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Breckland sites

MIN 12 - land north of Chapel Lane, Beetley

Proposal: Extraction of 1,175,000 tonnes of sand and gravel

Size of site: 16.38 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 3.7km from Dereham, and 12km from Fakenham, which are the nearest towns.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Dereham is less than 5km away.	0 No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 11m from the site boundary. There are 22 sensitive receptors within 250m of the site boundary (six of these are within 100m of the site boundary). The settlement of Beetley is 260m away and Old Beetley is 380m away. However, land at the north-west and south-west corners is not proposed to be extracted. Therefore, the nearest residential property is 95m from the extraction area and there are 18 sensitive receptors within 250m of the proposed extraction area (2 of them are within 100m). The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed building is 460m away and is the Grade I Church of St Mary Magdalen. There are 14 Listed Buildings within 2km of the site.</p> <p>The only Scheduled Monument within 2km of the site is 1.57km away and is the 'Moated site 280m south east of Spong Bridge'.</p> <p>There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are no Historic Environment records within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods and the site is immediately north of the remains of a Roman road.</p>	<p>- A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects expected during extraction</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>0 Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	The site is 3.47km from the River Wensum SAC and is outside the Impact Risk Zone for the River Wensum SSSI.	0 Due to distance, no impacts on SPAs, SACs or Ramsar sites are expected.	0 No impacts on SPAs, SACs, or Ramsar sites are expected.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>Beetley and Hoe Meadows SSSI is 1.16km from the site boundary. Dillington Carr, Gressenhall SSSI is 1.44km from the site boundary</p> <p>The nearest CWS is CWS 1027 'Gressenhall Green Marshes' which is 730m from the site boundary.</p> <p>The nearest ancient woodland site is Great Wood which is a PAWS and ASNW; it is 1.28km from the site boundary.</p> <p>The site consists of the Briton's Lane sand and gravel member, overlying chalk formations. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site.</p>	<p>The proposed extraction site would be worked dry (above the water table) and is located up-gradient of these SSSIs. Therefore there would be no adverse impacts to SSSIs.</p> <p>No adverse impacts on the CWS are expected due to the distance from the site and because the site would be worked dry.</p> <p>No adverse impacts on the ancient woodland are expected due to the distance from the site and because the site would be worked dry.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>No impacts to SSSIs are expected post extraction.</p> <p>No impacts to County Wildlife sites are expected post extraction.</p> <p>No impacts to ancient woodland sites are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post extraction. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored at a lower level and returned to arable agriculture. Restoration would include wide field margins, new hedgerows and some woodland.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site comprises open arable land with few landscape features apart from boundary hedgerow. The site is	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		generally well screened from views from surrounding roads and property, although views of the site would be seen from Field Lane. However, this would be relatively easy to screen.	scheme should ensure no unacceptable impacts
SA9: To contribute to improved health and amenity of local communities in Norfolk	<p>There are no Public Rights of Way within or adjacent to the site.</p> <p>The nearest residential property is 11m from the site boundary. There are 22 sensitive receptors within 250m of the site boundary and 6 of these are within 100m of the site boundary. However, land at the north-west and south-west corners is not proposed to be extracted. Therefore, the nearest residential property is 95m from the extraction area and there are 18 sensitive receptors within 250m of the proposed extraction area (two of these are within 100m).</p>	<p>--</p> <p>Care would be needed to ensure that the impact on nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.</p>	<p>0</p> <p>New public footpaths are unlikely to be provided within the site on restoration.</p>
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). The site is within groundwater Source Protection Zone 3.</p> <p>The site is grade 3 agricultural land and could potentially be grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>0/-</p> <p>The site would be worked dry (above the water table) and therefore no effect on water resources is expected.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0</p> <p>No effect on water resources is expected post extraction.</p> <p>The site is proposed to be restored back to agriculture. Therefore, as long as the topsoil was stored correctly and then replaced, there would be no likely adverse effect on BMV agricultural land.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA11: To promote sustainable use of minerals resources	The site is 3.4km from Dereham and 12km from Fakenham. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	++ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. No areas of the site are at risk of surface water flooding.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, landscape and amenity due to the proximity of residential dwellings and listed buildings; however, it is considered that these effects could be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, SA3 text and SA9 text amended to include the number of sensitive receptors within 100m of the site boundary, and SA9 score changed to '-'.
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MIN 51 & MIN 13 – land west of Bilney Road, Beetley

Proposal: Extraction of 1,120,000 tonnes of sand and gravel

Size of site: 27.14 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 4.5km from Dereham and 11km from Fakenham, which are the nearest towns.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Dereham is less than 5km away.	0 No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed new extraction site, it may lead to an increase of 20 HGV movements per day.	- Due to increased HGV movements. However, the increased number of HGV movements due to mineral transport would not be significant compared to overall HGV transport.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 171m from the site boundary. There are three sensitive receptors within 250m of the site boundary. The settlement of East Bilney is 470m away. The effect on visual intrusion is assessed under objective SA8.	- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
<p>SA5: To maintain and enhance the character of the townscape and historic environment</p>	<p>The nearest Listed Building is 680m away and is the Grade II Almshouses. There are 16 Listed Buildings within 2km of the site.</p> <p>The only Scheduled Monument within 2km is the 'Deserted Medieval Village' which is 1.11km away.</p> <p>Brisley Conservation Area is 1.74km from the site. There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>Historic Environment records of cropmarks, including a ring ditch, exist within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods.</p>	<p>0 A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects expected during extraction.</p> <p>No effects expected during extraction</p> <p>No effects expected during extraction.</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>0 A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p>
<p>SA6: To protect and enhance Norfolk's biodiversity and geodiversity</p>	<p>The site is 4.54km from the River Wensum SAC and is outside the Impact Risk Zone for the River Wensum SSSI.</p> <p>Beetley and Hoe Meadows SSSI is 2.34km from the site boundary. Dillington Carr, Gressenhall SSSI is 2.17km from the site boundary.</p>	<p>0 Due to distance, no impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>The proposed extraction site would be worked dry (above the water table) and is located up-gradient of these SSSIs. Therefore there would be no</p>	<p>0 No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts to SSSIs are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>Horse Wood Mileham SSSI is 2.84km from the site boundary.</p> <p>CWS 2137 'Beck Farm Meadows' is 520m from the site boundary and CWS 2068 'Rawhall Wood' is 540m from the site boundary.</p> <p>The nearest ancient woodland site is Rawhall Wood which is a PAWS & ASNW; it is 0.57km from the site boundary.</p> <p>The site consists of the Briton's Lane sand and gravel member, Lowestoft formation – diamicton, overlying chalk formations. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site.</p>	<p>adverse impacts to these SSSIs.</p> <p>The proposed extraction site would be worked dry and therefore there would be no adverse impact to Horse Wood SSSI.</p> <p>No adverse impacts on the CWS are expected due to the distance from the site and because the site would be worked dry.</p> <p>No adverse impacts on the ancient woodland are expected due to the distance from the site and because the site would be worked dry.</p> <p>There is the potential for the site to contain examples of geodiversity priority features.</p>	<p>No impacts to SSSIs are expected post extraction.</p> <p>No impacts to County Wildlife Sites are expected post extraction.</p> <p>No impacts to ancient woodland sites are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored at a lower level and returned to arable agricultural. Lagoons to be retained as ponds with planting to create wet woodland habitat. Hedgerow interspersed with oaks to be planted along the northern boundary (alongside Rawhall Lane).	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the	The site is not located within the AONB, a	-	0

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
quality and distinctiveness of the countryside and landscape	Core River Valley or any other designated landscape feature.	The site comprises open arable land with few landscape features apart from mature hedgerow oaks. Views of the site can be seen from Bilney Lane, and with a longer view from Stoney Lane and Rawhall Lane. The site is fairly flat and would be relatively easy to screen from the views from surrounding roads.	Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.
SA9: To contribute to improved health and amenity of local communities in Norfolk	<p>There are no Public Rights of Way within or adjacent to the site.</p> <p>The nearest residential property is 171m from the site boundary. There are three sensitive receptors within 250m of the site boundary.</p>	<p>-</p> <p>Care would be needed to ensure that the impact on nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.</p>	<p>0</p> <p>New public footpaths are unlikely to be provided within the site on restoration.</p>
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). The site is within groundwater Source Protection Zone 3.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>0/-</p> <p>The site would be worked dry (above the water table) and therefore no effect on water resources is expected.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0</p> <p>No effect on water resources is expected post extraction.</p> <p>The site is proposed to be restored back to agriculture. Therefore, as long as the topsoil was stored correctly and then replaced, there would be no likely adverse effect on BMV agricultural land.</p>
SA11: To promote sustainable use of minerals resources	The site is 4.5km from Dereham and 11km from Fakenham. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	<p>++</p> <p>Due to distance to nearest settlement allocated for significant growth.</p>	<p>0</p> <p>No effect post extraction</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. The site has a medium probability of surface water flooding with a few locations of surface water pooling in 1 in 30 and 1 in 100 year rainfall events. In a 1 in 1000 year rainfall event there is a surface water flow path across the south-western corner of the site.	0 The site is at low risk of being affected by flooding from either rivers or the sea. The site is at medium risk of being affected by flooding from surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer some local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations. There are potential negative effects on air quality, landscape, agricultural land and amenity; however, it is considered that these effects could be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? NO

MIN 08 –land north of Stoney Lane, Beetley

Proposal: Extraction of 731,000 tonnes of sand and gravel

Size of site: 15.3 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 4.2km from Dereham and 11.5km from Fakenham, which are the nearest towns.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Dereham is less than 5km away.	0 No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed new extraction site, it may lead to an increase of 40 HGV movements per day.	- Due to increased HGV movements. However, the increased number of HGV movements due to mineral transport would not be significant compared to overall HGV transport.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 417m from the site boundary. The settlement of Gressenhall is 530m away. The effect on visual intrusion is assessed under objective SA8.	0 Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and	The nearest Listed Building is 830m away and is the Grade II Methodist Chapel and	0 A Heritage Statement would be required to support any future	0 A mitigation strategy should ensure the historic value of assets

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
historic environment	<p>adjoining two dwellings. There are 15 Listed Buildings within 2km of the site.</p> <p>The only Scheduled Monument within 2km of the site is 1.37km away and is the 'Deserted Medieval village'.</p> <p>There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site.</p> <p>Historic Environment records of cropmarks and isolated finds, including a ring ditch exist within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods.</p>	<p>planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects expected during extraction.</p> <p>No effects expected during extraction.</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is 4.64km from the River Wensum SAC and is outside the Impact Risk Zone for the River Wensum SSSI.</p> <p>Beetley and Hoe Meadows SSSI is 2.12km from the site boundary. Dillington Carr, Gressenhall SSSI is 1.88km from the site boundary.</p> <p>The nearest CWS is CWS 2068 'Rawhall</p>	<p>0 Due to distance, no impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>The proposed extraction site would be worked dry (above the water table) and is located up-gradient of these SSSIs. Therefore there would be no adverse impacts to SSSIs.</p> <p>No adverse impacts on the CWS are expected</p>	<p>0 No impacts on SPAs, SACs, or Ramsar sites are expected.</p> <p>No impacts to SSSIs are expected post extraction.</p> <p>No impacts to County Wildlife Sites are</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>Wood' which is 850m from the site boundary.</p> <p>The nearest ancient woodland site is Rawhall Wood, which is a PAWS & ASNW; it is 0.85km from the site boundary.</p> <p>The site consists of the Briton's Lane sand and gravel member, Lowestoft formation – diamicton. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site.</p>	<p>due to the distance from the site and because the site would be worked dry.</p> <p>No adverse impacts on the ancient woodland are expected due to the distance from the site and because the site would be worked dry.</p> <p>There is the potential for the site to contain examples of geodiversity priority features.</p>	<p>expected post extraction.</p> <p>No impacts to ancient woodland sites are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The majority of the site is proposed to be restored to agriculture. A proportion of the site will be restored to woodland and associated grassland habitat.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site comprises open arable land. Views of the site can be seen from Bilney Lane and Stoney Lane. The site is remote from property and is fairly flat and would be relatively easy to screen from the views from the surrounding roads.	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within or adjacent to the site. The nearest residential property is 417m from the site boundary.	0 There is unlikely to be a significant impact on health or amenity from mineral extraction within the site.	0 New public footpaths are unlikely to be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is partially located over a Secondary A aquifer and a secondary (undifferentiated) aquifer (superficial deposits) and a principal aquifer (bedrock). The site is within groundwater Source Protection Zone 3.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>0/- The site would be worked dry (above the water table). Therefore no effect on water resources is expected during extraction.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0 No effect on water resources is expected post extraction.</p> <p>The site is proposed to be restored back to agriculture. Therefore, as long as the topsoil was stored correctly and then replaced, there would be no likely adverse effect on BMV agricultural land.</p>
SA11: To promote sustainable use of minerals resources	The site is 4.2km from Dereham and 11.5km from Fakenham. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	<p>++ Due to distance to nearest settlement allocated for significant growth.</p>	<p>0 No effect post extraction</p>
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. The site has a medium probability of surface water flooding with an area of surface water pooling in a 1 in 30 year rainfall event. In a 1 in 100 year rainfall event a surface water flow path develops between the area of ponding and the south-eastern corner of the site. In a 1 in 1000 year rainfall event the flow path further develops to run north west to south east across the site.	<p>0 The site is at low risk of being affected by flooding from either rivers or the sea. The site is at medium risk of being affected by flooding from surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.</p>	<p>0 No effect post extraction / restoration.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer some local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations. There are potential negative effects on air quality, the landscape and agricultural land; however, it is considered that these effects could be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? NO

MIN 23 – land north of Back Lane, Beeston

Proposal: Extraction of 500,000 tonnes of sand and gravel

Size of site: 15 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 7.4km from Dereham and 10.2km from Swaffham, which are the nearest towns.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Dereham is less than 10km away.	0 No contributions to climate change post extraction.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed new extraction site, it may lead to an increase of 15 HGV movements per day.	- Due to increased HGV movements. However, the increased number of HGV movements due to mineral transport would not be significant compared to overall HGV transport.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 132m from the site boundary. There are 42 sensitive receptors within 250m of the site boundary. The settlement of Beeston is 132m away. However, the most southern part of the site is not proposed to be extracted. Therefore, the nearest residential property is 198m from the extraction area and there are 12 sensitive receptors within 250m of the proposed extraction area. The effect on visual intrusion is assessed under objective SA8.	- Sand and gravel extraction is not expected to cause. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	assessed under objective SA13.		
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building is the Grade II 'Moat House/Old Rectory' which is 170m away. There are 20 Listed Buildings within 2km of the site. 15 of these are within the Litcham Conservation Area which is 1.24km from the site.</p> <p>There are two Scheduled Monuments within 2km of the site. They are 'Devil's Dyke' 1.96km from the site and 'Disc Barrow on Litcham Common' 1.11km from the site.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>Historic Environment records of isolated multi period finds exist close to the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods.</p>	<p>--</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects expected during extraction.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>--</p> <p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is more than 5km from any SPA, SAC or Ramsar site.</p> <p>River Nar SSSI is 1.10km from the site boundary.</p>	<p>0</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No adverse impacts on the River Nar SSSI are expected because the site would be worked dry (above the water table).</p>	<p>0</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts to SSSIs are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>Horse Wood Mileham SSSI is 2.63km from the site boundary. Honey Pot Wood, Wendling SSSI is 2.87km from the site boundary.</p> <p>The nearest CWS is CWS 964 'Warren Woods' which is 750m from the site boundary.</p> <p>The nearest ancient woodland site is Old Covert wood which is a PAWS; it is 2.14km from the site boundary.</p> <p>The site consists of the Lowestoft formation – diamicton, overlying chalk formations.</p>	<p>No adverse impacts on Horse Wood Mileham SSSI or Honey Pot Wood, Wendling SSSI are expected because the site would be worked dry (above the water table) and is in a different hydrological catchment to these SSSIs.</p> <p>No adverse impacts on the CWS are expected due to the distance from the site and because the site would be worked dry.</p> <p>No adverse impacts on ancient woodland are expected due to the distance from the site and because the site would be worked dry.</p> <p>This site is unlikely to contain examples of geodiversity priority features.</p>	<p>No impacts to County Wildlife Sites are expected post extraction</p> <p>No impacts to ancient woodland are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	No details on proposed restoration of the site have been provided. The preferred restoration scheme would be to agriculture at a lower level with wide field margins, hedgerow reinforcement and tree planting.	0 No effect during extraction phase	? No details of a proposed restoration scheme have been provided.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	-- The site is sloping arable land with a fall towards the village of Beeston to the south. Workings would be visually intrusive to the community of Beeston, and due to the sloping nature of the site, hard to screen. They would	- Mineral extraction will result in landscape change which, due to the sloping nature of the site, would be visible from a variety of viewpoints; however, an appropriate mitigation strategy and restoration scheme

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		also affect the quiet enjoyment of the surrounding countryside.	would minimise the impact.
SA9: To contribute to improved health and amenity of local communities in Norfolk	<p>There are no Public Rights of Way within or adjacent to the site.</p> <p>The nearest residential property is 132m from the site boundary. There are 42 sensitive receptors within 250m of the site boundary. However, the most southern part of the site is not proposed to be extracted. Therefore, the nearest residential property is 198m from the extraction area and there are 12 sensitive receptors within 250m of the proposed extraction area.</p>	<p>-</p> <p>Care would be needed to ensure that the impact on nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.</p>	<p>0</p> <p>New public footpaths are unlikely to be provided within the site on restoration.</p>
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a secondary (undifferentiated) aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>0/-</p> <p>The site would be worked dry (above the water table). Therefore no effect on water resources is expected during extraction.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0</p> <p>No effect on water resources is expected post extraction.</p> <p>If the site was restored back to agriculture and the topsoil was stored correctly and then replaced, there would be no likely adverse effect on BMV agricultural land.</p>
SA11: To promote sustainable use of minerals resources	The site is 7.4km from Dereham and 10.2km from Swaffham. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	<p>+</p> <p>Due to distance to nearest settlement allocated for significant growth.</p>	<p>0</p> <p>No effect post extraction</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. The site has a low risk of surface water flooding, with one location of surface water pooling in a 1 in 100 year rainfall event at the southern corner of the site. There is a surface water flow path crossing the southern corner of the site in a 1 in 1000 year rainfall event.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer some local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth. There are potential negative effects on air quality, the historic environment, landscape, agricultural land and amenity. It is considered that the landscape impacts could not be appropriately mitigated. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, the number of sensitive receptors within 250m of the site boundary have been updated in SA3 and SA9, but there is no change to the SA scores.

MIN 200 – land west of Cuckoo Lane, Carbrooke

Proposal: Extraction of 300,000 tonnes of sand and gravel

Size of site: 7.94 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 0.8km from Watton and 10.1km from both Attleborough and Dereham, which are the nearest towns.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Watton is less than 1km away.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 144m from the site boundary, this is the only sensitive receptor within 250m of the site. The settlement of Carbrooke is 321m away. The effect on visual intrusion is assessed under objective SA8.	- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the	The nearest Listed Buildings are the Grade	--	-

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
<p>character of the townscape and historic environment</p>	<p>11 Mill House and 'Windmill' which are 150m away. There are 27 Listed Buildings within 2km of the site. Carbrooke Conservation Area is 670m from the site, within which many of the Listed Buildings are contained.</p> <p>The only Scheduled Monument within 2km of the site is the 'Site of Commandry of St John of Jerusalem' which is 700m away.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are no Historic Environment records within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods.</p>	<p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects expected during extraction</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p>
<p>SA6: To protect and enhance Norfolk's biodiversity and geodiversity</p>	<p>The site is 4.47m from Thompson Water, Carr and Common SSSI which is part of the Norfolk Valley Fens SAC and is outside the Impact Risk Zone for the SSSI.</p> <p>Sculpton Mere SSSI is 2.72km from the site boundary. Wayland Wood, Watton SSSI is 2.78km from the site boundary.</p>	<p>0 Due to distance, no impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>If the site is worked above the water table, with normal mitigation measures, no adverse effects on these SSSIs is expected.</p>	<p>0 No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts on the SSSIs are expected post extraction</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>The nearest CWS site is CWS 2091 'Watton Airfield (Army training area) which is 610m from the site boundary.</p> <p>The nearest ancient woodland sites are: Shepherds Fell PAWS which is 2.34 km from the site boundary, Hazel Hurn PAWS and ASNW which is 2.47 km from the site boundary.</p> <p>The site consists of the Lowestoft formation – diamicton, overlying chalk formations.</p>	<p>No adverse impacts on the CWS is expected due to the distance from the site.</p> <p>No adverse impacts on ancient woodland sites are expected due to the distance from the site. If the site is worked above the water table, with normal mitigation measures, no adverse effects on these ancient woodlands is expected.</p> <p>This site is unlikely to contain geodiversity priority features.</p>	<p>No impacts on CWS woodland are expected post extraction.</p> <p>No impacts on ancient woodland are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to nature conservation with open grassland.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site is a flat arable field, with an existing permitted mineral extraction site to the south, and on the opposite of Mill Lane. There would be views from the adjacent Mill Lane and Cuckoo Lane through gaps in the hedgerows; a screening scheme would need to address this issue together with longer views from the direction of Carbrooke.	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.
SA9: To contribute to improved health and amenity of local communities in Norfolk	<p>There are no Public Rights of Way within or adjacent to the site.</p> <p>The nearest residential property is 144m from the site boundary, this is the only sensitive</p>	- Care would be needed to ensure that the impact on the nearby dwelling would not be significant; however it is considered that appropriate mitigation	0 New public footpaths are unlikely to be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	receptor within 250m of the site.	measures to ensure no unacceptable impacts could be conditioned.	
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a Secondary aquifer (undifferentiated) (superficial deposits) and a principal aquifer (bedrock). The site is within groundwater Source Protection Zone 2.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>0/- The site is expected to be worked dry, above the water table. With normal mitigation measures, no adverse effects on water resources are expected.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>- No effect on water resources is expected post extraction.</p> <p>If BMV land is identified, any restoration that does not incorporate agriculture would result in adverse impacts</p>
SA11: To promote sustainable use of minerals resources	The site is 0.8km from Watton and 10.1km from both Attleborough and Dereham. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	<p>++ Due to distance to nearest settlement allocated for significant growth.</p>	<p>0 No effect post extraction</p>
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. The site has a low risk of surface water flooding with two locations of surface water pooling in a 1 in 30 year rainfall event and a third location in a 1 in 1000 year rainfall event.	<p>++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.</p>	<p>0 No effect post extraction / restoration.</p>
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing	<p>+</p>	<p>0 No effect post restoration</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	raw materials for the construction industry		
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, landscape, agricultural land and amenity; however, it is considered that these effects could be appropriately mitigated. There could be positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, SA10 updated to clarify that the site is expected to be worked dry (above the water table), but no change to the scoring.

MIN 116- land at Woodrising Road, Cranworth

Proposal: Extraction of 950,000 tonnes of sand and gravel

Size of site: 15.75 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 5.8km from Watton, 7.2km from Dereham and 8.8km from Attleborough, which are the nearest towns.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, which are less than 10km away.	0 No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed new extraction site, it may lead to an increase of 18 HGV movements per day.	- Due to increased HGV movements. However, the increased number of HGV movements due to mineral transport would not be significant compared to overall HGV transport.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 61m from the site boundary. There are seven sensitive receptors within 250m of the site boundary (one of these is within 100m of the site boundary). The settlement of Woodrising is 627m away. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building is the Grade II 'Hurdle-maker's Cottage' which is 60m away. There are 23 Listed Buildings within 2km of the site.</p> <p>The nearest Scheduled Monument is 'Woodrising Hall moated site' which is 780m away. There are four Scheduled Monuments within 2km of the site.</p> <p>There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are no Historic Environment records within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods.</p>	<p>--</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>-</p> <p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; and it is uncertain if harm to these could be successfully mitigated by restoration on the setting of heritage assets.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is more than 5km from any SPA, SAC or Ramsar site.</p> <p>Potter's Carr, Cranworth SSSI is 1.16km from the site boundary. Sculpton Mere SSSI is 1.84km from the site boundary.</p> <p>The nearest CWS is CWS 2063 'Wood Rising Water Meadows'</p>	<p>0</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>The site would be worked dry (above the water table). Therefore no effects on these SSSIs are expected.</p> <p>The site would be worked dry (above the water table). Therefore,</p>	<p>0</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts on the SSSIs are expected post extraction</p> <p>No impacts on the CWS are expected post extraction</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>which is 520m from the site boundary.</p> <p>The nearest ancient woodland site is a PAWS (unnamed) within Cranworth parish; it is 1.52km from the site boundary.</p> <p>The site consists of the Lowestoft formation – diamicton, Alluvium – clay, silt, sand and gravel, overlying chalk formations.</p>	<p>no impacts on the CWS are expected.</p> <p>The site would be worked dry (above the water table). Therefore no effects are expected on the ancient woodland site.</p> <p>This site is unlikely to contain geodiversity priority features.</p>	<p>No impacts on the ancient woodland are expected post extraction</p> <p>No adverse impacts to geodiversity are expected post restoration.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to arable agriculture and woodland.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site is a large arable field. It has a 'domed plateau' and slopes downward to the north, east and south. The proposed development would be visually detrimental from a number of viewpoints. Southburgh Church to the north-east also has a long-range view over the site. Screen bunding would be visually intrusive.	- Mineral extraction will result in landscape change which due to the sloping nature of the site would be visible from a variety of viewpoints; however, an appropriate mitigation strategy and restoration scheme would minimise the impact.
SA9: To contribute to improved health and amenity of local communities in Norfolk	<p>There is a Public Right of Way adjacent to the northern boundary of the site (Cranworth BR6).</p> <p>The nearest residential property is 61m from the site boundary. There are seven sensitive receptors within 250m of the site boundary (one is within 100m of the site boundary).</p>	-- Care would be needed to ensure that the impact on users of the PRoW and the nearby dwellings would not be significant; however, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a Secondary aquifer (undifferentiated) and partially over a Secondary A aquifer (superficial deposits). The site is also located over a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>0/- If the site is worked above the water table, with normal mitigation measures, no adverse effects on water resources are expected.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0 No effect on water resources is expected post extraction.</p> <p>The site is proposed to be restored back to agriculture. Therefore, as long as the topsoil was stored correctly and then replaced, there would be no likely adverse effect on BMV agricultural land.</p>
SA11: To promote sustainable use of minerals resources	<p>The site is 5.8km from Watton, 7.2km from Dereham and 8.8km from Attleborough. These are the nearest settlements allocated for significant growth in the adopted Local Plan.</p>	<p>+ Due to distance to nearest settlement allocated for significant growth.</p>	<p>0 No effect post extraction</p>
SA12: To reduce the risk of current and future flooding at new and existing development	<p>The site has a low probability of flooding from rivers. The site has a low risk of flooding from surface water, with areas of surface water pooling in a 1 in 1000 year rainfall event.</p>	<p>++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.</p>	<p>0 No effect post extraction / restoration.</p>
SA13: To encourage employment opportunities and promote economic growth	<p>Although employment levels at minerals sites tend to be low, if this site was worked it could offer some local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing</p>	<p>+</p>	<p>0 No effect post restoration</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	raw materials for the construction industry		
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on air quality, the historic environment, landscape, agricultural land and amenity. It is considered that not all of these effects could be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, SA9 score for the extraction phase amended to '--' due to a residential property being located within 100m of the site boundary.

MIN 35 – land at Heath Road, Eccles, Quidenham

Proposal: Extraction of 500,000 tonnes of sand and gravel

Size of site: 7.5 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 4.6km from Attleborough and 12.9km from Watton which are the nearest towns.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Attleborough is less than 5km away.	0 No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed new extraction site, it may lead to an increase of 32 HGV movements per day.	- Due to increased HGV movements. However, the increased number of HGV movements due to mineral transport would not be significant compared to overall HGV transport.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 24m from the site boundary. There are 31 sensitive receptors within 250m of the site boundary (12 are residential properties and 19 are industrial units). Six of the residential properties are within 100m of the site boundary. However, the southern part of the site is not proposed to be extracted. Therefore, the nearest residential property is 155m from the extraction area and there are 10 residential properties within 250m of the proposed extraction area (the industrial units would remain at the same distances). The settlement of Eccles is 269m away.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	The effect on visual intrusion is assessed under objective SA8.		
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building is the Grade II* Church of St Mary which is 470m away. There are 13 Listed Buildings within 2km of the site. 5 of these are within the Quidenham Conservation Area which is 1.69km away.</p> <p>There nearest Scheduled Monument is 'Gallows Hill Tumulus' which is 150m away. There are two Scheduled monuments within 2km of the site.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are Historic Environment records of isolated multi-period finds and features including a bronze age barrow, within the site boundary, and a possible Roman road adjacent to the boundary. The site is in a wider landscape with a very significant number of finds and features from multiple periods.</p>	<p>-- A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>Due to its location adjacent to an industrial estate, railway line and former mineral working, no effects are expected during extraction.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>- A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
<p>SA6: To protect and enhance Norfolk's biodiversity and geodiversity</p>	<p>Swangey Fen SSSI is 2.63km from the site boundary and is part of the Norfolk Valley Fens SAC. The site is within the Impact Risk Zone for this SSSI.</p> <p>Kenninghall and Banham Fens with Quidenham SSSI is 2.70km from the site boundary. East Harling Common SSSI is 2.13km from the site boundary.</p> <p>CWS 620 'Eccles Wood (north)' is adjacent to the site boundary. CWS 621 'Eccles Wood (middle)' and CWS 622 'Eccles Wood (south)' are both 120m from the site boundary.</p> <p>There are no ancient woodland sites within 3km of the site.</p> <p>The site consists of the Croxton Sand and gravel member, overlying chalk formations. There is the potential for vertebrate fossils because the site is close to prolific find spot.</p>	<p>-</p> <p>The proposed extraction site would be worked dry (above the water table) and is located up-gradient of Swangey Fen SSSI. There would be no adverse effects on the integrity of the SAC.</p> <p>The proposed extraction site would be worked dry (above the water table) and is in a different hydrological catchment to these SSSIs. Therefore there would be no adverse impacts to SSSIs.</p> <p>The site would be worked dry (above the water table), therefore there would be no hydrological impacts on the CWSs. Due to the proximity of the CWS to the proposed site there is the potential for impacts from dust deposition; although with normal mitigation measures no adverse effects on these CWSs is expected.</p> <p>No impacts on ancient woodland are expected.</p> <p>There is the potential for the site to contain examples of geodiversity priority features.</p>	<p>0</p> <p>No adverse impacts to Swangey Fen SSSI are expected post extraction.</p> <p>No impacts to SSSIs are expected post extraction.</p> <p>No impacts to CWSs are expected post extraction.</p> <p>No impacts to ancient woodland are expected.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to a low-level for arable agriculture with conservation grassland and woodland planting on the southern boundary.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site is a field of rough meadow grass. The site is bounded to the north by a large bund that screens a restored landfill and mineral extraction void. To the west is an area of deciduous woodland. Arable countryside is to the south and west. There are several bungalows to the south and south-east of the site. The site would need to be appropriately screened from local residents and from users of Heath Lane.	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within or adjacent to the site. The nearest residential property is 24m from the site boundary. There are 31 sensitive receptors within 250m of the site boundary (12 are residential properties and 19 are industrial units). However, the southern part of the site is not proposed to be extracted. Therefore, the nearest residential property is 155m from the extraction area and there are 10 residential properties within 250m of the proposed	-- Care would be needed to ensure that the impact on the nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	extraction area (the industrial units would remain at the same distances).		
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.</p> <p>The site is Grade 4 agricultural land.</p>	<p>0 The proposed extraction site would be worked dry (above the water table) and therefore no effect on water resources is expected.</p> <p>No impacts on BMV agricultural soils.</p>	<p>0 No effect on water resources is expected post extraction.</p> <p>No impacts on BMV agricultural soils.</p>
SA11: To promote sustainable use of minerals resources	The site is 4.6km from Attleborough and 12.9km from Watton. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	<p>++ Due to distance to nearest settlement allocated for significant growth.</p>	<p>0 No effect post extraction</p>
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. No areas of the site are at risk of surface water flooding.	<p>++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.</p>	<p>0 No effect post extraction / restoration.</p>
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer some local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	<p>+</p>	<p>0 No effect post restoration</p>
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on air quality, the historic environment, ecology, landscape, and amenity; it is considered these impacts could be appropriately mitigated except for the local landscape impacts because screening and bunding could be intrusive		

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	in its own right. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, SA3 and SA9 amended regarding the distance of residential properties from the proposed site boundary and the extraction area. The scoring for the extraction phase of SA9 has been changed to ‘-’ due to the distance of residential properties from the site, but no change to the scoring for SA3.

