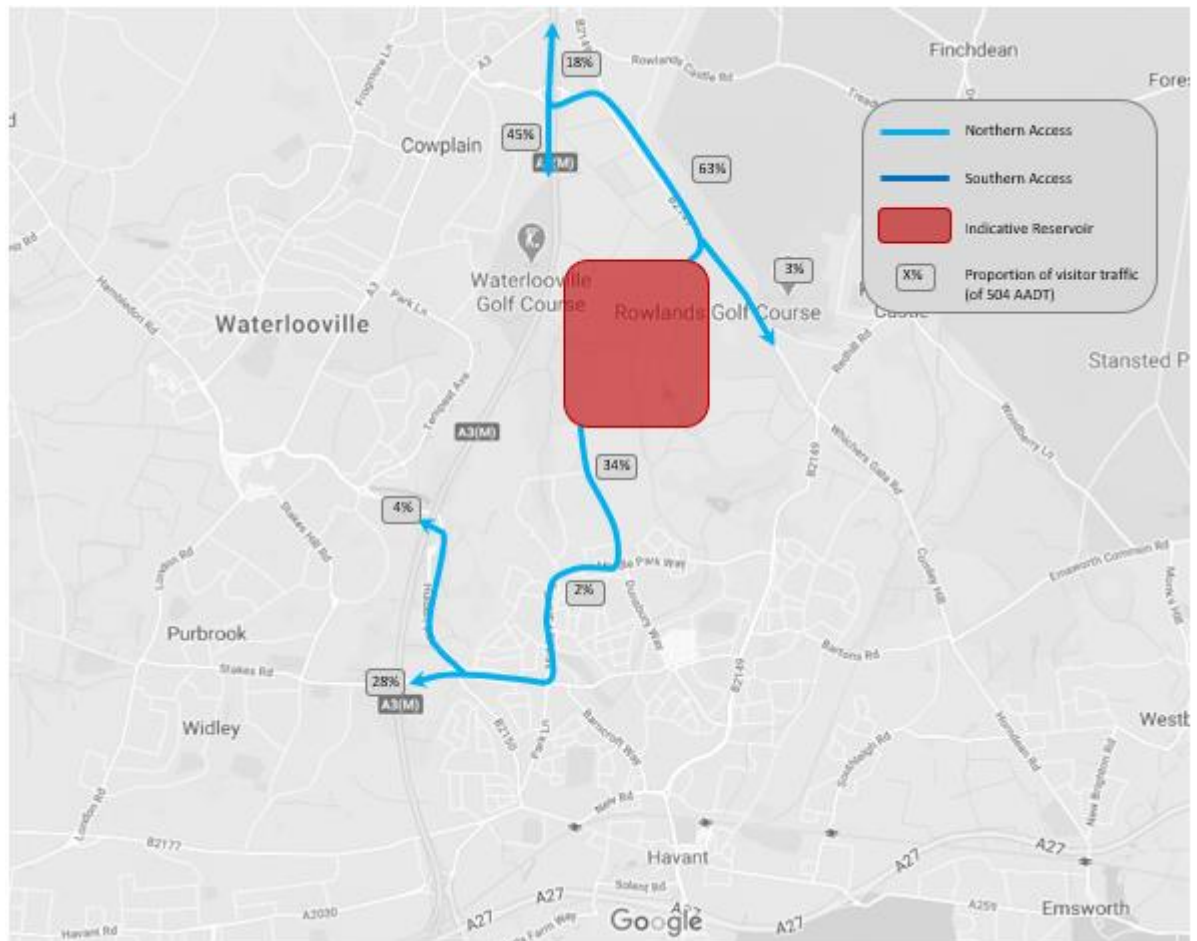
- 13.26. The operational traffic is principally expected to be generated by visitors and staff accessing the reservoir to make use of the visitor centre and surrounding network of recreational paths for walking and cycling.

- 13.27. Whilst there would be some ad-hoc traffic movements associated with maintenance of the reservoir, they are expected to be infrequent and consist of one vehicle a day during periods where maintenance is required. This level of traffic is considered to be negligible, and therefore has not been assessed further within this ES.
- 13.28. The volume of operational traffic has been estimated using visitor forecasts that have informed the development of the outline design, whilst the arrival and departure visitor profile has been estimated using data from a comparable country park within Hampshire.
- 13.29. The visitor forecasts have been established with reference to population data from the surrounding settlements, and the likelihood of the population within these settlements visiting a facility such as the reservoir<sup>1</sup>. This has provided a potential population catchment, and annual number of visitors.
- 13.30. Car park data from the Queen Elizabeth Country Park has been provided by HCC, which has enabled the annual visitor profile for the reservoir to be forecast, as well as the weekday to weekend split and daily traffic profile to be estimated. This has informed the derivation of an annual average daily vehicle flow (AADT) of 504 visitor vehicles (202 arrivals and 202 departures), used within this assessment.
- 13.31. The origin and destination of the operational traffic has been estimated based on the principles of a gravity model that considers the proportion of the population within the catchment area and assignment to the surrounding highway network based on the most efficient routes to and from the site. As with construction, it is proposed to provide both a northern and southern access to the main car park for visitors, though it is anticipated that the southern access would form a secondary access used only for some local trips. The northern access would be the main access to the reservoir site and would be signed as such. Promotional literature, including that on-line, would also support the northern access as the primary road to the reservoir. All regional trips, and some local trips, are therefore expected to route via the northern access. A summary of the predicted operational trips within the study area is presented within Figure 13-3.

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<sup>1</sup> Planning Solutions Consulting Limited (PSL) on behalf of Portsmouth Water: *Havant Thicket Winter Storage Reservoir: Visitor number and recreational amenity facilities review* (July 2019).

Figure 13-3 – Operational traffic



- 13.32. It should also be noted that the development would require the permanent closure of PROW, which is unrelated to the volume of development traffic. The potential impact of this is discussed further in Section 13.80 to 13.85.

### Assessment criteria

- 13.33. In line with the IEMA guidance, when considering the significance of transport effects, the assessment is based on two considerations: the sensitivity of the receptor (or road link) and the magnitude of change (increase / decrease in traffic flow).
- 13.34. The magnitude of change assessment has considered the change in flows comparing the construction traffic against the 2023 Baseline scenario. The magnitude of change assessment has considered the change in flows comparing the operational traffic against the 2029 Baseline scenario.

### Sensitivity of receptors

- 13.35. The framework for determining the sensitivity of a receptor, in the case of this Traffic and Transport chapter, is presented in Table 13-3.

**Table 13-3 – Definition of sensitivity**

| Sensitivity | Typical receptors                                                                                               |
|-------------|-----------------------------------------------------------------------------------------------------------------|
| High        | Schools, colleges and other educational institutions                                                            |
|             | Retirement / care homes                                                                                         |
|             | Roads with no footway that may contain notable pedestrian demand                                                |
|             | Collision clusters                                                                                              |
| Medium      | Hospitals, surgeries and clinics                                                                                |
|             | Parks and recreation areas                                                                                      |
|             | Shopping area with roadside frontage                                                                            |
|             | Residential areas                                                                                               |
|             | Roads with narrow footway that may contain notable pedestrian demand                                            |
| Low         | Open spaces                                                                                                     |
|             | Tourist / visitor attractions                                                                                   |
|             | Historic buildings                                                                                              |
|             | Churches and other places of worship                                                                            |
| Negligible  | Receptors with low sensitivity to traffic flows and those sufficiently distant from affected roads and junction |

#### Magnitude of change

- 13.36. The IEMA guidelines recommend two rules to be considered when assessing the magnitude of change of development traffic on a highway link, as follows:
- Consider highway links where daily traffic flows would increase by more than 30%, or the number of HGVs would increase by more than 30%; and
  - Consider any specifically sensitive areas where daily traffic flows would increase by more than 10%.
- 13.37. In line with the principles of the IEMA guidelines, the following thresholds have been used to obtain the magnitude of change on non-sensitive road links:
- High: >90% change in flow of either HGVs or all vehicles;
  - Medium: 60-90% change in flow of either HGVs or all vehicles;
  - Low: 30-60% change in flow of either HGVs or all vehicles; and
  - Negligible: <30% change in flow of either HGVs or all vehicles.
- 13.38. In line with the principles of the IEMA guidelines, the following thresholds have been used to obtain the magnitude of change on sensitive road links:
- High: >70% change in flow of either HGVs or all vehicles;
  - Medium: 40-70% change in flow of either HGVs or all vehicles;
  - Low: 10-40% change in flow of either HGVs or all vehicles; and
  - Negligible: <10% change in flow of either HGVs or all vehicles.

