

CHAPTER 7

ECOLOGICAL IMPACT AND RISK ASSESSMENT

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7.0 CHAPTER 7 ECOLOGICAL IMPACT AND RISK ASSESSMENT

7.1 Introduction and Current Planning Situation

The Integrated Waste Management Facility (IWMF) site benefits from a range of ecological baseline surveys, impact assessments and the delivery of mitigation strategies including a Natural England mitigation licence that has been implemented within the IWMF planning footprint and wider study area.

Following the implementation of the IWMF planning permission (ESS/34/15/BTE) visits have been made to the Site by an Ecological Clerk of Works to supervise and record the management work undertaken throughout 2016, to assess its success and to advise GFC with regard to further and on-going work required. Monitoring is required as part of the planning permission, and was intended to apply after construction is complete. The Ecological Monitoring Report 2016 (by Green Environmental Consultants) is presented in Appendix 7A.

The Ecological Monitoring Report 2016 supplements the most recent suite of baseline surveys (Green Environmental Consultants 2015; Golder, 2014a, updated by Green Environmental Consultants 2014) and has revealed ecological features that mirror the baseline attributes noted during surveys for the consented IWMF (Golder, 2008). Ecological mitigation continues to be delivered within the Site and regular checks (including repair works) of the Great Crested Newt fence (Green Environmental Consultants 2015; and, Golder 2011e) are undertaken. Furthermore, Habitat Management Proposals (Green Environmental Consultants 2015; and, Golder 2011d) such as Great Crested Newt monitoring, scrub clearance and wetland vegetation monitoring are being delivered.

Based on planning permissions numbered ESS/34/15/BTE, the two principal "ecological" planning conditions, 53 and 54, are as follows:

Condition 53: *"The development hereby permitted shall be implemented in accordance with the details submitted with respect to the ecological information and mitigation. The approved ecological information and mitigation includes the following:*

Ecological information approved on 27 July 2011 in accordance with condition 53 of planning permission Ref. APP/Z1585/V/09/2104804 (ECC ref ESS/37/08/BTE). The details approved included letter dated 19 May 2011 from Golder Associates with accompanying application form and Ecology report dated October 2010.

The application for approval of details reserved by condition dated 4 August 2015 and the information contained within the Ecological report by Green Environmental Consultants dated July 2015 and Appendix 7-1 Baseline ecology report August 2008.

Ecological mitigation shall be carried out in accordance with the approved details throughout the life of the IWMF."

Condition 54: *"The development hereby permitted shall be implemented in accordance with the details submitted with respect to the habitat management plan. The approved details include: the application for approval of details reserved by condition dated 4 August 2015 and the "Habitat Management Plan – revised July 2015 – report number 499/10" by Green Environmental Consultants and appendices A to E.*

The development shall be implemented in accordance with the approved habitat management plan throughout the life of the IWMF."

The ecological baseline and monitoring of the IWMF site is completely up to date and the management and mitigation proposals are currently ongoing following the implementation of the IWMF planning permission. This report summarises and updates all previous ecological work on the IWMF site.

7.2 Ecological Baseline Conditions 2017

Across the footprint of the IWMF, quarrying and restoration operations within the Site A2 resulted in the loss of the former airfield runway(s), an aircraft Hangar, airfield buildings, and agricultural fields that were originally present at the site – leaving predominantly bare ground.

Following the implementation of the IWMF planning permission, within the footprint of the IWMF building construction area, remaining areas of woodland scrub, topsoil, subsoil and hardstanding (remnants of the former airfield comprising brick foundations and concrete tracks and bases) have now been removed (by January 2017). In accordance with the planning permission, some individual and groups of TPO trees have been protected and retained to provide perimeter screening around the Site.

Areas of Open Habitat have been established adjacent to Woodhouse Farm for Great Crested Newts, by stripping agricultural soils from the field due east of Woodhouse Farm (0.8 ha), and a hedgerow has been relocated from the Site A2/IWMF area into Wayfarer's Field. The overlapping footprint of Site A2 and IWMF areas has resulted in the implementation of shared ecological mitigation measures.

