



South East Strategic Reservoir Option
Preliminary Environmental Information Report

Appendix 13.4 - Preliminary assessment of effects for Air quality

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1 Appendix 13.4: Preliminary assessment of effects

1.1 Introduction

- 1.1.1 This appendix sets out the preliminary assessment of effects for air quality, receptor by receptor, for the construction and operation stages respectively. The appendix is split into tables that list effects that are initially anticipated to be significant and tables that list effects that are not initially anticipated to be significant. The judgement of significance has been made assuming that embedded design mitigation and standard good practice mitigation relevant to air quality is applied (these are summarised in this appendix with further detail provided in the Draft commitments register in Appendix 2.2). Nevertheless, the assessment assumes that additional mitigation is not applied, as the viability, nature and extent of any additional mitigation measures is not confirmed at this stage in the EIA process. As a result, consideration of residual effects (those that remain after the implementation of all mitigation, including additional mitigation) has not been completed for the PEI report.
- 1.1.2 Each receptor assessed for this aspect in the preliminary assessment is listed in the 'Baseline conditions' section of the associated PEI Report chapter, and also within the tables in this appendix. Each receptor has been assigned an Area ID which relates to the spatial extent of the receptor assessed. Where these have been spatially defined for the PEI Report, these are shown in figures cross-referenced from the 'Baseline conditions' section.
- 1.1.3 Each effect assessed has been assigned a unique identifier, the Effect ID.
- 1.1.4 The tables identify the following for each effect:
- Receptor name, Effect ID and sensitivity category
 - Project components and activities giving rise to the effect
 - Relevant embedded design mitigation and standard good practice mitigation (with unique Commitment ID, which relates to Appendix 2.2: Draft commitments register)
 - Magnitude of impact category and narrative (if reported)
 - Initial category of effect significance, including whether it is adverse, beneficial or neutral (taking account of embedded design mitigation and standard good practice measures)
 - Description and duration of the effect
 - Any additional mitigation and monitoring identified at this stage (with unique Commitment ID, to enable cross reference to the measures noted in Section 13.10: Next steps of applicable aspect chapters).

1.2 Likely not significant construction effects

Table 1.1 Initial likely non-significant effects during construction (with embedded and standard good practice mitigation applied, but prior to additional mitigation)

