

Unit 15
Melbourne Business Park
Model Farm Road
Cork



T: 021 434 5366
E: info@ocallaghanmoran.com
www.ocallaghanmoran.com

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

KILLARNEY WASTE DISPOSAL LTD

AUGHACURREEN

KILLARNEY

COUNTY KERRY

Prepared For: -

Killarney Waste Disposal Ltd
Aughacurreen,
Killarney,
County Kerry

Prepared By: -

O' Callaghan Moran & Associates,
Unit 15,
Melbourne Business Park,
Model Farm Road,
Cork.
T12 WR89

December 2017

Project	Environmental Impact Assessment Report			
Client	KWD Recycling			
Report No	Date	Status	Prepared By	Reviewed By
172330101	12/12/2017	Draft Client Review	Conor McGrath MSc; Ryan Povey Bsc; Neil Sandes BSc Martina Gleason PhD	Jim O'Callaghan MSc, CEnv, MICWM
	17/12/2017	Draft Rev A		
	19/12/2017	Draft Rev B		
	22/12/2017	Final		

For inspection purposes only.
Consent of copyright owner required for any other use.

TABLE OF CONTENTS

PAGE

NON-TECHNICAL SUMMARY

PREAMBLE

1	INTRODUCTION	1-1
1.1	THE APPLICANT	1-1
1.2	FACILITY OVERVIEW	1-1
1.3	PROPOSED DEVELOPMENT	1-1
2	WASTE MANAGEMENT POLICY	2-1
2.1	INTRODUCTION	2-1
2.2	WASTE MANAGEMENT POLICY	2-1
2.3	NEED FOR THE DEVELOPMENT.....	2-3
3	ALTERNATIVES EXAMINED.....	3-1
3.1	INTRODUCTION	3-1
3.2	EXISTING SITE	3-1
3.3	ALTERNATIVES	3-1
3.4	ALTERNATIVE TECHNOLOGIES.....	3-2
3.5	THE DO NOTHING ALTERNATIVE.....	3-2
4	FACILITY DESCRIPTION.....	4-1
4.1	INTRODUCTION	4-1
4.2	SITE LOCATION.....	4-1
4.3	SURROUNDING LAND USE	4-1
4.4	SITE LAYOUT.....	4-1
4.5	SITE SECURITY.....	4-1
4.6	SERVICES	4-5
4.7	FACILITY MANAGEMENT	4-7
4.8	WASTE TYPES & QUANTITIES.....	4-7
4.9	WASTE ACCEPTANCE PROCEDURE.....	4-8
4.10	WASTE PROCESSES	4-8
4.11	WASTE STORAGE.....	4-9
4.12	RESOURCE CONSUMPTION AND ENERGY EFFICIENCY.....	4-9
4.13	SAFETY AND HAZARD CONTROL.....	4-10
4.14	PLANT MAINTENANCE AND BREAKDOWN	4-10
4.15	OIL / CHEMICAL STORAGE.....	4-10
4.16	WASTE GENERATION.....	4-10
4.17	EMISSIONS	4-10
4.18	EMISSION CONTROLS	4-12
4.19	NUISANCE CONTROL	4-12
4.20	ENVIRONMENTAL MONITORING	4-12
4.21	INCIDENTS AND COMPLAINTS	4-13

4.22	EMERGENCIES.....	4-13
4.23	NATURAL DISASTERS AND MAJOR ACCIDENTS.....	4-13
4.24	PROPOSED DEVELOPMENT	4-14
5	CLIMATE.....	5-1
5.1	INTRODUCTION	5-1
5.2	METHODOLOGY	5-1
5.3	RECEIVING ENVIRONMENT	5-1
5.4	IMPACTS.....	5-1
5.5	DO NOTHING SCENARIO	5-2
5.6	PREVENTION & MITIGATION MEASURES.....	5-2
5.7	ASSESSMENT OF IMPACTS.....	5-3
5.8	RESIDUAL IMPACTS	5-3
6	TRAFFIC & TRANSPORT.....	6-1
6.1	INTRODUCTION	6-1
6.2	METHODOLOGY	6-1
6.3	RECEIVING ENVIRONMENT	6-1
6.4	PREDICTED TRAFFIC	6-2
6.5	IMPACTS.....	6-3
6.6	DO NOTHING SCENARIO	6-3
6.7	PREVENTION AND MITIGATION MEASURES.....	6-3
6.8	ASSESSMENT OF IMPACTS.....	6-3
6.9	RESIDUAL IMPACTS	6-3
7	SOILS & GEOLOGY	7-1
7.1	INTRODUCTION	7-1
7.2	METHODOLOGY	7-1
7.3	RECEIVING ENVIRONMENT	7-1
7.4	IMPACTS.....	7-3
7.5	DO NOTHING SCENARIO	7-3
7.6	PREVENTION AND MITIGATION MEASURES.....	7-3
7.7	ASSESSMENT OF IMPACTS.....	7-5
7.8	RESIDUAL IMPACTS	7-5
8	WATER.....	8-1
8.1	INTRODUCTION	8-1
8.2	METHODOLOGY	8-1
8.3	RECEIVING ENVIRONMENT-SURFACE WATER	8-1
8.4	RECEIVING ENVIRONMENT-GROUNDWATER	8-5
8.5	FLOOD RISK.....	8-16
8.6	IMPACTS.....	8-16
8.7	DO NOTHING SCENARIO.	8-21
8.8	PREVENTION & MITIGATION MEASURES.....	8-21
8.9	ASSESSMENT OF IMPACTS.....	8-22
8.10	RESIDUAL IMPACTS	8-22
9	BIODIVERSITY.....	9-1
9.1	INTRODUCTION	9-1
9.2	METHODOLOGY	9-1

For inspection purposes only. Consent of copyright owner required for any other use.

9.3	RECEIVING ENVIRONMENT	9-2
9.4	IMPACTS	9-6
9.5	DO NOTHING SCENARIO	9-6
9.6	PREVENTION & MITIGATION MEASURES.....	9-7
9.7	ASSESSMENT OF IMPACTS.....	9-7
9.8	RESIDUAL IMPACTS	9-8
10	AIR.....	10-1
10.1	INTRODUCTION	10-1
10.2	METHODOLOGY	10-1
10.3	RECEIVING ENVIRONMENT	10-1
10.4	IMPACTS	10-2
10.5	DO NOTHING SCENARIO	10-3
10.6	PREVENTION & MITIGATION MEASURES.....	10-3
10.7	ASSESSMENT OF IMPACTS.....	10-3
10.8	RESIDUAL IMPACTS	10-4
11	NOISE.....	11-1
11.1	INTRODUCTION	11-1
11.2	METHODOLOGY	11-1
11.3	RECEIVING ENVIRONMENT	11-1
11.4	IMPACTS	11-1
11.5	DO NOTHING SCENARIO	11-3
11.6	PREVENTION & MITIGATION MEASURES.....	11-3
11.7	ASSESSMENT OF IMPACTS.....	11-3
11.8	RESIDUAL IMPACTS	11-4
12	LANDSCAPE & VISUAL IMPACT	12-1
12.1	INTRODUCTION	12-1
12.2	METHODOLOGY	12-1
12.3	RECEIVING ENVIRONMENT.....	12-1
12.4	IMPACTS	12-4
12.5	DO NOTHING SCENARIO	12-5
12.6	PREVENTION & MITIGATION MEASURES.....	12-5
12.7	ASSESSMENT OF IMPACTS.....	12-5
12.8	RESIDUAL IMPACTS	12-5
13	POPULATION & HUMAN HEALTH.....	13-1
13.1	INTRODUCTION	13-1
13.2	METHODOLOGY	13-1
13.3	RECEIVING ENVIRONMENT	13-1
13.4	IMPACTS	13-2
13.5	DO NOTHING SCENARIO	13-2
13.6	PREVENTION & MITIGATION MEASURES.....	13-2
13.7	ASSESSMENT OF IMPACT	13-3
13.8	RESIDUAL IMPACTS	13-3
14	ARCHAEOLOGY, ARCHITECTURE & CULTURAL HERITAGE.....	14-1
14.1	INTRODUCTION	14-1
14.2	METHODOLOGY	14-1