Quarrying operations have ceased within Site A2 and are now focussed within Site A3 and A4 – to the northeast of the IWMF site.

The Ecological Monitoring Report 2016 supplements the most recent suite of baseline and habitat surveys. Ecological mitigation continues to be delivered within the Site and regular checks of the Great Crested Newt fence are undertaken. Furthermore, Habitat Management Proposals such as Great Crested Newt monitoring, scrub clearance and wetland vegetation monitoring are being delivered following the implementation of the IWMF planning permission.

The updated Green Environmental Consultants 2014 Habitat Management Plan and Ecological Monitoring Report 2016 present the up-to-date baseline ecological setting of the IWMF site, namely:

7.2.1 Physical

The Site lies within the southern part of 'East Anglian Plain' Natural Area. The two categories of key nature conservation features in this natural area are the agricultural landscape and special habitats and features (including ancient woods, meadows, fens, bat caves, parkland and landform/geological sites); the first category (agricultural landscape) is by far the more abundant of the two categories in this Natural Area, and this is mirrored within the Site and its surrounds.

7.2.2 Flora and Fauna

Detailed ecological surveys of the Site were completed in 2007/2008 and 2009, and updated in 2015, subject of an Ecological Impact Assessment as follows:

- Golder Associates (UK) Ltd (2008a) *Rivenhall Airfield eRCF. Chapter 7.1 Ecology Baseline Report*;
- Golder Associates (UK) Ltd (2008b) *Rivenhall Airfield eRCF. Chapter 7 Ecology & Nature Conservation* as updated in 2015 (Honace Ltd 2015); and
- Golder Associates (UK) Ltd (2009) *Addendum to the Environmental Statement, Proposed Evolution of the Recycling & Composting Facility at Rivenhall Airfield*.

An ecological survey of the Site was required under Condition 53 in order to update and validate the information contained in the Environmental Statement. A reconnaissance visit

identified further surveys required to meet Condition 53, namely Badger, bat and Great Crested Newt. These were undertaken in 2010 and repeated in 2014:

- Golder Associates (UK) Ltd (2010) Condition 53 Ecology Report; updated in 2014.

The following sections summarise the ecology of the Site based on the above reports, reporting the most recent findings as appropriate.

In addition, it is important to note that the IWMF updated Ecology Report and revised Habitat Management Plan (Conditions 53 and 54 – submission of details July 2015), and the Green Environmental Consultants Monitoring Report 2016 (Appendix 7A), also draw relevant results and information from ecological surveys and assessments associated with approved quarrying activities that have/are being carried out by Blackwater Aggregates, within the footprint of, or adjacent to the IWMF Site, namely:

- Golder (2011a) *Blackwater Aggregates Site A2. Appendix 7-A Ecology Baseline Report - ESS/32/11/BTE*;
- Golder (2011b) *Blackwater Aggregates Site A2. Chapter 7 Ecology Impact Assessment - ESS/32/11/BTE*;
- Golder (2011d) *Site A2 Extension Habitat Management Plan – ESS/37/08/BTE Condition 54*;
- Golder Associates (UK) Ltd. (2011e) *Rivenhall Airfield eRCF Great Crested Newt Mitigation Licence Application – ESS/37/08/BTE*. Unpublished;
- Golder Associates (UK) Ltd. (2013) *Blackwater Aggregates, Site A2, Annual Ecological Monitoring Report 2012 – ESS/32/11/BTE Condition 36*;
- Golder (2014a) *Blackwater Aggregates Site A3 & A4. Appendix 7-A Ecology Baseline Report – ESS/24/14/BTE*; and
- Golder (2014b) *Blackwater Aggregates Site A3 & A4. Chapter 7 Ecology – ESS/24/14/BTE*.

