



17 Mitigation Measures

17.1 Introduction

The chapters contained within this Remedial EIAR (rEIAR) have been ordered in a grouped formatted by their relevant topic. This chapter summarises all mitigation measures proposed in order to provide a comprehensive overview of the full range of mitigation measures discussed within each chapter.

Paragraph 2(d) of the *Planning and Development Regulations 2001 (as amended)*, provides that the following information must be contained in an EIAR:

“A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of analysis after completion of the development), explaining the extent to which significant adverse effects on the environment area avoided, prevented, reduced or offset during both the construction and operational phases of the development;”

Based on the historical assessments and information provided, the historical quarry development was operated in a manner that ensured that the potential impacts on the receiving environment were avoided where possible. In cases where the impacts and potential impacts were identified, presumptive mitigation measures have been introduced that reduced the significance of particular impacts. These mitigation recommendations are contained within each chapter exploring the specific environmental aspects.

17.1.1 Examination of Alternatives

The mitigation measures outlined in this rEIAR, where appropriate, have been developed by competent experts relevant to the aspect of the environment under consideration and represent best practice with a view of avoiding or otherwise minimising potential impacts on the environment.

17.1.2 Alternative Mitigation Measures

There are no predicted residual impacts once mitigation measures have been successfully applied and therefore mitigation is not considered necessary.

17.2 Summary of Mitigation and Monitoring

Measures 17.2.1 Population and Human Health

The following is an outline of the mitigation measures assessed under Chapter 5, completed by Tom Phillips + Associates (TPA).



No mitigation measures are deemed necessary other than those outlined elsewhere in this EIAR.

17.2.2 Biodiversity

The following is an outline of the mitigation measures proposed during both the operational and construction phases for Chapter 6 completed by Ecology Ireland.

A discharge licence was granted by Carlow County Council in November 2011 (DL/S4/2011/2) with the purpose of licensing discharges to waters as defined in the Local Government (Water Pollution) Acts, 1977-2007. The quarry was registered by the previous owner in 2005 over an area of 25.7 hectares and had 18 conditions imposed in 2007 by Carlow County Council under Section 261(6)(a)(i), (Carlow County Council reg. ref.: QY14) which sought assurance in relation to limiting noise levels, prohibiting surface water runoff to discharge to the public road, requiring any necessary environmental licencing is obtained, prohibiting wastewater discharge, restricting the construction of ancillary buildings, requiring the public road is kept clean, requiring unsoiled surface water run-off collection and disposal, and requiring a restoration plan be submitted to the Planning Authority. These commitments were effective in addressing potential negative effects on sensitive downstream habitats and species.

The following mitigation measures were applied:

- The hours of operation were as follows: between 0700 hours and 1900 hours from Monday Friday and 0700 to 1300 on Saturday.
- The quarry did not operate on Sundays, Bank Holidays or Public Holidays.
- During the construction/operational phase of the proposed development, the noise level from within the boundaries of the site measured at noise sensitive locations in the vicinity, did not exceed:
 - an Leq,1h value of 55 dB(A) between 0800 to 1800 Monday through Friday and between 0900 and 1300 on Saturday.
 - an Leq, 1hr value of 35dB(A) at any other time. Night-time emissions shall have no tonal component.
- A water management system comprising the following was implemented:
 - Water entering the quarry void largely comprises largely of rainfall or runoff from the lands immediately upgradient of the quarry. There is no significant inflow of groundwater which reduces the volume of water to be attenuated and subsequently discharged.
 - Due to the low permeability of the underlying bedrock aquifer, this water gathers on the floor of the quarry.
 - There are 2 main flooded areas (one in the north and one in the south) on the quarry floor which provide significant attenuation of water.
 - A suitably sized settlement pond was also constructed downgradient of the quarry and provides additional attenuation of water from the southern section of the quarry.

