



ENVIRONMENTAL STATEMENT: 6.3 APPENDIX 20-1: MAJOR ACCIDENTS AND DISASTERS LONG LIST

DECARBONISATION

Cory Decarbonisation Project

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Revision A

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APPENDIX 20-1: MAJOR ACCIDENTS AND DISASTERS LONG LIST

Table 1 shows the potential vulnerability of the Proposed Scheme to the risk posed by specific MA&D types. The table presents the MA&D types which have been addressed further within **Chapter 20: Major Accidents and Disasters (Volume 1)**. The phases are indicated in the table as “C” for construction and “O” for operation. Justification is provided for those MA&D types that have not been addressed further in the ES and these are indicated by an “X” in the table.

Table 1: Major Accidents and Disasters – Scoped In or Out of Further Assessment

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
Natural Hazards	Geophysical	Earthquakes	<p>Do not occur in Britain of a sufficient intensity owing to the motion of the Earth’s tectonic plates causing regional compression. Uplift from the melting of the ice sheets that covered many parts of Britain thousands of years ago can cause movement.</p> <p>The BGS¹ acknowledges that, on average, a magnitude 4 earthquake happens in Britain roughly every two years and a magnitude 5 earthquake occurs around every 10 to 20 years. As such the Cabinet Office National Risk Register of Civil Emergencies states that “<i>Earthquakes in the UK are moderately frequent but rarely result in large amounts of damage. An earthquake of sufficient intensity (determined on the basis of the earthquake’s local effect on people and the environment) to inflict severe damage is unlikely</i>”².</p> <p>The Proposed Scheme is not located in, or close to, an active area. Therefore, further consideration of this risk is not required in the assessment.</p>	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
Natural Hazards	Geophysical	Volcanic Activity	The Proposed Scheme is not located in, or close to, an active area. It is highly unlikely that an ash cloud could significantly impact on any aspect of the Proposed Scheme. Therefore, further consideration of this risk is not required in the assessment.	X
Natural Hazards	Geophysical	Landslides	The Proposed Scheme is surrounded by flat topography. There are no records of historical landslides in the area. No steep slopes or embankments are expected to be constructed as part of the Proposed Scheme. Therefore, further consideration of this risk is not required in the assessment.	X
Natural Hazards	Geophysical	Sinkholes	Natural sinkholes have been recorded in Greater London however, these have not been in the vicinity of the Proposed Scheme. The geotechnical design of the Proposed Scheme will take into consideration the underlying geology and any potential ground stability issues. Therefore, further consideration of this risk is not required in the assessment.	X
Natural Hazards	Geophysical	Tsunamis	The Proposed Scheme is located in London, within (Proposed Jetty) and adjacent to the River Thames. Tsunami risk in England is considered to be low, although potential meteotsunamis (caused by weather conditions rather than seismic activity) have been recorded on several occasions in the UK. Meteotsunamis commonly strike the coasts of the UK, damaging harbours, boats and very rarely, causing fatalities. There are no records of historical meteotsunamis affecting the River Thames. Flood defences in the River Thames would	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			likely offer some protection in such an eventuality, although it is a possibility that these defences could be overwhelmed. This risk event type is not considered to require further assessment on the basis that any risks will be captured under the coastal flooding and flood defence failure MA&D types.	
Natural Hazards	Hydrological	Coastal Flooding	The Proposed Scheme is located on the River Thames, which is a tidally influenced river. The Environment Agency Flood Map for Planning ³ shows that the Proposed Scheme is located within Flood Zone 3. This indicates that the Proposed Scheme is located within the possible tidal flood extent of the 1 in 200-year event (0.5% Annual Probability of Exceedance event), excluding the presence of flood defences. However, there are maintained flood defences located along the River Thames, parts of which are within the Site. These will provide the Proposed Scheme with a reduction in local flood risk. Therefore, it is proposed to further consider this MA&D type in the assessment.	✓ C, O
Natural Hazards	Hydrological	Fluvial Flooding	The primary sensitive surface water feature within the Site is the River Thames. There are records of fifteen minor sensitive surface water features onsite comprising underground and surface level inland rivers. The Environment Agency Flood Map for Planning ³ (Rivers and Sea) indicates that the Proposed Scheme is located in the high-risk Flood Zone 3, where the annual risk of flooding from fluvial sources is more than 1 in 100 (1%), not accounting for engineered flood protection schemes. High levels of precipitation (i.e. in winter) could result in the flooding of the Proposed Scheme.	✓ C, O

