APPENDIX 16.4
BASLINE, CONSTRUCTION PHASE AND OPERATION PHASE CONCEPTUAL SITE MODELS

Soils and Groundwater - Land Contamination Baseline Conceptual Site Model and Preliminary Qualitative Risk Assessment

Pollutant Linkage	Potential Source	Key Contaminants	Pathway	Receptor	Probability	Consequence	Baseline Risk	Rationale
1	<u>On-Site</u> Operation of mechanical plant and equipment associated with the materials depot with associated railway sidings and travelling cranes. Made Ground of unknown provenance associated with the development of the railway sidings and backfill of historical ballast pits in the north east of the Site. Transformer oils associated with the historical electricity substation in the centre of the Site. Existing highways, the guided busway and a car park associated with the Cambridge North Railway station. which are sources of potentially	Metals, sulphates, asbestos, TPH,PAH, phenols and PCBs.	Dermal contact with and/or ingestion of contaminants in soil and soil-derived dust Inhalation of contaminants in soil-derived dust Inhalation of soil-derived and groundwater-derived vapours	Human – occupants of future on-Site residential properties	Receptor not present at baseline.			The Site is mostly unoccupied at present, with areas of hardstanding associated with developed areas of the Site. The proposed residential development will comprise a combination of building cover, hardstanding and a central landscaped communal garden. The nature of the proposed development means there is potential for direct contact with contaminants in shallow soils and for inhalation of vapours associated with volatile contaminants which may be presented in the soil and shallow groundwater as a result of the current and historical use of the Site. Available laboratory analytical data for the residential part of the Site indicates soils may be largely suitable for retention in a residential development, with a single exceedance recorded of the respective GACs for lead and dibenzo(a,h)anthracene. Ground investigation can be used to further establish if contamination is present which may pose an unacceptable risk to on-Site human receptors.
2			Dermal contact with and/or ingestion of contaminants in soil and soil-derived dust Inhalation of contaminants in soil-derived dust Inhalation of soil-derived and groundwater-derived vapours	Human – current users of open air car park and future workers at and visitors to on-Site commercial properties	Low Likelihood	Medium	Moderate/ low	The Site is mostly unoccupied at present, with areas of hardstanding associated with developed areas of the Site. The proposed development will comprise mostly hardstanding and building cover with peripheral areas of soft landscaping and drainage features. There will be little potential for direct contact with contaminants under the proposed use of the Site. There is potential for indoor inhalation of vapours associated with volatile contaminants which may be presented in the soil and shallow groundwater as a result of the current and historical use of the Site. However, available laboratory analytical data for part of the Site suggests no unacceptable risks to human health under a commercial end use. Ground investigation can be used to determine if contamination is present at the remainder of the Site

Pollutant Linkage	Potential Source	Key Contaminants	Pathway	Receptor	Probability	Consequence	Baseline Risk	Rationale
	contaminated surface run-off							which may pose an unacceptable risk to on-Site human receptors.
3			Dermal contact with and/or ingestion of contaminants in soil and soil-derived dust Inhalation of contaminants in soil-derived dust Inhalation of soil-derived and groundwater-derived vapours	Human – occupants of and visitors to off-Site residential and commercial properties and members of the public using off-Site areas of open space	Unlikely	Medium/Low	Low	Made Ground has previously been identified at the Site. Available laboratory analytical data for part of the Site suggests no unacceptable risks to human health under a commercial end use, and it is considered unlikely that there is an ongoing impact to off-Site receptors. However, future ground investigation and laboratory analysis will establish the presence and levels of mobile contamination which has the potential to be migrating to the identified off-Site receptors.
4			Leaching and migration of contaminants from soils in the unsaturated zone into groundwater Migration of contaminants via preferential pathways such as piles to groundwater	Controlled waters – groundwater in Secondary A Aquifer	Low Likelihood	Medium	Moderate/Low	The Site is mostly unoccupied at present, with areas of hardstanding associated with developed areas of the Site. The proposed development will comprise hardstanding and building cover with areas of soft landscaping and drainage features. Based on the known presence of historical ballast pits that were on site, these will have been backfilled with material of unknown provenance prior to the construction of the railway sidings, travelling cranes and material depot. Together with the potentially contaminative activities undertaken at the Site, there is the potential for contamination to have migrated and may still be migrating from unsaturated soils to groundwater in the underlying aquifer. Available laboratory analytical data indicate recorded concentrations of contaminants in soil leachate and groundwater are largely below DWS, with exception of benzo(a)pyrene. Ground investigation will be carried out to determine the presence of contaminants in unsaturated soils which have the potential to leach to groundwater, and which may migrate downward to groundwater via preferential pathways such as piles. Subsequent

