



**Remore Quarry
Environmental Impact Assessment
Report**

Volume 1: Non-Technical Summary



January 2019

Contents

1	Introduction.....	1
2	Project Description.....	1
2.1	Project Need.....	1
2.2	Consideration of Alternatives.....	2
2.3	Location.....	2
2.4	Project Components.....	2
2.5	Construction and Site Preparation.....	3
2.6	Operations.....	4
2.7	Reinstatement.....	5
3	Methodology.....	5
3.1	Assessment Methodology.....	5
3.2	Consultation.....	6
3.3	Cumulative Impacts.....	6
4	Statutory Context & Policy.....	6
4.1	Legislative Framework.....	6
4.2	Policy Context.....	7
5	Air Quality and Climate Change.....	8
6	Noise and Vibration.....	9
7	Materials and Waste.....	10
8	Traffic and Access.....	11
9	Landscape and Visual Effects.....	12
10	Socio-Economics.....	13
11	Hydrology, Hydrogeology and Geology.....	14
12	Ornithology.....	15
13	Terrestrial Ecology.....	16
14	Schedule of Mitigation.....	17
15	Conclusion.....	17

1 Introduction

Breedon Northern Ltd proposes to construct a new sand and gravel quarry with a concrete batching plant at Remore, south of Nairn. This will provide a local source of construction materials, including aggregates and ready-mix concrete.

Planning permission for the proposed Remore Quarry is required from The Highland Council. This Environmental Impact Assessment Report (EIAR) has been produced to support the planning application, due to the scale of the development and its potential to have significant effects on the environment.

This non-technical summary summaries the main findings of the Environmental Impact Assessment (EIA). The EIAR is made up of 4 volumes:

- Volume 1: Non-Technical Summary
- Volume 2: Main Assessment
- Volume 3: Appendices
- Volume 4: Drawings

A hard copy of the full EIAR is available to view at the Lethen Estate Office, Lethen, Nairn, IV12 5PR. The Estate office is open Monday to Friday, between 9:00 a.m. to 2:00 p.m.

Electronic copies of the full EIAR and associated documents can be downloaded from the Affric Limited website <http://www.affriclimited.co.uk/News/Consultations.php>.

A CD containing the full EIAR and associated documents can be obtained by contacting Jonathan Ashburner on 07834 581715, or by emailing: jonathan.ashburner@affriclimited.co.uk. Hardcopies of the EIAR can also be obtained by contacting Jonathan at a cost of £300 plus postage, if required.

If you would like to provide feedback with regard to the planning application, then this should be given directly to The Highland Council via the E-Planning website which can be found here <https://wam.highland.gov.uk/wam/>.

2 Project Description

2.1 Project Need

The A96 corridor has been identified by The Highland Council for development within the A96 Growth Corridor Development Framework. The 35-year growth plans set in 2007 identifies five main development areas: East Inverness, Dalcross (which includes the Tornagrain development), Central, Whiteness and Nairn. The plans include the provision of 16,500 new homes, and significant business and industrial areas in Nairn and Dalcross. A bypass around Nairn is also proposed.

In the first 10 years of the plan significant progress has been made, but more is still to be realised. The construction of the residential, retail, business, industrial and public facilities planned will require construction materials, including: aggregates and ready-mix concrete. The proposed Remore Quarry is in the immediate vicinity of the A96 Corridor, hence will provide

a much closer source of construction material than is currently available, thus reducing haulage costs, logistical constraints, and greenhouse gas emissions. The closest sand and gravel quarry to Nairn is the small Easter Glacton quarry, located approximately 5km to the west. It is noted that adjacent Blackcastle quarry is a little closer, however the mineral at this site is exhausted, and extraction has ceased. Ready-mix concrete is currently only available from either Inverness or from east of Forres.

2.2 Consideration of Alternatives

Having identified a need for sand and gravel in the A96 Corridor to support developments in the area, a site search was initiated.

The search area encompassed the A96 Corridor, between Inverness and Nairn, and areas to the north and south. The aim of the search was to find potential sites which met the following main criteria:

- Were identified on geological mapping as having a potential sand and gravel resource;
- Were located outwith international, national or local designated sites;
- Were at least 0.5km from an existing settlement; and
- Within 0.5km of the primary road network.

Among the potential options considered, the site at Remore scored highly in the assessment criteria, since it was considered appropriate within a land planning context, and due to its proximity to the A939 and Nairn. The landowner was approached and was willing to consider the proposed use. Trial pits and boreholes confirmed the availability of a suitable sand and gravel resource above the water table, with limited overburden. Hence, the Remore option was taken forward for development.

2.3 Location

The Remore site is located approximately 10km south east of Nairn on the A939, falling within the administrative area of The Highland Council (THC), close to the border with the Moray region. The central grid reference of the site is NH939 482, where the nearest named settlements are Rehairie, Remore, and Redburn. The overall site area comprises of approximately 33Ha, situated within land which is currently used for commercial forestry.

2.4 Project Components

The proposed Remore Quarry will comprise of the following main components:

- A phased sand and gravel quarry extraction and reinstatement operation;
- A site working area including:
 - A sand and gravel processing plant;
 - A concrete batching plant;
 - A water abstraction borehole;
 - A water treatment and reuse facility;
 - Offices and associated services;
 - A weighbridge;
 - Acoustic screening bunds; and

- A dedicated access road.

The proposed extraction of sand and gravel from the quarry site will be undertaken in four phases, extracting a total of approximately 1.2 million tonnes of sand and gravels over the quarry's 20 year lifespan. The quarry will produce approximately 60,000 tonnes of sand and gravel per year. Each phase will take approximately 5 years to complete, with reinstatement to commercial forestry plantation commencing on the completion each phase.