7.2.3 Habitats and Flora

A Phase 1 Habitat Survey Map showing baseline habitat distribution during the 2007 survey showed a variety of habitats but all of poor quality, with the possible exception of the River Blackwater, which crosses under an access road. The revised habitat maps, updated in late 2014, are presented within the Condition 53 Ecology Report (July 2015) and Habitat Management Plan (July 2015) presented within Appendices 7B and 7C respectively. In order of area coverage, the Site (together with the adjacent areas up to 200 m from the Site) comprised the following habitats:

- **Arable land** – all arable areas had wheat stubble at the time of the survey;
- **Bare ground** – disturbed bare ground was abundant as the quarry has expanded to encompass the majority of the IWMF area, towards the south of the proposed access road. This habitat included restored but un-vegetated areas;
- **Poor semi-improved neutral grassland** – the dominant grassland contained a few grass species such as Perennial Rye-grass *Lolium perenne*, Red Fescue *Festuca rubra* and Cock's-foot *Dactylis glomerata*, and generally a few forb species. This habitat included restored areas to the north of the quarry, and a small number of closely mown fields around the airfield hanger and Woodhouse Farm;
- **Semi-natural broadleaved woodland** – former plantation woodland, generally dominated by semi-mature Pedunculate Oak *Quercus robur* with abundant shrub species such as Blackthorn *Prunus spinosa*, and in some cases abundant Common Nettle *Urtica dioica*. Mature trees were not frequent;

- **Hard standing** – this was present around the existing site offices in Bradwell Quarry, along the existing quarry access road, and on access tracks around and near to Woodhouse Farm;
- **Semi-improved neutral grassland** – this was present to the south and west of Woodhouse Farm, it contained a greater diversity of grass and forb species such as Black Knapweed *Centaurea nigra*;
- **Scrub** – scrub dominated by Bramble *Rubus fruticosus* agg., Wild Plum *Prunus domestica*, Blackthorn, and Dewberry *Rubus caesius* was abundant around Woodhouse Farm and woodland peripheries;
- **Tall ruderal vegetation** – this habitat was present in a few areas, particularly along the River Blackwater towards the north of the proposed access route, on the screening bund to the south of the working area of the quarry site, and at Woodhouse Farm. These areas were dominated by Comfrey *Symphytum officinale*, Hemlock *Conium maculatum*, and Common Nettle, respectively;
- **Ponds** – over 30 ponds were present within 500 m of the Site; due to continued quarry working, some water bodies around the quarry have been lost, but some have been replaced with others. Three of the ponds lie within, or directly adjacent to the Site, including a former moat at Woodhouse Farm, a woodland edge pond to the east of the Site, and a newly created wildlife lagoon north of the IWMF location. The remaining ponds include farm ponds, garden ponds and a large number of ephemeral quarry silt ponds and soakaways linked to the existing operations at Bradwell Quarry; and
- Other habitats included buildings at Woodhouse Farm and around the airfield, ephemeral/short perennial vegetation, quarry workings and isolated trees.

Three types of linear feature were also present:

- **Hedgerows** – a total of 16 hedgerows were present, three of which were species-rich, and one of which was classified as important under the Hedgerow Regulations 1997;
- **Running water** – the River Blackwater flowed from west to east, under the proposed access route (which crosses the river over an existing bridge). This river was generally 3 m to 5 m in width and estimated to be 1 to 1.5 m in depth. It contained abundant marginal and aquatic vegetation; and
- **Dry ditches** – these were present in a number of areas, particularly along field boundaries (often adjacent to hedgerows).

7.2.4 Mammals

7.2.4.1 Bats

Surveys undertaken in 2007 and in 2010 revealed plentiful foraging activity by Common Pipistrelle *Pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus* in the vicinity of buildings near Woodhouse Farm. These buildings were also occasionally used as feeding perches by bats, including Brown Long-eared bat *Plecotus auritus*.

A single Noctule bat and an unidentified *Myotis* sp. was recorded commuting over Woodhouse Farm during surveys undertaken in 2010.