#### Significance of effects

- 13.39. The significance of effects can be considered as either beneficial or negative and are derived from a combination of the sensitivity of receptors and magnitude of change. The effects can be either temporary or permanent.
- 13.40. With reference to the sensitivity of receptors and the magnitude of change, significance levels have been applied to the potential environmental effects in accordance with IEMA guidelines, as set out in Table 13-4.

**Table 13-4 – Significance of effects assessment matrix**

| Sensitivity | Magnitude of impact |            |            |            |
|-------------|---------------------|------------|------------|------------|
|             | High                | Medium     | Low        | Negligible |
| High        | Major               | Major      | Moderate   | Negligible |
| Medium      | Major               | Moderate   | Minor      | Negligible |
| Low         | Moderate            | Minor      | Minor      | Negligible |
| Negligible  | Negligible          | Negligible | Negligible | Negligible |

- 13.41. In Traffic and Transport terms, the significance of effects are considered as follows:
- Major: large beneficial or adverse effects that are considered to be material considerations in the decision-making process;
  - Moderate: relatively significant beneficial or adverse effects that may be important, but are not considered as determining factors in the decision-making process;
  - Minor: slight beneficial or adverse effects that are primarily local in nature. 'Minor' effects are not considered critical factors in the decision-making process; however, they should be considered to enhance the subsequent design of a project; and
  - Negligible: no beneficial or adverse effects, or those that are beneath levels of perception.
- 13.42. A moderate effect or greater is considered to be significant in ES terms, however for the purpose of this assessment, if a significance of effect of minor or above is recorded, further consideration will be given to the potential environmental effects on the receptor.
- 13.43. The IEMA guidelines set out a list of environmental effects which should be considered if development traffic is considered to impact on a receptor.

## Assessment assumptions and limitations

- 13.44. Throughout the assessment process, professional judgement and industry best practice has been applied. Where there is a gap in available data, reasonable assumptions have been used, as set out in this section. Key assumptions and limitations include:
- Data collection was undertaken in March 2020. The majority of data collection was undertaken before the COVID-19 pandemic; however, three of the surveys were undertaken during the week commencing the 16th March and so may have been impacted by reduced traffic flows resulting from the pandemic. Therefore, some factoring of raw data associated with these three surveys has been undertaken to ensure the baseline is reflective of typical conditions;
  - Some of the baseline data collection has been undertaken as part of the Transport Assessment, which focuses on peak hourly flows. To determine daily flows on the key links where 24-hour data is not available, a typical peak hour to daily factor has been used, which has been derived from observed link count data collected within the study area;
  - The future year baseline has accounted for background growth based on Local Plan information available at the time, which informs the Department for Transport forecasting software TEMPro, in addition to information on specific developments highlighted by the LHA. However future development may come forward in a different manner, which would impact on the future baseline conditions;
  - The future year assessment of construction impact is based on the assumed first year of main construction (2023), which is considered a reasonable worst case; an assessment of a later construction year would provide a higher baseline flow against which the construction traffic flows would be compared; therefore, the impact would be reduced in percentage terms;
  - The forecast of construction traffic is based on assumed construction activity sequencing, and an assumed construction methodology (such as working hours, and number of working days a month). As the detail of the design develops the construction numbers expected may vary, however the approach taken is considered to represent a reasonable worst case;

- The forecast of construction traffic assumes a reasonable worst case of five-day working weeks for assessment purposes, though it is considered that longer working weeks (i.e. some weekend working) could reduce the volume of traffic and / or the duration of the construction traffic impact;
- Distribution of trips is based on Middle Layer Super Output Area (MSOA) census data, 2011; and
- The forecasts of the vehicle trip numbers are based on a comparable site within Hampshire, in addition to visitor forecasts based on local population statistics.

## Baseline conditions including value/sensitivity of resources and receptors

### Sensitivity of receptors

13.45. A review of the study area has been undertaken to establish the sensitivities of the receptors in relation to Traffic and Transport and are summarised within Table 13-5.

**Table 13-5 – Sensitivity of road Links**

| Road Link reference | Road Link extent                                        | Sensitivity | Justification                                                                                                                                               |
|---------------------|---------------------------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| L1                  | Catherington Lane arm of junction with A3               | Medium      | Residential road with some frontage activity. Footways present along its length and is as a well-used route connecting to the principle road network.       |
| L2                  | A3 North arm of junction with Catherington Lane         | Medium      | Local distributor road with some frontage activity. Footways present along its length and is as a well-used route connecting to the principle road network. |
| L3                  | A3 Portsmouth Road                                      | Medium      | Local distributor road with some frontage activity. Footways present along its length and is as a well-used route connecting to the principle road network. |
| L4                  | B2149, west of roundabout with Lakesmere Road           | Negligible  | Distributor road with no frontage activity.                                                                                                                 |
| L5                  | Lakesmere Road                                          | Negligible  | Distributor road with no or limited frontage activity.                                                                                                      |
| L6                  | B2149, west of A3(M) to roundabout with Lakesmere Road  | Negligible  | Distributor road with no or limited frontage activity.                                                                                                      |
| L7                  | A3(M) junction 2 north slips                            | Negligible  | Connection to motorway.                                                                                                                                     |
| L8                  | Dell Piece East between A3(M) and roundabout with B2149 | Negligible  | Distributor road with no frontage activity, and connection to the motorway.                                                                                 |

| Road Link reference | Road Link extent                                                              | Sensitivity | Justification                                                                                                                    |
|---------------------|-------------------------------------------------------------------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------|
| L9                  | B2149, north of roundabout with Dell Piece East                               | Low         | Distributor road with no or limited frontage activity, some residential accesses.                                                |
| L10                 | Waterlooville, east of roundabout with Dell Piece East                        | Low         | Access road to Place of Worship                                                                                                  |
| L11                 | B2149, south of roundabout with Dell Piece East                               | Negligible  | Distributor road with no frontage activity.                                                                                      |
| L12                 | Castle Road arm of junction with B2149                                        | Medium      | Single carriageway with access to residential properties, and no white lining demarcating carriageway lanes.                     |
| L13                 | B2149 South of junction with Castle Road to junction with Whichers Gate Road  | Low         | Distributor road with limited frontage activity, but some on street parking provision, and place of worship at the southern end. |
| L14                 | Redhill Road Arm of the B2149/Whichers Gate Road double mini roundabout       | Medium      | Residential road with some frontage activity. Footways present along its length.                                                 |
| L15                 | Whichers Gate Road Arm of the B2149/Whichers Gate Road double mini roundabout | Medium      | Residential road with some frontage activity. Footways present along its length.                                                 |
| L16                 | B2149 Arm of the B2149/Whichers Gate Road double mini roundabout              | Medium      | Residential road with some frontage activity. Footways present along its length.                                                 |
| L17                 | Middle Park Way Arm of the B2149 junction                                     | Medium      | Residential road with some frontage activity, and access to existing country park. Footways present along its length.            |
| L18                 | B2149 Arm of the Middle Park Way junction                                     | Negligible  | Dual carriageway distributor road.                                                                                               |
| L19                 | Dunsbury Way                                                                  | Medium      | Residential distributor road, with on-street parking and traffic calming features.                                               |
| L20                 | Middle Park Way north of junction with Purbrook Way                           | Medium      | Residential distributor road, with on-street parking and traffic calming features.                                               |