14.3	RECEIVING ENVIRONMENT	14-1
14.4	IMPACTS	14-2
14.5	DO NOTHING SCENARIO	14-2
14.6	PREVENTION AND MITIGATION MEASURES	14-2
14.7	ASSESSMENT OF IMPACT	14-2
14.8	RESIDUAL IMPACTS	14-2
15	MATERIAL ASSETS / NATURAL RESOURCES	15-1
15.1	INTRODUCTION	15-1
15.2	METHODOLOGY	15-1
15.3	RECEIVING ENVIRONMENT	15-1
15.4	IMPACTS	15-3
15.5	DO NOTHING SCENARIO	15-3
15.6	PREVENTION & MITIGATION MEASURES	15-3
15.7	ASSESSMENT OF IMPACTS	15-4
15.8	RESIDUAL IMPACT	15-4
16	INTERACTION OF THE FOREGOING	16-1
16.1	INTRODUCTION	16-1
16.2	POPULATION & HEALTH / AIR / NOISE	16-1
16.3	HUMAN BEINGS / TRAFFIC	16-1
16.4	CLIMATE / AIR/TRAFFIC	16-1
16.5	16.5 SURFACE WATER / BIODIVERSITY	16-1
16.6	CUMULATIVE EFFECTS	16-2

For inspection purposes only.
Consent of copyright owner required for any other use.

LIST OF FIGURES

Figure 4.1	Site Location
Figure 4.2	Surrounding Land Use
Figure 7.1	Soils
Figure 7.2	Geology
Figure 8.1	Surface Water Features
Figure 8.2	Aquifer Classification
Figure 8.3	Aquifer Vulnerability
Figure 8.4	Well Locations
Figure 9.1	Natura 2000 Sites
Figure 15.1	Land Use

*For inspection purposes only.
Consent of copyright owner required for any other use.*

LIST OF DRAWINGS

- Drawing No. 01 - Existing Site Layout
- Drawing No. 02 - Drainage Layout

*For inspection purposes only.
Consent of copyright owner required for any other use.*

LIST OF APPENDICES

Appendix 1	Waste Acceptance Procedures
Appendix 2	Waste Storage Plan
Appendix 3	Bund & Sump Integrity Test Reports
Appendix 4	Emergency Response Procedure
Appendix 5	Environmental Liability Risk Assessment
Appendix 6	Fire Risk Assessment
Appendix 7	Firewater Retention Assessment
Appendix 8	Traffic & Transport Assessment
Appendix 9	Hydrogeological Survey Report 2017
Appendix 10	Water Body Reports
Appendix 11	Natura 2000 Site Synopses
Appendix 12	Noise Survey
Appendix 13	Archaeological & Cultural Heritage Report

NON-TECHNICAL SUMMARY

1.0 Introduction

1.1 The Applicant

Killarney Waste Disposal, trading as KWD Recycling is one of the largest waste management companies in the south-west of Ireland, providing household, commercial and industrial waste services.

1.2 Facility Overview

The facility is located in Aughacurreen, approximately 4 km north of Killarney. It covers 2.2 hectares (ha) and is occupied by a weighbridge, main processing building and annex, maintenance building, plastics store, food waste storage area, metal processing and storage yard, timber storage yard, a constructed wetland and paved open yards.

1.2.1 Site History

The site was developed as a waste management facility in 1987 on lands that had previously been used for agricultural purposes. KWD Recycling initially operated under Waste Permits issued by Kerry County Council. In 2005 the Environmental Protection Agency (EPA) granted the current Waste Licence.

1.2.2 Waste Activities

KWD Recycling currently accepts, processes and stores non-hazardous residual household and commercial wastes pending transfer to other waste recovery/disposal facilities. The current licence limits the quantity of waste that can be accepted annually to 40,000 tonnes.

1.3 Proposed Development

It is proposed to increase the amount of waste accepted to 59,000 tonnes annually. The existing infrastructure and processing equipment have the capacity to accommodate the increase, and the proposed development does not involve the construction of any new buildings, will not require the provision of new or additional plant and equipment. The proposed the waste acceptance hours will be 7.30am to 7.30pm and the operational hours will be 6.00am to 12.00pm.

2.0 Planning and Waste Management Policy

2.2 Waste Management Policy

The foundation policy statement on waste management “*Changing Our Ways*” bases national policy on the EU Waste Management Hierarchy, which in descending order is:

- Prevention;
- Preparing for Reuse;
- Recycling;
- Other Recovery (including energy recovery), and
- Disposal

The most recent Policy Statement ‘*A Resource Opportunity Waste Management Policy In Ireland 2012*’ is also based on the EU Waste Management Hierarchy and sets out how the higher tiers can reduce Ireland’s reliance on finite resources, virtually eliminate reliance on landfill, and minimise the impact of waste management on the environment. It is a policy objective that when waste is generated, the maximum value must be extracted from it by ensuring that it is reused, recycled, or recovered.

2.2.1 Waste Management Plan for the Southern Region

One of the key objectives of the Plan is to promote waste pre-treatment capacity which is vital in extracting and generating high-quality materials for further treatment.

2.2.3 Compliance with Policy Objectives

The proposed development is consistent with the current and national and regional waste policy objectives, as it will increase the pre-treatment capacity to get the maximum value from the waste and will contribute to the achievement and maintenance of national and regional recycling and recovery targets.

2.3 Need for the Development

The waste acceptance limits set in the current licence prevent KWD Recycling from increasing its waste recycling and recovery rates in its catchment area.

3. Alternatives Examined

The facility is specifically designed and has established use for waste activities and it has the capacity to accommodate the proposed increase in the amount of waste accepted. The only alternative would be to construct a new waste management facility at a different location and this offers no environmental advantage.

3.1 The Do Nothing Alternative

If the development does not proceed the facility will continue to operate in its current configuration and KWD Recycling will not be able to expand its waste collection business and increase its recycling and recovery rates.

4. Site Description

4.1 Site Location

The facility is located at Aughacurreen, approximately 4 km to the north-west of Killarney. It is in a rural area and the surrounding land use is primarily agricultural, with some forestry. There are approximately twenty (20) residences within 500 m of the facility, the majority of which are in a 'ribbon development' along the local road to the north of the site.

4.2 Waste Activities

KWD Recycling currently accepts, processes and stores non-hazardous residual household and commercial wastes pending transfer to other waste recovery/disposal facilities. The current licence limits the amount of waste that can be accepted annually to 40,000 tonnes. The operational hours are 7.00 am to 8.00 pm Monday to Saturdays.

The mixed municipal waste (black bin) is processed inside the main process building to remove the organic and metal wastes. The remaining materials are then stored inside the building before being sent to other waste management facilities for further processing. The organic matter is loaded into a trailer parked inside the building and when this is full it is sent to an off-site treatment plant.

The dry recyclables are sorted and bulked and the bulked materials stored inside the main processing buildings and a separate plastics shed before being sent off-site for further processing.

The food waste (brown bin) is accepted but is not handled at the site, apart from bulking up. The incoming waste is off-loaded directly into a trailer that is parked in a fully enclosed structure. When the trailer is full it is sent to an off-site biological treatment facility (compost).

The construction and demolition wastes are handled inside the main processing building, where they are sorted into the different parts, concrete rubble, metal, timber, plastics etc. The metals are then brought to the metal baling area where they are stored before being baled and cut for transport and then sent to metal recycling plants. The timber is brought to a timber storage yard, where it used to be shredded and stored before being sent off-site. The shredding stopped in 2016.

4.3 Site Services and Materials Storage

Water is obtained from the mains supply and electricity from a utility company. Sanitary wastewater is treated in an on-site treatment plant and the treated effluent discharged to ground. Diesel for the waste collection trucks and the plant used to handle the waste is stored in above ground tanks located at the southern boundary. Diesel for the on-site electricity generator is stored in an internal tank. With the exception of the timber and metals all wastes are stored inside buildings or fully enclosed structures.