Passive monitoring results revealed higher numbers of Soprano Pipistrelle bat passes than Common Pipistrelle in the woodland area to the rear (south) of the proposed IWMF location, as well as several more records of Brown Long-eared bat. It is likely that these species used the woodland ride at that location primarily for commuting and foraging.

In accordance with the approved HMP, a resurvey of bats was not undertaken in 2014 because it has been agreed that mitigation is best reviewed with up-to-date information immediately prior to a licence application, to ensure that individual bats are not injured or disturbed (as far is reasonably possible) during the refurbishment and redevelopment works at Woodhouse Farm. Proposals for creating and maintaining bat roosts are provided in the mitigation measures detailed below.

7.2.4.2 Badger

The 2007, 2010, 2014 and 2015 surveys (with a review in 2016) found no evidence of Badgers within 200 m of the Site.

7.2.4.3 Brown Hare

During the 2007 and 2010 ecology surveys, Brown Hares were seen across the Site, and in 2015, to the west. The arable land, ephemeral/short perennial vegetation and tall ruderal vegetation offer suitable habitat for this Species of Principal Importance. Brown Hares are likely to have moved away from the IWMF area due to continuing and expanding quarrying activities removing grassland from this area.

7.2.4.4 Otter & Water Vole

The River Blackwater offers suitable habitat for Otter and Water Vole. However, the surveys carried out in 2007 found no evidence of these species within 500 m of the Site. The situation is unlikely to have changed in the intervening period, and as the risk of impacting the water course is extremely low, no further survey was considered necessary. A fisheries survey in 2014 included a Water Vole survey on the river to the east and this also found no evidence of Water Vole activity, confirming the Environment Agency belief that they are absent from this water course.

7.2.4.5 Birds

A mosaic of woodland, scrub, rank grassland and ponds around Woodhouse Farm offer the most suitable nesting habitats for birds. A total of 20 bird species of nature conservation concern were recorded breeding on the Site during the 2008 breeding bird survey as follows:

- One Schedule 1 species, Little Ringed Plover *Charadrius dubius*;
- Eight red-listed species including European Turtle Dove *Streptopelia turtur*, Skylark *Alauda arvensis*, Song Thrush *Turdus philomelos*, Spotted Flycatcher *Mucicarpa striata*, Starling *Sturnus vulgaris*, Linnet *Carduelis cannabina*, Yellow Wagtail *Motacilla flava*, and Yellowhammer *Emberiza citrinella*. Of these, all are Species of Principal Importance (SPIs), and Skylark and Song Thrush are also Essex BAP species; and
- Eleven amber-listed species including Kestrel *Falco tinnunculus*, Bullfinch *Pyrrhula pyrrhula*, Reed Bunting *Emberiza schoeniclus*, Stock Dove *Columba oenas*, Green Woodpecker *Picus viridis*, Sand Martin *Riparia riparia*, Barn Swallow *Hirundo rustica*, Meadow Pipit *Anthus pratensis*, Hedge Accentor (Dunnock) *Prunella modularis*, Mistle Thrush *Turdus viscivorus*, and Willow Warbler *Phylloscopus trochilus*. Cuckoo, Hedge Accentor (Dunnock), Bullfinch, and Reed Bunting are also SPIs.

Barn Owl was reported to have roosted in buildings at Woodhouse Farm historically, but was not encountered at the Site during surveys undertaken in 2008 and 2010, although buildings at Woodhouse Farm still offer suitable roosting sites. Breeding bird surveys conducted by Golder between 2007 and 2012 across the IWMF site, Site A2 and Site A3 and A4 (Golder 2008a, 2008b, 2011a and 2013) have supplemented the original findings. Occasional visits between 2015 and January 2017 confirm no further sightings of Barn Owl.

During a monitoring visit in January 2017, Blackbirds and other common birds were seen using the scrub W1a. A number of birds including Lapwings were seen using nearby arable fields.