It is considered that with the implementation of the mitigation measures outlined above, the development and operation of the quarry did not result in any likely, significant effects on groundwater and/or surface water. As a result, there were no significant potential to affect



the conditions within the designated sites hydrologically linked to the Site: River Barrow & River Nore SCA and Cloghristick Wood pNHA. A NIS accompanies this planning application and with the application of the proposed environmental controls, mitigation and monitoring, it is objectively concluded that no significant effects arising from the development and operation of the quarry did occur in relation to the Natura 2000 sites (i.e. River Barrow & River Nore SCA or indeed any other Natura 2000 site in the wider hinterland).

17.2.3 Land, Soils, & Geology

The following is an outline of the mitigation measures based on the assessments in Chapter 7, conducted by Hydro Environmental Services (HES).

17.2.3.1 Mitigation Measures

Extraction Phase (1995 Baseline to 2023)

Effects on Land (Land-Take and Topographic Changes)

In terms of effects within the Development Site, the effect on land and topography was considered to be significant as the landuse and topography within the extraction area was significantly altered from its 1995 baseline condition. However, these effects are considered to be an acceptable and unavoidable consequence of all quarry developments.

On a more regional scale, the loss of ~8.66ha of agricultural land is minimal. The Development Site is located in a rural area of County Carlow and is surrounded by agricultural lands. Therefore, the effects of actual agricultural land loss in the wider area was not considered to be significant.

Given the local undulating topography of the local area, and the location of the Development Site on a topographic high on the eastern edge of the Castlecomer Plateau changes to topography were minimal within the context of the overall landscape. The stripped overburden material and the material from the existing stockpiles, was used in the construction of boundary berms surrounding the extraction area, with excess spoil to be stored in the spoil storage area. The construction of the boundary berms assisted in screening the Development and assimilating into the landscape.

Mitigation includes a phased restoration plan which will return the extraction areas to agricultural land and scrubland.

Excavation of Soils and Subsoils

Site earthworks resulted in a direct impact on local soils and subsoils

The impacts was localised (i.e. only within the extraction area) and was mostly mitigated through the adoption of a suitable landscape and restoration plan which will be undertaken



as part of the restoration phase. The stripped topsoil was used to form berms around the extraction area, with any excess spoil being stored in the designated spoil storage areas.

The effects were considered to be an acceptable and unavoidable part of the Development as the soils and subsoils must be removed in order to expose the underlying bedrock which was extracted for economic purposes.

The excavated soils/subsoils are not notable from a geological heritage point of view.

Oil/Fuel Spillages and Leaks

Whilst there is no record of the mitigation measures implemented at the site with respect to hydrocarbons there is no evidence of pollution or spillages at the site. The highest standards of site management were likely maintained and utmost care and vigilance followed to prevent accidental contamination or unnecessary disturbance to the site during the operation of the quarry. These measures would have been tried and tested, best practice measures and would have been the same as those which are implemented at quarries across the country. No additional mitigation measures with respect to hydrocarbons would have been required.

The Section 261 Registration Notification from 2007 included a condition which restricted the construction of ancillary buildings. There is no evidence of wastewater disposal from the site and all wastewater was likely removed from the site by a licenced contractor.

Erosion of Soils and Subsoils

The following mitigation measures were adopted during the Extraction Phase to prevent the erosion of soils and subsoils:

- Soils and subsoils removed from the quarry area were used to create boundary berms around the extraction site, with excess spoil being stored in the designated spoil storage areas;
- Where possible the upper vegetative layer (where still present) was stored with the vegetation part of the sod facing the right way up to encourage growth of plants and vegetation at the surface of the stored soil within the restored areas;
- The berms and spoil storage areas were sealed with a digger bucket; and,
- Re-seeding and spreading/planting were also carried out in these areas.

Bedrock Extraction

Bedrock extraction resulted in a direct impact on the local geological environment.

The bedrock was considered to be of 'High' importance and had high potential for the development of a quarry. The bedrock extraction was considered to be an acceptable and



unavoidable part of the Development. However, the effects were localised within the extraction area.