The site working area is located adjacent to the extraction area, and houses the various facilities and processes essential for the ongoing operations of the quarry, including the mineral processing plant, concrete batching plant, and welfare facilities. This area has a footprint of approximately 2.2 hectare (Ha), and will be present for the lifetime of the quarry, until all the extraction areas are exhausted, at which point the area will again be returned to commercial forestry. The site working area has been situated in the lowest point of the site to maximise the screening provided by the local topography and woodland, thus minimising visual and noise impacts of the quarry infrastructure.

A water abstraction borehole will also be located in the site working area, which is required to provide water for sand and gravel processing, concrete batching, and dust control operations. In order to minimise water use, and prevent the need for discharges of waste water, a water treatment and reuse facility is also provided. Here, water used during the washing of sands and gravels will be captured, and diverted into a series of settlement ponds where silts and fines are removed, allowing the treated water to be stored and reused in the washing process. Similarly, cement wash waters will be collected, settled and reused as feedwater to the concrete batching plant.

Currently, access to the site is provided via a forest track which is not suitable for use by the Heavy Goods Vehicles (HGVs) and concrete trucks which will be required to service the proposed quarry. Therefore, a new dedicated access road will be constructed to provide direct access to the quarry from the A939. The road is approximately 350m in length, between the site working area and the A939. A bell mouth junction will be provided where the access road meets the main road, to allow HGVs and other vehicles leaving or entering the quarry to turn safely onto or from the A939. The section of the access road closest to the A939 will have a bituminous surface, and be equipped with rumble strips to prevent track-out of material from the quarry.

2.5 Construction and Site Preparation

In order to construct the site working area, and facilitate sand and gravel extraction, the existing forestry on the site will need to be felled and cleared, prior to the topsoil's and overburden being removed. The removal of forestry and soils will be conducted in line with the extraction phases, whereby each phase will only be cleared once the operator is ready to commence extraction within the phase. The preparation of each phase will not be completed in a single campaign, instead each phase will be prepared in a series of subsections to restrict the extent of land taken for quarry activities at any one time.

Forestry will be felled by a commercial forester, with the resulting materials sold as commercial timber. If windfall timber is present, this will also be cleared from the site and sold as a commercial product where possible, while material with no commercial value will be disposed of via an appropriate waste route.

Topsoil and overburden will then be removed using a combination of excavators and bulldozers; in order to expose the sands and gravels beneath; and stored in perimeter bunds for eventual reuse in site restoration. Overburden and topsoil materials will be stored separately, and once constructed the bunds will be seeded with an appropriate grass seed mix and monitored.

Three acoustic screening bunds will be installed to mitigate potential noise impacts on local residents. One bund is located in the south west corner of the phase 1 extraction area, with two further acoustic bunds within the site working area. These acoustic bunds will be constructed using the materials won during site preparation. Once the bunds are no longer required, they will be removed, and the materials used for reinstatement.

Once the site working area has been cleared, a crushed stone surface will be installed, prior to the construction and installation of the infrastructure and facilities detailed in Section 2.4. The majority of the infrastructure, including: the welfare facilities, processing plant, and concrete batching plant will be delivered in modular, prefabricated components, which will simply be assembled and installed on site. There will be a requirement for some concrete works, to provide foundations for the infrastructure. Concrete works will also be conducted for the construction of impervious bunds, slabs and pits which are needed to reduce pollution risks associated with fuel and oil storage, refuelling operations, and washing down of concrete contaminated plant and equipment.

The water abstraction borehole will be installed using a rotary drill rig, in a manner designed to prevent contamination of the groundwater. Once complete, the borehole will be cased with a suitable impervious material and the wellhead sealed to prevent containments entering the borehole. The settlement lagoons of the water treatment and reuse facility will be excavated to a maximum depth of 3.5m, using a tracked excavator, prior to the associate pumps and pipework being installed.

With regard to the access road, the area will be cleared of trees and topsoil as detailed above, prior to a crushed stone finish being installed, and compacted using a vibrating roller. The bituminous surface at the bell mouth will then be laid, and the rumble strips installed. A small culvert crossing of an unnamed burn is required, on the boundary of the site working area.

2.6 Operations

The site will operate between 7am and 7pm Monday to Friday and 7am to 12pm on Saturdays. It is expected that 2-3 site office staff will be required to facilitate the day to day operation of the quarry, in addition to approximately 4 plant operators. The work force is likely to be sourced locally, from Nairn and surrounding area, with the potential for outside specialist skills or experience to be sourced from further afield.

Sand and gravel extraction will be undertaken by either an excavator or loading shovel which will operate at the quarry face. Once extracted, the excavated material will be loaded directly onto dumper trucks which will transport the material to be screened, in order to separate oversized material from the commercial product. The reclaimer screen will be located close to the extraction face. Oversized material will be stockpiled within the extraction area, while the commercial product will be transported to the site working area for final screening into the desired sand and gravel products and washing prior to sale. The process materials will then be stockpiled within the site working area until sold.

The oversized material removed at the initial screen will be reduced in size to a commercial product. Crushing will be conducted using mobile crushers located within the extraction area. This will be done on a campaign basis, so will not be an ongoing operation. Crushed materials will then be processed in the site working area as described above.

Approximately 20,000 tonnes per year of sand and gravel extracted from the quarry will be used for the production of ready-mix concrete. Located within the site working area, the concrete batching plant will blend predefined mixes of sand, gravel, cement, additives, and water, ready for loading into concrete trucks.

A combination of HGVs and concrete trucks will be used in order to export the sand, gravel, and concrete product from the quarry. It is anticipated that approximately 28 HGVs per day will visit the site, which will enter and exit via the access road, from the A939.