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Magnitude of impact category and commentary	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
22 Crane Avenue (H03) [AQ-10] (High)	Most / all project components	Most / all project activities (construction)	(ED-04) Design the Project to reduce the need to import material as far as practicable. (ED-05) Use of rail to transport bulk construction materials, if practicable. (SGP-24) Standard good practice measures for reducing vehicle, plant and machinery emissions.	Small <10% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from construction traffic: Vehicle exhaust emissions from increased traffic, particularly heavy vehicles, during the construction phase (Long-term)	No additional mitigation required as the effect is not significant.
97 Steventon Road (H04) [AQ-11] (High)	Most / all project components	Most / all project activities (construction)	(ED-04) Design the Project to reduce the need to import material as far as practicable. (ED-05) Use of rail to transport bulk construction materials, if practicable. (SGP-24) Standard good practice measures for reducing vehicle, plant and machinery emissions.	Small <10% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from construction traffic: Vehicle exhaust emissions from increased traffic, particularly heavy vehicles, during the construction phase (Long-term)	No additional mitigation required as the effect is not significant.
28 Mackenzie Avenue (H05) [AQ-14] (High)	Most / all project components	Most / all project activities (construction)	(ED-04) Design the Project to reduce the need to import material as far as practicable. (ED-05) Use of rail to transport bulk construction materials, if practicable. (SGP-24) Standard good practice measures for reducing vehicle, plant and machinery emissions.	Small <10% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from construction traffic: Vehicle exhaust emissions from increased traffic, particularly heavy vehicles, during the construction phase (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Magnitude of impact category and commentary	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
50 Frilford Road (H06) [AQ-16] (High)	Most / all project components	Most / all project activities (construction)	(ED-04) Design the Project to reduce the need to import material as far as practicable. (ED-05) Use of rail to transport bulk construction materials, if practicable. (SGP-24) Standard good practice measures for reducing vehicle, plant and machinery emissions.	Negligible <5% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from construction traffic: Vehicle exhaust emissions from increased traffic, particularly heavy vehicles, during the construction phase (Long-term)	No additional mitigation required as the effect is not significant.
Pedestrian/Cycle link (A415 Marcham Rd) (H07) [AQ-18] (Moderate)	Most / all project components	Most / all project activities (construction)	(ED-04) Design the Project to reduce the need to import material as far as practicable. (ED-05) Use of rail to transport bulk construction materials, if practicable. (SGP-24) Standard good practice measures for reducing vehicle, plant and machinery emissions.	Small <10% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from construction traffic: Vehicle exhaust emissions from increased traffic, particularly heavy vehicles, during the construction phase (Long-term)	No additional mitigation required as the effect is not significant.
Marcham Road north (H08) [AQ-21] (Moderate)	Most / all project components	Most / all project activities (construction)	(ED-04) Design the Project to reduce the need to import material as far as practicable. (ED-05) Use of rail to transport bulk construction materials, if practicable. (SGP-24) Standard good practice measures for reducing vehicle, plant and machinery emissions.	Small <10% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from construction traffic: Vehicle exhaust emissions from increased traffic, particularly heavy vehicles, during the construction phase (Long-term)	No additional mitigation required as the effect is not significant.
Pedestrian/Cycle link (Southern site access) (H09) [AQ-23] (Moderate)	Most / all project components	Most / all project activities (construction)	(ED-04) Design the Project to reduce the need to import material as far as practicable.	Small <10% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from construction traffic: Vehicle exhaust emissions from increased traffic, particularly heavy	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Magnitude of impact category and commentary	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-05) Use of rail to transport bulk construction materials, if practicable. (SGP-24) Standard good practice measures for reducing vehicle, plant and machinery emissions.			vehicles, during the construction phase (Long-term)	
98 Westminster Way (H10) [AQ-25] (High)	Most / all project components	Most / all project activities (construction)	(ED-04) Design the Project to reduce the need to import material as far as practicable. (ED-05) Use of rail to transport bulk construction materials, if practicable. (SGP-24) Standard good practice measures for reducing vehicle, plant and machinery emissions.	Negligible <5% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from construction traffic: Vehicle exhaust emissions from increased traffic, particularly heavy vehicles, during the construction phase (Long-term)	No additional mitigation required as the effect is not significant.