Therefore, no specific mitigation measures in relation to the excavation of bedrock were required.

The rock to be quarried at the Development Site was not notable from a geological heritage point of view.

Current Phase (2023 – Present)

Effects on Land (Land-Take and Topographic Changes)

The area of land owned by the Applicant remained the same. There were no effects on land or topography since the change in land use from an active quarry to a former extraction site.

No specific mitigation measures were required.

Effects on Bedrock

No mitigation measures were required as no rock was extracted during the Current Phase.

Contamination by Leakages and Spillages

There was very little activity at the Development Site during the Current Phase. The mitigation measures detailed in Section 7.6.1.3 were also implemented during the Current Phase for any site-going vehicles.

17.2.4 Hydrology

The following is an outline of the mitigation measures proposed as part of the assessment under Chapter 8 of this rEIAR, conducted by Hydro Environmental Services.

17.2.4.1 Mitigation Measures

Extraction Phase

Effects on Local Groundwater Vulnerability Rating

The removal of overburden from the extraction area resulted in a slight increase in the groundwater vulnerability rating.

The main mitigation with respect to groundwater quality which was employed during the extraction phase was the employment of best practice mitigation measures with respect to oil



usage and refuelling of plant and machinery. These mitigation measures are described in full in Section 8.6.1.6 below.

All operations on-site were completed in accordance with a comprehensive Environmental Management Plan (EMP) which was updated as a working document and oversaw all activities at the site.

Alteration of Drainage Patterns

The rerouting of the upper reaches of the Raheendoran Stream and the redirection of this water towards the Mortarstown Stream had a profound negative effect. The hydromorphology of the Raheendoran Stream within the extraction area has been erased and the drainage patterns altered as a result of the Development. No specific mitigation measures were implemented with respect to preserving the Raheendoran Stream within the site.

Downstream Surface Water Flow Volumes

The Development included the provision of a water management system. There was no discharge of untreated or unattenuated waters from the extraction area.

The water management system comprises of the following:

- Water entering the quarry void largely comprises largely of rainfall or runoff from the lands immediately upgradient of the quarry. There is no significant inflow of groundwater which reduces the volume of water to be attenuated and subsequently discharged;
- Due to the low permeability of the underlying bedrock aquifer, this water gathers on the floor of the quarry;
- There are 2 main flooded areas (one in the north and one in the south) on the quarry floor which provide significant attenuation of water; and,
- A suitably sized settlement pond was also constructed downgradient of the quarry and provides additional attenuation of water from the southern section of the quarry.

The constructed settlement pond and the large, flooded areas on the quarry floor served to attenuate and restrict runoff rates from the site. Based on the flow monitoring described in Section 8.3.3.2, discharge volumes from the quarry are likely to have been small and comparable to greenfield runoff rates.

Entrainment of Suspended Solids in Surface Waters

The Development utilised a water management system designed to prevent contamination of local surface waters with elevated concentrations of suspended solids. All water within the quarry void was directed to flooded areas on the quarry floor or suitably sized settlement



ponds in the floor of the quarry (and downgradient of the quarry) which allowed for the settlement of suspended solids.

Management of Drainage from Spoil Storage Areas: Excavated soil/subsoil material was used for landscaping throughout the Development Site and in the construction of boundary berms. Berms were sealed with a digger bucket and vegetated as soon possible to reduce sediment entrainment in drainage water. Once re-vegetated and stabilised berms were no longer be a potential source of silt laden drainage water.

The topsoil/overburden was removed incrementally as the quarry expanded. This limited the potential for effects as only small volumes of material were disturbed at any one time.

Timing of Site Preparation Works: The removal of soil/subsoil from the other extraction area was carried out during periods of low rainfall. This minimised the risk of entertainment of suspended sediment in drainage water.

No other mitigation measures were required.

Local Groundwater Levels

The extraction only extended to a depth of 304mOD, thereby significantly limiting the potential for effects on groundwater levels.

The Development did not include any active dewatering.