4.4 Drainage

Rain water run-off from the roof of the main processing building goes to a drain that runs through the site. Run-off from areas where there is the potential for serious contamination to occur is collected in holding tanks and then sent off-site for treatment in the Irish Water treatment plant. Run-off from the remaining yards is collected and passed through settlement tanks and an oil interceptor before being treated in an on-site reed bed, with the treated water going to a percolation area.

4.5 Environmental Emissions & Monitoring

The licence specifies emission limit values for the rain water run-off, dust and noise and requires regular surface water, groundwater, dust and noise monitoring to confirm compliance with the emission limit values and, if they are exceeded, to ensure corrective actions are carried out.

4.6 Major Accidents and Natural Disasters

The site is not in an area where natural disasters are likely to occur. The current licence requires the preparation of an Environmental Liability Risk Assessment that identifies all the potential incidents and accidents that might occur at the site; assess the associated environmental liabilities, including impacts on soil, groundwater, surface water, and the local population; detail a risk management plan to prevent or minimise the risk, and quantify the scale and cost of the appropriate incident response and post incident clean-up measures. KWD Recycling had completed the assessment and this has been submitted to the EPA's Office of Environmental Enforcement.

4.7 Proposed Changes

It is proposed to increase the amount of waste that can be accepted from 40,000 tonnes per year to 59,000 tonnes. There will be no changes to the types of waste accepted and the proposed increase will not require either the construction of new buildings, or the provision of new equipment. The proposed operational hours will be 6.30am to 12pm.

5 Climate

5.1 Receiving Environment

The climate in the area is mild and wet, with the prevailing wind direction from the south and south-west.

5.2 Impacts

The additional wastes will result in an increase in energy (diesel and electricity) consumption associated with their transport and processing, with a consequent increase in greenhouse gas emissions.

5.3 Do Nothing

If the development does not proceed there will be no increase in greenhouse gas emissions.

5.4 Prevention & Mitigation Measures

The mitigation measures include the use of energy efficient equipment and energy audits.

5.5 Assessment of Impacts

The proposed development will result in increased energy use, with a consequent increase in greenhouse gas emissions. All new greenhouse gas emissions contribute to a cumulative negative environmental effect, unless offset by mitigation or compensatory measures.

5.6 Residual Impacts

The proposed development will, in conjunction with current operations have an on-going, imperceptible, negative impact on climate.

6 Traffic

6.1 Receiving Environment

The facility is located in a rural area 4.5km north of Killarney and 3.3km off the N22 Killarney - Tralee National Road. The majority (80%) of the traffic to and from the site is along the local road between Ballyhar and the N22 junction at Cleeny, which is of mostly a good standard, with relatively high traffic flows. Based on the weighbridge records for 2017, when the facility accepted just under 40,000 tonnes, there were on average 92 heavy good vehicles (HGV) movements associated with the site operations.

6.2 Impacts

The increase in annual waste acceptance rates will result in an additional 46 HGV movements daily. There will be no change to the number of private vehicles (staff cars) entering and leaving the site.

6.3 Do Nothing Scenario

If the development does not proceed there will be no change in the volumes of traffic associated with the facility.

6.4 Prevention & Mitigation Measures

The visibility splay at the existing site access will be maintained and kept free of obstacles that could obstruct the view.

6.5 Assessment of Impacts

A traffic impact assessment completed in 2004 as part of a proposal to increase the waste acceptance rates from 16,000 to the current limit of 40,000 tonnes estimated that this would give rise to a total of 143 HGV movements and that the local and regional road network had the capacity to accommodate this traffic.

Currently there are 92 daily HGV movements associated with the site. The increase in the waste inputs will result in an additional 46 daily HGV movements. The total movements (138) is less than that predicted in the 2004 assessment, which concluded that the existing road network could accommodate this traffic volume.

6.6 Residual Impacts

The development will result in extra traffic movements, but the local road network has the capacity to accommodate the increase. The development will have an on-going, slight, negative impact on the road network.

7. Soils and Geology

7.1 Receiving Environment

The soils comprise peat overlying tills. The combined thickness ranges from 3m in the east of the site to 5m in the west. The underlying bedrock is Namurian shale, the upper 3 to 5m of which is weathered.

7.2 Impacts

The proposed change does not require either the construction of any new buildings, or any ground disturbance. The discharges to ground of the treated sanitary wastewater effluent and treated storm water from the reed beds will continue, with no changes to either the volumes or quality.

There is the potential for leaks from the above ground oil and wastewater storage tanks, the underground sump in the main processing building and leaks from the foul sewer. The potential pathways to the soil and bedrock for contaminants released at the ground surface are infiltration in areas where the paving has been damaged, and leaks from the surface water drains.

7.3 Do Nothing Scenario

If the proposed increase in the amounts of waste accepted does not proceed the facility will continue to operate as a waste management facility, with no change to the potential impacts on the soil and geology.

7.4 Prevention & Mitigation Measures

The current mitigation measures include the provision of impermeable paving across the operational areas; the inspection and repair of the paved areas; the provision and maintenance of spill containment for the above ground oil storage and wastewater holding tanks; the routine inspection and survey of the surface water and foul water drains; the adoption of an emergency response procedure, and staff training on appropriate spill response actions.

7.5 Assessment of Impacts

The operational areas are and will remain either paved with concrete, or occupied by buildings that prevent infiltration to ground. The proposed development will not involve any ground disturbance.

7.6 Residual Impacts

The proposed development will, in conjunction with the current operations, have no residual impact on the soils and geology.

8. Water

8.1 Receiving Environment

The site is in the catchment of the Glanooragh River. The Glanooragh is part of the 'Glanooragh, Trib of Laune' Water Body designated in the Southwestern River Basin District Plan. The Water Body is ranked as being of 'Poor' Status based on the overall ecological status and is 'At Risk' of not meeting its objective of 'Restore' by 2021.

A local high point, approximately 500m to the south-west of the site, forms a watershed between tributaries of the Glanooragh River to the north and the Douglasha Stream to the west. A surface water drain which flows through the site joins a tributary of the Glanooragh River, approximately 250m from the site.

The site is underlain by a peat and low permeability till that range in thickness from 3m in the east to 5m in the west of the site. The subsoils are not significantly water bearing and the underlying bedrock is classified as a 'Locally Important aquifer, bedrock which is moderately productive only in Local Zones.

8.2 Impacts

Rainwater run-off from the roof of the main processing building discharges to the drain that runs through the site. The discharges to ground of the treated sanitary wastewater effluent and treated storm water from the reed beds will continue.

The proposed change does not require any excavations, construction works or alteration to the existing foul and surface water drainage, and will not result in any change to the quality or quantity of the rainwater run-off to the drain and ultimately the Glanooragh River.

There is the potential for leaks from the above ground oil and wastewater storage tanks, the underground sump in the main processing building and leaks from the foul sewer. The potential pathways to off-site water courses is the surface water drainage system. The pathways to groundwater for contaminants released at the ground surface are infiltration through damaged paving and leaks from the storm water drains.

8.3 Do Nothing Scenario

If the development does not proceed the facility will continue to operate as a waste management facility, with no change to the potential impacts on water.

8.4 Prevention & Mitigation Measures

The current mitigation measures include the provision of settlement tanks and an oil interceptor on the drain entering the reed beds; impermeable paving across the operational areas; the provision and maintenance of spill containment for the above ground oil storage and wastewater holding tanks; the routine inspection and survey of the surface water and foul water drains; the adoption of an emergency response procedure, and staff training on appropriate spill response actions.

8.5 Assessment of Impacts

The routine surface water quality monitoring carried out by KWD Recycling has established that although the ammonia levels in the rainwater run-off from the building roof is high, the discharge does not present a risk to the Glannooragh River. The groundwater monitoring indicates that there are reducing conditions in the bedrock aquifer and that groundwater quality is not being impacted by the site operations.