MIN 102 – land at North Farm, south of the River Thet, Snetterton

Proposal: Extraction of 980,000 tonnes of sand and gravel

Size of site: 58.21 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 3km from Attleborough and 9.3km from Watton, which are the nearest towns.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Attleborough is less than 5km away.	0 No contributions to climate change post extraction.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed new extraction site, it may lead to an increase in HGV movements. However, an estimate of the number of HGV movements has not been provided.	- Due to increased HGV movements. However, the increased number of HGV movements due to mineral transport would not be significant compared to overall HGV transport.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 455m from the site boundary. The settlement of Shropham is 690m away. The effect on visual intrusion is assessed under objective SA8.	0 Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and	The nearest Listed Building is the Grade II North Farmhouse which is 550m away. There	0 A Heritage Statement would be required to support any future	0 A mitigation strategy should ensure the historic value of assets

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
historic environment	<p>are 19 Listed Buildings within 2km of the site.</p> <p>The only Scheduled Monument within 2km of the site is the 'Wayside Cross at the north end of Whitecross Drift' which is 550m away.</p> <p>There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site.</p> <p>Historic Environment records of cropmarks and isolated multi period finds, including a round barrow exist within the site boundary. The site is in a wider landscape with a very significant number of finds and features from multiple periods.</p>	<p>planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>Swangey Fen SSSI is adjacent to the site boundary and is part of the Norfolk Valley Fens SAC.</p> <p>CWS 804 'North of Red Bridge' is adjacent to the site boundary. CWS 639 'Fen</p>	<p>--</p> <p>There is the potential for impacts from dust deposition, although with normal mitigation measures, adverse effects may be avoided. The potential exists for impacts on the hydrology of the SSSI from dewatering. As there are no details of a working scheme impacts on the SSSI and SAC are uncertain.</p> <p>There is the potential for impacts from dust deposition, although with normal mitigation measures, adverse effects may be</p>	<p>?</p> <p>As there are no details of a working or restoration scheme impacts on the SSSI and SAC post extraction are uncertain.</p> <p>Impacts on the CWSs post extraction are uncertain.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>Plantation' is 150m from the site boundary. CWS 645 'Old Gravel Works' is 40m from the site boundary. CWS 809 'Shropham Fen' is 100m from the site boundary.</p> <p>The nearest ancient woodland site is a ASNW (unnamed) within Shropham parish; it is 1.48km from the site boundary.</p> <p>The site consists of the Croxton sand and gravel member, Lowestoft formation – diamicton, overlying chalk formations. There is the potential for vertebrate fossils because the site is close to a prolific find spot.</p>	<p>avoided. The potential exists for impacts on the hydrology of the CWSs from dewatering.</p> <p>The potential exists for impacts on the hydrology of the ancient woodland from dewatering. Due to the distance of the ancient woodland from the proposed extraction site there would be no other impacts from extraction.</p> <p>There is the potential for the site to contain examples of geodiversity priority features.</p>	<p>No impacts on the ancient woodland are expected post extraction</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	No details on proposed restoration of the site have been provided. The preferred restoration scheme would be agriculture with wide field margins and enhanced woodland planting.	0 No effect during extraction phase	? No details of a proposed restoration scheme have been provided.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	Parts of the site are within a Core River Valley. The site is not located within the AONB or any other designated landscape feature.	-- It is likely that mineral extraction within the areas covered by the Core River Valley designation would be unacceptable due to landscape impacts. Any working scheme should avoid removal of the woodland areas within the site for the same reason. Extraction on the	- Mineral extraction will result in landscape change which due to the sloping nature of the site would be visible from a variety of viewpoints; however, an appropriate mitigation strategy and restoration scheme would minimise the impact.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		sloping valley of the River Thet is likely to have wider landscape impacts which would be difficult to effectively mitigate through screening.	
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within or adjacent to the site. The nearest residential property is 455m from the site boundary.	0 There is unlikely to be a significant impact on health or amenity from mineral extraction within the site.	0 New public footpaths are unlikely to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located partially over a Secondary A aquifer and partially over a Secondary (undifferentiated) aquifer (superficial deposits). The site is also located over a principal aquifer (bedrock). The western part of the site is within groundwater Source Protection Zones 2 and 3. The rest of the site is not within a groundwater SPZ.</p> <p>The site is Grade 4 agricultural land.</p>	<p>-/0 If the site is dewatered as part of the extraction the potential for adverse impacts exists, although appropriate assessment and mitigation measures could ensure that no unacceptable impacts occur.</p> <p>No impacts on BMV agricultural soils.</p>	<p>0 No effect on water resources is expected post extraction.</p> <p>No impacts on BMV agricultural soils.</p>
SA11: To promote sustainable use of minerals resources	The site is 3km from Attleborough and 9.3km from Watton. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	++ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The majority (97%) of the site has a low probability of flooding from rivers. The northern boundary of the site with the River Thet has a medium and high risk of flooding from rivers. The site has a low risk of surface water flooding with a few locations of	0 The majority of the site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	surface water pooling in a 1 in 30 and 1 in 100 year rainfall event. In a 1 in 1000 year event a surface water flow path develops between the north of the site and the River Thet.		
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer some local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on air quality, landscape, hydrology and biodiversity. It is considered that the effects on biodiversity could be difficult to mitigate. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, SA3 and SA9 have been updated to include a revised distance of the nearest residential property to the proposed site, but no changes to scoring.

MIN 201 – land at Swangey Farm, north of North Road, Snetterton

Proposal: Extraction of 590,000 tonnes of sand and gravel

Size of site: 38.19 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 2.6km from Attleborough and 10.2km from Watton, which are the nearest towns.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Attleborough is less than 5km away.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed new extraction site, it may lead to an increase of 70 HGV movements per day.	- Due to increased HGV movements. However, the increased number of HGV movements due to mineral transport would not be significant compared to overall HGV transport.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 82m from the site boundary. There are six sensitive receptors within 250m of the site boundary and three of these are within 100m of the site boundary. The settlement of North End is 831m from the site. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building and Scheduled Monument is the 'Wayside Cross at the north end of Whitecross Drift' which is 20m from the site boundary. There are 15 Listed Buildings within 2km of the site. There are 3 Scheduled Monuments within 2km of the site.</p> <p>There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site.</p> <p>Historic Environment records of isolated multi-period finds and features exist within the site boundary, including a barrow. The site is in a wider landscape with a very significant number of finds and features from multiple periods.</p>	<p>--</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>-</p> <p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>Swangey Fen SSSI is adjacent to the site boundary and is part of the Norfolk Valley Fens SAC.</p> <p>Old Buckenham Fen SSSI is 2.95km from the site boundary.</p> <p>The nearest CWS is CWS 639 'Fen</p>	<p>--</p> <p>There is the potential for impacts from dust deposition, although with normal mitigation measures, adverse effects may be avoided. The potential exists for impacts on the hydrology of the SSSI and SAC from dewatering.</p> <p>The potential exists for impacts on the hydrology of the SSSI from dewatering.</p> <p>There is the potential for impacts from dust</p>	<p>?</p> <p>As there are no details of a working or restoration scheme impacts on the SSSIs and SAC post extraction are uncertain.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>Plantation' which is 150m from the site boundary.</p> <p>The nearest ancient woodland site is an ASNW (unnamed) in Shropham parish which is 2.45 km from the site boundary.</p> <p>The site consists of the Croxton sand and gravel member, overlying chalk formations. There is the potential for vertebrate fossils because the site is close to a prolific find spot.</p>	<p>deposition, although with normal mitigation measures, adverse effects may be avoided. The potential exists for impacts on the hydrology of the CWSs from dewatering.</p> <p>The potential exists for impacts on the hydrology of the ancient woodland from dewatering. Due to the distance of the ancient woodland from the proposed extraction site there would be no other impacts from extraction.</p> <p>There is the potential for the site to contain examples of geodiversity priority features.</p>	<p>Impacts on the CWS post extraction are uncertain.</p> <p>No impacts to ancient woodland are expected post restoration.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to agriculture with some restoration to nature conservation.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site is currently an agricultural field. The site slopes downwards to the north-east towards Swangey Fen, with the south-western corner being on a relatively flat plateau. The surrounding landscape is predominantly rolling arable farmland. The Thet Valley to the north is well wooded. There is the potential that	- Mineral extraction will result in landscape change which due to the sloping nature of parts of the site would be visible from a variety of viewpoints; however, an appropriate mitigation strategy and restoration scheme would minimise the impact.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		parts of the site could be effectively screened.	
SA9: To contribute to improved health and amenity of local communities in Norfolk	<p>There are no Public Rights of Way within or adjacent to the site.</p> <p>The nearest residential property is 82m from the site boundary. There are six sensitive receptors within 250m of the site boundary and three of these are within 100m of the site boundary.</p>	<p>--</p> <p>Care would be needed to ensure that the impact on nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.</p>	<p>0</p> <p>New public footpaths are unlikely to be provided within the site on restoration.</p>
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no Groundwater Source Protection Zones within the proposed site.</p> <p>The northern part of the site is Grade 4 agricultural land. The southern part of the site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>-/-</p> <p>If the site is dewatered as part of the extraction the potential for adverse impacts exists, although appropriate assessment and mitigation measures could ensure that no unacceptable impacts occur.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0</p> <p>No effect on water resources is expected post extraction.</p> <p>The site is proposed to be restored back to agriculture. Therefore, as long as the topsoil was stored correctly and then replaced, there would be no likely adverse effect on BMV agricultural land.</p>
SA11: To promote sustainable use of minerals resources	<p>The site is 2.6km from Attleborough and 10.2km from Watton. These are the nearest settlements allocated for significant growth in the adopted Local Plan.</p>	<p>++</p> <p>Due to distance to nearest settlement allocated for significant growth.</p>	<p>0</p> <p>No effect post extraction</p>
SA12: To reduce the risk of current and future flooding at new and existing development	<p>The site has a low probability of flooding from rivers. The site has a low probability of surface water flooding, with one location of surface water pooling in</p>	<p>++</p> <p>The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is</p>	<p>0</p> <p>No effect post extraction / restoration.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	a 1 in 30 year rainfall event.	considered to be a 'water compatible' land use which is suitable in all flood zones.	
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer some local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on air quality, the historic environment, landscape, biodiversity, hydrology, agricultural land and amenity. It is considered that the effects on the historic environment could not be appropriately mitigated and that it would be difficult to effectively mitigate the effects on biodiversity. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, SA3 and SA9 updated with revised distances to the nearest residential properties and properties within 100m. The scores for the extraction phase of SA3 and SA9 have been amended to '- ' due to the location of residential properties within 100m of the proposed site boundary.

Broadland sites

MIN 55 – land at Keepers Cottage, Attlebridge

Proposal: Extraction of 527,000 tonnes of sand and gravel

Size of site: 1.93 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 1.8 km from the Norwich urban area, but it is outside the Norwich Policy Area.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but the Norwich urban area is less than 5km away.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed new extraction site, it may lead to an increase in HGV movements. However, an estimate of the number of HGV movements has not been provided.	- Due to increased HGV movements. However, the increased number of HGV movements due to mineral transport would not be significant compared to overall HGV transport.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is within the site boundary, this is the only sensitive receptor within 250m of the site boundary and would need to be removed if mineral extraction were to take place. The settlement of Attlebridge is 1.3km away. The effect on visual intrusion is assessed under objective SA8.	0 Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the	The nearest Listed Building is the Grade II	0	0

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
<p>character of the townscape and historic environment</p>	<p>'Barn 50m NW of Low Farmhouse' which is 1.1km away. There are 11 Listed Buildings within 2km of the site.</p> <p>The only Scheduled Monument within 2km of the site is the 'Round barrow north of Sandy Lane' which is 1.54km away.</p> <p>There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are no Historic Environment records within the site boundary. A number of nearby areas have been investigated previously and no archaeological evidence identified. However, There have been isolated multi-period finds and there is a deserted medieval settlement location in proximity to the site.</p>	<p>No effects expected during extraction.</p> <p>No effects expected during extraction</p> <p>No effects expected during extraction.</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>No affect post extraction.</p> <p>No effect post extraction</p> <p>No effect post extraction</p> <p>No effect post extraction</p>
<p>SA6: To protect and enhance Norfolk's biodiversity and geodiversity</p>	<p>The River Wensum SAC is 0.67km from the site boundary and the site is within the Impact Risk Zone for the River Wensum SSSI.</p> <p>Alderford Common SSSI is 2.16km from the site boundary. Swannington Upgate Common SSSI is 1.69km from the site boundary.</p>	<p>-</p> <p>The proposed extraction site would be worked dry (above the water table). Therefore there would be no adverse effects on the integrity of the SAC.</p> <p>The proposed extraction site would be worked dry (above the water table) and is in a different hydrological catchment to these SSSIs. Therefore there would be no adverse impacts to SSSIs.</p>	<p>0</p> <p>No adverse effects to the River Wensum are expected post extraction.</p> <p>No impacts to SSSIs are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>CWS 1344 'Triumph and Foxburrow Plantations' is adjacent to the site boundary. CWS 1343 'Attlebridge Hills' is 140m from the site boundary.</p> <p>The nearest ancient woodland site is Mileplain Plantation which is a PAWS; it is 0.28km from the site boundary.</p> <p>The site consists of the Sheringham Cliffs formation - sand and gravel, overlying chalk formations.</p>	<p>There is the potential for impacts from dust deposition although with normal mitigation measures no adverse effects on these CWSs is expected.</p> <p>No adverse impacts on ancient woodland are expected due to the distance from the site and because the site would be worked dry.</p> <p>There is the potential for the site to contain examples of geodiversity priority features.</p>	<p>No impacts to CWSs are expected post extraction.</p> <p>No impacts are expected to ancient woodland sites post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	No details on proposed restoration of the site have been provided. The preferred restoration would be to heathland.	0 No effect during extraction phase	? No details of a proposed restoration scheme have been provided.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	0 The site comprises a domestic dwelling and its curtilage. The site lies within an area of former mineral workings which have now been restored by landfill. The site is well screened from public view points and is surrounded by shrubs and a few large trees. The site is remote from other properties.	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within or adjacent to the site. There is a PRoW close to the southern	- Care would be needed to ensure that the impact on users of the PRoW and the nearby	0 New public footpaths are unlikely to be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>boundary of the site (Attlebridge RB3 and RB4).</p> <p>The nearest residential property is within the site boundary, this is the only sensitive receptor within 250m of the site boundary.</p>	<p>dwelling would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.</p>	
<p>SA10: To protect and enhance water and soil quality in Norfolk</p>	<p>The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.</p> <p>Part of the site is classified as non-agricultural land. Part of the site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>0/- The proposed extraction site would be worked dry (above the water table) and therefore no effect on water resources is expected.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0/- No effect on water resources is expected post extraction.</p> <p>If BMV land is identified, any restoration that does not incorporate agriculture would result in adverse impacts. The proposed depth of extraction would make any restoration to agriculture difficult.</p>
<p>SA11: To promote sustainable use of minerals resources</p>	<p>The site is 1.8 km from the Norwich urban area, which is allocated for significant growth in the adopted Local Plan.</p>	<p>++ Due to distance to nearest settlement allocated for significant growth.</p>	<p>0 No effect post extraction</p>
<p>SA12: To reduce the risk of current and future flooding at new and existing development</p>	<p>The site has a low probability of flooding from rivers within the district council SFRA. The site has a medium probability of surface water flooding, with areas of surface water pooling on the site in a 1 in 30 year rainfall event and a 1 in 100 year rainfall event. In a 1 in 1000 year rainfall event there are larger areas of surface water pooling and a surface water flow path within</p>	<p>0 The site is at low risk of being affected by flooding from either rivers or the sea. The site is at medium risk of being affected by flooding from surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.</p>	<p>0 No effect post extraction / restoration</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	the site which covers approximately 25% of the site area.		
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer some local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations. There are potential negative effects on air quality and agricultural land. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? NO

MIN 202 – land south of Reepham Road, Attlebridge

Proposal: Extraction of 545,000 tonnes of sand and gravel

Size of site: 17.36 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 1.7km from the Norwich urban area, but it is outside the Norwich Policy Area.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but the Norwich urban area is less than 5km away.	0 No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed new extraction site, it may lead to an increase of 76 HGV movements per day.	- Due to increased HGV movements. However, the increased number of HGV movements due to mineral transport would not be significant compared to overall HGV transport.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 126m from the site boundary. There are five sensitive receptors within 250m of the site boundary. The settlement of Update is 1km away and Attlebridge is 1.3km away. The effect on visual intrusion is assessed under objective SA8.	- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
<p>SA5: To maintain and enhance the character of the townscape and historic environment</p>	<p>The nearest Listed Buildings are the Grade II* Church of St Andrew and Grade II Church Farmhouse, which are 1.45km away. There are 9 Listed Buildings within 2km of the site.</p> <p>The only Scheduled Monument within 2km of the site is 'Round Barrow North of Sandy Lane' which is 810m away.</p> <p>There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are no Historic Environment records within the site boundary. A number of nearby areas have been investigated previously and no archaeological evidence identified. However, There have been isolated multi-period finds and there is a deserted medieval settlement location in proximity to the site.</p>	<p>0 No effects expected to during extraction.</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>0 A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction.</p> <p>No effect post extraction</p>
<p>SA6: To protect and enhance Norfolk's biodiversity and geodiversity</p>	<p>The site is 1.15km from the River Wensum SAC and is within the Impact Risk Zone for the River Wensum SSSI.</p> <p>Swannington Update Common SSSI is 0.96km from the site boundary.</p>	<p>-- The proposed extraction site would be worked dry (above the water table). There would be no adverse effects on the integrity of the SAC.</p> <p>The proposed extraction site would be worked dry (above the water table) and is located up-gradient of these SSSIs.</p>	<p>- No adverse effects to the River Wensum are expected post extraction.</p> <p>No impacts to SSSIs are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>Alderford Common SSSI is 1.73km from the site boundary.</p> <p>CWS 1344 'Triumph and Foxburrow Plantations' is partially within the site. CWS 2176 'Marriott's Way' is 50m from the site boundary.</p> <p>The nearest ancient woodland site is Mileplain Plantation, which is a PAWS and is adjacent to the site boundary and in some places within the site boundary.</p> <p>The site consists of the Sheringham Cliffs formation - sand and gravel, overlying Wroxham Crag. There is significant potential for vertebrate fossils within the Wroxham Crag.</p>	<p>Therefore there would be no adverse impacts to SSSIs.</p> <p>If the extraction includes parts of CWS 1344 then there will be physical loss. There is the potential for impacts from dust deposition, although with normal mitigation measures no adverse effects on these CWSs from dust are expected.</p> <p>The proposed extraction site would be worked dry (above the water table), therefore there would be no adverse effects on the hydrology of the PAWS. There is the potential for impacts from dust deposition. The working area of the site must be set back from the boundary of the PAWS by at least 15 metres otherwise there could be a permanent loss of ancient woodland soils.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>If the extraction includes parts of CWS 1344 then there will be permanent loss</p> <p>If the extraction includes parts of the PAWS then there could be a permanent loss of ancient woodland soils. If the extraction area excludes the PAWS then no adverse impacts to ancient woodland are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to a combination of acid grassland, woodland planting and shallow wetland/pond.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the	The site is not located within the AONB, a	-	0

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
quality and distinctiveness of the countryside and landscape	Core River Valley or any other designated landscape feature.	The site is a partially extracted mineral site and a woodland plantation. The site is screened from views in all directions by woodland.	Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within or adjacent to the site, although the Marriott's Way is crossed by the access road. The nearest residential property is 126m from the site boundary. There are five sensitive receptors within 250m of the site boundary.	- Care would be needed to ensure that the impact on users of the Marriott's Way and the nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site. The site is classified as non-agricultural land.	0 The site would be worked dry (above the water table) and therefore no effect on water resources is expected. No impacts on BMV agricultural soils.	0 No effect on water resources is expected post extraction. No impacts on BMV agricultural soils.
SA11: To promote sustainable use of minerals resources	The site is 1.7km from the Norwich urban area, which is allocated for significant growth in the adopted Local Plan.	++ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers within the district council SFRA. The site has a low probability of surface water flooding, with small areas of surface water pooling in a 1 in 1000 year rainfall event.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage	Although employment levels at minerals sites	+	0

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
employment opportunities and promote economic growth	tend to be low, if this site was worked it could offer some local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry		No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on air quality, biodiversity, the historic environment, landscape and amenity. It is considered that these effects could be appropriately mitigated, except for the effect on County Wildlife Site which is within the proposed extraction area. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, the assessment text for SA6 on ecology has been amended regarding impacts on ancient woodland because there is a PAWS site partially within the site boundary, the extraction phase assessment has been amended to ‘ - - ‘

MIN 48 – land at Swannington Bottom Plantation, Felthorpe

Proposal: Extraction of 1,900,000 tonnes of sand

Size of site: 51.62 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 2.3km from the Norwich urban area, but it is outside the Norwich Policy Area.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but the Norwich urban area is less than 5km away.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed new extraction site, it may lead to an increase in HGV movements. However, an estimated of the number of HGV movements has not been provided.	- Due to increased HGV movements. However, the increased number of HGV movements due to mineral transport would not be significant compared to overall HGV transport.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 50m from the site boundary. There are ten sensitive receptors within 250m of the site boundary and one of these is within 100m of the site boundary. The settlement of Felthorpe is 198m away. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building is the Grade II Felthorpe Hall which is 760m away. There are 7 Listed Buildings within 2km of the site.</p> <p>There is a Scheduled Monument within the site, which is the 'Round barrow north of Sandy Lane'. It is the only Scheduled Monument within 2km of the site.</p> <p>There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are Historic Environment records of a feature comprising a bronze age barrow, within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods.</p>	<p>--</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>-</p> <p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is 2.22km from the River Wensum SAC and is within the Impact Risk Zone for the River Wensum SSSI.</p> <p>The site is 3.46km from Buxton Heath SSSI which is part of the Norfolk Valley Fens SAC. It is outside the Impact Risk Zone for this SSSI.</p>	<p>-</p> <p>Due to the elevated position of the site, if the proposed extraction site is worked dry (above the water table) then no adverse effects on the integrity of the SAC are expected.</p> <p>No adverse impacts on the SSSI are expected due to the distance from the site.</p>	<p>0</p> <p>No impacts to the SAC are expected post extraction.</p> <p>No impacts to the SSSI are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>Swannington Upgate Common SSSI is adjacent to the site boundary.</p> <p>Alderford Common SSSI is 1.82km from the site boundary.</p> <p>CWS 1348 'Land adjoining Swannington Bottom Plantation' is adjacent to the site boundary.</p> <p>The nearest ancient woodland site is Mileplain Plantation which is a PAWS and is 0.75km from the site boundary.</p> <p>The site consists of Head deposits - clay, silt and gravel, which are priority features due to their method of formation; Sheringham Cliffs formation-sand and gravel, and Britons Lane sand and gravel member, overlying</p>	<p>There is the potential for impacts from dust deposition and changes to hydrogeology from mineral extraction. The site would need to be worked dry (above the water table). In the absence of detailed hydrogeological information and mitigation measures, impacts, impacts on the adjacent SSSI are uncertain.</p> <p>If the site is worked dry (above the water table) then no adverse effects on Alderford Common SSSI are expected.</p> <p>There is the potential for impacts from dust deposition and changes to hydrogeology. If the site is worked dry (above the water table) then no adverse effects on CWS are expected.</p> <p>If the site is worked above the water table, with normal mitigation measures, no adverse effects on this ancient woodland site are expected.</p> <p>The site contains examples of geodiversity priority features.</p>	<p>No impacts to the SSSI are expected post extraction.</p> <p>No impacts to the SSSI are expected post extraction.</p> <p>No impacts to the CWS are expected post extraction.</p> <p>No impacts to the ancient woodland are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	chalk formations in the west and Wroxham Crag in the east. There is significant potential for vertebrate fossils within the Wroxham Crag. The Britons Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site.		
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to a heathland habitat.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site is a coniferous plantation with a broadleaf edge and some regenerating broadleaf understorey. The eastern edge of the site is visible from Felthorpe Road and the southern edge from a public right of way. Intermittent views of the northern edge of the plantation can be seen from Mill Lane. If the working retained a woodland screen it would have a relatively low impact in landscape terms.	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There is a Public Right of Way along the southern boundary of the site (Felthorpe RB7). The nearest residential property is 50m from the site boundary. There are ten sensitive receptors within 250m of the site boundary and one of these is	-- Care would be needed to ensure that the impact on users of the PRow and the nearby dwellings would not be significant; however, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	within 100m of the site boundary.		
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over both Secondary A and B aquifers (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.</p> <p>The site is classified as non-agricultural land.</p>	<p>0 If the site is worked above the water table, with normal mitigation measures, no adverse effects on water resources are expected</p> <p>No impacts on BMV agricultural soils.</p>	<p>0 No effect on water resources is expected post extraction.</p> <p>No impacts on BMV agricultural soils.</p>
SA11: To promote sustainable use of minerals resources	The site is 2.3km from the Norwich urban area, which is allocated for significant growth in the adopted Local Plan.	<p>++ Due to distance to nearest settlement allocated for significant growth.</p>	<p>0 No effect post extraction</p>
SA12: To reduce the risk of current and future flooding at new and existing development	<p>The site has a low probability of flooding from rivers within the district council SFRA. The site has a low probability of surface water flooding, with one location of surface water pooling in a 1 in 1000 year rainfall event.</p>	<p>++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.</p>	<p>0 No effect post extraction / restoration.</p>
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer some local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	<p>+</p>	<p>0 No effect post restoration</p>
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on air quality, biodiversity, landscape and amenity and it is uncertain whether the effects on biodiversity could be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? YES, the comments for SA3 and SA9 have been amended regarding the distance of residential dwellings from the site boundary and the assessment scores have changed to '- -' for both SA3 and SA9. For SA6 the assessment text for Swannington Upgate Common SSSI has been amended to state that impacts are uncertain, but the assessment score has not changed.

MIN 37 – land at Mayton Wood, Coltishall Road, Buxton

Proposal: Extraction of 1,450,000 tonnes of sand and gravel

Size of site: 23.5 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 6.2km from Aylsham and 8.9km from North Walsham, which are the nearest towns. The site is 7.2km from the Norwich urban area and it is outside the Norwich Policy Area.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Norwich is less than 10km away.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 15m from the site boundary. There are 20 sensitive receptors within 250m of the site boundary and five of these are within 100m of the site boundary. The settlement of Buxton is 1.1km away. However, the proposed extraction area is set back from Coltishall Road and the nearest residential property is 96m from the extraction area. There are 13 sensitive receptors within 250m of the proposed extraction area (two of these are within 100m of the extraction area). The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities	0 No effects expected during extraction	+ There is the potential for enhanced public access to be provided

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
reduce social exclusion	and reduce social exclusion. The effect on employment is assessed under objective SA13.		within the site on restoration.
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building is the Grade II Mayton Hall which is 870m away. There are 35 Listed Buildings within 2km of the site.</p> <p>There are 3 Scheduled Monuments within 2km of the site. Mayton Bridge is 0.92km away, Great Hautbois old Church is 1.63km away and the 'Roman camp and Settlement site West of Horstead' is 1.71km away.</p> <p>RAF Coltishall Conservation Area is 1.67km from the site.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are no Historic Environment records within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods.</p>	<p>0 A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects expected during extraction.</p> <p>No effects expected during extraction.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>0 A mitigation strategy should ensure, the historic value of, assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post restoration.</p> <p>No effect post extraction</p> <p>No effect post extraction.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	The site is 4.23km from Crostwick Marsh SSSI, which is part of the Broads SAC, Broadland SPA and Ramsar site. It is outside the Impact Risk Zone for this SSSI.	- Due to distance, no impacts on SPAs, SACs or Ramsar sites are expected.	0 No impacts on SPAs, SACs, or Ramsar sites are expected.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>There are no SSSIs within 4km of the site boundary and the site is not within the Impact Risk Zone for any SSSI.</p> <p>The nearest CWS is CWS 1411 'Disused Gravel Pit' which is 90m from the site boundary.</p> <p>The nearest ancient woodland site is Clamp Wood which is a PAWS and ASNW; it is 2.25km from the site boundary.</p> <p>The site consists of the Happisburgh glacial formation-sand and gravel, overlying Wroxham Crag-sand and gravel. There is significant potential for vertebrate fossils within the Wroxham Crag.</p>	<p>Due to distance, no impacts on SSSIs are expected.</p> <p>There is the potential for impacts from dust deposition although with normal mitigation measures no adverse effect on this CWS is expected. The site would be worked dry (above the water table), therefore no adverse effects on the CWS are expected.</p> <p>No adverse impacts on the ancient woodland are expected due to the distance from the site and because the site would be worked dry.</p> <p>There is the potential for the site to contain examples of geodiversity priority features.</p>	<p>No impacts on SSSIs are expected.</p> <p>No impacts to the CWS is expected post extraction.</p> <p>No impacts to ancient woodland sites are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site would be restored to a mix of agricultural land, grassland, and some woodland. There may also be some enhanced public access to the site following restoration.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity and amenity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site comprises gently undulating arable land. The site is immediately opposite five isolated properties which lie along Buxton Road. The site would	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		<p>be difficult to screen from upstairs views from these properties, without a suitable standoff area incorporating advanced planting. Screening should take the form of tree belts with hedgerows closest to the boundaries of the site using native species.</p>	<p>impacts and if this includes woodland planting has the potential to reduce the landscape impact of the adjacent restored landfill site.</p>
<p>SA9: To contribute to improved health and amenity of local communities in Norfolk</p>	<p>There is a Public Right of Way crossing the site (Frettenham FP2).</p> <p>The nearest residential property is 15m from the site boundary. There are 20 sensitive receptors within 250m of the site boundary and five of these are within 100m of the site boundary. However, the proposed extraction area is set back from Coltishall Road and the nearest residential property is 96m from the extraction area. There are 13 sensitive receptors within 250m of the proposed extraction area (two of these are within 100m of the proposed extraction area).</p>	<p>--</p> <p>Care would be needed to ensure that the impact on users of the PRow and the nearby dwellings would not be significant. However, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned, such as temporary PRow diversions.</p>	<p>+</p> <p>If improved public access formed part of the restoration of the site this could contribute to improved health and amenity of local communities.</p>
<p>SA10: To protect and enhance water and soil quality in Norfolk</p>	<p>The site is partially located over a Secondary B aquifer (superficial deposits) and a principal aquifer (bedrock). The southern part of the site is within groundwater Source Protection Zone 3. The northern part of the site is not within a groundwater SPZ.</p>	<p>0/-</p> <p>The proposed extraction site would be worked dry (above the water table) and therefore no effect on water resources is expected.</p>	<p>0</p> <p>No effect on water resources is expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.	Potential for BMV agricultural land to be affected by mineral extraction within the site.	The site is proposed to be restored back to agriculture. Therefore, as long as the topsoil was stored correctly and then replaced, there would be no likely adverse effect on BMV agricultural land.
SA11: To promote sustainable use of minerals resources	The site is 6.2km from Aylsham, 8.9km from North Walsham and 7.2km from the Norwich urban area. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	+ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers within the district council SFRA. The site has a low risk of surface water flooding, with a two locations of surface water pooling in a 1 in 30 rainfall event. In a 1 in 1000 year rainfall event there is a surface water flow path across the widest part of the site west-east.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on biodiversity, landscape, amenity and agricultural land; however, it is considered that these effects could be appropriately mitigated. There could positive effects for biodiversity and landscape on restoration. Sand and		

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes. SA4 has been amended to state that there is the potential for improved public access post extraction and the score has been amended to '+' for the post extraction phase. The text for SA3 and SA9 has been updated regarding the distance of residential dwellings from the site and the assessment score during the extraction phase for SA9 has been amended to a '--'. The text for SA5 has been amended to include reference to Mayton Bridge Scheduled Monument, however, this does not change the assessment score for SA5.

