HONACE

26 January 2016 Reference No. 15-05-1507.250-1

The Planning Officer
Essex County Council
County Hall
Market Road
Chelmsford
CM1 1QH

APPLICATION FOR VARIATION OF CONDITIONS TO ALLOW MODIFICATIONS OF THE SITES A3 & A4 RESTORATION CONTOURS, BLACKWATER AGGREGATES, BRADWELL QUARRY, ESSEX

Dear Sirs,

On Blackwater Aggregates' behalf we submit the following application for a variation of conditions to modify the existing restoration scheme for Bradwell Quarry under planning permission ESS/24/14/BTE. The proposed revisions to the restoration scheme will result in a variation to conditions 2, 7 38 and 59, namely, a modification to Drawing 3 Revision H Restoration Proposals, an extension to the overall timescales of the quarrying and restoration operations; a variation in the proposed sequencing and timescales of the proposed restoration scheme and the import of sand and gravel from the IWMF area of the Site (within the Site A2 area of Bradwell Quarry). Drawing 1 Revision A indicates the location of Bradwell Quarry.

Background

Quarrying and restoration operations across Bradwell Quarry are focussed across three working areas, namely: Site R, Site A2 and Sites A3 and A4 (indicated on Drawing 1 Revision A).

As quarrying and restoration operations have progressed, particularly within the later phases of operations within Site R and throughout Site A2, greater quantities of sand and gravel have been recovered (based on actual production rates between 2010 to 2014), which has resulted in a change in the overall volume of overburden materials needed to restore Sites A3 and A4 to the permitted restoration scheme.

The change (or reduction) in available overburden has arisen from a number of operational changes, namely:

i. In autumn of 2011, Blackwater Aggregates issued a revised earthmoving contract, which permitted the renegotiation of their excavation and restoration requirements within the Site. The revised contract updated key performance indicators for the earthworks operations within the Site which improved the overall requirements for the placement of overburden within the Site's restoration scheme (i.e. this has resulted in a reduction of bulking factors from 1.20, to 1.10 to 1.15).

ii. Quarrying operations within Phases 5.1 and 5.2 within Site R (GA-PA-00 rev A Site R Phasing Summary) and throughout Site A2 resulted in the recovery of greater quantities of sand and gravel and a reduction in the quantity of interburden. In particular, the progression of quarrying operations within Site A2 resulted in the excavation of its entire footprint and the complete excavation of Phase 3 which was thought to lie within a former glacial channel comprising principally silt and interburden soils (based on interpretative borehole data it was envisaged Phase 3 would have a high and potentially

uneconomic overburden ratio, Drawings 3-5 and 3-7). This has resulted in a direct loss in the overall availability of overburden materials for restoration purposes within the Site. Based on interpretative borehole data it was estimated that quarrying operations within the extractive footprint of Site A2 would yield an estimated 900,000 tonnes of sand and gravel (as a 'Preferred Site' within the 2010 Minerals Development Document: Preferred Approach Consultation including the TPO woodland the total estimated reserve was 1 Million tonnes). The actual quantity of sand and gravel excavated from Site A2 was 1,677,903 tonnes.

iii. Initial quarrying operations within Sites A3 and A4 has also resulted in the recovery of slightly greater quantities of sand and gravel than originally anticipated from the interpretative borehole information; albeit, sand and gravel yields within the current operational areas of Site A4 are within 10% of those originally estimated from the available borehole data.

As a result of the above, it is currently estimated that there will be an overall shortfall of overburden materials for use in restoration of the order of 1.3 Million m^3. This has resulted in the need for Blackwater Aggregates to review the approved restoration scheme across the Site.

