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Arc 21

Environmental Statement

Appendix 11.3 – Climate Change Resilience Assessment – Detailed Results

Document approval

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1 Introduction

This technical appendix supports Chapter 11 – Climate Change of the Environmental Statement (ES) and provides the detailed results of the climate change resilience assessment.

The climate change resilience has been assessed for the following vulnerable receptors:

- plant buildings and operational equipment;
- vehicular access to site (for workers and feedstock);
- Grid connection;
- on-site workers and;
- soft landscaping.

For each receptor, an overview has been provided on how climate change may affect the receptor. Then the impact of each predicted climatic effect has been assessed including identification of measures within the design to mitigate any adverse impacts, in line with the methodology set out in Chapter 11 of the ES. For each receptor the following have been considered:

- the sensitivity of the receptor, which considers the value of the receptor and the susceptibility and vulnerability of the receptor to climate change;
- the magnitude of impact, which considers the probability of the event occurring and the consequence given the embedded mitigation in the design of the Facility; and
- significance of effect, taking into account the sensitivity of the receptor and magnitude of impact.

The climate changes which have the potential to impact upon the Proposed Development and which have been considered within this assessment are:

- Increase in precipitation;
- Decrease in precipitation;
- Increase in summer temperatures; and
- Extreme events.

The following effects of climate change are not considered as they are not anticipated to impact the Proposed Development.

- Sea level rise– the site location is not in proximity to coastlines or tidal rivers and so will not be impacted by sea level rise.
- Snow and ice - the latest UK Climate Predictions (UKCP) (UKCP18) predictions anticipate less snow and ice than the current baseline and as such, the risk from snow and ice is not anticipated to increase due to climate change.
- Increased winter temperatures - increases in winter temperatures do not exceed the current baseline for other times of the year and so the Proposed Development would not be vulnerable to this effect.
- Relative humidity - changes in humidity are not included in the UKCP18 predictions and it is not likely to have a significant effect on the Proposed Development as it is designed to allow for a range of ambient conditions.
- Water quality and soils - water availability has the potential to cause changes to the mobilisation of pollutants. More acidic soils and / or water can increase the deterioration of building materials. Soil stability may be altered by a change in water availability. However, the design materials have been chosen to be appropriate for existing ground conditions and would be able to withstand changes in soil acidity as a result of changes in water availability.

A summary table of the steps considered and the resulting significance has been provided for all of the vulnerable receptors in section 7.

2 Plant buildings and operational equipment

Changes in climate can affect the plant building and operational equipment in a number of ways including:

- Increased flooding can result in damage to buildings resulting in the need for emergency repairs and possible disruption to the operations on the site.
- The operation of the Proposed Development could be impacted by a depletion of water resources as it is a net user of water.
- Increased summer temperatures could cause the buildings to be heated up to higher temperature than currently, leading to additional resources to ensure buildings are maintained at an appropriate temperature.
- Increased extreme events including flooding and high wind speeds resulting in structural damage to buildings and the need for emergency repairs and possible disruption to the operations on the site.

The following section identifies the anticipated change in climate conditions, the effect this would have upon the receptor and the significance.

2.1 Climatic effect – increase in precipitation

The predicted increase in precipitation due to climate change could increase the risk of flooding at the site. If flooding of the site were to be severe, there would be a risk of flood damage to buildings, resulting in maintenance and possible generation disruption.

A review of the Flood Maps (Northern Ireland)¹ shows that:

- The Proposed Development is not located in an area susceptible to fluvial/sea flooding either in present day or allowing for climate change.
- There are small areas of the site susceptible to surface water flooding in the present day and when allowing for the effects of climate change.

The Proposed Development will include Sustainable Urban Drainage Systems (SuDS) with associated attenuation ponds which limits the flows from the site to greenfield run-off rate. Therefore, the Proposed Development will not increase the flood risk elsewhere. The pipes and storm water attenuation have been sized to accommodate a 1 in 30 year storm event directing surface water away from operational areas.