MIN 64 – land at Grange Farm, Buxton Road, Horstead

Proposal: Extraction of 650,000 tonnes of sand and gravel

Size of site: 16.76 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 7.9km from Aylsham and 9.3km from North Walsham, which are the nearest towns. The site is 6.9km from the Norwich urban area and it is outside the Norwich Policy Area.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Norwich is less than 10km away.	0 No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 61m from the site boundary. There are five sensitive receptors within 250m of the site boundary and four of these are within 100m of the site boundary. The settlement of Horstead is 453m away. However, a reduced extraction area has been proposed which means that the nearest residential property is 182m from the extraction area, although there are still five residential properties within 250m of the extraction area. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
reduce social exclusion	exclusion. The effect on employment is assessed under objective SA13.		provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Buildings is the Grade II* Church of St Theobald (which is also a Scheduled Monument) and is 580m away. There are 46 Listed Buildings within 2km of the site. 22 of these are within Coltishall and Horstead Conservation Area which is 850m from the site.</p> <p>RAF Coltishall Conservation Area is 1.29km from the site.</p> <p>The nearest Scheduled Monument is the 'Roman camp and settlement site west of Horstead' which is 460m away. There are 3 Scheduled Monuments within 2km of the site.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are Historic Environment records of isolated multi period finds and features including a probable bronze age barrow, within the site boundary. The site is close to the boundary of the historic parkland associated with Horstead Hall and is in a wider landscape with a significant number of</p>	<p>-</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects expected during extraction.</p> <p>No effects expected during extraction.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>0</p> <p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction</p> <p>No effect post extraction</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	finds and features from multiple periods.		
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is 3.39km from Croswick Marsh SSSI, which is part of The Broads SAC, Broadland SPA and Ramsar site. It is outside the Impact Risk Zone for this SSSI.</p> <p>There are no SSSIs within 3km of the site boundary and the site is not within the Impact Risk Zone for any SSSI.</p> <p>CWS 1409 'Land adj. All Saint's Church' is 270m from the site boundary. CWS 1411 'Disused Gravel Pit' is 400m from the site boundary.</p> <p>The nearest ancient woodland site is Clamp Wood which is an ASNW and PAWS; it is 1.6km from the site boundary.</p> <p>The site consists of Head deposits - clay, silt and gravel, which are priority features due to their method of formation; Happisburgh glacial formation - sand and gravel, overlying Wroxham Crag - sand and gravel. There is significant potential for vertebrate fossils within the Wroxham Crag.</p>	<p>0 Due to distance, no impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>Due to distance, no impacts on SSSIs are expected.</p> <p>No adverse impacts on the CWSs are expected due to the distance from the site.</p> <p>The proposed extraction site would be worked dry (above the water table). No adverse impacts on the ancient woodland site is expected due to the distance from the site.</p> <p>This site contains examples of geodiversity priority features.</p>	<p>0 No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts on SSSIs are expected.</p> <p>No impacts to CWSs are expected post extraction.</p> <p>No impacts to the ancient woodland are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The proposed restoration scheme is to agriculture, with wide field margins, hedgerow formation and tree	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	planting, including the retention of woodland planting in the north-eastern part of the site.		
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site is a large flat arable field. It adjoins an area of mineral working and lies within a wider area of arable farmland. A scheme of working has been proposed which shows field boundary hedgerows and trees, as well as woodland planting in the north-eastern corner to mitigate landscape and amenity impacts. Planting must also reinforce and enhance existing hedgerows to mitigate views of soil storage bunds. Removal of existing field boundary hedgerows and trees would have a high landscape impact and must be avoided.	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts provided that hedgerow reinforcement and tree planting are included.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within the site. There is a PRoW (Horstead with Stanninghall BR3) close to the eastern boundary of the site. The nearest residential property is 61m from the site boundary. There are five sensitive receptors within 250m of the site boundary and four of these are within 100m of the site boundary. However, a reduced extraction area has been proposed which means that the nearest residential	-- Care would be needed to ensure that the impact on users of the PRoW and the nearby dwellings would not be significant. However, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	property is 182m from the extraction area, although there are still five residential properties within 250m of the extraction area.		
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is partially located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). The site is within groundwater Source Protection Zone 3.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>0/- If the site is worked above the water table, with normal mitigation measures, no adverse effects on water resources are expected.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0 No effect on water resources is expected post extraction.</p> <p>The site is proposed to be restored back to agriculture. Therefore, as long as the topsoil was stored correctly and then replaced, there would be no likely adverse effect on BMV agricultural land.</p>
SA11: To promote sustainable use of minerals resources	The site is 7.9km from Aylsham, 9.3km from North Walsham and 6.9km from the Norwich urban area. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	<p>+ Due to distance to nearest settlement allocated for significant growth.</p>	<p>0 No effect post extraction</p>
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers within the district council SFRA. The site has a low risk of surface water flooding, with one location of surface water pooling in a 1 in 30 year rainfall event and which extends in both the 1 in 100 and 1 in 1000 year rainfall event. There are two additional locations in a 1 in 1000 year rainfall event.	<p>++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.</p>	<p>0 No effect post extraction / restoration.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on landscape, agricultural land and amenity; however, it is considered that these effects could be appropriately mitigated. There could be positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, SA3 text amended to update information on the distance of dwellings from the site boundary and the proposed extraction area boundary, but no change to the score. SA9 text amended to update information on distance of dwellings from the site boundary and the proposed extraction area boundary; the extraction phase score changed to '--' due to proximity of dwellings. The text for the extraction phase has been amended for SA8, to reflect the proposed screening scheme, but the score has not changed.

MIN 65 – land north of Stanninghall Quarry

Proposal: Extraction of 4,500,000 tonnes of sand and gravel

Size of site: 53.12 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 9.1km from Aylsham, which is the nearest town. The site is 5.5km from the Norwich urban area and it is outside the Norwich Policy Area.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Norwich is less than 10km away.	0 No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. The site is a proposed extension to an existing site, but the number of HGV movements is expected to increase from an existing 75 per day to approximately 122 HGV movements per day and continue for a longer period.	- Due to increased HGV movements. However, the increased number of HGV movements due to mineral transport would not be significant compared to overall HGV transport.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 13m from the site boundary. There are 13 sensitive receptors within 250m of the site boundary and four of these are within 100m of the site boundary. The settlement of Horstead is 239m away. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	assessed under objective SA13.		
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building is Grade II Horstead Lodge which is 310m away. There are 50 Listed Buildings within 2km of the site. 24 of these are within Coltishall and Horstead Conservation Area which is 380m from the site.</p> <p>The nearest Scheduled Monument is the 'Roman camp and settlement site west of Horstead, which is 140m away. There are 2 Scheduled Monuments within 2km of the site.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are Historic Environment records of multi-period features in the northern part of the site including a probable WW2 military site and a WW2 Royal Observers Corp post. The site is in a wider landscape with a significant number of finds and features from multiple periods.</p>	<p>--</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>-</p> <p>A mitigation strategy should ensure, the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	The site is 1.4km from Crostwick Marsh SSSI, which is part of The Broads SAC, Broadland SPA and Ramsar site.	<p>-</p> <p>The proposed extraction site is in a different hydrological catchment to the SSSI and would not affect the hydrology of the SSSI. In addition, due to the distance from the site no adverse effects</p>	<p>0</p> <p>No impacts on the SSSI, SPA, SAC, or Ramsar site are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>The nearest County Wildlife Site is CWS 1409 'Land adj. All Saint's Church' which is 900m from the site boundary.</p> <p>The nearest ancient woodland sites are: Clamp Wood, which is an ASNW and PAWS and is 0.27km from the site, and Stanninghall Wood which is a PAWS and is 0.89km from the site boundary.</p> <p>This site consists of the Britons Lane sand and gravel member, Happisburgh glacial formation - sand and gravel, overlying Wroxham Crag formation - sand and gravel on the west of the site, Wroxham Crag Formation at the surface in the east of the site. There is significant potential for vertebrate fossils within the Wroxham Crag. The Britons Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site.</p>	<p>are expected on the SSSI, SPA, SAC or Ramsar site.</p> <p>Due to distance, no impacts on CWS are expected.</p> <p>As the site would be worked dry (above the water table); with normal mitigation measures; no adverse effects on these ancient woodland sites are expected.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>No impacts on CWS are expected.</p> <p>No impacts to the ancient woodland sites are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to a combination of arable agriculture, grassland and woodland.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the quality and	The site is not located within the AONB, a Core River Valley or	- The site comprises open arable plateau	0 Mineral extraction will result in landscape

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
distinctiveness of the countryside and landscape	any other designated landscape feature.	farmland divided by hedgerows with some boundary trees. Glimpses of the land can be seen from Frettenham Road to the west through gaps in boundary hedges. Views could also be seen from two properties which lie to the west and east respectively. The site is fairly level and it should be possible to design a scheme of working, incorporating screening, which would have an acceptable impact on the wider landscape.	change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.
SA9: To contribute to improved health and amenity of local communities in Norfolk	<p>There are no Public Rights of Way within the site. There is a PRow (Frettenham BR4) close to the western site boundary at one point.</p> <p>The nearest residential property is 13m from the site boundary. There are 13 sensitive receptors within 250m of the site boundary and four of these are within 100m of the site boundary.</p>	<p>--</p> <p>Care would be needed to ensure that the impact on users of the PRow and the nearby dwellings would not be significant. However, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.</p>	<p>0</p> <p>New public footpaths are unlikely to be provided within the site on restoration.</p>
SA10: To protect and enhance water and soil quality in Norfolk	The site is partially located over a Secondary B aquifer and a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). The majority of the site is within groundwater Source Protection Zone 3. The most northern part of the site is within groundwater SPZ2. A	<p>0/-</p> <p>As the site would be worked above the watertable no adverse impacts on hydrology are expected, although a Hydrological Risk Assessment would be required to confirm this.</p>	<p>0</p> <p>No effect on water resources is expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>southern part of the site is not within a groundwater SPZ.</p> <p>The site is classified as a mixture of grades 2, 3a and 3b agricultural land. Grades 2 and 3a are within the Best and Most Versatile agricultural land.</p>	<p>The site contains BMV land, however if a suitable soil storage strategy was adopted no adverse impacts from the extraction phase are expected.</p>	<p>The site is proposed to be restored back to agriculture. Therefore, as long as the topsoil was stored correctly and then replaced, there would be no likely adverse effect on BMV agricultural land.</p>
SA11: To promote sustainable use of minerals resources	<p>The site is 9.1km from Aylsham and 5.5km from the Norwich urban area. These are the nearest settlements allocated for significant growth in the adopted Local Plan.</p>	<p>+ Due to distance to nearest settlement allocated for significant growth.</p>	<p>0 No effect post extraction</p>
SA12: To reduce the risk of current and future flooding at new and existing development	<p>The site has a low probability of flooding from rivers within the district council SFRA. The site has a low probability of surface water flooding, with a few locations of surface water pooling in a 1 in 1000 year rainfall event.</p>	<p>++ The site is at a low risk of flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.</p>	<p>0 No effect post extraction / restoration.</p>
SA13: To encourage employment opportunities and promote economic growth	<p>Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry</p>	<p>+</p>	<p>0 No effect post restoration</p>
Conclusion	<p>The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, landscape, agricultural land, geodiversity, amenity and air quality, however; it is considered that these effects could be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.</p>		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, the text and extraction phase assessment for SA2 has been amended due to the proposed increase in HGV movements, the score is now '-'. The text for SA3 and SA9 has been amended to refer to the number of residential dwellings within 100m of the site boundary and the score for the extraction phase of SA9 has been amended to '--' due to the proximity of dwellings, but the score for SA3 has not changed.

MIN 96 – land at Grange Farm (between Spixworth Road and Coltishall Lane), Spixworth

Proposal: Extraction of 1,600,000 tonnes of sand and gravel

Size of site: 39.03 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 2km from the Norwich urban area and is within the Norwich Policy Area.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Norwich is less than 5km away.	0 No contributions to climate change post extraction.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 21m from the site boundary. There are five sensitive receptors within 250m of the site boundary and two of these are within 100m of the site boundary. The settlement of Horsham St Faith is 352m away. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
<p>SA5: To maintain and enhance the character of the townscape and historic environment</p>	<p>The nearest Listed Buildings are Grade II Meadow Farmhouse (210m away), Grade II Barn at Grange Farm (240m away), Grade II Grange Farmhouse (260m away) and Grade I Church of St Peter (300m away).</p> <p>There are 29 Listed Buildings within 2km of the site. 11 of these are within Horsham St Faiths Conservation Area, which is 650m from the site.</p> <p>The only Scheduled Monument within 2km of the site is 'St Faith Priory', which is 1.08km away.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are Historic Environment records of multi period finds within the site boundary, and a possible medieval trackway crossing the site. The site is close to the boundary of the historic parkland associated with Spixworth Hall, and is in a wider landscape with a very significant number of finds and features from multiple periods.</p>	<p>--</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects expected during extraction.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>-</p> <p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effects post extraction.</p> <p>No effects post extraction</p> <p>No effect post extraction</p>
<p>SA6: To protect and enhance Norfolk's biodiversity and geodiversity</p>	<p>The site is 2.22km from Crostwick Marsh SSSI, which is part of The Broads SAC, Broadland SPA and Ramsar site.</p>	<p>-</p> <p>The proposed extraction site is located up-gradient of the SSSI and would not affect the hydrology. In addition, due to the</p>	<p>0</p> <p>No impacts on SPAs, SACs, Ramsar sites or SSSIs are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>CWS 2205 'Spixworth Bridge Meadows' is 90m from the site boundary. CWS 1396 'Spixworth Meadows' is 480m from the site boundary.</p> <p>The nearest ancient woodland site is The Wilderness, which is a PAWS and is 1.47km from the site boundary.</p> <p>The site consists of the Sheringham Cliffs formation - sand and gravel, and Happisburgh glacial formation - sand and gravel.</p>	<p>distance from the site, there would be no adverse impacts to the SSSI, SAC, SPA or Ramsar site.</p> <p>There is the potential for impacts from dust deposition, although with normal mitigation measures no adverse effects on these CWSs are expected. As the site is expected to be worked dry (above the water table) no adverse effects on the CWSs are expected.</p> <p>As the site is expected to be worked dry (above the water table) and due to the distance, no adverse effects on the PAWS are expected.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>No impacts on the CWSs are expected post extraction</p> <p>No impacts on the ancient woodland site are expected post extraction</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	No details on proposed restoration of the site have been provided. The preferred restoration would be to agriculture with wide field margins, hedgerow formation and some woodland planting.	0 No effect during extraction phase	? No details of a proposed restoration scheme have been provided.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site comprises gently undulating arable land above the valley of Crostwick Beck. There are a few residential dwellings	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		close to the site boundary. The site is a large area, and it may be possible to work parts of the site, with suitable screening without an unacceptable impact on either the wider landscape or views from property.	no unacceptable impacts.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within or adjacent to the site. The nearest residential property is 21m from the site boundary. There are five sensitive receptors within 250m of the site boundary and two of these are within 100m of the site boundary.	-- Care would be needed to ensure that the impact on nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is not located over any superficial deposit aquifers. The site is located over a principal aquifer (bedrock). There are no groundwater Source Protection Zones within the proposed site.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>0/- The site is expected to be worked dry (above the water table), therefore adverse impacts to hydrology are not expected.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0/- No effect on water resources is expected post extraction.</p> <p>If BMV land is identified, any restoration that does not incorporate agriculture would result in adverse impacts</p>
SA11: To promote sustainable use of minerals resources	The site is 2km from the Norwich urban area and is within the Norwich Policy Area. This is the nearest settlement allocated for significant growth in the adopted Local Plan.	++ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding	The site has a low probability of flooding from rivers within the district council SFRA.	++ The site is at low risk of being affected by flooding from either	0 No effect post extraction / restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
at new and existing development	The site has a low probability of surface water flooding, with two very small locations of surface water pooling in a 1 in 1000 year rainfall event.	rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, landscape, agricultural land, biodiversity, geodiversity and amenity; however, it is considered that these effects could be appropriately mitigated. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, SA3 and SA9 have been updated to include the number of residential properties within 100m of the site and the extraction phase score for SA9 has been amended to '--'

MIN 213 - land at Mansom Plantation, Stratton Strawless

Proposal: Extraction of 1,000,000 tonnes of sand and gravel

Size of site: 34.8 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 5.2km from Aylsham which is the nearest town. The site is 6.4km from the Norwich urban area and is just outside the Norwich Policy Area.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns.	0 No contributions to climate change post extraction. Restoration proposal do not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed new extraction site, it may lead to an increase of 76 HGV movements per day.	- Due to increased HGV movements. However, the increased number of HGV movements due to mineral transport would not be significant compared to overall HGV transport.	0 No effects post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 18m from the site boundary. There are 18 sensitive receptors within 250m of the site boundary and 11 of these are within 100m of the site boundary. However, a smaller extraction area has been submitted by the proposer of the site, and there are 13 sensitive receptors within 250m of the extraction area and none within 100m. The settlement of Hevingham is 580m away and Stratton Strawless is 210m away. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control and amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment	- No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	is assessed under objective SA13.		
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed building is 79m away and is the Grade II Lodge to Stratton Strawless Hall. There are 23 Listed Buildings within 2km of the site boundary.</p> <p>There are no Scheduled Monuments within 2km of the site boundary</p> <p>There are no Conservation Areas of Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are Historic Environment records of earthworks within the site boundary. The site of a possible Roman furnace and metal working site are to the south and east of the site. The site of a moated medieval Bishop's Palace is recorded to the north of the site.</p>	<p>-- A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects expected during extraction</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological deposits will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>0 Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is 2.6 km from Buxton Heath SSSI, which is part of the Norfolk Valley Fens SAC and is within the Impact Risk Zone for the Norfolk Valley Fens SAC.</p> <p>The nearest County Wildlife Site is CWS</p>	<p>- Buxton Heath SSSI is within a different hydrological catchment to the proposed site. Therefore, due to distance there would be no likely significant effects on SPAs, SACs, Ramsar sites or SSSIs.</p>	<p>0 No impacts to SPAs, SACs or Ramsar sites are expected post extraction.</p> <p>No impacts to SSSIs are expected post extraction.</p> <p>No impacts to County Wildlife are</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>2204 'Hevingham Park' which is adjacent to the site boundary. CWS 'Brickkiln Grove' is 118m from the site, CWS 2114 'Horsford Woods' is 380m from the site, CWS 1412 'Ivy Farm Meadow' is 455m from the site and CWS 1401 'Waterloo Plantation' is 767m from the site.</p> <p>The nearest ancient woodland site is an unnamed PAWS which is immediately north of the site and forms part of Hevingham Park CWS. Hevingham Park PAWS is 150m from the site boundary.</p> <p>The site consists of glacio-fluvial deposits of sand and gravel overlying Wroxham Crag. There is significant potential for vertebrate fossils within the Wroxham Crag.</p>	<p>There is a high watertable in this location. The site would be worked wet, with no dewatering. A tree buffer of approx. 60m would be left between the extraction area and the ancient woodland and CWS. An assessment of potential impacts, including hydrogeology, together with appropriate mitigation, would be required as part of any planning application.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>expected post extraction.</p> <p>No impacts to ancient woodland sites are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to a holiday lodge development (with existing planning permission), surrounded by heathland and retained woodland around the site boundaries.	0 No effect during extraction phase	+ The inclusion of heathland within the restoration could have biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	0 The site is currently a conifer plantation. The proposal leaves a buffer/screening area of approximately 60m around the site boundary which could screen the site. Views into the site may be	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		possible from Shorthorn Road, although the proposed entrance, although it would be possible to reduce this with a curved access road.	unacceptable impacts.
SA9: To contribute to improved health and amenity of local communities in Norfolk	<p>There are no Public Rights of Way within the site. There is one PRow on the opposite side of the A140 to the site.</p> <p>The nearest residential property is 18m from the site boundary. There are 18 sensitive receptors within 250m of the site boundary and 11 of these are within 100m of the site boundary. However, a smaller extraction area has been submitted by the proposer of the site, and there are 13 sensitive receptors within 250m of the extraction area and none within 100m.</p>	-- Care would be needed to ensure that the impact on the nearby dwellings would not be significant; however, it is considered that appropriate mitigation measure to ensure no unacceptable impacts could be conditioned.	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a secondary aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.</p> <p>The site is classified as non-agricultural land.</p>	<p>0/0 There is a high water table in this location. The site is proposed to be worked wet with no dewatering. Therefore, mitigation measures should ensure that no unacceptable impacts occur.</p> <p>No impacts on BMV agricultural soils.</p>	<p>0 No effect on water resources is expected post extraction.</p> <p>No impacts on BMV agricultural soils.</p>
SA11: To promote sustainable use of minerals resources	The site is 5.2km from Aylsham. This is the nearest settlement allocated for significant growth in the adopted Local Plan.	+ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current	The site has a low probability of flooding	0	0

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
and future flooding at new and existing development	from rivers. The site has a low probability of surface water flooding with a few locations of surface water pooling, in a 1 in 30-year rainfall event. The number of locations of surface water pooling increase in a 1 in 100-year rainfall event and again in a 1 in 1000-year rainfall event. There is also a surface water flow path in the south-eastern corner of the site in a 1 in 1000-year rainfall event.	The site is at low risk of being affected by flooding from either rivers or the sea. The site is at low risk of being affected by flooding from surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at mineral sites tend to be low, if this site was worked it could offer some local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry.	+	0 No effect post restoration.
Conclusion	The site scores well in terms of proximity to growth locations. There are potential negative effects on amenity, biodiversity, air quality and the historic environment; however, it is considered that these effects could be appropriately mitigated. The site is at low risk of flooding and is expected to have a neutral effect on water quality, soil quality, and landscape. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? YES. This is a new site submitted in response to the Initial Consultation in 2016 and therefore it was not previously included in the SA.

Great Yarmouth sites

MIN 203 – land north of Welcome Pit, Burgh Castle

Proposal: Extraction of 280,000 tonnes of sand and gravel

Size of site: 4.38 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 3.3km from Great Yarmouth and 3.9km from Gorleston-on-Sea, which are the nearest towns.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Great Yarmouth and Gorleston-on-Sea are less than 5km away.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 237m from the site boundary. There are four sensitive receptors within 250m of the site boundary. A caravan holiday park is adjacent to the site boundary. The settlement of Burgh Castle is 870m away and Belton is 950m away. The effect on visual intrusion is assessed under objective SA8.	- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	assessed under objective SA13.		
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building is Grade II Old Hall Farmhouse which is 880m away. There are 19 Listed Buildings within 2km of the site.</p> <p>The nearest Scheduled Monument is 'Burgh Castle Roman fort, vicus, pre-conquest monastery, Norman motte and Bailey castle' which is 650m away. There are 2 Scheduled Monuments within 2km of the site.</p> <p>Halvergate Marshes Conservation Area is 1.13km from the site and Haddiscoe Conservation Area is 1.01km from the site. There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>The Historic Environment Record contains records of isolated multi-period finds within the site; however the majority of the site is identified as an area with no archaeological finds or features.</p>	<p>0 A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects expected during extraction.</p> <p>No effects expected during extraction</p> <p>The site has been subject to an archaeological investigation and no further archaeological investigations would be required at the site.</p>	<p>0 A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction.</p> <p>No effect post extraction</p> <p>No effect post extraction</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	The site is 1km from Breydon Water SSSI, which is part of the Breydon Water SPA and Ramsar site.	<p>- The proposed extraction site is in a different hydrological catchment to the SSSI and would not affect the hydrology of the SSSI. In addition, due to the distance from the site no adverse effects are expected to the</p>	<p>0 No impacts on Breydon Water SSSI, SPA and Ramsar are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>The site is 3.63km from The Broads SAC, Broadland SPA and Ramsar site</p> <p>Halvergate Marshes SSSI is 1.72km from the site boundary.</p> <p>The nearest CWS is CWS 2184 'Bremar Pony Stud' which is 570m from the site boundary.</p> <p>There are no ancient woodland sites within 3km of the site.</p> <p>The site consists of the Happisburgh Glacigenic formation, Lowestoft Formation diamicton, overlying Crag Group-sand and gravel. There is significant potential for vertebrate fossils within the Crag Group.</p>	<p>SSSI, SPA and Ramsar.</p> <p>The proposed extraction site is in a different hydrological catchment to the SAC, SPA and Ramsar site and would not affect their hydrology. In addition, due to the distance from the site, no adverse effects are expected to the SAC, SPA or Ramsar site.</p> <p>The proposed extraction site is in a different hydrological catchment to the SSSI and would not affect its hydrology. Therefore there would be no adverse effects on the SSSI.</p> <p>No adverse impacts on the CWS is expected due to the distance from the site.</p> <p>No impacts on ancient woodland are expected.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>No impacts on the SAC, SPA and Ramsar are expected post extraction.</p> <p>No impacts on the SSSI are expected post extraction.</p> <p>No impacts to CWSs are expected post extraction.</p> <p>No impacts on ancient woodland are expected.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to open water fringed with reedbeds and gently sloping margins sown with species-rich grassland.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	<p>0</p> <p>Rectangular in shape, the site runs parallel to the northern boundary of the existing quarry and adjoins a Holiday Park to the east. The site is currently bounded by a bund to the northern edge, with hedgerow and trees to the eastern boundary. The proposed extension to the existing mineral working is unlikely to have any discernible impact on the surrounding landscape.</p>	<p>0</p> <p>Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.</p>
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within or adjacent to the site. The nearest residential property is 237m from the site boundary. There are four sensitive receptors within 250m of the site boundary. A caravan holiday park is adjacent to the site boundary.	<p>-</p> <p>Care would be needed to ensure that the impact on nearby dwellings and the caravan park would not be significant. However, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.</p>	<p>0</p> <p>New public footpaths are unlikely to be provided within the site on restoration.</p>
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>-/-</p> <p>If the site is dewatered as part of the extraction the potential for adverse impacts exists, although appropriate assessment and mitigation measures could ensure that no unacceptable impacts occur.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0/-</p> <p>No effect on water resources is expected post extraction.</p> <p>The site is not proposed to be restored to agriculture, therefore there could be a permanent loss of BMV agricultural land.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA11: To promote sustainable use of minerals resources	The site is 3.3km from Great Yarmouth and 3.9km from Gorleston-on-Sea. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	++ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers within the borough council SFRA. The site has a low risk of surface water flooding with one area of surface water pooling in a 1 in 100 year rainfall event.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	+ The proposed restoration would involve the creation of open water bodies which could provide some flood storage capacity.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on water resources, agricultural land and amenity. It is considered that the impact on agricultural land could be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, the text for SA3 and SA9 has been updated with the distances of the nearest residential properties from the site, but no change has been made to the assessment scores. The assessment text for SA5 has been updated regarding archaeological assessment at the extraction phase, but no change has been made to the assessment score.