2.7 Reinstatement

Reinstatement will occur concurrently with extraction operations, with each phase being reinstated as soon as the sand and gravel reserves have been extracted. Overburden and topsoil removed during site preparation will be utilised in the restoration process. Once the overburden and topsoil has been replaced, the area will be replanted with commercial woodland suitable for the local conditions (typically a combination of Scots pine, Norway spruce and Sitka spruce).

Following completion of the extraction operations at the end of the quarry's 20 year design life, the infrastructure from the site working area and access track will also be removed, and the areas reinstated using the same approach conducted within the phases. The site will then be returned to the original commercial forestry use.

3 Methodology

3.1 Assessment Methodology

One of the main purposes of the EIA process is to influence and improve design through iteration. Environmental impacts have been considered throughout the project, from the development of option stage through design stages of the project. Where possible, environmental considerations have been incorporated into the design. The siting and design of the development has been influenced by aspects identified through the EIA process, including stakeholder input, possible visual, noise impacts, and the potential for disturbance of the local fauna and flora associated with the development.

An environmental specialist has been involved throughout the design process and, where necessary, appropriate topic experts have been consulted to inform the design. The project design therefore has avoided and minimised impacts wherever possible and, as such, there are embedded 'primary mitigation measures' to avoid or reduce negative effects. These have been incorporated within the assessment of effects.

A methodical and robust assessment of environmental impacts has been used across all chapters of the EIAR, with topic-specific variations incorporated as required. The methodology considers a receptor's value or sensitivities, the magnitude and likelihood of the impact, and through a matrix-based approach, whether the impact is significant. If the impact is above a

defined threshold, then it is deemed to be significant. Additional mitigation procedures are put in place where possible for significant detrimental impacts, to reduce the potential effects.

3.2 Consultation

Early in the EIA process a scoping process was undertaken with The Highland Council, and their statutory consultees including Scottish Natural Heritage (SNH) and Scottish Environment Protection Agency (SEPA). The scoping process allows the content of the EIAR to be agreed, such that effort can be focused on areas where significant environmental effects could occur.

Consultation has been a key part of the design development and EIA process. There has been dialogue with the local community through public exhibitions as part of the Pre-Application Consultation process. Full details of which are provided in the Pre-Application Consultation Report.

3.3 Cumulative Impacts

A review of planned developments was conducted in order to identify projects where there are potential cumulative impacts. However, no planned developments that could result in cumulative effects in the vicinity of the proposed Remore Quarry were identified, hence, potential cumulative effects were not considered further in the EIAR.

4 Statutory Context & Policy

There are a number of statutory requirements for the proposed Remore Quarry development, as well as national, regional, and local planning policies that may apply to the determination of the planning application.

4.1 Legislative Framework

Under the Town and Country Planning (Scotland) Act 1997 the proposed Remore Quarry, will require Planning Consent from the statutory planning authority, in this case The Highland Council. Due to the scale of the development and its potential to have a significant effect on the environment, an EIAR is required to support the planning application, under the Town and Country Planning (EIA) (Scotland) Regulations 2017.

Part 2 of the Town and country Planning (Development Management Procedure) (Scotland) Regulations prescribe the completion of a Pre-Application Consultation (PAC) prior the submission of a planning application pertaining to 'Major' Developments. The proposed development is deemed as a major development as it involves extraction of mineral from a site area exceeding 2Ha. Therefore, it was necessary to conduct the PAC process, and a PAC Report is provided in support of the planning application.

In addition to the above Regulations, if it is determined that the developments construction or operation activities will likely affect European Protected Species (EPS) listed under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended); which includes bats, wildcat and otter; an EPS Licence will be required. A Habitats Regulations Appraisal (HRA) is also required when a project potentially affects a European Natura site (i.e. a Special Protection Area (SPA) or a Special Area of Conservation (SAC)). It has been identified that the proposed

development has the potential to affect the Darnaway and Lethen Forest SPA. As such an HRA for this designated area will need to be carried out by the competent authority. Information to support the assessment has been included within the EIAR.

4.2 Policy Context

The development plan system in Scotland which provides the framework for considering planning applications is made up of four main documents:

- The National Planning Framework (NPF);
- Scottish Planning Policy (SPP);
- Strategic Development Plans (SDPs) produced for the Scotland's four largest city's; and
- Local Development Plans (LDPs) produced for each council area.

The Scottish Government provides advice and technical planning information in the form of Planning Advice Notes (PANs), to support the implementation of the policy.

The third NPF (NPF3), was published in 2014 and sets out the strategy for development for the next 20 to 30 years.

NMP3 recognises the important contribution played by minerals in the national economy, stating that *'our mineral resources support the construction and energy sectors'* and that *'We will also need construction materials and energy minerals to support our ambitions'*. While the plan also encourages that *'all parts of Scotland make best use of their assets to build a sustainable future'*.

The SPP sits alongside the NPF3 in the Scottish Government's planning policy series. The SPP sets out the Scottish Ministers' priorities for operation of the planning system, with regards to how nationally important land use planning matters should be addressed across the country.

Within the SPP there are a number of key principals which are relevant to the Remore Quarry development. Specifically, with regard to 'A Natural Resilient Place' the SPP identified policy principles that the planning system should *'promote the responsible extraction of resources'* and thereby *'safeguard workable resources and ensure that an adequate and steady supply is available to meet the needs of the construction, energy and other sectors'*.

The Remore Quarry is in line with these policies, and also satisfies the SPP's requirement to *'secure the sustainable restoration of sites to beneficial afteruse after working has ceased'*, through the implementation of a reinstatement plan.

The Highland Wide Local Development Plan (HwLDP), adopted in April 2012 sets out an overarching planning policy for the Highland Council area. The HwLDP was reviewed in detail to ensure that the project complies with the plan's high level ambitions.

Relevant PANs for the Remore Quarry development were used to support the EIAR production.