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			Therefore, it is proposed to further consider this MA&D type in the assessment.	
Natural Hazards	Hydrological	Pluvial Flooding	<p>The London Regional Flood Risk Appraisal (2018)⁴ indicates that flooding is a major issue for Greater London and increasing due to climate change. Although the Study Area is significantly drier than the national average in both summer and winter, extreme events do occur. A recent, notable extreme rainfall event for the region was flash flooding in October 2022, where some areas saw a month's worth of rain in a day.</p> <p>With regard to future projections, UKCP18⁵ suggests that climate change is projected to lead to wetter winters and drier summers although natural variation, including extreme events such as storms, heavy downpours and heatwaves, will continue to punctuate these trends. Under a high emission scenario (RCP8.5) it is estimated that by the 2030s, precipitation in winter is likely to increase by 6.5% at the 50th percentile.</p> <p>The increase in impermeable surfaces as a result of the Proposed Scheme along with the likely increase in rainfall as a result of climate change over the lifetime of the Proposed Scheme would increase flood risk if not mitigated. However, mitigation against future flood risk is considered in Chapter 11: Water Environment and Flood Risk (Volume 1) and Chapter 12: Climate Resilience (Volume 1) and therefore does not require further consideration as part of the MA&D assessment.</p>	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
Natural Hazards	Hydrological	Groundwater Flooding	<p>The Study Area is not located within a Drinking Water Safeguard Zone for either surface or groundwater or a Groundwater Source Protection Zone.</p> <p>Several aquifers are present in the Study Area, including a Secondary Undifferentiated aquifer (superficial alluvium), three Secondary A aquifers (the Blackheath Member (Harwich Formation), Lambeth Group, and Thanet Formation) and a Principal aquifer (Upper Chalk Formation). Groundwater emergence is therefore possible. Groundwater may also be present as discontinuous pockets of perched water within the Made Ground within the Site.</p> <p>Chapter 11: Water Environment and Flood Risk (Volume 1) identifies that the risk of groundwater flooding across the Site is categorised as being moderate.</p> <p>The construction and operation of the Proposed Scheme is not expected to elevate groundwater flooding risk. There is not a high risk of groundwater flooding within the area of the Proposed Scheme, and no significant excavations are proposed. Therefore, further consideration of groundwater flooding is not required as part of the MA&D assessment.</p>	X
Natural Hazards	Hydrological	Avalanches	<p>The Proposed Scheme's topography is relatively flat and therefore an avalanche will not occur. Therefore, further consideration of this risk is not required as part of the assessment.</p>	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
Natural Hazards	Climatological and Meteorological	Cyclones, hurricanes, typhoons, storms and gales	Cyclones, hurricanes and typhoons do not occur in the UK. South East England is more sheltered than other parts of the UK, with less rainfall and fewer incidences of strong winds overall. However, extreme events have been known to occur. The most recent notable gales affecting the region include: Storm Henk in January 2024, which led to wind speeds of at least 58mph; Storm Ciarán in November 2023, which led to parts of London experiencing wind speeds of up to 90mph; and Storm Eunice in February 2022, which led to wind speeds reaching over 50mph in the area of the Proposed Scheme, resulting in damage to some buildings. Storms and gales could result in damage to new site infrastructure, property and works onsite. However, it is anticipated that the risk of vulnerability to a MA&D for the Proposed Scheme would be comparable to that for Riverside 1 and Riverside 2 (at the time of writing, construction works for Riverside 2 are being undertaken) and design standards will take into account these weather conditions. Specific measures are therefore not considered to be required as part of the Proposed Scheme.	X
Natural Hazards	Climatological and Meteorological	Thunderstorms	This type of event could result in lightning strikes to temporary elevated structures during construction (e.g. tower cranes) and new elevated structures (such as stacks) introduced as part of the Proposed Scheme; however, the risk is no different to similar elevated structures for Riverside 1 and Riverside 2. New elevated structures will be designed considering historical experience in the vicinity of the Site and current design standards that consider climate change resilience.	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			Specific measures are therefore not considered to be required as part of the Proposed Scheme.	
Natural Hazards	Climatological and Meteorological	Wave surges	The Proposed Scheme is located sufficiently inland, and therefore is not subject to wave surges.	X
Natural Hazards	Climatological and Meteorological	Extreme temperatures: Heatwaves Low (sub-zero) temperatures and heavy snow	<p>High temperature records are being broken with increasing frequency. On 3rd August 1990, a record high of 37.1°C was reached in Cheltenham. This was broken in 2003, when 38.5°C was reached in Faversham, Kent, then again in 2019, when Cambridge reached 38.7°C, and most recently on 19th July 2022, when the current record of 40.3°C was recorded in Coningsby, Lincolnshire and the Met Office declared its first ever red alert for heat and declared a national emergency. Widespread transport disruption occurred, and the increased electricity demand almost led to a blackout in London, which was averted by the emergency purchase of electricity.</p> <p>The most widespread and prolonged low temperatures and heavy snow in recent years occurred from December 2009 to January 2010. Daytime temperatures were mostly sub-zero across the UK. At night, temperatures in England regularly fell to -5°C to -10°C. Snowfall across the UK lasted for some time, allowing 20cm to 30cm of snow to build up, closing schools and making it very difficult to travel.</p> <p>At the Site:</p>	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			<ul style="list-style-type: none"> • Between 1981 and 2010, there were 12 occurrences in which summer mean temperatures exceeded 27.5°C on five or more consecutive days. • Between 1981 and 2010, there have been 31 days with a maximum minimum temperature below zero degrees Celsius. • Between 1981 and 2010, there were 160 days with snow lying at 0900 however, there are no records from the Met Office of the depth of snow. <p>The Proposed Scheme will be vulnerable to extreme temperatures, and this has been considered in Chapter 12: Climate Resilience (Volume 1). However, the Proposed Scheme itself is not expected to increase risks associated with extreme weather in the area. Therefore, specific measures are not considered to be required as part of the Proposed Scheme.</p>	
Natural Hazards	Climatological and Meteorological	Droughts	<p>Over the past 40 years or so England has experienced five long-duration droughts and two shorter periods of drought. Southern England is prone to drought. The Kent and South London Environment Agency Area was declared as in-drought in August 2022. Potable water in the area surrounding the Site Boundary is supplied by Thames Water, which sources 80% of its supplies from river abstraction.</p> <p>Aquifers are present in the Site and an active licensed surface water abstraction point located 15m to the west of the Site abstracts from the River Thames. It is not anticipated that the</p>	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			<p>Proposed Scheme will significantly impact abstraction points, but it is possible that dewatering during construction may have an impact on nearby water courses with a groundwater baseflow component.</p> <p>The River Thames has been identified as experiencing some water resource availability issues, notably when its source dried out completely during the 2022 heatwave.</p> <p>Prolonged periods of drought can also impact infrastructure as drying out and cracking of soils may affect structural stability, and prolonged dry periods can lead to cracking of surfaces and more rapid deterioration of materials. Decreased rainfall combined with an increase in the average temperature can also increase subsidence, affecting the stability of the foundations and structures.</p> <p>The design of the sub-structure of the Proposed Scheme will be resilient to ground shrinkage and this risk will be considered in the development of the design for the Proposed Scheme.</p> <p>In addition, Chapter 12: Climate Resilience (Volume 1) considers the potential impact of drought on ancillary infrastructure during the operation phase. Maintenance procedures will be set out in an Operational EMP, which will be prepared prior to the Proposed Scheme commencing operation.</p>	