MIN 38 – land at Waveney Forest, Fritton

Proposal: Extraction of 1,870,000 tonnes of sand and gravel

Size of site: 96.35 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 6.5km from Gorleston-on-Sea and 6.9km from Great Yarmouth, which are the nearest towns.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Great Yarmouth and Gorleston-on-Sea are less than 10km away.	0 No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed new extraction site, it may lead to an increase of 50 HGV movements per day.	- Due to increased HGV movements. However, the increased number of HGV movements due to mineral transport would not be significant compared to overall HGV transport.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 13m from the site boundary. There are 78 sensitive receptors within 250m of the site boundary and 30 of these are within 100m of the site boundary. The settlement of Fritton is 26m away and St Olaves is 368m away. However, the land adjacent to New Road is not proposed to be extracted. Therefore, the nearest residential property is 112m from the extraction area and there are 34 sensitive receptors within 250m of the proposed extraction area (only one of these is within 100m of the extraction area). The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building is the Grade II* Drainage Pump which is 260m away. There are 20 Listed Buildings within 2km of the site. The nearest Scheduled Monument is St Olave's Priory, which is 390m away. There are 2 Scheduled Monuments within 2km of the site.</p> <p>Halvergate Marshes Conservation Area is adjacent to the site boundary and Haddiscoe Conservation Area is 330m from the site.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are Historic Environment records of features in the site, most of which are linked to a WW2 military site. Neither of the local listed features (remains of a WW2 firing range, and a former railway bridge) are within the proposed extraction areas.</p>	<p>-- A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effect expected during extraction</p> <p>No effects expected during extraction</p> <p>There is a significant likelihood that unknown military archaeology exists on the site and that the significance of archaeological remains is likely to be such that in-situ preservation would be required, which would be incompatible with mineral extraction.</p>	<p>-- A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction</p> <p>The removal of the military archaeology as part of any mineral extraction is likely to constitute significant harm.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	The site is 2.17km from Breydon Water SPA and Ramsar site.	- The proposed extraction site is in a different hydrological catchment and would	0 No impacts on the SPA or Ramsar site are expected post extraction.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>The site is 2.69km from The Broads SAC, Broadland SPA and Ramsar site.</p> <p>Halvergate Marshes SSSIs is 2.22km from the site boundary.</p> <p>CWS 1427 'Waveney Forest' is partially within the site but outside the proposed extraction area. CWS 1426 'Fritton Warren South' is adjacent to the site boundary and a proposed extraction area.</p> <p>There are no ancient woodland sites within 3km of the site.</p>	<p>not affect the hydrology of Breydon Water. In addition, due to the distance from the site, there would be no adverse effects on the SPA and Ramsar site.</p> <p>The proposed extraction site is in a different hydrological catchment and would not affect the hydrology of these sites. In addition, due to the distance to the site, there would be no adverse effects on the SAC, SPA and Ramsar site.</p> <p>The proposed extraction site in in a different hydrological catchment to the SSSI. In addition, due to distance, there would be no adverse effects on the SSSI.</p> <p>There is the potential for impacts from dust deposition although with normal mitigation measures no adverse effects on these CWSs are expected. The potential exists for impacts on the hydrology of the CWSs from dewatering, this would need to be assessed and mitigation measures identified as part of any future planning application.</p> <p>No impacts on ancient woodland are expected.</p>	<p>No impacts on the SAC, SPA or Ramsar site are expected post extraction.</p> <p>No impacts on the SSSI are expected post extraction.</p> <p>No impacts to CWSs are expected post extraction.</p> <p>No impacts on ancient woodland are expected.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	The site consists of the Happisburgh Glacigenic formation, Corton Woods sand and gravel member, overlying Crag Group - sand and gravel. There is significant potential for vertebrate fossils within the Crag Group.	There is the potential for this site to contain examples of geodiversity priority features.	No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to a mixture of commercial forestry, acid grassland, area of broadleaf woodland, and wetland habitats with wet grassland margins.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB or a Core River Valley. 43 hectares of the site are within the Broads Authority Executive Area. However, this area does not form part of the Broads Character Area, in The Broads Authority Landscape Sensitivity Study. The site is adjacent to the Halvergate Marshes Conservation Area.	- The majority of the site comprises woodland, split between a larger area of conifer plantation, with remnant areas of heath, on the higher land and broadleaf woodland on the valley floor. Expansive views of the afforested margins of the site can be seen across the marshes from the railway, the A149 and from the public rights of way along the Rivers Waveney and Yare and the New Cut. Views of the edge of the conifer plantation can also be seen from the edge of Fritton and New Road. The higher areas of the site within the coniferous plantations, generally the land to the south and east, would be screened by the retention of a screen of significant blocks of coniferous woodland with	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		additional woodland planting.	
SA9: To contribute to improved health and amenity of local communities in Norfolk	<p>There is a Public Right of Way adjacent to part of the western boundary of the site (Old Parish of Herringfleet FP1). There is a PRow adjacent to the northern boundary and the north eastern boundary of the site (Fritton and St Olaves BR4 and Fritton and St Olaves FP4a).</p> <p>The nearest residential property is 13m from the site boundary. There are 78 sensitive receptors within 250m of the site boundary and 30 of these are within 100m of the site boundary. However, the land adjacent to New Road is not proposed to be extracted. Therefore, the nearest residential property is 112m from the extraction area and there are 34 sensitive receptors within 250m of the proposed extraction area (only one of these is within 100m of the extraction area).</p>	<p>--</p> <p>Care would be needed to ensure that the impact on users of the PRow and the nearby dwellings would not be significant. However, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.</p>	<p>0</p> <p>New public footpaths are unlikely to be provided within the site on restoration.</p>
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.</p> <p>The majority of the site is classified as non-</p>	<p>-/-</p> <p>The site is proposed to be extracted without dewatering and would be worked wet when the water table is reached. Therefore, appropriate assessment and mitigation measures could ensure that no unacceptable impacts occur.</p>	<p>0/-</p> <p>No effect on water resources is expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	agricultural land. The western part of the site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.	Potential for BMV agricultural land to be affected by mineral extraction within the site.	If BMV land is identified, any restoration that does not incorporate agriculture would result in adverse impacts
SA11: To promote sustainable use of minerals resources	The site is 6.5km from Gorleston-on-Sea and 6.9km from Great Yarmouth, which are the nearest settlements allocated for significant growth in the adopted Local Plan.	+ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The majority (96%) of the site is in Flood Zone 1 (lowest risk) for flooding from rivers. The western boundary of the site is within Flood Zone 2 (medium risk) and Flood Zone 3 (high risk) for flooding from rivers, however this part of the site is not within the proposed mineral extraction area. The site has a low risk of surface water flooding with three locations of surface water pooling in a 1 in 30 year rainfall event. There are additional areas of surface water pooling at a 1 in 100 and a 1 in 1000 year rainfall event.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer some local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing	+	0 No effect post restoration

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	raw materials for the construction industry		
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on air quality, the historic environment, landscape, hydrology, agricultural land and amenity. It is considered that not all the effects on the historic environment could not be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, SA3 and SA9 have been updated regarding the distance of residential properties from the site boundary and extraction area. The extraction phase assessment scores for both SA3 and SA9 have been changed to '--' due to the proximity of residential properties to the site boundary.

King's Lynn and West Norfolk sites

MIN 6 – land off East Winch Road, Mill Drove, Middleton

Proposal: Extraction of 1,416,000 tonnes of carstone

Size of site: 10.25 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 4.8km from King's Lynn, which is the nearest town.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but King's Lynn is less than 5km away.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 480m from the site boundary. The settlement of Blackborough End is 481m away. The effect on visual intrusion is assessed under objective SA8.	0 Carstone extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and	The nearest Listed Building is Grade II 'Mitre Farm Cottage and attached Oak	0 A Heritage Statement would be required to support any future	0 A mitigation strategy should ensure the historic value of assets

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
historic environment	<p>Cottage', which are 910m away. There are 20 Listed Buildings within 2km of the site.</p> <p>The nearest Scheduled Monument is the Remains of Blackborough End Priory, which is 1.01km away. There are four Scheduled Monuments within 2km of the site.</p> <p>There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are Historic Environment records of isolated multi period finds, within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods.</p>	<p>planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effected expected during extraction.</p> <p>No effect during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction</p> <p>No effect post extraction</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is more than 5km from any SPA, SAC or Ramsar site.</p> <p>East Winch Common SSSI is 2.23km from the site boundary. River Nar SSSI is 1.57km from the site boundary.</p> <p>The nearest CWS is CWS 434 'Disused Pit which is 860m from the site.</p> <p>There are no ancient woodland sites within 3km of the site.</p>	<p>0 No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>Due to the distance from the proposed mineral extraction site, no adverse impacts are expected to the SSSI.</p> <p>No adverse impacts on the CWS are expected due to the distance from the site.</p> <p>No impacts on ancient woodland are expected.</p>	<p>0 No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts on the SSSIs are expected post extraction</p> <p>No impacts to the CWS are expected post extraction.</p> <p>No impacts on ancient woodland are expected.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	The site consists of Lowestoft Formation-diamicton, overlying Carstone formation-sandstone and Gault Formation mudstone.	The site is unlikely to contain geodiversity priority features.	No adverse impacts to geodiversity are expected post restoration.
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to a heathland habitat.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	0 The site is located on plateau land above the River Nar and is a fairly flat agricultural field with a tree belt along its northern edge and some hedgerow trees along its southern edge, and any workings would be screened from public view. The site is in an area with mineral workings to the east and west and a landfill site to the south. Farmland lies north of East Winch Road.	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There is a Public Right of Way adjacent to the western boundary of the site (Middleton RB4). The nearest residential property is 480m from the site boundary.	- Care would be needed to ensure that the impact on users of the PRoW and the nearby dwelling would not be significant. However, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	The site is partially located over a principal aquifer (bedrock) and partially over a Secondary (undifferentiated) aquifer (superficial deposits). However, there are no	0/0 The extraction site would be worked dry (above the water table) and therefore no effect on water resources is expected. A Hydrogeological Risk Assessment would be	0 No effect on water resources is expected post extraction.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	groundwater Source Protection Zones within the proposed site. The site is Grade 4 agricultural land.	required at the planning application stage to ensure that extraction only takes place above the water table. No impacts on BMV agricultural soils.	No impacts on BMV agricultural soils.
SA11: To promote sustainable use of minerals resources	The site is 4.8km from King's Lynn. This is the nearest settlement allocated for significant growth in the adopted Local Plan.	++ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. The site has a low risk of surface water flooding with three locations of surface water pooling in a 1 in 30 and 1 in 100 year rainfall event.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing a raw material for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, water resources and amenity; however, it is considered that these effects could be appropriately mitigated. There could be positive effects for biodiversity on restoration. Carstone extraction has positive economic impacts as it provides a raw material for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? YES, the comments for SA3 and SA9 have been updated to update the distance to the nearest residential dwelling. The assessment score for SA9 has not changed. The assessment score for SA3 has changed to '0'. The assessment text for SA10 has been changed to state that the site would be worked dry (above the water table) and the extraction phase score changed to 0/0.

MIN 45 – land north of Coxford Abbey Quarry (south of Fakenham Road), East Rudham

Proposal: Extraction of 700,000 tonnes of sand and gravel

Size of site: 22.7 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 8.4km from Fakenham which is the nearest town.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest town, but Fakenham is less than 10km away.	+ No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 822m from the site boundary. The settlement of Syderstone is 848m away. The effect on visual intrusion is assessed under objective SA8.	0 Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and	The nearest Listed Building is Grade II Thurnby House, which is 940m away. There	0 A Heritage Statement would be required to support any future	0 A mitigation strategy should ensure, the historic value of, assets

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
historic environment	<p>are 6 Listed Buildings within 2km of the site.</p> <p>The nearest Scheduled Monument is the 'Saucer Barrow at Coxford Heath' which is 820m away. There are 3 Scheduled Monuments within 2km of the site boundary.</p> <p>Tattersett Conservation Area is 1.34km from the site. There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are no Historic Environment records within the site boundary. There have been isolated multi-period finds in the wider landscape.</p>	<p>planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is 3.14km from the River Wensum SAC and is outside the Impact Risk Zone for the River Wensum SSSI.</p> <p>Syderstone Common SSSI is 0.15km from the site boundary.</p>	<p>--</p> <p>Due to distance, no impacts on SPAs, SACs, or Ramsar sites are expected.</p> <p>There is the potential for impacts from dust deposition although with normal mitigation measures no adverse effects on the SSSI are expected. As the site would be worked above the water table, no adverse hydrological impact on the SSSI is expected.</p>	<p>--</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts on the SSSI are expected post extraction</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>The nearest CWS is CWS 589 'Coxford Meadows' which is 500m from the site.</p> <p>The site is on an ancient woodland site, Coxford Wood, which is a PAWS.</p> <p>The site consists of the Britons Lane Sand and Gravel member, overlying chalk formations. The Britons Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site.</p>	<p>No adverse impacts on the CWS are expected due to the distance from the site and because the site would be worked dry.</p> <p>Extraction on the ancient woodland would constitute a permanent loss of an irreplaceable habitat.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>No impacts to County Wildlife Sites are expected post extraction.</p> <p>Storage of the ancient woodland soils and reapplication has been proposed. However, guidance indicates this is considered a last resort and is unlikely to be completely successful so is likely to result in some permanent loss of habitat</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to a parkland with trees and include reapplication of the soils from the existing PAWS.	0 No effect during extraction phase	-- It is not considered that the proposed restoration would provide a biodiversity gain in comparison to the existing PAWS
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site consists of an arable field in the north-west, whilst the rest of the site is primarily coniferous woodland. The western boundary of the site is adjacent to Bagthorpe Road and would require screening. The northern and eastern boundaries are set	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		back from the B1454 and are screened by a treebelt.	
SA9: To contribute to improved health and amenity of local communities in Norfolk	There is a Public Right of Way adjacent to the southern boundary of the site (East Rudham RB11). There is a PRoW adjacent to part of the site boundary with the Fakenham Road (Syderstone RB9). The nearest residential property is 822m from the site boundary.	- Care would be needed to ensure that the impact on users of the PRoW would not be significant. However, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a principal aquifer (bedrock) and a secondary A aquifer (superficial deposits). A small part of the site is within groundwater Source Protection Zone 2.</p> <p>The site is partly classified as non-agricultural land and partly Grade 3 agricultural land. The Grade 3 land could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>0/- The site would be worked dry (above the water table) and therefore no effect on water resources is expected.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0/- No effect on water resources is expected post extraction.</p> <p>If BMV land is identified, any restoration that does not incorporate agriculture would result in adverse impacts as a result of the permanent loss of BMV agricultural land.</p>
SA11: To promote sustainable use of minerals resources	The site is 8.4km from Fakenham. This is the nearest settlement allocated for significant growth in the adopted Local Plan.	+ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. The site has a low probability of surface water flooding with a minor surface water flow path along the southern boundary	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land	0 No effect post extraction / restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	of the site in a 1 in 1000 year rainfall event.	use which is suitable in all flood zones.	
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on biodiversity, landscape, agricultural land and amenity. It is considered that the effects on the ancient woodland could not be appropriately mitigated. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, the text for SA3 and SA9 has been updated to update information on the nearest residential property to the proposed site boundary, but the assessment scores have not changed.

MIN 204 – land north of Lodge Road, Feltwell

Proposal: Extraction of 720,000 tonnes of sand and gravel

Size of site: 13.86 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 13.8km from Thetford, which is the nearest town.	0 Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 21m from the site boundary. There are five sensitive receptors within 250m of the site boundary and two of these are within 100m of the site boundary. The settlement of Feltwell is 1.3km away. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and	There is one Listed Building within 2km of the boundary; Grade II	0 A Heritage Statement would be required to support any future	0 No effects are expected post extraction.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
historic environment	<p>Denton Lodge which is 640m away. The nearest Scheduled Monument is the Bowl Barrow in Lynnroad Covert, which is 1.59km away. There are 2 Scheduled Monuments within 2km of the site boundary.</p> <p>There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site.</p> <p>The site is located within a Historic Environment feature for Methwold Rabbit Warren. There are no HE records indicating finds. The site is in a wider landscape with a significant number of finds and features from the multiple periods but especially the Neolithic and Bronze Ages.</p>	<p>planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects expected during extraction</p> <p>It is highly likely that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>No effects are expected post extraction</p> <p>No effect post extraction</p> <p>No effect post extraction.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>Breckland Forest SSSI, part of the Breckland SPA, is adjacent to the site boundary.</p> <p>Breckland Farmland SSSI is 0.90km from the site boundary. The site is within the Protection Zone for Stone Curlews</p> <p>Weeting Heath SSSI, part of the Breckland SAC, is 2.03km from the site boundary.</p>	<p>--</p> <p>There is the potential for impacts from dust deposition, noise and disturbance to protected species, and it is uncertain if mitigation measures would be effective to avoid unacceptable adverse effects to the SSSI.</p> <p>If the site is worked above the water table, with normal mitigation measures, no adverse effects on these SSSIs are expected due to their distance from the site.</p>	<p>-</p> <p>There is a proposal for a conservation led restoration to provide suitable habitat for designated species, however there are no details of the scheme so effectiveness is uncertain.</p> <p>No impacts on the SSSIs are expected post extraction</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>There are no County Wildlife Sites within 1km of the site.</p> <p>There are no ancient woodland sites within 3km of the site.</p> <p>The site consists of the Croxton sand and gravel member, Ingham sand and gravel formation in NW of site, overlying Chalk Formations. There is a significant potential that glacial and peri-glacial geodiversity priority features may exist within the Croxton sands and gravels. The Ingham sands and gravels may also contain geodiversity priority features due to the method of formation.</p>	<p>No impacts on County Wildlife Sites are expected.</p> <p>No impacts on ancient woodland are expected.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>No impacts on County Wildlife Sites are expected.</p> <p>No impacts on ancient woodland are expected.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to grass heathland with some areas of bare ground and short vegetation in each to create habitat for stone curlew, nightjar and woodlark.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site consists of three separate parcels of land which are surrounded by mainly coniferous woodland except for the southern boundaries of the land along Lodge Road, which are bordered by hedgerows. Therefore all parcels of land are screened from views from the north, east and west, by existing trees. However, there	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		are views into the site from Lodge Road and additional screen planting and bunding will be required to ensure that site is also sufficiently screened from the south.	
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within or adjacent to the site. The nearest residential property is 21m from the site boundary. There are five sensitive receptors within 250m of the site boundary and two of these are within 100m of the site boundary.	-- Care would be needed to ensure that the impact on nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	The site is located over a principal aquifer (bedrock) and partially located over a secondary A aquifer (superficial deposits). Part of the site is within groundwater Source Protection Zone 2. The rest of the site is not within a groundwater SPZ. The majority of the site is classified as non-agricultural land. Part of the site is Grade 4 agricultural land.	0 The site would be worked dry (above the water table) and with normal mitigation measures, no adverse effects on water resources are expected. No impacts on BMV agricultural soils.	0 No effect on water resources is expected post extraction. No impacts on BMV agricultural soils.
SA11: To promote sustainable use of minerals resources	The site is 13.8km from Thetford. This is the nearest settlement allocated for significant growth in the adopted Local Plan.	0 Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. The site has a low risk of surface water flooding with two locations of surface water pooling in a 1 in 30 year rainfall	+ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a	0 No effect post extraction / restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	event and a five locations of surface water pooling in a 1 in 100 year rainfall event. In a 1 in 1000 year rainfall event approximately 40% of the western field is covered by surface water pooling.	'water compatible' land use which is suitable in all flood zones.	
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site is located in an area of low flood risk. There are potential negative effects on biodiversity, landscape, and amenity. It is considered that not all these effects could be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? YES, the comments for SA9 and SA3 have been changed regarding the number of residential dwellings within 100m of the site and the assessment score for SA6 has changed to '- -'. The assessment score for SA3 has not changed. The assessment text for SA5 has changed to state that it is highly likely that unknown archaeology exists at the site, but the assessment score has not changed. The comments and assessment text for SA6 have been amended regarding the uncertain impacts on the Breckland SPA and noting that the site is within the Protection Zone for Stone Curlews. The assessment score for SA6 has not changed.

MIN 19 & MIN 205 – land north of the River Nar, Pentney

Proposal: Extraction of 850,000 tonnes of sand and gravel

Size of site: 14.95 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 7.9km from King's Lynn, 11km from Downham Market and 12.1km from Swaffham which are the nearest towns.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but King's Lynn is less than 10km away.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 570m from the site. The settlement of Blackborough End is 2.7km away. The effect on visual intrusion is assessed under objective SA8.	0 Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	+ There is potential for enhanced public access to be provided within the site on restoration.
SA5: To maintain and enhance the	The nearest Listed Building is the Grade I	0	0

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
character of the townscape and historic environment	<p>'Remains of Augustinian Priory' which is 690m away. There are four Listed Buildings within 2km of the site. The nearest Scheduled Monument is the Remains of Pentney Priory at Abbey Farm which is 460m away. There are 2 Scheduled Monuments within 2km of the site.</p> <p>There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are no Historic Environment records within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods.</p>	<p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects expected during extraction.</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction.</p> <p>No effect post extraction</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is more than 5km from any SPA, SAC or Ramsar site.</p> <p>River Nar SSSI is adjacent to the site boundary.</p>	<p>-</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>The potential exists for impacts from mineral extraction at this site, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.</p>	<p>0</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts on the SSSIs are expected post extraction</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>East Winch Common SSSI is 2.85km from the site boundary.</p> <p>CWS 429 'South West Bilney Warren' is 190m from the site. CWS 431 'Valetta Meadow' is 520m from the site.</p> <p>There are no ancient woodland sites within 3km of the site.</p> <p>The site consists of peat, overlaying Leziate Member – sand. It is highly likely that complex sequences of valley fill sediments containing fossil material and evidence of sea level changes are present.</p>	<p>No adverse impacts on the SSSI is expected due to the distance from the site.</p> <p>There is the potential for impacts from dust deposition although with normal mitigation measures no adverse effects on these CWSs is expected. If dewatering is proposed, potential impacts to hydrogeology would need to be assessed and a suitable mitigation strategy put in place.</p> <p>No impacts on ancient woodland are expected.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>No impacts on the SSSIs are expected post extraction</p> <p>No impacts to CWSs are expected post extraction.</p> <p>No impacts on ancient woodland are expected.</p> <p>No adverse impacts to geodiversity are expected post restoration</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to several areas of open water with reed fringes, wet grassland and wet woodland.	0 No effect during extraction phase	- There are already a number of areas of open water and reedbeds in adjacent former mineral workings.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is located within a Core River Valley. The site is not located within the AONB or any other designated landscape feature.	-- Part of MIN 19 is currently used for mineral processing and storage and is required to be restored mainly to woodland (part by the end of 2019 and part by the end of 2024). MIN 205 is arable	- Mineral extraction will result in landscape change. Due to the location of the site within a Core River Valley and the existing approved restoration scheme for site MIN 19, the proposed revised

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		agricultural fields. The land is adjacent to the River Nar to the south and woodland to the north. There is farmland to the east and mineral workings to the west. The site is not easily accessible from public viewpoints apart from the public footpath which runs alongside the River Nar.	restoration scheme for MIN 19 and MIN 205 together would not result in enhancement of the landscape sufficient to justify mineral extraction.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There is a PROW (Pentney FP20) adjacent to the southern boundary of the site. The nearest residential property is 570m from the site. The settlement of Blackborough End is 2.7km away.	- Care would be needed to ensure that the impact on users of the PROW would not be significant. However, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration. But there is potential for enhanced public access to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	The site is not located over any superficial deposit aquifers. The site is located over a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site. The northern part of the site is classified as non-agricultural land. The majority of the site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.	-/- If dewatering is proposed there is the potential for hydrogeological impacts and a risk assessment and suitable mitigation strategy would be required as part of any future planning application. Potential for BMV agricultural land to be affected by mineral extraction within the site.	0/- No effect on water resources is expected post extraction. The site is not proposed to be restored to agriculture, therefore there could be a permanent loss of BMV agricultural land.
SA11: To promote sustainable use of minerals resources	The site is 7.9km from King's Lynn, 11km from Downham Market and	+ Due to distance to nearest settlement	0 No effect post extraction

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	12.1km from Swaffham. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	allocated for significant growth.	
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a medium probability of flooding from rivers within the borough council SFRA. 96% of the site is within Flood Zone 2 and 4% of the site is in Flood Zone 3 in the borough council SFRA. The site has a low probability of surface water flooding, with a few small locations of surface water pooling in a 1 in 100 year rainfall event. In a 1 in 1000 year rainfall event there are additional small areas of surface water pooling.	- The site is at medium risk of being affected by flooding from rivers and at low risk of being affected by flooding from surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	+ The proposed restoration would involve the creation of open water bodies which could provide some flood storage capacity.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry.	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations. There are potential negative effects on landscape, agricultural land, water resources, flood risk and amenity. It is considered that not all these effects could be appropriately mitigated. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? YES. The comments for SA3 have been amended to include a revised distance to the nearest residential dwelling, but no change to the assessment score. The post extraction assessment for SA4 has been changed to refer to the potential for enhanced public access on restoration and the assessment score changed to '+'. The assessment text for both the extraction and post extraction phases in SA5 has been updated as it is no longer considered that there would be impacts to a listed building and scheduled monument and the assessment scores have been changed to '0' for both

phases. The comments for SA6 have been amended to include further detail on geodiversity, but no change to the assessment score. The description of the proposed restoration in SA7 has been changed, but no change to the assessment score. The assessment text for SA8 has been changed to correct the existing site uses, approved restoration scheme, proposed restoration scheme and views of the site, but no change to the assessment scores. The comments for SA9 have been amended to include a revised distance to the nearest residential dwelling; the assessment text has been amended to refer to the potential for enhanced public access on restoration, but no change to the assessment score. The conclusion has been changed to remove the previous reference to negative effects on the historic environment.

MIN 74 – land at Turf Field, Watlington Road, Tottenhill

Proposal: Extraction of 160,000 tonnes of sand and gravel

Size of site: 3.21 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 5.8km from King's Lynn and 8.1km from Downham Market which are the nearest towns.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but King's Lynn is less than 10km away.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 77m from the site boundary. There are four sensitive receptors within 250m of the site boundary and two of these are within 100m of the site boundary. Tottenhill Row is 77m away. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the	The nearest Listed Building is Grade II 'The	--	--

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
character of the townscape and historic environment	<p>Grange' which is 980m away. There are 9 Listed Buildings within 2km of the site.</p> <p>Tottenhill Row Conservation Area is adjacent to the site.</p> <p>The only Scheduled Monument within 2km of the site is the 'Moated site of Wormegay Priory' which is 1.51km away.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are Historic Environment records of isolated multi-period finds, within the site boundary. The site is set in a wider landscape with a very significant number of finds and features from multiple periods associated with Fen edge settlement.</p>	<p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation. However, it is considered unlikely that mitigation measures would effectively address impacts on the setting of the Conservation Area.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change. It is considered unlikely that mitigation measures would effectively address impacts on the setting of the Conservation Area.</p> <p>No effect post extraction</p> <p>No effect post extraction.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is more than 5km from any SPA, SAC or Ramsar site.</p> <p>Setchey SSSI is 0.54km from the site boundary.</p> <p>River Nar SSSI is 1.10km from the site boundary.</p>	<p>-</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>The proposed extraction site is within the hydrological catchment for Setchey SSSI but it does not drain towards the SSSI. Therefore there would be no adverse impacts to the SSSI.</p> <p>The proposed extraction site is in a</p>	<p>0</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts on SSSIs are expected post extraction.</p> <p>No impacts on SSSIs are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>The nearest CWS is CWS 387 'Tottenham Row Common' which is 30m away.</p> <p>There are no ancient woodland sites within 3km of the site.</p> <p>This site consists of the Tottenham gravel member-gravel, overlying Kimmeridge Clay formation-mudstone. There is a significant potential that geodiversity priority features may exist within the Tottenham gravels due to the method of formation.</p>	<p>different hydrological catchment to the River Nar SSSI and therefore there would be no adverse impacts to the SSSI.</p> <p>There is the potential for impacts from dust deposition although with normal mitigation measures no adverse effects on this CWS are expected. The potential exists for impacts on hydrology, therefore a risk assessment and a suitable mitigation strategy would be required to support any future planning application.</p> <p>No impacts on ancient woodland are expected.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>No impacts to CWSs are expected post extraction.</p> <p>No impacts on ancient woodland are expected.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to an agricultural afteruse at original ground levels.	0 No effect during extraction phase	- The proposed restoration will not result in any landscape or biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The site is adjacent to	-- The site is an arable field. The site is in an elevated position on the fen edge, sloping towards Setchey to the north. Open views of	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	Tottenhill Row Conservation Area.	the site would be seen from the Nar Valley Way to the south and the sloping nature of the site would make these views hard to screen and any screening or bunding would be intrusive in its own right. The site is adjacent to Tottenhill Row Conservation Area, which includes a number of residential properties, and it is again considered that it would be difficult to screen any working from this direction and that any screening or bunding would be intrusive in its own right.	no unacceptable impacts.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within or adjacent to the site. The nearest residential property is 77m from the site boundary. There are four sensitive receptors within 250m of the site boundary and two of these are within 100m of the site boundary.	-- Care would be needed to ensure that the impact on nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a Secondary A aquifer (superficial deposit). The site is not located over any bedrock aquifers. There are no groundwater Source Protection Zones within the proposed site.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the</p>	<p>-/- If the site is dewatered as part of the extraction the potential for adverse impacts exists, although appropriate assessment and mitigation measures could ensure that no unacceptable impacts occur.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>-/0 No effect on water resources is expected post restoration.</p> <p>The site is proposed to be restored back to agriculture. Therefore, as long as the topsoil was stored correctly and then replaced,</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	Best and Most Versatile agricultural land.		there would be no likely adverse effect on BMV agricultural land.
SA11: To promote sustainable use of minerals resources	The site is 5.8km from King's Lynn and 8.1km from Downham Market. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	+ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. No areas of the site are at risk of surface water flooding.	++ The site is at low risk of being affected by flooding from either river, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, landscape, water resources, agricultural land and amenity. It is considered that the effects on landscape and the historic environment could not be appropriately mitigated. There could be positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, the text for SA3 and SA9 has been updated to include the number of residential dwellings within 100m of the proposed site boundary. The assessment score for SA3 has not changed. The assessment score for SA9 has changed to '- ' due to the proximity of residential dwellings.

MIN 77 – land at Runs Wood, south of Whin Common Road, Tottenhill

Proposal: Extraction of 630,000 tonnes of sand and gravel

Size of site: 8.83 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 6.8km from King's Lynn and 6.9km from Downham Market which are the nearest towns.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but King's Lynn is less than 10km away.	0 No contributions to climate change post extraction. Restoration would include some woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	There is only one sensitive receptor within 250m of the site boundary, which is located 79m away. The settlement of Watlington is 368m away and Tottenhill is 414m away. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the	The nearest Listed Building is Grade I	-	-

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
character of the townscape and historic environment	<p>Church of St Peter and St Paul, which is 810m away. There are 8 Listed Buildings within 2km of the site.</p> <p>Tottenham Row Conservation Area is 410m from the site.</p> <p>There are no Scheduled Monuments within 2km of the site.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are Historic Environment records that features exist within the site boundary. There are no HE records indicating finds. The site is set in a wider landscape with a very significant number of finds and features from multiple periods associated with Fen edge settlement.</p>	<p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects expected during extraction</p> <p>No effects expected during extraction.</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>A mitigation strategy should ensure, the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is more than 5km from any SPA, SAC or Ramsar site.</p> <p>Setchey SSSI is 1.59km from the site boundary.</p> <p>River Nar SSSI is 2.21km from the site boundary.</p>	<p>-</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>The proposed extraction site is within the hydrological catchment for Setchey SSSI but it does not drain towards the SSSI. Therefore there would be no adverse impacts to the SSSI.</p> <p>The proposed extraction site is in a different hydrological catchment to the River</p>	<p>0</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts on SSSIs are expected post extraction.</p> <p>No impacts on SSSIs are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>The nearest CWS are: CWS 378 'Runs Wood Meadow' which is 260m away. CWS 381 'Thieves' Bridge Meadow' which is 280m away. CWS 387 'Tottenham Row Common' which is 450m away.</p> <p>There are no ancient woodland sites within 3km of the site.</p> <p>This site consists of the Tottenham gravel member - gravel; overlying Kimmeridge Clay formation - mudstone. There is a significant potential that geodiversity priority features may exist within the Tottenham gravels due to the method of formation.</p>	<p>Nar SSSI and therefore there would be no adverse impacts to the SSSI.</p> <p>If the site is worked above the water table, with normal mitigation measures, no adverse effects on the CWSs are expected.</p> <p>No impacts on ancient woodland are expected.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>No impacts to CWSs are expected post extraction.</p> <p>No impacts on ancient woodland are expected.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to nature conservation after use comprising a mixture of ponds, wet woodland, wet grassland etc.	0 No effect during extraction phase	0 The proposed restoration scheme may help to replace the biodiversity from the loss of the existing woodland.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	-- The site is a mixed woodland that is predominately broadleaf species. The woodland site is visible from Whin Common Road to the north. Runs Wood constitutes a significant area of woodland within the local landscape, and constitutes an	- Mineral extraction will result in landscape change and the removal of the woodland would constitute a significant long term impact.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		important landscape feature.	
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within or adjacent to the site. There is only one sensitive receptor within 250m of the site boundary, which is located 79m away.	-- Care would be needed to ensure that the impact on nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	The site is located over a Secondary A aquifer (superficial deposit). The site is not located over any bedrock aquifers. There are no groundwater Source Protection Zones within the proposed site. The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.	-/- If the site is dewatered as part of the extraction the potential for adverse impacts exists, although appropriate assessment and mitigation measures could ensure that no unacceptable impacts occur. Potential for BMV agricultural land to be affected by mineral extraction within the site.	0/- No effect on water resources is expected post extraction. The site is proposed to be restored to nature conservation instead of agriculture, therefore there could be a permanent loss of BMV agricultural land.
SA11: To promote sustainable use of minerals resources	The site is 6.8km from King's Lynn and 6.9km from Downham Market. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	+ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. The site has a low risk of surface water flooding. There is a surface water flow path along the southern boundary of the site in a 1 in 30 year rainfall event which increases in size in a 1 in 100 and 1 in 1000 year rainfall	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	event. This is likely to be a proxy for fluvial flooding from the adjacent ordinary watercourse.		
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, water resources, agricultural land, landscape, geodiversity and amenity. It is considered that the landscape effects of the loss of the woodland could not be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, the extraction phase score for SA9 has changed to '--' due to the proximity of the nearest residential dwelling.