5 Air Quality and Climate Change

The focus of the air quality assessment was on the fugitive dust emissions associated with the construction and site preparation, and operation phases of the proposed Remore Quarry, and the greenhouse emissions associated with the project.

Sensitive receptors identified for the dust assessment were: Rehurie Farm, Upper Remore Cottage and Lower Remore. The nature of the development results in multiple sources of dust:

- Earthworks that involve the clearing of vegetation and soils to facilitate construction and site preparation and the exposure of the sand and gravel units during operation of Phases 1-4;
- Trackout associated with raw material delivery during the construction and site preparation phase, and export of sand and gravel products during operation of the quarry;
- Construction of infrastructure, such as the access road and the site working area;
- Mineral extraction operations and stockpiling of material;
- Handling of extracted sand and gravel;
- On-site transportation of extracted sand and gravel to the processing plant and concrete batching plant; and
- Mineral processing.

Dust impacts arising during the construction and site preparation phase due to earthworks, construction and trackout were assessed as having a negligible to minor, non-significant effect on receptors in the absence of mitigation. Similarly, dust impacts occurring from the operation of Remore Quarry were assessed as negligible, non-significant on all receptors.

The absence of significant dust impacts is primarily due to the remote location of the quarry, and adoption of appropriate tertiary mitigation for the management of dust, taking into account the Institute of Air Quality Management and Pollution Prevention Guidelines, together with the advice provided by PAN 50. A Dust Management Plan has been developed and included within EIAR.

The greenhouse gas emissions associated with materials usage and delivery during construction was calculated. A total of 106.1t of carbon dioxide equivalent (CO₂e) is estimated to be produced as a result of the construction/site preparation of the Remore Quarry, equivalent to the annual carbon footprint of 23 people. However, it should be borne in mind that the development will last 20 years, and as such, the greenhouse gas cost should be spread over the development's lifespan. Therefore, the greenhouse gas emissions were deemed to be negligible and non-significant.

Operational emissions of greenhouse gasses are directly attributed to electricity and fossil fuel usage, required to operate plant and on-site machinery. However, the development will cut material transport requirements for existing and planned construction projects in the vicinity of the proposed quarry, thereby indirectly reducing CO₂ emissions. Therefore, the operational carbon footprinted was assessed as negligible non-significant. The loss of carbon sink capabilities through deforestation operations will be temporary, and not considered to be a

change from baseline conditions. This is due to the site's current use for commercial forestry, meaning that the trees would be felled regardless of the proposed quarry, together with the fact that woodland restocking will occur during reinstatement works.

Mitigation to reduce greenhouse gas emissions associated with development includes the optimisation of material usage through the design process, local sourcing of materials where practicable and efficient working practices.

6 Noise and Vibration

The proposed Remore Quarry is located in a rural location, and as such there are a limited number of noise sensitive receptors in the immediate vicinity of the development. Four residential properties were identified as receptors, including Rehourie Farm, Upper Remore Cottage, Lower Remore, and Woodside of Belivat. Baseline noise monitoring was conducted at these receptors to understand the current noise levels in the vicinity of the proposed quarry site.

An assessment of the construction and site preparation, and operation activities was carried out, to identify the potential noise sources, specifically the plant and equipment to be employed within the quarry boundary along with the additional traffic noise outwith the site. A desktop study was then used to determine the predicted volume and characteristic of each noise source, using data collected from similar plant, equipment and activities. This information was then used together with the likely locations of the noise sources, in relation to sensitive receptors, in order to ascertain whether adverse noise impacts may result from the proposed quarry. Given the proximity to noise sensitive properties to both the extraction and site working areas, it was concluded that adverse noise impacts may be experienced at these locations. Therefore, a detailed noise modelling exercise was conducted, which predicted the likely change from baseline noise levels at the sensitive receptors identified above. The model not only took account of the loudness of the noise sources and distance from the receptors, but also the screening effects provided by the surrounding topography, and the acoustic bunds detailed in Section 2. The predicted changes in noise levels were then compared against the criteria provided by relevant policy and guidance documents, in order to determine the significance of effect.

The noise model found that in general, the proposed quarry activities would not result in a significant increase in noise levels at any of the 4 sensitive receptors. Furthermore, Remore quarry is not predicted to result in any change from baseline conditions at Woodside of Belivat or at Lower Remore. Some increase in noise levels is expected at both Rehourie Farm and Upper Remore, during the construction and site preparation, operation, and reinstatement phases of the project. However, the likely increases are very small, and are unlikely to result in a detectable change from baseline, hence noise effects are assessed as insignificant. It is noted that these predictions should also be considered as a worst case scenario, and actual noise levels resulting from the quarry works are expected to be less than the model outputs.

The above notwithstanding, industry best practice noise mitigation, as detailed in the relevant guidance documents, will be implemented during the lifetime of Remore Quarry to further reduce the likely noise impacts. Specific measures include avoidance of tonal reversing alarms on site vehicles and plant, ensuring plant and equipment is well maintained, and positioning noisy equipment to take advantage of opportunistic screens provided by stockpiles and the local

topography. Noise monitoring at the receptors used for the baseline assessment will also be conducted during key phases of the quarry workings, in order to verify the predicted noise emissions levels and ensure the mitigation is effective.

The assessment concluded that noise impacts on local receptors will be non-significant during construction, site preparation, normal quarry operations, crushing operations and reinstatement works.

7 Materials and Waste

The construction and site preparation of the Remore Quarry will utilise raw materials, primarily concrete for foundations and surfacing material consisting of crushed stone and bituminous surfacing. Installation of prefabricated infrastructures such as offices, welfare facilities and the concrete batching plant will likely consist of a mixture of materials including: metals and plastics, while timber, glass and electrical cables will also be required.