Variations in Site Geology and Materials Balances

The total planning application area for Sites A3 and A4 is 191 ha, which includes the established site access road from the A120 into Bradwell Quarry, the existing mineral processing infrastructure (i.e. the washing and screening plant, concrete batching plant, DSM and bagging facilities) and the existing quarrying and restoration areas within Site R and Site A2 (152 ha). Blackwater Aggregates' quarrying operations have either worked, or are planned to work, across the extractive areas of Site R (71.6 ha)[1], Site A2 (22.6 ha)[2] and Sites A3 and A4 (30 ha). With a total extractive footprint of 124.2 ha, any natural variation in the anticipated geology beneath the Site has the potential to result in a notable variation in the overall quantities of sand and gravels, interburden or overburden soils within the Site. Whilst the geological conditions can be predicted with a degree of certainty, it has to be reviewed and modified throughout the life of the quarrying operations to address any natural geological changes from interpreted information and changes in operational activities linked with industry best practice.

In simple terms if the depth of overburden and interburden soils were to vary by 1 m across the entire extractive footprint of Bradwell Quarry, there would be a variation of 1.2 Million m^3 of material.

Whilst the predicted shortfall of overburden materials for use in restoration is of the order of 1.3 Million m^3 this cannot be not accounted by the simplified example above; the shortfall has arisen through the cumulative changes in Blackwater Aggregtes' quarrying and restoration operations outlined by points (i) to (iii) above.

Tables 1 and 2 present a more detailed appraisal that accounts for the actual [and predicted] losses in overburden materials that are available for use in restoration associated with the increases in sand and gravel recovery across the Site, and the sensitivity of the overall availability of overburden materials linked to changes in the overburden's bulking factors when placed (and traffic compacted) within the restoration scheme.

Table 1 presents summary of the actual [and predicted] shortfall in overburden materials associated with increases in the total tonnages and volumes of sand and gravel recovered from the Site, i.e. if more sand and gravel has been excavated, this results in a direct loss in available overburden materials. The information presented within Table 1 is based on actual production figures from Phases 5.1 and 5.2 of Site R and operations across Site A2 which included the total excavation of minerals from within Phase 3 (2010 to 2014). In addition, minor adjustments have been made to the predicted sand and gravel yields from Sites A3 and A4 based on the initial phase of the ongoing quarrying operation.

[1] Mineral excavation within Site R completed in 2012. Restoration works advancing.

[2] Mineral excavation within Site A2 completed in 2015. Restoration ongoing.

Table 1: Review of Predicted and Actual Sand & Gravel Yields

Site	Predicted Sand & Gravel Yield (tonnes)	Actual Sand & Gravel Yield (tonnes)	Difference (tonnes)	Shortfall (m^3) @ 1.6 Bulking Factor
Site R Phases 5.1 & 5.2	938,800	1,322,101	383,301	239,563
Site A2	900,000	1,677,903	777,903	486,189
Site A3	1,000,000	1,090,798*	90,798	56,749
Site A4	3,000,000	3,315,000*	315,000	196,875
Total			**1,567,002 t**	**979,376 m^3 (Direct Loss of Overburden Materials)**

*Revised estimate based on initial quarrying operations within Sites A3 and A4.

Table 2 presents a summary of the predicted volumes of overburden that were anticipated within Site R Phases 5.1 & 5.2, Site A2, Site A3 and Site A4, and the actual volumes likely to be realised as a result of the increase in sand and gravel recovered from the Site. In addition, based on improvements made in the overall requirements for the placement of overburden within the Site's restoration scheme, the sensitivity of the overall material balance has been assessed against the original restoration allowances.

Table 2: Site Restoration Soil Review

Site	Predicted Overburden Volume (m^3)	Actual Overburden Volume (m^3)	Overburden Shortfall (m^3)
Site R Phases 5.1 & 5.2	668,000	428,437	
Site A2	2,840,013	2,353,824	
Site A3	868,368	811,619	
Site A4	1,509,764	1,312,889	
Total	**5,886,145 m^3**	**4,906,769 m^3**	**979,376 m^3 Direct Loss associated with an increased Sand and Gravel Yield**
Restoration Volume Sensitivity associated with changes in Bulking Factors: Total Losses			
	Predicted Overburden Volume (m^3)	**Actual Overburden Volume (m^3)**	**Total Losses (m^3)**
Bulking Factor - 1.20	**7,063,374 m^{3*}**	**5,888,123 m^3**	**1,175,251 m^3**
Bulking Factor - 1.15		**5,642,784 m^3**	**1,420,590 m^3**
Bulking Factor - 1.10		**5,397,446 m^3**	**1,665,928 m^3**

*Original allowances for restoration soil bulking factor of 1.2.

