

Introduction

Through a competitive tendering process, MVV Environment Devonport Limited (MVV) has been awarded the South West Devon Waste Partnership's (SWDWP) residual waste treatment and disposal contract. The SWDWP is a collaboration that has been established between Plymouth City Council, Torbay Council and Devon County Council to provide a long term solution to deal with waste from the southwest Devon area which is left over after re-use, recycling and composting.

MVV's proposal is to construct and operate an Energy from Waste (EfW) facility, incorporating Combined Heat and Power (CHP) technology, on land currently situated in the north east of Her Majesty's Naval Base (HMNB) Devonport, Plymouth. As part of this development, a further site is required to process the by-product of the EfW process; Incinerator Bottom Ash (IBA).

This second facility will process the entire IBA product from the EfW plant into a viable re-cycled material for the construction market. The proposed site is located at Whitecleave Quarry, Buckfastleigh. The IBA treatment facility at Whitecleave Quarry will be operated by Sam Gilpin Demolition Ltd (SGDL) who already lease the site. In conjunction with the proposed IBA facility, SGDL will also operate a Materials-Recycling Facility (MRF) at the Whitecleave Quarry site. This facility will produce inert material from the re-cycling of demolition waste that can be amalgamated with the IBA product to enhance the marketability of both products.

Consent to extract mineral from this site already exists until 2042. However this proposal would require additional mineral extraction in order to create a level plateau of sufficient size (8,000 m²) to accommodate the IBA processing facility. This would require further blasting of the Dolerite outcrop outside of the consented permission area.

Environmental Impact Assessment

Environmental Impact Assessment (EIA) is concerned with ensuring that the likely environmental effects of proposed major development projects, together with alternative technologies and locations, are considered thoroughly in order to inform the authority making the decision on the planning application.

The process requires the developer to prepare an Environmental Statement to accompany the planning application, which covers a variety of environmental topics of relevance to the proposed development and its location, and the mitigation measures which have been incorporated to reduce the impact of the development. The Environmental Statement is then used as a basis for statutory authorities such as the Environment Agency, Natural England and Dartmoor National Park, as well as members of the public and other interested parties, to comment upon the proposed development and its anticipated environmental effects, before a decision on the application is taken.

The need for a Health Impact Assessment (HIA) has been considered as part of this ES. During the formal consultation process it was not raised by any of the statutory consultees which included the Health Protection Agency (HPA). The product would be defined as inert waste as cited in the Landfill (England and Wales) Regulations 2002, Regulation 7(4). Inert material is non-hazardous and is therefore not considered to be a risk. Therefore the requirement for a HIA was not deemed necessary in this instance. It has therefore been scoped out of this ES and no objection has been raised by the statutory consultees. In addition the AQA has concluded that there will be no significant impacts on the surrounding environs from dust.

Volumes 1, 2 and 3 of the Environmental Statement comprise the Main Text, Figures and Appendices respectively. Volume 4 of the Environmental Statement is the Non-Technical Summary (this document) and explains in non-technical terms the proposed development and the key effects of it on the environment. The Environmental Statement has been prepared by URS Scott Wilson, planning and environmental consultants to MVV. URS Scott Wilson is one of the leading multidisciplinary consultancies in the UK and has considerable experience of building design, co-ordination of complex EIAs and obtaining planning permission for major waste management projects. URS Scott Wilson is a registrant to the EIA Quality Mark scheme run by the Institute of Environmental Management and Assessment (IEMA).



The Need for the Whitecleave Facility

The need case for the construction by MVV of an Incinerator Bottom Ash (IBA) facility to handle the outputs from the proposed Devonport Energy from Waste (EfW) arises from the objective to divert from landfill 97% of the residual municipal waste delivered to the Devonport facility. The EfW plant is the subject of a separate submission to the Plymouth Planning Authority but the facility will serve the areas of the SWDWP; Torbay, Plymouth, Teignbridge and South Hams, treating all the residential waste from these areas. In order for the EfW facility to function as designed a 'sister' facility is required to treat the by-product of this process, IBA.

The IBA facility will process/recycle the ash from the EfW facility and after the removal of ferrous and non-ferrous metals will produce a viable product for the highways industry. The annual IBA tonnage is dependent on the amount of waste received by the EfW facility but will be approximately 23.5% of the input tonnage received by the EfW facility. The IBA and the EfW combined will ensure that the SWDWP meets its future landfill diversion targets. Therefore, whilst each of these facilities is a separate entity, they are inexorably linked; in combination providing a solution to the future waste treatment for the authorities which constitute the South West Devon Waste Partnership.

This site also has the potential to run a Materials Recycling Facility (MRF) by SGDL for construction and demolition wastes (C&D). The output from the MRF and IBA facilities can be combined in order to provide a combined product suitable for the construction markets.

The MRF facility on site will process up to 25,000 tonnes of C&D waste per annum brought into site from the county. This will subsequently look to achieve up to 80% diversion from landfill in response to the National Federation of Demolition Contractors' (NFDC) commitment to the Demolition Waste Action Plan (DWAP). SGDL is a member of the NFDC and the DWAP outlines that its members have a commitment to reduce waste to landfill. Construction and Demolition (C&D) waste will be separated into its various waste streams to realise a viable resource. Metals, wood, plastics, aggregate and plasterboard will be recovered. Working with the National Industrial Symbiosis Programme (NISP) will ensure that a strategy is developed for sustainable resource use.

The Waste Strategy for England, 2007, requires a reduction of waste to Landfill across the board. However whilst there are specific targets for municipal waste there are only general targets for commercial waste to landfill. The EU Landfill Directive set targets for each Member State to reduce the amount of Biodegradable Municipal Waste sent to landfill and these targets are reflected in the UK in Waste Strategy for England 2011. In addition the revised Waste Framework Directive introduces a changed hierarchy of options for managing wastes. It gives top priority to preventing waste in the first place. When waste is created, it gives priority to preparing it for re-use, then recycling, then other recovery such as energy recovery, and last of all disposal (for example landfill). Furthermore Regulation 12 of the Waste (England and Wales) Regulations 2011 says that businesses that import or produce, collect, transport, recover or dispose of waste, or who operate as dealers and brokers, must take all reasonable measures to apply the waste hierarchy when the waste is transferred.

The IBA and MRF proposal at Whitecleave fulfills the principals of the waste hierarchy; to extract the maximum practical benefits from products and to generate the minimum amount of waste.

Site Location and Setting

The site is located on Strode Road/Plymouth Road, Buckfastleigh, Devon, TQ11 0DQ. Figure 1 illustrates its location. It lies to the south-south-east of Buckfastleigh, Devon, in the parish of Buckfastleigh, in the District of Teignbridge.

The site itself, shown in Figure 2, covers an area of approximately 9 hectares and is bounded to the north, south and east by a woodland belt at the top of the steep quarry face followed by farmland. The town of Buckfastleigh lies to the west and is separated from the Quarry by the A38. The residential area of the town closest to the Quarry is built on steep slopes looking southward towards the quarry but the views are largely screened by woodland. The site is currently occupied by the existing Whitecleave Quarry and associated operations.