Site investigations and groundwater level monitoring at the site have revealed that the rock underlying the Development Site is of low permeability. No significant groundwater inflows are occurring into the existing quarry void.

The Development had no potential to significantly impact local groundwater levels.

Furthermore, there was no significant alteration of local groundwater recharge or surface water runoff rates as a result of the Development.

No specific mitigation measures were required.

Contamination of Groundwater by Leakages and Spills

Whilst there is no record of the mitigation measures implemented at the site with respect to hydrocarbons there is no evidence of pollution or spillages at the site. Furthermore the downstream Q-ratings do not record any deterioration in water quality. Based on the above, the highest standards of site management were likely maintained and utmost care and vigilance followed to prevent accidental contamination or unnecessary disturbance to the site during the operation of the quarry. These measures would have been tried and tested, best practice measures and would have been the same as those which are implemented at quarries



across the country. No additional mitigation measures with respect to hydrocarbons would have been required.

The Section 261 Registration Notification from 2007 included a condition which restricted the construction of ancillary buildings. There is no evidence of wastewater disposal from the site and all wastewater was likely removed from the site by a licenced contractor.

Contamination of Surface Water by Leakages and Spills

The mitigation measures were the same as those described above for contamination of groundwater by leakages or spills.

Group Water Schemes

There was no effects on the Ballinabranna GWS for the following reasons:

- The separation distance (~2.4km) between the Development Site and the boreholes which supply the Ballinabranna GWS;
- No area of the Development Site is located within the delineated Source Protection Area associated with this GWS. The Source Protection Area is located ~600m to the south;
- The low permeability of the bedrock underlying the Development Site means that the majority of potential groundwater recharge is rejected;
- Groundwater flowpaths are short with groundwater discharging into nearby surface watercourses;
- Therefore, there was no potential for groundwater at the Development Site to reach the Ballinabranna GWS boreholes;
- Furthermore, there was no significant inflow of groundwater into the quarry void and the Development has very limited potential to alter groundwater recharge rates;
- Compliance with the conditions issued by Carlow Co. Co. in 2007 and the discharge Licence conditions would have been effective in addressing any potential negative effects on local water quality; and,
- These mitigation measures were used at similar bedrock quarries across the county and are proven to protect the hydrogeological environment.

Local Private Groundwater Well Supplies

There were no effects on the local private groundwater well supplies for the following reasons:



- The separation distance between the extraction area and local private groundwater well supplies;
- The low permeability of the bedrock underlying the Development Site means that the majority of potential groundwater recharge is rejected;
- No conduits for groundwater flow were present at the Development Site that could act as a pathway for potential contaminants;
- Groundwater flowpaths are short with groundwater discharging into nearby surface watercourses;
- There was no significant inflows of groundwater into the quarry void and the Development had very limited potential to alter groundwater recharge rates;
- Therefore, there was no potential for the Development to impact groundwater levels or groundwater quantity in local well supplies;
- Compliance with the conditions issued by Carlow Co. Co. in 2007 and the discharge Licence conditions would have been effective in addressing any potential negative effects on local water quality; and,
- It is understood that there was no significant contamination events at the Development Site; and,
- These mitigation measures are used at similar bedrock quarries across the county and are proven to protect the hydrogeological environment.

Downstream Designated Sites

There was no potential for effects on the River Barrow and River Nore SAC or Cloghrick Wood pNHA for the following reasons:

- Whilst the Development is hydrologically connected to the River Barrow and these designated sites, the Development is in excess of 2km from the Barrow;
- The length of the hydrological flowpath between the Development Site and the SAC is >2.5km whilst the flowpath to the pNHA is ~6km;
- There was limited potential for effects due to the volume of water within the River Barrow in comparison to the small discharge volumes;
- However, the Development does not rely on the dilution or assimilative capacity of any downstream watercourse;
- The Development utilised a water management system designed to prevent contamination of local surface waters with hydrocarbons or suspended solids;



- Compliance with the conditions issued by Carlow Co. Co. in 2007 and the discharge Licence conditions would have been effective in addressing any potential negative effects on local water quality; and,
- By ensuring the protection of watercourses proximal to the site, the status of all downstream designated sites was also protected.