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
Natural Hazards	Climatological and Meteorological	Severe Space Weather: Solar Flares	<p>Solar flare events are known to interrupt radio and other electronic communications. Records from solar storms in 1921 and 1960 describe widespread radio disruption and impacts on railway signalling and switching systems.</p> <p>There will be the use of technology to control processes and plant, however, this will be appropriately protected, therefore the Proposed Scheme is no more vulnerable to this MA&D type than the current baseline.</p>	X
Natural Hazards	Climatological and Meteorological	Severe Space Weather: Solar Energetic Particles	<p>Solar energetic particles cause solar radiation storms, but only in outer space. Therefore, further consideration of this risk is not required as part of the assessment.</p>	X
Natural Hazards	Climatological and Meteorological	Severe Space Weather: Coronal Mass Ejections	<p>Coronal mass ejections cause geomagnetic storms. The geomagnetic storm in 2003 caused the UK aviation sector to lose some Global Positioning System functions for a day, however there were no known significant impact on road users or infrastructure.</p>	X
Natural Hazards	Climatological and Meteorological	Fog	<p>Fog is one of the most common weather conditions in the UK, particularly throughout autumn and winter. Severe disruption to transport occurs when the visibility falls below 50m over a wide area. However, the Proposed Scheme, as a stationary installation, will not be vulnerable to fog. The only risks would be to staff travelling to the Site, but this risk would not be significantly different from the baseline. The health and safety of staff is also managed by occupational health and safety legislation.</p>	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
Natural Hazards	Climatological and Meteorological	Wildfires: Forest fire, Bush/brush, pasture	<p>In April and May 2011 numerous wildfires broke out across the UK after unusually hot and dry weather. England received only 21% of its usual rainfall for April 2011.</p> <p>The Proposed Scheme is located in a heavily urbanised area. There is some vegetation in the surrounding area, but it does not have a potential high fuel load (e.g. gorse) and it is unlikely that a wildfire would occur. Urban fires are assessed under manmade hazards elsewhere in this assessment.</p>	X
Natural Hazards	Climatological and Meteorological	Poor Air Quality	<p>In 2006, the UK experienced two periods of extended hot weather with associated elevated ozone and harmful airborne particles. In the spring of 2015, two particle pollution episodes caused widespread poor air quality throughout the UK, with multiple areas measuring 'High' on the Daily Air Quality Index and resulted in around 1,100 deaths due to exacerbation of pre-existing ill-health conditions. The summer of 2015 also contained two elevated ozone episodes.</p> <p>Construction: Construction effects will be temporary for the duration of the construction phase. Increased dust emissions from construction activities and traffic could lead to potential loss of amenity at sensitive receptors. Traffic management measures may result in both positive and adverse changes to emissions from vehicle exhausts and roadside pollution concentrations. However, this will not result in a MA&D event.</p> <p>Operation: The Proposed Scheme is expected to result in additional emissions from increased road traffic and marine vessel movements. The Proposed Scheme will result in a</p>	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			<p>change to the emissions of pollutants at Riverside Campus, with Riverside 1 currently regulated by the Environment Agency under an Environmental Permit and Riverside 2 to be regulated by Permit (when operating). The introduction of these new emission sources and pollutants (including amines and aldehydes) will require an Environmental Permit. In its determination of the Environmental Permit, the Environment Agency will set emission limits for the new pollutants to air together with the requirement to implement appropriate mitigation measures to prevent harm to the environmental receptors identified in Chapter 5: Air Quality (Volume 1) (if needed).</p> <p>Therefore, significant residual air quality effects which could result in a MA&D are not anticipated during construction and operation of the Proposed Scheme.</p>	
Natural Hazards	Biological	Disease epidemics: <ul style="list-style-type: none"> ● Viral; ● Bacterial; ● Parasitic; ● Fungal; and ● Prion. 	The Proposed Scheme is located in a developed country where the population is in general good health. The most recent disease epidemic in England was COVID-19, the first cases of which were identified in February 2020. Although no longer considered a global health emergency by The World Health Organisation, the vulnerability of the Proposed Scheme to a MA&D caused by COVID-19 during construction and operation should be mitigated by the occupational health and safety processes that are implemented by both the contractor and government rules and guidelines on the control of spread of COVID-19.	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			<p>The UK Health Security Agency (UKHSA) is the executive agency of the Department of Health responsible for protecting the nation from public health hazards and preparing for and responding to public health emergencies. One of the UKHSA's functions is to protect the public from infectious disease outbreaks and the Agency has produced a document providing operational guidance for the management of outbreaks of communicable disease, 'Communicable Disease Outbreak management: Operational Guidance'⁶.</p> <p>Risks from Weil's Disease (or leptospirosis) are considered to be of low likelihood, but not of high consequence as a low number of people contract this disease in the UK each year. It will be unlikely for any staff to contract Weil's Disease as appropriate PPE will be worn and any risks managed in the Outline CoCP (Document Reference 7.4).</p> <p>The construction and use of the Proposed Scheme is not going to give rise to any disease epidemics.</p>	
Natural Hazards	Biological	Animal Diseases: <ul style="list-style-type: none"> ● Avian influenza; ● West Nile virus; ● Rabies; ● Foot and mouth; and ● Swine fever. 	<p>Low and highly pathogenic avian influenza has been recorded in poultry in the UK several times in the last 10 years, most recently in the autumn and winter of 2021/22, 2022/23 and 2023/24, although no human cases were reported.</p> <p>There was a devastating foot and mouth outbreak in 2001. There are no known foot and mouth burial pits in the area, and it is considered unlikely that they will be present in the project area due to its highly urbanised location.</p>	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			The use of the Proposed Scheme is not going to be the source of any disease epidemics and spread would be controlled through containment of infected animals including prohibition of transportation.	
Natural Hazards	Biological	Plants	Chapter 7: Terrestrial Biodiversity (Volume 1) and Chapter 8: Marine Biodiversity (Volume 1) identify that Invasive Non-Native Species are present within the Site. Standard control measures will be implemented by the appointed contractor during construction to handle and dispose of any diseased plants and/or injurious weeds and prevent their spread, pursuant to the Outline CoCP (Document Reference 7.4) .	X
Technological or Manmade Hazards	Societal	Extensive public demonstrations which could lead to violence and loss of life.	The Proposed Scheme is located in a developed country that has steady, yet small population growth. England is politically stable with no direct border with countries experiencing conflicts. The Proposed Scheme should not lead to high profile public demonstrations or disorder.	X
Technological or Manmade Hazards	Societal	Widespread damage to societies and economies.	The Proposed Scheme is located in a developed country that has steady, yet small population growth. England is politically stable with no direct border with countries experiencing conflicts. It is proposed to address positively key policy priorities for climate change.	X
Technological or Manmade Hazards	Societal	The need for large-scale multi-faceted	The Proposed Scheme is located in a developed country that has steady, yet small population growth. England is politically	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
		humanitarian assistance.	stable with no direct border with countries experiencing conflicts.	
Technological or Manmade Hazards	Societal	The hindrance or prevention of humanitarian assistance by political and military constraints.	The Proposed Scheme is located in a developed country that has steady, yet small population growth. England is politically stable with no direct border with countries experiencing conflicts.	X
Technological or Manmade Hazards	Societal	Significant security risks for humanitarian relief workers in some areas.	The Proposed Scheme is located in a developed country that has steady, yet small population growth. England is politically stable with no direct border with countries experiencing conflicts.	X
Technological or Manmade Hazards	Societal	Famine	The Proposed Scheme is located in a developed country that produces its own crops and imports food. It is politically stable and not subject to hyperinflation and therefore food is available, whether produced within the UK or imported. Famine is also not relevant to the use of the Proposed Scheme.	X
Technological or Manmade Hazards	Societal	Displaced population	There will be no significant displacement of populations as part of the Proposed Scheme.	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
Technological or Manmade Hazards	Industrial and Urban Accidents	Major Accident Hazard Chemical sites	<p>There are four Control of Major Accident Hazard (COMAH) sites within a 5km radius of the Proposed Scheme:</p> <ul style="list-style-type: none"> • Crossness Sewage Treatment Works, Thames Water Utilities Limited (Lower Tier) (approximately 100m to the west of the Site Boundary); • Rainham, Flogas Britain Limited (Fuel storage/distribution) (Upper Tier) (approximately 410m northeast of the Site Boundary); • Dagenham, Stolthaven Dagenham Limited (Chemical installations - distribution, Fuel storage/distribution) (Upper Tier) (approximately 1.3km northwest of the Site Boundary); and • Riverside Sewage Treatment Works, Thames Water Utilities Limited (Lower Tier) (approximately 1.45km northwest of the Site Boundary). <p>Therefore, it is proposed to further consider this MA&D type in the assessment.</p>	<p>✓ C, O</p>
Technological or Manmade Hazards	Industrial and Urban Accidents	Major Accident Hazard Pipelines	<p>The HSE's Land Use Planning tool does not identify the presence of any major accident hazard pipelines within 1km of the Proposed Scheme.</p> <p>However, the consultation response to the EIA Scoping Report⁷ from Northern Gas Networks indicates that there may be gas infrastructure in the vicinity of the Proposed Scheme. Consultation was undertaken with Northern Gas Networks and it was established that they were not responsible for gas infrastructure in the vicinity of the Site. Therefore, the</p>	<p>✓ C</p>