Considering the information presented within Tables 1 and 2, it is currently estimated that there will be an overall shortfall of overburden materials for use in restoration of the order of 1.3 Million m^3.

Proposed Modifications to the Approved Restoration Scheme

The original landscape and restoration scheme for Bradwell Quarry, presented on Drawing 3 Revision H Restoration Proposals, aimed to establish a restoration profile to reinstate the agricultural uses and a patchwork of ecological biodiversity enhancement proposals within the landscape. It was also possible to

create woodland blocks, hedgerows and access tracks to screen other areas of the Site, improve the ecological biodiversity of the Site and provide access to the restored agricultural fields to satisfy matters related to landownership across this area of the Site.

Owing to the estimated shortfall of overburden materials for use in the restoration of Bradwell Quarry, Drawing 3 Revision I presents a revised restoration scheme which seeks to maintain the original restoration philosophy. However, to address the losses in available restoration materials the revised proposals offer a low level restoration scheme which creates a shallow valley feature within Sites A3 and A4 to blend in with modified restoration contours within the former Site R. The revised scheme targets the retention and delivery of agricultural uses and a patchwork of ecological biodiversity enhancement proposals within the landscape, and avoids the creation of isolated bowl features that would result in the loss of agricultural after uses and the delivery of biodiverse Priority Habitats within the Site.

Whilst the revised restoration proposals maintain the delivery of agricultural and biodiverse Priority Habitats, the shortfall in restoration materials results in a change to the originally proposed reinstated plateaux.

However, owing to the status of the ongoing quarrying and restoration operations within the Site, and the potential development of the IWMF within the footprint of the former Site A2 area, the restoration shortfall could be met by incorporating overburden materials resulting from the IWMF development works into the wider restoration of Bradwell Quarry. Drawing 3 Revision J indicates how the principles of the currently approved Bradwell Quarry restoration scheme (ESS/24/14/BTE) could be delivered through the retention and use overburden materials resulting from the development of the IWMF.

Within the 'Site specific issues to be addressed' for Sites A3 and A4 of the Mineral Local Plan, it is noted that:

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[3]) if implemented.

Considering the above, Blackwater Aggregates offers two revised restoration proposals for Bradwell Quarry, namely:

1. A scheme that delivers the existing landscape and restoration proposals through the use and incorporation of existing restoration and overburden materials resulting from the implementation and development of the IWMF (Drawing 3 Revision J); or

2. In the event that the IWMF is not implemented and its development does not commence (ESS/55/14/BTE Condition 1), the landscape and restoration proposals across Bradwell Quarry will be revised to deliver a low level restoration scheme which creates a valley feature within Sites A3 and A4 which maintains the delivery of agricultural after uses and a patchwork of ecological biodiversity enhancement proposals within the landscape (Drawing 3 Revision I).

Integrated Delivery of the IWMF and Bradwell Quarry Restoration Scheme

Subject to the implementation of the IWMF development works, the integrated use and retention of the overburden and overburden materials within Bradwell Quarry require the temporary stockpiling of the materials across New Field and the creation of a temporary lagoon within the footprint of the existing Site A2 quarry. The creation of the 'New Field Stockpile' and the formation of the temporary 'Sheepcotes Lagoon' would be integrated within the overall restoration scheme.

Indigenous overburden materials excavated from the footprint of the IWMF, would 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 would be created within the former Site A2 quarry 'Sheepcotes Lagoon'.