MIN 206 – land at Oak Field, west of Lynn Road, Tottenhill

Proposal: Extraction of 780,000 tonnes of sand and gravel

Size of site: 14.7 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 6.4km from King's Lynn and 7.2km from Downham Market which are the nearest towns.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but King's Lynn is less than 10km away.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential dwelling is 82m from the site boundary. There are 14 sensitive receptors within 250m of the site boundary and 2 of these are within 100m of the site boundary. The settlement of Tottenhill is 82m away. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the	The nearest Listed Building is the Grade I	-	-

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
<p>character of the townscape and historic environment</p>	<p>Church of St Peter and St Paul which is 1.17km away. There are 9 Listed Buildings within 2km of the site.</p> <p>The only Scheduled Monument within 2km of the site is the 'Moated site of Wormegay Priory' which is 1.73km away.</p> <p>Tottenham Row Conservation Area is 260m from the site.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are Historic Environment records that features exist within the site boundary. There are no HE records indicating finds. The site is set in a wider landscape with a very significant number of finds and features from multiple periods associated with Fen edge settlement.</p>	<p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects expected during extraction.</p> <p>No effects expected during extraction</p> <p>No effects expected during extraction.</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction</p> <p>No effect post extraction.</p>
<p>SA6: To protect and enhance Norfolk's biodiversity and geodiversity</p>	<p>The site is more than 5km from any SPA, SAC or Ramsar site.</p> <p>Setchey SSSI is 1.07km from the site boundary.</p>	<p>-</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>The proposed extraction site is within the hydrological catchment for Setchey SSSI but it does not drain towards the SSSI. Therefore there would be no adverse impacts to the SSSI.</p>	<p>0</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts to SSSIs are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>River Nar SSSI is 1.64km from the site boundary.</p> <p>The nearest CWS are: CWS 387 'Tottenham Row Common' which is 273m from the site. CWS 385 'Tottenham Village Green' is 190m from the site. CWS 384 'West of Tottenham' is 282m away.</p> <p>There are no ancient woodland sites within 3km of the site.</p> <p>The site consists of the Tottenham gravel member-gravel, overlying Kimmeridge Clay formation-mudstone. There is a significant potential that geodiversity priority features may exist within the Tottenham gravels due to the method of formation.</p>	<p>The proposed extraction site is in a different hydrological catchment to the River Nar SSSI and therefore there would be no adverse impacts to the SSSI.</p> <p>No adverse impacts on the CWS are expected due to the distance from the site.</p> <p>No impacts on ancient woodland are expected.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>No impacts to SSSIs are expected post extraction.</p> <p>No impacts to CWSs are expected post extraction.</p> <p>No impacts on ancient woodland are expected.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to an agricultural afteruse at original ground levels.	0 No effect during extraction phase	- The proposed restoration scheme will not result in any landscape or biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	0 The site is an agricultural field immediately to the south of the existing active mineral processing plant. The northern part of the site is bounded to the east and west by woodland	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		belts, with a flooded former mineral working also to the west. The Lynn Road is approximately 125m to the east of the northern part of the site, with the southern part of the site projecting eastwards up to the A10. The southern boundary of the site borders Whin Common Road. The site is generally well screened from public viewpoints except the south eastern corner where a field entrance provides a view northwards.	
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within or adjacent to the site. The nearest residential dwelling is 82m from the site boundary. There are 14 sensitive receptors within 250m of the site boundary and 2 of these are within 100m of the site boundary.	-- Care would be needed to ensure that the impact on nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a Secondary A aquifer (superficial deposit). The site is not located over any bedrock aquifers. There are no groundwater Source Protection Zones within the proposed site.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>-/- If the site is dewatered as part of the extraction the potential for adverse impacts exists, although appropriate assessment and mitigation measures could ensure that no unacceptable impacts occur.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0 No effect on water resources is expected post extraction.</p> <p>The site is proposed to be restored back to agriculture. Therefore, as long as the topsoil was stored correctly and then replaced, there would be no likely</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
			adverse effect on BMV agricultural land.
SA11: To promote sustainable use of minerals resources	The site is 6.4km from King's Lynn and 7.2km from Downham Market. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	+ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. The site has a low probability of surface water flooding with one small location of surface water pooling in a 1 in 30-year rainfall event and a 1 in 100-year event. In a 1 in 1000-year rainfall event there are additional small areas of surface water pooling.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, geodiversity, amenity, agricultural land, and water resources; however, it is considered that these effects could be appropriately mitigated. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, the size of the site has been increased by the site proposer since the Initial Consultation and the SA has been amended to reflect this change, as follows: For SA1 and SA11 the distance to Downham Market has been amended, but this does not affect the scores. For SA3 and SA9 the distances to residential properties have been amended to reflect the new site boundary and the scores for the extraction phase have been changed to '- -' for both SA objectives. For SA8 the extraction phase text has changed, but not the score. For SA12 the text has been changed to include

some surface water pooling, but this has not changed the score. For SA5 the distances to heritage assets have been changed, but this has not changed the score. For SA6 the distances from the site to SSSIs and CWSs have been changed, but this has not changed the score. For SA12 the text has been changed to include some surface water pooling, but this has not changed the score.

MIN 32 – land west of Lime Kiln Road, West Dereham

Proposal: Extraction of 560,000 tonnes of sand and gravel

Size of site: 9.08 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 4.4km from Downham Market, 15.2km from King's Lynn and 15.6km from Swaffham, which are the nearest towns.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Downham Market is less than 5km away.	0 No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 30m from the site boundary. There are 6 sensitive receptors within 250m of the site boundary and four of these are within 100m of the site boundary. However, the southern part of the site is not proposed to be extracted. Therefore, the nearest residential property is 60m from the extraction area and there are 6 sensitive receptors within 250m of the proposed extraction area (two of these are within 100m of the extraction area). The settlement of West Dereham is 750m away. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and	Mineral extraction sites are unlikely to provide improved accessibility	0 No effects expected during extraction	0 It is unlikely that enhanced public

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
facilities and reduce social exclusion	to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.		access would be provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building is the Grade I Church of St Andrew which is 720m away. There are 26 Listed Buildings within 2km of the site (11 of these are headstones at the Church of St Andrew). A further 8 Listed Buildings are in Wereham Conservation Area which is 1.36km from the site.</p> <p>There is one Scheduled Monument within 2km of the site, the 'remains of monastic grange with moated site at Grange Farm', which is 180m away.</p> <p>Stradsett Hall, a Registered Historic Park and Garden is 1.99km from the site.</p> <p>There are Historic Environment records that features exist within the site boundary, and of finds within the site boundary. The site is immediately adjacent to the remains of a significant Saxon building, and is in a wider landscape with a significant number of finds and features from multiple periods.</p>	<p>--</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>--</p> <p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction.</p>
SA6: To protect and enhance Norfolk's		0	0

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
biodiversity and geodiversity	<p>The site is more than 5km from any SPA, SAC or Ramsar site.</p> <p>There are no SSSIs within 3km of the site boundary and the site is not within the Impact Risk Zone for any SSSIs.</p> <p>The nearest CWS is CWS 327 'Lime Pit' which is 60m away.</p> <p>The nearest ancient woodland site is Kippers Wood which is a PAWS; it is 2.38km from the site boundary.</p> <p>The site consists of the Lowestoft Formation - diamicton, overlying West Melbury Marly Chalk Formation – chalk.</p>	<p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>Due to distance, no impacts on SSSIs are expected.</p> <p>There is the potential for impacts from dust deposition although with normal mitigation measures no adverse effects on these CWSs is expected. If the site is worked above the water table, with normal mitigation measures, no adverse effects on the CWSs are expected.</p> <p>No adverse impacts on ancient woodland are expected due to the distance from the proposed site.</p> <p>This site is unlikely to contain geodiversity priority features.</p>	<p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts on SSSIs are expected.</p> <p>No impacts to CWSs are expected post extraction.</p> <p>No adverse impacts on ancient woodland are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to agriculture with additional native woodland planting (0.7ha) and species-rich hedgerow.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	-- The site comprises open arable land. The site is located on the 'fen edge' and slopes relatively steeply towards the south west, and due to the open	- Mineral extraction will result in landscape change which due to the sloping nature of the site would be visible from a variety of viewpoints.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		nature of the surrounding landscape is visible from West Dereham, and a significant number of other viewpoints including the A134, Brick Kiln Lane, and Bath Road. Screening the site from the viewpoints would itself be intrusive.	
SA9: To contribute to improved health and amenity of local communities in Norfolk	<p>There are no Public Rights of Way within or adjacent to the site.</p> <p>The nearest residential property is 30m from the site boundary. There are 6 sensitive receptors within 250m of the site boundary and four of these are within 100m of the site boundary. However, the southern part of the site is not proposed to be extracted. Therefore, the nearest residential property is 60m from the extraction area and there are 6 sensitive receptors within 250m of the proposed extraction area (two of these are within 100m of the extraction area).</p>	<p>--</p> <p>Care would be needed to ensure that the impact on nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.</p>	<p>0</p> <p>New public footpaths are unlikely to be provided within the site on restoration.</p>
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is partially located over a Secondary aquifer (undifferentiated) (superficial deposits) and over a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.</p> <p>The site is Grade 3 agricultural land and</p>	<p>0/-</p> <p>The site is expected to be worked above the water table and therefore no adverse effects on water resources are expected.</p> <p>Potential for BMV agricultural land to be</p>	<p>0</p> <p>No effect on water resources is expected post extraction.</p> <p>The site is proposed to be restored back to</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.	affected by mineral extraction within the site.	agriculture. Therefore, as long as the topsoil was stored correctly and then replaced, there would be no likely adverse effect on BMV agricultural land.
SA11: To promote sustainable use of minerals resources	The site is 4.4km from Downham Market, 15.2km from King's Lynn and 15.6km from Swaffham. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	++ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. The site has a low probability of surface water flooding, with a surface water flow path just encroaching the south of the site in a 1 in 1000 year rainfall event.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, landscape, agricultural land and amenity. It is considered that the landscape effects could not be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, for SA3 and SA9 information on the number of residential properties within 100m of the site boundary and extraction area have been updated, and the SA9 extraction phase score changed to '- -'.

King's Lynn and West Norfolk - Silica Sand Sites and Areas of Search

MIN 40 – land east of Grandcourt Farm, East Winch

Proposal: Extraction of 3,000,000 tonnes of silica sand

Size of site: 32.77ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is approximately 1.8km from the Leziat processing plant. The mineral would be transported by an internal haul route to the processing plant.	++ Mineral extraction required energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the processing plant, but it is less than 5km away.	0 No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements to the processing plant is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	There is a residential property within the site; the next nearest residential property is 23m from the site boundary. There are 88 sensitive receptors within 250m of the site boundary and 25 of these are within 100m of the site boundary). The settlement of East Winch is 23m away. However, part of the site nearest to East Winch is not proposed to be extracted. Therefore, the nearest residential property is 84m from the extraction area and there are 54 sensitive receptors within 250m of the proposed extraction area (three of these are within 100m of the extraction area). The effect on visual	-- Silica sand extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	intrusion is assessed under objective SA8.		
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building is the Grade II* Church of All Saints, which is 50m away. The Grade II Hall Farmhouse (formally Church Farmhouse) is 250m away. There are 10 Listed Buildings within 2km of the site.</p> <p>The nearest Scheduled Monument is the 'Moated site of Crancourt Manor' which is 790m away. There are 2 Scheduled Monuments within 2km of the site.</p> <p>There are no Conservation Areas or Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are Historic Environment records of isolated multi period finds and features within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods, including an adjacent site, with an Iron Age settlement.</p>	<p>-- A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects expected during the extraction phase.</p> <p>No effects during the extraction phase.</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>-- A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p>
SA6: To protect and enhance		-	0

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
Norfolk's biodiversity and geodiversity	<p>East Walton and Adcock's Common SSSI, which is part of the Norfolk Valley Fens SAC, is 3.79km from the site boundary. It is outside the Impact Risk Zone for this SSSI.</p> <p>East Winch Common SSSI is 0.74km from the site boundary. River Nar SSSI is 2.89km from the site boundary.</p> <p>The nearest CWS is CWS 226 'East Winch Common' which is 740m away.</p> <p>There are no ancient woodland sites within 3km of the site.</p> <p>The site consists of Leziate member-sand and Carstone Formation-sandstone.</p>	<p>The proposed extraction site is up-gradient of the SSSI and SAC. Due to distance there would be no adverse impacts to the SSSI and SAC.</p> <p>The proposed extraction site is located up-gradient of these SSSIs. Due to distance there would be no impacts from dust deposition. Therefore there would be no adverse impacts to the SSSIs.</p> <p>The proposed extraction site is located up-gradient of the SSSI. Due to the distance from the CWS there would be no impacts from dust deposition. Therefore there would be no adverse impacts to the CWS.</p> <p>No impacts on ancient woodland are expected.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>No adverse impacts on the SSSI and SAC are expected post extraction.</p> <p>No impacts on SSSIs are expected post extraction.</p> <p>No impacts on the County Wildlife Site are expected post extraction.</p> <p>No impacts on ancient woodland are expected.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to a lake area with grassland, woodland and scrub, and an agricultural field with hedgerow reinforcement.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	<p>-</p> <p>The site comprises open arable gently undulating landscape. The eastern boundary of the site is adjacent to the village of East Winch, and the A47 runs along the southern boundary of the site. There are filtered views over the site from the A47 and from the Public Right of Way along the western boundary. There are more open views of the site from the PRow which crosses the site and from the properties on the eastern edge of East Winch. It is considered that views of the site from the A47 could be sufficiently screened by bunding. The extraction area of the site will need to be set back from the properties in East Winch village and from properties in the south-west corner of the site. A suitable screening scheme will also be required to mitigate the views of the site from these properties.</p>	<p>0</p> <p>Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.</p>
SA9: To contribute to improved health and amenity of local communities in Norfolk	<p>There is a Public Right of Way along the western boundary of the site (East Winch BR1). There is also a PRow running across the site (East Winch FP2).</p> <p>There is a residential property within the site, the next nearest residential property is 23m from the site boundary. There are</p>	<p>--</p> <p>Care would be needed to ensure that the impact on users of the PRow and the nearby dwellings would not be significant. However, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned, such as temporary diversion of the PRow</p>	<p>0</p> <p>New public footpaths are unlikely to be provided within the site on restoration.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>88 sensitive receptors within 250m of the site boundary and 25 of these are within 100m of the site boundary. However, part of the site nearest to East Winch is not proposed to be extracted. Therefore, the nearest residential property is 84m from the extraction area and there are 54 sensitive receptors within 250m of the proposed extraction area (three of these are within 100m of the extraction area).</p>	<p>and not extracting the land closest to East Winch.</p>	
<p>SA10: To protect and enhance water and soil quality in Norfolk</p>	<p>The site is located over a principal aquifer (bedrock) and partially over a Secondary (undifferentiated) aquifer (superficial deposits). However, there are no groundwater Source Protection Zones within the proposed site.</p> <p>The site is Grade 4 agricultural land.</p>	<p>-/0 If the site is dewatered as part of the extraction the potential for adverse impacts exists, although appropriate assessment and mitigation measures could ensure that no unacceptable impacts occur.</p> <p>No impacts on BMV agricultural soils.</p>	<p>0/0 No effect on water resources is expected post extraction.</p> <p>No impacts on BMV agricultural soils.</p>
<p>SA11: To promote sustainable use of minerals resources</p>	<p>The site is approximately 1.8km from the Leziate processing plant site.</p>	<p>++ Due to proximity to processing plant.</p>	<p>0 No effect post extraction</p>
<p>SA12: To reduce the risk of current and future flooding at new and existing development</p>	<p>The site has a low probability of flooding from rivers. The site has a low probability of surface water flooding, with one small location of surface water pooling in a 1 in 1000 year rainfall event.</p>	<p>++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Silica sand extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.</p>	<p>0 No effect post extraction / restoration.</p>
<p>SA13: To encourage employment opportunities and</p>	<p>Although employment levels at minerals extraction sites tend to be low, if silica sand is</p>	<p>+</p>	<p>0 No effect post restoration</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
promote economic growth	extracted from this site it will supply the existing processing plant at Leziate and therefore offer continuing local employment opportunities. The processed silica sand is then a raw material for glass manufacture elsewhere in the UK, for both bottles and flat window glass providing downstream economic benefits.		
Conclusion	The site scores well in terms of proximity to the existing processing plant at Leziate and is located in an area of low flood risk. There are potential negative effects on the historic environment, amenity, water resources, geodiversity and landscape. It is considered that these effects could be appropriately mitigated. Silica sand extraction has positive economic impacts as it provides a raw material for glass manufacture.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, the text describing the proposed restoration under SA7 has been amended but this does not change the score. For SA3 and SA9 the number of residential properties within 250m and 100m of the site boundary and extraction area have been amended and the extraction phase assessment scores changed to ‘-’ for both SA3 and SA9.

SIL01 – land at Mintlyn South, Bawsey

Proposal: Extraction of 1,200,000 tonnes of silica sand **Site area:** 21 hectares

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is approximately 700 metres from the Leziate processing plant. The proposer of the site has indicated that the mineral would be transferred by conveyor to the processing plant.	++ Mineral extraction required energy and therefore emits CO ₂ . However, there would not be CO ₂ emissions from road transportation to the processing plant.	0 No contributions to climate change post extraction. Restoration is unlikely to include a woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. Mineral extracted at the site should not lead to increased road transport due to its proximity to the processing plant.	0 There should not be any adverse air quality impacts because the mineral will not need to be transported by road.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is approximately 280m from the site boundary. Leziate is approximately 600m from the site boundary. The effect on visual intrusion is assessed under objective SA8.	0 Silica sand extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and historic environment	The nearest listed building is 'the font against south façade of Whitehouse Farmhouse' which is	- A Heritage Statement would be required to support any future planning application.	- A mitigation strategy should ensure, the historic value of, assets is appropriately

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>302m away. There are 13 listed buildings within 2km of the site.</p> <p>The nearest Scheduled Monument to the site is 1.24km away and is the 'Moated site in Crow's Wood'. There are 3 Scheduled Monuments within 2km of the site.</p> <p>There are no Conservation Areas or Historic Parks and Gardens within 2km of the site.</p> <p>There are Historic Environment records of a series of crop marks related to undated ditches and banks, together with a possible Bronze Age barrow within the site boundary.</p>	<p>The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects during the extraction phase.</p> <p>No effects during the extraction phase.</p> <p>An assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effects post extraction.</p> <p>No effects post extraction.</p> <p>No effects post extraction.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>Roydon Common SAC and Ramsar site is 2.8km from the site boundary.</p> <p>Leziate, Sugar and Derby Fen SSSI is 2.54km from the site.</p> <p>County Wildlife Site 416 '70 & 100 plantations' is partially located within the site. CWS 418 Haverlesse Manor Plantation is</p>	<p>-</p> <p>The majority of the site is outside the hydrological catchment for Roydon Common and for Leziate, Sugar and Derby Fens and down gradient of these sites. In addition, Bawsey Lakes are located in between the site and the SSSIs. Therefore no adverse impacts are expected on the SSSIs.</p> <p>Mineral extraction on the site would adversely affect CWS 416. Adjacent CWS418 could also be adversely affected due to</p>	<p>0</p> <p>No adverse impacts on the SSSIs are expected post extraction.</p> <p>If the site is restored to nature conservation, there could be a biodiversity enhancement, even if the existing CWS 416 is</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>located adjacent to the site. CWS 422 The Holt is 260m from the site.</p> <p>The closest ancient woodland site is Refley Wood, a PAWS, which is 2.14km from the site boundary.</p> <p>The site has overburden, made up of Head deposits which are priority features due to their method of formation, partially overlaying Leziate Member-sand.</p>	<p>proximity. Mitigation measures will therefore be required.</p> <p>No adverse impacts on ancient woodland sites are expected due to distance from the site.</p> <p>There is the potential for sites within this area to contain other examples of geodiversity priority features.</p>	<p>adversely affected during mineral extraction. Restoration could also benefit the adjacent CWS if additional conservation habitat is created.</p> <p>No adverse impacts on ancient woodland are expected post restoration.</p> <p>There would be a preference for restoration to provide opportunities for geological research of suitable exposures. However, this may not always be possible.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	No details on proposed restoration of the site have been provided. The preferred restoration for this site would be lowland heathland and acid grassland which would provide a net biodiversity gain.	0 No effect during extraction phase	? No details of a proposed restoration scheme have been provided.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not within the AONB, a Core River Valley, or other designated landscape feature. The site includes some areas which have been partially worked for silica sand in the past.	0 Some of the site has been partially worked for minerals in the past. The rest of the site mostly consists of regenerated woodland with some heathland and some land is in agricultural use. It is considered that an effective mitigation strategy could be designed to minimise unacceptable adverse impacts to countryside and landscape.	0 Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts. Waterbodies, woodland, heathland and farmland all form landscape features within the site.
SA9: To contribute to improved health and	There are no Public Rights of Way within	-	0

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
amenity of local communities in Norfolk	the site. There is a PRow close to the northern boundary of the site (Bawsey RB8) and Bawsey RB9 starts near the north eastern corner. The nearest residential property is approximately 280m from the site boundary.	Care would be needed to ensure that the impact on users of the PRow would not be significant. However, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	It is unlikely that there would be new public footpaths provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a principal aquifer (bedrock) and partially over a secondary (undifferentiated) aquifer; but it mainly overlays an unproductive secondary aquifer. There are no Groundwater Source Protection Zones within the proposed site.</p> <p>The site is classified as non-agricultural land.</p>	<p>0/0 A Hydrological Risk Assessment will be required as part of any planning application within this site to ensure no unacceptable impacts on water resources from dewatering operations undertaken to enable mineral extraction,</p> <p>No impacts on BMV agricultural soils.</p>	<p>0/0 Subject to the findings of a Hydrological Risk Assessment, no effect on water resources is expected post extraction.</p> <p>No impacts on BMV agricultural soils.</p>
SA11: To promote sustainable use of minerals resources	The site is approximately 700 metres from the Leziate processing plant site.	<p>++ Due to proximity to processing plant.</p>	<p>0 No effect post extraction</p>
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers within the borough council SFRA. None of the site has a high probability (greater than 1 in 30) of being affected by surface water flooding; 0.71% of the site has a medium probability (between 1 in 30 and 1 in 100) of surface water flooding and 3.71% of the area has	<p>++ The site is at generally low risk of being affected by flooding from either rivers, the sea or surface water. Silica sand extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.</p>	<p>+ There is potential for restoration to involve the creation of water bodies to provide flood storage capacity.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	a low probability (between 1 in 100 and 1 in 1000) of surface water flooding.		
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals extraction sites tend to be low, if silica sand is extracted from this site it will supply the existing processing plant at Leziate and therefore offer continuing local employment opportunities. The processed silica sand is then a raw material for glass manufacture elsewhere in the UK, for both bottles and flat window glass providing downstream economic benefits.	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to the existing processing plant at Leziate and is located in an area of low flood risk. There are potential negative effects on the historic environment and biodiversity. It is considered that these effects could be appropriately mitigated. There would be adverse impacts on the County Wildlife Site located within the site. Silica sand extraction has positive economic impacts as it provides a raw material for glass manufacture.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, the comment and assessment for SA7 has been amended because a restoration scheme for the site has not been provided, therefore the assessment score for the restoration phase has been amended to ‘?’. The assessment text for SA8 has been amended to include a description of the current landuse of the site, but no change to the assessment score. The comments and assessment text for SA5 have been amended to include the requirement for a Heritage Statement and an archaeological assessment to be provided at the planning application stage. More detail on archaeology has also been included, but no change to the assessment score.

The conclusion has been amended to no longer refer to the restoration of the site because a restoration scheme has not currently been provided.

AOS E – land to the north of Shouldham

Proposal: Area of search for silica sand extraction **Size of Area of Search:** 815 hectares

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The AoS is approximately 15km from the Leziate processing plant. It is likely that any extraction site would transfer mineral to the processing plant by road.	- Mineral extraction requires energy and therefore emits CO2. There would also be CO2 emissions from road transportation to the processing plant.	+ No contributions to climate change post extraction. There is the potential that restoration could include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. Mineral extracted from within the AoS could lead to increased road transport to the processing plant. This would have a negative effect on air quality due to vehicle emissions.	- Due to increased road transport of silica sand.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is approximately 250m from the area of search boundary. There are 28 sensitive receptors located 250m from the AoS boundary. The settlements of Wormegay and Shouldham are 250m from the AoS boundary.	0 Silica sand extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction. This is a large area of search and the visual intrusion of a mineral extraction site would depend on where it is located within the AoS. It may be possible to locate a site further away from all residential properties and ensure that it is appropriately screened	0 No effect post restoration

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		to mitigate visual intrusion.	
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	? As this is an area of search, it is unknown whether enhanced public access would be provided on restoration.
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The following listed buildings are approximately 250m from the AoS: Church of St Michael, Church of St Botolph, Castle Road Bridge, Castle Meadow and Wormegay Village Cross. There are 30 Listed Buildings within 2km of the AoS Boundary. 8 of these are contained within Shouldham Conservation Area, which is 760m away and 4 of these are in Shouldham Thorpe Conservation Area which is 1.2km away.</p> <p>The following three Scheduled Monuments are approximately 250m from the AoS: Motte and bailey castle in Wormegay Village. Shouldham Priory with associated water management features and Wormegay village cross. There are nine Scheduled Monuments within 2km of the boundary of the AoS.</p>	<p>-</p> <p>This is a large AOS and the impact of a mineral extraction site on the historic environment would depend on where it is located within the AoS. The northern parts of the AOS nearest to Wormegay and the north eastern part nearest to Pentney Priory should not be extracted because mineral extraction would have a relatively severe impact on the setting of heritage assets at Wormegay and Pentney Priory.</p> <p>A Heritage Statement would be required to support any future planning application. The HS should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>There is the potential that unknown archaeology exists within the AOS and an</p>	<p>-</p> <p>The northern parts of the AOS nearest to Wormegay and the north eastern part nearest to Pentney Priory should not be extracted because extraction in these locations would have a relatively severe impact on the setting of heritage assets at Wormegay and Pentney Priory. For the remainder of AOS E a mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	There are no registered Historic Parks and Gardens within 2km of the AoS boundary.	assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction.	
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The nearest internationally designated site to the AoS boundary is Breckland SPA at 6.3km.</p> <p>Setchey SSSI is 2.48km from the AoS boundary.</p> <p>The River Nar SSSI is 250 metres from the AOS boundary.</p> <p>CWS 425 Mow Fen is within the area of search. CWS 424 Westbrigg's Woods and CWS 373 Adjacent Adams plantation are adjacent to the area of search.</p> <p>The nearest ancient woodland site is Bowl Wood which is an ASNW; it is 1.34 km</p>	<p>- No impacts on the Breckland SPA are expected.</p> <p>Part of the AoS is within the hydrological catchment of Setchey SSSI, but the AoS does not drain towards Setchey SSSI. Therefore no likely adverse impacts on Setchey SSSI.</p> <p>However, due to the land within AOS E being artificially drained to multiple outlets, none of the land in the AoS drains to the River Nar. Therefore no likely adverse impacts on the River Nar SSSI.</p> <p>This is a large AoS, therefore the effect on the CWS from mineral extraction would depend on the location of the mineral extraction within the AOS. It would be possible to locate extraction away from the CWSs.</p> <p>The AoS is within the hydrological catchment for Bowl Wood. There is therefore the</p>	<p>0 No impacts on the Breckland SPA are expected.</p> <p>No impacts on Setchey SSSI are expected post extraction.</p> <p>No impacts on the River Nar SSSI are expected post extraction.</p> <p>No impacts on County Wildlife Sites are expected post restoration.</p> <p>No impacts on ancient woodland are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>from the area of search boundary.</p> <p>The Head deposits of the AoS overburden are geodiversity priority features due to their method of formation. The AoS contains geodiversity priority features in the form of paleo-environmental deposits, and Setchey SSSI, north of the site, is designated for its geological features.</p>	<p>potential for hydrological impacts. Mitigation measures may be required. Due to distance no other impacts are expected.</p> <p>There is the potential for sites within this area to contain other examples of geodiversity priorities.</p>	<p>There would be a preference for restoration to provide opportunities for further geological research of suitable exposures. However, this may not always be possible.</p>
<p>SA7: To promote innovative solutions for the restoration and after use of minerals sites</p>	<p>Restoration should reflect the existing landscape of agricultural land, woodland and fen, with increased areas of those habitats created next to the existing wooded and fen areas. There should be no net loss of woodland or Fen habitat, and additional habitat should be sought.</p>	<p>0 No effect during extraction phase</p>	<p>? As this is an area of search it is unknown what the restoration of mineral extraction within this area would be. There is the potential for biodiversity benefits if the preferred restoration takes place.</p>
<p>SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape</p>	<p>The north-western boundary of the area of search is adjacent to the Core River Valley for the River Nar. The area of search is not within the AONB or any other designated landscape feature.</p>	<p>- The AOS includes areas of arable agriculture and woodland, including plantations. It is considered that an effective mitigation strategy could be designed to minimise unacceptable adverse impacts to countryside and landscape.</p>	<p>- Mineral extraction will result in landscape change; however, an appropriate restoration scheme should be able to ensure no unacceptable impacts in parts of the Area of Search. A restoration combination of woodland and wetland would be suitable for restoration, however this will depend on the</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
			location within the AoS as landscape character differs across the area.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are a number of Public Rights of Way within the AoS. There are a large number of residential properties within 300m of the AoS boundary (mainly within the settlements of Shouldham and Wormegay).	0 This is a large area of search and the potential effect of mineral extraction on health or amenity would depend on where an extraction site is location within the AoS. It may be possible to locate a site away from the footpaths and all residential properties.	? Depending on where a mineral extraction site is located within the wider AoS, there is the potential for new public footpaths to be provided on restoration. However, as this is an area of search it is unknown what the restoration of mineral extraction within this area would be.
SA10: To protect and enhance water and soil quality in Norfolk	<p>The AoS is located over a principal aquifer (bedrock) and partially over secondary B and secondary undifferentiated aquifers (superficial deposits); however there are no Groundwater Source Protection Zones within the area of search</p> <p>The area of search is a mixture of forestry and agriculture. The agricultural land is grades 4 and 3. This land could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>- A Hydrological Risk Assessment will be required as part of any planning application within this AoS to ensure no unacceptable impacts on water resources from dewatering operations undertaken to enable mineral extraction.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the AoS.</p>	<p>0/- Subject to the findings of a Hydrological Risk Assessment, no effect on water resources is expected post extraction.</p> <p>Due to the depth of silica sand extraction, the land is unlikely to be restored to agriculture. Therefore there could be a permanent loss of Grade 3a agricultural land post extraction, depending on the location of silica sand extraction.</p>
SA11: To promote sustainable use of minerals resources	The Area of Search is approximately 15km from the Leziat processing plant.	- Due to distance from processing plant.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	Approximately 52% of AOS E has a medium to high probability of flooding from rivers	- 48% of AOS E has a low risk of being affected by flooding from either rivers or the	+ There is potential for restoration to involve the creation of water

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>within the borough council SFRA. Within AOS E, 0.5% of the area has a high probability (greater than 1 in 30) of surface water flooding; 1.5% of the area has a medium probability (between 1 in 30 and 1 in 100) of surface water flooding and 6.9% of the area has a low probability (between 1 in 100 and 1 in 1,000) of surface water flooding.</p>	<p>sea. Less than 1.5% of the area has a medium to high risk of being affected by surface water flooding. Silica sand extraction is considered to be a 'water compatible' land use which is suitable in all flood zones. Silica sand extraction would be a temporary non-residential use, which exposes relatively few people to risk as only a small number of employees are required. Residual risk can be addressed through the use of a site evacuation plan.</p>	<p>bodies to provide flood storage capacity.</p>
<p>SA13: To encourage employment opportunities and promote economic growth</p>	<p>Although employment levels at minerals extraction sites tend to be low, if silica sand is extracted from within this AoS it will supply the existing processing plant at Leziate and therefore offer continuing local employment opportunities. The processed silica sand is then a raw material for glass manufacture elsewhere in the UK, for both bottles and flat window glass, providing downstream economic benefits.</p>	<p>+</p>	<p>0 No effect post restoration</p>
<p>Conclusion</p>	<p>This is a large area of search. There are potential negative effects on the historic environment and landscape. Therefore, the northern parts of the AOS nearest to Wormegay and the north eastern part nearest to Pentney Priory should not be extracted because extraction in these locations would have a relatively severe impact on the setting of heritage assets at Wormegay and Pentney Priory. These areas of land are therefore proposed to be removed from the area of search. It is considered that effects on landscape could be appropriately mitigated. There are potentially negative effects on a County Wildlife Site located within AOS E, depending on where mineral extraction is located. These effects would need to be mitigated. There are negative effects due to the distance from</p>		

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	the existing processing plant at Leziate, compared to some of the other areas of search. The AoS scored negatively for flood risk because over half of AOS E is at medium to high risk of flooding from either rivers, the sea or surface water. There is the potential for a permanent loss of Grade 3a agricultural land, depending on where mineral extraction is located within AOS E. Silica sand extraction has positive economic impacts as it provides a raw material for glass manufacture.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)?