The application site is located immediately to the south of an elevated stretch of the A38 Trunk road within an existing quarry and adjacent to an existing hard rock face. The quarry has vehicular access from the north by a junction and private haul road beneath the A38 exiting on to the old Buckfastleigh to Plymouth Road. This access is shared with a coach hire company which currently occupies the lower portion of the site and is visible from the A38. The coach parking area is not part of this proposal. The Plymouth Road is the route of the old A38 and is lined by dwellings to the north and is bounded to the south by a watercourse, the Dean Burn, and by the A38 expressway. The site has a valid planning permission which permits the continued quarrying of the site until 2042.

The site is not located within the Dartmoor National Park or the South Devon Area of Outstanding Natural Beauty (AONB). The southern part of the Whitecleave Quarry Site is within Potters Wood, which is a designated Site of Special Scientific Interest (SSSI). Plate 4.1 below illustrates the small part of the proposed development area which is within the SSSI. This area is considered to be of low biodiversity interest.



PLATE 4.1 Image showing marked area where the proposed development falls within the existing SSSI boundary. The northern extent of the SSSI ends at the bund of made ground at the top of the image.

Potters Wood SSSI is designated for its caves, which are of national importance geologically and provide an important bat roosting site. The cave is one of three networks of cave passages around Buckfastleigh with important fossil remains and mineral deposits, making it a valuable site for the study of late Pleistocene cave formation. Greater horseshoe bats roost in the caves. The proposed development, whilst within the official SSSI boundary will not impact upon the cave system and the development is therefore not considered to impose upon the reasons for the SSSI designation. The area in question is made up of spoil and loose stone from previous quarrying activities. However, in order to ensure that due process is adhered to with this regard, negotiations with Natural England are ongoing. Within the site there are no Listed Buildings.

Buckfastleigh Caves SSSI is located 800m to the north of the Quarry. Buckfastleigh Caves forms part of the European designated site of South Hams Special Area of Conservation (SAC).

Residential properties in Buckfastleigh are located to the north of the A38, where the land slopes up away from the road providing views of the road and some areas of the quarry. Beyond Buckfastleigh the land is formed of farmland and ultimately the moors of Dartmoor. Due north beyond the extents of Buckfastleigh is the smaller conurbation of Buckfast. Further to the south-east is the town of Totnes, more than 7km away.

Agricultural pasture borders the site to the northeast and east. Dean Burn Stream runs adjacent to the north-western boundary of the site. This is a tributary of the River Dart. Dartmoor National Park lies adjacent to the site on the western side of the A38.

The topography within the study area is greatly varied and undulating, the highest point of Gripper's Hill at over 390m AOD lies due west just less than 5km away. The landform also rises up to the south-west towards Higher Beara and Stippadon at heights of approximately 250+m AOD. The land to the south, east and north-east is relatively lower lying with high points in the region of Bulkamore at 200m AOD to the south-east, and Stretchford to the east at 130+m AOD, and Halsworthy at 189m AOD.

Lower land in the form of valleys lies between these elevated features, which are characteristic of Dartmoor. These contain mostly small brooks, burns and narrow rivers. The topography falls unevenly in the general direction of the town of Dartington to the south-east which lies approximately at 20-30m AOD.

Description of the Proposed Development

The IBA facility will be used to re-cycle the IBA from the Energy from Waste Combined Heat and Power (EfW CHP) facility at Devonport, Plymouth. In order to put the development in context an overview of the EfW facility is required.

The primary purpose of the EfW CHP facility is to manage the waste from the southwest Devon and surrounding area that cannot be recycled, reused or composted. The facility will therefore primarily deal with Municipal Solid Waste (MSW) provided by the SWDWP Authorities under the SWDWP contract. The remaining processing capacity will be used to process Commercial and Industrial (C&I) waste, of a similar character to residual Municipal Waste, from local markets. The EfW CHP facility is designed to treat 245,000 tonnes of waste per annum, although if the incoming waste has a lower than expected calorific value or the plant is available for a greater amount of time, for example if maintenance takes less time than expected, the throughput could be up to 265,000 tonnes per annum (tpa) of waste.

The waste will be combusted and the heat will be used to generate steam. This steam will drive a steam turbine and generate renewable electricity for use at the site and for export to Devonport Royal Dockyard Ltd and to the national grid. Some of the steam will be extracted at a medium pressure level and be fed into the existing Devonport Royal Dockyard Ltd steam network and will be used for heating. The EfW CHP Facility will therefore incorporate Combined Heat and Power (CHP) technology.

Solid residues from the incineration chamber will be left in the form of incinerator bottom ash (IBA), which it is proposed will be recycled off site, at Whitecleave Quarry, Buckfastleigh. The site at Devonport is of insufficient size to accommodate both the EfW facility and the IBA re-cycling facility. In addition the site at Whitecleave will have a MRF facility and the two processes have a synergy that will be beneficial to the end product.

The development at Whitecleave Quarry will comprise of a processing facility for the IBA facility, the MRF and recycling operation all of which will be operated and managed by the current site licensee Sam Gilpin Demolition Ltd (SGDL) under a new company known as Whitecleave Quarry Ltd (WQL). As the new Company WQL is a legal entity, but is dormant, all reference in this report is made to SGDL.

Figure 3 has been prepared to illustrate the proposed development as currently envisaged. The work will be completed in three phases:

Phase 1 – Construction of a MRF facility, due for completion within 1 year of receiving planning permission.

Phase 2 – Extraction of a dolerite mound to create a level plateau and construction of the IBA facility, due to be operational in summer 2014.

Phase 3 – Utilisation of the quarry void to initially store the excavated Dolerite (from Phase 2), to create a level area that can be used to store IBA prior to processing and subsequently as a product, together with inert outputs from the MRF. Dependent on market forces the Dolerite will be removed and possibly crushed and blended with processed IBA and/or inert outputs from the MRF to produce a marketable construction aggregate. The intention is to keep the level of the void at 60 AoD with either the stored Dolerite or as this is removed inert construction and demolition waste (C&D) This approach potentially extends the sustainable life of the primary aggregate (Dolerite) and reduces the risk of sterilising the asset. The eventual target will be to create a capped level working site at 60m above ordnance datum (AoD). Blending may also be undertaken at other sites in the region (subject to the necessary consents).

Phase 1 – Construction of the MRF Facility

The MRF will require the installation of six concrete bays (3m x 4m x 3.6m) covered by a sorting unit in which the C&D waste will be separated into its various waste streams. These bays will be fed by a conveyor and the waste sorted by hand. The conveyor will be supplied by lorries coming to site depositing C&D waste. In turn a 20 tonne excavator will feed the conveyor; a wheeled loading shovel will be used for material management. The current quarry offices will be the base for all operations on site.

C&D will comprise of material brought in from SGDL demolition sites. C&D waste is identified and described as concrete, bricks, tiles, ceramics, wood, glass, plastic, bituminous mixtures, metals, gypsum, soil and stones and or a mixture of the above; as described in the European Waste Catalogue issued by the Environment Agency (EA).

SGDL would look to the MRF processing a maximum of 25,000 tonnes per annum. Of this total the percentage proportion is expected to be:

50% Wood

| | |
|-----|-------------------------------------|
| 5% | Metals |
| 5% | Plastics |
| 5% | Plasterboard |
| 15% | Rubble |
| 20% | Un-recyclable for landfill off-site |

Each waste stream will be managed in order to reflect market demands and best use.

