

Appendix 9C: Drainage Strategies

RISK IDENTIFICATION										RISK ASSESSMENT					ADAPTATION							
Risk ID	Climate variable	Risk statement	Direct or Indirect	Asset components impacted						Mitigation Measures/Planned Controls	Initial risk rating RCP8.5 (2010-2039)			Initial risk rating RCP8.5 (2040 - 2069)		Adaptation Measures						
		Description of impacts		Heat equipment e.g. FCC unit	Resilience e.g. CO ₂ compression/oligoynes	Mechanical services e.g. accling	Electrical equipment & substation	Roads pavements	Drainage	Water treatment Plant	Construction assets, plant and equipment	Start and visitors on		Likelihood	Consequence	Risk Rating	Likelihood	Consequence	Risk Rating			
CONSTRUCTION																						
1	Extreme temperatures (heat)	Extreme temperature event causes overheating of construction equipment	Direct											Unlikely	Insignificant	Low	N/A (construction risk)	N/A (construction risk)		-Consider developing register of vulnerable construction assets. -Consider inspection of vulnerable construction assets after a hot day.		
2	Extreme temperatures (heat)	Extreme temperature event causes increased heat stress/heat exhaustion for workers. Extreme temperatures also causes poor air quality.	Direct											Unlikely	Minor	Low	N/A (construction risk)	N/A (construction risk)		-Appropriate sun protection. -Measures and actions to combat extreme heat conditions (e.g. avoid working on hot summer days, welfare training for identifying heat illness, training for working in hot conditions, work in shaded areas, plan major activities for cooler parts of the day, wear loose fitting/breathable clothing)		
3	Extreme rainfall	Extreme rainfall event causes surface water flooding of the construction site and local roads. This reduces staff productivity as a result of staff and equipment relocation.	Direct											Unlikely	Minor	Low	N/A (construction risk)	N/A (construction risk)		-Suitable storage and bunding of pollutants to protect from high rainfall events. This will be further supported by the Site Emergency Response Plans. - Appropriate surface water drainage and attenuation will be provided for the construction phase to manage the risk of flooding.		
4	Sea level rise	Sea level rise results in coastal flooding causing inundation of the construction site and damage to assets, plants and equipment.	Direct											Unlikely	Moderate	Medium	N/A (construction risk)	N/A (construction risk)		-The Contractors will monitor weather forecasts and receive Environment Agency flood alerts and plan works accordingly, protecting workers and resources from any extreme weather conditions such as storms, flooding.		
5	Storms	Storm event results in damage to construction equipment resulting in repairs costs or reduced functionality, and/or safety risks.	Direct											Unlikely	Moderate	Medium	N/A (construction risk)	N/A (construction risk)		-Electrical equipment to be stored at higher ground levels. -Welfare areas to be assigned to higher ground levels. -For extreme rainfall forecasts, ensure construction plants are secure and stored at higher ground levels.		
OPERATION																						
6	Extreme temperatures (heat)	Extreme temperature events causes overheating of equipment causing damage to infrastructure components	Direct											Rare	Minor	Low			Rare	Minor	Low	No further adaptation required.
7	Extreme temperatures (heat)	Extreme temperature events lead to reduced efficiency of the carbon capture facility (air cooled exchangers) resulting in lower rates of carbon capture.	Direct											Unlikely	Minor	Low			Unlikely	Minor	Low	Take extreme temperature events into account with minimum capture rates designed for the plant.
8	Extreme temperatures (heat)	Extreme temperature events cause an increase in ambient temperature of buildings, leading to higher air conditioning requirements and impacts on the thermal comfort of building users.	Direct											Unlikely	Minor	Low			Unlikely	Minor	Low	No further adaptation measures required.
9	Extreme temperature (cold)	Extreme cold temperatures results in freezing of instrumentation and lines	Direct											Unlikely	Minor	Low			Unlikely	Minor	Low	Not further adaptation measures.
10	Extreme rainfall	Extreme rainfall events lead to surface water flooding and can cause damage to infrastructure, building surfaces and exposed utilities.	Direct											Unlikely	Minor	Low			Unlikely	Minor	Low	No further adaptation measures required.
														Unlikely	Minor	Low			Moderate	Minor	Medium	- Suitable storage and bunding of pollutants to protect from high rainfall events. Supported by a Site Emergency Response Plans. - Installation of a suitable sustainable surface water drainage network and management system (SuDS) to protect the proposed development from high rainfall events. - Flood Resistance and Resilience Measures will be implemented as required for each of the Proposed Developments, including: i. pipelines and storage tanks designed to withstand the water pressures associated with high return period event flooding.