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			<p>Applicant consulted Scotia Gas Networks and it was identified that intermediate pressure gas mains are present within the Study Area, to the east of Norman Road and to the north of Eastern Way. Due to the location of the pipeline the only potential impact will be during the construction phase, therefore the operational phase has been scoped out. Although intermediate pressure gas mains are not classified as major accident hazard pipelines, this MA&D type has been assessed during the construction phase in the ES.</p>	
Technological or Manmade Hazards	Industrial and Urban Accidents	Nuclear	<p>Nuclear sites are designed, built and operated so that the chance of accidental releases of radiological material in the UK is extremely low. Last historical major accident in the UK was Windscale in 1957.</p> <p>There are no nuclear sites within 5km of the Site Boundary. The closest nuclear site is Bradwell Nuclear Power Station, located approximately 80km to the east.</p>	X
Technological or Manmade Hazards	Industrial and Urban Accidents	Fuel storage	<p>In December 2005, Europe's largest peacetime fire occurred at the Buncefield Oil Storage Terminal in Hemel Hempstead, England. The surrounding area was temporarily evacuated and some local businesses experienced long term disruption to operations.</p> <p>There are two COMAH regulated fuel storage sites within the Study Area, which have been considered under the Major Accident Hazards Chemical Sites MA&D type above.</p> <p>There are also several commercial fuel stations, including a BP station at Abbey Wood approximately 2km to the</p>	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			<p>southwest, a Morrisons petrol station approximately 2.5km to the southeast, and a Morrisons petrol station approximately 3km to the west from the Site Boundary. The inventory of fuel held at the fuel station sites is relatively small (i.e. below COMAH thresholds) and the hazardous area classification zones will not extend beyond the petrol station boundary. Therefore, further assessment is not required.</p> <p>It is understood that Asda propose to install a Liquefied Natural Gas (LNG) refuelling facility, with associated LNG storage, at their distribution centre off Norman Road. The volume of LNG that is proposed to be stored is currently unknown. Therefore, it is unclear which regulatory regime this will be managed via and whether there will be HSE defined CZ's associated with the LNG storage tank. As there is currently insufficient information available in the public domain, the risks associated with the presence of this facility, adjacent to the Proposed Scheme, cannot be considered. As such this proposed LNG facility has not been considered further in this assessment.</p> <p>The proposed Asda LNG storage facility will be regulated by the HSE, and appropriate management arrangements will be put in place as required by the appropriate regulatory regime to reduce the likelihood of an MA&D event associated with the LNG facility.</p>	
Technological or Manmade Hazards	Industrial and Urban Accidents	Dam breaches	Dam breaches in the UK are rare; the last major breach was at the Cwm Eigiau dam in 1925, which caused 17 fatalities and widespread flooding. No dam has been identified within 5km of the Proposed Scheme.	X

