

## **Appendix 9.10**

Scenario 4a: Application 4 & Application 5 & SRF:  
CSM baseline and Construction Phase

Scenario 4a: Application 4 & Application 5 & SRF: CSM baseline and Construction Phase – ES Chapter – Appendix 9.10

| Conceptual Site Model                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                           |                                                                                |             | Baseline Assessment                                  |                                |                            | Construction Phase Assessment<br>(Demolition, Groundworks & Construction Effects) |                                |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Impact Assessment                              |                     |                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------|------------------------------------------------------|--------------------------------|----------------------------|-----------------------------------------------------------------------------------|--------------------------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|---------------------|------------------------|
| Source                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Pathway                                                                                                                                                                                                                                                   | Receptor                                                                       | Sensitivity | Probability of Complete Linkage                      | Consequence if Linkage Present | Future Baseline Risk Level | Probability of Complete Linkage                                                   | Consequence if Linkage Present | Revised Risk Level | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Effect on Risk                                 | Magnitude of Impact | Significance of Effect |
| Asbestos (if present) within existing Made Ground / fill materials / buried obstructions / substructure<br><br>Chemicals of concern associated with existing Made Ground / fill materials<br><br>Chemicals of concern from spills / leaks from historical uses on site / off site<br><br>Chemicals associated with construction works (fuels and oils used in construction plant)<br><br>Contaminants associated with former land uses on adjacent site (SRF) | Dermal contact with and ingestion of contaminants in soil-derived dust and water.<br>Inhalation of contaminants in soil-derived dust and ground gas / volatile vapours.<br>Inhalation of asbestos fibres.                                                 | On-site users                                                                  | Medium      | Unlikely                                             | Medium                         | Low                        | Receptor no longer present as construction has started.                           |                                |                    | Sources of contamination (asbestos and chemicals of concern) have been identified on site and at concentrations within soils which exceed screening criteria for residential end use.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Risk reduced as receptor is no longer present  | -                   | -                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           | Groundworkers & construction workers                                           | Medium      | Receptor not present as construction has not started |                                |                            | Low                                                                               | Medium                         | Low / moderate     | Workers are likely to come into direct contact with soil during construction activities for a short period of time. Mitigation measures will be adopted to reduce the probability of exposure to the identified sources e.g., use of COSHH assessments to prevent or control exposure to hazardous substances associated with construction works and use of appropriate RAMS to a) prevent direct contact, ingestion, dust / asbestos fibre inhalation associated with baseline conditions using PPE, RPE and hygiene best practice; and b) prevent the generation of dust / dispersion of asbestos fibres associated with baseline conditions using water sprays / local exhaust ventilation systems.                                                                                                                                                                                                                                                               | Risk increased due to introduction of receptor | Medium              | Minor adverse          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           | Third-party neighbours                                                         | Medium      | Unlikely                                             | Medium                         | Low                        | Low                                                                               | Medium                         | Low / moderate     | Dust suppression measures and controls implemented on Site will mitigate the risk of exposure to offsite third-party neighbours. The contamination status of plots within SRF is unknown; it has been assumed that contamination levels and mobility is no worse than within the Application 4 / 5 area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | No change                                      | Medium              | Minor adverse          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           | Onsite site users at Plots RB01-05 and RB12b                                   | Medium      | Receptor not present as construction has not started |                                |                            | Low                                                                               | Medium                         | Low / Moderate     | By Q4 2029, the Construction Phase will be completed at Plots RB01-05 and RB12b and it is assumed that shortly after, the plots will be occupied with residents. However, the Construction Phase at the onsite neighbouring Plots RB16 / 17 / 06 / 07 / 10 continues to Q4 2032. As such there is an introduction of a human health receptor at Plots RB01-05 and RB12b during this timescale. Mitigation measures (identified above) will be employed at Plots RB16 / 17 / 06 / 07 / 10 during the Construction Phase and will mitigate the risk of exposure to the identified sources to site users at Plots RB01-05 and RB12b during this timescale.                                                                                                                                                                                                                                                                                                              | Risk increased due to introduction of receptor | Medium              | Minor adverse          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Leaching of contaminants in the unsaturated zone to groundwater in underlying aquifers.<br>Migration of contaminated water through preferential pathways such as underground services, pipes and granular material to groundwater in underlying aquifers. | Controlled waters – Superficial Aquifers (Secondary Undifferentiated Aquifer)  | Medium      | Likely                                               | Medium                         | Moderate                   | Likely                                                                            | Medium                         | Moderate           | During the Construction Phase, remediation will be conducted, and sources of contamination removed. This will ultimately result in long-term, local scale improvements to the quality of ground and surface water.<br><br>In addition, mitigation measures will be adopted to a) prevent the introduction of new contaminants to the baseline (related to construction drainage / spillages); and b) prevent mobilisation of new and existing contamination from impacting controlled waters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Risk increased during works                    | Medium              | Minor adverse          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           | Controlled waters – Bedrock Aquifers (Secondary B and Principal Aquifers)      | Medium      | Likely                                               | Medium                         | Moderate                   | Likely                                                                            | Medium                         | Moderate           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Risk increased during works                    | Medium              | Minor adverse          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Lateral migration of contaminated groundwater with discharge to surface watercourses as base flow. Discharge of contaminants entrained in surface water run-off followed by overland flow and discharge.                                                  | Controlled waters – Surface waters (River Irk)                                 | High        | Low                                                  | Medium                         | Low / Moderate             | Low                                                                               | Medium                         | Low / Moderate     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Risk increased during works                    | Medium              | Minor adverse          |
| Hazardous ground gases and vapours associated with chemical substances of concern in soil / Made Ground / organic soils (including from SRF)                                                                                                                                                                                                                                                                                                                  | Lateral and vertical migration through unsaturated pore space or fractures and accumulation in confined spaces and inhalation                                                                                                                             | Groundworkers & construction workers                                           | Medium      | Receptor not present as construction has not started |                                |                            | Low                                                                               | Medium                         | Low / Moderate     | Hazardous ground gases and vapours have been identified on site, associated with Made Ground and historic industry. Risks of hazardous ground gases and vapours to construction workers should be mitigated using confined space safety precautions and appropriate RAMS to a) prevent inhalation using RPE; b) prevent accumulation of hazardous gases / vapours in confined spaces (e.g., excavations, below ground chambers etc) using local exhaust ventilation systems; and c) raise the alarm if unsafe conditions arise using multi-gas monitors to detect flammable gases and vapours as well as oxygen, carbon monoxide, hydrogen sulphide, sulphur dioxide etc.<br><br>The reported concentrations are considered unlikely to affect off-site users of adjacent properties.<br><br>The contamination status of plots within SRF is unknown; it has been assumed that contamination levels and mobility is no worse than within the Application 4 / 5 area. | Risk increased due to introduction of receptor | Medium              | Minor adverse          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           | Third-party neighbours, including industrial units on plot NT02 (Love Factory) | Medium      | Unlikely                                             | Medium                         | Low                        | Unlikely                                                                          | Medium                         | No change          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Neutral                                        | No change           | No change              |