The assessment of significance of the potential for increased precipitation and associated increased flooding risk as a result of climate change, on the plant buildings and operational equipment is as follows:

Sensitivity

The sensitivity of the plant buildings and operational equipment to flooding is deemed to be medium for the following reasons:

- The value of the receptor is high.
- The susceptibility of the plant building and operational equipment to flooding is deemed to be low because there are effective mitigation measures in place (hard wearing materials and surface water drainage) which would allow the property to withstand the projected changes.

¹ <https://dfi-ni.maps.arcgis.com/apps/webappviewer/index.html?id=fd6c0a01b07840269a50a2f596b3daf6>, accessed 23/08/2023

- The vulnerability of the plant building and operational equipment to surface water flooding is considered to be low, as the risk of flooding is of low significance and climate change has been considered within this assessment.

Magnitude

The overall magnitude of impact is negligible for the following reasons:

- The probability of increased rainfall is high, but the probability of increased flood risk is low, as the flood risk assessment has already taken into account climate change.
- The consequence is low because should flooding occur, there are effective mitigation measures in place (hard wearing materials and surface water drainage) which would allow the property to withstand the projected changes.

Significance

As a result, it is considered that the predicted increase in precipitation leading to the increased potential for surface water flooding would be of slight significance to the plant buildings and operational equipment.

2.2 Climatic effect – decrease in precipitation

Decrease in precipitation gives the increased possibility of drought, particularly during summer months, which is further detailed in Appendix 11-2. As the Proposed Development uses water within the process, it may be impacted by depletion of water resources in the UK caused by changes to climate.

Water is supplied by Northern Ireland Water. Northern Ireland Water has a Water Resource and Supply Resilience Plan² with a planning horizon up to 2042/43. The strategic aim of the plan is to improve the resilience of Northern Ireland's water supply system. The plan considers the whole of Northern Ireland and seven Water Resource Zones, of which the Proposed Development is within the East Water Resource Zone (WRZ). This shows the East WRZ is predicted to have a surplus of water supply based on a 1:40 year drought, during summer critical peak demand and during the winter critical period. Northern Ireland Water also has a target to achieve operational net zero by 2030 and are committed to improving and protecting biodiversity.

Although the risk of drought from climate change cannot be directly controlled, Northern Ireland Water is aware of the risk and are taking measures to ensure climate resilience and reliable supply to their customers, and the WRSRP shows that even in a 1:40 year drought event there is predicted to be a surplus of water supply in the region.

Furthermore, any wastewater at the Proposed Development will be re-circulated, which reduces the reliance of the Proposed Development on water from Northern Ireland Water.

The assessment of significance of the potential for the increased risk of drought as a result of climate change, on the plant buildings and operational equipment is as follows:

Sensitivity

The sensitivity of the plant buildings and operational equipment to a decrease in precipitation is deemed to be medium for the following reasons:

- The value of the receptor is high.

² <https://seswater.co.uk/-/media/files/seswater/your-environment/wrmp-2022/ses-water-draft-wrmp22.pdf>

- The susceptibility of the plant building and operational equipment to drought would be low as the water supplier has mitigation measures in place to ensure reliable supply, and the impacts of no supply would be temporary. There will also be water re-use within the process to reduce reliance of the water supplier.
- The vulnerability of the plant building and operational equipment to drought is high because the area may be impacted by drought and the receptor requires water to operate.

Magnitude

The overall magnitude of impact is small for the following reasons:

- The probability of increased drought within the area is moderate, but due to the mitigation measures committed to by the water supplier, the probability of reduced water supply at the site is low.
- The consequence is moderate because a disruption in water supply would cause the process to be temporarily halted, although it is likely that the impacts would be short term.

Significance

As a result, it has been considered that the predicted decrease in precipitation leading to the increased potential for drought and lack of water supply to the Proposed Development would be of slight significance to the plant buildings and operational equipment.