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Technological or Manmade Hazards	Industrial and Urban Accidents	Mines and storage caverns	Coal Authority records state that there are no areas of coal workings in the area of the Proposed Scheme. No active or historic mining activity has been identified in the area.	X
Technological or Manmade Hazards	Industrial and Urban Accidents	Fires	<p>Fires could be initiated by construction related activities which impact areas adjacent to the construction activities. During construction, standard control measures will be implemented by the appointed contractor to manage the risk of fire. Therefore, further consideration is not considered necessary.</p> <p>London City Airport is located approximately 8km east of the Proposed Scheme, as well as numerous fuel storage sites as identified above (under fuel storage and major accident hazard chemical sites).</p> <p>The Proposed Scheme is located in a predominantly industrial area with the nearest residential area being approximately 170m south of the Site Boundary. The Site contains nature conservation sites, Metropolitan Open Land and PRow.</p> <p>An Outline EPRP (Document Reference 7.11) has been prepared for the Proposed Scheme which considers the risks associated with fires impacting the Proposed Scheme and the potential for the Proposed Scheme to be an ignition source for a fire. In addition, the design of the Proposed Scheme will incorporate fire suppression systems as required.</p>	X
Technological or Manmade Hazards	Transport accidents	Road	Significant transport accidents occur across the UK on a daily basis, mainly on roads, and involving private and/or commercial vehicles.	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			<p>Construction: During construction there will be an increase in heavy construction plant and equipment on local road network which may increase the risk of accidents (Chapter 18: Landside Transport (Volume 1)). It is not envisaged that the construction of the Proposed Scheme would generate or attract any hazardous loads.</p> <p>Operation: Chapter 18: Landside Transport (Volume 1) assesses the potential impacts of hazardous loads.</p> <p>On this basis, it is proposed that further assessment is not required.</p>	
Technological or Manmade Hazards	Transport accidents	Rail	The closest railway line to the Proposed Scheme passes through Belvedere Station, approximately 600m to the south. Therefore, further assessment is not required.	X
Technological or Manmade Hazards	Transport accidents	Waterways	<p>The Proposed Scheme is located immediately adjacent to the River Thames, which carries significant water traffic and will also be used by the Proposed Scheme to transport liquified carbon dioxide. Chapter 19: Marine Navigation (Volume 1) assesses the potential impacts associated with the collision of a Proposed Scheme vessel.</p> <p>It is not practicable to use Middleton Jetty for the delivery of construction plant and materials for the landside or marine elements of the Proposed Scheme without compromising the effectiveness of the operations at Riverside 1 and Riverside 2 (once operational).</p> <p>Transport will be primarily via the River Thames for the construction of the Proposed Jetty.</p>	✓ C, O