The proposed development will not result in any changes to the current emissions to the drain and, will not give rise to any new emission to ground and groundwater, and will have no discernible impact on surface water and groundwater quality.

8.6 Residual Impacts

The proposed changes will, in conjunction with the current operation, have no discernible impacts on the water quality in Glannooragh River and will have no impact on groundwater.

9 Biodiversity

9.1 Receiving Environment

There are no habitats of ecological importance within the site boundary and the site is not in or close to a Special Area of Conservation (SAC) and Special Protected Areas (SPA). The nearest sites are the Killarney National Park, McGillicuddy Reeks and Caragh River Catchment SAC, which is 2km to the south-east and the Castlemaine Harbour SAC, which is 2.5km to the north.

Rainwater run off-from the roof of the main processing building enters a drain that runs through the site. The drain connects to a tributary of the Glanooragh River. The Glanooragh joins the River Laune, the majority of whose catchment is in the Castlemaine Harbour SAC.

9.2 Impacts

The proposed development does not require any construction works and will not result in any loss of habitats either within, or outside the site boundary. It will not result in any new or additional emissions to the drain/Glanooragh River and will not require any changes to the current operational hours.

9.3 Do Nothing Scenario

If the development does not proceed the site will continue to operate as a waste management facility, with no change to the potential impacts on habitats, flora and fauna.

9.5 Prevention & Mitigation Measures

The current mitigation measures include the provision of settlement tanks and an oil interceptor on the drain entering the reed beds; impermeable paving across the operational areas; the provision and maintenance of spill containment for the above ground oil storage and wastewater holding tanks; the routine inspection and survey of the surface water and foul water drains; the adoption of an emergency response procedure, and staff training on appropriate spill response actions.

9.6 Assessment of Impacts

The routine monitoring carried out by KWD Recycling has established that the quality of the run-off to the drain is good and does not present a risk to the Glanooragh River. The Glanooragh River is a tributary of the River Laune, most of whose catchment is in the Castlemaine Harbour SAC. The proposed development will not result in any changes to the current emissions to surface water and will have no discernible impact on surface water.

9.7 Residual Impacts

The increase in the waste acceptance rate and the expansion of the operational hours will have no impact on the ecosystems within the site boundary and will not give rise to disturbance in the habitats outside the boundary.

10. Air

10.1 Receiving Environment

The facility is located in a rural area and the surrounding land use is primarily agricultural, with some forestry. There are approximately twenty (20) residences within 500m of the facility, the majority of which are in a 'ribbon development' along the local road to the north of the site.

The EPA implements a national ambient air quality monitoring programme at a number of stations across the country; however there is no nearby station that is representative of the air quality at the site. Dust monitoring has identified occasional exceedances of the dust deposition limits specified in the licence.

10.2 Impacts

The impacts on air quality associated with the operation of waste management sites that accept and process biodegradable waste in general include odours, particulates (dust) and exhaust gases from vehicles.

10.3 Do Nothing Scenario

If the proposed development does not proceed, the current operations will continue with no change to the potential impacts on air quality.

10.4 Prevention & Mitigation Measures

All unloading, processing and loading of waste that have the potential to be a source of odour occurs within the main processing building and the brown bin storage area. All odour forming wastes are typically removed from the site within 24 hours of arrival and are never on site for more than 72 hours. Provision of rapid closing door on the entrance to the main processing building. All operational open yards are paved, routinely cleaned using a road sweeper and damped down with water in extended periods of dry weather. It is KWD Recycling's policy to ensure that engine idling is not permitted.

10.6 Assessment of Impacts

The facility accepts black bin waste and food waste that contains odorous materials. In the past three years the facility has not received any complaints from neighbours concerning odours and dusts.

The dust deposition monitoring in 2015, 2016 and 2017 has identified occasional exceedances of the deposition limits inside the site boundary, but over this period KWD Recycling did not receive any complaints from members of the public about dust fall outside the site.

Compliance inspections conducted by the EPA have never identified any concerns that odours/dusts could give rise to nuisance outside the facility boundary. The proposed change does not involve taking in any new potentially odorous waste types or introducing any new processes that would be an additional source of dust emissions.

10.7 Residual Impacts

The proposed development, in conjunction with the current operations, will have an on-going slight, negative impact on air quality associated with an increase in vehicle exhaust gases.

11 Noise

11.1 Receiving Environment

The facility is located in a rural area and the surrounding land use is primarily agricultural, with some forestry. There are approximately twenty (20) residences within 500m of the facility.

11.2 Impacts

The sources of noise are the waste transport vehicles, the mechanical waste sorting line, the baler, and the generator for the timber shredder and the shredder itself when these are in use, the metal baler and shears, vehicles moving the wastes and loading and unloading of the waste transport trucks.

11.3 Do Nothing Scenario

If the development does not proceed the current activities will continue, with no change to the noise emission levels.

11.4 Prevention & Mitigation Measures

With the exception of the metal baling and shearing all waste processing is carried out inside the main processing building. Site staff are instructed to avoid unnecessary revving of engines of equipment/plant when not in use, and, where practical, limit the hours of activities that are likely to give high noise level emissions.

11.5 Assessment of Impacts

The current activities are not a source of either noise nuisance, or impairment of amenity outside the site boundary, and this has been confirmed by the results of the noise surveys carried out in 2015, 2016 and 2017. The increase in waste throughput will not change either the sources of noise at, or the noise emission levels from the facility.

11.6 Residual Impacts

The proposed development will, in conjunction with the current operations, have an on-going, imperceptible, negative impact.

12 Landscape & Visual Impact

12.1 Receiving Environment

The topography of the site and surrounding lands is generally low lying. The surrounding agricultural landscape comprises medium sized open fields and hedgerows, with a conifer plantation to the south-west. There is series of residential properties to the north-west, as well as to the south and south-east of the site.

The site is in an area that falls under the Rural General Zoning in the County Development Plan. Landscapes in this zoning generally have a higher capacity to absorb development than the other rural designations. The site is not overlooked by any designated Views and Prospects.

12.2 Impacts

The proposed development does not involve any construction works or material changes to the existing buildings and external operations.

12.3 Do Nothing Scenario

If the development does not proceed there will be no change to the external appearance of the site.

12.4 Prevention & Mitigation Measures

As the existing facility is not visually intrusive and there will be no change to the external appearance, prevention and mitigation measures are not required.

12.5 Assessment of Impacts

The proposed development will not result in any material change to the appearance of the facility.

12.6 Residual Impacts

The development will, in conjunction with current operations, have a neutral impact on the existing landscape character and visual amenity.

13 Population & Human Health.

13.1 Receiving Environment

The facility is located in a rural area and the surrounding land use is primarily agricultural, with some forestry. There are approximately twenty (20) residences within 500m of the facility, the majority of which are in a 'ribbon development' along the local road to the north of the site.

13.2 Impacts

Waste management facilities that handle biodegradable wastes are a source of odours that have the potential to extend outside the site boundaries. While odours do not present a direct risk to health, they can be a significant nuisance and cause of discomfort that can indirectly affect human health.

Waste management facilities are also potential sources of other nuisance including, dust, noise, vermin and pests. Traffic associated with the facilities can, depending on the size, location and capacity of the local road network, be a cause of congestion that affects local residents.

13.3 Do Nothing Scenario

If the proposed development does not proceed the current operations will continue and there will be no change to the potential for impacts on the Population & Human Health.

13.4 Prevention & Mitigation Measures

The mitigation measures currently applied include handling the 'black bin' waste inside the main processing which is fitted with a rapid closing door; daily removal of the organic fines produced by the processing; provision of a fully enclosed structure for the storage of the food waste; typical residence time of potentially odorous waste on-site is 48 hours and is never more than 72 hours; cleaning yards using a road sweeper and damping them down in dry weather.