2.3 Climatic effect - increase in summer temperatures

The potential for an increase in mean summer temperatures has the possibility to cause buildings to be heated up to higher temperatures than at current. However, measures to allow for temperature change have been incorporated into the design of the Proposed Development. These embedded mitigation measures include:

- The building materials are resilient to expected climatic extremes with British Standards applicable for most materials to ensure that extreme climatic conditions are accounted for.
- The building includes movement joints to allow for expansion and contraction of the materials.
- Any heating systems or cooling systems within the buildings are powered by electricity from the ERF, unless it is offline, in which case auxiliary power is used.
- The ventilation systems for the electrical systems are designed to within stand a range of temperatures greater than the currently experienced temperatures to account for climate change.

The assessment of significance of the potential for increased temperatures as a result of climate change, on the plant buildings and operational equipment is as follows:

Sensitivity

The sensitivity of the plant buildings and operational equipment to increased temperatures is deemed to be low for the following reasons:

- The value of the receptor is high.
- The susceptibility of the plant building and operational equipment to increased temperatures is low as the buildings have been designed to tolerate a range of temperatures.
- The vulnerability of the plant building and operational equipment to increased temperatures is low because it will likely experience higher ambient temperatures but is already tolerant to higher temperatures from the process.

Magnitude

As such the overall magnitude of impact is small for the following reasons:

- The probability of increased temperatures is high.
- The consequence is low because an increase in temperature will not cause significant damage to the buildings or operation of the Facility.

Significance

As a result, it has been considered that the predicted increase in temperatures leading to the increase in building temperatures would be of negligible significance to the plant buildings and operational equipment.

2.4 Climatic effect – extreme events

The predicted increase in rain caused by storms and extreme events is covered in the flooding sections. Surges in wind may have an impact on the wind loading of buildings, the potential impact being structural damage to the buildings, for example wind gusts could cause damage or shifting to cladding or bolts causing a risk of cladding or external parts of the building coming loose. The UKCP18 projections predict that wind speeds will increase, but do not quantify what the increase will be.

A standard part of the structural design for buildings and building materials includes wind loading studies, which includes a safety factor to allow for these strong winds and associated wind loading. In addition, preventative measures such as preventative maintenance and inspections of the cladding and building materials are carried out at regular intervals.

The assessment of significance of the potential for surges in wind caused by more frequent and intense extreme events as a result of climate change, to impact on the plant buildings and operational equipment is as follows:

Sensitivity

The sensitivity of the plant buildings and operational equipment to increased temperatures is deemed to be medium for the following reasons:

- The value of the receptor is high.
- The susceptibility of the plant building and operational equipment to increased wind damage is moderate as the buildings have been built to tolerate a range of wind gusts, but are susceptible to some level of damage.
- The vulnerability of the plant building to increased wind damage is high because they will likely experience higher winds, however the operational equipment has a low vulnerability to wind damage as it is not exposed to increased winds because it is within the shelter of the buildings.

Magnitude

The overall magnitude of impact is small for the following reasons:

- The probability of increased extreme events and wind damage to the buildings is high but to the operational equipment is low.
- The consequence is low, because should extreme events occur, the buildings may undergo a small amount of damage, but this would be repairable at the operators cost and impacts would be short term. The operational equipment is sheltered within the buildings, so will not undergo any damage from wind.

Significance

As a result, it has been considered that the predicted increase in extreme events leading to the potential increase in wind damage would be of slight significance to the plant buildings and operational equipment.

2.5 Summary

The assessment of the effect of changes to climate on plant buildings and operation is summarised in Table 1 in section 7.

In summary, the overall significance of effects of changes to climate on the buildings and operational equipment has been assessed to be negligible to slight. This is not a significant effect.

3 Vehicular access to the site (for workers and waste)

Events linked to climate change can affect vehicular access to the site. If the waste feedstock cannot access the site, there is a risk of supply disruption and potential shut down of the Proposed Development. If staff cannot access the site, there may be an impact to shift patterns and the potential for partial or complete shut down if there are not enough staff to maintain safe plant operation.