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			Therefore, it is proposed to further consider this MA&D type in the assessment.	
Technological or Manmade Hazards	Transport accidents	Aviation	<p>There have been no major air accidents in the UK since the Kegworth incident in 1989.</p> <p>London City Airport is located approximately 8km to the west of the Proposed Scheme.</p> <p>Navigation lighting will be installed on tall structures as required.</p> <p>Public Safety Zones (PSZ) are areas at either end of the runway and development is restricted within these zones to minimise the risk of death or injury in the event of an aircraft accident on take-off or landing. The runway at London City Airport runs west to east and the PSZ extends approximately 2km on either end of the runway. Therefore, the PSZ associated with the airfield will not interact or be in close proximity to the Proposed Scheme. Therefore, further consideration is not required.</p>	X
Technological or Manmade Hazards	Pollution accidents	Air	<p>Construction: Construction impacts will be temporary for the duration of the construction phase. Increased dust emissions from construction activities and traffic could lead to potential loss of amenity at sensitive receptors. Traffic management measures may result in both positive and adverse changes to emissions from vehicle exhausts and roadside pollution concentrations. Emissions from mobile plant and equipment are covered under H&S and environmental legislation.</p>	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			<p>Mitigation measures have been defined in other chapters and are outlined in the Outline CoCP (Document Reference 7.4).</p> <p>Operation: The Proposed Scheme will result in a change to the emissions of pollutants at Riverside Campus, with Riverside 1 currently regulated by the Environment Agency under an Environmental Permit and Riverside 2 to be regulated by Permit (when operating). The introduction of new emission sources and pollutants associated with the Carbon Capture Facility will require an Environmental Permit. In the determination of the Environmental Permit, the Environment Agency will set emission limits for the new pollutants to air together with the requirement to implement appropriate mitigation measures to prevent harm to human health and environmental receptors (if needed). Therefore, significant residual air quality effects which could result in a MA&D are not anticipated during construction and operation of the Proposed Scheme. Therefore, further consideration is not required.</p>	
Technological or Manmade Hazards	Pollution accidents	Land	<p>During construction there may be an increased risk of leaks and spillages of hazardous materials associated with the construction activities. During construction, standard control measures will be implemented by the appointed contractor and identified in the Outline CoCP (Document Reference 7.4) to manage the risk of spillages and leaks. It is therefore proposed not to evaluate this further for the construction phase.</p>	<p style="text-align: center;">✓ ○</p>