WFD Status

Strict mitigation measures in relation to the protection of surface waters and groundwaters have been described in the preceding sections. The implementation of these mitigation measures ensured the quantitative and qualitative status of the receiving SWBs and the underlying GWB were not altered.

There was no change in the WFD status of the underlying Shanragh GWB or downstream SWBs (Barrow_170 SWB) resulting from the Development. As such, the Development was compliant with the requirements of the Water Framework Directive (2000/60/EC).

Current Phase

Downstream Surface Water Flow Volumes

The water management system described in Section 8.9.1.3 continued to operate during the Current Phase. Surface water from the quarry was attenuated on the floor of the quarry and in the suitably sized settlement ponds. There was no discharge of untreated or unattenuated water.

Contamination of Groundwater by Leakages and Spills

During the Current Phase, there was very limited activity at the Development Site. No refuelling occurred on site and all plant and machinery associated with the quarrying were removed from the site. No specific mitigation measures were required with respect to hydrocarbons.

Surface Water by Leakages and Spills

Due to the limited activity on-site, no specific mitigation measures were required with respect to hydrocarbons.

Local Private Groundwater Well Supplies

No specific mitigation measures required due to the limited activity on-site and the local hydrogeological regime which is characterized by a bedrock of low permeability.

Downstream Designated Sites



There was no discharge of untreated or unattenuated waters during the Current Phase. All water within the quarry void is attenuated in the flooded areas on the floor of the quarry or in the suitably sized settlement ponds. These features also allow for the settlement of suspended solids from solution, therefore, protecting downstream surface water quality. No additional mitigation measures were required.

WFD Status

The mitigation measures in relation to the protection of surface waters and groundwaters have been described in the preceding sections. The implementation of these mitigation measures ensured the quantitative and qualitative status of the receiving SWBs and the underlying GWB were not altered.

There was no change in the WFD status of the underlying Shanragh GWB or downstream SWBs (Barrow_170 SWB) resulting from the Development. As such, the Development was compliant with the requirements of the Water Framework Directive (2000/60/EC).

17.2.5 Air

The following is an outline of the mitigation measures proposed as assessed under Chapter 9 of this rEIAR, conducted by AWN Consulting Limited.

17.2.5.1 Mitigation Measures

There were a number of mitigation measures in place on site to prevent significant dust emissions from on-site activities. These measures include:

- A wheel wash was in place on site which trucks must pass through prior to exiting onto the private site access road.
- Site roads were dampened using wet methods during dry periods.
- Sweeping and cleaning of site roads and adjoining public roads was carried out.
- All fine materials were covered when leaving the site to prevent dust escaping.
- Speeds restrictions were in place on site.
- Perimeter natural vegetation and screening mounds were maintained.
- Plant and equipment was regularly maintained and inspected.
- Traffic management measures were implemented.



These measures have been incorporated into the modelling assessment to determine the impact of the site on levels of dust deposition and ambient levels of particulate matter (PM10 / PM2.5).

17.2.6 Climate

The following is an outline of the mitigation measures proposed during both the operational and construction phases for Chapter 10 conducted by AWN Consulting Limited.

17.2.6.1 Mitigation Measures

Construction Phase

Due to the minimal nature of the construction works significant impacts to climate are not predicted and no mitigation was necessary.

Operational Phase

The information available indicates that there were no specific mitigation measures implemented on site in relation to reducing emissions or climate impacts.

17.2.7 Noise & Vibration

The following is an outline of both the historical and recommended mitigation measures proposed in Chapter 11 of this rEIAR, conducted by Wave Dynamics.

17.2.7.1 Mitigation Measures

Historical Mitigation Measures

To date, no records of noise complaints have been received by the applicant as a result of activities associated with the Development.