| Road Link reference | Road Link extent                                                  | Sensitivity | Justification                                                                                                   |
|---------------------|-------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------|
| L21                 | Purbrook Way, east of roundabout with Middle Park Way / Park Lane | Medium      | Residential distributor road, with on-street parking and traffic calming features.                              |
| L22                 | Purbrook Way, west of roundabout with Middle Park Way / Park Lane | Medium      | Residential distributor road, with on-street parking and traffic calming features.                              |
| L23                 | Purbrook Way, west of roundabout with Hulbert Road                | Negligible  | Dual carriageway connection to motorway.                                                                        |
| L24                 | Larchwood Avenue arm of Purbrook Way / Hulbert Road roundabout    | Negligible  | Retail connection road, with no frontage activity.                                                              |
| L25                 | B2150, south of roundabout with Purbrook Way / Hulbert Road       | Negligible  | Residential distributor road, with residential driveway accesses.                                               |
| L26                 | Park Lane, south of roundabout with Purbrook / Way                | High        | Residential distributor road, with residential driveway accesses, and presence of an educational establishment. |
| L27                 | Stockheath Lane                                                   | Medium      | Residential distributor road, with residential driveway accesses, adjacent to open parkland.                    |
| L28                 | Bedhampton Way                                                    | Medium      | Residential distributor road, with residential accesses and some on-street parking.                             |
| L29                 | Hulbert Way, south of junction with Fitzwygram Way                | Medium/High | Residential distributor road, with residential accesses and some on-street parking. Presence of a care home.    |
| L30                 | A3(M) junction 3 south slips                                      | Negligible  | Connection to motorway.                                                                                         |
| L31                 | Hulbert Way, north of junction with Fitzwygram Way                | Negligible  | Distributor road with no frontage activity or pedestrian demand.                                                |
| L32                 | Hulbert Way, west of A3(M)                                        | Negligible  | Connection to motorway.                                                                                         |
| L33                 | Freely Road                                                       | High        | Local access road, adjacent to an educational establishment.                                                    |

| Road Link reference | Road Link extent                         | Sensitivity | Justification                                                                       |
|---------------------|------------------------------------------|-------------|-------------------------------------------------------------------------------------|
| L34                 | Woolston Road                            | Medium      | Residential distributor road, with and some on-street parking.                      |
| L35                 | Calshot Road                             | Medium      | Residential distributor road, with and some on-street parking.                      |
| L36                 | Woolston Road                            | High        | Bus gate, available for use by cyclists.                                            |
| L37                 | Dunsbury Park development site south     | Negligible  | Commercial distributor road, with no frontage activity.                             |
| L38                 | Fitzwygram Way, east of A3(M) junction 3 | Negligible  | Commercial distributor road, with no frontage activity.                             |
| L39                 | Dunsbury Park development site north     | Negligible  | Commercial distributor road, with no frontage activity.                             |
| L40                 | A3(M) junction 3 north slips             | Negligible  | Connection to motorway.                                                             |
| L41                 | A3(M) junction 2 south slips             | Negligible  | Connection to motorway.                                                             |
| L42                 | Northern Site Access Road                | N/A         |                                                                                     |
| L43                 | North of Northern Access B2149           | Negligible  | Distributor road with no frontage activity.                                         |
| L44                 | Southern Site Access Road                | N/A         |                                                                                     |
| L45                 | Swanmore Road                            | High        | Local residential access road                                                       |
| L46                 | Middle Park Way West of Swanmore Road    | Medium      | Residential road with some frontage activity. Footways present along its length.    |
| L47                 | Ellisfield Road                          | High        | Local residential access road                                                       |
| L48                 | Botley Drive                             | High        | Local residential access road, close to a place of worship                          |
| L49                 | Barncroft Way                            | Medium      | Residential distributor road, with residential accesses and some on-street parking. |
| L50                 | High Lawn Way                            | High        | Local Residential Road with on-street parking                                       |
| L51                 | Fraser Road                              | High        | Local residential access road                                                       |
| L52                 | Highclere Avenue                         | High        | Local residential access road                                                       |

| Road Link reference | Road Link extent | Sensitivity | Justification                                                                       |
|---------------------|------------------|-------------|-------------------------------------------------------------------------------------|
| L53                 | Bedhampton Road  | Medium      | Residential distributor road, with residential accesses and some on-street parking. |

#### Walking, cycling and equestrian users

- 13.46. The network of existing Public Rights of Way (PRoWs) within the study area includes a Bridleway which extends across the length of the site (Havant 120), Staunton Way and Staunton Country Park. There are also footpaths in both north eastern and south western corners of the site. A Bridleway (Havant 123) also follows Park Lane under the A3(M) and links to the Havant 120 Bridleway at a point approximately 700m west of the reservoir. There is an existing access and pedestrian crossing to the Site on the B2149 north of its junction with Mallard Road.
- 13.47. There is also a network of footways bordering the residential access and distributor roads within the vicinity of the Site.
- 13.48. There are two National Cycle Network (NCN) routes near the Site. These are route 222 and 22. To the east, route 22 connects Banstead (near Epsom) and Brockenhurst via Dorking, Guildford, Farnham, Petersfield, Havant, Portsmouth and the Isle of Wight between Ryde and Yarmouth. Route 222 provides a north south link between the sections of route 22 to the west of the Site.
- 13.49. In addition, there are shared use paths on Fitzwygram Way and Middle Park Way, and on road cycle lanes on both sides of Swanmore Road between Middle Park Way and its junction with Sandleford Road.

#### Public transport

- 13.50. The closest existing bus stops to the Site include Pennerly Court bus stop on Swanmore Road and the Durants Gardens bus stop on Durrants Road. The Pennerly Court bus stop is served by the Leigh Park to Southsea Service every 30 Minutes and the Durants Garden bus stop is served by the Rowlands Castle to Emsworth Service four times a day.
- 13.51. Havant Railway Station provides to closest rail connection to the site, situated approximately 2.5 km to the south of the southern access.

#### Collision data

- 13.52. Collision data has been reviewed as part of the Transport Assessment, and is included in Appendix A13.1 Transport Assessment in ES Volume 4. No material concern relating road safety was identified as part of the review.

#### Motor vehicles

- 13.53. The study area contains a mix of A class distributor roads, local distributor roads and local access roads, with varying speed limits across the network. In terms of the potential key routes to and from the site, it is considered that there are a number of routes which would likely be used for either the northern or southern access.
- 13.54. The single-carriageway B2149 runs along the north-eastern boundary of the site where it has a speed limit of 60mph. It provides the main connection between the A3(M) junction 2 in the north and the residential area of Rowlands Castle to the south. It has no residential frontages or footways and is bordered by hedgerow for the section adjacent to the site between the A3 and Rowlands Castle. At Rowlands Castle the speed limit reduces to 30mph, from this point south the B2149 is variously subject to 30mph and 40mph speed limits.
- 13.55. The B2149 connects to Middle Park Way to the south of the site. Middle Park Way functions as a residential distributor road with residential frontages. There are several minor access junctions and roundabouts connecting the route to the residential areas of Leigh Park. Speed control measures are provided on Middle Park Way, which speed limits varying between 20mph and 30mph. The carriageway is bordered by verge, footway and a shared use path (for pedestrians and cyclists).
- 13.56. Purbrook Way forms a local distributor road, which connects to residential areas within Leigh Park and Hulbert Way, and ultimately the A3(M) junctions 3 and 4. Purbrook Way is subject to a speed

limit of 30mph and contains some sections of on-carriageway cycle lane along its length. There are footways bordering both sides of the route and some accesses to residential properties or on-street parking areas.

- 13.57. Swanmore Road / Calshot Road forms a local distributor road, which connects to residential areas. At its south-eastern end, Swanmore Road connects to Middle Park Way via a priority junction. It provides a circular access route to the north connecting with residential dwellings along its length. At its mid-point the road changes its name to Calshot Road. At its south-western end it forms the northern arm of the Fitzwygram Way / Woolston Road Roundabout. There is a continuous footway on the southern side of Swanmore Road / Calshot Road and some access to residential properties or on-street parking areas. The road is subject to a 30mph speed limit across its length with on road cycle lanes on both sides of Swanmore Road between Middle Park Way and its junction with Sandleford Road.
- 13.58. Fitzwygram Way forms an access road to the Dunsbury Park development from the A3(M). Along its length it provides access to the distribution and office developments at Dunsbury Park. At its western end it forms the eastern arm of the Hulbert Road / Fitzwygram Way roundabout. The eastern end of the route is formed by a bus only link approximately 200m in length, which makes up the western arm of the Fitzwygram Way / Woolston Road Roundabout.
- 13.59. The baseline traffic data for all assessed links, including Existing (2020), Construction (2023) and Operational (2029), is summarised in Table 13-6.