Considering the proposed change in the IWMF's stack height, the potential risk associated with bird strikes have been considered by Green Environmental Consultants, the findings of which are presented within Appendix 7D. Most mortality to birds and bats from tall linear structures is caused by factors such as moving parts at height (blades) or large expanses of glass, and especially where these are located on migration routes. None of these factors will be present at Rivenhall. Therefore, it is considered that the stack and its proposed increase in height will have minimal effects, if any, on aerial wildlife.

7.2.4.6 Reptiles

No evidence of reptiles was found in any of the areas of potentially suitable reptile habitat during the 2007 surveys.

Continuing work at Woodhouse Farm including an amphibian translocation, fencing and trapping, plus monitoring, over a number of years, has failed to find any reptiles in this area. As reptiles are located using the same terrestrial techniques as amphibians it is reasonable to deduce their continued absence from this area.

7.2.4.7 Amphibians

All of the ponds within and around the Site provide suitable habitat for Great Crested Newt, with the exception of the silt ponds at the quarry, which are of recent origin, surrounded by bare and disturbed ground, have high turbidity and fluctuate greatly, often being completely dry for extended periods. Whilst these factors do not preclude Great Crested Newts, they reduce the habitat value of these ponds for this species. The 2008 surveys identified the presence of this species in a moat at Woodhouse Farm and in a woodland pond to the southwest of this. During the 2010 surveys, which focussed on the main area of impact (surrounding the IWMF building and Woodhouse Farm Complex), a small population of Great Crested Newts (maximum count of five adults) was reconfirmed within the moat, while no Great Crested Newts were recorded in any of the other three waterbodies surveyed (Golder, 2010).

Subsequently, a translocation has been undertaken removing Great Crested Newts from the quarrying area and proposed IWMF Site under licence from Natural England. A permanent newt fence has been erected and this species is no longer considered to be present within the IWMF area.

Great Crested Newt works in 2016 involved the realignment of a section of fence around a grass field (adjacent to Woodhouse Farm) to allow for the future construction of the car park. This was undertaken under a European Protected Species (EPS) Annex licence from Natural England.

7.2.4.8 Invasive Non-native Species

No invasive non-native species were recorded within or close to the Site.

7.2.4.9 Invertebrates

A habitat assessment revealed that habitats at the Site were generally of low value for invertebrates, with an area of semi-improved neutral grassland south of the former aircraft hangar and the woodland blocks being valued at a slightly higher, local level of ecological importance. Field survey recorded 86 species of invertebrate, 52 of which were beetles. The majority of invertebrate species recorded at the Site are found throughout the UK or widely in southern England and none are of known conservation concern. Accordingly, it was concluded that overall the Site was of low entomological interest.

7.3 Updated Ecological Assessment 2017

Based on the comprehensive understanding of the baseline ecological condition and on-going ecological management of the IWMF site through the previously approved Habitat Management Plan, Table 7.1 below presents an updated assessment of the ecological impacts associated with the IWMF's development against the original baseline environment.

The assessment demonstrates that there will be no overall change in the impacts associated with the IWMF's development from those originally considered and assessed in 2009; and, greater protection and better habitat for Great Crested Newts as mitigation has been implemented under licence.

Table 7.1: Updated assessment of the ecological impacts associated with the IWMF's development against the original baseline environment