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			<p>During operation, it is understood that a range of new hazardous wastes will be generated and stored onsite before going offsite for treatment. Therefore, it is proposed to further consider this MA&D type in the assessment.</p>	
Technological or Manmade Hazards	Pollution accidents	Water	<p>As outlined in Chapter 11: Water Environment and Flood Risk (Volume 1), there are several main rivers located within the Site and Study Area. These include a network of watercourses classified as main rivers within the Site and the River Thames located immediately north of the Site Boundary. There are also ordinary watercourses and ponds located in the Study Area. In addition, several aquifers are present in the project area, including a Secondary Undifferentiated aquifer (superficial Alluvium), three Secondary A aquifers (the Blackheath Member (Harwich Formation), Lambeth Group, and Thanet Formation) and a Principal aquifer (Upper Chalk Formation). It is important that these water resources are protected.</p> <p>During construction there may increase the risk of leaks and spillages of hazardous materials associated with the construction activities. During construction, standard control measures will be implemented by the appointed contractor and identified in the Outline CoCP (Document Reference 7.4) to manage the risk of spillages and leaks. It is therefore proposed not to evaluate this further for the construction phase.</p> <p>During operation, it is understood that a range of new hazardous materials will be stored onsite. Therefore, it is</p>	<p>✓ ○</p>

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			proposed to further consider this MA&D type in the assessment.	
Technological or Manmade Hazards	Utilities failures	Electricity	<p>Instances of electricity failure (also referred to as power loss or blackout) can be caused by a number of things, such as severe weather (e.g. very strong winds, lightning and flooding) which damage the distribution network. These tend to be mainly specific place, local (e.g. metropolitan area) and less frequently regional (e.g. Northeast) as a result of severe winter storms and consequent damage to the distribution overhead line network.</p> <p>Riverside 1 includes infrastructure to deliver electricity to the national grid. Riverside 2 will also include similar infrastructure. The Proposed Scheme will include the installation of electrical infrastructure, including new switch rooms, transformers, substation and backup power generators. The potential risk of construction-related incidents when undertaking utilities works as part of the Proposed Scheme would be covered by existing legislation and as such does not require further consideration in the MA&D assessment.</p>	X
Technological or Manmade Hazards	Utilities failures	Gas	<p>An intermediate pressure gas mains runs through the eastern part of the Site Boundary, the responsibility for which lies with the relevant local operator or company should this infrastructure fail.</p> <p>The potential risk of construction-related incidents when undertaking utilities works as part of the Proposed Scheme</p>	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			would be covered by existing legislation and as such does not require further consideration in the MA&D assessment. No natural gas use is associated with the Proposed Scheme.	
Technological or Manmade Hazards	Utilities failures	Water supply	The London Water Resource Zone serves the vast majority of London, which is supplied primarily by the Rivers Thames and Lee. Some water scarcity has occurred in the River Thames. A small amount of water will be required during construction and a constant supply will be required during operation. However, in the event of water scarcity, additional supplies could be brought in by tanker, or the facility could be safely shut down until supplies are restored and on this basis water scarcity impacting the Proposed Scheme is considered to be low risk and therefore has been scoped out.	X
Technological or Manmade Hazards	Utilities failures	Sewage system	The only use of the sewage system will be facilities for use by construction and operational staff, which will be covered by H&S welfare requirements. During the construction phase temporary portable systems will be in place.	X
Technological or Manmade Hazards	Malicious Attacks	Unexploded Ordnance	A low potential exists for encountering unexploded ordnance (UXO) ⁸ during construction of the Proposed Scheme. London was bombed heavily during WW1 and WW2. However, the majority of UXO was cleared after the war. As much of the land is brownfield land which has already been developed, the discovery of previously unidentified UXO is unlikely. Measures will be undertaken during construction to brief staff to raise awareness of this issue, and to define appropriate	✓ C