It is anticipated that the facility would process brick and concrete rubble, this would be stockpiled and crushed in the quarry void on top of the Dolerite. Some of this material will go via the MRF and some would go directly to the void should it pass the acceptance criteria (i.e. it is just bricks or concrete and needs no further sorting/processing)

Once the C&D waste has been sorted into its various waste streams the resulting rubble will be crushed in the quarry void and stockpiled on site to use with Dolerite quarried from the site. The resulting blended aggregate will conform to Waste Resource Action Programme (WRAP) protocol for recycled materials and supports The Department of Environment Food and Rural Affairs (DEFRA) strategic priority on sustainable consumption and production. Currently SGDL sends approx 4,000 tonnes of waste per year to landfill and would look to reduce the quantity going to landfill by up to 80%. This processing facility will be managed to ensure dust suppression and noise reduction.

Phase 2 – Construction of the IBA Facility

The development of the IBA facility will require changes to the existing site topography and layout. Furthermore additional mineral extraction beyond that already permitted by the sites permitted boundary of mineral working will be proposed in order to create the level working plateau. The land, will need to be levelled to accommodate the new facility. The re-profiling of this area will be completed by drilling and blasting the existing Dolerite (phase 2) in a sequenced extraction.

The IBA facility will consist of a concrete slab c 8000m², a building c 750m², a settlement lagoon and storage area for the incoming and processed material. It is estimated that in the region of 250,000-300,000t of material will need to be extracted to enlarge the plateau to facilitate the IBA reprocessing. This will be managed by experienced blasting contractors. Once the top site of the Dolerite is extracted, each subsequent blast would be in the region of 10,000 tonnes of blasted rock. The proposed schedule is to blast twice a week on average, this works out to approximately 20,000 tonnes per week.

The suggested drill rig which would be used to facilitate the extraction of the Dolerite is a Titon 500, operating over a ten hour day. At this excavation rate, the best case scenario would be to remove the Dolerite outcrop within a twelve to fourteen week span, worst would be sixteen to twenty weeks. It is possible that this could take place in one operational window but allowing for limitations enforced by the ecological calendar, it is anticipated that this will be complete within 2 operating windows over 12-18 months from breaking ground and the start of construction on-site.

The quarry void will be utilised to store the excavated Dolerite (from Phase 2). The volume excavated, allowing for a bulking factor will fill the current quarry void to a depth of 60m AoD. On the new raised floor, processed IBA and crushed inert C&D waste, will be blended appropriately to produce a viable construction aggregate. This timing will be dependent on market forces. This storage approach combined with the approach not to cap the quarry void, extends the sustainable life of the primary aggregate (Dolerite) and reduces the risk of sterilising the asset. In this way the new rough working area at 60m AoD can be used as an extension of the IBA processing area.



The eventual end state (Phase 3) will be to create a level working site at 60m above ordnance datum (AoD). This will be achieved by backfilling the void where Dolerite has been extracted with crushed inert construction waste and capping the area.

The newly back-filled quarry will continue to be de-watered during this time, in order to continue the appropriate management of surface waters from the site. A bespoke environmental permit has been designed in liaison with the Environment Agency (EA) in order to satisfy the Environmental Permitting Regulations 2010 pertaining to surface water management. A full Environmental Management System (EMS) will be in place on the site.

IBA Processing

The Incinerator Bottom Ash (IBA) would be brought to Whitecleave Quarry by lorries with 20-25 ton net load, directly from the Devonport EfW site, using the A38 dual carriageway. The mass flow diagram for the Incinerator at the proposed Devonport site shows IBA outputs ranging from 57,000 tonnes per annum (tpa) to a maximum of 65,000tpa, depending on the composition of the waste treated at the Devonport facility. This is based on the calculation that IBA will form between 23.5% and 26% of the total inputs into the Devonport facility. The variation of between 10-15% is dependent on the type of waste that is received and processed at the Devonport Facility. These volumes translate into 10.4 loads a day over an operating day giving approximately two 20-25t (net load) vehicles per hour.

On site the IBA will be stored in the designated input storage area for 3 to 6 weeks – with up to 7,500 tons overall storage capacity. The storage area will have a concrete base to ensure the area's impermeability. Water that drains off is collected in the settlement lagoon and reused to enhance the maturation process and to suppress dust. During this period soluble salts are embedded in the crystalline structure and CO₂ is absorbed by the maturation process. The material forms a hard surface, which does not generate dust or odour.

A wheeled bucket loader will load the IBA material into the processing building. The mechanical processing mainly consists of screening and sizing operations and removal of ferrous and non-ferrous metals.



Plate 1 - Swinging Sieve to the IBA process.

The over-size material (>150mm) is removed by a mechanical grill directly behind the feed hopper situated outside the building and dropped into a storage box or a container. Subsequently ferrous metals are removed by a magnetic separator situated above the head of conveyor. Then the mass flow is divided into two fractions 0-40mm and 40-150mm by a Trommel screen. Coarse non-ferrous parts and unburned material can be removed from the 40-150mm mass stream manually. The material 40-150mm is then stored on site. Any oversized material can be crushed by the mobile crusher and returned to the process. Should there be any un-burned material, it would be returned to the Energy from Waste (EfW) facility for further processing.



Plate 2 - IBA Processing unit inside the operational building.

The fraction of aggregate between 0-40mm passes through a swinging sieve which produces two fractions 0-10mm and 10-40mm. From both fractions, ferrous and non-ferrous metals are removed by magnetic separator and an eddy-current separator respectively. After being dropped in the receiving storage boxes or containers, both fractions are stored outside on separate open piles. Eventually the 10-40mm fraction is transported directly to the pile via a movable belt conveyor. The wheel loaders are able to store the aggregate up to heights of 8 metres.

The IBA processing plant includes a building of approximately 750m², where the mechanical processing is carried out, an input storage and traffic area of approximately 6,000m² as well as a lagoon of approximately 375m², where surface water is collected and also a site weighbridge. The back-filled quarry void will be maintained at 60m AoD to create a product storage area for IBA and recycled aggregate.

Equipment required for the daily operation of the site will include a wheel loader and container lorry, both of which are mobile units. In addition in the building there would be a grizzly feeder, trommel, swinging sieve, several magnetic separators and eddy current separators and numerous belt conveyors. All of these items are fixed plant (stationary).

The IBA will be stored for a period of 3 – 6 weeks for the maturation process. The product would be defined as inert waste as cited in the Landfill (England and Wales) Regulations 2002, Regulation 7(4). Under this legislation waste is inert waste if:

- (a) it does not undergo any significant physical, chemical or biological transformations;*
- (b) it does not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health; and*
- (c) its total leachability and pollutant content and the ecotoxicity of its leachate are insignificant and, in particular, do not endanger the quality of any surface water or groundwater.*

Incinerator Bottom Ash (IBA) is a heterogeneous substance, consisting of ash (approx. 45%), melted and vitrified material (approx. 40%), inert materials such as stone and concrete (approx. 10%) and metals (approx. 6%). Typically they have a specific surface area of 3 to 46 m²/g dry substance. Metals are partly melted during the incineration process, and also form different metallic oxides. Ash consists of inorganic material, soot, dust particles, fine glass and ceramic(s). Regular chemical analysis is undertaken on the raw product at the EfW facility in Devonport.