[3] The IWMF was granted planning permission by the Secretary of State following a Public Inquiry (appeal ref: APP/Z1585/V/09/2104804) on 2 March 2010. Further planning applications have been made to vary the consented planning conditions against which planning permission was granted with variations to Condition 2 (ESS/37/08/BTE), Condition 1 (ESS/41/14/BTE) and Conditions 28 and 30 (ESS/55/14/BTE) – the latter being the most recent and extant permission relating to the development of the proposed IWMF.

The proposed sequencing associated with the creation of the 'New Field Stockpile' and 'Sheepcotes Lagoon', and their integration with the development of the IWMF is presented on the attached earthworks sequencing plans indicated on AE Sequencing Master.

The stockpiling operations across New Field will be carried out in a phased and systematic manner. The overall design and arrangement of the stockpile will allow for the storage, retention and subsequent reuse of natural indigenous site won materials to be retained within the Site, rather than their excavation and transportation off-site for reuse or disposal.

All stockpiling operations above 50 mAOD shall be carried out within a perimeter screening bund which will be created to screen the main stockpiling operations from view and mitigate any noise impacts associated with the 'high level' stockpiling operations. Original ground levels in and around the Site are at or around 50 mAOD, and the maximum height and elevation of the stockpile within New Field will be limited to 8m or 58 mAOD. Drawing 20-01-04_Rev-E_Construction Phase - New Field Stockpile and Lagoon-A1 indicates the location and profile of New Field Stockpile and Sheepcotes Lagoon.

Considering the current rates of production of sand and gravel and the progression of the quarrying operations within the Sites A3 and A4 area, it is anticipated that the subsequent excavation and relocation of the overburden materials within 'New Field Stockpile' and the backfilling and restoration of 'Sheepcotes Lagoon' would be completed over a period of 4 to 5 years and integrated into the quarrying and restoration works across Bradwell Quarry. The rate of excavation from the New Field Stockpile would average 25,000 to 30,000 m^3 per month. The excavation and relocation of overburden materials from the 'New Field Stockpile' would maintain the existing operational phasing plan for Sites A3 and A4, and would either be carried out on a daily piecemeal basis in line with the existing quarrying operations, and integrated into the restoration works, or, by a number of earthworks campaigns coordinated with the ongoing quarrying operations and completed over a four year period. The integrated excavation and relocation works from the 'New Field Stockpile' would result in the delivery of a restoration profile across Bradwell Quarry, in line with that presently permitted and within the timescales and phasing of the currently permitted quarrying and operation works.

Environmental Considerations

To support the proposed integrated delivery of the IWMF and Bradwell Quarry restoration scheme, a landscape assessment and supportive noise statement have been prepared in support of the revised operational proposals.

Given the current position of the quarrying and restoration operations across Sites R, A2, A3 and A4, and the proposed timing and delivery of the proposed restoration scheme(s) within the operational life of the Sites A3 and A4 quarrying operations; all other environmental considerations generally remain unaffected by the proposed integrated restoration proposals. Whilst the 'New Field Stockpile' would result in the temporary removal of New Field Lagoon, the low level restoration proposals would not alter the findings of the original Flood Risk Assessment, whereby all surface water runoff will continue to be controlled and managed within the footprint of the quarrying operations, and the risk of any off-site flooding resulting from the temporary stockpiling arrangements would be negligible.

As an environmental gain, the integrated use of site won indigenous overburden materials from the footprint of the IWMF within Bradwell Quarry would mitigate any need for off-site disposal. This would reduce the cumulative impacts associated with noise, HGV vehicle movements and nuisance resulting from the loading and off-site transportation of the restoration and overburden materials, which would be to and from the A120 Coggeshall Road.

Integrated Phasing of the IWMF and Bradwell Quarry Restoration Scheme

An overview of the timescales and phasing of the integrated delivery of the IWMF and Bradwell Quarry restoration scheme, is presented within Table 3. Whilst the table summarises the integrated phasing of the IWMF into the Sites A3 and A4 restoration scheme, the timeline presented will be dependent on the implementation and development of the IWMF and the rate at which sand and gravel is recovered across the Site.