To expose sand and gravel areas, clearance of the commercial woodland crop, topsoil's and overburden are required. The topsoils and overburden as classed as an extractive waste, and subject to an Extractive Waste Management Plan.

It is possible that the construction and operation of the quarry could result in surface waters becoming contaminated with silts. However, due to the highly permeable nature of the underlying soils, it is not expected that surface water run-off will be generated by the site, and as such this effect is not expected to be significant. This notwithstanding, site operatives will remain vigilant for signs of silt laden run-off, and appropriate mitigation such as silt fencing will be installed if required.

Fuels, oils and other potentially hazardous materials will be required during the construction and site preparation and operational phases of the quarry. During construction and site preparation, appropriate temporary hazardous material storage arrangements will be put in place in line with relevant legislation and industry best practice. This will include the use of double skinned bowsers, locating bowsers and material stores away from watercourses, and the use of plant nappies to provide impermeable surfaces for refuelling operations. As part of the construction phase, appropriate permanent infrastructure will be installed in the site working area, for the safe storage and handling of fuels and oils, used by plant and equipment during quarry operations. All fuel and oil storage facilities will be located within impermeable concrete buns and covered to prevent ingress of rainwater into bunded areas. A designated refuelling area is to be provided, with an impermeable concrete base, drained via an oil interceptor.

Concrete required during construction and site preparation will be delivered as ready-mix. Any concrete contaminated equipment requiring cleaning after use will be washed out in a dedicated area. Washings will be collected and settled to allow the contaminated liquid to be transported off site for treatment, by an appropriately licenced waste contractor. Concrete washings arising during operation of the site will be captured in purpose built washing pits and treated on site. Treated concrete wash water and solidified concrete from the washing

process will be reused on site during the concrete batching process and to produce a recycled product.

The sand and gravel processing will utilise water sourced from the borehole to wash extracted material, giving rise to silt-laden wastewater. The wastewater will be treated on site via settlement lagoons. Treated water will be reused in the sand and gravel washing operation. When required, solids from the bottom of the settlement lagoons will be reclaimed and used as part of the reinstatement of the site. The solids reclaimed from the settlement lagoons is also considered to be an extractive waste, and is subject to the Extractive Waste Management Plan.

Only small volumes of general waste are expected to arise from welfare facilities and offices during construction and operation of the site. The waste hierarchy shall be utilised throughout the project, to promote the minimisation of waste and high quality recycling. To facilitate this, waste shall be appropriately sorted and segregated in line with the Site Waste Management Plan.

All personnel working on the project will need to undertake site induction. This will include a section on waste management and the use of the waste receptacles provided. It will be made clear that littering will not be tolerated. The use of single-use plastics will be discouraged, and reusable crockery and cutlery will be provided in the welfare units to facilitate this, where practicable.

8 Traffic and Access

During construction and site preparation, materials such as concrete and prefabricated infrastructure are required to be transported to site via the road network. Once operational, the processed sand, gravel, and concrete product will leave the proposed site by road on the A939. A Transport Statement was therefore completed to understand the effects of the project on traffic and access in the vicinity of the proposed Remore Quarry.

The Transport Statement involved both desk-based assessments and a site visit. The Transport Statement, together with additional desktop studies have informed the baseline for the Traffic and Access assessment.

It is estimated that there will be less than 300 HGV one-way movements associated with the site set-up over a period of at least 2 months. This is much less than those associated with the operational phase of the quarry, which is predicted to be 28 one-way movements per day. As such, this assessment focused on the operational phase, as it will have higher daily vehicle movements and last for 20 years.

It is assumed that 90% of movements will be on the A939 north from the quarry, giving rise to 25 two-way HGV movements and up to 12 two-way car movements associated with staff. This results in an increase in total vehicle numbers of less than 5%, while leading to an increase in daily HGV movements of approximately 44%, compared to 2016 figures. Despite the relatively high percentage increase of HGV, this is not found to be significant, since the percentage increase is due to the relatively low numbers of HGV movements currently. Present figures

suggest that the current rate of HGV traffic north of Remore is equivalent to one HGV every 20 minutes, the proposal would increase this to one HGV every 13 minutes, which is still very low. Only 10% of quarry traffic is expected to head south on the A939, comprising of 2 cars and 3 HGV's per day. This equates to an increase in daily total vehicle numbers of less than 1%, and approximately 3% increase in daily HGV movements, which again is not found to be significant.

Increased traffic can give rise to congestion, impair road safety and can cause fear and intimidation where HGVs pass pedestrians and cyclists. However, this assessment found that the magnitude of traffic increase on the A939 and surrounding area resulting from the operation of the proposed quarry is not expected to result in significant adverse effects in relation to the congestion and road safety.

To further ensure continued road safety, the junction from the quarry onto the A939 has been designed to allow HGV's entering the quarry from the north and exit to the south without crossing into the opposite carriageway. Visibility splays at the road junction will also be provided and maintained throughout the life of the project to ensure traffic existing the quarry have excellent visibility to both the north and south. In addition, Breedon Northern will ensure all HGV drivers visiting the quarry are appropriately trained and are familiar with the vehicles they are driving. Members of the public are encouraged to contact the company in the event of any concern with vehicle operation. Breedon Northern will act promptly on the feedback to improve performance. All Breedon Northern staff whom shall be regularly driving to and from the site in their own or company vehicles will also be made aware of the potential sensitive points on the A939.

9 Landscape and Visual Effects

The effects of the proposed Remore Quarry development on the landscape and visual resources of the site and the surrounding area during construction and site preparation and operation phases were assessed. Visual effects result from the changes in the content or character of views and visual amenity, due to changes in the landscape. The assessment of visual effects takes account of both the sensitivity of the visual receptors (individuals or groups of people) and the magnitude of the change on their views and visual amenity. The aspects of the proposed quarry which have the potential to result in landscape and visual effects are the exposed extraction surface, and quarry infrastructure including the concrete batching plant, and sand and gravel processing facility.