The IBA can be used for numerous applications including utility pipe bedding, a lightweight aggregate for masonry, a component in bitumous mixes, but mainly as an aggregate for road construction. The final product will be transported off site to its end use site. The resulting movements of HGVs will be comparable to the movements of vehicles entering the site with the un-refined product from the EfW plant but there will be probably be peaks and troughs in the number of vehicle movements. However there will be a reduction in terms of IBA tonnage as a result of the maturation process by between 10% & 15% due to moisture loss.

Phase 3 – Construction of the IBA Facility

Phase 3 will continue to utilise the quarry void to store the excavated Dolerite (from Phase 2), processed IBA and inert C&D waste. The processed IBA product will continue to be managed within the quarry and dependent on market forces will also be blended to produce a marketable construction aggregate. This approach potentially extends the sustainable life of the primary aggregate (Dolerite) and reduces the risk of sterilising the asset.

During this operational period the excavated Dolerite stored within the old quarry void, will be extracted, as per market demand. The intention is to keep the back-filled void space at 60 AoD. The resulting space will be re-profiled with inert material from the MRF facility and or inert material brought in from SGDL demolition works undertaken in the region and other inert C&D materials brought in from other contractors. All material will undergo acceptance criteria procedures as per ISO 14001 and ISO 18001.

It is intended that all works such as crushing and blending and stockpiles of IBA, brick and stone will take place on top of the Dolerite which will have a maximum level at 60AOD to tie in with the IBA facility area. A plan of works for Dolerite extraction and inert infill will be submitted with the planning application.

At such time as the inert back-fill (replacing the Dolerite) encroaches into a large enough area of the void space this will be concrete capped and the stockpiles will then be stored on this impermeable surface. The eventual target will be to create a level working site at 60m above ordnance datum (AoD) which is underpinned by inert MRF product. The proposal for the finished Whitecleave Quarry site is to have the entire quarry floor at one level. The site will finally comprise a concreted surface with IBA treatment in one area with the rest of the yard to be utilised by SGDL as a streamlined relocated MRF. (A new application for this change of use will be applied for at the time).

It is imperative that the operation in the void space needs to be as flexible as possible to allow for the movement within the area of the 4 types of material being used – the Dolerite, IBA, C&D activity and the infilling operation with inert product.

Combined Operation of MRF Facility and IBA Processing Facility

This proposal fulfils Sam Gilpin Demolition Ltd's contribution to the commitment to achieve the National Federation of Demolition Contractor's target of reducing waste to landfill by over 80%. Once the site has been re-profiled and phase 3 is complete, the MRF will be re-located alongside the IBA Treatment facility to produce a more streamlined facility. This amendment to the current proposal would be covered by a

further planning application. The current quarry offices will be used as welfare and site offices for all operations.

Landscaping

This scheme will discharge the outstanding conditions for environmental management as defined in the existing planning permission (ROMP). A comprehensive landscaping scheme has been developed. The proposals for the site incorporate the planting of native species in a landscape strategy that will provide opportunities to improve biodiversity and provide a suitable setting for the development.

The landscape strategy incorporates trees towards the edge of the site, augmenting the existing tree cover where possible and helping to create a degree of connectivity between habitats. Tree planting around the proposed site entrance, near the turning circle, will help to soften the visual impact, where possible, native tree species will predominantly be used. The proposed phase 3, an attenuation pond will be created with an irregular, organic shape and will be planted with suitable marginal and aquatic plant species.

Ecological mitigation is proposed in the southern part of the site. This is the area of the site adjacent to Potters Wood SSSI. This is additional to the proposed mitigation for the site. Two natural ponds and beehives to enhance pollination on site are incorporated into this mitigation.

Hours of Operation

The main hours of operation on site will be:

| | |
|------------------|--|
| Monday to Friday | 07:00 – 19:00 |
| Saturdays | 07:00 – 13:00 (for maintenance and emergencies) |
| Sundays | Closed |
| Bank Holidays | Closed |
| Christmas Day | Closed |
| Boxing Day | Closed |

Access to the site is required at all times for SGDL as the company provides emergency assistance for the demolition of dangerous structures supporting the UK's emergency services. Periodic access is also required outside of normal operating hours for fulfil commitments to undertake work on road infrastructure and for Network Rail, i.e. bridge demolition. At these times the MRF and the IBA facility will not be utilised.

MVV recognises that there may be some occasions when the EfW facility may request that the IBA facility accepts deliveries outside the normal opening hours. As an example this will apply in the case of an

emergency or to accommodate the delivery of Contract Waste where Authorised Vehicles have been unavoidably delayed; or in other similar circumstances. It is therefore proposed that the facility be able to accept waste outside the operating hours stated above upon prior notification to the Local Planning Authority. The proposed EFW plant at Devonport Naval base has the capacity to hold IBA on site for a period of 5 days. This is to cover periods such as weekends or bank holidays.

Employment

The MRF and the IBA will employ up to 12 people and aim to do this locally. There will also be other jobs created indirectly, for example for subcontracted maintenance. These are outlined below:

| | |
|-------------------------------|--|
| MRF – 5 operatives to include | 3 'pickers' on the line (at full production) 1 loading shovel / tele-handler driver 1 general site operative – material to void/crusher operator/weighbridge etc |
| IBA – 5 operatives to include | 4 operatives 1 loading shovel driver |
| Site Manager | 1 general overseer / site manager / transport coordinator |
| Maintenance | 1 workshop assistant |

This is not a 'day one' list of vacancies but what is anticipated in the fullness of time to manage the site efficiently.

Environmental Impact Control

SGDL would be required to obtain an Environmental Permit from the Environment Agency and operate Whitecleave Quarry in accordance with it. Much of the EIA work will form the basis for the Environmental Permit application.

The construction programme is expected to commence in October 2011 with the first phase of Dolerite blasting and the creation of the MRF facility and finish in March 2014 with the completion of the IBA facility. The construction programme is split in to four phases, split across the three phases of development.

- Phase A – Mobilisation
- Phase B – Construction
- Phase C– Process installation
- Phase D– Commissioning and taking over

Mobilisation includes preparing the site area, access roadwork and parking etc. A construction compound will be established within the confines of the site boundary. Following this the construction phase – the longest phase of the programme will begin. This programme is likely to be fragmented as it will commence with the construction of the MRF facility and will then move on to the blasting of the Dolerite outcrop, the creation of the IBA plateau and the construction of the IBA facility.



The main construction will be completed in distinct phases over a total period of approximately 36 months. This will include earthworks, external works, surface works, drainage, external services, erecting steel structures, roof and wall cladding, the installation of services and the creation of the MRF facility. Following the completion of construction there would be a period of start-up and testing known as 'commissioning'. This will take approximately 3 months for the IBA and is expected to begin in spring 2014. This will end with an acceptance test before the planned service commencement date, anticipated for June 2014. Trial operation will last about a month before official take over and the completion of the programme in summer 2014. The MRF facility should be constructed and operational by summer 2012.

