CONTENTS

INTRODUCTION

15.1 All of the reasonably predictable significant impacts of the proposed development and the measures in place to mitigate them have been outlined in the EIAR. However, for any development with the potential for significant environmental impacts there is also the potential for interaction amongst these impacts. The result of these interactions may either exacerbate the magnitude of the impact or ameliorate it. The interaction of impacts on the surrounding environment needs to be addressed as part of the Environmental Impact Assessment process.

15.2 This Environmental Impact Assessment Report was prepared by SLR Consulting on behalf of Kilsaran as an integrated document, rather than a collection of separate reports. The impacts that arise as a result of the interaction between several aspects of the development have therefore been addressed in the main body of each EIAR section.

The Interaction of the Foregoing

15.3 The interaction between the various environmental topics has been covered within each of the EIAR Chapters, 4 through to 14, where relevant. For example, the interaction of geology and groundwater has been addressed in EIAR Chapter 7 - Water.

15.4 The environmental components which might potentially be impacted by a development of this kind and at this location have been identified through the site assessment as follows:

- Effects on land use and amenity;
- Impacts on local sensitive receptors;
- Loss of natural wildlife habitats and disturbance to flora and fauna;
- Impacts on soils and sub-soils geology;
- Nuisance potential and or public health effects due to noise, dust, odour or lighting emissions;
- Impacts on local archaeology;
- Change in visual character;
- Impacts on material assets such as infrastructure or local utilities.

15.5 A matrix method has been used, in which the environmental components addressed in the previous sections of this EIAR have been placed on both axes of a matrix; these interactions are summarised in **Table 15-1** below.

15.6 The purpose of the effects matrix is to identify potential interactions. Actual interactions and their significance are dealt with in the relevant chapter of the EIAR with a brief overview of some of the more pertinent interactions provided in this chapter.

Table 15-1
Impact Interaction and Interrelationships Matrix

	Biodiversity	Land, Soils, Geology	Water	Air Quality	Climate	Noise	Landscape & Visual	Traffic	Cultural Heritage	Population & Human Health	Material Assets
Bio-diversity											
Land, Soils, Geology											
Water											
Air Quality											
Climate											
Noise											
Landscape & Visual											
Traffic											
Cultural Heritage											
Population & Human Health											
Material Assets											

POTENTIAL INTERACTIONS

Population and Human Health

Population and Human Health & Potential for Disturbance

15.7 The most important consideration in terms of the potential for interactive effects is to ensure the protection of the local resident population, who have been identified as the key receptors against which the potential for emissions has been assessed. The primary interaction between air quality and human beings would relate to potential dust emissions associated with extraction, processing and transport of material around and off-site. Emissions from vehicle exhausts and plant are also a source of air pollutants. Various measures and management procedures will be put in place to ensure that the day to day operations will not give rise to elevated dust levels. This EIA Report indicates that the proposed works at the application site could proceed with acceptable emission limits for noise and dust emissions, while potential effects on soil and water could be adequately addressed through good environmental management practices and mitigation measures to avoid accidental spillages of fuel.

15.8 The proposed development will not cause undue demand on any utility service providers or waste management, and standard construction and waste management practices in accordance with the company's broader environmental management system will be followed in order to ensure protection of existing infrastructure services.

Population and Human Health & Climate

15.9 Use of plant and machinery on-site will result in CO_2 emissions to air associated with the proposed day to day operations undertaken at the site. These are difficult to eliminate however, they are small in the national context and measures will be put in place will reduce emissions in so far as possible in order to reduce the impact on climate from day to day operations.

15.10 The materials extracted from the site will be used to supply the adjacent existing concrete batching plant and there will be no increase in the level of traffic associated with the supply from the concrete plant.

15.11 The proposed development will benefit the wider road network as it will eliminate (bar the c. 70m distance from the site entrance to the concrete batching facility) all associated aggregates supply HGV traffic travelling on the R108 to the concrete batching facility from other Kilsaran supply sites currently at Annagor and Ballynamona. Eliminating the requirement to transport materials from remote sites will therefore also have the added benefit of eliminating those HGV truck movements passing through the Naul village towards the concrete batching facility. The reduced traffic movements will also have a consequential reduction in carbon emissions.

15.12 Kilsaran operate a modern fleet of vehicles and upgrade road trucks on a regular basis which ensures emissions from vehicles is kept to a minimum.