Plant operating hours were from approx. 07:00 to 18:00 Monday to Friday and 07:00 to 13:00 on Saturdays. No quarrying activities took place on Sundays or Public Holidays.

During the operational phase of the development, the associated plant and equipment was predominantly situated in proximity to the working face of the quarry at various intervals throughout its operational lifetime. This strategic placement effectively mitigated noise emissions from on-site operations, as the equipment was often shielded by the site's topography and was not fixed in a singular location. The following mitigation measures were implemented during the operational phase of the development:



- All equipment, both fixed and mobile, was maintained to a high standard to minimize any tonal or impulsive sounds.
- All equipment was systematically throttled down or switched off when not in use.
- The drop heights of materials were minimized to reduce noise.
- Rubber linings were utilized on chutes and transfer points to further attenuate sound.
- Where feasible, plant and machinery were enclosed or clad to enhance noise reduction.
- Internal routes were carefully designed to minimize noise emissions from vehicles on site.

Recommended Mitigation Measures

Construction Phase (Site Preparation) Noise & Vibration

This stage of works has now ceased. No mitigation required relating to noise control or vibration control.

Operational Phase Noise & Vibration

This stage of works has now ceased. No mitigation required relating to noise control or vibration control.

The worst-case predicted operational noise levels are included in Table 11.11. These predicted operational noise levels indicate that the nearest noise sensitive locations to the Development would have experienced noise levels that are below or slightly above the applicable noise threshold limit as designated by Quarry's and Ancillary Activities Guidelines and EPA NG4: 55 dBA LAeq (1hr) for Daytime: 08:00hrs - 20:00hrs.

In the instance where predicted operational noise levels were slightly above the 55 dBA LAeq (1hr) noise threshold i.e. NSL 4, it must be noted that these predictions are worst case, and in reality, operational noise levels would be lower. These operational noise predictions are deemed to be worst case based on the following:

- Free field conditions are assumed, and ground effects are ignored;
- Equipment is assumed to be operational at closest point of the approximate extraction area boundary to the noise sensitive locations (NSL's) (resulting in over-estimation);
- Predictions are based on the noisiest pieces of equipment simultaneously operational; and



- No barrier effects have been applied.

Predicted noise levels from historical operational activities have been predicted to comply with the Quarry's and Ancillary Activities Guidelines and EPA NG4: 55 dBA LAeq (1hr) for Daytime: 08:00hrs - 20:00hrs, as best practice measures would have been employed to ensure that operational phase noise levels would be reduced to the lowest possible levels.

17.2.8 Material Assets: Waste

The following is an outline of the mitigation measures proposed during both the operational and construction phases for Chapter 12 conducted by AWN Consulting Limited.

17.2.9 Mitigation Measures

This section outlines the measures that should have been employed in order to reduce the amount of waste produced, manage the wastes generated responsibly and handle the waste in such a manner as to minimise the effects on the environment.

The concept of the 'circular economy'(CE) and 'waste hierarchy' are employed when considering all mitigation measures.

While the waste hierarchy states that the preferred option for waste management is prevention and minimisation of waste, followed by preparing for reuse and recycling / recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal.

Construction Phase

The following mitigation measures were implemented during the construction phase of the development:

WM_1: As previously stated, a project-specific RWMP has been prepared in line with the requirements of the EPA 'Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021) and is included as Appendix 12.1. The mitigation measures outlined in the RWMP should have been implemented in full and form part of the mitigation strategy for the site. The mitigation measures presented in this RWMP would normally ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the excavation and construction phases of the Proposed Development.

- Prior to commencement, the appointed Contractor(s) should be required to refine / update the RWMP (Appendix 12.1) in agreement with CCC and in compliance with any planning conditions, or submit an addendum to the RWMP to CCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.



- The Contractor implemented the RWMP throughout the duration of the excavation and construction phases.