**Table 13-6 – Baseline traffic data (AADT, 2020, 2023 and 2029)**

| Road Link reference | Existing (2020) |       | Construction Base (2023) |       | Operation Base (2029) |       |
|---------------------|-----------------|-------|--------------------------|-------|-----------------------|-------|
|                     | All traffic     | HGV % | All traffic              | HGV % | All traffic           | HGV % |
| L1                  | 7371            | 1%    | 7752                     | 1%    | 8270                  | 1%    |
| L2                  | 8281            | 2%    | 8708                     | 2%    | 9290                  | 2%    |
| L3                  | 16980           | 2%    | 17857                    | 2%    | 19050                 | 2%    |
| L4                  | 17053           | 1%    | 17933                    | 1%    | 19132                 | 1%    |
| L5                  | 9108            | 1%    | 9578                     | 1%    | 10218                 | 1%    |
| L6                  | 20479           | 1%    | 21536                    | 1%    | 22975                 | 1%    |
| L7                  | 10413           | 3%    | 10951                    | 3%    | 11683                 | 3%    |
| L8                  | 20357           | 2%    | 21408                    | 2%    | 22839                 | 2%    |
| L9                  | 8434            | 2%    | 8870                     | 2%    | 9463                  | 2%    |
| L10                 | 123             | 0%    | 129                      | 0%    | 138                   | 0%    |
| L11                 | 14440           | 2%    | 15186                    | 2%    | 16201                 | 2%    |
| L12                 | 1260            | 2%    | 1325                     | 2%    | 1414                  | 2%    |
| L13                 | 13822           | 2%    | 14536                    | 2%    | 15507                 | 2%    |
| L14                 | 3182            | 2%    | 3346                     | 2%    | 3570                  | 2%    |
| L15                 | 8967            | 2%    | 9430                     | 2%    | 10060                 | 2%    |
| L16                 | 8714            | 2%    | 9164                     | 2%    | 9776                  | 2%    |
| L17                 | 251             | 9%    | 264                      | 9%    | 281                   | 9%    |
| L18                 | 9354            | 4%    | 9837                     | 4%    | 10495                 | 4%    |
| L19                 | 6242            | 6%    | 6565                     | 6%    | 7003                  | 6%    |
| L20                 | 4131            | 5%    | 4344                     | 5%    | 4634                  | 5%    |

|     |       |    |       |    |       |    |
|-----|-------|----|-------|----|-------|----|
| L21 | 15486 | 2% | 16286 | 2% | 17374 | 2% |
| L22 | 16158 | 2% | 16992 | 2% | 18127 | 2% |
| L23 | 17544 | 2% | 18450 | 2% | 19683 | 2% |
| L24 | 10981 | 1% | 11548 | 1% | 12320 | 1% |
| L25 | 12319 | 2% | 12955 | 2% | 13821 | 2% |
| L26 | 6228  | 1% | 6549  | 1% | 6987  | 1% |
| L27 | 2053  | 1% | 2159  | 1% | 2303  | 1% |
| L28 | 3766  | 4% | 3960  | 4% | 4225  | 4% |
| L29 | 16726 | 1% | 17589 | 1% | 18765 | 1% |
| L30 | 23069 | 2% | 25871 | 2% | 27976 | 2% |
| L31 | 17213 | 1% | 23272 | 1% | 26050 | 1% |
| L32 | 40775 | 2% | 44492 | 2% | 47841 | 2% |
| L33 | 784   | 0% | 825   | 0% | 880   | 0% |
| L34 | 4270  | 2% | 4491  | 2% | 4791  | 2% |
| L35 | 874   | 6% | 919   | 6% | 981   | 6% |
| L36 | 290   | 7% | 1584  | 1% | 1955  | 1% |
| L37 | 0     | 0% | 413   | 0% | 413   | 0% |
| L38 | 572   | 7% | 5439  | 1% | 6933  | 1% |
| L39 | 16    | 0% | 1687  | 0% | 2370  | 0% |
| L40 | 14477 | 2% | 16837 | 2% | 18339 | 2% |
| L41 | 18212 | 2% | 19153 | 2% | 20433 | 2% |
| L42 | 0     | 0% | 0     | 0% | 0     | 0% |
| L43 | 12677 | 3% | 13331 | 3% | 14222 | 3% |
| L44 | 0     | 0% | 0     | 0% | 0     | 0% |
| L45 | 1838  | 0% | 1933  | 0% | 2063  | 0% |
| L46 | 6227  | 3% | 6548  | 3% | 6986  | 3% |
| L47 | 1838  | 0% | 1933  | 0% | 2063  | 0% |
| L48 | 6242  | 6% | 6565  | 6% | 7003  | 6% |
| L49 | 3766  | 4% | 3960  | 4% | 4225  | 4% |
| L50 | 4131  | 5% | 4344  | 5% | 4634  | 5% |
| L51 | 1838  | 0% | 1933  | 0% | 2063  | 0% |
| L52 | 1838  | 0% | 1933  | 0% | 2063  | 0% |
| L53 | 16158 | 2% | 16992 | 2% | 18127 | 2% |

## Potential impacts

- 13.60. The IEMA guidelines set out a list of environmental effects which should be reviewed if scheme traffic is considered to impact on a road link. The potential effects outlined within the IEMA guidelines relevant to this report include:

- Severance;
- Driver delay;
- Pedestrian delay and amenity;
- Accident and safety; and
- Fear and intimidation.

13.61. Where a significant impact is reported in terms of change in traffic flow, further consideration has been given to these effects.

## Design, mitigation and enhancement measures

13.62. The measures set out below relate to both construction and operation of the reservoir, however there is not expected to be any impact from the pipeline during operation. Therefore the measures relevant to the pipeline are listed under construction only.

### Construction

13.63. Due to the nature of the development, which consists of a large excavation and embankment building programme, in addition to a significant length of pipeline being laid, the mitigation of construction impacts has been a key consideration in developing the design.

13.64. In Traffic and Transport terms, the impact of construction traffic has been reduced as far as is reasonably practicable by:

- Development of an OEMP in Appendix A2.1 in ES Volume 4;
- Reviewing construction sequencing to smooth out the 'peak' in construction traffic as far as possible;
- Reviewing construction routes to make use of the principal road network where possible; and
- Reviewing the use of multiple access points to reduce the time period an impact may be experienced by the local population.

### Operation

13.65. In Traffic and Transport terms, the key considerations in design, mitigation and enhancement measures are centred on:

- The access junctions, which are being designed to be compliant with up to date standards and guidance;
- Access Strategy, which includes the provision of two access points defined as a main access and secondary access. This provides flexibility of access opportunities for local visitors, and dilutes the impact of traffic on the local highway network; and
- The Reservoir Outline Plan that accompanies the planning application has been developed to enhance opportunities for active travel to, from and around the Site through the provision of walking, cycling and horse-riding routes.

## Assessment of effects

### Construction

13.66. The assessment of construction traffic, based on the expected construction sequencing, has been undertaken against the reasonable worst case future base year of 2023. The traffic data utilised for the assessment of construction traffic effects is provided within Table 13-7.

**Table 13-7 – Construction traffic assessment (2023 AADT)**

| Road Link reference | Reference Case (2023 AADT) |       | Construction traffic (AADT worst case) |      | Construction Case (2023) |       |
|---------------------|----------------------------|-------|----------------------------------------|------|--------------------------|-------|
|                     | All Traffic                | HGV % | All Traffic vehicles                   | HGVs | All Traffic              | HGV % |
| L1                  | 7752                       | 1%    | 0                                      | 0    | 7752                     | 1%    |
| L2                  | 8708                       | 2%    | 0                                      | 0    | 8708                     | 2%    |
| L3                  | 17857                      | 2%    | 0                                      | 0    | 17857                    | 2%    |
| L4                  | 17933                      | 1%    | 0                                      | 0    | 17933                    | 1%    |
| L5                  | 9578                       | 1%    | 0                                      | 0    | 9578                     | 1%    |
| L6                  | 21536                      | 1%    | 0                                      | 0    | 21536                    | 1%    |
| L7                  | 10951                      | 3%    | 200                                    | 200  | 11151                    | 4%    |
| L8                  | 21408                      | 2%    | 500                                    | 230  | 21908                    | 3%    |
| L9                  | 8870                       | 2%    | 0                                      | 0    | 8870                     | 2%    |
| L10                 | 129                        | 0%    | 0                                      | 0    | 129                      | 0%    |
| L11                 | 15186                      | 2%    | 0                                      | 0    | 15186                    | 2%    |
| L12                 | 1325                       | 2%    | 0                                      | 0    | 1325                     | 2%    |
| L13                 | 14536                      | 2%    | 0                                      | 0    | 14536                    | 2%    |
| L14                 | 3346                       | 2%    | 0                                      | 0    | 3346                     | 2%    |
| L15                 | 9430                       | 2%    | 0                                      | 0    | 9430                     | 2%    |
| L16                 | 9164                       | 2%    | 0                                      | 0    | 9164                     | 2%    |
| L17                 | 264                        | 9%    | 50                                     | 30   | 6598                     | 4%    |
| L18                 | 9837                       | 4%    | 0                                      | 0    | 9837                     | 4%    |
| L19                 | 6565                       | 6%    | 0                                      | 0    | 6565                     | 6%    |
| L20                 | 4344                       | 5%    | 0                                      | 0    | 4344                     | 5%    |
| L21                 | 16286                      | 2%    | 0                                      | 0    | 16286                    | 2%    |
| L22                 | 16992                      | 2%    | 50                                     | 30   | 17042                    | 2%    |
| L23                 | 18450                      | 2%    | 0                                      | 0    | 18450                    | 2%    |
| L24                 | 11548                      | 1%    | 0                                      | 0    | 11548                    | 1%    |
| L25                 | 12955                      | 2%    | 50                                     | 30   | 13005                    | 2%    |
| L26                 | 6549                       | 1%    | 0                                      | 0    | 6549                     | 1%    |
| L27                 | 2159                       | 1%    | 0                                      | 0    | 2159                     | 1%    |
| L28                 | 3960                       | 4%    | 0                                      | 0    | 3960                     | 4%    |
| L29                 | 17589                      | 1%    | 50                                     | 30   | 17639                    | 1%    |
| L30                 | 25871                      | 2%    | 0                                      | 0    | 25871                    | 2%    |
| L31                 | 23272                      | 1%    | 50                                     | 30   | 23322                    | 1%    |
| L32                 | 44492                      | 2%    | 0                                      | 0    | 44492                    | 2%    |