Planning Drawing and/or Assessment Chapter Section	Explanation of proposed modifications and update to the Environmental Assessment
7.2.4 Habitats and Flora	<p>The majority of the land has been removed by quarrying activities within an area of the site known as Site A2, which sits within the footprint of the IWMF site, leaving predominantly bare ground. Following the implementation of the IWMF planning permission, within the footprint of the IWMF construction area, remaining areas of woodland scrub, topsoil, subsoil and hardstanding (remnants of the former airfield comprising brick foundations and concrete tracks and bases) have been removed.</p> <p>Peripheral trees, woodland/scrub identified to be retained under the original assessment have been protected and/or will be retained as originally proposed. [Refer to ecology drawing Figure 3 C contained in Appendix I within the submission of details 53 "Ecology Report by Green Environmental July 2015" – within Appendix 7B].</p>
7.2.4.5	<p>It is considered that the stack and its proposed increase in height will have minimal effects, if any, on aerial wildlife. Refer to Appendix 7D.</p>
7.2.5.5 Breeding Birds	<p>Breeding bird diversity has reduced within the IWMF area, unconnected with these proposals.</p>
7.2.5.6 Great Crested Newts (GCN)	<p>The GCN translocation has been completed in advance of the Site A2 quarrying operations. Newts have already been removed from the IWMF site under licence from Natural England. A permanent newt fence has been erected to prevent animals returning to the construction and (later) operational areas of the IWMF.</p> <p>Great Crested Newts works in 2016 involved the realignment of a section of fence around a grass field (adjacent to Woodhouse Farm) to allow for the future construction of the car park. This was undertaken under a European Protected Species (EPS) Annex licence from Natural England.</p> <p>Compensation habitat east of Woodhouse Farm has been created [Refer to ecology drawing Figure 3 C contained in Appendix I within the submission of details 53 "Ecology Report by Green Environmental July 2015" – within Appendix 7B].</p>

Planning Drawing and/or Assessment Chapter Section	Explanation of proposed modifications and update to the Environmental Assessment
7.3.6 Feature 5 - Bats	<p>Bats are highly mobile creatures and can inhabit or abandon roosts regularly. As no potential bat roosts lie within the footprint of the IWMF site, bats will be unaffected by the IWMF's development.</p> <p>Bat boxes were installed to compensate for the loss of the former airfield buildings in and around the existing woodland adjacent to Woodhouse Farm.</p> <p>The bat boxes will fall under the routine monitoring works that will be carried out by an Ecological Clerk of Works in accordance with the IWMF's Habitat Management Plan.</p> <p>The use of Woodhouse Farm Cottage (located to the north of Woodhouse Farm) as a potential bat roost site will supplement the existing mitigation proposals proposed across the site. The Cottage will be maintained and/or redeveloped to offer a suitable site for bats within the roof space or chimney of the existing buildings.</p> <p>Most mortality to birds and bats from tall linear structures is caused by factors such as moving parts at height (blades) or large expanses of glass, and especially where these are located on migration routes. None of these factors will be present at Rivenhall. It is considered that the stack and its proposed increase in height will have minimal effects, if any, on aerial wildlife. Refer to Appendix 7D</p>
7.4.3.2 Feature 2 - Woodland, Hedgerow and Scrub Network.	<p>The species-diverse hedgerow (W2a) translocated to the southern boundary of the set-aside strip (area W2b, reserved for later tree planting) has been monitored in previous years and the small number of individual specimens which had not established have been replaced. The hedgerow was in good condition in 2016 and developing well. Area W2b has not yet been planted and is currently serving as a receptor for storage of the top soil and subsoil taken from the IWMF area.</p> <p>Within Area W1a the interior woodland/scrub has been removed (outwith the bird nesting season). The remaining external boundary of mature W1a, is in the same condition and acts as the buffer it was intended to be.</p>
7.4.3.6 Feature 6 – Barn Owls	<p>Continuing ecological work on site has failed to identify Barn Owl roosts. This potential impact could now be removed from the ES.</p> <p>Given the setting of Woodhouse Farm, it is proposed that in advance of any improvement and redevelopment works of the former farmhouse and the bakehouse (which is currently covered by a protective cladding) an Ecological Clerk of Works should carry out a survey of the existing building(s) to assess if Barn Owls have returned, and the original mitigation measures implemented if found to be present.</p>

As noted above, additional reference should be made to Appendices 7A, 7B, 7C and 7D prepared by Green Environmental Consultants, which present an up to date assessment of the IWMF's ecological setting following the implementation of planning permission ESS/34/15/BTE.

Based on the original ecological assessment completed by Golder Associates (UK) Ltd, and the various ecological surveys and assessments completed across the IWMF site to support the ongoing quarrying operations, including the updated assessment(s) and Monitoring Report, the proposals to increase the height of the IWMF stack will alter not the findings of the

impact assessment(s), nor change the approved habitat management, enhancement and mitigation proposals.