Pollutant Linkage	Potential Source	Key Contaminants	Pathway	Receptor	Probability	Consequence	Baseline Risk	Rationale
								groundwater sampling can be used to characterise the current groundwater quality.
5			Lateral migration of contaminants in groundwater through soils and bedrock with discharge to surface water as base flow Migration of contaminants along preferential pathways such as installed services followed by discharge to surface watercourses	Controlled waters – surface water in First Public Drain and River Cam, future on-Site drainage features	Low Likelihood	Medium	Moderate/Low	Potentially contaminative activities and backfill of historical ballast pits have been identified at the Site and based on the underlying geology, it is possible that contaminants have leached/have the potential to be leaching to groundwater underlying the site which may discharge to surface waters as base flow. Available laboratory analytical data indicates recorded concentrations of metals, PAH and phenol above EQS in soil leachate and metals and PAH concentrations above EQS in groundwater. Ground investigation and subsequent groundwater sampling will be carried out to determine the presence of contaminants in unsaturated soils and in groundwater which have the potential to impact on surface waters.
6			Direct contact with contaminants in soils, perched water and/or groundwater	Current and future on-Site buildings, structures, foundations and services	Likely	Minor	Low	The Site is largely underlain by sulphate-bearing bedrock which may result in aggressive ground conditions which pose an unacceptable risk to concrete. Testing in accordance with BRE SD1 should be carried out as part of future ground investigation across the Site. Elevated concentrations of organic contaminants in the ground could present a risk to new services and potable water supply pipework. Laboratory analytical data from ground investigation can be used to inform the requirement for protection of services.
7			Direct contact with contaminants in migrating groundwater	Current and future off-Site buildings, foundations and services	Low likelihood	Minor	Very Low	Based on the underlying geology, contaminants may have leached from unsaturated soils on-Site and may be migrating off-Site in groundwater. Future ground investigation and laboratory analysis can be used to establish the presence and levels of

Pollutant Linkage	Potential Source	Key Contaminants	Pathway	Receptor	Probability	Consequence	Baseline Risk	Rationale
								mobile contamination which has the potential to be migrating to the identified off-Site property receptors.
8	<u>On-Site</u> Made Ground of unknown provenance associated with the development of the railway sidings and backfill of historical ballast pits in the north east of the Site	Methane, carbon dioxide and other gases	Lateral/vertical migration through soils followed by accumulation in enclosed spaces and inhalation	Human – current users of open air car park, future workers at and visitors to on-Site commercial properties, current and future occupants of and visitors to off-Site residential and commercial properties	Low likelihood	Medium	Moderate/Low	Backfill in historical ballast pits may be releasing landfill gas if putrescible materials are present which may currently preferentially migrate upwards with release to the atmosphere. Available gas monitoring data indicates generally low Gas Screening Values, representative of Characteristic Situation 1 or 2. However the monitoring installations were not situated in the area of the former ballast pits and the calculated GSV may not be representative of the gas regime at the Site as a whole. Ground investigation targeting the ballast pits and the surrounding areas and further gas monitoring will be required to quantify the level of risk and inform the requirement for potential gas protection measures in the proposed development.
9		Methane, carbon dioxide and other gases	Lateral/vertical migration through soils followed by accumulation in enclosed spaces and potentially explosive conditions	Current and future on-Site buildings/off-Site residential properties	Low likelihood	Medium	Moderate/Low	
10	<u>Off-Site</u> Aggregates facility extending northwards from the Site which utilities mechanical plant and equipment. Historical Sewage Farm including filter beds, now Cambridge Water Recycling Centre.	Metals, sulphates, other inorganics, TPH, PAH, solvents, phenols, pathogens.	Dermal contact with and/or ingestion of contaminants in windblown soil-derived dust Inhalation of contaminants in windblown soil-derived dust Inhalation of migrating soil-derived and groundwater-derived vapours	Human – current users of open air car park and future workers at and visitors to on-Site commercial properties	Low likelihood	Medium	Moderate/Low	There is considered to be a low likelihood of contaminants migrating on to the Site from off-Site potentially contaminative land uses as windblown soil-derived dust and as vapours which Site occupants may then come into contact with. Ground investigation and groundwater sampling at the Site boundaries can be used to determine the presence of contamination which may be attributable to the off-Site contamination sources and to quantify the level of risk to on-Site human receptors.