Yes, the assessment text for SA8 has been amended to include the current landuses within the area, but the assessment score has not changed. The comments and assessment text for SA5 have been amended to update the information on nearby listed buildings and scheduled monuments, include the requirements for a heritage statement and archaeological assessment to be submitted at the planning application stage, and to include information on the need to remove the northern parts of AOS E from the area of search due to impacts on the setting of heritage assets at Wormegay and Pentney Priory. The assessment scores have not changed. The conclusion has been amended to include information about the proposed removal of northern parts of AOS E from the area of search due to impacts on the setting of heritage assets.

AOS F – land to the north of Stow Bardolph

Proposal: Area of Search for silica sand extraction **Size of Area of Search:** 61 hectares

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The AoS is approximately 17km from the Leziate processing plant. It is likely that any extraction site would transfer mineral to the processing site by road.	- Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the processing plant.	+ No contributions to climate change post extraction. There is the potential that restoration could include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The AoS is not within an AQMA. Mineral extracted from within the AoS could lead to increased road transport to the processing plant. This would have a negative effect on air quality due to vehicle emissions.	- Due to increased road transport of silica sand.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is approximately 250m from the area of search boundary. There are 16 sensitive receptors located 250m from the AoS boundary. Stow Bardolph and South Runcton are both 250m from the AoS boundary.	0 Silica sand extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction. Any future planning application within the AoS will need to ensure that proposed extraction is appropriately screened to mitigate visual intrusion.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities	0 No effects expected during extraction	? As this is an area of search, it is unknown whether enhanced

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	and reduce social exclusion. The effect on employment is assessed under objective SA13.		public access would be provided on restoration.
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building is Grade II North Lodge to Stow Hall, which is 245m away. There are 20 listed buildings within 2km of the AoS boundary. 2 of these are within Wimbotsham Conservation Area which is 650m from the AoS boundary and 4 are within Shouldham Thorpe Conservation Area which is 1.63km from the AoS boundary.</p> <p>Stradsett Hall, a Registered Historic Park and Garden is 1.95km from the AoS boundary.</p> <p>There are no Scheduled Monuments within 2km of the boundary. The AoS is adjacent to the unregistered remnants of Stow Hall and the wider setting of Wallington Hall.</p>	<p>-</p> <p>A Heritage Statement would be required to support any future planning application. The HS should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate. There is the potential that unknown archaeology exists within the AOS and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction. It is considered that mitigation measures are likely to result in extraction being able to take place with no unacceptable adverse impacts.</p>	<p>-</p> <p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The nearest internationally designated site is the Ouse Washes SAC which is over 6.2km from the AoS boundary.</p> <p>Setchey SSSI is 4.7km from the AoS boundary.</p>	<p>-</p> <p>No impacts on the Ouse Washes are expected.</p> <p>Due to distance, no impacts on SSSIs are expected.</p>	<p>0</p> <p>No impacts on the Ouse Washes are expected.</p> <p>Due to distance, no impacts on SSSIs are expected.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>CWS 361 'north east of Wallington Hall' is 280m from the AoS, CWS 365 'Broad Meadow Plantation' is adjacent to the AoS and CWS 357 'Chiswick's Wood' is 830m from the AoS.</p> <p>Three ancient replanted woodlands are between 500m to 1km from the area of search boundary.</p> <p>The AoS has overburden made up of Till deposits partially overlying the Lower Cretaceous Leziate Beds.</p>	<p>There is the potential for adverse hydrological impacts on CWS 361 and mitigation measures will be required to ensure no adverse impacts on the CWSs in proximity to the AoS.</p> <p>AOS F is within the hydrological catchment for these ancient woodlands, however, the AoS drains away from the ancient woodland sites and therefore adverse hydrological impacts are unlikely. Due to the distance of the AoS from the ancient woodland sites other adverse impacts are also unlikely.</p> <p>There is the potential for sites within this area to contain other examples of geodiversity priority features under more recent deposits.</p>	<p>No adverse impacts are expected on these CWS post restoration.</p> <p>No adverse impacts are expected on ancient woodland sites post restoration.</p> <p>There would be a preference for restoration to provide opportunities for further geological research of suitable exposures. However, this may not always be possible.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The preferred restoration for ecology would be a combination of agricultural land with mixed species hedgerows, wide field margins, ponds and mixed deciduous woodland. There should be no net loss of woodland and areas of planting should adjoin existing areas to extend the size.	0 No effect during extraction phase	? As this is an area of search it is unknown what the restoration of mineral extraction within this area would be. There is the potential for biodiversity benefits if the preferred restoration takes place. The AoS is adjacent to the remnants of Stow Hall parkland and the wider setting of Wallington Hall and restoration would also need to be in keeping with these areas.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature. Adjacent to the area of search are undesignated remnants of parkland which make a significant landscape feature.	- The AOS consists of arable agricultural fields and woodland blocks. It is considered that an effective mitigation strategy could be designed to minimise unacceptable adverse impacts to countryside and landscape.	- Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts. There are examples of woodland blocks, wet woodland and waterbodies in the zone of influence of the area of search, which should all be possible on restoration.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within the AoS. There are some residential properties 250 metres from the AoS boundary.	0 There is unlikely to be a significant impact on health or amenity from mineral extraction within the AoS.	0 It is unlikely that there would be new public footpaths provided within the AoS on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	The AoS is located over a principal aquifer (bedrock) and partially over a secondary undifferentiated aquifer (superficial deposit); however there are no Groundwater Source Protection Zones in the AoS. The area of search is a mixture of forestry and agricultural uses with the agricultural land in grades 4 and 3. This land could potentially be Grade 3a which is classified within BMV agricultural land.	- A Hydrological Risk Assessment will be required as part of any planning application within this AoS to ensure no unacceptable impacts on water resources from dewatering operations undertaken to enable mineral extraction. Potential for BMV agricultural land to be affected by mineral extraction within the AoS.	0/- Subject to the findings of a Hydrological Risk Assessment, no effect on water resources is expected post extraction. Due to the likely depth of silica sand extraction, the land is unlikely to be restored to agriculture. Therefore there could be a permanent loss of Grade 3a agricultural land post extraction, depending on the location of silica sand extraction.
SA11: To promote sustainable use of minerals resources	The Area of Search is approximately 17km from the Leziat processing plant.	- Due to distance from processing plant.	0 No effect post extraction

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA12: To reduce the risk of current and future flooding at new and existing development	AoS F has a low probability of flooding from rivers within the borough council SFRA. Within AOS F, 0.3% of the area has a high probability (greater than 1 in 30) of surface water flooding; 0.5% of the area has a medium probability (between 1 in 30 and 1 in 100), and 3.7% of the area has a low probability (between 1 in 100 and 1 in 1000) of surface water flooding.	+ AOS F has a low risk of being affected by flooding from either rivers or the sea. Less than 1% of the area has a medium to high risk of being affected by surface water flooding. Silica sand extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	+ There is potential for restoration to involve the creation of water bodies to provide flood storage capacity.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals extraction sites tend to be low, if silica sand is extracted from within this AoS it will supply the existing processing plant at Leziate and therefore offer continuing local employment opportunities. The processed silica sand is then a raw material for glass manufacture elsewhere in the UK, providing downstream economic benefits.	+	0 No effect post restoration
Conclusion	There are potentially negative effects on the historic environment, landscape and biodiversity. It is considered that these effects could be appropriately mitigated. There are negative effects due to the distance from the existing processing plant at Leziate, compared to some of the other areas of search. The site has a low risk of being affected by flooding. There is the potential for a permanent loss of Grade 3a agricultural land, depending on where mineral extraction is located within the area of search. Silica sand extraction has positive economic impacts as it provides a raw material for glass manufacture.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, the existing landuse has been included in the assessment text for SA8, and the requirement for a Heritage Statement and archaeological assessment to be submitted at the planning application stage has been included in the extraction phase assessment text for SA5. No changes have been made to the SA assessment scores.

AOS I – land to the east of South Runcton

Proposal: Area of Search for silica sand extraction **Size of Area of Search:** 47 hectares

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The AoS is approximately 16km from the Leziat processing plant. It is likely that any extraction site would transfer mineral to the processing plant by road.	- Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the processing plant.	+ No contributions to climate change post extraction. There is the potential that restoration could include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The AoS is not within an AQMA. Mineral extracted from within the AoS could lead to increased road transport to the processing plant. This would have a negative effect on air quality due to vehicle emissions.	- Due to increased road transport of silica sand.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is approximately 250m from the area of search boundary. There are seven sensitive receptors located 250m from the AoS boundary.	0 Silica sand extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction. Any future planning application within the AOS will need to ensure that proposed extraction is appropriately screened to mitigate visual intrusion.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities	0 No effects expected during extraction	? As this is an area of search, it is unknown whether enhanced

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	and reduce social exclusion. The effect on employment is assessed under objective SA13.		public access would be provided on restoration.
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The closest Listed Building is the Grade II* Church of St Andrew which is 726m away. There are 14 Listed Buildings within 2km of the AoS boundary. 4 of these are within Shouldham Thorpe Conservation Area which is 1.27km from the boundary of the AoS.</p> <p>There are no Registered Historic Parks and Gardens or Scheduled Monuments within 2km of the AoS boundary.</p> <p>The AoS has the potential to contain archaeological assets but is unstudied.</p>	<p>0 A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>There is the potential that unknown archaeology exists within the AOS and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction. It is considered that mitigation measures are likely to result in extraction being able to take place with no unacceptable adverse impacts.</p>	<p>- A mitigation strategy should ensure that, the historic value of the assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The nearest internationally designated site is the Ouse Washes SAC which is over 9km from the AoS boundary</p> <p>The AoS is over 3km from both the River</p>	<p>0 No impacts on the Ouse Washes are expected.</p> <p>Due to distance, no impacts on SSSIs are expected.</p>	<p>0 No impacts on the Ouse Washes are expected.</p> <p>No impacts on SSSIs are expected.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>Nar and Setchey SSSIs.</p> <p>The closest County Wildlife Site is CWS 366 'St Andrews Churchyard' which is 600m from the AoS boundary.</p> <p>The nearest ancient woodland site is a PAWS which is 1.4km from the AoS boundary.</p> <p>The AoS has overburden made up of Till deposits partially overlying the Lower Cretaceous Leziate Beds.</p>	<p>Due to distance, no impacts on CWS are expected.</p> <p>No impacts on ancient woodland are expected.</p> <p>There is the potential for sites within this area to contain examples of geodiversity priority features.</p>	<p>No impacts on CWS are expected.</p> <p>No impacts on ancient woodland are expected.</p> <p>There would be a preference for restoration to provide opportunities for further geological research of suitable exposures. However, this may not always be possible.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The preferred restoration for this site would be restoration for agriculture with additional areas of mixed deciduous woodland and hedgerows which would provide a net biodiversity gain.	0 No effect during extraction phase	? As this is an area of search it is unknown what the restoration of mineral extraction within this area would be. There is the potential for biodiversity benefits if the preferred restoration takes place.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The area of search is not located within the AONB, a Core River Valley or any other designated landscape feature.	0 The AOS consists of arable agricultural fields and woodland blocks. It is considered that an effective mitigation strategy could be designed to minimise unacceptable adverse impacts to countryside and landscape.	0 Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts. Waterbodies, blocks of woodland, and farmland all form landscape features within the Area of Search.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within the AoS. The nearest residential property is 250m from the AoS	0 There is unlikely to be a significant impact on health or amenity from	0 It is unlikely that there would be new public footpaths provided

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	boundary. There are seven sensitive receptors located 250m from the AoS boundary.	mineral extraction within the AoS.	within the AoS on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	<p>The AoS is located over a principal aquifer (bedrock) and partially over secondary undifferentiated aquifers (superficial deposits). However, there are no Groundwater Source Protection Zones in the AoS.</p> <p>The AoS is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>-</p> <p>A Hydrological Risk Assessment will be required as part of any planning application within this AoS to ensure no unacceptable impacts on water resources from dewatering operations undertaken to enable mineral extraction.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the AoS.</p>	<p>0/-</p> <p>Subject to the findings of a Hydrological Risk Assessment, no effect on water resources is expected post extraction.</p> <p>Due to the likely depth of silica sand extraction, the land is unlikely to be restored to agriculture. Therefore there could be a permanent loss of Grade 3a agricultural land post extraction.</p>
SA11: To promote sustainable use of minerals resources	The Area of Search is approximately 16km from the Leziate processing plant.	<p>-</p> <p>Due to distance from processing plant.</p>	<p>0</p> <p>No effect post extraction</p>
SA12: To reduce the risk of current and future flooding at new and existing development	AOS I has a low probability of flooding from rivers within the borough council SFRA. Within AOS I, 2.8% of the area has a high probability of surface water flooding (greater than 1 in 30); 4.1% of the area has a medium probability (between 1 in 30 and 1 in 100) of surface water flooding, and 7.9% of the area has a low probability (between a 1 in 100 and 1 in 1,000) of surface water flooding.	<p>++</p> <p>AOS I has a low risk of being affected by flooding from either rivers or the sea. Just over 4% of the area has a medium to high risk of being affected by surface water flooding. Silica sand extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.</p>	<p>+</p> <p>There is potential for restoration to involve the creation of water bodies to provide flood storage capacity.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals extraction sites tend to be low, if silica sand is extracted from within this AoS it will supply the existing processing plant at Leziate and therefore offer continuing local employment opportunities. The processed silica sand is then a raw material for glass manufacture elsewhere in the UK, for both bottles and flat window glass, providing downstream economic benefits.	+	0 No effect post restoration
Conclusion	There are potential negative effects on the historic environment. It is considered that these effects could be appropriately mitigated. Adverse impacts are not expected on biodiversity. There are negative effects due to the distance from the existing processing plant at Leziate, compared to some of the other areas of search. There is the potential for a permanent loss of Grade 3a agricultural land, depending on where mineral extraction is located within the area of search. The area is at generally low risk of being affected by flooding from either rivers, the sea or surface water. Silica sand extraction has positive economic impacts as it provides a raw material for glass manufacture.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, the score for SA5 has been changed to '0' due to the distance of the nearest heritage asset to the AOS and the requirement for a Heritage Statement and archaeological assessment to be submitted at the planning application stage has been included in the extraction phase assessment text for SA5. The existing landuse has been included in the assessment text for SA8 but the SA assessment score has not changed.

AOS J – land to the east of Tottenhill

Proposal: Area of Search for silica sand extraction **Size of Area of Search:** 23 hectares

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The AoS is approximately 15km from the Leziate processing plant. It is likely that any extraction site would transfer mineral to the processing plant by road.	- Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the processing plant.	+ No contributions to climate change post extraction. There is the potential that restoration could include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The AoS is not within an AQMA. Mineral extracted from within the AoS could lead to increased road transport to the processing plant. This would have a negative effect on air quality due to vehicle emissions.	- Due to increased road transport of silica sand.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is approximately 250m from the AoS boundary. There are five sensitive receptors located 250m from the AoS boundary. The settlement of Tottenhill is 328m away.	0 Silica sand extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction. Any future planning application within the AoS will need to ensure that proposed extraction is appropriately screened to mitigate visual intrusion.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities	0 No effects expected during extraction	? As this is an area of search, it is unknown whether enhanced

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	and reduce social exclusion. The effect on employment is assessed under objective SA13.		public access would be provided on restoration.
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The closest Listed Building is the Grade I Church of St Botolph, which is 325m from the AoS boundary. There are 5 Listed Buildings within 2km of the AoS boundary.</p> <p>The nearest Scheduled Monument is the Motte and Bailey Castle in Wormegay Village, which is 1.25km away. There are three Scheduled Monuments within 2km of the AoS boundary. Tottenhill Row Conservation Area is 1.7km from the AoS boundary.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the AoS boundary.</p> <p>There are archaeological assets within the Area of Search.</p>	<p>-</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate. There is the potential that unknown archaeology exists within the AOS and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction. It is considered that mitigation measures are likely to result in extraction being able to take place with no unacceptable adverse impacts.</p>	<p>-</p> <p>A mitigation strategy should ensure that, the historic value of, the assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The nearest internationally designated site is the Ouse Washes SAC which is 10.8km from the AoS boundary.</p> <p>The River Nar SSSI is 2.35km from the AoS boundary. Setchey</p>	<p>0</p> <p>No impacts on the Ouse Washes are expected.</p> <p>Due to the land being artificially drained to multiple outlets, the AoS does not drain to</p>	<p>0</p> <p>No impacts on the Ouse Washes are expected.</p> <p>No impacts on SSSIs post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>SSSI is 2km from the AoS boundary.</p> <p>CWS 385 'Tottenham Village Green' is 250m from the AoS and CWS 424 'Westbrigg's Wood' is 270m from the AoS. CWS 384 'West of Tottenham' is 430m from the AoS.</p> <p>The nearest ancient woodland site is a PAWS and is 2.96km from the AoS boundary.</p> <p>The AoS has overburden made up of Head and Till deposits partially overlying the Lower Cretaceous Leziate Beds (Sandringham Sands). The Head deposits are geodiversity priority features due to their method of formation.</p>	<p>the River Nar or Setchey SSSI and therefore no adverse impacts are expected.</p> <p>If mineral extraction in this AoS were to go below the water table then there could be impacts on the ponds in CWS 385 and mitigation measures would be required.</p> <p>No impacts on ancient woodland are expected.</p> <p>There is the potential for sites within this AoS to contain examples of geodiversity priority features.</p>	<p>No impacts on CWS are expected post restoration.</p> <p>No impacts on ancient woodland are expected.</p> <p>There would be a preference for restoration to provide opportunities for further geological research of suitable exposures. However, this may not always be possible.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The preferred restoration for this site would be restoration for agriculture with additional areas of mixed deciduous woodland and hedgerows which would provide a net biodiversity gain.	0 No effect during extraction phase	? As this is an area of search it is unknown what the restoration of mineral extraction within this area would be. There is the potential for biodiversity benefits if the preferred restoration takes place.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The area of search is not located within the AONB, a Core River Valley or any other designated landscape feature.	0 The AOS consists of arable agricultural fields and a woodland block. It is considered that an effective mitigation strategy could be designed to	0 Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		minimise unacceptable adverse impacts to countryside and landscape.	Waterbodies from previous mineral workings, blocks of woodland, and farmland all form landscape features within the Area of Search.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within the AoS. The nearest residential property is 250m from the AoS boundary. There are five sensitive receptors located 250m from the AoS boundary.	0 There is unlikely to be a significant impact on health or amenity from mineral extraction within the AoS.	0 It is unlikely that there would be new public footpaths provided within the AoS on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	The AoS is located over a principal aquifer (bedrock) and partially over secondary undifferentiated aquifers (superficial deposits). However, there are no Groundwater Source Protection Zones in the AoS. The AoS is Grade 4 agricultural land.	0 A Hydrological Risk Assessment will be required as part of any planning application within this AoS to ensure no unacceptable impacts on water resources from dewatering operations undertaken to enable mineral extraction. No impacts on BMV agricultural soils.	0 Subject to the findings of a Hydrological Risk Assessment, no effect on water resources is expected post extraction. No impacts on BMV agricultural soils.
SA11: To promote sustainable use of minerals resources	The Area of Search is approximately 15km from the Leziat processing plant.	- Due to distance from processing plant.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	AOS J has a low probability of flooding from rivers within the borough council SFRA. Within AOS J, 1.5% of the area has a high probability (greater than 1 in 30) of surface water flooding; 3.6% of the area has a medium probability (between 1 in 30 and 1 in 100) of surface water	++ AOS J has a low risk of being affected by flooding from either rivers or the sea. Less than 4% of the site has a medium to high risk of being affected by surface water flooding. Silica sand extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	+ There is potential for restoration to involve the creation of water bodies to provide flood storage capacity.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	flooding, and 9.2% of the area has a low probability (between 1 in 100 and 1 in 1000) of surface water flooding.		
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals extraction sites tend to be low, if silica sand is extracted from within this AoS it will supply the existing processing plant at Leziate and therefore offer continuing local employment opportunities. The processed silica sand is then a raw material for glass manufacture elsewhere in the UK, for both bottles and flat window glass, providing downstream economic benefits.	+	0 No effect post restoration
Conclusion	There are potential negative effects on the historic environment. It is considered that these effects could be appropriately mitigated. There are negative effects due to the distance from the existing processing plant at Leziate, compared to some of the other areas of search. The site is at generally low risk of being affected by flooding from either rivers, the sea or surface water. Silica sand extraction has positive economic impacts as it provides a raw material for glass manufacture.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, Tottenhill Row Conservation Area has been included in the list of heritage assets within 2km of the AOS boundary and the requirement for a Heritage Statement and archaeological assessment to be submitted at the planning application stage has been included in the extraction phase assessment text for SA5. The existing landuse has been included in the assessment text for SA8. Additional information on geodiversity has been added to the comments for SA6. The SA assessment scores for SA5, SA6 and SA8 have not changed.

SIL 02 – land at Shouldham and Marham

Proposal: Extraction of 16 million tonnes of silica sand **Size of site:** 390.36ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 6km from the existing processing plant site at Leziate. It is proposed that the sand extracted will be transported to the processing plant by pipeline.	+ Mineral extraction requires energy and therefore emits CO ₂ . Transporting mineral to the processing plant via pipeline would require energy, but CO ₂ emissions are likely to be less than road transportation.	0 No contributions to climate change post extraction.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. Mineral extracted at the site should not lead to increased road transport as it is proposed to be conveyed by pipeline to the existing processing plant.	0 There should not be any adverse air quality impacts because the mineral is not proposed to be transported by road.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 81m from the site boundary. There are 10 sensitive receptors within 250m of the site boundary. The settlement of Marham is 430m away. However, the land nearest to Marham is not proposed to be extracted. Therefore the nearest residential property is 280m from the extraction area and there are no sensitive receptors within 250m of the proposed extraction area. The effect on visual intrusion is assessed under objective SA8.	0 Silica sand extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	on employment is assessed under objective SA13.		
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building is the Grade I Remains of Augustinian Priory which is 310m away. There are 22 Listed Buildings within 2km of the site boundary. 8 of these are within the Shouldham Conservation Area which is 1.14km away.</p> <p>The nearest Scheduled Monument is the Remains of Pentney Priory at Abbey Farm which is 30m away. There are 6 Scheduled Monuments within 2km of the site boundary.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site boundary.</p> <p>There are significant Historic Environment records of prehistoric to Late Neolithic finds; with isolated finds from later periods, within the site boundary, and a possible Iron Age settlement. The site is in a wider landscape with a significant number of finds and features from the multiple periods.</p>	<p>--</p> <p>The eastern part of the site should not be worked because extraction would have a relatively severe impact on the setting of Pentney Priory.</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>--</p> <p>The eastern part of the site should not be worked because extraction in these locations would have a relatively severe impact on the setting of Pentney Priory. For the remainder of the site, a mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction.</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	Breckland Forest SSSI, which is part of the Breckland SPA, is	- No adverse impacts on the SSSI are expected due to the distance from the site.	0 No impacts on the SSSI are expected post extraction

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>4.74km from the site boundary.</p> <p>East Walton and Adcock's Common SSSI, which is part of the Norfolk Valley Fens SAC is 4.28km from the site boundary.</p> <p>River Nar SSSI is adjacent to the site boundary.</p> <p>CWS 528 'North of Marham' is 230m from the site boundary. CWS 488 'Osier Bed Plantation' is 230m from the site boundary. CWS 545 'The Carr' is 180m from the site boundary. CWS 530 'Marham Fen' is 80m from the site boundary.</p> <p>The nearest ancient woodland site is Bowl Wood, which is a PAWS and ASNW; it is 1.26km from the site boundary.</p> <p>The site consists of Peat, river terrace deposits - sand and gravel, which are geodiversity priority features, overlying Leziate member-sand,</p>	<p>No adverse impacts on the SSSI is expected if the site is worked without dewatering, due to the distance from the site.</p> <p>The potential exists for impacts from mineral extraction at this site, if uncontrolled. An assessment of potential impacts, including from dust deposition and hydrogeology, together with appropriate mitigation would be required as part of any planning application.</p> <p>There is the potential for impacts from dust deposition although with normal mitigation measures no adverse effects on these CWSs is expected. If the site is worked without dewatering, with normal mitigation measures, no adverse effects on the CWSs are expected.</p> <p>If the site is worked without dewatering, with normal mitigation measures, no adverse effects on this ancient woodland site are expected.</p> <p>The site contains geodiversity priority features.</p>	<p>No impacts on the SSSI are expected post extraction</p> <p>No impacts on the SSSI are expected post extraction</p> <p>No impacts to CWSs are expected post extraction.</p> <p>No impacts to the ancient woodland sites are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	and Carstone Formation - sandstone.		
SA7: To promote innovative solutions for the restoration and after use of minerals sites	No details on proposed restoration of the site have been provided.	0 No effect during extraction phase	? No details of a proposed restoration scheme have been provided.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB. The northern part of the site is within a Core River Valley, although the proposed extraction area is not within a Core River Valley.	-- Due to the open nature of the landscape, there would be views of the site from some properties in Marham, however due to the buffer areas and the potential they offer for bunding, it should be possible for an appropriate screening scheme to be developed. There are isolated properties along the southern boundary, which would also have views of the site if screening is not put in place. On the opposite side of the River Nar is the Scheduled Monument (Pentney Priory Gatehouse); due to the open nature of the landscape mineral extraction within the eastern part of the site would have a relatively severe impact on the setting of Pentney Priory, even with mitigation measures and is not suitable for mineral extraction. Views of the western part of the site could be appropriately screened by bunding and screen planting but care will need to be taken to ensure that screening is not intrusive in its own right.	- Mineral extraction will result in landscape change which due to the open nature of the surrounding landscape and would be visible from a variety of viewpoints; even following restoration the landscape setting of other features would be significantly altered.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA9: To contribute to improved health and amenity of local communities in Norfolk	<p>There is a Public Right of Way adjacent to the northern boundary of the site (Marham FP8 and Wormegay RB7). There is also a PRoW running through the site (north to south) (Marham FP9).</p> <p>The nearest residential property is 81m from the site boundary. There are 10 sensitive receptors within 250m of the site boundary. However, the land nearest to Marham is not proposed to be extracted. Therefore the nearest residential property is 280m from the extraction area and there are no sensitive receptors within 250m of the proposed extraction area.</p>	<p>--</p> <p>Care would be needed to ensure that the impact on users of the PRoWs would not be significant. However, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned, such as temporary diversion of the PRoW running through the site.</p>	<p>-</p> <p>No details on proposed restoration of the site have been provided. However, any restoration that did not reinstate any PRoW or provide a compensatory route would result in a recreation impact.</p>
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a principal aquifer (bedrock) and partially over a Secondary A aquifer (superficial deposits). The eastern part of the site is within groundwater Source Protection Zone 1. The rest of the site is not within a groundwater SPZ.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>-/-</p> <p>The mineral operator has proposed that the site would be worked by suction dredging. If dewatering was not required this may minimise impacts on water resources. A Hydrological Risk Assessment would be required to confirm this.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0/-</p> <p>No adverse effects are expected on water resources post extraction</p> <p>The site is unlikely to be restored to agriculture, therefore a permanent loss of BMV agricultural land could occur.</p>
SA11: To promote sustainable use of minerals resources	<p>The site is 6km from the processing plant at Leziate. The proposer of the site has</p>	<p>0</p> <p>The construction of a pipeline would be a significant undertaking</p>	<p>0</p> <p>No effect post extraction</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	suggested that mineral could be moved by pipeline to the processing plant.	and has the potential for impacts itself during construction. However movement of mineral by pipeline would significantly reduce impacts from HGV traffic.	
SA12: To reduce the risk of current and future flooding at new and existing development	The majority (52%) of the area is within Flood Zone 3 (high risk) and 42% of the area is within Flood Zone 2 (medium risk) for flooding from rivers, within the borough council's SFRA. The area has a low risk of surface water flooding with a few locations of surface water pooling, mainly in the south of the site, in a 1 in 30 year rainfall event. There are additional locations of surface water pooling in a 1 in 100 year rainfall event. The number of locations of surface water pooling increase significantly in a 1 in 1000 year rainfall event and there are a number of surface water flow paths in the southern part of the proposed area.	-- The site is at high risk of being affected by flooding from rivers, and at low risk of being flooded from surface water. Screening bunds around an extraction site could potentially affect the movement of water in flood events, unless care is taken in their design. Silica sand extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration because no details of a restoration scheme have been provided. However, there is potential for restoration to involve the creation of water bodies to provide flood storage capacity.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it would supply the existing processing plant at Leziate and therefore offer continuing local employment opportunities. The processed silica sand is then a raw material for glass manufacture	+	0 No effect post restoration

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	elsewhere in the UK, for both bottles and flat window glass, providing downstream economic benefits.		
Conclusion	The site is a large area within which it is considered that specific proposals for smaller sites could come forward. This would enable parts of the site where constraints are highest to be left unworked. There are potential negative effects on the historic environment, flood risk, water resources, agricultural land, landscape, and geodiversity. It is considered that these effects could be appropriately mitigated within the western part of the site. However, due to the relatively severe impacts on the setting of Pentney Priory, the eastern part of the site is considered unsuitable for mineral extraction. There would be adverse impacts on the PRow located within the site. Silica sand extraction has positive economic impacts as it provides a raw material for glass manufacture.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? YES, The assessment text for SA5 and SA8 has been amended to state that the eastern part of the site is unsuitable for mineral extraction due to the relatively severe impacts on the setting of Pentney Priory, but the assessment scores have not changed. The assessment score for SA9 has been changed to '- -' due to the location of a PRow within the site. The conclusion has been amended to state that the eastern part of the site is unsuitable for mineral extraction due to the relatively severe impacts on the setting of Pentney Priory.