Population and Human Health & Landscape / Cultural Heritage

15.13 The proposed extraction of sand and gravel at the site will result in the creation of a void in 3 extraction phases over the 11-year life of the proposed development. Phasing of the extraction along with progressive restoration has the benefit of minimising the extent of land stripped and exposed at any one time along with allowing for restoration to be completed at the earliest opportunity and returned to the farmer for recommencement of agricultural activities. The levels within the extraction area will remain permanently changed by up to 15m. However, the agricultural land use will be reinstated for the majority of the application area and a natural

looking landform will be created to tie in smoothly with the surrounding topography in the long term. Hedges that will be planted as part of the progressive restoration of the site will mature over time, enabling the site to merge further with the surrounding landscape.

15.14 The Naul Architectural Conservation Area (ACA) is located 0.57km east of the application site and is not considered at risk of any impact to its setting from the proposals. The restoration of the site to tie in with the surrounding landscape will further protect the setting of the ACA.

Population and Human Health & Traffic

15.15 The projected rate of output will generate HGV traffic movements off-site, albeit for a short distance over the public road between the site entrance and the destination location of the existing concrete batching plant on the opposite side of the public road and could have an impact on traffic movements in and around the vicinity of the site. However, the concrete batching plant is already in operation and currently relies on importation of materials over the public road from two separate locations from between 20km and 40km distance.

15.16 The proposed development is therefore seen to have a positive impact in terms of traffic movements, given that input materials for the applicant's concrete batching plant will only require transportation over the c. 70m distance from the site entrance to it. Currently all input aggregates are imported through HGV traffic travelling in both directions on the R108 and R122 to the concrete batching facility from other Kilsaran supply sites (currently Annagor and Ballynamona, both located in County Meath).

15.17 Eliminating the requirement to transport materials from remote sites will therefore also have the added benefit of eliminating those HGV truck movements passing through the Naul village towards the concrete batching facility. The reduced traffic movements will also have a consequential reduction in carbon emissions.

Biodiversity

Biodiversity and Land, Soils & Geology

15.18 The proposed operation of the sand and gravel pit in the existing greenfield area will result in the temporary loss of greenfield areas for sand and gravel extraction and associated works. The proposed restoration plan will see the site revert back to an agricultural use on a phased basis over the full 12-year life of the development with reinstated hedgerows exceeding the proposed length of hedgerows to be removed.

Biodiversity & Water

15.19 Extensive technical assessment has been undertaken to establish the baseline water environment and to determine any potential vulnerabilities in terms of potential emissions (such as accidental fuel spillages) that could impact a hydrological pathway. The Natura Impact Statement accompanying the planning application considers the potential links to European designated sites, based on their features of conservation interest. Chapter 5 of this EIAR also considers the risk of any potential emissions to the local hydrological network to the general likely/known ecology resource in and around the application site.

Biodiversity & Air Quality

15.20 Activities undertaken at the site have the potential to create windblown dust which can impact on flora and fauna. Mitigation and management measures will be put in place at the site to prevent dust blow. Monitoring will be undertaken on a regular basis to ensure levels of dust deposition are within the recommended guideline values.

Biodiversity & Noise

15.21 Extraction and processing of the sand & gravel and related traffic can lead to noise emissions. Noise levels at mineral extraction sites may affect some birds and mammals particularly those sensitive to noise. It is unlikely that site activities will lead to a negative impact on the biodiversity in the vicinity of the application site. Noise emissions will be monitored and maintained within the recommended guideline values. There is no requirement for vibration monitoring as no blasting will be carried out.

Biodiversity & Landscape

15.22 A phased extraction and restoration plan has been compiled to minimise the impact associated with the proposed extraction activities. These include minimising the land occupied by extraction activities at any one-time, defined extraction and restoration phasing, retention of existing internal hedgerows for the maximum duration, return of the lands to a beneficial agricultural after-use and the planting of additional hedgerows in excess of what is proposed to be removed.

Land, Soils and Geology

Land, Soils and Geology & Water

15.23 The removal of topsoil and overburden can increase the risk of contamination of groundwater in the event of accidental spillages occurring. No fuel and oils will be stored at the site. Any refuelling and maintenance will be carried out at the existing concrete batching facility where fuels and oils are currently stored in bunded fuel tanks.

15.24 Notwithstanding this, a spill kit will be stored at the site in case of any accidental leaks from vehicles or machinery at the application site.