13.5 Assessment of Impact

In the past three years the facility has not received any complaints from neighbours concerning odours, noise, dust and traffic. Compliance inspections conducted by the EPA have never identified any concerns that odours/dusts could give rise to nuisance outside the facility boundaries.

The current activities are not a source of odour, noise and dust nuisance and the proposed change does not involve taking in any new potentially odorous waste types, or any new processes that would be an additional source of dust emissions. A traffic assessment has established that the local road network has the capacity to accommodate the increased traffic movements and they will not give rise to congestion.

13.6 Residual Impacts

The proposed development, will in conjunction with current operations, have an on-going imperceptible, negative impact on human beings associated with noise emissions and traffic movements.

14 Archaeology, Architecture and Cultural Heritage

14.1 Receiving Environment

There is no record of any archaeological feature, protected structure, or cultural heritage feature within the site boundary.

14.2 Impacts

The development does not require any excavation or ground disturbance works and there is no risk of any impacts on any unidentified archaeological features.

14.3 Do Nothing Scenario

If the development does not proceed the facility will continue to operate in its current configuration and the potential for impacts on the archaeology, architecture and cultural heritage will remain unchanged.

14.4 Prevention & Mitigation Measures

As the proposed development will not have any impact on any archaeological, architectural or cultural feature, mitigation measures are not required.

14.5 Assessment of Impact

The development will not have any impact on any archaeological, architectural or cultural feature.

14.6 Residual Impacts

The development will not have any impact on any archaeological, architectural or cultural heritage features.

15 Material Assets & Resource Consumption

15.1 Receiving Environment

The facility is located in a rural area and the surrounding land use is primarily agricultural, with some forestry. There are approximately twenty (20) residences within 500m of the facility. The surrounding lands while of local agricultural importance do not have any particular general amenity value.

15.2 Impacts

The development will not result in any loss impairment of amenity value or agricultural use. There will be an increase in fuel and electricity consumption associated with the transport and processing of the additional wastes. The development will increase KWD Recycling's waste recovery and recycling rates, which will have a socio-economic benefit. It will also contribute to maintaining employment levels, with a consequent economic benefit to the local economy.

15.3 Do Nothing Scenario

If the proposed development does not proceed there will be no socio-economic benefit from the increased collection rate for recoverable/recyclable materials, but there will be no increase in natural resource consumption.

15.4 Prevention & Mitigation Measures

KWD Recycling implements the nuisance control measures specified in the current licence and also applies resource consumption control measures to minimise usage.

15.5 Impact Assessment

The current operation is not a source of adverse environmental nuisance and impairment of amenities outside the site boundary and has not adversely affected the existing economic activities in the surrounding area. The local road network has the capacity to deal with the additional traffic associated with the development.

15.6 Residual Impact

The development will have not have any adverse impact on amenity values and socio-economic activities in the locality. It will have a slight negative impact in relation to the consumption of fossil fuels. It will have an on-going slight positive socio-economic and economic benefit associated with increasing recycling rates and maintaining local employment levels.

16 Interaction of the Foregoing

There are actual and potential direct, indirect and cumulative effects of the changes due to interaction between relevant receptors, which are Climate, Population & Health, Air, Noise and Traffic

16.2 Population & Health / Air / Noise

The current operation has the potential to impact on human beings as a result of noise, dust, vehicle exhaust emissions and odour. The location, design and method of operation have taken account of these potential impacts and effective mitigation measures, which comply with the requirements of the licence, have been identified and applied. The proposed change will result in additional vehicle exhaust gas emissions to air.

16.3 Population & Human Health /Traffic

The proposed change will result in an increase in traffic; however the local road network and junctions have the capacity to accommodate the additional traffic movement and will not give rise to congestion.

16.4 Climate/Air/Traffic

The proposed change will result in an increase in greenhouse gas emissions associated with the processing the additional wastes and the extra traffic movements. The vehicle exhausts will increase the emissions of particulates, nitrous oxides and oxides of sulphur. The additional greenhouse gas emissions will be somewhat off-set by the increase in the production of refuse derived fuel using wastes processed at the facility.

16.5 Surface Water / Biodiversity

Rainwater run-off from the building roofs discharges to a drain that connects to a tributary of the Glanooragh River which is a tributary of the River Laune that forms part of the Castlemaine Harbour SAC. The quality of the run-off is good and the proposed change will not result in any deterioration in water quality that might affect the SAC.

16.6 Cumulative Effects

The assessment of the impacts of the proposed change took into consideration the impacts of the existing operation. The noise, dust, surface water and groundwater monitoring events were conducted during typical operational hours and the predictive assessments include the impacts of both the existing emissions and those associated with the proposed change.

*For inspection purposes only.
Consent of copyright owner required for any other use.*

PREAMBLE

This Environmental Impact Assessment Report (EIAR) examines the potential impacts and significant effects on the environment of the proposal to increase the amount of waste accepted annually and introduce new waste types and processes at the Killarney Waste Disposal waste management facility at Aughacurreen.

The information contained in the EIAR complies with the requirements of Article 5 (1)(a) to (e), Article 3(1)(a) to (e), and Annex IV of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive). The assessment of the impacts on climate includes the implications for climate change. The assessment of impacts on biodiversity includes an evaluation of the significance of effects on Natura 2000 Sites. The likely effects of major accidents and/or natural disasters have also been assessed.

In conducting the EIAR OCM took into consideration the Environmental Protection Agency's Guidance on information to be contained in Environmental Impact Assessment Reports (Draft August 2017).

The EIAR follows a grouped format structure, where each relevant topic is dealt with in a separate chapter, which describes the existing (receiving) environment, the direct and indirect significant effects associated with the activity, and the measures to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment, and assesses the impacts and the residual impacts.

A detailed description of the proposed development is presented in Chapter 4 and the key elements of relevance to the topic being assessed are summarised at the start of each chapter.

Impacts are assessed in terms of the likely natural or physical changes to the environment resulting either directly, or indirectly from the proposed development, taking into consideration a 'do nothing' scenario, cumulative effects and major accidents.

The significance of an effect was determined by a combination of objective (scientific) and subjective (social) concerns and the potential for the development to either cause significant effect on an aspect of the environment that has been formally or systematically designated as being of importance, or to significantly alter the existing character of some aspects of the environment. The following objective criteria were used to determine the significance of an effect:

- The magnitude and spatial extent of the impact;
- The nature of the impact;
- The intensity and complexity of the impact;
- The probability of the impact;

- The expected onset, duration, frequency and reversibility of the impact;
- The accumulation of the impact, with the impact of other existing and or/approved projects, and
- The possibility of effectively reducing the impact.

Impacts are, where possible, described in terms of quality, significance and duration.

Quality: Positive, Neutral, Negative.

Significance: Imperceptible; Slight; Moderate; Significant; Profound.

Duration: Temporary <1 year; Short-term 1-7 years; Medium Term 7-15 years; Long Term 15-60 year; Permanent >60 years.

The evaluation of the significance of an impact was based on current knowledge and method of assessment.

Public Consultation

KWD Recycling notified the Kerry County Council of its intention to apply for a licence review and informed its neighbours of the proposed development and published newspaper notices and erected site notices.

Project Team

O'Callaghan Moran & Associates (OCM) were the prime consultants and unless otherwise referenced were responsible for the assessment of impacts. OCM has twenty years' experience in the completion of environmental impact assessments for large scale waste management and industrial developments and has particular expertise in geology, hydrogeology, hydrology and environmental risk assessment.

O'Callaghan Moran & Associates – Prime Consultants

Address: Unit 15,
Melbourne Business Park,
Model Farm Road,
Cork.
Telephone: 021 - 4345366
e-mail: info@ocallaghanmoran.com

Donal Moynihan Consulting Engineer – Site Layout & Drainage

Address: Boolacullane,
Farramore,
County Kerry
Telephone:
e-mail:

Brosnan Acoustics–Noise Surveys

Address: Cork

Telephone: 086 8131195

e-mail: damianbrosnan@gmail.com

Southern Scientific– Groundwater, Surface Water and Dust Analysis

Address: 4 Park Business Centre,

Farranfore,

Dunrine,

Killarney,

County Kerry

Telephone: 066 9763588

e-mail: info@southernscientificireland.com

Difficulties in Compiling the Required Information

OCM did not encounter any particular difficulties in compiling the required information.