Table 3: Phasing of the IWMF and Sites A3 and A4 Restoration Scheme

	2016	2017	2018	2019	2020	2021
SITE A3 & A4	Rolling programme of excavation and restoration.	Rolling programme of excavation and restoration.	Rolling programme of excavation and restoration.	Rolling programme of excavation and restoration.	Final programme of excavation and restoration.	Final programme of excavation and restoration.
NEW FIELD STOCKPILE	Stockpile overburden from the IWMF across New Field.	Excavate and relocate stockpiled overburden from New Field to Sites A3 & A4	Excavate and relocate stockpiled overburden from New Field to Sites A3 & A4	Excavate and relocate stockpiled overburden from New Field to Sites A3 & A4	Excavate and relocate stockpiled overburden from New Field to Sites A3 & A4	
EXCAVATE AND PROCESS IWMF PRIMARY AGGREGATES	Excavate sand and gravel from the IWMF area [Site A2 area] and placement to stockpile for mineral processing within Bradwell Quarry.					
SHEEPCOTES LAGOON	Creation of Sheepcotes Lagoon.	Manage and maintain Sheepcotes Lagoon for integrated operations.	Manage and maintain Sheepcotes Lagoon for integrated operations.	Manage and maintain Sheepcotes Lagoon for integrated operations.	Decommission and backfill Sheepcotes Lagoon to final Site A2 restoration profile.	
SITE A2	Restoration of remaining areas of Site A2 surrounding Sheepcotes Lagoon and the IWMF.				Restoration of all remaining areas of Site A2 including Sheepcotes Lagoon.	
NEW FIELD LAGOON	Dewater to Sheepcotes Lagoon			Commence creation of New Field Lagoon	Creation of New Field Lagoon	Final creation of New Field Lagoon

Under the current planning permission quarrying operations are to be limited to a period of 4 years. However, the rate at which sand and gravel is recovered from the Site is intrinsically linked to wider economic conditions, i.e. during periods of recession sand and gravel production reduces and during periods of recovery or prosperity, sand and gravel production increases.

Based on recent sand and gravel production and future operational forecasts (linked to wider economic conditions) it is considered that quarrying operations across Bradwell Quarry will take between 6 to 7 years to complete. Whilst Table 3 presents the proposed timescales and phasing of the integrated delivery of the IWMF and Sites A3 and A4 restoration scheme, it should be noted that the timescales associated with quarrying and restoration operations across Sites A3 and A4 would neither be affected nor influenced by incorporating overburden materials from the IWMF; they are controlled by the rate at which sand and gravel is excavated from the site. The delivery of the Bradwell Quarry restoration scheme either including or excluding the integrated use of overburden materials from the IWMF would take the same timescales to deliver.

Integration of Sand and Gravel Processing Operations

Through the excavation of the IWMF's footprint an additional 100,000 tonnes of sand and gravel will be recovered from the former Site A2 area of the Site. As a primary aggregate it is proposed that the sand and gravel is excavated and relocated to Bradwell Quarry's existing 'as raised ballast' sand and gravel stockpiles

adjacent to its mineral processing plant or placed into a managed temporary stockpile on New Field (to minimise mineral losses) prior to its excavation and processing within the existing quarry.

The timescales associated with the import and integrated use of the indigenous primary aggregates from the IWMF for processing within Bradwell Quarry has been allowed for within the programme presented within Table 3.

Delivery of a Revised Sites A3 and A4 Restoration Scheme without the IWMF

The original landscape and restoration scheme for Bradwell Quarry, aimed to establish a restoration profile to reinstate the agricultural uses and a patchwork of ecological biodiversity enhancement proposals within the landscape. The proposals also promoted the creation of woodland blocks, hedgerows and access tracks to screen other areas of the Site, improvements in the ecological biodiversity of the Site and the provision of access to the restored agricultural fields to satisfy matters related to landownership across this area of the Site.