WM_2: There was soil, stones, clay excavated to facilitate construction of the development and as part of normal quarrying practices. It is envisaged that excavated material was sold as product and where excavated material is not of product standard it was retained and reused onsite for landscaping and fill. If any of the remaining material is deemed unsuitable for reuse, it was removed offsite. If removal is required, correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that did not impact negatively on workers as well as on water and soil environments, both on and off-site.

WM_3: Building materials were be chosen to 'design out waste';

WM_4: On-site segregation of waste materials was carried out to increase opportunities for off-site reuse, recycling and recovery. The following waste types, at a minimum, were segregated:

- Clean Soil and;
- Contaminated soil (if located onsite)

WM_5: Left over materials and any suitable construction materials was re-used on-site, where possible; (alternatively, the waste was sorted for recycling, recovery or disposal);

WM_6: All waste materials were stored in skips or other suitable receptacles in designated areas of the site;

WM_7: Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) were also be segregated and were stored in appropriate receptacles (in suitably bunded areas, where required);

WM_8: A Resource Manager was appointed by the main Contractor(s) to ensure effective management of waste during the excavation and construction works;

WM_9: All construction staff were provided with training regarding the waste management procedures;

WM_10: All waste leaving site was reused, recycled or recovered, where possible, to avoid material designated for disposal;

WM_11: All waste leaving the site was be transported by suitably permitted contractors and taken to suitably registered, permitted or licenced facilities;

WM_12: All waste leaving the site was recorded and copies of relevant documentation maintained;



WM_13: Nearby sites requiring clean fill material were be contacted to investigate reuse opportunities for clean and inert material, if required. If any of the material is to be reused on another site as by-product (and not as a waste), this was done in accordance with Regulation 27 (By-products), as amended, European Union (Waste Directive) Regulations 2011-2020.

These mitigation measures ensure that the waste that arose from the construction phase of the Development was dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations and the Litter Pollution Act 1997, as amended and the NWMPCE. It did ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and did promote more sustainable consumption of resources.

Operational Phase

During the facilities operations, waste materials were be segregated on-site, where possible, into at least the following non-hazardous waste types:

WM_14: Waste volumes generated on site are low and primarily consist of the following waste streams that did derive from either the canteen or the maintenance of on-site mobile plant:

- LoW/EWC 20 01 08 biodegradable kitchen and canteen waste
- LoW/EWC 20 03 01 mixed municipal waste
- LoW/EWC 16 01 07* oil filters
- LoW/EWC 16 01 13* brake fluids
- LoW/EWC 16 01 99 wastes not otherwise specified
- LoW/EWC 13 05 03* interceptor sludges

WM_15: All waste materials were segregated into appropriate categories and were stored in appropriate bins or other suitable receptacles in designated, easily accessible areas of the site. Bins were clearly identified with the approved waste type to ensure there is no cross contamination of waste materials.

WM_16: All wastes generated by the servicing and maintenance of plant is immediately removed from site by the service contractor.

WM_17: Sludges from the on-site interceptor is removed on a regular basis (at least annually) by a suitably licensed operator.

WM_18: During the operational phase, personnel monitored waste generation volumes against previous yearly quantities. There may be opportunities to reduce the waste receptacles, collection frequencies and equipment required where estimates have been too conservative. Reductions in equipment/bin requirements were reduce waste contractor costs. Waste legislation should also be consulted on a regular basis in case of any changes which may impact on waste management procedures.



WM_19: The operator and staff did ensure that all waste leaving the site was transported by suitably permitted contractors and taken to suitably registered, permitted, or licensed facilities.

These mitigation measures did ensure the waste arising from the development is dealt with in compliance with the provisions of the Waste Management Acts 1996 - 2011 and associated Regulations, the Litter Pollution Act of 1997 as amended and the NWMPCE. It did ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved.

17.2.9.1 Monitoring

The management of waste during the construction phase was monitored by the Contactor's appointed Resource Manager to ensure compliance with the above-listed mitigation measures, and relevant waste management legislation and local authority requirements, including maintenance of waste documentation.