North Norfolk sites

MIN 69 – land north of Holt Road, Aylmerton

Proposal: Extraction of 2,000,000 tonnes of sand and gravel

Size of site: 16.86 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 3.5km from Cromer and 7.9km from Holt, which are the nearest towns.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Cromer is less than 5km away.	0 No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 85m from the site boundary. There are eight sensitive receptors within 250m of the site boundary. The settlement of Beeston Regis is 624m away. There are 8 sensitive receptors within 250m of the site boundary and three of these are within 100m of the site boundary. However, a reduced extraction area is proposed, and the nearest residential property is 182m from the extraction area. There are 7 sensitive receptors within 250m of the extraction area. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and	Mineral extraction sites are unlikely to provide improved accessibility	0 No effects expected during extraction	0 No effect post restoration

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
facilities and reduce social exclusion	to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.		
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building is Grade II Abbey Farmhouse, which is 1.37km away and the Grade II* Church of St John the Baptist which is 1.32km away. There are 9 Listed Buildings within 2km of the site.</p> <p>The only Scheduled Monument within 2km of the site is Beeston Regis Priory, which is 1.18km away.</p> <p>There are four Conservation Areas within 2km of the site, they are Sheringham (1.85km away), West Runton (1.02km away), Beeston Regis (1.17km away) and Upper Sheringham (1.69km away).</p> <p>Felbrigg Hall, a Registered Historic Park is 1.76km from the site.</p> <p>There are no Historic Environment records within the site boundary. The site is in a wider landscape with a number of finds and features, most as a result of medieval iron working activity, and</p>	<p>0 A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects expected during extraction due to distance.</p> <p>No effects expected during extraction</p> <p>No effects expected during extraction.</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to</p>	<p>0 A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	WW2 defences immediately to the north.	protect and mitigate the impact of mineral extraction in this site.	
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is 0.65km from Sheringham and Beeston Regis Commons SSSI which is part of the Norfolk Valley Fens SAC.</p> <p>Briton's Lane Gravel Pit SSSI is adjacent to the site boundary.</p> <p>Beeston Cliffs SSSI is 1.81km from the site boundary. Weybourne Cliffs SSSI is 2.86km from the site boundary. Felbrigg Woods SSSI is 1.43km from the site boundary.</p> <p>The nearest CWS is CWS 1147 'Roman Camp and Beeston Regis Heath' which is 230m from the site boundary.</p> <p>The nearest ancient woodland site is Great Wood, a PAWS and ASNW which is 1.71km from the site boundary.</p>	<p>-</p> <p>The proposed extraction site would be worked dry (above the water table) and is located in a different hydrological catchment to this SSSI. Therefore there would be no adverse impacts to the SSSI and SAC.</p> <p>There is the potential for Briton's Lane Gravel Pit SSSI to be impacted adversely by insensitive extraction where the existing and proposed sites join along the site boundaries.</p> <p>There would be no adverse impacts to the other geological SSSIs during extraction.</p> <p>The proposed extraction site would be worked dry (above the water table). Therefore there would be no adverse impacts to Felbrigg Woods SSSI.</p> <p>No adverse impacts on the CWS are expected due to the distance from the site and because the site would be worked dry.</p> <p>No adverse impacts on the ancient woodland are expected due to the distance from the site and because the site would be worked dry.</p>	<p>0</p> <p>No adverse impacts to this SSSI and SAC are expected post extraction.</p> <p>Restoration should provide opportunities for further geological research of suitable exposures.</p> <p>No impacts to SSSIs are expected post extraction.</p> <p>No impacts to County Wildlife Sites are expected post extraction.</p> <p>No impacts to ancient woodland sites are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>The site consists of the Briton's Lane sand and gravel member, overlying Wroxham Crag Formation-sand and gravel. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in the adjacent existing quarry, and therefore they may occur on this site. The existing quarry is also the type-site for the Briton's Lane Formation.</p>	<p>The site contains geodiversity priority features.</p>	<p>No adverse impacts to geodiversity are expected post restoration. Restoration should provide opportunities for further geological research of suitable exposures.</p>
<p>SA7: To promote innovative solutions for the restoration and after use of minerals sites</p>	<p>The site would be a steeply sided valley restored to dry acid heathland with some woodland / scrub natural regeneration on the upper slopes with re-established public rights of way.</p>	<p>0 No effect during extraction phase</p>	<p>+ The proposed restoration scheme would provide some biodiversity, amenity and geodiversity gains.</p>
<p>SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape</p>	<p>The site is located within the Norfolk Coast AONB.</p>	<p>-- The site is a gently sloping arable field on the south side of the Cromer Ridge, and is adjacent to an active mineral extraction site. The site is bounded by woodland except for a relatively small section of the eastern boundary. The southern boundary is along the A148, although views are screened by woodland. It is considered that development of this site would provide an opportunity to improve the working and restoration scheme for the adjacent site.</p>	<p>- Mineral extraction will result in landscape change due to the depth of the deposit and the sloping nature of the site and would be visible from the PRow's, although it would be screened from most other viewpoints.</p>
<p>SA9: To contribute to improved health</p>	<p>There is a Public Right of Way adjacent to the</p>	<p>--</p>	<p>+</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
and amenity of local communities in Norfolk	<p>western boundary of the site (Beeston Regis BR10). There is a PRow running through the site (north to south) (Aylmerton FP2). There is a PRow within the site (Aylmerton FP1). There is a PRow crossing the NE corner of the site (Aylmerton FP3).</p> <p>The nearest residential property is 85m from the site boundary. There are eight sensitive receptors within 250m of the site boundary and three of these are within 100m of the site boundary. However, a reduced extraction area is proposed, and the nearest residential property is 182m from the extraction area. There are 7 sensitive receptors within 250m of the extraction area.</p>	<p>Care would be needed to ensure that the impact on users of the PRow and the nearby dwellings would not be significant. The PRow that runs through the site would need to be subject to temporary diversion. It is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.</p>	<p>Improvements to public access are proposed as part of the restoration of the site.</p>
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). Part of the site is within groundwater Source Protection Zone 2. The rest of the site is not within a groundwater SPZ.</p> <p>The northern part of the site is classified as non-agricultural land. The southern part of the site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and</p>	<p>0/- The site would be worked dry (above the water table) and therefore no effect on water resources is expected.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0/- No effect on water resources is expected post extraction.</p> <p>The site would not be restored to agriculture, therefore there could be a permanent loss of BMV agricultural land.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	Most Versatile agricultural land.		
SA11: To promote sustainable use of minerals resources	The site is 3.5km from Cromer and 7.9km from Holt, which are the nearest settlements allocated for significant growth in the adopted Local Plan.	++ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. The site has a low risk of surface water flooding with one location of surface water pooling in a 1 in 30 year rainfall event, and two locations of surface water pooling in a 1 in 100 year rainfall event.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the landscape, geodiversity, agricultural land and amenity; however, it is considered that these effects could be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? YES, the comments for SA3 and SA9 have been amended to include the distance of residential dwellings 250m and 100m from the boundary and from the proposed extraction area. The assessment score for SA3 has not changed. The assessment score for SA9 has changed to '- -' for the extraction phase due to PRoW crossing the site and the proximity of residential dwellings. The comments on SA5 have been amended to update the number of Listed Buildings within 2km of the site, but the assessment score has not changed. The assessment text for SA6 has been amended to state that there is the potential for impacts on Britons Lane Gravel Pit SSSI at the site boundary and to change the assessment score to '-' for the extraction phase.

MIN 71 – land west of Norwich Road, Holt

Proposal: Extraction of 1,100,000 tonnes of sand and gravel

Size of site: 22.63 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 0.1km from Holt, which is the nearest towns.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Holt is less than 1km away.	0 No contributions to climate change post extraction. Restoration may include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. The site would be worked after the completion of an existing adjacent site, therefore the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 11m from the site boundary. There are 82 sensitive receptors within 250m of the site boundary and 17 of these are within 100m of the site boundary. Most of these properties are in the settlement of Holt, which is 26m away. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
<p>SA5: To maintain and enhance the character of the townscape and historic environment</p>	<p>The nearest Listed Building is Bacon's House, which is 610m away. There are 142 Listed Buildings within 2km of the site. Over 100 of these are within the Holt Conservation Area, which is 460m from the site. The site is within the Glaven Valley Conservation Area.</p> <p>Letheringsett Conservation Area is 1.18km from the site. Hunworth Conservation Area is 1.93km from the site.</p> <p>The only Scheduled Monument within 2km of the site is the 'Habitation site on Edgefield Heath' which is 900m away.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are no Historic Environment records within the site boundary. The site is in a wider landscape with a number of finds and features, including a WW1 and WW2 military training site on Holt Lowes to the east.</p>	<p>--</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effect expected during extraction</p> <p>No effect expected during extraction.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>--</p> <p>A mitigation strategy should ensure, the historic value of, assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction.</p> <p>No effect post extraction.</p> <p>No effect post extraction</p> <p>No effect post extraction</p>
<p>SA6: To protect and enhance Norfolk's biodiversity and geodiversity</p>	<p>The site is 0.62 km from Holt Lowes SSSI, which is part of the Norfolk Valley Fens SAC.</p>	<p>--</p> <p>Holt Lowes SSSI is a groundwater dependent wetland. In order for no adverse impacts on the SSSI,</p>	<p>0</p> <p>No impacts to the SSSI are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>CWS 2281 'Holt Country Park' is 270m from the site boundary. CWS 2006 'Spout Common' is 460m from the site boundary. CWS 2121 'Common Hills Plantation' is 220m from the site boundary. CWS 1093 'Disused railway' is 500m from the site boundary. CWS 1098 'Edgefield Heath' is 250m from the site boundary.</p> <p>The nearest ancient woodland sites are Common Hill Wood, which is a PAWS and is 0.22km from the sites boundary, and Pereers Wood, a PAWS which is 0.88km from the site boundary.</p> <p>The site consists of the Briton's Lane sand and gravel member, overlying Chalk formations. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site.</p>	<p>the site must be worked dry (above the water table). In the absence of detailed hydrogeological information and mitigation measures, impacts, impacts on the SSSI and SAC are uncertain.</p> <p>If the site is worked above the water table, with normal mitigation measures, no adverse effects on the CWSs are expected.</p> <p>There is the potential for impacts from dust deposition although with normal mitigation measures no adverse effects on these ancient woodland sites is expected. If the site is worked above the water table, with normal mitigation measures, no adverse effects on the ancient woodland sites is expected.</p> <p>There is the potential for this site to contain geodiversity priority features.</p>	<p>No impacts to CWSs are expected post extraction.</p> <p>No impacts on the ancient woodland sites are expected post extraction</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures</p>
SA7: To promote innovative solutions for the restoration	No details on proposed restoration of the site have been provided,	0 No effect during extraction phase	? No details of a proposed restoration

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
and after use of minerals sites	but it is assumed that the site will mainly be restored to agriculture. The preferred restoration for the site would include deciduous woodland and acid grassland.		scheme have been provided.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is located within the Glaven Valley Conservation Area. It is not within the AONB or a Core River Valley.	<p>--</p> <p>The site is a single large arable field. There is an active mineral working to the south of the site. To the north are the outskirts of Holt, across the B1149. There are clear views of the northern part of the site from the Hunworth Road and the land to the west is visible in an open view from Thornage. There are a group of residential properties adjacent to the north-west boundary of the site and the site would require screening, in the form of advance planting of boundary hedges and woodland, and a standoff area from these properties and the adjacent PROW for the site to be acceptable.</p>	<p>-</p> <p>Mineral extraction will result in landscape change which due to the open nature of the surrounding landscape would be visible from a variety of viewpoints. However, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.</p>
SA9: To contribute to improved health and amenity of local communities in Norfolk	There is a Public Right of Way adjacent to the northern boundary of the site (Holt RB22). The nearest residential property is 11m from the site boundary. There are 82 sensitive receptors within 250m of the site boundary and 17 of these are within 100m of the site boundary.	<p>--</p> <p>Care would be needed to ensure that the impact on users of the PROW and the nearby dwellings would not be significant. However, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.</p>	<p>0</p> <p>New public footpaths are unlikely to be provided within the site on restoration.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). The majority of the site is within groundwater Source Protection Zone 3.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>0/- If the site is worked above the water table, with normal mitigation measures, no adverse effects on water resources are expected. A Hydrogeological Risk Assessment would be required at the planning application stage.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0/- No effect on water resources is expected post extraction.</p> <p>If the site is not restored to agriculture, there could be a permanent loss of BMV agricultural land.</p>
SA11: To promote sustainable use of minerals resources	The site is 0.1km from Holt. This is the nearest settlement allocated for significant growth in the adopted Local Plan.	++ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. The site has a low probability of surface water flooding, with two small locations of surface water pooling in a 1 in 100 year rainfall event which expand in a 1 in 1000 year rainfall event.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer some local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, landscape, biodiversity, geodiversity, water resources and amenity; it is considered that not all of these effects could be appropriately mitigated. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? YES. The comments for SA3 have been amended to include the number of properties within 100m of the site boundary, but the assessment score has not changed. The comments for SA6 have been amended to include Holt Country Park CWS and the assessment text has been changed to state that the impacts on Holt Lowes SSSI are uncertain at the extraction phase; the assessment score has changed to ‘ - - ‘ for the extraction phase. The assessment text for SA8 has been amended to refer to the need for the site boundary to be set back from the adjacent PROW but the assessment score has not changed. The comments for SA9 have been amended to include the number of properties within 100m of the site boundary, and the assessment score has changed to ‘ - - ‘ for the extraction phase. The conclusion has been changed to state that not all of the potential negative effects could be appropriately mitigated.

MIN 115 – land at Lord Anson’s Wood, near North Walsham

Proposal: Extraction of 1,100,000 tonnes of sand and gravel

Size of site: 16.88 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 1.1km from North Walsham and 5.9km from Aylsham, which are the nearest towns.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but North Walsham is less than 5km away.	0 No contributions to climate change post extraction. Restoration could include woodland as a carbon ‘sink’.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed new extraction site, it may lead to an increase of 8 HGV movements per day.	- Due to increased HGV movements. However, the increased number of HGV movements due to mineral transport would not be significant compared to overall HGV transport.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 352m from the site boundary. The settlement of North Walsham is 926m away. The effect on visual intrusion is assessed under objective SA8.	0 Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and	The nearest Listed Building is the Grade II Thatched cottage which is 810m away. There	0 A Heritage Statement would be required to support any future	- A mitigation strategy should ensure the historic value of assets

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
historic environment	<p>are 11 Listed Buildings within 2km of the site.</p> <p>The nearest Scheduled Monument is 'Cross 300m NW of Tollbar Cottages', which is 850m from the site. There are three Scheduled Monuments within 2km of the site.</p> <p>North Walsham Conservation Area is 1.97km from the site.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>The site contains a HE record for a WW2 aircraft crash site; no other HE records are noted. The site is in a wider landscape with a number of finds and features with medieval iron working activity, and a battlefield site immediately to the east.</p>	<p>planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects expected during extraction</p> <p>No effect expected during extraction.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effect post extraction</p> <p>No effect post extraction</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is more than 5km from any SPA, SAC or Ramsar site.</p> <p>Bryant's Heath, Felmingham SSSI is 0.7km from the site boundary. Westwick Lakes SSSI is 0.45km from the site boundary.</p> <p>CWS 1170 'Lord Anson's Wood' is adjacent to the site boundary. CWS 1171 'North Walsham Wood'</p>	<p>-</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>The proposed extraction site would be worked dry (above the water table). Therefore there would be no adverse impacts to SSSIs.</p> <p>There is the potential for impacts from dust deposition although with normal mitigation measures no adverse</p>	<p>0</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts to SSSIs are expected post extraction.</p> <p>No impacts to CWSs are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>is 330m from the site boundary and CWS 1172 'Weaver's Way' is 450m from the site boundary.</p> <p>There are no ancient woodland sites within 3km of the site.</p> <p>This site consists of the Briton's Lane sand and gravel member, overlying Wroxham Crag Formation-sand and gravel. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site.</p>	<p>effects on these CWSs is expected. If the site is worked above the water table, with normal mitigation measures, no adverse effects on the CWSs are expected.</p> <p>No impacts on ancient woodland are expected.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>No impacts on ancient woodland are expected.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	No details on proposed restoration of the site have been provided. The preferred restoration for the site would be a mix of deciduous woodland and heathland with public access.	0 No effect during extraction phase	? No details of a proposed restoration scheme have been provided.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site is an area of largely coniferous woodland, although there is some scrubby regrowth. Surrounding the site is an area of predominately broadleaved woodland, and the site is within a wider Parkland setting. The retention of woodland buffer zones would form a key requirement for this site to be satisfactory in	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		landscape terms and visual impact terms.	
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within or adjacent to the site. There is a PROW close to the northern boundary of the site (north Walsham FP9). The nearest residential property is 352m from the site boundary.	0 There is unlikely to be a significant impact on health or amenity from mineral extraction within the site.	? Whilst no details on proposed restoration of the site have been provided, the restoration scheme for the site should include public access which could contribute to improved health and amenity of local communities.
SA10: To protect and enhance water and soil quality in Norfolk	The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site. The site is classified as non-agricultural land.	0 The site would be worked dry (above the water table) and therefore no effect on water resources is expected. No impacts on BMV agricultural soils.	0 No effect on water resources post extraction. No impacts on BMV agricultural soils.
SA11: To promote sustainable use of minerals resources	The site is 1.1km from North Walsham and 5.9km from Aylsham. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	++ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. The site has a low probability of surface water flooding with one very small location of surface water pooling in a 1 in 1000 year rainfall event.	++ The site is at low risk of being affected by flooding from either river, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer some local employment opportunities. As with all potential minerals	+	0 No effect post restoration

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry		
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, geodiversity, landscape and amenity; however, it is considered that these effects could be appropriately mitigated. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, the SA assessment score and text for SA9 have been amended to include the preference for public access to be included in a restoration scheme for the site.

MIN 207 – land at Pinkney Field, Briston

Proposal: Extraction of 400,000 tonnes of sand and gravel

Size of site: 12.5 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 3.7km from Holt, which is the nearest town.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Holt is less than 5km away.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 280m from the site boundary. The settlement of Hunworth is 692m away. The effect on visual intrusion is assessed under objective SA8.	0 Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and	The nearest Listed Building is the Grade II* 'Remains of the church of St Peter and St Paul' which is 750m away.	-- A Heritage Statement would be required to support any future planning application.	- A mitigation strategy should ensure the historic value of assets is appropriately

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
historic environment	<p>There are 36 Listed Buildings within 2km of the site. 13 of these are within the Hunworth Conservation Area, which is 0.73km from the site.</p> <p>The site is within the Glaven Valley Conservation Area. The site is 1.59km from Edgefield Conservation Area.</p> <p>There are 2 Scheduled Monuments within 2km of the site. The nearest Scheduled Monument is 'Castle Hill medieval ringwork, Hunworth', which is 0.88km away.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are no Historic Environment records within the site boundary. The site immediately to the west has been investigated and no finds or features were identified. There are isolated multi-period finds in the wider landscape.</p>	<p>The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects expected during extraction</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction.</p> <p>No effect post extraction</p> <p>No effect post extraction</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	The site is 2.57km from Holt Lowes SSSI which is part of the Norfolk Valley Fens SAC.	<p>0</p> <p>The proposed extraction site would be worked dry (above the water table) and is located up-gradient of the SSSI. Therefore there would be no adverse impacts to the SSSI or SAC.</p>	<p>0</p> <p>No impacts on SPAs, SACs, Ramsar sites or SSSIs are expected.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>There are no County Wildlife Site within 1km of the site boundary.</p> <p>The nearest ancient woodland site is Lowes Farm Wood, a PAWS, which is 1.27km from the site boundary.</p> <p>The site consists of the Briton's Lane sand and gravel member, Lowestoft Formation - diamicton, overlying Chalk Formations. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site.</p>	<p>Due to distance, no impacts on County Wildlife Sites are expected.</p> <p>No adverse impacts on the ancient woodland are expected due to the distance from the site and because the site would be worked dry.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>No impacts to County Wildlife Sites are expected post extraction.</p> <p>No impacts to ancient woodland sites are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The majority of the site is proposed to be restored to an agricultural reservoir, with the unworked area of the site restored to agricultural grassland.	0 No effect during extraction phase	+ Restoration to an agricultural reservoir would be beneficial because it would reduce the need for water abstraction for irrigation. The unworked area of land would be restored to agricultural grassland. The banks of the reservoir will be restored to acid grassland which would provide some biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is within the Glaven Valley Conservation Area. The site is not located within the AONB or a Core River Valley.	-- The western boundary of the site is adjacent to the existing mineral extraction site, which is being restored to an agricultural reservoir. Woodland borders part of the northern	- Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		boundary and screens the site from Hunworth. The eastern and southern boundaries border agricultural fields; however the rolling nature of the landscape, together with isolated woodland copses and hedgerows aid with screening from the Hunworth Road and the Edgefield Road, such that there are few very limited views of the site.	
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within or adjacent to the site. The nearest residential property is 280m from the site boundary.	0 There is unlikely to be a significant impact on health or amenity from mineral extraction within the site.	0 New public footpaths are unlikely to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is partially located over a Secondary A aquifer and partially over a Secondary (undifferentiated) aquifer (superficial deposits). The site is also located over a principal aquifer (bedrock). However, there are no groundwater SPZs within the proposed site.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>0/- The site would be worked dry (above the water table) and therefore no effect on water resources is expected.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0/- No effect on water resources is expected post extraction.</p> <p>The site is proposed to be restored to an agricultural reservoir with the unworked part of the site restored to agricultural grassland. Therefore, there could be a permanent loss of BMV agricultural land.</p>
SA11: To promote sustainable use of minerals resources	The site is 3.7km from Holt. This is the nearest settlement allocated for significant growth in the adopted Local Plan.	++ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. No areas of the site are at risk of surface water flooding.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, landscape, amenity and agricultural land; however, it is considered that these effects could be appropriately mitigated. There could positive effects for biodiversity or agriculture on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, the comments and assessment for SA7 and SA10 have been updated to reflect the current proposed restoration, but there are no changes to the SA assessment scores.

MIN 208 – land south of Holt Road, East Beckham

Proposal: Extraction of 1,320,000 tonnes of sand and gravel

Size of site: 16.56 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 5.5km from Cromer and 5.9km from Holt, which are the nearest towns.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Cromer and Holt are less than 10km away.	0 No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 197m from the site boundary. There are three sensitive receptors within 250m of the site boundary. The settlement of East Beckham is 560m away. The effect on visual intrusion is assessed under objective SA8.	- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the	The nearest Listed Building is Grade II Hall	-	-

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
<p>character of the townscape and historic environment</p>	<p>Farmhouse which is 270m away. There are 14 Listed buildings within 2km of the site. 9 of these are within the Upper Sheringham Conservation Area which is 250m from the site.</p> <p>The only Scheduled Monument within 2km of the site is the 'Oval barrow and bowl barrow known as Howe's Hill' which is 1.6km away.</p> <p>Sheringham Hall, a Registered Historic Park is 1.02km from the site.</p> <p>There are Historic Environment records of prehistoric flint finds and a medieval hollow way within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods.</p>	<p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects expected during extraction.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction.</p> <p>No effect post extraction</p> <p>No effect post extraction</p>
<p>SA6: To protect and enhance Norfolk's biodiversity and geodiversity</p>	<p>The site is 1.45km from Sheringham and Beeston Regis Commons SSSI, which is part of the Norfolk Valley Fens SAC.</p> <p>Weybourne Cliffs SSSI is 2.64km from the site.</p>	<p>-</p> <p>The proposed extraction site would be worked dry (above the water table) and is located in a different hydrological catchment to the SSSI and SAC. Therefore there would be no adverse impacts on the SSSI and SAC.</p> <p>There would be no adverse effects on this geological SSSI during extraction.</p>	<p>0</p> <p>No adverse effects on this SSSI and SAC are expected post extraction.</p> <p>No effects are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>CWS 1146 'Pretty Corner and the Plains' is 400m from the site boundary. CWS 2077 'Sheringham Old Wood' is 480m from the site boundary and CWS 1145 'Gibbet and Marlpit Plantations' is 270m from the site boundary.</p> <p>The nearest ancient woodland site is a PAWS and ASNW (unnamed) in Upper Sheringham, which is 1.05km from the site boundary.</p> <p>The site consists of Head deposits-clay, silt, sand & gravel which are priority features due to their method of formation, Briton's Lane sand and gravel member, overlying Wroxham Crag Formation-sand and gravel. The Briton's Lane sands and gravels are known to contain priority features such as palaeosols and erratics in other locations, and therefore they may occur on this site.</p>	<p>Due to the distance from the County Wildlife Sites there would be no impacts from dust deposition. The proposed extraction site would be worked dry and therefore the CWSs would not be adversely affected.</p> <p>No adverse impacts on the ancient woodland are expected due to the distance from the site and because the site is worked dry.</p> <p>The site contains examples of geodiversity priority features.</p>	<p>No adverse effects on County Wildlife Sites are expected post extraction.</p> <p>No effects on ancient woodland sites are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to a mosaic of native woodland, scrub, acid grasslands and exposed faces.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity and geodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature. It is approximately 210m	- The site is currently an agricultural field, and part of the field contains a solar farm. The site is a south-western extension to	- Mineral extraction will result in landscape change which due to the sloping nature of the site would be visible from a variety of

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	from the boundary of the AONB.	an active mineral working. It is a southerly sloping site adjacent to a solar farm to the west. The site is well screened from public roads, although a long view can be seen from the A149 to the north and from Sheringham Road and The Street, West Beckham to the west. The Public Right of Way on the southern boundary of the site has some views. The site is generally well screened but this will require reinforcement to mitigate any landscape impacts.	viewpoints; however, an appropriate mitigation strategy and restoration scheme would minimise the impact.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There is a Public Right of Way adjacent to the southern boundary of the site (East Beckham FP2). The nearest residential property is 197m from the site boundary. There are three sensitive receptors within 250m of the site boundary.	- Care would be needed to ensure that the impact on users of the PRow and the nearby dwellings would not be significant. However, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	The site is partially located over a Secondary A aquifer and partially over a Secondary (undifferentiated) aquifer (superficial deposits). The site is also located over a principal aquifer (bedrock). The site is within groundwater Source Protection Zone 2. The site is Grade 3 agricultural land and could potentially be	0/- The site would be worked dry (above the water table) and therefore no effect on water resources is expected. Potential for BMV agricultural land to be affected by mineral	0/- No effect on water resources is expected post extraction. The site is proposed to be restored to nature conservation instead of

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	Grade 3a which is classified within the Best and Most Versatile agricultural land.	extraction within the site.	agriculture, therefore there could be a permanent loss of BMV agricultural land.
SA11: To promote sustainable use of minerals resources	The site is 5.5km from Cromer and 5.9km from Holt. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	+ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers. The site has a low probability of surface water flooding, with two areas of surface water pooling in a 1 in 1000 year rainfall event.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry.	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, geodiversity, landscape, agricultural land and amenity; however, it is considered that these effects could be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? NO

South Norfolk sites

MIN 209 – land adjacent to the A143, Earsham (Extension Area 1)

Proposal: Extraction of 435,000 tonnes of sand and gravel

Size of site: 7.74 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 8.2km from Harleston, which is the nearest town in Norfolk.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Harleston is less than 10km away.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 33m from the site boundary. There are 108 sensitive receptors within 250m of the site boundary. Most of these are in the settlement of Earsham, which is 33m away. However, the land nearest to Earsham is not proposed to be extracted, therefore the nearest residential property is 97m from the extraction area and there are 63 sensitive receptors within 250m of the extraction area (2 of these are within 100m of the proposed extraction area). The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
reduce social exclusion	and reduce social exclusion. The effect on employment is assessed under objective SA13.		provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building is Grade II 38 and 39 Hall Road which is 76m away. There are 206 Listed Buildings within 2km of the site. 173 of these are within the Bungay Conservation Area, which is 1.41km from the site.</p> <p>The nearest Scheduled Monument is Bungay Castle which is 1.51km away. There are 3 Scheduled Monuments within 2km of the site.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>A Historic Environment record of features related to historic roadways occurs within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods, including Roman features.</p>	<p>--</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects expected during extraction.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>--</p> <p>A mitigation strategy should ensure, the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction.</p> <p>No effect post extraction</p> <p>No effect post extraction</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is more than 5km from any SPA, SAC or Ramsar site.</p> <p>Abbey Wood, Flixton SSSI is 2.56km from the site boundary.</p>	<p>-</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>There would be no adverse impacts to the SSSI due to distance and because the proposed extraction</p>	<p>0</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts on SSSIs are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>The nearest CWS is CWS 125 'Holy Grove' which is 730m from the site boundary.</p> <p>The nearest ancient woodland site is Holy Grove, a ASNW which is 0.80km from the site boundary.</p> <p>The site consists of Lowestoft Formation-river terrace deposits (sand and gravel); which are geodiversity priority features; overlying the Crag group. There is significant potential for vertebrate fossils within the Crag Group.</p>	<p>site is located in a different hydrological catchment to the SSSI.</p> <p>Due to the distance from the site no adverse impacts are expected on the CWS.</p> <p>Due to the distance from the site, no adverse impacts are expected on the ancient woodland.</p> <p>The site contains examples of geodiversity priority features.</p>	<p>No impacts to CWSs are expected post extraction.</p> <p>No impacts to the ancient woodland site is expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to wet grassland with landscaping, ponds/ scrape and geological exposure, all to a nature conservation afteruse.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity and geodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site is an arable field to the south of residential properties, currently bounded by a low post and rail fence and intermittent trees to the south east along the A143. The northern boundary is open to Hall Road and enclosed with vegetation and trees along the boundary of residential properties. The impact of the proposed mineral working on the wider	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		<p>landscape would predominantly be the decreased long distance views and increased roadside vegetation due to the proposed bunding and advanced planting to screen the mineral working from view.</p>	
<p>SA9: To contribute to improved health and amenity of local communities in Norfolk</p>	<p>There are no Public Rights of Way within or adjacent to the site. The nearest residential property is 33m from the site boundary. There are 108 sensitive receptors within 250m of the site boundary. Most of these are in the settlement of Earsham, which is 33m away. However, the land nearest to Earsham is not proposed to be extracted, therefore the nearest residential property is 97m from the extraction area and there are 63 sensitive receptors within 250m of the extraction area (2 of these are within 100m of the proposed extraction area).</p>	<p>-- Care would be needed to ensure that the impact on nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.</p>	<p>0 New public footpaths are unlikely to be provided within the site on restoration.</p>
<p>SA10: To protect and enhance water and soil quality in Norfolk</p>	<p>The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the</p>	<p>-/- If the site is dewatered as part of the extraction the potential for adverse impacts exists, although appropriate assessment and mitigation measures could ensure that no unacceptable impacts occur.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0/- No effect on water resources is expected post extraction.</p> <p>The site is proposed to be restored to nature conservation instead of agriculture, therefore there could be a</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	Best and Most Versatile agricultural land.		permanent loss of BMV agricultural land.
SA11: To promote sustainable use of minerals resources	The site is 8.2km from Harleston. This is the nearest settlement allocated for significant growth in the adopted Local Plans in Norfolk.	+ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers within the district council SFRA. The site has a low risk of surface water flooding with one location of surface water pooling in a 1 in 30, 1 in 100 and 1 in 1000 year rainfall event.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, landscape, geodiversity, water resources, agricultural land and amenity; however, it is considered that these effects could be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes. Whilst the proposed extraction area has remained the same, the site boundary has been extended to include the land that would be used for bunding and screen planting. Therefore, the text for the following SA objectives has been updated to take into account the difference that the site boundary change would make to the distance from the site to various planning constraints: SA3 (distance to residential dwellings and Earsham), SA5 (distance to listed buildings, Scheduled Monuments and Conservation Areas), SA6 (distance to SSSI, CWS and ancient woodland), and SA9 (distance to residential dwellings and Earsham). These changes have resulted in a '—' score for SA3 and SA9 during the extraction phase, but there are no other changes to the SA assessment scores.