7.4 Cumulative Impact Assessment 2017

The IWMF proposals were developed on the basis that the ecological mitigation measures would be integrated into the wider landscape and restoration proposals for the adjacent quarrying operations.

The planning application boundaries of the former Site A2 and existing Site A3 and A4 quarrying operations included the IWMF site to ensure that the 'Site Specific Issues to be Addressed' set out within Essex County Council's emerging Replacement Minerals Local Plan and adopted 2014 Minerals Local Plan were addressed, namely:

'Careful consideration must be given to the final low-level restoration contours to ensure the final landform blends with the surrounding topography and could blend with the levels and planting of the strategic waste management development (Ref ESS/37/08/BTE) if implemented.'

The Site A2 and Site A3 and A4 planning application(s) and EIA(s) captured changes in environmental legislation and present an assessment of the cumulative impacts most likely to arise should the IWMF be developed. When preparing the original EIA for the IWMF, it considered the cumulative effects of the IWMF's construction and operation alongside permitted quarrying operations within Bradwell Quarry which were planned to cease in 2022, i.e. considering the IWMF and quarrying operations. The cumulative impacts presented within the recent Site A2 and Site A3 and A4 EIAs (which extend quarrying operations in and around the IWMF site) considered the potential development (implementation) of the IWMF, i.e. quarrying operations and IWMF.

The future extension of quarrying operations across Bradwell Quarry into Site A5 (as a 'preferred' site) and Site A6 and A7 (as 'reserve' sites) will provide a landform and ecological environment that blends with the surrounding topography and landscape mitigation proposals around the IWMF.

On the 7 October 2016, Blackwater Aggregates received planning permission (ESS/07/16/BTE) for a variation of conditions to modify the restoration scheme for Bradwell Quarry under planning which permits the integrated use of materials excavated from the footprint of the IWMF site within the overall restoration of the adjacent quarry.

The materials excavated from the IWMF site can be relocated and stockpiled across New Field in a planned and systematic manner over a 6 to 8 month period. As the stockpile is created, to maintain continuity of the existing quarrying operations, particularly the provision of a sustainable water supply to the screening and washing plant, a temporary lagoon will be created known as 'Sheepcotes Lagoon'. The subsequent excavation of the stockpile and use of the materials within the overall restoration scheme will be integrated into the final site restoration scheme over a period of 3 to 5 years.

Prior to construction of the IWMF, excavations of previously stockpiled overburden materials from within the footprint of the IWMF will be transferred temporarily to New Field as this will provide suitable materials that can be used to meet a predicted shortfall in restoration soils within areas A3 and A4.

On a short-term basis, the creation of the 'New Field Stockpile' and the formation of the temporary 'Sheepcotes Lagoon' will be integrated within the overall restoration phasing scheme. The stockpile and temporary lagoon would be located within areas of the existing quarry that are awaiting or undergoing restoration, i.e. located on bare ground.

In ecological terms, the New Field and Sheepcotes operations are normal quarrying activities, classified as isolation of bare ground piles within bare ground, and therefore unlikely to prove attractive to fauna which otherwise might colonise such features. The subsequent use of the stockpiled materials within the quarry restoration scheme would result in agricultural after uses and a patchwork of ecological biodiversity enhancement proposals within the landscape, and deliver bio-diverse Habitats of Principal Importance within the wider site.

Further consideration has been given to the ecological impacts associated with the potential installation of the proposed electricity cable and water abstraction and discharge pipelines. A report on ecological surveys and mitigation measures by Green Environmental Consultants entitled "Services Routes – Ecological Assessment" dated December 2015 is presented within Appendix 7E.