Alternatives

Alternative Technologies

MRF

The proposed MRF will manage and sort inert C&D waste from demolition projects within the local region in order to maximise the reuse and recycling of such materials. This reuse and recycling will be in the form of extraction of materials that can be directly reused and the screening and crushing of demolition material to create a secondary aggregate for use in the construction industry. In time, processed IBA could also be blended with MRF material in order to create a variety of aggregate types.

The main alternative to the proposed MRF development is for SGDL to send inert C&D waste to landfill. This approach would not comply with the aims and objectives of national, regional and local waste management and planning strategy and policy.

IBA Processing Facility

The IBA processing facility will process IBA from the proposed Devonport EfW CHP facility that will be used to dispose of residual municipal waste from the SWDWP area and generate heat and electricity from that waste. IBA is the material that is left over after the waste has been burned at high temperatures and equates to approximately 24% of the input waste.

The IBA processing facility will create a secondary aggregate from IBA and provide a valuable aggregate to the construction industry. The processed IBA may also be combined with the output from the MRF in order to enable versatility in the production of a range of aggregate products, thereby extending its market within the construction industry.

The alternative to the development of an IBA facility is to send IBA from the proposed Devonport EfW CHP facility directly to landfill. This approach would be contrary to the objectives of national, regional and local waste management and planning strategy and policy and to commitments in the contract with SWDWP.

Alternative Sites

MRF

SGDL's previous site at Heathfield was only just large enough to accommodate their demolition operation and was not fit for purpose in the long term. In 2007 an extensive search for a larger site that would meet the Company's long term requirements was undertaken. As part of its search for a site for a proposed C&D waste MRF, SGDL undertook an extensive search within the South Devon area. This site search was undertaken in liaison with Teignbridge District Council, Exeter and Heart of Devon Commercial Property Register, South West Regional Development Agency and Commercial Agents.

Teignbridge District Council identified at the time that there was an extreme shortage of land for industrial use. Initially the search was unsuccessful with no sites of a sufficient size available. As a result SGDL undertook an in-depth option appraisal to assess the options available. The options considered are outlined below:

Relocation out of South Devon

This was rejected as SGDL are a local family firm with strong connections to the Teignbridge area.

Expansion of site within Heathfield

Discussions were held with the site owners about the scope to expand from SGDL's original base. The area directly to the south of SGDL site was subject to a leasehold interest from BCT & was undergoing development so was un-available. The area to the west of the original site was available but was not considered of sufficient size for SGDL's requirements. In addition, the junction access to the A38 would not have met Highways Agency standards for the expanded operation at the site.

Multi-site operation

This option would involve locating different parts of the operation on different sites. This option was rejected due to the difficulty of finding suitable sites but most importantly because it contradicted the principle of operating an integrated materials recycling operation which was the primary business objective in seeking to relocate.

Do nothing

This option was not sustainable both in terms of the continued loss of resource to landfill & in terms of the detrimental impact on the business as a result of increasing costs of tipping waste.

Single site integrated materials recycling facility

This option was the most sustainable both in terms of the very significant environmental benefits to be gained and in terms of a best practice business model. This option offered the opportunity to maximise the recycling element of the business and increase SGDL operational efficiency across the group of company activities.

Numerous sites were considered as part of the process and included sites at Torr Quay, East Allington and Lee Mill near Ivybridge. At the end of 2007 the opportunity arose to acquire the leasehold interest to Whitecleave Quarry a site which met all of SGDL criteria. SGDL took over the lease at Whitecleave Quarry on 10th December 2008.

IBA Processing Facility

The proposed development is required specifically to process IBA from the Devonport EfW CHP Facility. Because its purpose is specific, the proposed IBA facility also has specific locational and site requirements which need to be met in order to achieve a viable and sustainable facility. Therefore, in locational terms, the site for an IBA processing facility is required to be located either in close proximity to the proposed Devonport EfW CHP facility, or on the route between the EfW and the final market location for processed IBA product in order to minimise the transportation of waste. Since IBA will be transported from the EfW by HGV, the site of the proposed IBA processing facility also required good access to the primary road network.

Another application for an Energy from Waste facility has been submitted by a competitor company in Ivybridge. That company controls many sites identified for waste management in the Devon Waste Local Plan and for commercial reasons those sites were not available to MVV.

Given that the principle market for processed IBA is expected to be to the north east of Plymouth (towards Exeter) and that good access to the primary road network is required, MVV identified that the site for the proposed IBA processing facility should either be within Plymouth City or at a site easily accessible from the A38 trunk road between Plymouth and Exeter.

The site selected for the proposed facility will also need to be of sufficient size, will need to meet all other operational and environmental requirements and must also be available to MVV for development.

In searching for sites that meet the above criteria, MVV considered the sites that are allocated for waste management development by Devon County Council and Plymouth City Council, in particular the Devon WLP WPP3 Sites for Minor Waste Management Facilities allocations.

The criteria used to allocate sites for potential waste management development set out in the Devon WLP is based on the appraisal of sites with the aim of making allocations for unspecified types of waste management development. The appraisal was also undertaken six years ago. The site allocation process therefore could not take account of specific locational requirements of the proposed IBA processing facility. This means that some of the criteria used by Devon County Council in their site appraisal are not relevant to the proposed development of an IBA processing facility and in turn, some of the site allocations are not suitable for the IBA facility. For example, the criterion that gave preference to sites located within or close to a principle urban area is less relevant than the location of the site in relation to the proposed Devonport EfW CHP Facility and the primary market for processed IBA. Further, IBA from the Devonport EfW CHP Facility will be dispatched by road, so the criterion that favours sites with the potential for alternatives to road transport is not relevant to the specific circumstances of the proposed development.

The Plymouth Waste DPD allocates sites for strategic waste management facilities and a civic amenity site. The site allocations were made before it was known that an EfW CHP facility would be developed in Devonport, requiring off-site IBA processing.

In addition, none of the allocated sites considered in this Chapter are without constraints, be they environmental, transport or deliverability related. It is therefore considered that none of the allocated sites looked at are obviously preferable to Whitecleave Quarry as a site for the development of an IBA processing facility.

Whitecleave Quarry has the following characteristics which benefit its development potential in terms of the specific proposals:

1. The site had good vehicle access to the main trunk road (A38) linking Plymouth and the EfW to the Quarry.
2. The site has good visual screening due to the landform of the existing quarry
3. The historic use of the site is one associated with industry and mining practices.
4. There are no archaeological interests within the site.
5. The proposed MRF at this site is a complementary industry to the IBA facility.
6. The site is outside any flood risk zone.
7. The site has a good history in terms of ecological monitoring and a suitable mitigation scheme can be implemented with specific regard to the known ecology on site.
8. Noise pollution will be reduced by the location within the Quarry and all receptors are located on the opposite side of the A38.
9. It is located in an area which will be served by the Devonport EfW facility. Waste from Teignbridge DC will be treated at the Devonport EfW facility.

Ecology

The ecological baseline of the site has been established by conducting a desks study and habitat and protected species surveys over several years, and the ecological receptors have been evaluated. The scheme impacts have been evaluated and no effects are anticipated on the closest European site (South Hams SAC). The scheme will not affect any other statutory designated sites, except for a small area of

recently disturbed bare ground habitat, which lies just within the northern boundary of Potters Wood SSSI. It is considered that the notified interests including the neighbouring woodland habitat within Potters Wood SSSI will not be affected. However, to ensure that due process is adhered to, this potential constraint is subject to ongoing discussion with Natural England at time of writing. See Section 4.2.14 and Plate 4.1 in Chapter 4 of the ES.