*For inspection purposes only.
Consent of copyright owner required for any other use.*

1 INTRODUCTION

1.1 The Applicant

Killarney Waste Disposal, trading as KWD Recycling is one of the largest waste management companies operating in the Southern Waste Region. KWD Recycling currently provides waste collection, recycling, recovery and disposal services to domestic and commercial customers in all of Kerry, West Cork and West Limerick.

1.2 Facility Overview

1.2.1 Site History

The site was developed as a waste management facility in 1987 on lands that had previously been used for agricultural purposes. KWD initially operated under a series of Waste Permits issued by Kerry County Council that authorised the acceptance and processing of 16,500 tonnes/year of non-hazardous waste. In 2005 the Environmental Protection Agency (EPA) granted the current waste licence.

1.2.2 Waste Activities

KWD Recycling currently accepts, processes and stores non-hazardous residual household and commercial wastes pending transfer to other waste recovery/disposal facilities. The current licence limits the amount of waste that can be accepted annually to 40,000 tonnes.

1.3 Proposed Development

It is proposed to increase the amount of waste accepted to 59,000 tonnes annually. The existing infrastructure and processing equipment have the capacity to accommodate the increase, and the proposed development does not involve the construction of any new buildings, will not require the provision of new or additional plant and equipment. There will be no change to the waste acceptance hours, but it is proposed operational hours are 6.00am to 12.00pm.

2 WASTE MANAGEMENT POLICY

2.1 Introduction

This Chapter presents an overview of the relevant national and regional waste planning policies and demonstrates how the proposed development is consistent with the policy objectives. It is based on the National Waste Policy statements and the Southern Regional Waste Management Plan (2015-2021)-2020).

2.2 Waste Management Policy

2.4.1 National Waste Management Policy

The foundation policy statement on waste management “*Changing Our Ways*” was published by the Department of the Environment and Local Government in September 1998. This statement firmly bases national policy on the EU Waste Management Hierarchy. In descending order, the current preference is: -

- Prevention;
- Preparing for Reuse;
- Recycling;
- Other Recovery (including energy recovery); and
- Disposal

The 2002 policy statement ‘*Preventing and Recycling Waste - Delivering Change*’ identified initiatives to achieve progress at the top of the Waste Hierarchy to prevent waste arising and increase recycling rates.

In ‘*Waste Management – Taking Stock and Moving Forward*’ 2004, the significant improvement in recycling rates achieved since 1998 were recognised, but the need for further expansion was emphasised. The statement confirmed that Ireland’s national policy approach remained ‘*grounded in the concept of integrated waste management, based on the internationally recognised waste hierarchy, designed to achieve, by 2013, the ambitious targets set out in Changing Our Ways*’.

In 2006, the National Biodegradable Waste Strategy was published. Its primary focus was to achieve the targets set for the quantity of biodegradable municipal waste that can be landfilled under the Landfill Directive (1999/31/EC). A key element was the collection of source separated household and commercial food waste or “brown bin” material and its treatment.

In 2008, the Government initiated a review of waste policy, to identify possible changes to policy at national level that would assist Ireland to move towards a sustainable resource and waste policy, including minimising the creation of waste and self-sufficiency in the reuse and

recycling of materials. The review also addressed the application of alternative waste management technologies.

The EU Waste Framework Directive 2008/98/EC was introduced to co-ordinate waste management in Member States, with the objective of limiting the generation of waste and optimising the organisation of waste treatment and disposal. The Directive, which also established the first EU wide recycling targets, was transposed into Irish law by the European Communities (Waste Directive) Regulations 2011 (S. I. No.126 of 2011).

In response, the Government initiated a further review of national waste policy, one of whose objectives was to provide the necessary measures to ensure that waste undergoes recovery operations in accordance with Articles 4 and 13 of the Directive. A consultation document issued by the Department stated that classification of a treatment process as a recovery activity depends on the level of success in either recovering wastes, or producing heat and/or power.

The most recent Policy Statement '*A Resource Opportunity Waste Management Policy*' In Ireland 2012 is also based on the EU Waste Management Hierarchy and encompasses a range of measures across all tiers namely, prevention and minimisation, reuse, recycling, recovery and disposal.

The Statement sets out how the higher tiers can reduce Ireland's reliance on finite resources, virtually eliminate reliance on landfill and minimise the impact of waste management on the environment. It is a policy objective that when waste is generated the maximum value must be extracted from it by ensuring that it is reused, recycled or recovered.

2.4.2 Waste Management Plan for the Southern Region

The waste management regions in Ireland were reformed in 2013 and County Kerry is now part of the Southern Waste Management Region. The Waste Management Plan for the Southern Region 2015-2021 sets out the waste management policies and implementation measures for the region.

The region covers 42% of the land mass of the country with a population of over 1.5 million people. The settlement pattern is evenly split between urban and rural areas, with the four cities of Cork, Limerick, Waterford and Kilkenny having the highest population and the strongest centres of economic activity.

Nationally the total quantity of municipal waste managed has decreased year on year since 2007. In the Southern Region 860,425 tonnes of municipal solid waste was collected in 2012. Of this 59% percent was recovered, which was in line with the national rate. Unmanaged waste remains a problem in the region and local authorities intend to tackle this issue over the period of the plan.

Plan targets are to achieve a recycling rate of 50% for all managed municipal waste by 2020 and to reduce to 0% the amount of untreated municipal waste disposed to landfill by replacement by higher value pre-treatment and indigenous recovery processes

The Plan does not identify specific technologies and/or locations for future waste related activities, rather it highlights capacity need, and so guidance on proper siting of future waste-related activities (including expansion of existing facilities) is the most appropriate method at this stage of the planning hierarchy to address the potential for impact on the environment.

The role of the waste industry is discussed in Section 17.2.8 of the Plan and this includes *inter alia* to:

- Provide sustainable waste management infrastructure/technology in keeping with the waste hierarchy and the principle of self-sufficiency, and
- Communicate with the public to encourage better waste management behaviours and better quality recycling.

2.4.3 Compliance with Policy Objectives

The proposed change is consistent with current and proposed national and regional waste policy objectives, as it will increase the recycling/recovery capacity Southern Region and contribute to the achievement and maintenance of national and regional recycling targets. KWD Recycling is already actively engaged in communicating with its customers on the types of waste that are suitable for recycling and how these should be managed at the point of origin to ensure the best quality is achieved.

2.3 Need for the Development

The KWD Recycling facility is contributing to the achievement of regional waste recycling and recovery targets; however the 40,000 tonne annual limit prevents it from expanding its recovery/recycling activities for existing domestic and commercial customers, and from contributing to increasing the collection rate for unmanaged waste and achieving the target of 50% recycling of managed municipal solid waste by 2020.

The change to the operational hours are required to facilitate the processing of the mixed municipal waste that arrives in the late evening so as to facilitate the speedy removal from the site of potentially odorous wastes.

3 ALTERNATIVES EXAMINED

3.1 Introduction

This Chapter describes the reasonable alternatives to the proposed development that were considered, including site location, treatment technologies and configurations, and a 'Do Nothing' scenario.

3.2 Existing Site

The facility is specifically designed and has established use for waste management and it has the capacity to accommodate the increase in annual waste inputs. The features that render it suitable for the proposed development are:

- Existing authorisation to accept and process solid non-hazardous waste;
- Readily accessible location for KWD's existing customer base;
- The site can easily accommodate the proposed increase in wastes without the need for any additional buildings, alterations to the existing infrastructure or the provision of additional processing plant and equipment.
- Existing ground conditions (soil type/geology/hydrology) and distances from sensitive environmental receptors minimise the risk of unexpected emissions give rise to pollution.