MIN 210 – land adjacent to the A143, Earsham (Extension Area 2)

Proposal: Extraction of 750,000 tonnes of sand and gravel

Size of site: 12.69 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 7.4km from Harleston, which is the nearest town in Norfolk.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Harleston is less than 10km away.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 16m from the site boundary. There are 3 sensitive receptors within 250m of the site boundary and 2 of these are within 100m of the site boundary. The settlement of Earsham is 254m away. However, land at the south-west corner, the north-east corner and land close to Park Farm cottages is not proposed to be extracted. Therefore, the nearest residential property is 90m from the extraction area and there are three sensitive receptors within 250m of the extraction area (2 of these are within 100m). The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Building is the Grade II River Farmhouse which is 220m away. There are 64 Listed Buildings within 2km of the site. 25 of them are within Bungay Conservation Area which is 1.7km from the site.</p> <p>The nearest Scheduled Monument is the Moated site of Flixton Priory which is 1.78km away. There are five Scheduled Monuments within 2km of the site.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are no Historic Environment records within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods, including a WW1 airfield site, and a WW2 roadside bomb store.</p>	<p>--</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effects expected during extraction.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>--</p> <p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post restoration.</p> <p>No effect post extraction</p> <p>No effect post extraction</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	The site is more than 5km from any SPA, SAC or Ramsar site.	- No impacts on SPAs, SACs or Ramsar sites are expected.	0 No impacts on SPAs, SACs or Ramsar sites are expected.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>Abbey Wood, Flixton SSSI is 1.90km from the site boundary.</p> <p>The nearest CWS is CWS 125 'Holy Grove' which is 910m from the site boundary.</p> <p>The nearest ancient woodland site is Holy Grove, a ASNW which is 0.96km from the site boundary.</p> <p>The site consists of Lowestoft Formation-river terrace deposits (sand and gravel); which are geodiversity priority features; overlying the Crag group. There is significant potential for vertebrate fossils within the Crag Group.</p>	<p>There would be no adverse impacts to the SSSI due to distance and because the proposed extraction site is located in a different hydrological catchment to the SSSI.</p> <p>Due to the distance from the site no adverse impacts on the CWS are expected.</p> <p>Due to the distance from the site, no adverse impacts on the ancient woodland are expected.</p> <p>The site contains examples of geodiversity priority features.</p>	<p>No impacts on SSSIs are expected.</p> <p>No impacts on CWS are expected.</p> <p>No impacts on ancient woodland sites are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to wet grassland with landscaping, ponds/ scrape and geological exposure, all to a nature conservation afteruse.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity and geodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site is a long narrow field bounded by a road on each side. Along the A143 the site is raised slightly from the road level to the south. The impact of the proposed mineral working on the wider landscape would predominantly be the decreased long	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		distance views and increased roadside vegetation due to the proposed bunding and advanced planting to screen the mineral working from view.	
SA9: To contribute to improved health and amenity of local communities in Norfolk	<p>There are no Public Rights of Way within or adjacent to the site. The nearest residential property is 16m from the site boundary. There are 3 sensitive receptors within 250m of the site boundary and 2 of these are within 100m of the site boundary. The settlement of Earsham is 254m away. However, land at the south-west corner, the north-east corner and land close to Park Farm cottages is not proposed to be extracted. Therefore, the nearest residential property is 90m from the extraction area and there are three sensitive receptors within 250m of the extraction area (2 of these are within 100).</p>	<p>-- Care would be needed to ensure that the impact on nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.</p>	<p>0 New public footpaths are unlikely to be provided within the site on restoration.</p>
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the</p>	<p>-/- If the site is dewatered as part of the extraction the potential for adverse impacts exists, although appropriate assessment and mitigation measures could ensure that no unacceptable impacts occur.</p> <p>Potential for BMV agricultural land to be affected by mineral</p>	<p>0/- No effect on water resources is expected post extraction.</p> <p>The site is proposed to be restored to nature conservation instead of agriculture, therefore there could be a</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	Best and Most Versatile agricultural land.	extraction within the site.	permanent loss of BMV agricultural land.
SA11: To promote sustainable use of minerals resources	The site is 7.4 km from Harleston. This is the nearest settlement allocated for significant growth in the adopted Local Plans in Norfolk.	+ Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers within the district council SFRA. No areas of the site are at risk of surface water flooding.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, landscape, geodiversity, water resources, agricultural land and amenity; however, it is considered that these effects could be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes. Whilst the proposed extraction area has remained the same, the site boundary has been extended to include the land that would be used for bunding and screen planting. Therefore, the text for the following SA objectives has been updated to take into account the difference that the site boundary change would make to the distance from the site to various planning constraints: SA3 (distance to residential dwellings and Earsham), SA5 (distance to listed buildings, Scheduled Monuments and Conservation Areas), SA6 (distance to SSSI, CWS and ancient woodland), and SA9 (distance to residential dwellings and Earsham). These changes have resulted in a '--' score for SA3 and SA9 during the extraction phase, but there are no other changes to the SA assessment scores.

MIN 211 – land west of Bath Hills Road, Earsham (Extension Area 3)

Proposal: Extraction of 485,000 tonnes of sand and gravel

Size of site: 9.54 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 8.5km from Harleston, which is the nearest town in Norfolk.	+ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Harleston is less than 10km away.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is adjacent to the site boundary. There are 25 sensitive receptors within 250m of the site boundary and 5 of these are within 100m of the site boundary. The settlement of Earsham is 215m away. However, land at the south-eastern corner of the site is not proposed to be extracted. Therefore, the nearest residential property is 43m from the extraction area and there are 7 sensitive receptors within 250m of the extraction area (5 of these are within 100m of the extraction area). The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
reduce social exclusion	and reduce social exclusion. The effect on employment is assessed under objective SA13.		provided within the site on restoration.
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Buildings are Grade II Rookery Farmhouse which is 170m away and Grade II 38 & 39 Hall Road, which is 10m away. There are 194 Listed Buildings within 2km of the site. 161 of these are within Bungay Conservation Area which is 1.38km from the site.</p> <p>The nearest Scheduled Monument is Bungay Castle which is 1.62km away. There are 3 Scheduled Monuments within 2km of the site.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>A Historic Environment record of the remains of a ring ditch is shown within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods, including a Bronze Age cemetery and a WW2 bomb store adjacent to the site.</p>	<p>--</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation, which may include identification of areas where mineral extraction would be inappropriate.</p> <p>No effect expected during extraction.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>--</p> <p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effects post extraction.</p> <p>No effects post extraction</p> <p>No effects post extraction</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is more than 5km from any SPA, SAC or Ramsar site.</p> <p>Sexton Wood SSSI is 2.22km from the site boundary, however, the</p>	<p>-</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>Due to distance, no impacts on SSSIs are expected.</p>	<p>0</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts on SSSIs are expected.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>site is not within the Impact Risk Zone for any SSSIs.</p> <p>CWS 125 'Holy Grove' is 130m from the site boundary. CWS 134 'Great Wood & America Wood' is 255m from the site boundary and CWS 2102 'Rich's Hill' is 430m from the site boundary.</p> <p>The nearest ancient woodland sites are: Holy Grove, a ASNW which is 0.23km from the site boundary; Great Wood, a ASNW and PAWS which is 0.34km from the site boundary and America Wood, a ASNW which is 0.34km from the site boundary.</p> <p>The site consists of Lowestoft Formation-river terrace deposits (sand and gravel); which are geodiversity priority features; overlying the Crag group. There is significant potential for vertebrate fossils within the Crag Group.</p>	<p>The potential exists for hydrological impacts on the CWS and ancient woodland sites from mineral extraction at this site, if dewatering is used. An assessment of potential hydrological impacts, together with appropriate mitigation would be required as part of any planning application.</p> <p>The site contains examples of geodiversity priority features.</p>	<p>No impacts to CWSs are expected post extraction.</p> <p>No impacts to the ancient woodland sites are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to wet grassland with landscaping, ponds/ scrape and geological exposure, all to a nature conservation afteruse.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity and geodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley of any other designated landscape feature. The site is adjacent to the	- The site is irregular in shape with dense woodland bounding the western boundary, low lying vegetation to the	0 Mineral extraction will result in landscape change; however, an appropriate mitigation strategy and restoration

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	boundary of the Broads Authority Executive Area.	south and open roadside to the east. To the north the land slopes down, resulting in the northern section of the site not being visible from Hall Road. The impact of the proposed mineral working on the wider landscape would predominantly be the decreased long distance views and increased roadside vegetation due to bunding and advanced planting to screen the mineral working from view.	scheme should ensure no unacceptable impacts
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within or adjacent to the site. The nearest residential property is adjacent to the site boundary. There are 25 sensitive receptors within 250m of the site boundary and 5 of these are within 100m of the site boundary. However, land at the south-eastern corner of the site is not proposed to be extracted. Therefore, the nearest residential property is 43m from the extraction area and there are 7 sensitive receptors within 250m of the extraction area (5 of these are within 100m of the extraction area).	-- Care would be needed to ensure that the impact on nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). There are no groundwater Source	-/- If the site is dewatered as part of the extraction the potential for adverse impacts exists, although appropriate assessment and	0/- No effect on water resources is expected post extraction.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>Protection Zones within the proposed site.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>mitigation measures could ensure that no unacceptable impacts occur.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>The site is proposed to be restored to nature conservation instead of agriculture, therefore there could be a permanent loss of BMV agricultural land.</p>
SA11: To promote sustainable use of minerals resources	The site is 8.5km from Harleston. This is the nearest settlement allocated for significant growth in the adopted Local Plans in Norfolk.	<p>+</p> <p>Due to distance to nearest settlement allocated for significant growth.</p>	<p>0</p> <p>No effect post extraction</p>
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers within the district council SFRA. No areas of the site are at risk of surface water flooding.	<p>++</p> <p>The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.</p>	<p>0</p> <p>No effect post extraction / restoration.</p>
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	<p>+</p>	<p>0</p> <p>No effect post restoration</p>
Conclusion	The site scores well in terms of proximity to growth locations and is located in an area of low flood risk. There are potential negative effects on the historic environment, landscape, biodiversity, geodiversity, water resources, agricultural land and amenity; however, it is considered that these effects could be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes. Whilst the proposed extraction area has remained the same, the site boundary has been extended to include the land that would be

used for bunding and screen planting. Therefore, the text for the following SA objectives has been updated to take into account the difference that the site boundary change would make to the distance from the site to various planning constraints: SA3 (distance to residential dwellings and Earsham), SA5 (distance to listed buildings, Scheduled Monuments and Conservation Areas), SA6 (distance to SSSI, CWS and ancient woodland), and SA9 (distance to residential dwellings and Earsham). These changes have resulted in a '--' score for SA3 and SA9 during the extraction phase, but there are no other changes to the SA assessment scores.

MIN 25 – land at Manor Farm (between Loddon Road and Thorpe Road), Haddiscoe

Proposal: Extraction of 1,300,000 tonnes of sand and gravel

Size of site: 21.95 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 11km from Great Yarmouth and 10.5km from Gorleston-on-Sea, which are the nearest towns.	0 Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns. Great Yarmouth and Gorleston are just over 10km away.	0 No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed new extraction site, it may lead to an increase of 80 HGV movements per day.	- Due to increased HGV movements. However, the increased number of HGV movements due to mineral transport would not be significant compared to overall HGV transport.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 19m from the site boundary. There are 53 sensitive receptors within 250m of the site boundary and 15 of these are within 100m of the site boundary. Most of these properties are within the settlement of Haddiscoe, which is 55m away. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA5: To maintain and enhance the character of the townscape and historic environment	<p>There are three Listed Building within 250m of the site; they are Grade II White House Farm (70m away), Grade I Church of St Mary (110m away), Grade II Monument to William Salter set in the churchyard wall (130m away). There are 13 Listed Buildings within 2km of the site.</p> <p>There are no Scheduled Monuments, Conservation Areas or Registered Historic Parks and Gardens within 2km of the site.</p> <p>There are Historic Environment records of multi-period finds and features within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods.</p>	<p>--</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects expected during extraction.</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>--</p> <p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effect post extraction</p> <p>No effects post extraction</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is 3.84km from The Broads SAC and Broadland SPA and Ramsar site and is outside the Impact Risk Zone for Halvergate Marshes SSSI and Standley and Alder Carrs Aldeby SSSI, which form part of these internationally designated sites.</p> <p>The site is 4.36 km from Breydon Water SPA and Ramsar site and is outside the Impact Risk</p>	<p>-</p> <p>No adverse impacts on the SAC, SPA, Ramsar or SSSIs are expected due to the distance from the site.</p> <p>No adverse impacts on the SPA and the Ramsar site are</p>	<p>0</p> <p>No impacts to the SAC, SPA, Ramsar or SSSIs are expected post extraction.</p> <p>No impacts to the SPA and Ramsar site are expected post extraction.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>Zone for Breydon Water SSSI.</p> <p>There are no SSSIs within 3km of the site boundary and the site is not within the Impact Risk Zone for any SSSIs.</p> <p>The nearest CWS is CWS 2221 'Devil's End Meadow' which is 170m from the site boundary.</p> <p>The nearest ancient woodland site is Long Row Wood, an ASNW which is 1.55km from the site boundary.</p> <p>The site consists of the Haddiscoe formation - sand and gravel, Corton formation-sand (undifferentiated), Lowestoft Formation - diamicton; overlying the Crag group. There is significant potential for vertebrate fossils within the Crag Group.</p>	<p>expected due to the distance from the site.</p> <p>Due to distance, no impacts on SSSIs are expected.</p> <p>There is the potential for impacts from dust deposition although with normal mitigation measures no adverse effects on this CWS are expected. If the site is worked above the water table, with normal mitigation measures, no adverse effects on the CWSs are expected.</p> <p>If the site is worked above the water table, with normal mitigation measures, no adverse effects on this ancient woodland site are expected.</p> <p>There is the potential for this site to contain examples of geodiversity priority features.</p>	<p>No impacts on SSSIs are expected.</p> <p>No impacts to CWSs are expected post extraction.</p> <p>No impacts to the ancient woodland site are expected post extraction.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to a combination of acid grassland, woodland planting and shallow wetland/pond.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the quality and	The site is not located within the AONB, a Core River Valley or	- The site comprises an agricultural field which	0 Mineral extraction will result in landscape

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
distinctiveness of the countryside and landscape	any other designated landscape feature. The site is adjacent to a Core River Valley and is adjacent to the boundary of the Broads Authority Executive Area.	slopes gently to the northeast, towards the Haddiscoe Marshes. There are mature screen planting forming hedgerows on all sides of the site, except a section of the eastern boundary closest to Manor Farm; which is the landowner's property. It is considered that the site could be suitable in landscape terms.	change; however, an appropriate mitigation strategy and restoration scheme should ensure no unacceptable impacts
SA9: To contribute to improved health and amenity of local communities in Norfolk	This is a Public Right of Way running across the site (from Thorpe Road to Crab Apple Lane) (Haddiscoe BR5). The nearest residential property is 19m from the site boundary. There are 53 sensitive receptors within 250m of the site boundary and 15 of these are within 100m of the site boundary.	-- Care would be needed to ensure that the impact on users of the PRow and the nearby dwellings would not be significant. However, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned, such as temporary diversion of the PRow. The operation area of the site would need to be set back around 10m from the nearest residential properties.	0 New public footpaths are unlikely to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the</p>	<p>-/- If the site is dewatered as part of the extraction the potential for adverse impacts exists, although appropriate assessment and mitigation measures could ensure that no unacceptable impacts occur.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0/- No effect on water resources is expected post extraction.</p> <p>The site is proposed to be restored to nature conservation instead of agriculture, therefore there could be a</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	Best and Most Versatile agricultural land.		permanent loss of BMV agricultural land.
SA11: To promote sustainable use of minerals resources	The site is 11km from Great Yarmouth and 10.5km from Gorleston-on-Sea. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	0 Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers within the district council SFRA. The site has a low risk of surface water flooding with two areas of surface water pooling in a 1 in 30 and 1 in 100 year rainfall event. There are additional areas of surface water pooling in a 1 in 1000 year rainfall event.	+ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer some local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry.	+	0 No effect post restoration
Conclusion	The site is located in an area of low flood risk. There are potential negative effects on air quality, the historic environment, landscape, biodiversity, geodiversity, water resources, agricultural land and amenity; however, it is considered that these effects could be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? YES, the comments for SA3 and SA9 have been amended to include the number of residential properties within 100m of the site boundary. The SA assessment score for SA3 has not changed. the SA assessment score for SA9 has been amended to '--' for the extraction phase due to the proximity of residential properties. The comments for SA6 have been amended for the SSSI Impact Risk Zones but no change to the assessment.

MIN 92 – land east of Ferry Lane, Heckingham

Proposal: Extraction of 570,000 tonnes of sand and gravel

Size of site: 15.18 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The site is 13.6km from Gorleston-on-Sea and Great Yarmouth, which are the nearest towns.	0 Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but Great Yarmouth is less than 15km away.	0 No contributions to climate change post extraction. Restoration would not include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 40m from the site boundary. There are seven sensitive receptors within 250m of the site boundary and five of these are within 100m of the site boundary. The settlement of Nogdam End is 821m away. The effect on visual intrusion is assessed under objective SA8.	-- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.
SA5: To maintain and enhance the	The nearest Listed Building is Grade II*	0	0

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
<p>character of the townscape and historic environment</p>	<p>Hardley Hall which is 770m away. There are 11 Listed Buildings within 2km of the site.</p> <p>The only Scheduled Monument within 2km of the site is 'Hardley Cross, immediately south-west of the rivers Yare and Chet' 1.69km away.</p> <p>There are no Conservation Areas within 2km of the site.</p> <p>Raveningham Hall, a Registered Historic Park and Garden is 1.78km from the site.</p> <p>Historic Environment records exist of a possible medieval settlement and multi-period finds within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods, including Saxon, Roman and medieval settlement locations close to the site.</p>	<p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation.</p> <p>No effects during extraction.</p> <p>No effects expected during extraction</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effects post extraction</p> <p>No effects post extraction</p> <p>No effects post extraction</p>
<p>SA6: To protect and enhance Norfolk's biodiversity and geodiversity</p>	<p>The site is 4.45km from Breydon Water SPA and Ramsar site.</p> <p>The site is 0.58km from Hardley Flood SSSI, which is part of The Broads SAC, Broadland SPA and Ramsar site.</p>	<p>-</p> <p>No adverse impacts on the SPA and the Ramsar site are expected due to the distance from the site.</p> <p>The site is expected to be worked dry (above the water table), therefore, no adverse hydrological impacts on this SSSI are expected. Due to the distance from the site no</p>	<p>0</p> <p>No impacts to the SPA and Ramsar site are expected post extraction.</p> <p>No impacts on the SSSI is expected post extraction</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>CWS 2194 'Old Hall Carr and Marshes' is adjacent to the site boundary.</p> <p>There are no ancient woodland sites within 3km of the site.</p> <p>The site consists of the Lowestoft Formation - sand and gravel, Corton Formation (undifferentiated), Crag Group and Bytham Formation - sand and gravel (which is a priority feature due to its method of formation) all overlying Crag Group. There is the potential for large vertebrate fossils and other paleo-environmental evidence in deposits laid down by a tributary (River Bytham) of the proto-Thames.</p>	<p>adverse effects from dust, noise or lighting are expected.</p> <p>There is the potential for impacts from dust deposition although with normal mitigation measures no adverse effects on these CWSs is expected. The site is expected to be worked dry (above the water table), therefore, no adverse effects on the hydrology of the CWS are expected.</p> <p>No impacts on ancient woodland sites are expected.</p> <p>The site contains examples of geodiversity priority features.</p>	<p>No impacts on the CWS is expected post extraction</p> <p>No impacts on ancient woodland sites are expected.</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to a mosaic of nature conservation and agricultural land uses.	0 No effect during extraction phase.	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of	The site is not located within the AONB, a Core River Valley or any other designated landscape feature. The	-- The site is adjacent to the boundary of the Broads Authority Executive Area on	- Mineral extraction will result in landscape change which due to the sloping nature of

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
the countryside and landscape	site is adjacent to the boundary of the Broads Authority Executive Area.	three sides. The site comprises an arable field which slopes down to the west and is divided by a line of hedgerow oaks. The oaks within the site are a notable landscape feature as are the veteran oaks along the western boundary. The mature oaks in the site and proximity to the Broads Authority Executive Area would make it difficult to work this site without unacceptable landscape impacts.	the site would be visible from a variety of viewpoints; however, an appropriate mitigation strategy and restoration scheme would minimise the impact.
SA9: To contribute to improved health and amenity of local communities in Norfolk	There are no Public Rights of Way within or adjacent to the site. The nearest residential property is 40m from the site boundary. There are seven sensitive receptors within 250m of the site boundary and five of these are within 100m of the site boundary.	- Care would be needed to ensure that the impact on nearby dwellings would not be significant; however it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	<p>The site is located partially over a Secondary A aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site.</p> <p>The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.</p>	<p>0/- The site is expected to be worked dry (above the water table), therefore no adverse effects on water resources are expected.</p> <p>Potential for BMV agricultural land to be affected by mineral extraction within the site.</p>	<p>0/- No effect on water resources is expected post extraction.</p> <p>A proportion of the site is proposed to be restored back to agriculture. Therefore, as long as the topsoil was stored correctly and then replaced, adverse effects on BMV agricultural land would</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
			relate to the proportion lost.
SA11: To promote sustainable use of minerals resources	The site is 13.6km from Gorleston-on-Sea and Great Yarmouth. These are the nearest settlements allocated for significant growth in the adopted Local Plan.	0 Due to distance to nearest settlement allocated for significant growth.	0 No effect post extraction
SA12: To reduce the risk of current and future flooding at new and existing development	The site has a low probability of flooding from rivers within the district council SFRA. The site has a low probability of surface water flooding, with two minor surface water flow paths developing within the site in a 1 in 1000 year rainfall event.	++ The site is at low risk of being affected by flooding from either rivers, the sea or surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	0 No effect post extraction / restoration.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site is located in an area of low flood risk. There are potential negative effects on the historic environment, landscape, biodiversity, geodiversity, agricultural land and amenity. It is considered that the effects on landscape could not be appropriately mitigated. There could positive effects for biodiversity on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, SA3 text and SA9 text amended to update the number of sensitive receptors within 250m of the site boundary and to include the number sensitive receptors within 100m of the site boundary, but no change to the scoring.

MIN 212 – land south of Mundham Road, Mundham

Proposal: Extraction of 325,000 tonnes of sand and gravel

Size of site: 4.95 ha

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA1: To adapt to and mitigate the effects of climate change by reducing contributions to climate change	The processing site is 1km from the Norwich urban area and within the Norwich Policy Area.	++ Mineral extraction requires energy and therefore emits CO ₂ . There would also be CO ₂ emissions from road transportation to the nearest towns, but the Norwich urban area is less than 5km from the processing site.	0 No contributions to climate change post extraction. Restoration would include woodland as a carbon 'sink'.
SA2: To improve air quality in line with the National Air Quality Standards	The site is not within an AQMA. As a proposed extension to an existing site, the number of vehicle movements is expected to remain the same but continue for a longer period.	0 Vehicle movements are not proposed to increase during the extraction phase, so would be unlikely to affect air quality due to vehicle emissions.	0 No effect post restoration
SA3: To minimise noise, vibration and visual intrusion	The nearest residential property is 147m from the site boundary. There are 2 sensitive receptors within 250m of the site boundary. The settlement of Mundham is 482m away. The effect on visual intrusion is assessed under objective SA8.	- Sand and gravel extraction is not expected to cause vibration. It is considered that noise and dust can be mitigated to acceptable levels within 250m of the source; the greatest impacts will be within 100m, if uncontrolled. Noise and dust assessments, and mitigation measures to appropriately control any amenity impacts, must form part of any planning application for mineral extraction.	0 No effect post restoration
SA4: To improve accessibility to jobs, services and facilities and reduce social exclusion	Mineral extraction sites are unlikely to provide improved accessibility to services and facilities and reduce social exclusion. The effect on employment is assessed under objective SA13.	0 No effects expected during extraction	0 It is unlikely that enhanced public access would be provided within the site on restoration.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
SA5: To maintain and enhance the character of the townscape and historic environment	<p>The nearest Listed Buildings are the Grade II Mundham House and the stables at Mundham House, which are 470m and 440m away. There are 24 Listed Buildings within 2km of the site.</p> <p>There are no Scheduled Monuments within 2km of the site.</p> <p>Seething Conservation Area is 1.88km from the site.</p> <p>There are no Registered Historic Parks and Gardens within 2km of the site.</p> <p>A Historic Environment record of the remains of an undated road is shown within the site boundary. The site is in a wider landscape with a significant number of finds and features from multiple periods, including a Saxon cemetery and a Roman settlement adjacent to the site.</p>	<p>-</p> <p>A Heritage Statement would be required to support any future planning application. The heritage statement should identify potential impacts to heritage assets and suggest appropriate mitigation</p> <p>No effects expected during extraction.</p> <p>No effects expected during extraction.</p> <p>No effects expected during extraction</p> <p>There is the potential that unknown archaeology exists on the site and an assessment of the significance of archaeological remains will be required at the planning application stage, in order to protect and mitigate the impact of mineral extraction in this site.</p>	<p>-</p> <p>A mitigation strategy should ensure the historic value of assets is appropriately preserved. Mineral extraction will result in landscape change; however, an appropriate restoration scheme should ensure no unacceptable impacts on the setting of heritage assets.</p> <p>No effects post extraction.</p> <p>No effects post extraction.</p> <p>No effects post extraction</p> <p>No effects post extraction</p>
SA6: To protect and enhance Norfolk's biodiversity and geodiversity	<p>The site is 3.67km from Hardley Flood SSSI, which is part of the Broads SAC, Broadland SPA and Ramsar site and is outside the Impact Risk Zone for this SSSI.</p> <p>There are no SSSIs within 3km of the site</p>	<p>-</p> <p>Due to distance, no impacts on SPAs, SACs or Ramsar sites are expected.</p>	<p>0</p> <p>No impacts on SPAs, SACs or Ramsar sites are expected.</p> <p>No impacts on SSSIs are expected.</p>

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	<p>boundary and the site is not within the Impact Risk Zone for any SSSIs.</p> <p>There are no County Wildlife Sites within 1km of the site boundary.</p> <p>The nearest ancient woodland site is Hales Hall Wood, an ASNW and PAWS, which is 2.16km from the site boundary.</p> <p>The site consists of the Corton formation - sand (undifferentiated), Head deposits - clay, silt, sand & gravel which are priority features due to their method of formation, Lowestoft Formation - diamicton; overlying the Crag group. There is significant potential for vertebrate fossils within the Crag Group.</p>	<p>Due to distance, no impacts on SSSIs are expected.</p> <p>Due to distance, no impacts on County Wildlife Sites are expected.</p> <p>Due to the distance from the site, no adverse impacts to the ancient woodland site are expected from the proposed mineral extraction.</p> <p>The site contains examples of geodiversity priority features.</p>	<p>No impacts on County Wildlife Sites are expected.</p> <p>No impacts on the ancient woodland site is expected post extraction</p> <p>No adverse impacts to geodiversity are expected post restoration. It would be useful for restoration to provide opportunities for further geological research of suitable exposures.</p>
SA7: To promote innovative solutions for the restoration and after use of minerals sites	The site is proposed to be restored to a nature conservation afteruse with species rich acid grassland with scrub woodland and a water body fringed with reeds.	0 No effect during extraction phase	+ The proposed restoration scheme would provide some biodiversity gains.
SA8: To protect and enhance the quality and distinctiveness of the countryside and landscape	The site is not located within the AONB, a Core River Valley or any other designated landscape feature.	- The site comprises an irregularly shaped area of land within an arable field, with the eastern boundary formed by a drain and associated hedgerow. The western boundary is formed by the access track to the existing quarry site. The site slopes down from east	- Mineral extraction will result in landscape change which due to the sloping nature of the site would be visible from a variety of viewpoints; however, an appropriate mitigation strategy and restoration scheme would minimise the impact.

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
		to west. The impact of the proposed mineral working on the wider landscape would predominantly be the decreased long distance views due to bunding to screen the mineral working from view.	
SA9: To contribute to improved health and amenity of local communities in Norfolk	There is a Public Right of Way adjacent to the site boundary (Mundham FP6) and PROW Mundham FP7 runs through the north-west corner of the site. The nearest residential property is 147m from the site boundary. There are 2 sensitive receptors within 250m of the site boundary.	- Care would be needed to ensure that the impact on users of the PRoW and the nearby dwellings would not be significant. PROW Mundham FP7 is proposed to be diverted around the north-west corner of the site. However, it is considered that appropriate mitigation measures to ensure no unacceptable impacts could be conditioned.	0 New public footpaths are unlikely to be provided within the site on restoration.
SA10: To protect and enhance water and soil quality in Norfolk	The site is located partially over a Secondary A aquifer and a Secondary (undifferentiated) aquifer (superficial deposits) and a principal aquifer (bedrock). However, there are no groundwater Source Protection Zones within the proposed site. The site is Grade 3 agricultural land and could potentially be Grade 3a which is classified within the Best and Most Versatile agricultural land.	-/- If the site is dewatered as part of the extraction the potential for adverse impacts exists, although appropriate assessment and mitigation measures could ensure that no unacceptable impacts occur. Potential for BMV agricultural land to be affected by mineral extraction within the site.	0/- No effect on water resources is expected post extraction. The site is proposed to be restored to nature conservation instead of agriculture, therefore there could be a permanent loss of BMV agricultural land.
SA11: To promote sustainable use of minerals resources	The processing site is 1km from the Norwich urban area and within the Norwich Policy	++ Due to distance to nearest settlement	0 No effect post extraction

SA Objective	Comments	Assessment of Extraction Phase	Assessment Post Extraction
	Area. This is the nearest settlement allocated for significant growth in the adopted Local Plan.	allocated for significant growth.	
SA12: To reduce the risk of current and future flooding at new and existing development	Approximately 84% of the site is in Flood Zone 1 (lowest risk) for flooding from rivers. The eastern part of the site is within Flood Zone 2 (medium risk) and Flood Zone 3 (high risk) for flooding from rivers. The site has a high probability of surface water flooding with a surface water flow path running through the eastern part of the site (north-south) in a 1 in 30 year rainfall event. The area of the site included within this flow path increases in 1 in 100 and 1 in 1000 year rainfall events to affect up to 10% of the site.	-- The site is at high risk of flooding from rivers and surface water. Sand and gravel extraction is considered to be a 'water compatible' land use which is suitable in all flood zones.	+ The proposed restoration includes a waterbody, therefore there is the potential for this to provide some temporary flood storage capacity.
SA13: To encourage employment opportunities and promote economic growth	Although employment levels at minerals sites tend to be low, if this site was worked it could offer continuing local employment opportunities. As with all potential minerals sites, it would contribute to economic growth in Norfolk by providing raw materials for the construction industry	+	0 No effect post restoration
Conclusion	The site scores well in terms of proximity to growth locations. There are potential negative effects on the historic environment, flood risk, landscape, geodiversity, water resources, agricultural land and amenity; however, it is considered that these effects could be appropriately mitigated. There could positive effects for biodiversity and flood risk on restoration. Sand and gravel extraction has positive economic impacts as it provides raw materials for the construction industry.		

Any changes to SA assessment of effects between Initial Consultation stage (2018) and Preferred Options stage (2019)? Yes, SA9 text amended to clarify that PROW Mundham FP7 would be diverted during the extraction phase, but no change to the scoring.