The site largely comprises habitats of low ecological value (i.e. hard standing, recent rock exposure, vehicle access tracks with no or limited ephemeral/short perennial vegetation). Two habitats of higher ecological value comprise old sections of rock exposure of the quarry cliff face and two small, isolated areas of semi-natural broad-leaved woodland. The older, higher sections of quarry face will not be affected by the scheme. The two small woodland areas, which are growing on the Dolerite spur, will be lost when this rock spur is blasted and re-distributed to fill in the quarry void. Loss of the semi-mature woodland, which is not quickly replaced, will result in a significant effect at the local level in the long term. However selected tree and shrub specimens from the rock spur will be transplanted and new tree planting will be undertaken elsewhere within the site to compensate for lost woodland.

The perimeter woodland / woodland edge of the site is an important commuting route for greater horseshoe bats, which commute past the quarry between roost sites and foraging areas. The perimeter woodland will not be affected by the scheme. A new hedge bank with a mix of established, semi-mature and whip plantings will be installed along the length of the eastern perimeter of the site from Potter's Wood SSSI to the site entrance. A 50 m section of the hedge bank has already been installed and new sections will be added at each end. The semi-mature plantings will comprise translocated shrubs and trees from the cleared woodland. The new hedge bank and hedge will be positioned to create a 5m wide, secluded track bordering the woodland to enhance and protect the bat commuting route.

Nine other species of bat have been recorded on site. Loss of small areas of woodland on site will result in a moderate impact on a small number of woodland foraging bats, such as lesser horseshoe bat, long-eared bat and barbastelle bat, in the short term, but it is expected that bats which use these small areas of woodland to forage will readily find alternative foraging habitat without a significant effect on local populations. As a precautionary principle, the rock blasting to remove the Dolerite spur will occur during the winter to avoid potential disturbance to local horseshoe bat maternity roosts and because hibernation roosts are considered to be less sensitive to vibrations from blasting.

A hydrogeological study of groundwater in the local area concluded that the infilling of the quarry is unlikely to affect groundwater levels in nearby cave systems which are used by roosting bats. The use of artificial lighting has been carefully considered and will be managed to ensure that light spill does not affect commuting greater horseshoe bats.

The site supports breeding peregrine. The nesting habitat will not be affected by the scheme. The construction works, specifically rock blasting activity, will be managed to avoid significant disturbance to nesting peregrine. Once operational, the change in human activity is not expected to cause a significant effect on peregrine breeding activity, as the species is known to habituate to and tolerate a reasonable level of non-threatening disturbance, such as active quarrying operations at other sites.

With the application of all mitigation, it is expected that the proposed development will have a low or negligible impact on ecological receptors which will not result in significant effects.

Landscape

The Landscape assessment describes the likely effects on landscape character and visual amenity of the proposed development at Whitecleaves Quarry, at the following stages:

-
- *Construction phase* – works to remove the wooded stone outcrop in the south-western area of the site to produce a large level plateau at +60m AOD where the IBA plant and associated machinery and construction will be located. In addition construction will include a Materials Recycling Facility (MRF) building and associated stockpiles and containers. In addition proposed tree planting will take place and various drainage features constructed.
 - *Completion of the processing facility* – i.e. at Year 1 after construction is complete and the facility operational.
 - *At Year 15 of operation* – with proposed planting, which would be relatively mature and well established, providing the intended long-term mitigation.

The assessment makes use of photographs and photomontages which are referred to in the text to assist in describing the character of the existing site, existing views and the likely visual impact of the development on those views. Photographs are also used in some cases to explain where and why the development is not likely to be visible.

In terms of planning policy the site is classified as within 'Countryside' however the nature of the site is dominated by the historic quarry land use and current waste reprocessing operation. The proposed development, therefore, reinforces this industrial landscape character and function. In other respects the proposals adhere to all planning policies assessed in this chapter.

The removal of the stone outcrop results in a loss of semi-mature woodland. This is mitigated for, to some extent, by various ecological measures – refer to Chapter 7 and associated surveys and reports. This is one of the most significant visual impact in the proposed development, exposing a greater area of the quarry face. It reinforces this not uncommon feature in the landscape and despite being adverse impact is not detrimental to the wider landscape character.

The other significant visual impact is the additional built form of the MRF area, these are greatly screened by the existing vegetation, in winter there is some visibility when the intervening trees are not in leaf, however, during the summer months this vegetation forms a dense screen to this area of the proposed development.

Due to the finished ground level, the proposed buildings and associated machinery are virtually entirely concealed within the quarry landform and thus do not create a significant adverse visual impact on the surrounding study area.

In accordance with the adverse visual effects classified by the EIA methodology as significant and despite its visual prominence from some locations, it is considered that the proposed scheme is compatible with its surroundings in terms of style, siting, layout, orientation, visual impact, local context and views, scale, massing, height and density.

Contamination

The 9 ha Whitecleave Quarry site is located 0.5 km south east of the village of Buckfastleigh, Devon. Quarrying has taken place at the site since at least 1886 and increased in operational scale during the 1930's. Existing site conditions are inline with a recently operational quarry site with vehicle maintenance operations, fuel tank storage, site offices and a variety of site equipment and plant. Little evidence of contamination was observed at the site and comprised areas used for the storage of demolition rubble and evidence of spillages local to re-fuelling areas.

The stream, Dean Burn, which is abstracted from a number of locations for industrial purposes, is adjacent to the north and west of the site and flows easterly toward the River Dart. The site is underlain by a

secondary aquifer and a principal aquifer is presented adjacent to the south. The site geology comprises Schalsteins and tuffs (lithified volcanic ash), upper Devonian Slate and Weald-efford Grit with alluvium associated with the Dean Burn to the west.

A number of pollution incidents have been reported from the site and in close vicinity which impacted the Dean Burn in the early 1990's, prior to the current leaseholder's tenure. Potter's Wood, adjacent to the site, is designated as an SSSI due to its caves' geological importance and Greater Horseshoe Bat population.

Potential sources of contamination at the site are believed to be associated with vehicle maintenance works including the potential for oils, fuels, paints and lubricants to be present. Potential off-site contamination sources are associated with local quarrying activities, light industry and an electrical sub-station.

A quantitative impact assessment was carried out and identified a number of potential contamination linkages. Potential mitigation measures include various good site working/operational practices and controls, remediation of contamination (if required) radon protection (if required), the implementation of monitoring and verification systems and the use of appropriate PPE.

It is considered that, provided appropriate mitigation measures are employed during each phase of the development, suitable and sufficient measures are adopted to address any contamination issues and workers are adequately informed and trained in site procedures, the proposed development will not pose an increased risk to human health or the environment.

Hydrology and Hydrogeology

Whitecleave Quarry is located on the north-facing valley side of Dean Burn a tributary of the River Dart. The quarry has been worked in an exposure of basaltic volcanic rock. Most of the hill and adjacent hillsides are slates of Upper Devonian age. Two outcrops of limestone occur in the vicinity of the quarry, narrow outcrop that lies to the south west of the quarry and a second possibly separate limestone outcrop in Buckfastleigh. Both these limestone's have been quarried in the past and have a network of underground cave passages.