Pollutant Linkage	Potential Source	Key Contaminants	Pathway	Receptor	Probability	Consequence	Baseline Risk	Rationale
11	A range of historical and current depots, works, light industrial units, engineering and garage facilities. The railway line parallel to the eastern site boundary and Cambridge North railway station to the south of the Site. Former Agricultural Machinery Market adjacent to the northern boundary of the Site which is assumed to have historically stored mechanical plant and equipment. This area is now in use as a golf driving range. Former gravel pits and ponds, which may have been infilled with materials of unknown provenance. Licensed waste transfer and treatment facilities, reported to handle		Lateral migration of contaminants through permeable soils in migrating groundwater	Controlled waters – groundwater in Secondary A Aquifer	Low likelihood	Medium	Moderate/Low	Groundwater may migrate on to the Site in the granular superficial deposits from off-Site potentially contaminative land uses. Regional groundwater flow direction is not known, but may be generally towards the east or south east in the direction of the River Cam. Available laboratory analytical data is not suggestive of significant groundwater contamination at the Site. Ground investigation and subsequent groundwater sampling can be used to confirm groundwater quality at the Site.
12			Lateral migration of contaminants in migrating groundwater with discharge to surface water as base flow Migration of contaminants along preferential pathways such as installed services followed by discharge to surface waters	Controlled waters – surface water in First Public Drain, future on-Site drainage features	Unlikely	Medium	Low	Contaminants in migrating groundwater may discharge to surface waters as base flow. Available laboratory analytical data is not suggestive of significant groundwater contamination. Ground investigation and subsequent groundwater sampling can be used to confirm groundwater quality at the Site.
13			Direct contact with contaminants in migrating perched water and/or groundwater	Current and future on-Site buildings, foundations and services	Unlikely	Minor	Very Low	Groundwater may migrate on to the Site in the granular superficial deposits from off-Site potentially contaminative land uses. Regional groundwater flow direction is not known, but may be generally towards the east or south east in the direction of the River Cam. Ground investigation and subsequent groundwater sampling can be used to establish groundwater quality at the Site.

Pollutant Linkage	Potential Source	Key Contaminants	Pathway	Receptor	Probability	Consequence	Baseline Risk	Rationale
	household, commercial and industrial waste							
14	<u>Off-Site</u> Ground gases associated with potentially infilled pits and ponds, and sewage farm/water recycling centre.	Methane, carbon dioxide and other gases	Lateral/vertical migration through soils followed by accumulation in enclosed spaces and inhalation	Human – current users of open air car park and future workers at and visitors to on-Site commercial properties	Low likelihood	Medium	Moderate/Low	Available gas monitoring data indicates generally low Gas Screening Values, representative of Characteristic Situation 1 or 2. However the monitoring installations were confined to a portion of the Site. Ground investigation and gas monitoring across the Site can be used to quantify the level of risk and inform the requirement for potential gas protection measures in the proposed development.
15		Methane, carbon dioxide and other gases	Lateral/vertical migration through soils followed by accumulation in enclosed spaces and potentially explosive conditions	Future on-Site buildings	Low likelihood	Medium	Moderate/Low	

Soils and Groundwater - Land contamination CSM and risk assessment for the construction phase