|     |       |    |     |     |       |     |
|-----|-------|----|-----|-----|-------|-----|
| L33 | 825   | 0% | 0   | 0   | 825   | 0%  |
| L34 | 4491  | 2% | 0   | 0   | 4491  | 2%  |
| L35 | 919   | 6% | 0   | 0   | 919   | 6%  |
| L36 | 1584  | 1% | 0   | 0   | 1584  | 1%  |
| L37 | 413   | 0% | 0   | 0   | 413   | 0%  |
| L38 | 5439  | 1% | 0   | 0   | 5439  | 1%  |
| L39 | 1687  | 0% | 0   | 0   | 1687  | 0%  |
| L40 | 16837 | 2% | 50  | 30  | 16887 | 2%  |
| L41 | 19153 | 2% | 50  | 30  | 19203 | 2%  |
| L42 | 0     | 0% | 500 | 230 | 500   | 46% |
| L43 | 13331 | 3% | 500 | 230 | 13831 | 4%  |
| L44 | 0     | 0% | 50  | 30  | 50    | 60% |
| L45 | 1933  | 0% | 50  | 30  | 1983  | 2%  |
| L46 | 6548  | 3% | 50  | 30  | 6598  | 4%  |
| L47 | 1933  | 0% | 50  | 30  | 1983  | 2%  |
| L48 | 6565  | 6% | 50  | 30  | 6615  | 6%  |
| L49 | 3960  | 4% | 50  | 30  | 4010  | 4%  |
| L50 | 4344  | 5% | 50  | 30  | 4394  | 5%  |
| L51 | 1933  | 0% | 50  | 30  | 1983  | 2%  |
| L52 | 1933  | 0% | 50  | 30  | 1983  | 2%  |
| L53 | 16992 | 2% | 50  | 30  | 17042 | 2%  |

13.67. The magnitude of change on each of the assessed road links, related to the construction phase of the development is shown in Table 13-8.

**Table 13-8 – Magnitude of change assessment in relation to construction vehicles (2023 AADT)**

| Road Link reference | Change in traffic (Percentage) |       | Magnitude of change assessment |            |
|---------------------|--------------------------------|-------|--------------------------------|------------|
|                     | All traffic                    | HGV % | All traffic vehicles           | HGVs       |
| L1                  | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L2                  | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L3                  | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L4                  | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L5                  | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L6                  | 0.00%                          | 0.00% | Negligible                     | Negligible |

|     |       |        |            |            |
|-----|-------|--------|------------|------------|
| L7  | 1.83% | 72.59% | Negligible | Medium     |
| L8  | 2.34% | 54.38% | Negligible | Low        |
| L9  | 0.00% | 0.00%  | Negligible | Negligible |
| L10 | 0.00% | 0.00%  | Negligible | Negligible |
| L11 | 0.00% | 0.00%  | Negligible | Negligible |
| L12 | 0.00% | 0.00%  | Negligible | Negligible |
| L13 | 0.00% | 0.00%  | Negligible | Negligible |
| L14 | 0.00% | 0.00%  | Negligible | Negligible |
| L15 | 0.00% | 0.00%  | Negligible | Negligible |
| L16 | 0.00% | 0.00%  | Negligible | Negligible |
| L17 | 0.76% | 14.62% | Negligible | Negligible |
| L18 | 0.00% | 0.00%  | Negligible | Negligible |
| L19 | 0.00% | 0.00%  | Negligible | Negligible |
| L20 | 0.00% | 0.00%  | Negligible | Negligible |
| L21 | 0.00% | 0.00%  | Negligible | Negligible |
| L22 | 0.29% | 9.31%  | Negligible | Negligible |
| L23 | 0.00% | 0.00%  | Negligible | Negligible |
| L24 | 0.00% | 0.00%  | Negligible | Negligible |
| L25 | 0.39% | 15.03% | Negligible | Negligible |
| L26 | 0.00% | 0.00%  | Negligible | Negligible |
| L27 | 0.00% | 0.00%  | Negligible | Negligible |
| L28 | 0.00% | 0.00%  | Negligible | Negligible |
| L29 | 0.28% | 14.63% | Negligible | Negligible |
| L30 | 0.00% | 0.00%  | Negligible | Negligible |
| L31 | 0.21% | 12.32% | Negligible | Negligible |
| L32 | 0.00% | 0.00%  | Negligible | Negligible |
| L33 | 0.00% | 0.00%  | Negligible | Negligible |
| L34 | 0.00% | 0.00%  | Negligible | Negligible |
| L35 | 0.00% | 0.00%  | Negligible | Negligible |
| L36 | 0.00% | 0.00%  | Negligible | Negligible |

|     |       |        |            |            |
|-----|-------|--------|------------|------------|
| L37 | 0.00% | 0.00%  | Negligible | Negligible |
| L38 | 0.00% | 0.00%  | Negligible | Negligible |
| L39 | 0.00% | 0.00%  | Negligible | Negligible |
| L40 | 0.30% | 8.67%  | Negligible | Negligible |
| L41 | 0.26% | 9.75%  | Negligible | Negligible |
| L42 | N/A   | N/A    | Negligible | Negligible |
| L43 | 3.75% | 62.27% | Negligible | Medium     |
| L44 | N/A   | N/A    | Negligible | Negligible |
| L45 | 2.59% | - *    | Negligible | - *        |
| L46 | 0.76% | 14.62% | Negligible | Negligible |
| L47 | 2.59% | - *    | Negligible | - *        |
| L48 | 0.76% | 7.06%  | Negligible | Negligible |
| L49 | 1.26% | 20.22% | Negligible | Negligible |
| L50 | 1.15% | 12.79% | Negligible | Negligible |
| L51 | 2.59% | - *    | Negligible | Negligible |
| L52 | 2.59% | - *    | Negligible | Negligible |
| L53 | 0.29% | 9.31%  | Negligible | Negligible |

\*There are no HGVs recorded on these road links, and therefore a magnitude of change percentage cannot be derived. A qualitative review of the HGV impact on these links has therefore been undertaken.

13.68. A summary of the significance of potential effects on each road link, relating to the construction phase of the development, with reference to the significance criteria matrix (Table 13-4) is provided in Table 13-9. The reasonable worst case results for either 'All traffic' or HGVs have been presented for each assessed link. It should be noted that these would be temporary, for the duration of part of the construction period.