In the case that vehicles are restricted from accessing the site, the site, including the MBT plant and the baled storage area, has capacity for a few weeks' worth of waste feedstock, and storage capacity for residues generated. Therefore, general operation of the Proposed Development can continue normal operations for a few weeks, by which time it is expected that any road restrictions would have been removed or alternative routes created.

The highways network is designed for resilience to extreme events and it is the local councils' and the Highways Authority's responsibility to maintain the roads. For A roads and trunk roads, their clearance or the creation of alternative routes created would be priority for the Highway Authority.

The value of vehicular access to the site is high because the Proposed Development relies on deliveries of waste and raw materials and collection of the residues and the access of the site staff to undertake operations.

3.1 Climatic effect –increase in precipitation

Anticipated potential impacts to vehicular access to the site from an increase in precipitation are increased surface run off and associated surface water flooding of access routes, or other flooding of access routes.

The assessment of significance of the potential for vehicular access blockages a result of the effects of changes in climate is as follows:

Sensitivity

The sensitivity of the vehicular access to the site to flooding is deemed to be medium for the following reasons:

- The value of the receptor is high.
- The susceptibility is deemed to be low as there are effective mitigation measures in place to clear any flooding of access routes or provide alternative routes, and there is a contingency plan in place to enable operations to continue for a few weeks.
- The vulnerability is medium because although the risk of surface water flooding at the is low due to mitigation measures, there is the potential for the local access routes to have higher risk levels.

Magnitude

The overall magnitude of impact is small for the following reasons:

- The probability of increased rainfall is high, but the probability of increased flooding to vehicular access routes is medium as most roads are designed to be tolerant to flooding.
- The consequence is low because should flooding of the access routes occur, there may be disruption to the site access, but the contingency plan in place would allow the Proposed

Development to continue operations for a few weeks, by which time it would be expected for road blockages to be cleared or alternative routes provided.

Significance

As a result, it is considered that the predicted increase in precipitation leading to the increased potential for access route flooding would be of slight significance to the vehicular access to the site.

3.2 Climatic effect – decrease in summer precipitation

Decrease in summer rainfall gives the increased possibility of drought. This is not expected to impact the vehicular access to the site.

3.3 Climatic effect - increase in summer temperatures

The potential for an increase in mean summer temperatures has the possibility to cause drought and warmer conditions for driving. This is not expected to impact the vehicular access to the site.

3.4 Climatic effect – extreme events

The predicted increase in rain caused by storms and extreme events is covered in the flooding sections. Surges in wind may have an impact on the vehicular access to site where they cause branches to be blown off or trees to be blown over, resulting in a road blockage.

The assessment of significance of the potential for vehicular access blockages a result of extreme events as a result of changes to climate is as follows:

Sensitivity

The sensitivity of the vehicular access to the site to road blockages caused by fallen trees is assessed to be medium for the following reasons:

- The value of the receptor is high.
- The susceptibility is deemed to be low as there are effective mitigation measures in place to clear any blockages or provide alternative route and there is a contingency plan in place to enable operations to continue for a few weeks.
- The vulnerability is moderate, as it is possible that part of the vehicular access route could be impacted by fallen trees or branches in an extreme event.

Magnitude

The overall magnitude of impact is small for the following reasons:

- The probability of increased extreme events is high, but the probability of this impacting the vehicular access routes is moderate, as the highways agency are responsible for clearing road blockages quickly.
- The consequence is low because should a blockage occur, there may be disruption to the site access, but the contingency plan in place would allow the Proposed Development to continue operations for a few weeks, by which time it would be expected for road blockages to be cleared or alternative routes provided.

Significance

As a result, it is considered that the predicted increase in extreme events as a result of changes to climate leading to the increased potential access route blockage by fallen trees or branches would be of slight significance to the vehicular access to the site.