Pollutant Linkage	Potential Source	Pathway	Receptor	Receptor Sensitivity	Baseline			Construction without Mitigation					Construction with Mitigation				
					Probability	Consequence	Risk	Probability	Consequence	Risk	Magnitude of Impact	Significance of Effect	Probability	Consequence	Risk	Magnitude of Impact	Significance of Effect
1	<u>On-Site</u> Operation of mechanical plant and equipment associated with the materials depot with associated railway sidings and travelling cranes. Made Ground of unknown provenance associated with the development of the railway sidings and backfill of historical ballast pits in the north east of the Site. Transformer oils associated with the historical electricity substation in the centre of the Site. Existing highways, the guided busway and a car park associated with the Cambridge North Railway station. which are sources of potentially contaminated surface run-off	Dermal contact with and/or ingestion of contaminants in soil and soil-derived dust Inhalation of contaminants in soil-derived dust Inhalation of soil-derived and groundwater-derived vapours	Human – occupants of future on-Site residential properties	High	Receptor not present at baseline			Receptor not present during construction					Receptor not present during construction				
2		Dermal contact with and/or ingestion of contaminants in soil and soil-derived dust Inhalation of contaminants in soil-derived dust Inhalation of soil-derived and groundwater-derived vapours	Human – current users of open air car park and future workers at and visitors to on-Site commercial properties	Moderate	Low Likelihood	Medium	Moderate/ low	Likely	Medium	Moderate	Minor negative	Minor negative	Low likelihood	Medium	Moderate/ Low	Neutral	Negligible
3		Dermal contact with and/or ingestion of contaminants in soil and soil-derived dust Inhalation of contaminants in soil-derived dust Inhalation of soil-derived and groundwater-derived vapours	Human – occupants of and visitors to off-Site residential and commercial properties and members of the public using off-Site areas of open space	Moderate	Unlikely	Medium/Low	Low	Low likelihood	Medium	Moderate/ Low	Minor negative	Minor negative	Unlikely	Medium/Low	Low	Neutral	Negligible
4		Leaching and migration of contaminants from soils in the unsaturated zone into groundwater Migration of contaminants via preferential pathways such as piles to groundwater	Controlled waters – groundwater in Secondary A Aquifer	Moderate	Low Likelihood	Medium	Moderate/ Low	Likely	Medium	Moderate	Minor negative	Minor negative	Low likelihood	Medium	Moderate/ Low	Neutral	Negligible
5		Lateral migration of contaminants in groundwater through soils and bedrock with discharge to surface water as base flow	Controlled waters – surface water in First Public Drain and River Cam, future on-	Moderate	Low Likelihood	Medium	Moderate/ Low	Likely	Medium	Moderate	Minor negative	Minor negative	Low likelihood	Medium	Moderate/ Low	Neutral	Negligible