3.3 Alternatives

The only alternative to the proposed development is to construct a new waste management facility at a different location. This would require the acquisition of land, the construction of new waste processing buildings and supporting infrastructure (offices, maintenance workshops, weighbridge), and the provision of new site services (surface water, foul water, power, water supply and security).

The development of a new facility offers no environmental advantages compared to the proposed development within the existing facility, which has an established commercial/industrial use.

3.4 Alternative Technologies

The current method of waste acceptance and processing is consistent with best practice in the waste industry complies with the Best Available Technologies for Storage and Waste Management.

3.5 The Do Nothing Alternative

If the licence review is not granted the facility will continue to operate in its current configuration and KWD Recycling will not be able to expand its waste recycling/recovery capacity.

*For inspection purposes only.
Consent of copyright owner required for any other use.*

4 FACILITY DESCRIPTION

4.1 Introduction

This Chapter presents an overview of the existing facility location, layout and method of operation and describes the proposed development. More information on the absorption capacity of the natural environment is presented in Chapters 5 to 16, which also assess the impacts associated with the existing operations and the proposed changes.

4.2 Site Location

The facility is located at Aughacurreen, approximately 4km to the north-west of Killarney (Figure 4.1).

4.3 Surrounding Land Use

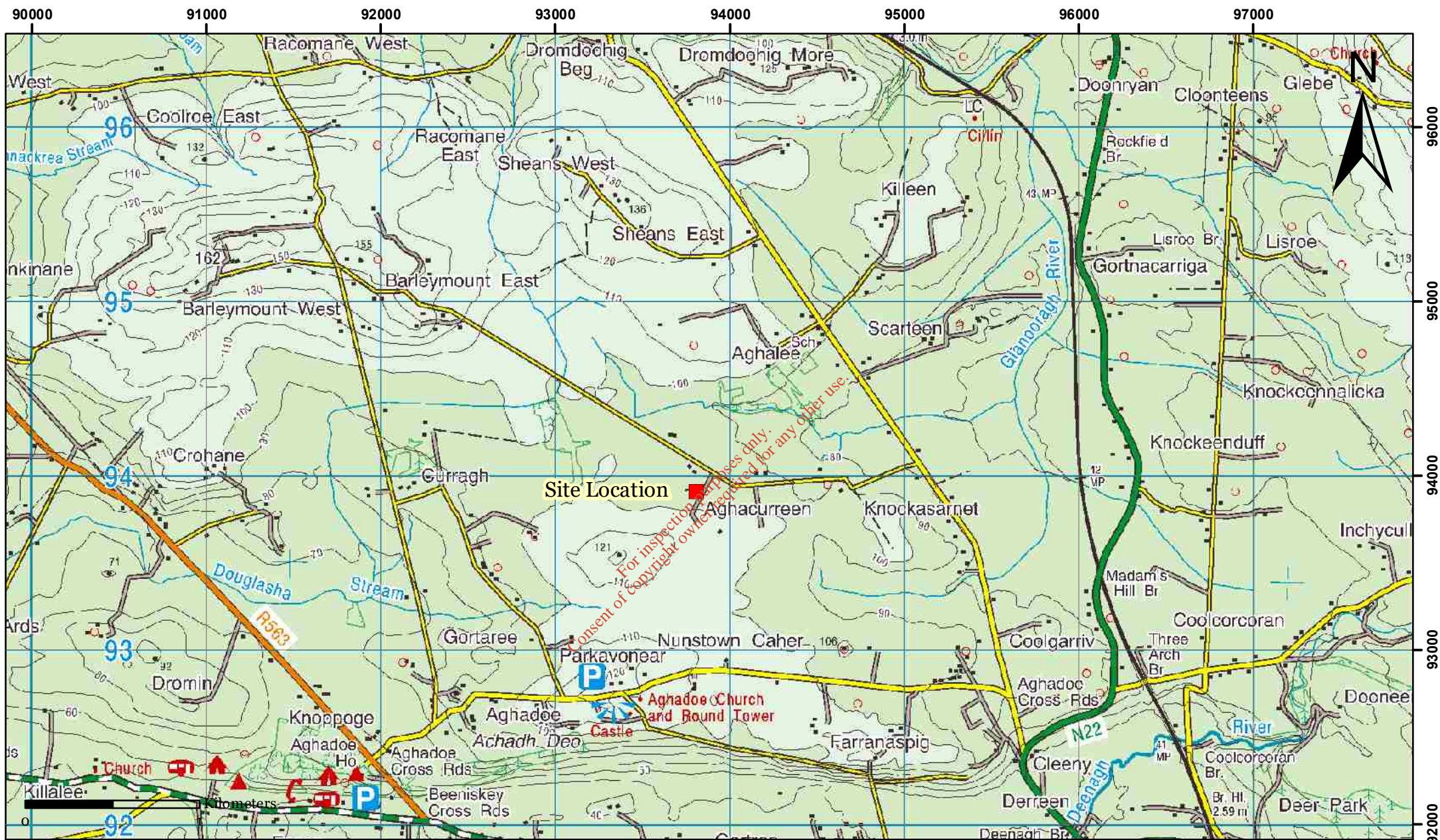
The facility is located in a rural area and the surrounding land use is primarily agricultural, with some forestry (Figure 4.2). There are approximately twenty (20) residences within 500m of the facility, the majority of which are in a 'ribbon development' along the local road to the north of the site.

4.4 Site Layout

The site layout is shown on Drawing No. 01. It encompasses 2.2 hectares (ha) and consists of a main processing building (3,223m²), maintenance building, metal processing and storage area, timber processing and storage area, food waste storage area, baled plastic stores, wheel bin wash area, concrete yards, weighbridge and administration building. Ancillary infrastructure includes fuel storage, storm water drainage system and construction wetland (reed bed), and an on-site sanitary wastewater treatment system including a percolation area.

4.5 Site Security

Access from the main road is restricted by means of a 2m high embankment, mature hedgerow and a security gate. The gate and the building, offices, containers and cabins are kept locked when the facility is unattended. There is a CCTV system that records all truck movements into and out of the facility. A post and wire fence surrounds the reed beds.



O'Callaghan Moran & Associates,
 Unit 15 Melbourne Business Park,
 Model Farm Road, Cork.
 Tel. (021) 4345366
 email: info@ocallaghanmoran.com

CLIENT
 Killarney Waste Disposal

Details:
 ■ Site Location

TITLE
 Site Location

This drawing is the property of O'Callaghan Moran & Associates and shall not be used, produced or disclosed to anyone without the prior written permission at O'Callaghan Moran & Associates and shall be returned upon request.


Figure 4.1

93000

94000

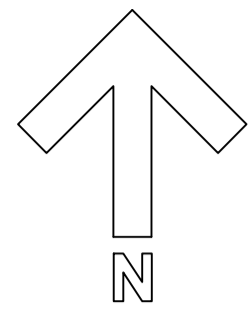


94000

 <p>O'Callaghan Moran & Associates, Unit 15 Melbourne Business Park, Model Farm Road, Cork. Tel. (021) 4345366 email: info@ocallaghanmoran.com</p>	<p>CLIENT</p> <p>Killarney Waste Disposal</p>	<p>Details:</p> <p>■ Site Location</p>
	<p>TITLE</p> <p>Surrounding Land Use</p>	

This drawing is the property of O'Callaghan Moran & Associates and shall not be used, produced or disclosed to anyone without the prior written permission at O'Callaghan Moran & Associates and shall be returned upon request.

Figure 4.2



NOTES:
 THIS DRAWING IS COPY@HT C
 DO NOT SCALE FROM THIS DRAWING.
 WORK ONLY FROM FIGURED DIMENSIONS.
 ALL ERRORS AND OMISSIONS TO BE REPORTED TO THE ARCHITECT.



D	20/12/17	INFORMATION.
C	17/01/17	INFORMATION.
A	11/11/16	INFORMATION.
A	03/10/16	INFORMATION.
REV	DATE	REVISION INFO.