The flood plain at the base of the river valleys has deposits of recent alluvium. The limestone outcrops in the Buckfastleigh area are classified as "Principal Aquifers" by the Environment Agency. As such they should permit groundwater to move through them easily and provide a high level of water storage and they will support flow to the rivers. The limestone is not used to provide water supply. The slate and volcanic rocks are not aquifers. Although water may occur in cracks and fissures, it will be very limited storage and will move through the ground very slowly.

There is neither data on water levels in the aquifers of the area or on any natural spring flow. An inference can be made from the elevation of St Catherine's Well in Potters Wood to the south of the quarry that naturally groundwater in the limestone discharges to Dean Burn at an elevation of 60 mAOD and that the cave passages below this elevation would naturally be full of water. There is no report of any cave system intercepted at the base of Whitecleave Quarry, so the Potters Wood caves may be completely hydraulically separate to the quarry. If there were a connection then the dewatering of the quarry in the past would have lowered groundwater levels.

The development of the quarry is likely to involve dewatering. The current practice of over-pumping from the quarry base is covered by an Environment Agency Permit allowing the pumping of water from the

quarry to be discharged into Dean Burn. The water pumped is likely to be surface water runoff that drains to the lowest point in the quarry, but it could contain a component of groundwater.

Potential locations where groundwater could be impacted by activities associated with the scheme have been examined these are; Buckfastleigh Caves SSSI; Bulkamore Iron Mine SSSI, Potters Wood SSSI, Principal Aquifers and licensed groundwater abstractions. The SSSI all are cited because of their bat populations, while the Buckfastleigh Caves are also noted for other features. The conceptual understanding of groundwater in the area shows that the Bulkamore SSSI is too far away to be impacted. The Buckfastleigh SSSI is probably in a separate limestone unit thus unlikely to be impacted. Should there be any hydraulic connection between the limestone under Potters Wood and the quarry then the drainage of the quarry would lower water levels in the cave system and thus increase the length of dry passages. These conditions would have existed in the past when the quarry was being worked. The Principal Aquifer may occur at depth below the quarry site, but hydraulically isolated from the quarry. There is no evidence for the either the existence or absence of such a connection between the quarry and the cave system.

Mitigation measures are required to ensure that the operations on the site do not allow the release of pollutants to the ground. The release of hydrocarbons from construction plant or storage contained represents a risk to groundwater and surface water. The information as to the nature of the other materials to be handled on site indicates that they are non-polluting. The mitigation measures should comprise the effective impermeable bunding of all hydrocarbons stored on site. The surface runoff from the areas where plant is parked or maintained should be collected and passed through an oil interceptor system.

The proposed development at Whitecleaves Quarry is located wholly within Flood Zone 1 and assessed as having less than a 0.1% (1 in 100 year) annual probability of flooding from fluvial sources. However, due to the size of the proposed development (greater than 1 ha), flood risk from surface water should be assessed to ensure that this source of flooding is managed both within the site and to ensure there is no increased risk to third parties.

A drainage assessment has been undertaken using industry standard software (Microdrainage WinDes v12.5). Using this assessment, appropriate mitigation measures that include a settlement lagoon and interceptor have been developed to ensure that flood risk within the site is managed including an allowance for climate change that is commensurate with the lifetime of the development. In addition, discharge rates from the settlement lagoon and interceptor drain prior to discharge into the Dean Burn are restricted to greenfield runoff rates, therefore not increasing risk to third parties beyond the site boundary.

Traffic and Transportation

The impact of the traffic generated by the proposed development has been assessed in accordance with the Guidelines for the Environmental Assessment of Road Traffic provided by the Institute of Environmental Assessment. The assessment has been undertaken on the A38 and parallel B3380 in the vicinity of and between the junctions at Dart Bridge and Lower Dean.

Since the B3380 has previously carried significantly higher traffic flows than at present; both due to its previous function as the A38 and due to the level of quarrying activity that was carried out at the development site, it has adequate capacity to cater for the development traffic.

An analysis of the highway accident record in the area has not raised any concerns or identified any need to undertake remedial measures to improve road safety. Therefore no measures of mitigation are proposed to cater for the development traffic.

The Lower Dean A38 junction is closer to the site than the Dart Bridge junction and it is assumed that the former would be used for all movements apart from the movement to the north from the site. The movement towards the north from the site has to take place via the Dart Bridge junction. This, and the varying origins/distributions of the development traffic, will place different levels of traffic on sections of the A38 and the B3380.

The projected increases in daily (07:00-19:00) total traffic flow on the A38 in 2016 are 0.1% north of the Dart Bridge junction and 0.2% south of the Lower Dean junction. The corresponding projected increases in Heavy Goods Vehicle (HGV) flows are 1.2% on both sections.

The projected increases in daily (07:00-19:00) total traffic flow on the B3380 in 2016 range from 1.5% to 3.1% north of the access and 2.7% to 4.4% south of the development site access (depending on the route taken by vehicles from Exeter and Totnes). The corresponding projected increases in HGV flows range from 13% to 26% and 47% to 70% respectively. While the latter percentages appear high they start from a low base of today's traffic flow and composition which is significantly lower than when the quarry operation was in full production. The increase to the south of the site access amounts to an average of 5 HGV movements per hour.

Taking all of these factors into account during the impact assessment, it is concluded that the environmental impact of the increase in traffic flow will not be significant on either the A38 or the B3380. On this basis, no measures of mitigation are required to reduce the impact. However, to promote and facilitate employee commuting on foot and by public transport it is suggested that an amendment be made to the carriageway layout in the vicinity of the site access to provide a pedestrian refuge. All work would take place within adopted highway.

Air Quality

The construction and operation of a Materials Recovery Facility, and Incinerator Bottom Ash processing facility and the reinstatement of quarrying operations at the Whitecleave Quarry site have the potential to impact on air quality at nearby sensitive receptors. Such impacts are likely to be in the form of a potential increase in the rate of dust deposition above that experienced in baseline conditions and an increase in exposure to concentrations of PM₁₀.

It is anticipated that the number of vehicle movements associated with the proposals does not exceed the number of movements previously permitted under the existing planning permission. As such, an assessment of vehicle emissions has not been undertaken. The assessment has used a qualitative methodology to assess the likelihood of dust annoyance and the potential effect of fugitive emissions from the site on airborne concentrations of particulate matter. The assessment evaluates details of site operations, sensitive receptor locations and local meteorological conditions in order to qualitatively assess any change in the risk of increased dust deposition or exposure to particulate matter in the local area as a result of the proposed works.

Due to the nature of site activity and the control measures incorporated into the scheme design, areas within 100 m were designated as being at risk of experiencing a significant increase in dust deposition as a result of the works. Receptors within 50 m were designated as being at risk of increased exposure to PM₁₀ as a result of the works. Potters Wood SSSI, to the south of the site was designated as being at risk from effects on vegetation. These issues are only prevalent if no dust suppression systems are employed on site.