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			<p>response strategies should this be discovered during the works. In the EIA Scoping Opinion⁹, the Planning Inspectorate required an assessment of the risk of a major accidents and/or disasters as a result of encountering UXO during construction to be undertaken. Therefore, the risk of encountering UXO during the construction phase has been included in the assessment.</p> <p>There will be a limited risk of UXO affecting the Proposed Scheme once operational, but no greater than similar schemes in the vicinity.</p>	
Technological or Manmade Hazards	Malicious Attacks	Attacks Chemical Biological Radiological Nuclear	<p>Terrorists remain interested in Chemical, Biological, Radiological and Nuclear materials, however alternative methods of attack such as employing firearms or conventional explosive devices remain far more likely.</p> <p>Historical use has been in closed densely occupied structures (underground, buildings) or targeted at specific individuals.</p> <p>The Proposed Scheme is unlikely to be a target for this type of event due to the low number of exposed targets.</p>	X
Technological or Manmade Hazards	Malicious Attacks	Transport systems	<p>Potential systems would include (but are not limited to) railways, buses, passenger ferries, cargo vessels and aircraft. The Proposed Scheme does not fall within the definition of a transport system.</p>	X
Technological or Manmade Hazards	Malicious Attacks	Crowded places	<p>The Proposed Scheme does not fall within the definition of a crowded place, i.e. pedestrian routes and other thoroughfares</p>	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			<p>as well as sports arenas, retail outlets and entertainment spaces.</p> <p>The Proposed Scheme is unlikely to be a target for this type of event due to the low number of exposed targets.</p>	
Technological or Manmade Hazards	Malicious Attacks	Cyber	<p>Cyber-attacks occur almost constantly on key national and commercial electronic information, control systems and digital industries. The increasing reliance on technology to control the Proposed Scheme could render the Proposed Scheme more vulnerable to a cyber-attack.</p> <p>Notwithstanding this, it is not considered to be more vulnerable to attack than the existing baseline and similar infrastructure installed and running in the UK.</p>	X
Technological or Manmade Hazards	Malicious Attacks	Infrastructure	<p>Terrorists in the UK have previously attacked, or planned to attack, national infrastructure. Attempts were made to attack electricity substations in the 1990s. Bishopsgate, in the City of London, was attacked in 1993 and South Quay in London's Docklands in 1996. These attacks resulted in significant damage and disruption but relatively few casualties.</p> <p>The Site Boundary of the Proposed Scheme will be secured by fencing and access to the Proposed Scheme will be via a security gate. In addition, the perimeter of the Site will be monitored by CCTV. Further information is provided in the Outline CoCP (Document Reference 7.4).</p> <p>The Proposed Scheme will have minimal impact on local infrastructure and is unlikely to be considered a high-profile</p>	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
			target. In addition, it is not considered to be more vulnerable to attack than other similar infrastructure in the UK.	
Technological or Manmade Hazards	Engineering accidents and failures	Bridge failure	Bridge works are not proposed as part of the Proposed Scheme.	X
Technological or Manmade Hazards	Engineering accidents and failures	Flood defence failure	<p>The Site benefits from flood defences, notably the Thames Barrier, which is designed to be resistant to a 1-in-1,000 year coastal flood. In addition, there are flood defences located along the River Thames, falling partially within the Site. However, failure or overwhelming of the Thames Barrier and/or the flood defences along the River Thames in an extreme event may occur.</p> <p>The design of the Proposed Scheme has been developed to include allowances for future climate change predictions that could result in flooding. Notwithstanding these factors, the potential risk of breach events has been considered in the assessment.</p>	✓ C, O
Technological or Manmade Hazards	Engineering accidents and failures	Mast and tower collapse	<p>There are no towers or masts proximate to the Proposed Scheme or being built as part of the Proposed Scheme. However, the Proposed Scheme does involve the construction of up to two Absorber Columns which will have a maximum height of 113m AoD. These columns will be constructed to current engineering standards.</p> <p>The nearest towers/masts are two wind turbines: one is located approximately 500m north of the Site Boundary; and one is located approximately 655m west of the Site Boundary.</p>	X

MA&D Group	MA&D Category	MA&D Type	Basis of Decision (for Consideration in Assessment)	Considered in Assessment and Phase
Technological or Manmade Hazards	Engineering accidents and failures	Property or bridge demolition accidents	The Proposed Scheme will involve the demolition of a single industrial facility (Munster Joinery) which is located within the Site. The Proposed Scheme may also involve the demolition of the Belvedere Power Station Jetty (disused). The demolition of both the industrial facility and Belvedere Power Station Jetty (disused) will be managed under the CDM Regulations and therefore further consideration is not required.	X
Technological or Manmade Hazards	Engineering accidents and failures	Tunnel failure /fire	There are no tunnel structures proposed as part of the Proposed Scheme or within the Study Area.	X

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- ⁷ Cory Environmental Holdings Limited. (2023). 'Environment Impact Assessment Scoping Report: Cory Decarbonisation Project'. Available at: <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010128/EN010128-000021-EN010128%20-%20Scoping%20Report.pdf>
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- ⁹ Planning Inspectorate. (2023). 'Environmental Impact Assessment Scoping Opinion: Cory Decarbonisation Project.' Available at: <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010128/EN010128-000026-EN010128%20-%20Scoping%20Opinion.pdf>



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