Residential receptors within 250m of the draft Order limits [AQ-6] (High)	Most / all project components	Most / all project activities (construction)	(ED-04) Design the Project to reduce the need to import material as far as practicable. (ED-05) Use of rail to transport bulk construction materials, if practicable. (SGP-21) On-site Construction Traffic Management Measures. (SGP-22) Standard good practice measures for road cleanliness. (SGP-23) Standard good practice dust mitigation measures. (SGP-24) Standard good practice measures for reducing vehicle, plant	Large The anticipated dust-generating activities have been categorised into demolition, earthworks, construction and trackout activities, in line with the IAQM dust assessment guidance. Based on the current available construction assumptions and parameters, the dust emission magnitudes are considered to be large for demolition, earthworks, construction and trackout. Taking into consideration the dust emission magnitude and the receptor sensitivity to dust soiling and human health impacts, the assessed risk level of potential dust impacts are considered high risks. However, with the implementation of standard good practice committed to the Project, impacts would be reduced to negligible level, and therefore	Not Significant Adverse	Construction dust: Dust emissions from dust-generating activities during construction phase include demolition, earthworks, construction and trackout. Potential effects from the dust-generating activities include dust soiling effects on people and property and human health impacts. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Magnitude of impact category and commentary	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			and machinery emissions.	effects would consider to be not significant.			
Marcham Salt Spring Local Wildlife Sites (E01) [AQ-30] (Low)	Most / all project components	Most / all project activities (construction)	(ED-04) Design the Project to reduce the need to import material as far as practicable. (ED-05) Use of rail to transport bulk construction materials, if practicable. (SGP-21) On-site Construction Traffic Management Measures. (SGP-22) Standard good practice measures for road cleanliness. (SGP-23) Standard good practice dust mitigation measures. (SGP-24) Standard good practice measures for reducing vehicle, plant and machinery emissions.	Large The anticipated dust-generating activities have been categorised into demolition, earthworks, construction and trackout activities, in line with the IAQM dust assessment guidance. Based on the current available construction assumptions and parameters, the dust emission magnitudes are considered to be large for demolition, earthworks, construction and trackout. Taking into consideration the dust emission magnitude and the receptor sensitivity to ecological impacts, the assessed risk level of potential dust impacts are considered medium risks at the ecological receptor. However, with the implementation of standard good practice committed to the Project, impacts would be reduced to negligible level, and therefore effects would consider to be not significant.	Not Significant Adverse	Construction dust: Dust emissions from dust-generating activities during the construction phase, including demolition, earthworks, construction, and trackout, may result in potential ecological effects. (Long-term)	No additional mitigation required as the effect is not significant.
Cowslip Meadow Local Wildlife Sites (E02) [AQ-32] (Low)	Most / all project components	Most / all project activities (construction)	(ED-04) Design the Project to reduce the need to import material as far as practicable. (ED-05) Use of rail to transport bulk construction materials, if practicable. (SGP-21) On-site Construction Traffic Management Measures. (SGP-22) Standard good practice measures for road cleanliness. (SGP-23) Standard good practice dust mitigation measures.	Large The anticipated dust-generating activities have been categorised into demolition, earthworks, construction and trackout activities, in line with the IAQM dust assessment guidance. Based on the current available construction assumptions and parameters, the dust emission magnitudes are considered to be large for demolition, earthworks, construction and trackout. Taking into consideration the dust emission magnitude and the receptor sensitivity to ecological impacts, the assessed risk level of potential dust impacts are considered medium risks at the ecological receptor.	Not Significant Adverse	Construction dust: Dust emissions from dust-generating activities during the construction phase, including demolition, earthworks, construction, and trackout, may result in potential ecological effects. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Magnitude of impact category and commentary	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-24) Standard good practice measures for reducing vehicle, plant and machinery emissions.	However, with the implementation of standard good practice committed to the Project, impacts would be reduced to negligible level, and therefore effects would consider to be not significant.			
The Cuttings and Hutchins Copse Local Wildlife Sites (E03) [AQ-31] (Low)	Most / all project components	Most / all project activities (construction)	(ED-04) Design the Project to reduce the need to import material as far as practicable. (ED-05) Use of rail to transport bulk construction materials, if practicable. (SGP-21) On-site Construction Traffic Management Measures. (SGP-22) Standard good practice measures for road cleanliness. (SGP-23) Standard good practice dust mitigation measures. (SGP-24) Standard good practice measures for reducing vehicle, plant and machinery emissions.	Large The anticipated dust-generating activities have been categorised into demolition, earthworks, construction and trackout activates, in line with the IAQM dust assessment guidance. Based on the current available construction assumptions and parameters, the dust emission magnitudes are considered to be large for demolition, earthworks, construction and trackout. Taking into consideration the dust emission magnitude and the receptor sensitivity to ecological impacts, the assessed risk level of potential dust impacts are considered medium risks at the ecological receptor. However, with the implementation of standard good practice committed to the Project, impacts would be reduced to negligible level, and therefore effects would consider to be not significant.	Not Significant Adverse	Construction dust: Dust emissions from dust-generating activities during the construction phase, including demolition, earthworks, construction, and trackout, may result in potential ecological effects. (Long-term)	No additional mitigation required as the effect is not significant.