Land, Soils and Geology & Air Quality / Noise Control

15.25 Topsoils will be removed in phases in advance of sand and gravel extraction and stored in berms adjacent to the phased extraction areas. The berms will be vegetated in order to retain the soil and to avoid windblown dust. The screening berms will also provide a degree of acoustic screening (in addition to the acoustic fencing to be provided) as set out in Chapter 10 of this EIAR. Dust suppression will be undertaken where required in order to avoid windblown dust and monitoring will be undertaken to ensure that dust levels are within recommended guideline values.

Land, Soils and Geology & Cultural Heritage

15.26 Topsoils will be removed in phases in advance of sand and gravel extraction and stored in berms adjacent to the phased extraction areas. The removal of the topsoils and the underlying subsoils has the potential to disturb possible in-situ archaeological features as yet undiscovered and previously identified features.

15.27 Six items of archaeological heritage have been identified through previous investigations in the application area. Recommendations from previous assessments based on these investigations to preserved two features in situ with a 40m buffer zone have been included to the development proposals.

15.28 A number of other anomalies will be preserved by record in advance of development under licence from the National Monuments Service.

Land, Soils and Geology & Landscape

15.29 Progressive restoration of the site with previously stripped soils from the site has the benefit of allowing the return of the land to the farmer for recommencement of agricultural activities and for the creation of a natural looking landform to tie in smoothly with the surrounding topography.

Water

Water &Air Quality

15.30 Dust associated with sand and gravel extraction activities has the potential to contaminate surface water and groundwater if appropriate measures are not in place. Mitigation measures such as employing dust suppression on the processing equipment and dampening down haul roads during dry windy conditions will be put in place at the site to ensure that potential sources of dust do not give rise to dust emissions.

Water & Material Assets

15.31 There will be no requirement for any new water infrastructure and precautions / mitigation measures will be applied to ensure that any potential impact of site-based activities on the groundwater resource underlying the application site (e.g. accidental oil or fuel spills) and its associated use will be minimised.

15.32 There is no known mains water pipage underlying the site, but standard best practice construction measures will be followed to ensure due consideration is made of the potential for underlying infrastructure.

Air Quality

Air Quality & Traffic

15.33 The materials extracted from the site will be used to supply the adjacent existing concrete batching plant and there will be no increase in the level of traffic associated with the supply from the concrete plant.

15.34 The proposed development will benefit the wider road network as it will eliminate (bar the c.70m distance from the site entrance to the concrete batching facility) all associated aggregates supply HGV traffic travelling on the R108 to the concrete batching facility from other Kilsaran supply sites currently at Annagor and Ballynamona. Eliminating the requirement to transport materials from remote sites will therefore also have the added benefit of eliminating those HGV truck movements passing through the Naul village towards the concrete batching facility. The reduced traffic movements will also have a consequential reduction in carbon emissions.

15.35 Kilsaran operate a modern fleet of vehicles and upgrade road trucks on a regular basis which ensures emissions from vehicles is kept to a minimum.

Climate

Climate & Traffic / Air Quality

15.36 Plant and machinery operating at the site will result in emissions to air and climate which is difficult to mitigate against. The proportion of CO_2 emissions that would be likely as a consequence of the proposed development are very small in comparison with the national position. Energy conservation measures and good management practices will serve to reduce the

emissions in so far as is possible and Kilsaran is committed to implementing new technology to implement its carbon reduction targets as per company policy.

Noise

Noise & Traffic

15.37 HGV traffic entering / leaving the application site, as well as internal traffic within it, is a potential source of noise that may result from the proposed development. Various measures are proposed to maintain good condition of vehicles and roads and to ensure effective traffic management (of queuing and loading/unloading techniques) that can reduce the potential for noise emissions.

15.38 There will be no blasting at the site.

Landscape and Visual

Landscape & Cultural Heritage

15.39 The Naul Architectural Conservation Area (ACA) is located 0.57km east of the application site and not considered at risk of any impact to its setting from the proposals. The restoration of the site to tie in with the surrounding landscape will further protect the setting of the ACA.

Traffic

Traffic & Material Assets

15.40 Although the topic assessment of traffic is presented in Chapter 14 of the EIAR, the actual transport infrastructure itself as a human resource or built service is considered in Chapter 11 on Material Assets. No weaknesses or potential impact was identified in terms of the traffic burden from the proposed development on the built infrastructure.

Cultural Heritage

Cultural Heritage and Material Assets

15.41 Although the topic assessment of cultural heritage is presented in Chapter 12 of the EIAR, it is also considered a material asset given its value as a resource and its intrinsic links to specific places. The cultural heritage assessment addresses the value of resources as identified through the assessment by advising on the protective measures required in the design (buffer zone) and opportunities for recording anomaly features on site.