3.5 Summary

The assessment of the effect of changes to climate on vehicular access to the site is summarised in Table 1 in section 7.

In summary, the overall significance of effects of changes to climate on vehicular access to the site has been assessed to be slight. This is not a significant effect.

4 Grid connection and local users

4.1 Climatic effect –increase in precipitation

Anticipated potential impacts to grid connection and local electricity or gas users from an increase in precipitation are flooding events which could cause water damage to the grid connection and electricity or gas supply. Any flooding damage to the grid connection and electricity or gas supply could result in no output of power from the Proposed Development, which would impact the users of the local electricity distribution network.

However, the design is such that the grid connection and associated electricity cables will be underground. This protects them from any above ground damage from storm or wind events and the electricity cables are designed to be resilient to water and so would not be impacted by any flooding events.

The assessment of significance of the potential for damage to grid connection and local users as result of increased precipitation associated with projected changes to climate is as follows:

Sensitivity

The sensitivity of the grid connection and local users to the site to flooding is deemed to be low for the following reasons:

- The value of the receptor is high.
- The susceptibility is deemed to be low as there are effective mitigation measures, that the electricity cables will be underground and designed to be resilient to water, which reduce risks of flooding to damaging them.
- The vulnerability is low as risk the electricity cables will be underground and designed to be resilient to water so are tolerant to flooding.

Magnitude

The overall magnitude of impact is medium for the following reasons:

- The probability of increased rainfall is high, but the probability of increased flooding damaging the grid connection to local users is low, as the electricity cables are designed to be resilient to water so are tolerant to flooding.
- The consequence is high because should damage to the electricity cables from flooding occur, the Proposed Development would not be able to output power to the grid or and/or local users may be impacted. The water damage caused would be fixable but impacts may be longer term.

Significance

As a result, it has been considered that the predicted increase in precipitation leading to the increased potential of water damage to the grid connection and electricity supply would be of negligible significance to the grid connection and local users.

4.2 Climatic effect - decreased summer precipitation

Decrease in summer rainfall gives the increased possibility of drought. This is not expected to impact the electricity connection and local users.

4.3 Climatic effect - increase in summer temperatures

The potential for an increase in mean summer temperatures is not expected to impact the electricity connection and local users.

4.4 Climatic effect - extreme events

The predicted increase in rain caused by storms and extreme events is covered in the flooding sections. Surges in wind are not expected to impact the electricity connection or local users, given that the connections would be via an underground cable.

4.5 Summary

The assessment of the effect of changes to climate on grid connection and local users is summarised in Table 1 in section 7.

In summary, the overall significance of effects changes to climate on the grid connection and local users has been assessed to be negligible. This is not a significant effect.

5 On-site workers

Events linked to climate change can affect on-site workers by resulting in dangerous working conditions or closure of the site. This may include working in uncomfortable temperatures causing dehydration or heat stroke, increased risk of wind exposure, and increased risk to hazards of cladding or building parts being shifted by wind gusts, coming loose and falling on workers. The UKCP18 projections do not quantify the increase in wind speeds but predict they will increase.

There are mitigation measures built into the design including the use of Risk Assessment Method Statements (RAMS). This includes measures such as ensuring that prior to any workers climbing the buildings or stack, wind speeds are checked to ensure they are not at dangerous levels. There is air-conditioning and/or sufficient ventilation in indoor areas where staff could be expected to be present for prolonged periods of time. Staff are equipped with the correct personal protective equipment (PPE), trained in site health and safety and informed about protecting themselves from the dehydration and the sun.

The risk of wind damage to on-site workers caused by damage to buildings is reduced by measures such as preventative maintenance and regular inspections of the cladding and building materials. Furthermore, monitoring of weather conditions is a part of the operating procedures, so on-site workers are warned or informed of any adverse weather.

This embedded mitigation has been considered within the following assessment.

The on-site workers are high value receptors.