Pollutant Linkage	Potential Source	Pathway	Receptor	Receptor Sensitivity	Baseline			Construction without Mitigation					Construction with Mitigation				
					Probability	Consequence	Risk	Probability	Consequence	Risk	Magnitude of Impact	Significance of Effect	Probability	Consequence	Risk	Magnitude of Impact	Significance of Effect
		Migration of contaminants along preferential pathways such as installed services followed by discharge to surface watercourses	Site drainage features														
6		Direct contact with contaminants in soils, perched water and/or groundwater	Current and future on-Site buildings, structures, foundations and services	Moderate	Likely	Minor	Low	Likely	Minor	Low	Neutral	Negligible	Likely	Minor	Low	Neutral	Negligible
7		Direct contact with contaminants in migrating groundwater	Current and future off-Site buildings, foundations and services	Moderate	Low likelihood	Minor	Very Low	Low likelihood	Minor	Very Low	Neutral	Negligible	Low likelihood	Minor	Very Low	Neutral	Negligible
8	<u>On-Site</u> Made Ground of unknown provenance associated with the development of the railway sidings and backfill of historical ballast pits in the north east of the Site	Lateral/vertical migration through soils followed by accumulation in enclosed spaces and inhalation	Human – current users of open air car park, future workers at and visitors to on-Site commercial properties, current and future occupants of and visitors to off-Site residential and commercial properties	Moderate	Low likelihood	Medium	Moderate/ Low	Low likelihood	Medium	Moderate/ Low	Neutral	Negligible	Low likelihood	Medium	Moderate/ Low	Neutral	Negligible
9		Lateral/vertical migration through soils followed by accumulation in enclosed spaces and potentially explosive conditions	Current and future on-Site buildings/off-Site residential properties	Moderate	Low likelihood	Medium	Moderate/ Low	Low likelihood	Medium	Moderate/ Low	Neutral	Negligible	Low likelihood	Medium	Moderate/ Low	Neutral	Negligible
10	<u>Off-Site</u> Aggregates facility extending northwards from the Site which utilities mechanical plant and equipment. Historical Sewage Farm including filter beds, now Cambridge Water Recycling Centre.	Dermal contact with and/or ingestion of contaminants in windblown soil-derived dust Inhalation of contaminants in windblown soil-derived dust Inhalation of migrating soil-derived and groundwater-derived vapours	Human – current users of open air car park and future workers at and visitors to on-Site commercial properties	Moderate	Low likelihood	Medium	Moderate/ Low	Likely	Medium	Moderate	Minor Negative	Minor Negative	Low likelihood	Medium	Moderate/ Low	Neutral	Negligible

Pollutant Linkage	Potential Source	Pathway	Receptor	Receptor Sensitivity	Baseline			Construction without Mitigation					Construction with Mitigation				
					Probability	Consequence	Risk	Probability	Consequence	Risk	Magnitude of Impact	Significance of Effect	Probability	Consequence	Risk	Magnitude of Impact	Significance of Effect
11	A range of historical and current depots, works, light industrial units, engineering and garage facilities. The railway line parallel to the eastern site boundary and Cambridge North railway station to the south of the Site. Former Agricultural Machinery Market adjacent to the northern boundary of the Site which is assumed to have historically stored mechanical plant and equipment. This area is now in use as a golf driving range. Former gravel pits and ponds, which may have been infilled with materials of unknown provenance. Licensed waste transfer and treatment facilities, reported to handle household, commercial and industrial waste	Lateral migration of contaminants through permeable soils in migrating groundwater	Controlled waters – groundwater in Secondary A Aquifer	Moderate	Low likelihood	Medium	Moderate/ Low	Likely	Medium	Moderate	Minor Negative	Minor negative	Low likelihood	Medium	Moderate/ Low	Neutral	Negligible
12		Lateral migration of contaminants in migrating groundwater with discharge to surface water as base flow Migration of contaminants along preferential pathways such as installed services followed by discharge to surface waters	Controlled waters – surface water in First Public Drain, future on-Site drainage features	Moderate	Unlikely	Medium	Low	Low likelihood	Medium	Moderate/ Low	Minor Negative	Minor negative	Unlikely	Medium	Low	Neutral	Negligible
13		Direct contact with contaminants in migrating perched water and/or groundwater	Current and future on-Site buildings, foundations and services	Moderate	Unlikely	Minor	Very Low	Unlikely	Minor	Very Low	Neutral	Negligible	Unlikely	Minor	Very Low	Neutral	Negligible
14	<u>Off-Site</u> Ground gases associated with potentially infilled pits and ponds, and sewage farm/water recycling centre.	Lateral/vertical migration through soils followed by accumulation in enclosed spaces and inhalation	Human – current users of open air car park and future workers at and visitors to on-Site commercial properties	Moderate	Low likelihood	Medium	Moderate/ Low	Low likelihood	Medium	Moderate/ Low	Neutral	Negligible	Low likelihood	Medium	Moderate/ Low	Neutral	Negligible
15		Lateral/vertical migration through soils followed by accumulation in enclosed spaces and potentially explosive conditions	Future on-Site buildings	Moderate	Low likelihood	Medium	Moderate/ Low	Low Likelihood	Medium	Moderate/ Low	Neutral	Negligible	Low likelihood	Medium	Moderate/ Low	Neutral	Negligible