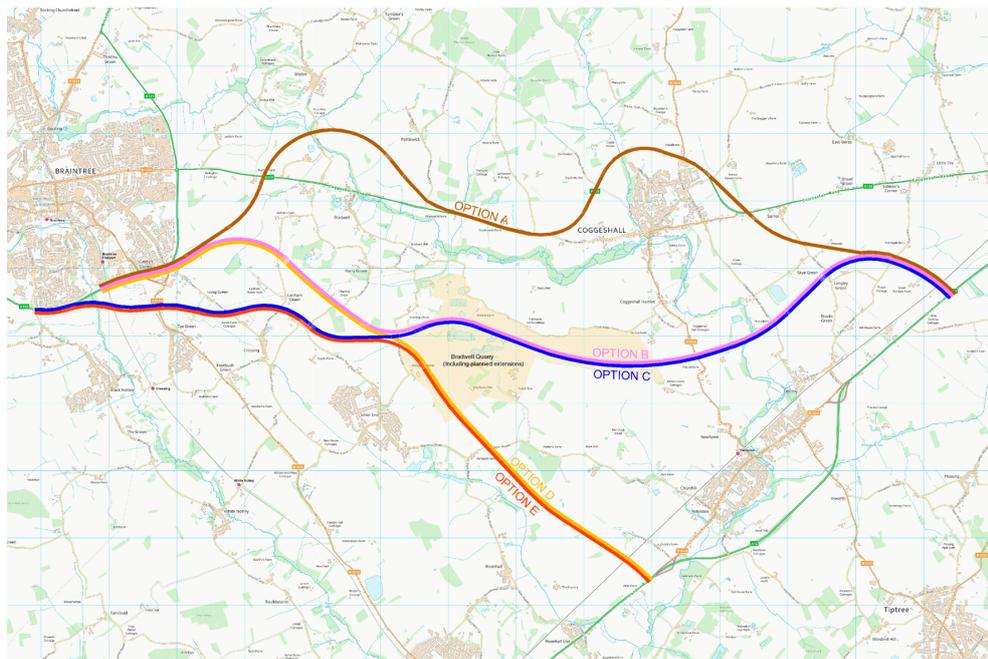
On the 23 December 2016, Gent Fairhead & Co Limited received planning permission ESS/44/16/BTE for the Installation of an abstraction point, pumping equipment and water main from the River Blackwater to the IWMF site (ESS/34/15/BTE) using an existing abstraction licence (Environment Agency ref AN/037/0031/001/R01) at land between River Blackwater and IWMF site.

The cumulative impact associated with the above abstraction only arrangement was considered within the Services Routes – Ecological Assessment.

In summary, the installation of the proposed electricity cable and water abstraction (and possible discharge) pipelines may result in the temporary loss of no more than about 50 m of hedgerow, which would be reinstated through new planting, the impacts associated with the potential cable and pipeline works would be short term (a few weeks). The electricity cable and water pipelines will be routed within the verge of the IWMF site access road, across areas of restored quarry workings, within the public highway or along agricultural field boundaries. The ecological impact associated with these works will be Low and short term in nature.

A consultation on options for a new stretch of the A120 between Braintree and the A12 was launched on the 17 January 2017.

Five possible options are being considered for this section of the A120.



The A120 routing Options B, C, D and E will either cross the IWMF access road (Options B and C) and/or run to the north (Options B and C) or to the west (Options D and E) of the IWMF site. Potential opportunities exist during the design and selection of A120 routing Options B, C, D and E to interconnect with the ecological mitigation proposals for the IWMF and Bradwell Quarry.

It is concluded that from an ecological assessment perspective the EIA for the IWMF and wider foreseeable developments in and around the site have been considered and assessed.

The additional assessment that has been undertaken in light of the proposed increase in stack height under this planning application has led to no fundamental change to the findings of the ecological assessment.

APPENDIX 7A

Ecological Monitoring Report 2016

APPENDIX 7B

Condition 53 Ecology Report (July 2015)

APPENDIX 7C

Habitat Management Plan (July 2015)

APPENDIX 7D

IWMF Ecology Statement 2017

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Services Route Ecological Assessment 2015