**Table 13-9 – Significance of Traffic and Transport effects in relation to construction vehicles**

| Road Link reference | Sensitivity | Magnitude of change (worst case) | Significance of effect |
|---------------------|-------------|----------------------------------|------------------------|
| L1                  | Medium      | Negligible                       | Negligible             |
| L2                  | Medium      | Negligible                       | Negligible             |
| L3                  | Medium      | Negligible                       | Negligible             |
| L4                  | Negligible  | Negligible                       | Negligible             |
| L5                  | Negligible  | Negligible                       | Negligible             |
| L6                  | Negligible  | Negligible                       | Negligible             |

|     |             |            |            |
|-----|-------------|------------|------------|
| L7  | Negligible  | Medium     | Negligible |
| L8  | Negligible  | Small      | Negligible |
| L9  | Low         | Negligible | Negligible |
| L10 | Low         | Negligible | Negligible |
| L11 | Negligible  | Negligible | Negligible |
| L12 | Medium      | Negligible | Negligible |
| L13 | Low         | Negligible | Negligible |
| L14 | Medium      | Negligible | Negligible |
| L15 | Medium      | Negligible | Negligible |
| L16 | Medium      | Negligible | Negligible |
| L17 | Medium      | Negligible | Negligible |
| L18 | Negligible  | Negligible | Negligible |
| L19 | Medium      | Negligible | Negligible |
| L20 | Medium      | Negligible | Negligible |
| L21 | Medium      | Negligible | Negligible |
| L22 | Medium      | Negligible | Negligible |
| L23 | Negligible  | Negligible | Negligible |
| L24 | Negligible  | Negligible | Negligible |
| L25 | Negligible  | Negligible | Negligible |
| L26 | High        | Negligible | Negligible |
| L27 | Medium      | Negligible | Negligible |
| L28 | Medium      | Negligible | Negligible |
| L29 | Medium/High | Negligible | Negligible |
| L30 | Negligible  | Negligible | Negligible |
| L31 | Negligible  | Negligible | Negligible |
| L32 | Negligible  | Negligible | Negligible |
| L33 | High        | Negligible | Negligible |
| L34 | Medium      | Negligible | Negligible |
| L35 | Medium      | Negligible | Negligible |
| L36 | High        | Negligible | Negligible |

|     |            |            |            |
|-----|------------|------------|------------|
| L37 | Negligible | Negligible | Negligible |
| L38 | Negligible | Negligible | Negligible |
| L39 | Negligible | Negligible | Negligible |
| L40 | Negligible | Negligible | Negligible |
| L41 | Negligible | Negligible | Negligible |
| L42 | N/A        | Negligible | Negligible |
| L43 | Negligible | Medium     | Negligible |
| L44 | N/A        | Negligible | Negligible |
| L45 | High       | _ *        | _ *        |
| L46 | Medium     | Negligible | Negligible |
| L47 | High       | _ *        | _ *        |
| L48 | High       | Negligible | Negligible |
| L49 | Medium     | Negligible | Negligible |
| L50 | High       | Negligible | Negligible |
| L51 | High       | Negligible | Negligible |
| L52 | High       | Negligible | Negligible |
| L53 | Medium     | Negligible | Negligible |

- 13.69. As Table 13-9 shows, there are not expected to be any significant effects from Traffic and Transport, in relation to the construction of the reservoir and embankment when considering the magnitude of change in traffic.
- 13.70. However, as stated within Table 13-8 some of the local roads do not typically accommodate HGVs and therefore the magnitude of change assessment cannot record a percentage change. Therefore, on these local roads, a qualitative review has been undertaken as summarised within Table 13-10.

**Table 13-10 – Review of construction traffic effects on roads with no existing HGV traffic**

| Road Link reference | Road Link sensitivity | Significance of effect | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------|-----------------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| L45                 | High                  | Minor                  | Whilst there is no prescribed volume of HGVs that would be termed 'significant' in environmental assessment terms, assessments of other large infrastructure projects (such as Crossrail and HS2) generally considered that a significant effect in urban areas could arise where the increase in greater than 40 vehicles a day. Although it is acknowledged that any increase in HGVs may be perceptible to local residents in the setting where none are currently observed, the number of HGVs across the day, 15 HGVs in each direction, equates to one HGV every 30 minutes. This number is not considered significant. |
| L47                 | High                  | Minor                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| L51                 | High                  | Minor                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| L52                 | High                  | Minor                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

#### Additional pipeline considerations

- 13.71. In addition to the cumulative change in traffic from both the pipeline and the reservoir site assessed above, consideration has been given to the potential temporary impacts associated with construction of the pipeline in relation to traffic management and / or temporary road closures. Full construction methodology will be the subject of on-going discussion with the relevant authorities including HCC and Highways England, and will be agreed through the appointed contractor's detailed CMP.
- 13.72. As stated in the methodology section, a diversion may be considered significant in environmental assessment terms where it is in place for more than four consecutive weeks in any 12 month period and leads to a journey length increase of more than one km.
- 13.73. As part of the construction of the pipeline and culvert improvement works, there would likely be night-time only partial closures of the following roads:
- Middle Park Way;
  - Dunsbury Way (for the installation of a culvert);
  - Bedhampton Road;
  - Botley Drive;
  - Riders Lane;
  - Barncroft Way; and
  - Purbrook Way.
- 13.74. The road closures, to allow the pipeline to cross the road, would be undertaken during night-time only for two consecutive nights, and would not therefore result in any significant effects relating to Traffic and Transport.
- 13.75. There may be temporary full or partial road closures of:
- Ellisfield Road;
  - Highclere Avenue;
  - Dunsbury Way;
  - High Lawn Way;
  - Fraser Road;
  - North Street; and
  - Chadswell Meadow.

**Table 13-11 – Review of road closure impacts**

| Road name        | Duration           | Significance of effect | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------|--------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| High Lawn Way    | 27 weeks           | Minor                  | It is likely that the closure of High Lawn Way would be a partial road closure with no requirement for a diversion. However, consideration has been given to full road closures, and the presence of a key receptor (i.e. an education establishment) along its route. It is anticipated that a full closure would be undertaken in a number of tranches to be coordinated as part of the overarching traffic management plan. It is expected that each tranche would be for a period of less than four consecutive weeks, with diversions being available on roads such as Foxcott Grove, Somborn Drive, Broadmere Avenue and Stockheath Road, all being less than one km in length. Therefore overall, a minor significant effect is reported for the full length of High Lawn Way. |
| Dunsbury Way     | Two weeks          | Minor                  | The potential road closure at Dunsbury Way is expected to be for a duration of two weeks, however the potential diversion route using Riders Lane and Purbrook Way could be close to one km in length, and therefore a minor significant effect is being reported.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Ellisfield Road  | Combined six weeks | Minor                  | The potential road closure at Ellisfield Road is anticipated to be undertaken in three tranches, with a combined duration of up to six weeks. However, each individual closure is expected to be less than four consecutive weeks in duration, and a diversion via Blackdown Crescent, Purbrook Way or Dunsbury Way, with the length of diversion being less than one km. Therefore, whilst a significant effect is noted, it is considered that it would be minor in its significance.                                                                                                                                                                                                                                                                                               |
| Highclere Avenue | Combined 10 weeks  | Minor                  | The potential road closure Highclere Avenue is anticipated to be undertaken over the course of 10 weeks. However, a diversion route would be available via Botley Drive or Eversley Crescent, Riders lane and Purbrook Way, with the length of diversion being less than one km. Therefore, it is considered that there would potentially be a minor significant effect.                                                                                                                                                                                                                                                                                                                                                                                                              |

| Road name        | Duration          | Significance of effect | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------|-------------------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fraser Road      | Combined 11 weeks | Minor                  | The potential road closure at Fraser Road is anticipated to be undertaken in three tranches, with a combined duration of up to 11 weeks. However, two individual closures are expected to be less than four consecutive weeks in duration, with one being for five weeks. Fraser Road does not form a through route, with it forming a local access road to residential properties, with a turning head provided at the eastern end. Diversions are available via James Road, Stockheath Lane, Barncroft Way and Woodgreen Avenue, which would be just over one km in length. There could also be potential to use Hook's Lane and Hook's Farm Way to access Barncroft Way. Whilst the diversion may be just beyond one km, and close to an educational establishment, each single diversion would be short term in duration. Therefore, the significance of the effect is considered minor. |
| North Street     | Two weeks         | Negligible             | North Street forms a small cul-de-sac, with access to residential properties. The closure of North Street is expected to be for a duration of two weeks, with no diversion necessary for vehicular traffic. Access for pedestrians to residential properties would be retained.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Chadswell Meadow | Six weeks         | Minor                  | Chadswell Meadow forms a local access route to residential properties. The closure of Chadswell Meadow is expected to be for a duration of six weeks, with no diversion available for vehicular traffic. Access for pedestrians to residential properties would be retained, however due to the lack of diversion route a significant effect is expected for a short period of time. Due to the number of vehicles likely using this route, and the short duration, the significance of the effect is considered minor.                                                                                                                                                                                                                                                                                                                                                                      |

## Public Rights of Way

### *Reservoir site and access roads*

- 13.76. As part of the construction of the reservoir, there would be a permanent severing of the Bridleway running east to west (Havant 120). The Bridleway would be diverted to the north of the location of the reservoir, before reconnecting back with the existing Bridleway at Havant 120. Reference has been made to the environmental assessment of other large infrastructure projects to determine the potential effect of a PRow diversion, with consideration given to the length of the diversion and the number of users. The length of the diversion is up to 1.2 km, and surveys undertaken by Portsmouth Water suggest there are typically less than 200 users on a summer weekend across the day. Whilst a potential increase in route length of 1.2 km could increase journey time to a level that leads to a significant effect for users seeking to use the full east to west route, due to the leisure nature of the route and the relatively low usage, it is considered that the significance of the effect is minor in environmental assessment terms.
- 13.77. In addition, there would be a partial severing of the informal footpath running north – south along The Avenue to the Upper Lake. However due to the low number of users (less than 200 a day)

using this informal footpath, this partial severing is not considered significant in environmental terms.