Soils and Groundwater - Land contamination CSM and risk assessment for the operation phase

Pollutant Linkage	Potential Source	Pathway	Receptor	Receptor Sensitivity	Baseline			Operation without Mitigation					Operation with Mitigation				
					Probability	Consequence	Risk	Probability	Consequence	Risk	Magnitude of Impact	Significance of Effect	Probability	Consequence	Risk	Magnitude of Impact	Significance of Effect
1	<u>On-Site</u> Operation of mechanical plant and equipment associated with the materials depot with associated railway sidings and travelling cranes. Made Ground of unknown provenance associated with the development of the railway sidings and backfill of historical ballast pits in the north east of the Site. Transformer oils associated with the historical electricity substation in the centre of the Site. Existing highways, the guided busway and a car park associated with the Cambridge North Railway station. which are sources of potentially contaminated surface run-off	Dermal contact with and/or ingestion of contaminants in soil and soil-derived dust Inhalation of contaminants in soil-derived dust Inhalation of soil-derived and groundwater-derived vapours	Human – occupants of future on-Site residential properties	High	Receptor not present at baseline			Likely	Medium	Moderate	No baseline risk to compare		Unlikely	Medium	Low	No baseline risk to compare	
2		Dermal contact with and/or ingestion of contaminants in soil and soil-derived dust Inhalation of contaminants in soil-derived dust Inhalation of soil-derived and groundwater-derived vapours	Human – current users of open air car park and future workers at and visitors to on-Site commercial properties	Moderate	Low Likelihood	Medium	Moderate/ low	Likely	Medium	Moderate	Minor Negative	Minor Negative	Unlikely	Medium	Low	Minor positive	Minor positive
3		Dermal contact with and/or ingestion of contaminants in soil and soil-derived dust Inhalation of contaminants in soil-derived dust Inhalation of soil-derived and groundwater-derived vapours	Human – occupants of and visitors to off-Site residential and commercial properties and members of the public using off-Site areas of open space	Moderate	Unlikely	Medium/Low	Low	Low likelihood	Medium/Low	Moderate/ Low	Minor Negative	Minor Negative	Unlikely	Medium/Low	Low	Neutral	Negligible
4		Leaching and migration of contaminants from soils in the unsaturated zone into groundwater Migration of contaminants via preferential pathways such as piles to groundwater	Controlled waters – groundwater in Secondary A Aquifer	Moderate	Low Likelihood	Medium	Moderate/ Low	Likely	Medium	Moderate	Minor Negative	Minor Negative	Unlikely	Medium	Low	Minor positive	Minor positive
5		Lateral migration of contaminants in groundwater through soils and bedrock with discharge to surface water as base flow Migration of contaminants along preferential pathways such as installed services	Controlled waters – surface water in First Public Drain and River Cam, future on-Site drainage features	Moderate	Low Likelihood	Medium	Moderate/ Low	Likely	Medium	Moderate	Minor Negative	Minor negative	Unlikely	Medium	Low	Minor positive	Minor positive