A consideration of baseline conditions has identified that existing concentrations of PM₁₀ in the vicinity of the site are very low and well below the objective levels set for the protection of human health. Analysis of locally sourced meteorological data has shown that the prominent wind direction is from the southwest, blowing towards the northeast and away from the majority of receptors. However, winds do blow from the east towards the west and the nearest receptors on occasion.

With the site in operation, the control dust and PM₁₀ control measures should be sufficient in reducing any impacts relating to dust deposition and increase to local PM₁₀ concentrations. With the incorporation of appropriate mitigation, any impact on baseline dust deposition rates as a result of site operations would be low under normal atmospheric conditions and would produce an insignificant effect. The phased nature of the works will minimise the length of time that any receptor will be affected by the site operations. Any impacts that do occur are most likely to take the form of increased soiling of property surfaces and are not normally associated with a general risk to human health. Any deposits of this kind can be washed off the surface, making any impact reversible.

The assessment has identified that ambient background concentrations of PM₁₀ are very low (< 15 µg/m³), which is significantly lower than the national air quality objective for this pollutant, which was set for the protection of public health. Even at receptors located within 50 m of the proposed site boundary, it would not be expected that site activities would lead to an exceedance of this objective. Adoption of the mitigation proposals (including site best practice) results in the conclusion that the risks associated with airborne emissions from the site are minimal.

Noise

A noise and vibration impact assessment for the construction and operation of the proposed MRF and IBA facilities at Whitecleaves Quarry was carried out. The scope of work addressed the following:

- baseline noise survey;
- construction noise and vibration impact assessment;
- operational noise impact assessment; and
- road traffic noise impact assessment.

Consultations with Teignbridge District Council (TDC) and Devon County Council (DCC) were undertaken to agree the scope of work associated with the noise and vibration assessment. The assessment methodologies and criteria to be employed were discussed and agreed.

To quantify the prevailing noise climate, noise monitoring was undertaken continuously between 4th March 2011 and 11th March 2011 at four representative receptor locations surrounding the site. Additional short-term attended noise monitoring was carried out at a further two locations.

Noise levels from construction works were predicted at a selection of the closest residential properties to the site. The resultant noise levels were compared to the prevailing ambient noise levels. The significance of the resultant noise levels was assessed as negligible at all receptors.

Vibration at surrounding sensitive receptors resulting from general site construction works will not be significant. However, vibration and air overpressure resulting from the proposed blasting works have the potential to result in significant effects.

The contractor will carry out measurements of vibration at several locations resulting from one or more trial blasts. These can then be used to indicate the likely vibration magnitudes at a given distance for a given charge size, and thus inform blast design to ensure specific vibration and air overpressure limits at sensitive receptors are not exceeded.

A detailed model of the operation of the MRF and IBA facilities was developed in a computer software package. The model was used to calculate resultant noise levels at a selection of the closest residential properties to the site.

The predicted noise levels, with all noise sources from the IBA and MRF operating, were below the limit required by Teignbridge District Council, except for one receptor, where the predicted noise level was just above the limit.

To reduce resultant noise levels at the receptors and ensure all predicted noise levels were below the agreed limit, mitigation to the crusher in the quarry area and/or to breakout noise from the IBA building was required.

The crusher will be mobile, able to move around and work in any part of the quarry area. It may be difficult to incorporate mitigation (generally in the form of bunding made up of material to be processed or processed material) within this process. However, if this is possible, it will be done.

The cladding to the IBA building has been upgraded to provide increased sound reduction values and the resultant noise levels to receptors recalculated. The predicted noise levels with all noise sources from the IBA and MRF operating were below the limit required by Teignbridge District Council. The upgraded cladding will be employed in the construction of the IBA building.

The additional traffic on public roads generated by the operation of the MRF and IBA has no effect on noise generated by road traffic on the A38 as existing flows are high. On the B3380 a negligible increase in noise generated by road traffic was predicted. Overall, the significance of changes in noise levels to receptors fronting the local road network was assessed as negligible.

Socio-economic and Tourism

The tourism implications of the Whitecleave Quarry re-development proposal has been undertaken as an acknowledgement of the importance of tourism to the economies of Dartmoor National Park and Torbay.

The assessment denotes that Buckfastleigh and neighbouring Ashburton contain a series of visitor-based businesses and assets, including leisure routes that are of regional and national significance. However, the assessment concludes that, overall, the Whitecleave Quarry will not have an adverse impact on the character of the area from an aesthetic perspective. It is also a sufficient distance away, and is well screened, from nearby visitor attractions. In this respect, it is not considered that the redevelopment of the site will present a direct intrusion or visual deterrent to those wishing to either stay in the area or utilise visitor facilities in the Buckfastleigh area.

The principal conclusions of the investigation process are that:

- There is unlikely to be a significant additional visual intrusion, noise intrusion or change in the landscape character that would deter visitors from using the area or detract from their overall experience.
- The level change of industrial traffic envisaged to Whitecleave Quarry is unlikely to present a significant barrier or deterrent to visitors wanting to access the key attractions and accommodation operators in the immediate area.
- The convergence of industrial traffic to Whitecleave Quarry with cycling users of the B3380 may need to be monitored to identify increased risk (real and perceived) and impact on usage if the proposed NCN Route 2 (which will utilise the B3380 past Whitecleave Quarry) is to be progressed.

Construction Waste

An assessment has been undertaken to characterise the nature and likely amount of waste generated during the construction of the IBA and MRF and the consequential environmental impacts. Kier, the civil engineering contractor, has produced a Site Waste Management Plan, which has calculated the types and amounts of construction waste and whether the waste will be re-used, recycled or sent to landfill. The intention is to manage waste as high up the Waste Hierarchy as possible. It is expected that the majority of the waste arising will be re-used on site or sent off site for recycling. Only small quantities are likely to be sent for disposal to landfill. Any hazardous waste arising will be dealt with by a specialised hazardous waste operator. No significant environmental effects are envisaged.

Cumulative Effects

Cumulative Effects of the IBA and MRF

The way that the effects of the proposed IBA and MRF have the potential to combine together to cause 'cumulative' effects with one another at certain sensitive locations and lead to significant effects has also been assessed.

For the residents of properties on Elm Bank, Fullaford Park and 19, Tweenaway, the LVIA indicates during construction there will be Major/Moderate effects on views due to the removal of the quarry's Dolerite outcrop. During Year 1 the LVIA indicates that there will be a significant adverse effect on properties in Fullaford Park and Elm Bank due to the increased exposure of the quarry rock face. However during the summer this impact will be reduced to insignificant as the quarry face is screened by trees.

For the residents adjacent to Dean Burn Bridge on Plymouth Road, an increase in traffic will be felt both during construction and operational phases of the proposed scheme. This is not considered significant as per the assessment protocol outlined in the TA.

Both the IBA and the MRF proposals will create new jobs. It is considered that in combination there would be an overall beneficial socio-economic cumulative effect.



Cumulative Effects with Other Proposed Development Projects

The potential for effects of the IBA and MRF to combine with effects from other proposed development projects in the vicinity and lead to significant effects has also been assessed. There is only one such development which is the subject of a planning application Wood Brothers Travel Ltd – Application for Change of Use (11/00833/COU).

No foreseen significant cumulative effects are envisaged in combination with the IBA/MRF during construction or once the facility is operational.