### Pipeline

- 13.78. For construction of the pipeline, there would be a temporary diversion of the footpath running through Hawthorn Walk, for a period of up to eight weeks. The temporary diversion would be to the opposite side of the adjacent waterway, following a consistent path through the area of green space. Therefore, the diversion would not add a material distance onto the footpath and there is not considered to be a significant effect relating to Traffic and Transport.
- 13.79. There would also be a temporary diversion of the footpath running through the green space between Barncroft Way and Purbrook Way, for a period of up to 21 weeks. The temporary diversion would be to the opposite side of the adjacent waterway, following a consistent path through the green area. Therefore, the diversion would not add a material distance onto the footpath and there is not considered to be a significant effect relating to Traffic and Transport.

### Operation

- 13.80. The assessment of operation traffic, based on the expected operation sequencing, has been undertaken against the future base year of 2029, the earliest point that the visitor centre is expected to be open. It should be noted that the assessment of effects during operation of the scheme is only relevant to the reservoir site, as there would be no traffic generated by the pipeline during operation. The traffic data utilised for the assessment of operation traffic effects is provided within Table 13-12.

**Table 13-12 – Operation traffic assessment (2029 AADT)**

| Road Link reference | Reference Case (2029 AADT) |       | Operation traffic (AADT) |      | Operation Case (2029) |       |
|---------------------|----------------------------|-------|--------------------------|------|-----------------------|-------|
|                     | All traffic                | HGV % | All traffic vehicles     | HGVs | All traffic           | HGV % |
| L1                  | 8270                       | 1%    | 0                        | 0    | 8270                  | 1%    |
| L2                  | 9290                       | 2%    | 0                        | 0    | 9290                  | 2%    |
| L3                  | 19050                      | 2%    | 0                        | 0    | 19050                 | 2%    |
| L4                  | 19132                      | 1%    | 0                        | 0    | 19132                 | 1%    |
| L5                  | 10218                      | 1%    | 0                        | 0    | 10218                 | 1%    |
| L6                  | 22975                      | 1%    | 0                        | 0    | 22975                 | 1%    |
| L7                  | 11683                      | 3%    | 91                       | 0    | 11774                 | 2%    |
| L8                  | 22839                      | 2%    | 318                      | 0    | 23157                 | 2%    |
| L9                  | 9463                       | 2%    | 0                        | 0    | 9463                  | 2%    |
| L10                 | 138                        | 0%    | 0                        | 0    | 138                   | 0%    |
| L11                 | 16201                      | 2%    | 13                       | 0    | 16214                 | 2%    |
| L12                 | 1414                       | 2%    | 0                        | 0    | 1414                  | 2%    |
| L13                 | 15507                      | 2%    | 13                       | 0    | 15521                 | 2%    |
| L14                 | 3570                       | 2%    | 0                        | 0    | 3570                  | 2%    |
| L15                 | 10060                      | 2%    | 0                        | 0    | 10060                 | 2%    |
| L16                 | 9776                       | 2%    | 13                       | 0    | 9789                  | 2%    |
| L17                 | 6986                       | 3%    | 0                        | 0    | 6986                  | 3%    |
| L18                 | 10495                      | 4%    | 0                        | 0    | 10495                 | 4%    |

|     |       |    |     |   |       |    |
|-----|-------|----|-----|---|-------|----|
| L19 | 7003  | 6% | 0   | 0 | 7003  | 6% |
| L20 | 4634  | 5% | 82  | 0 | 4717  | 5% |
| L21 | 17374 | 2% | 0   | 0 | 17374 | 2% |
| L22 | 18127 | 2% | 165 | 0 | 18292 | 2% |
| L23 | 19683 | 2% | 140 | 0 | 19823 | 2% |
| L24 | 12320 | 1% | 0   | 0 | 12320 | 1% |
| L25 | 13821 | 2% | 70  | 0 | 13891 | 2% |
| L26 | 6987  | 1% | 0   | 0 | 6987  | 1% |
| L27 | 2303  | 1% | 0   | 0 | 2303  | 1% |
| L28 | 4225  | 4% | 0   | 0 | 4225  | 4% |
| L29 | 18765 | 1% | 24  | 0 | 18789 | 1% |
| L30 | 27976 | 2% | 0   | 0 | 27976 | 2% |
| L31 | 26050 | 1% | 23  | 0 | 26073 | 1% |
| L32 | 47841 | 2% | 21  | 0 | 47862 | 2% |
| L33 | 880   | 0% | 0   | 0 | 880   | 0% |
| L34 | 4791  | 2% | 0   | 0 | 4791  | 2% |
| L35 | 981   | 6% | 0   | 0 | 981   | 6% |
| L36 | 1955  | 1% | 0   | 0 | 1955  | 1% |
| L37 | 413   | 0% | 0   | 0 | 413   | 0% |
| L38 | 6933  | 1% | 0   | 0 | 6933  | 1% |
| L39 | 2370  | 0% | 0   | 0 | 2370  | 0% |
| L40 | 18339 | 2% | 0   | 0 | 18339 | 2% |
| L41 | 20433 | 2% | 227 | 0 | 20660 | 2% |
| L42 | 0     | 0% | 331 | 0 | 331   | 0% |
| L43 | 14222 | 3% | 318 | 0 | 14540 | 3% |
| L44 | 0     | 0% | 173 | 0 | 173   | 0% |
| L45 | 2063  | 0% | 171 | 0 | 2233  | 0% |
| L46 | 6986  | 3% | 165 | 0 | 7151  | 3% |
| L47 | 2063  | 0% | 0   | 0 | 2233  | 0% |
| L48 | 7003  | 6% | 0   | 0 | 7003  | 6% |
| L49 | 4225  | 4% | 0   | 0 | 4225  | 4% |
| L50 | 4634  | 5% | 0   | 0 | 4717  | 5% |
| L51 | 2063  | 0% | 0   | 0 | 2233  | 0% |
| L52 | 2063  | 0% | 0   | 0 | 2233  | 0% |
| L53 | 18127 | 2% | 0   | 0 | 18292 | 2% |

13.81. The magnitude of change on each of the assessed road links, related to the operation phase of the development is shown in Table 13-13.