The management of waste during the operational phase was monitored by the Operator / Personnel to ensure effective implementation of the operational mitigation by the nominated waste contractor(s).

Likely Significant Effect	Monitoring Proposals
Litter Pollution (Construction Phase)	The Contractor reviewed and maintained waste records and site audits.
Unlicensed Waste Collection (Illegal Dumping) (Construction Phase)	A register was maintained and reviewed. A copy of all waste collection permits was maintained.
Insufficient Waste Facilities	A register was maintained and reviewed. A copy of all waste collection permits was maintained.
Lack of Waste Classification	An appointed Resource Manager did monitor all on-site waste segregation and classification
Unlicensed Waste Collection (Illegal Dumping) (Operational Phase)	The operator/facilities management company maintained waste receipts on-site for a period of 7 years and made it available to CCC when requested.
Poor Waste Segregation	Waste generation volumes and cross contamination was monitored by the operator/facilities management company.
Litter Pollution (Operational Phase)	Waste storage areas were monitored by the operator / facilities management company

Construction Phase

The objective of setting targets for waste management is only achieved if the actual waste generation volumes are calculated and compared. This is particularly important during the excavation and construction phases where there is a potential for waste management to become secondary to progress and meeting construction schedule targets.



The management of waste during the construction phase was monitored to ensure compliance with relevant local authority requirements, and effective implementation of the RWMP, including maintenance of waste documentation. The mitigation measures in the RWMP specify the need for a Resource Manager to be appointed who did have responsibility to monitor the actual waste volumes being generated and to ensure that contractors and sub-contractors are segregating waste as required. Where targets are not being met, the Resource Manager shall identify the reasons for targets not being achieved and work to resolve any issues. Recording of waste generation during the construction phase did enable better management of waste contractor requirements and identify trends.

Operational Phase

The management of waste during the operational phase shall be monitored to ensure effective implementation of mitigation measures by facilities management and the nominated waste contractor(s). There may be opportunities to reduce the number of bins and equipment required in the Waste Storage Area where estimates have been too conservative. Reductions in bin and equipment requirements did improve efficiency and reduce waste contractor costs.

17.2.10 Traffic

The following is an outline of the mitigation measures proposed during both the operational and construction phases for Chapter 13 conducted by Transport Insights.

17.2.10.1 Mitigation Measures

No direct effects warranting specific mitigation were identified during the cultural heritage assessment and no mitigation is required.

No indirect effects on any items of cultural heritage, archaeology or architectures warranting specific mitigation were identified during the course of the cultural heritage assessment.

17.2.11 Archaeology

The following is an outline of the mitigation measures proposed during both the operational and construction phases for Chapter 14 conducted by Dr. Charles Mount Archaeology and Cultural Heritage.

No direct effects warranting specific mitigation were identified during the cultural heritage assessment and no mitigation is required.

No indirect effects on any items of cultural heritage, archaeology or architectures warranting specific mitigation were identified during the course of the cultural heritage assessment.

17.2.12 Landscape Visual Impact Assessment



The following is an outline of the mitigation measures proposed during both the operational and construction phases for Chapter 13 of this rEIAR, conducted by Macro Works (APEM).

The main mitigation by avoidance measure employed in this instance is the siting of the proposed development adjacent and contiguous with the existing quarry, which is a long-established land use in the area. Additionally, the proposed development is situated in a contained landscape context that avails of a high degree of existing screening in the form of existing vegetated berms and surrounding mature vegetation. The proposed development is also contained in a landscape context already influenced by the extractive industry within the study area, which limits its potential to present as a new or incongruous development type.

A restoration plan is also proposed as part of the application, which outlines the proposed restoration of the site once it is decommissioned. This will involve the pulling back of steep slopes for both safety and native vegetation establishment in a naturalistic mosaic pattern that maximises potential for biodiversity.

Retention of existing vegetated berms around the site will retain visual screening of the quarry from visual receptors in the surrounding area. The implementation of additional restoration planting will ensure dense and consistent screening of the quarry in perpetuity.