In the event that the IWMF is not implemented and its development does not commence, the landscape and restoration proposals across Bradwell Quarry will be revised to deliver a low level restoration scheme which creates a valley feature within Sites A3 and A4 which maintains the delivery of agricultural after uses and a patchwork of ecological biodiversity enhancement proposals within the landscape (Drawing 3 Revision I).

Owing to the estimated shortfall of overburden materials for use in the restoration of Bradwell Quarry, Drawing 3 Revision I presents a revised restoration scheme which seeks to maintain the original restoration philosophy. However, to address the losses in available restoration materials the revised proposals offer a low level restoration scheme which creates a shallow valley feature within Sites A3 and A4 to blend in with modified restoration contours within the former Site R. The revised scheme targets the retention and delivery of agricultural uses and a patchwork of ecological biodiversity enhancement proposals within the landscape, and avoids the creation of isolated bowl features that would result in the loss of agricultural after uses and the delivery of biodiverse Priority Habitats within the Site.

Whilst the revised restoration proposals maintain the delivery of agricultural and biodiverse Priority Habitats, the shortfall in restoration materials results in a change to the originally proposed reinstated plateaux.

Conclusion

Quarrying and restoration operations across Bradwell Quarry are focussed across three working areas, namely: Site R, Site A2 and Sites A3 and A4 (indicated on Drawing 1 Revision A).

As quarrying and restoration operations have progressed, particularly within the later phases of operations within Site R and throughout Site A2, greater quantities of sand and gravel have been recovered, which has resulted in a change in the overall volume of overburden materials needed to restore Sites A3 and A4 to the permitted restoration scheme.

It is currently estimated that there will be an overall shortfall of overburden materials for use in restoration of the order of 1.3 Million m^3.

Within the 'Site specific issues to be addressed' for Sites A2, A3 and A4 of the Mineral Local Plan, it is noted that:

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[1]) if implemented.

Whilst the IWMF and Bradwell Quarry planning permissions are not linked, given their status and commitment to develop, Blackwater Aggregates offers two revised restoration proposals for Bradwell Quarry, namely:

1. A scheme that delivers the existing landscape and restoration proposals across Bradwell Quarry through the use and incorporation of existing restoration and overburden materials resulting from the implementation and development of the IWMF (Drawing 3 Revision J) through the integrated use and retention of the overburden materials within the Sites A3 and A4 area. Indigenous site won restoration materials would be temporarily stockpiled from the IWMF construction area across New Field and a temporary lagoon would be created within the footprint of the existing Site A2 quarry. The creation of

the 'New Field Stockpile' and the formation of the temporary 'Sheepcotes Lagoon' would be integrated within Bradwell Quarry's restoration scheme.; or

2. In the event that the IWMF is not implemented and its development does not commence (ESS/55/14/BTE Condition 1), the landscape and restoration proposals across Bradwell Quarry will be revised to deliver a low level restoration scheme which creates a valley feature within Sites A3 and A4 which maintains the delivery of agricultural after uses and a patchwork of ecological biodiversity enhancement proposals within the landscape (Drawing 3 Revision I).

The phasing and delivery of either scheme would be carried out in a planned and systematic manner over a period of 6 to 7 years (from the date of commencement of quarrying operations).

We look forward to hearing from you in due course.

Yours sincerely

HONACE LTD

Steven Smith
Director

SS/DB

CC: Patrick Wigg – Blackwater Aggregates; Neil Farmer and Kirsten Hannaford Hill – CEMEX; Tom Fairhead – Gent Fairhead & Co Limited

Attachments: Drawing 1 Revision A; GA-PA-00 rev A; Drawings 3-5 and 3-7; Drawing 3 Revision H; Drawing 3 Revision I; Drawing 3 Revision J; AE Sequencing Master; Drawing 20-01-04_Rev-E_Construction Phase; Landscape Assessment; Noise Assessment.