Pollutant Linkage	Potential Source	Pathway	Receptor	Receptor Sensitivity	Baseline			Operation without Mitigation					Operation with Mitigation				
					Probability	Consequence	Risk	Probability	Consequence	Risk	Magnitude of Impact	Significance of Effect	Probability	Consequence	Risk	Magnitude of Impact	Significance of Effect
		followed by discharge to surface watercourses															
6		Direct contact with contaminants in soils, perched water and/or groundwater	Current and future on-Site buildings, structures, foundations and services	Moderate	Likely	Minor	Low	Likely	Minor	Low	Neutral	Negligible	Low likelihood	Minor	Very Low	Minor positive	Minor positive
7		Direct contact with contaminants in migrating groundwater	Current and future off-Site buildings, foundations and services	Moderate	Low likelihood	Minor	Very Low	Low likelihood	Minor	Very Low	Neutral	Negligible	Unlikely	Minor	Very Low	Neutral	Negligible
8	<u>On-Site</u> Made Ground of unknown provenance associated with the development of the railway sidings and backfill of historical ballast pits in the north east of the Site	Lateral/vertical migration through soils followed by accumulation in enclosed spaces and inhalation	Human – current users of open air car park, future workers at and visitors to on-Site commercial properties, current and future occupants of and visitors to off-Site residential and commercial properties	Moderate	Low likelihood	Medium	Moderate/ Low	Likely	Medium	Moderate	Minor Negative	Minor Negative	Unlikely	Medium	Low	Minor positive	Minor positive
9		Lateral/vertical migration through soils followed by accumulation in enclosed spaces and potentially explosive conditions	Current and future on-Site buildings/off-Site residential properties	Moderate	Low likelihood	Medium	Moderate/ Low	Likely	Medium	Moderate	Minor Negative	Minor Negative	Unlikely	Medium	Low	Minor positive	Minor positive
10	<u>Off-Site</u> Aggregates facility extending northwards from the Site which utilities mechanical plant and equipment. Historical Sewage Farm including filter beds, now Cambridge Water Recycling Centre. A range of historical and current depots, works, light industrial units,	Dermal contact with and/or ingestion of contaminants in windblown soil-derived dust Inhalation of contaminants in windblown soil-derived dust Inhalation of migrating soil-derived and groundwater-derived vapours	Human – current users of open air car park and future workers at and visitors to on-Site commercial properties	Moderate	Low likelihood	Medium	Moderate/ Low	Likely	Medium	Moderate	Minor Negative	Minor negative	Unlikely	Medium	Low	Minor positive	Minor positive
11		Lateral migration of contaminants through permeable soils in migrating groundwater	Controlled waters – groundwater in Secondary A Aquifer	Moderate	Low likelihood	Medium	Moderate/ Low	Low likelihood	Medium	Moderate/ Low	Neutral	Negligible	Unlikely	Medium	Low	Minor positive	Minor positive

Pollutant Linkage	Potential Source	Pathway	Receptor	Receptor Sensitivity	Baseline			Operation without Mitigation					Operation with Mitigation				
					Probability	Consequence	Risk	Probability	Consequence	Risk	Magnitude of Impact	Significance of Effect	Probability	Consequence	Risk	Magnitude of Impact	Significance of Effect
12	engineering and garage facilities. The railway line parallel to the eastern site boundary and Cambridge North railway station to the south of the Site. Former Agricultural Machinery Market adjacent to the northern boundary of the Site which is assumed to have historically stored mechanical plant and equipment. This area is now in use as a golf driving range. Former gravel pits and ponds, which may have been infilled with materials of unknown provenance. Licensed waste transfer and treatment facilities, reported to handle household, commercial and industrial waste	Lateral migration of contaminants in migrating groundwater with discharge to surface water as base flow Migration of contaminants along preferential pathways such as installed services followed by discharge to surface waters	Controlled waters – surface water in First Public Drain, future on-Site drainage features	Moderate	Unlikely	Medium	Low	Low likelihood	Medium	Moderate/ Low	Minor Negative	Minor Negative	Unlikely	Medium	Low	Neutral	Negligible
13		Direct contact with contaminants in migrating perched water and/or groundwater	Current and future on-Site buildings, foundations and services	Moderate	Unlikely	Minor	Very Low	Unlikely	Minor	Very Low	Neutral	Negligible	Unlikely	Minor	Very Low	Neutral	Negligible
14	<u>Off-Site</u> Ground gases associated with potentially infilled pits and ponds, and sewage farm/water recycling centre.	Lateral/vertical migration through soils followed by accumulation in enclosed spaces and inhalation	Human – current users of open air car park and future workers at and visitors to on-Site commercial properties	Moderate	Low likelihood	Medium	Moderate/ Low	Low likelihood	Medium	Moderate/ Low	Neutral	Negligible	Unlikely	Medium	Low	Minor positive	Minor positive
15		Lateral/vertical migration through soils followed by accumulation in enclosed spaces and potentially explosive conditions	Future on-Site buildings	Moderate	Low likelihood	Medium	Moderate/ Low	Low likelihood	Medium	Moderate/ Low	Neutral	Negligible	Unlikely	Medium	Low	Minor positive	Minor positive