5.1 Climatic effect –increased in precipitation

The risk of on-site workers working in flooding conditions has not been assessed because, as assessed in section 2.1, the risk of flooding is of no or low significance and any flooding would be of shallow depths and last for a short period, which is not expected to impact workers.

5.2 Climatic effect – decrease in summer precipitation

Decrease in summer rainfall gives the increased possibility of drought. This is not expected to impact the on-site workers.

5.3 Climatic effect - increase in summer temperatures

The potential for an increase in mean summer temperatures has the possibility to cause warmer conditions for on-site workers, bringing with it an increased risk of uncomfortable conditions and potential for heatstroke.

The assessment of significance of the potential for warmer conditions to on-site workers as result of increases in summer temperatures is as follows:

Sensitivity

The sensitivity of the on-site workers to increased temperatures is deemed to be medium for the following reasons:

- The value of the receptor is high.
- The susceptibility is deemed to be moderate, as mitigation measures would be in place such as access to appropriate PPE, education and appropriate ventilation. However, they may still be impacted by the increase in temperatures.

- The vulnerability is considered to be moderate as it is likely that temperatures will increase.

Magnitude

The overall magnitude of impact is small for the following reasons:

- The probability of increased temperatures is high, however this will not just be specific to the site but to all ambient air which on-site workers would be exposed to in their everyday life. The probability of regular negative impact to the on-site workers from high temperatures is low.
- The consequence is moderate because if on-site workers suffer heatstroke, there may be shortage of workers. However, high heat occasions would only occur in summer and for a few days at a time.

Significance

As a result, it has been considered that the predicted increased temperatures leading to the increased potential for uncomfortable working conditions for the on-site workers would be of slight significance.

5.4 Climatic effect - extreme events

The predicted increase in rain caused by storms and extreme events is covered in the flooding sections. Gusts of wind may have an impact on the safety of on-site workers around the buildings.

The assessment of significance of the potential for on-site workers safety conditions as result of extreme events associated with changes in climate is as follows:

Sensitivity

The sensitivity of the on-site workers to increased safety risks from wind gusts is deemed to be medium for the following reasons:

- The value of the receptor is high.
- The susceptibility is deemed to be low, as the on-site workers have access to appropriate PPE and education. Preventative maintenance and regular inspections and RAMS are in place to ensure on-site worker safety.
- The vulnerability is considered to be moderate as it is likely that wind gusts will increase.

Magnitude

The overall magnitude of impact is small for the following reasons:

- The probability of increased extreme events is high, however the probability of this impacting on-site workers is low due to the imbedded mitigation measures.
- The consequence of injury caused by increased wind gusts is high.

Significance

As a result, it has been considered that the predicted increase in extreme events leading to increased risk to on-site workers from wind gusts would be of slight significance.

5.5 Summary

The assessment of the effect of changes to climate on on-site workers is summarised in Table 1 in section 7.

In summary, the overall significance of effects of changes to climate on on-site workers has been assessed to be slight. This is not a significant effect.

6 Soft landscaping

A Balancing Lagoon will be created as part of the site's SuDS. This will enhance bio-diversity at the site. The area will be planted with native marginal and other aquatic planting. A range of species and use of native species increases the resilience of the soft landscaping to the impacts of climate change.

6.1 Climatic effect

The soft landscaping could be impacted by all the climatic effects assessed in this appendix:

1. Increased precipitation, especially in heavy downpours, could damage plant species and significant changes in levels within the Balancing Lagoons could cause plants to drown. However, the Balancing Lagoons are designed to fluctuate and marginal and aquatic planting will be used which are resilient to changes in water levels.
2. Decrease in precipitation and an increase in occurrence of high temperatures could cause drought which would cause plant species to wilt and potentially die. However, native species with established root systems are reasonably hardy and resilient to drought. Potential mitigation could include watering of the soft landscaping should it be required until the species have established.
3. Extreme events could cause heavy downpours of rain (see point 1) and wind damage to plants. In the case of larger trees, wind gusts could cause tree branches to break off or tree trunks to fall. In these cases the trees would be permanently damaged. However, it would be possible to replace any severely damaged trees and it is expected for the other plants, grassland species and marginal planting, to be more resilient to wind gusts.