**Table 13-13 – Magnitude of change assessment in relation to operation vehicles (2023 AADT)**

| Road Link reference | Change in traffic (percentage) |       | Magnitude of change assessment |            |
|---------------------|--------------------------------|-------|--------------------------------|------------|
|                     | All traffic                    | HGV % | All traffic vehicles           | HGVs       |
| L1                  | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L2                  | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L3                  | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L4                  | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L5                  | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L6                  | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L7                  | 0.78%                          | 0.00% | Negligible                     | Negligible |
| L8                  | 1.39%                          | 0.00% | Negligible                     | Negligible |
| L9                  | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L10                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L11                 | 0.08%                          | 0.00% | Negligible                     | Negligible |
| L12                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L13                 | 0.08%                          | 0.00% | Negligible                     | Negligible |
| L14                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L15                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L16                 | 0.13%                          | 0.00% | Negligible                     | Negligible |
| L17                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L18                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L19                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L20                 | 1.78%                          | 0.00% | Negligible                     | Negligible |
| L21                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L22                 | 0.91%                          | 0.00% | Negligible                     | Negligible |
| L23                 | 0.71%                          | 0.00% | Negligible                     | Negligible |
| L24                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L25                 | 0.51%                          | 0.00% | Negligible                     | Negligible |
| L26                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L27                 | 0.00%                          | 0.00% | Negligible                     | Negligible |

| Road Link reference | Change in traffic (percentage) |       | Magnitude of change assessment |            |
|---------------------|--------------------------------|-------|--------------------------------|------------|
|                     | All traffic                    | HGV % | All traffic vehicles           | HGVs       |
| L28                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L29                 | 0.13%                          | 0.00% | Negligible                     | Negligible |
| L30                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L31                 | 0.09%                          | 0.00% | Negligible                     | Negligible |
| L32                 | 0.04%                          | 0.00% | Negligible                     | Negligible |
| L33                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L34                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L35                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L36                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L37                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L38                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L39                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L40                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L41                 | 1.11%                          | 0.00% | Negligible                     | Negligible |
| L42                 | N/A                            | N/A   | Negligible                     | Negligible |
| L43                 | 2.24%                          | 0.00% | Negligible                     | Negligible |
| L44                 | N/A                            | N/A   | Negligible                     | Negligible |
| L45                 | 8.28%                          | 0.00% | Negligible                     | Negligible |
| L46                 | 2.36%                          | 0.00% | Negligible                     | Negligible |
| L47                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L48                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L49                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L50                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L51                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L52                 | 0.00%                          | 0.00% | Negligible                     | Negligible |
| L53                 | 0.00%                          | 0.00% | Negligible                     | Negligible |

13.82. A summary of the significance of potential effects on each road link, relating to the operation phase of the development, with reference to the significance criteria matrix (Table 13-4) is provided in

Table 13-14. The reasonable worst case results for either 'All traffic' or HGVs have been presented for each assessed link.

**Table 13-14 – Significance of Traffic and Transport effects in relation to operation vehicles**

| Road Link reference | Sensitivity | Magnitude of change (worst case) | Significance of effect |
|---------------------|-------------|----------------------------------|------------------------|
| L1                  | Medium      | Negligible                       | Negligible             |
| L2                  | Medium      | Negligible                       | Negligible             |
| L3                  | Medium      | Negligible                       | Negligible             |
| L4                  | Negligible  | Negligible                       | Negligible             |
| L5                  | Negligible  | Negligible                       | Negligible             |
| L6                  | Negligible  | Negligible                       | Negligible             |
| L7                  | Negligible  | Negligible                       | Negligible             |
| L8                  | Negligible  | Negligible                       | Negligible             |
| L9                  | Low         | Negligible                       | Negligible             |
| L10                 | Low         | Negligible                       | Negligible             |
| L11                 | Negligible  | Negligible                       | Negligible             |
| L12                 | Medium      | Negligible                       | Negligible             |
| L13                 | Low         | Negligible                       | Negligible             |
| L14                 | Medium      | Negligible                       | Negligible             |
| L15                 | Medium      | Negligible                       | Negligible             |
| L16                 | Medium      | Negligible                       | Negligible             |
| L17                 | Medium      | Negligible                       | Negligible             |
| L18                 | Negligible  | Negligible                       | Negligible             |
| L19                 | Medium      | Negligible                       | Negligible             |
| L20                 | Medium      | Negligible                       | Negligible             |
| L21                 | Medium      | Negligible                       | Negligible             |
| L22                 | Medium      | Negligible                       | Negligible             |
| L23                 | Negligible  | Negligible                       | Negligible             |
| L24                 | Negligible  | Negligible                       | Negligible             |
| L25                 | Negligible  | Negligible                       | Negligible             |
| L26                 | High        | Negligible                       | Negligible             |

| Road Link reference | Sensitivity | Magnitude of change (worst case) | Significance of effect |
|---------------------|-------------|----------------------------------|------------------------|
| L27                 | Medium      | Negligible                       | Negligible             |
| L28                 | Medium      | Negligible                       | Negligible             |
| L29                 | Medium/High | Negligible                       | Negligible             |
| L30                 | Negligible  | Negligible                       | Negligible             |
| L31                 | Negligible  | Negligible                       | Negligible             |
| L32                 | Negligible  | Negligible                       | Negligible             |
| L33                 | High        | Negligible                       | Negligible             |
| L34                 | Medium      | Negligible                       | Negligible             |
| L35                 | Medium      | Negligible                       | Negligible             |
| L36                 | High        | Negligible                       | Negligible             |
| L37                 | Negligible  | Negligible                       | Negligible             |
| L38                 | Negligible  | Negligible                       | Negligible             |
| L39                 | Negligible  | Negligible                       | Negligible             |
| L40                 | Negligible  | Negligible                       | Negligible             |
| L41                 | Negligible  | Negligible                       | Negligible             |
| L42                 | N/A         | Negligible                       | Negligible             |
| L43                 | Negligible  | Negligible                       | Negligible             |
| L44                 | N/A         | Negligible                       | Negligible             |
| L45                 | High        | Negligible                       | Negligible             |
| L46                 | Medium      | Negligible                       | Negligible             |
| L47                 | High        | Negligible                       | Negligible             |
| L48                 | High        | Negligible                       | Negligible             |
| L49                 | Medium      | Negligible                       | Negligible             |
| L50                 | High        | Negligible                       | Negligible             |
| L51                 | High        | Negligible                       | Negligible             |
| L52                 | High        | Negligible                       | Negligible             |
| L53                 | Medium      | Negligible                       | Negligible             |

- 13.83. As shown within Table 13-14, the assessment of visitor traffic indicates that there would be no significant effects in relation to Traffic and Transport, resulting from the operation of the development.
- 13.84. As discussed in paragraph 13.76, as part of the construction of the reservoir, there would be a permanent severing of the Bridleway running east to west (Havant 120). During operation, the diversion referred to in paragraph 13.76 would be retained as a permissive route, with a new permanent Bridleway provided to the south of the reservoir, connecting to the permissive route to create a new circular path. It is considered that this would enhance the active travel route through and around the site, providing a beneficial effect for active travel and equestrian users.
- 13.85. In addition, there would be a permanent severing of the informal footpath running north – south along The Avenue to the Upper Lake, however the access to the remaining section of the footpath would continue up to the new Avenue Staircase feature, connecting to the circular route referred to above. It is considered that this would enhance the active travel route through and around the site from the south, providing a beneficial effect for active travel in the leisure context.

## Monitoring

- 13.86. The monitoring of impacts in transport terms will be carried out across both construction and operation of the development. During construction the movement of HGV traffic will be closely monitored with reference to the REAC in OEMP in Appendix A2.1 in ES Volume 4, and subsequent appointed contractor's CEMP, which will set out the intended construction programme and sequencing. The REAC as part of the OEMP in Appendix A2.1 in ES Volume 4 will be updated as the design becomes fixed, and appointed contractors will be bound to the construction movements set out within the final management plan.
- 13.87. Portsmouth Water will develop a detailed Travel Plan once the site is open and operational, which will seek to minimise the proportion of visitors using single occupancy car trips and maximise opportunities for attracting visitors on sustainable modes of travel. As part of the Travel Plan, annual monitoring of visitors' travel patterns will be recorded, in terms of how they travel to and from the site. The planning application includes a framework for monitoring the coordination and success of the document in achieving the targeted increase in sustainable travel. The monitoring framework includes tools for implementing a set of remedial sustainable travel initiatives if the targets are not being achieved.
- 13.88. The provision of a Travel Plan is considered to be an adequate tool for future monitoring of the Proposed Development in transport terms.

## Summary

- 13.89. This chapter has assessed the potential impacts and effects of the reservoir site and access roads, and pipeline in Traffic and Transport terms, during both construction and operation.
- 13.90. The assessment has been informed by a programme of traffic surveys, and discussion with the relevant highway authority to determine a suitable assessment methodology. Consideration has been given to the impact of the change in traffic flow on the local highway network, in addition to the effects of temporary or permanent highway or PRoW closures.
- 13.91. The review of potential effects indicates that during construction of the reservoir site and access roads, and pipeline in combination, there would be effects on some road links, due to either the increase in HGV traffic (in the case of the reservoir site and access roads) or temporary closures of highway or PRoW (in the case of the reservoir site and access roads, and pipeline). However, these effects would be generally minor in nature, and for a temporary period only so have been assessed as not significant. The REAC as part of the OEMP in Appendix A2.1 in ES Volume 4 will seek to minimise the effects of construction traffic as far as is reasonably practical.
- 13.92. During operation, the review of impacts indicates that there would be no significant effects in relation to Traffic and Transport.



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