Computer modelling was completed to produce zones of theoretical visual (ZTV) influence to identify where the development can be seen from. The outputs of which were used to inform the scope of the landscape and visual assessments. The ZTV models considered the screening provided by the local topography, and adjacent forestry blocks, however due to the project's phased 20 year lifecycle, the forestry management plan was used to ensure any planned felling of trees outwith the quarry boundary was accounted for.

The ZTV analysis showed that visibility of the quarry extraction area and associated infrastructure was extremely limited within 5km, with only slightly higher visibility at a distance of 5-10km. As a result, the assessment found that no impacts on Designated Landscapes are

predicted. The potential effects on the surrounding landscape were assessed as being minor to localised moderate, but non-significant in all cases.

Three residential properties were selected using the ZTVs, as the visual receptors most likely to be subject to negative impacts from Remore Quarry. A detailed viewpoint assessment was conducted for each receptor, including the production of photomontages, where models of the various construction and operational phases of the quarry were superimposed onto photos of the existing views from these locations. The viewpoint assessment found that views from these properties would not be significantly adversely affected during any stage of the quarry development. Additional visual assessments were conducted for views from the A939, minor roads, and other dwellings within 5km of the site, but impacts were found to be non-significant in all cases.

The reason for the extremely limited nature of the landscape and visual impacts resulting from the construction and operation of Remore Quarry is due to its location, and the retention trees in a vegetation buffer on the perimeter of the site. The site design took into account landscape and visual impacts, hence the site working area, where the tallest elements of the quarry will be situated, was located in the lowest part of the site, thus maximising the screening provided by the surrounding topography.

10 Socio-Economics

The Socio-Economic chapter details the assessment undertaken to consider local socio-economic impacts in respect of the proposed Remore Quarry. The appraisal established a baseline of the assets within the vicinity of the proposed project as well as the wider socio-economic situation in the area.

The economic assessment revealed that there would be an overall positive benefit to the local community as a result of the proposed Remore Quarry development. The project is predicted to support 8.2 direct, indirect and induced fulltime equivalent employees locally, 8.5 full time equivalent employees within the Highlands and Islands and 13.2 full time equivalent employees in Scotland as a whole. The total (direct, indirect and induced) wages and salaries and gross added value associated with these jobs was also estimated. The quarry operations would generate total wages and salaries of around £205,900 locally, £212,500 within the Highlands and Islands and £351,700 within Scotland. It could also generate gross added value of £758,000 locally, £777,500 in the Highlands and Islands, and £1.15 million in Scotland. It is noted that these impacts, while undoubtedly beneficial, were not found to be significant, under the definitions of the EIA regulations.

The assessment also considered impacts on the local recreational amenity, but found that the area of the proposed development offers few recreational facilities. The development area includes some forestry tracks which are currently available for public use, and offer possible recreation facilities to local residents in the form of informal walking, cycling, and horse riding routes, and areas for dog exercising. The proposed quarry operations will prevent access to these forest tracks within the areas enclosed by the quarry access road, site working area, and the active extraction phase, in order to avoid interactions between members of the public and quarry equipment. As such, public access to this recreational facility will be disrupted for the duration of the quarry's lifetime, this is a negative social impact but is assessed as non-significant due to the availability of similar alternative routes in the area. This will be further

mitigated by the fact that the tracks will be reinstated at the end of each extraction phase, and good communications with local residents will ensure users of the routes are aware of when closures may occur.

11 Hydrology, Hydrogeology and Geology

The EIA assessed any potential environmental impacts on soil, surface water, and groundwater quality. The assessment utilised the results from desk-based studies and, hydrogeological, and ground investigations to determine baseline conditions of the water, soil and groundwater resources at the site, in order to assist in the identification of potential impacts and the assessment of their significance. Field surveys included: trial pits, geological boreholes which are drilled with the recovery of a core and can be analysed to understand the geology to an appropriate depth below ground level, and piezometer boreholes which were monitored to understand groundwater levels beneath the site.

In general, the topsoil and overburden within the site was found to be a thin layer of dark brown sandy soil (occasionally described as peaty). It is assumed that on average 0.5m of topsoil and overburden will need to be removed to facilitate the extraction.

The underlying sandy deposits are variable ranging from a well graded clean gritty sand and gravel to a slightly silty, fine sand. Across the site the average mineral thickness was determined to be 3.5m, ranging from 1m at the central southern area of the site to 5m in the south west of the site. This material is the commercial deposit that will be extracted during the quarry operations. A basal silt interburden layer was encountered, overlying economic fine sands beneath. The silt layers recorded a thickness of between 2m and 5m, and it is not proposed to work through this silty interburden to target the economic fine sands beneath.

Two surface water bodies were identified in the vicinity of the site; Red Burn to the north and east, and an unnamed burn to the west. Red Burn is assessed as having good water quality, the unnamed burn is unclassified. Some risk of localised flooding from these watercourses was identified, but not to a degree which would affect the proposed quarry. The quarry operations will not increase flood risk.

With regard to groundwater, the site is underlain by the Findhorn and Muckle Burn Sand and Gravel groundwater body, in the Scotland river basin district. It is reported to be overall 'good' status. Any significant lateral and or vertical flow of groundwater would be envisaged within this granular material. This water body was encountered during the ground investigations at the site. The results of the piezometer borehole monitoring indicated that the level of groundwater at the site is below the commercial sand and gravel deposit that will be targeted by the extraction. As such it is not anticipated that dewatering will be required to facilitate the extraction. Five private water supplies were identified within 2km of Remore quarry, the closest being 260m from the extraction area, but no likely significant impacts were identified on these receptors. No groundwater dependant terrestrial ecosystems were identified within the vicinity of the site.