The value of soft landscaping is medium. Although the soft landscaping is not integral to the operation or working of the Proposed Development, it is important for the biodiversity and pleasantness of the area and thus would be of high value. However, any damages to the soft landscaping can be easily remedied with further planting and maintenance and hence the value is medium.

The assessment of significance of the potential changes to climatic on the soft landscaping has been combined, as the assessment is similar for all projected changes. The assessment of significance is at follows.

Sensitivity

The sensitivity of the soft landscaping to climatic changes is deemed to be medium for the following reasons:

- The value of the receptor is medium.
- The susceptibility is deemed to be low, as although there is some potential for plants to be damaged, native plants are reasonably hardy and resilient to the projected climatic changes, and any damages will be limited and temporary.
- The vulnerability is considered to be moderate as it is likely that soft landscaping will be subject to the projected changes in climate.

Magnitude

The overall magnitude of impact is small for the following reasons:

- The probability of the projected changes to climate is high, however the probability of them impacting the soft landscaping is deemed to be moderate due to the natural resistance of plants to varied conditions.

- The consequence of damage to the soft landscaping is low. Although, the soft landscaping is important for the biodiversity on the Site, damage to it would be temporary and fixable.

6.2 Summary

The assessment of changes to climate on soft landscaping is summarised in Table 1 in section 7.

In summary, the overall significance of effects of changes to climate on soft landscaping has been assessed to be slight. This is not a significant effect.

7 Summary

The assessment of climate change impacts on the receptors has been summarised in Table 1.

Table 1: Summary of climate change assessment

Predicted change in climate	Impact of change in climate	Effect	Sensitivity				Magnitude of effect considering embedded mitigation			Overall significance
			Value	Susceptibility	Vulnerability	Sensitivity	Probability	Consequence	Magnitude of Effect	
Plant buildings and operational equipment										
Increase in precipitation	Surface water flooding	Flood damage to buildings and operational equipment	High	Low	Low	Medium	Low	Low	Negligible	Slight
Decrease in precipitation	Drought	Loss of water supply for process	High	Low	High	Medium	Low	Moderate	Small	Slight
Increase in temperatures	Increases in summer maximum temperatures	Over-heating of buildings and equipment	High	Low	Low	Low	High	Low	Small	Negligible
Extreme events	Increases in wind gusts	Building damage from high winds	High	Moderate	High/Low	Medium	High/Low	Low	Small	Slight
Vehicular access to site										
Increase in precipitation	Flooding of access roads	Restricted access of workers and raw materials to site.	High	Low	Medium	Medium	Medium	Low	Small	Slight
Extreme events	Trees and branches blocking access roads	Restricted access of workers and raw materials to site.	High	Low	Moderate	Medium	Moderate	Low	Small	Slight
Grid connection and local users										
Increase in precipitation	Flooding causing damage to cable and grid connection	EfW facility unable to export power	High	Low	Low	Low	Low	High	Medium	Negligible
On-site workers										
Increase in summer temperatures	Uncomfortable working conditions and heatstroke	Ill workers and shortage of workers	High	Moderate	Moderate	Medium	Low	Moderate	Small	Slight

Predicted change in climate	Impact of change in climate	Effect	Sensitivity				Magnitude of effect considering embedded mitigation			Overall significance
			Value	Susceptibility	Vulnerability	Sensitivity	Probability	Consequence	Magnitude of Effect	
Extreme events	Surges in wind and effects on worker safety	Hazard to workers.	High	Low	Moderate	Medium	Low	High	Small	Slight
Soft landscaping										
All climatic impacts	Damage to soft landscaping plants	Loss of biodiversity	Medium	Low	Moderate	Medium	Moderate	Low	Small	Slight

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