1.3 Likely not significant operation effects

Table 1.2 Initial likely non-significant effects during operation (with embedded and standard good practice mitigation applied, but prior to additional mitigation)

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Magnitude of impact category and commentary	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
27B High Street, Steventon (H01) [AQ-7] (High)	Most / all project components	Most / all project activities (operation)	(SGP-50) Standard good practice measures to mitigate GHG during operation.	Negligible <5% change in pollutant concentration for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from operational traffic: Vehicle exhaust emissions from increased vehicle movements during operational phase (Permanent)	No additional mitigation required as the effect is not significant.
1 the Green (H02) [AQ-9] (High)	Most / all project components	Most / all project activities (operation)	(SGP-50) Standard good practice measures to mitigate GHG during operation.	Negligible <5% change in pollutant concentration for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from operational traffic: Vehicle exhaust emissions from increased vehicle movements during operational phase (Permanent)	No additional mitigation required as the effect is not significant.
22 Crane Avenue (H03) [AQ-13] (High)	Most / all project components	Most / all project activities (operation)	(SGP-50) Standard good practice measures to mitigate GHG during operation.	Small <10% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from operational traffic: Vehicle exhaust emissions from increased vehicle movements during operational phase (Permanent)	No additional mitigation required as the effect is not significant.
97 Steventon Road (H04) [AQ-12] (High)	Most / all project components	Most / all project activities (operation)	(SGP-50) Standard good practice measures to mitigate GHG during operation.	Small <10% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from operational traffic: Vehicle exhaust emissions from increased vehicle movements during operational phase (Permanent)	No additional mitigation required as the effect is not significant.
28 Mackenzie Avenue (H05) [AQ-15] (High)	Most / all project components	Most / all project activities (operation)	(SGP-50) Standard good practice measures to mitigate GHG during operation.	Small <10% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from operational traffic: Vehicle exhaust emissions from increased vehicle movements during operational phase (Permanent)	No additional mitigation required as the effect is not significant.
50 Frilford Road (H06) [AQ-17] (High)	Most / all project components	Most / all project activities (operation)	(SGP-50) Standard good practice measures to mitigate GHG during operation.	Negligible <5% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from operational traffic: Vehicle exhaust emissions from increased vehicle movements during operational phase (Permanent)	No additional mitigation required as the effect is not significant.
Pedestrian/Cycle link (A415 Marcham Rd) (H07) [AQ-19] (Moderate)	Most / all project components	Most / all project activities (operation)	(SGP-50) Standard good practice measures to mitigate GHG during operation.	Small <10% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from operational traffic: Vehicle exhaust emissions from increased vehicle movements during operational phase (Permanent)	No additional mitigation required as the effect is not significant.
Marcham Road north (H08) [AQ-22] (Moderate)	Most / all project components	Most / all project activities (operation)	(SGP-50) Standard good practice measures to mitigate GHG during operation.	Small <10% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from operational traffic: Vehicle exhaust emissions from increased vehicle movements during operational phase (Permanent)	No additional mitigation required as the effect is not significant.
Pedestrian/Cycle link (Southern site access) (H09) [AQ-24] (Moderate)	Most / all project components	Most / all project activities (operation)	(SGP-50) Standard good practice measures to mitigate GHG during operation.	Small <10% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from operational traffic: Vehicle exhaust emissions from increased vehicle movements during operational phase (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Magnitude of impact category and commentary	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Pedestrian/Cycle link (Compound A1) (H11) [AQ-20] (Moderate)	Most / all project components	Most / all project activities (operation)	(SGP-50) Standard good practice measures to mitigate GHG during operation.	Small <10% change in pollutant concentrations for annual mean NO ₂ and PM ₁₀	Not Significant Adverse	Vehicle emissions from operational traffic: Vehicle exhaust emissions from increased vehicle movements during operational phase (Permanent)	No additional mitigation required as the effect is not significant.
32 Willow Way (SPR01) [AQ-27] (High)	Intake/outfall structure	Maintenance	No embedded design or standard good practice mitigation identified at this stage.	Small The interaction between the source odour potential, odour pathway and sensitivity of receptors have been used to derive a low risk of odour exposure. Taking into consideration the risk of odour exposure at the receptor locations and receptor sensitivity, the likely odour impacts are therefore determined to be minor (small) adverse.	Not Significant Adverse	Operational odour emission: Removal of mussels (Permanent)	No additional mitigation required as the effect is not significant.
32 Willow Way (SPR01) [AQ-28] (High)	Site-wide utilities diversions and new supplies	Most / all project activities (operation)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (SGP-44) Implementation of odour management plan.	Small The interaction between the source odour potential, odour pathway and sensitivity of receptors have been used to derive a low risk of odour exposure. Taking into consideration the risk of odour exposure at the receptor locations and receptor sensitivity, the likely odour impacts are therefore determined to be minor (small) adverse.	Not Significant Adverse	Operational odour emission: Abingdon Sewage Treatment Works (STW) upgrade (Permanent)	No additional mitigation required as the effect is not significant.
8 Blenheim Orchard (SPR02) [AQ-26] (High)	Site-wide utilities diversions and new supplies	Most / all project activities (operation)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Small The interaction between the source odour potential, odour pathway and sensitivity of receptors have been used to derive a low risk of odour exposure. Taking into consideration the risk of odour exposure at the receptor locations and receptor sensitivity, the likely odour impacts are therefore determined to be minor (small) adverse.	Not Significant Adverse	Operational odour emission: Foul drainage discharge treatment, near Nature Education Centre in south-west corner of the draft Order limits (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Magnitude of impact category and commentary	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
14 Haywards Road (SPR03) [AQ-33] (High)	Site-wide utilities diversions and new supplies	Most / all project activities (operation)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (SGP-44) Implementation of odour management plan.	Small The interaction between the source odour potential, odour pathway and sensitivity of receptors have been used to derive a low risk of odour exposure. Taking into consideration the risk of odour exposure at the receptor locations and receptor sensitivity, the likely odour effects are therefore determined to be minor (small) adverse.	Not Significant Adverse	Operational odour emission: Drayton Sewage Treatment Works (STW) connections (Permanent)	No additional mitigation required as the effect is not significant.



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