Various activities required during the construction and operation of the quarry were assessed, as to their potential to affect the sensitive receptors identified in the ground and water environments. The highly permeable nature of the underlying soils means that the site is not expected to generate surface water run-off, and no water discharges are planned, hence impacts from surface water run-off were found to be non-significant. Potential impacts

resulting from abstraction of water from a borehole for concrete batching and washing of sand and gravel were also assessed. No impacts on the groundwater body, or adjacent private water supplies are anticipated, due to the low volumes of abstraction, and distances to the nearest groundwater receptors.

Impacts on ground and water quality resulting from the storage and handling of hazardous substances, including oils and concrete washings, were in general found to be non-significant considering the primary and tertiary mitigation. However, effect of possible spills from plant and equipment during both the construction and site preparation and operation stages was found to be significant, in the absence of secondary mitigation. However, this impact will be effectively reduced to non-significant through the provision of immediate response spill kits for all items of plant, together with conducting pre-start inspections, and operators remaining vigilant.

12 Ornithology

The proposed Remore Quarry will be located in a rural area, which is currently used as a commercial forestry plantation. Woodland can provide valuable habitat for numerous bird species, and as such ornithological assessments were required, in order to determine whether the development has the potential to negatively effect avian receptors. A desktop study was conducted, together with multiple field surveys, to ascertain which species may be present in the area, as well as the nature of their utilisation of the site. An impact assessment was then conducted, considering the activities likely to be conducted during the construction and site preparation, and operational stages of the project.

One ornithological designated site was identified in the vicinity of the site; the Darnaway and Lethen Forrest Special Protected Area (SPA); designated for supporting breeding populations of capercaillie. Field surveys included a three visit breeding bird survey, a two visit crossbill survey, and a two visit capercaillie survey were conducted between 2016 and 2018. The breeding bird survey identified 42 species within the site, 11 of which were confirmed to be breeding. The only bird species protected under Schedule 1 of the Wildlife and Countryside Act (1981) identified within the site was the common crossbill. This species was taken forward for assessments. While no signs of capercaillie were found within 500m of the site during any of the survey visits, the species was considered by the assessment, due to it being a qualifying species for the SPA.

Common crossbills were widely distributed across the site, however they were concentrated in areas of mature Scot's Pine and mixed coniferous plantation. There was a real concentration of records of crossbills in an area of mixed Scot's Pine and Larch, where they were frequently recorded feeding on Larch cones. No breeding was recorded on site or within 250m of the site, however suitable breeding and feeding habitat is present on both the site and immediate vicinity.

The construction and site preparation of the quarry is expected to cause temporary, non-significant disturbance during the construction period to capercaillie in the Darnaway and Lethen SPA area, 2km away from the site. Long term, non-significant effects are expected for common crossbill due to loss of potential breeding and feeding habitat, however, the proposed reinstatement of the site will ensure no permanent net loss of this habitat.

The operational effects of the quarry are not expected to be significantly disturbing to the capercaillie in the Darnaway and Lethen SPA area or the common crossbill population in the surrounding area over the 20 year lifespan of the quarry.

The reinstatement of the quarry again is not expected to have any significant disturbance to the capercaillie in the Darnaway and Lethen SPA area or the local common crossbill population.

While no significant effects on birds were identified by this assessment, some best practice mitigation has been prescribed to further reduce potential impacts. This includes sensitive timing of works, avoiding felling during the bird breeding season. As such, felling will only be conducted in the months of September to December. In addition, pre-felling surveys will be conducted to prevent accidental damage to birds. During reinstatement, the species mix will include both Scot's pine, and Sitka spruce, ensuring that tree species providing valuable habitat and food resource for crossbills are replaced.

13 Terrestrial Ecology

To understand the terrestrial ecology in the vicinity of the consenting corridor, a range of ecological studies have been carried out, to identify the habitats present, and non-avian species utilising the site and surrounding area.

An extended Phase I habitat survey, was undertaken across the proposed Remore Quarry site (including a buffer) in November 2015. This survey identified the need for additional surveys focussing on ornithology (see Section 12), bats, and protected mammals including Scottish wildcat, otter, water vole, pine marten, red squirrel and badger. Bat surveys included preliminary roost assessments, focussing on trees, with all features indicative of potential roosts identified. The habitats within the site and the connectivity to habitats outwith the site were assessed for their suitability to support both commuting and foraging bats. Initial protected mammal field sign surveys were also undertaken. To supplement field sign surveys, camera traps were deployed across the site on two separate occasions.

The surveys identified two valuable habitat types which are likely to be affected by the quarry development, including coniferous woodland plantation with an ancient woodland component, and semi-natural broadleaved woodland. No designated sites or habitats will be affected by the development, and no groundwater dependent terrestrial ecosystems were identified in the vicinity of the site. In addition, six protected species were noted as being present, or potentially present within the site boundary, these were: juniper, bats, otter, pine marten, red squirrel, and badger.

Following a review of the activities associated with the proposed Remore Quarry, potential impacts on the above receptors were identified as:

- Habitat loss, modification, and disturbance;
- Injury through interactions with plant and vehicles;
- Disturbance through human presence, noise, light and dust emission; and
- Impacts resulting from pollution events.

The assessment found that for all the receptors considered, with the exception of red squirrel, the likely adverse impacts on terrestrial ecology resulting from the proposed Remore quarry were non-significant. In the absence of secondary mitigation, potential significant effects on

red squirrel were identified during construction and site preparation phase, resulting from possible isolation of valuable habitat caused by the felling operations. This impact will be effectively mitigated through the provision of pre-construction surveys, and the development of a red squirrel protection plan, which will seek to avoid isolating valuable habitat areas, and timing works to occur outwith sensitive period for squirrels. The proposed mitigation will reduce the impact on red squirrels to non-significant.

While impacts on the other valued receptors considered by this assessment were found to be non-significant, it was recognised that the potential for significant impacts does exist, if sensitive species increase their use of the area during the quarry's lifetime. As such pre-construction protected mammal surveys will be conducted prior to each extraction phase. Where protected species are identified as being present, appropriate species protection plans will be developed and implemented through consultation with a suitably qualified ecologist. Furthermore, felling operations will only be conducted during September to December, avoiding sensitive period for protected mammal species. Where juniper bushes are located within an area to be felled, they will be relocated to a suitable area within the site which will not be subjected to further disturbance. Finally, the site reinstatement will be conducted in a sympathetic way, providing open rides, and areas of shrub, thus improving habitat value. The species mix will include Scot's pine and Norway spruce, to provide good quality habitat for red squirrel once they reach cone producing age.

14 Schedule of Mitigation

Mitigation measures identified during the EIAR process have been compiled into the Schedule of Mitigation. As part of the EIA scoping process a number of topics were scoped out as they were unlikely to give rise to a significant effect, taking account of standard mitigation measures. The mitigation measures taken account of within the scoping report have also been incorporated into the Schedule of Mitigation to ensure that they are appropriately implemented, and no significant adverse effects occur. The Schedule of Mitigation table is included within the EIAR.

15 Conclusion

This EIAR has been produced on behalf of Breedon Northern Ltd to support the planning application for their proposed sand and gravel quarry, concrete batching plant and associated infrastructure at Remore, south of Nairn.

Having completed a scoping exercise, the EIA focused on the topics areas in which there was a potential for significant effects. Impacts have been assessed and appropriate mitigation identified where required, to minimise adverse effects. The significant effects identified, taking account of primary and tertiary (but excluding secondary) mitigation for all topic areas are summarised in Table 15.1.

There were seven significant effects associated with the construction, site preparation and operation of the proposed development in the absence of secondary mitigation. Impacts assessed as significant relate to the loss of containment of hazardous substances and ecological impacts associated with the physical removal and disturbance of woodland habitats.

The adverse significant effects relating to loss of containment were identified during both the construction and site preparation, and the operational phase. The significant effects arise from the risk of pollution following potential spills of fuel and oil from the vehicles and plant required to facilitate the construction, preparation, and operation of the quarry. However, the implementation of mitigation, including appropriate maintenance of equipment, pre-start inspections, will minimise the risk of such a spill occurring. In the unlikely event of a spill occurring, effective spill response procedures will prevent contaminants reaching sensitive receptors. As such this effect is reduced to non-significant.

With regard to terrestrial ecology, potential adverse significant effects were identified on red squirrel, as a result of land clearing operations, particularly the removal of woodland, during the construction and site preparation. In order to mitigate this effect, preconstruction surveys will be conducted to identify the nature and location of red squirrel utilisation of the site. The results of the survey will inform the development of an appropriate red squirrel protection plan. The details of the plan will depend on the survey findings, although measures may include marking and avoidance of trees where squirrel dreys are found, not undertaking forestry operations during sensitive times, and retaining habitat linkage. If it is not possible to avoid squirrel dreys, appropriate licences will be sought. Following the implementation of this mitigation, the impacts are reduced to non-significant.

This EIAR has therefore found that through the implementation of appropriate primary, secondary and tertiary mitigation, Remore Quarry can be constructed, and operated without resulting in significant adverse environmental impacts.

The proposed quarry will provide a source of sand, gravel, and concrete products in the immediate vicinity of the A96 Corridor, an area to the east of Inverness which has been identified as a priority development area by both The Highland Council, and the Scottish Government. However, sand and concrete supplies in this area are currently limited, predominantly relying on quarries in Inverness and Forres. As such, this project is ideally suited to support both local and national development ambitions, through the provision of the necessary construction materials close to the A96 Corridor. This reduction in haulage distance, in turn reduces transport costs, logistical constraints and CO₂ emission associated with constructing the developments in this area.

Table 15.1: Summary of Significant Effects in the Absence of Secondary Mitigation

Receptor	Nature of Impact	Receptor Sensitivity/ Probability	Impact Magnitude	Significance (Absence of Secondary Mitigation)	Mitigation Summary	Residual Impact Magnitude	Significance of Residual Effect
Construction							
Red Burn	Pollution from spills or leakage of fuel and oil from the use of machinery and storage onsite.	High	Moderate	Moderate: Significant	Machinery to be well maintained. Where practicable, bio-degradable hydraulic fluids will be utilised. Spill response procedures and kits in place, with personnel trained in their use.	Minor	Minor: Non-significant
Unnamed Burn		Medium	Moderate	Moderate: Significant		Minor	Minor: Non-significant
Groundwater in Sand and Gravel Aquifer		High	Moderate	Moderate: Significant		Minor	Minor: Non-significant
Red Squirrel	Drey destruction; Direct mortality; Habitat loss and fragmentation Disturbance	Moderate Local	High	Moderate: Significant	Preconstruction surveys and implementation of appropriate species protection plan including; sensitive timing of works, avoidance of dreys, and habitat linkage retention. Licenses will be sought if required.	Moderate	Minor: Non-significant
Operation							
Red Burn	Pollution from spills or leakage of fuel and oil from the use of machinery and storage onsite.	High	Moderate	Moderate: Significant	Machinery to be well maintained. Where practicable, bio-degradable hydraulic fluids will be utilised. Spill response procedures and kits in place, with personnel trained in their use.	Minor	Minor: Non-significant
Unnamed Burn		Medium	Moderate	Moderate: Significant		Minor	Minor: Non-significant
Groundwater in Sand and Gravel Aquifer		High	Moderate	Moderate: Significant		Minor	Minor: Non-significant

Key

Significant Effect