CLIENT: **KWD RECYCLING MRF FACILITY AT AUGHAGUREEN.**

PROJECT: LICENSE REVIEW APPLICATION

DRAWING: SITE LAYOUT PLAN.

DONAL MOYNIHAN
 B.E., C.ENG., M. IEI.
 CHARTERED ENGINEER

SCALE: 1:500 DATE: 03.10.2016
 DWG NO.: 01

4.6 Services

There are electrical and telecom services serving the offices and water is obtained from the mains supply. A diesel fuelled generator is used to power the timber shredder and there is a back-up diesel generator at the offices.

4.6.1 Surface Water Drainage Systems

There are three separate surface water drainage systems, as shown on Drawing No.2. The first collects rainwater run-off from the roof of the materials recovery building and discharges it at two locations to a drain that runs through the site.

Rainwater run-off from the operational yards, where there is the potential for significant contamination to occur (bin washing area and compost bay), is directed to an above ground holding tank where it is stored pending removal from the site for off-site treatment in the Irish Water Wastewater Treatment Plant (WWTP) in Killarney.

Rainwater run-off from the yards where the risk of contamination is low, including the area around the office and the metal and timber storage areas, is collected and directed via three settlement tanks and a Class 1 Oil Interceptor to reed beds. The reed beds comprise an initial vertical 'glass' bed followed by a horizontal 'lagoon' bed. The outflow from the 'lagoon' bed is to an on-site percolation area in the north-west of the site.

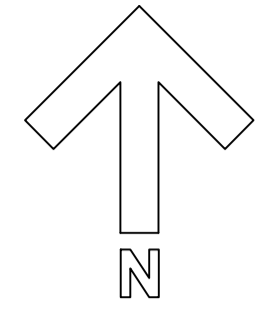
4.6.2 Foul Water Drainage System

Sanitary wastewater was originally treated in an on-site septic tank located to the north-west of the weighbridge. In 2016 this was replaced by a proprietary wastewater treatment system (puraflo) located close to the northern site boundary, with the treated effluent pumped to an on-site raised percolation area in the north-west of the site. Details of the proposed system were submitted to and approved by the Office of Environmental Enforcement (OEE) as a specified engineering works. The septic tank was decommissioned.

Samples of the treated effluent that discharges to the percolation area are collected and analysed to assess performance. The monitoring has confirmed that the treatment system meets the manufacturer's performance specification and those set in the EPA's Guidance Manual on Wastewater Treatment Systems for Single Houses.

Liquid seeps from the waste handled inside the materials recovery building is collected in an underground effluent holding tank (6,92m³). The tank is made of pre-cast concrete and sits in a second underground concrete tank that acts as a containment bund. The wastewater accumulating in the holding tank is removed for treatment at an off-site Irish Water WWTP.

Liquid seeps from the food waste storage area are collected in a sump and pumped to an above ground, double skinned, storage tank. The waste water accumulating in the tank is removed for treatment at the Irish Water WWTP.



NOTES:
 THIS DRAWING IS COPY@HT C
 DO NOT SCALE FROM THIS DRAWING.
 WORK ONLY FROM FIGURED DIMENSIONS.
 ALL ERRORS AND OMISSIONS TO BE REPORTED TO THE ARCHITECT.



Legend

- Foul Sewer Pipe
- Storm Drainage off Roof
- Storm Water.
- ===== Open Land Drain.

B	20/12/17	INFORMATION.
A	22/05/17	INFORMATION.
REV	DATE	REVISION INFO.

**CLIENT: KWD RECYCLING
MRF FACILITY AT
AUGHAGUREEN.**

PROJECT: LICENSE REVIEW

DONAL MOYNIHAN
 B.E, C.ENG., M. IEI.
 CHARTERED ENGINEER

DRAWING: DRAINAGE

SCALE: 1:500	DATE: 03.10.2016
DWG NO. : 02	

4.7 Facility Management

The Facility Manager has completed the FAS Training Programme and has 11 years' work experience in the waste industry. The Deputy Manager has also attended waste management training courses and has 6 years' experience in the waste management. Facility staff include, general operatives, collection vehicle drivers and office staff.

Condition 2 of the EPA licence requires KWD Recycling to develop and adopt an Environmental Management System (EMS), a critical element of which is an Environmental Management Programme (EMP). KWD Recycling has prepared a documented EMP, which includes a Schedule of Environmental Objectives and Targets that provides for a review of all operations and processes, including an evaluation of practicable options for energy and resource, efficiency; environmental training and awareness; emergency response actions and the use of cleaner technology.

4.8 Waste Types & Quantities

4.8.1 Current Waste Types and Quantities

The current licence authorises the acceptance of 40,000 tonnes of non-hazardous household, commercial and construction and demolition waste. Hazardous and liquid wastes are not accepted. The current maximum annual limits specified in the licence are shown in Table 4.1.

Table 4.1 Current Waste Types and Quantities

Waste Type	Tonnes/Year
Mixed Municipal Waste	15,500
Organic waste (kitchen and canteen waste)	6,000
Dry Recyclables	6,500
Non-Hazardous Construction and Demolition (C&D)	12,000
Total	40,000

4.8.2 Proposed Waste Types and Quantities

It is proposed to increase the annual amount of non-hazardous household, commercial and industrial solid waste accepted to 59,000 tonnes. The composition of the additional wastes will be the same as those already accepted and a breakdown is provided in Table 4.2.

Table 4.2 Proposed Waste Types and Quantities

Waste Type	Tonnes/Year
Municipal Solid Waste	22,000
Organic Waste (kitchen and canteen waste)	7,500
Dry Recyclables	22,000
Non-Hazardous Construction and Demolition (C&D)	7,500
Total	59,000

The actual amounts of each waste type may vary based on market conditions, however the overall limit of 59,000 tonnes will not be exceeded.

4.9 Waste Acceptance & Operational Hours

The operational hours will be 6.00pm to 12.00pm Monday to Saturday inclusive. The waste acceptance and dispatch hours are 7.30am to 7.30pm, unless otherwise agreed with the EPA. The facility does not typically open on Sundays and public holidays, but may do so subject to the EPA's approval

4.10 Waste Acceptance Procedure

All incoming waste is subject to documented waste acceptance procedure, a copy of which is in Appendix 1. Wastes are delivered by waste collectors that have an up to date Waste Collection Permits. Waste is not accepted from either members of the public, or waste collectors that do not have a contract with KWD Recycling.

All incoming waste is weighed on the weighbridge which is located near the site entrance and the following information is recorded for site records; description of waste: waste type: composition form and relevant List of Waste (LoW) code; origin of waste including customer details; weight of the waste load and the vehicle registration number.

After leaving the weighbridge the delivery vehicles enter the materials recovery building, where the waste is off-loaded at the designated waste intake area where it is inspected for unsuitable materials. Any load failing inspection is transferred to the quarantine area where it undergoes further inspection and if found to be unsuitable is returned to the customer.

4.11 Waste Processes

Waste for recovery is segregated into the relevant waste streams and, depending on the nature of the material, is either baled for further processing offsite or loaded into trailers for offsite disposal.

4.10.1 Mixed Municipal Waste (MMW)

MMW comprising residual household and commercial wastes (originating from factories, offices, hotels, and retail sources) are accepted and processed inside the main processing building. This involves the waste being shredded, screened to remove organic fines and passed beneath a magnet to remove ferrous metals.

The residual wastes are stored inside the building before being sent to other authorised waste management facilities for further processing, which includes the manufacture of refuse derived fuel (RDF).

The organic fines are loaded into a trailer parked inside the building and once the trailer is full the trailer is sent to authorised waste treatment facilities for further treatment. The metals are moved to the metal processing area.

4.10.2 Dry Recyclables

The dry recyclables originate from the same sources as the MMW (the majority of KWD Recycling's customers both domestic and commercial, have a recycling bin along with the residual waste bin, collections alternating every second week). The source segregated dry recyclables are inspected and bulked. The bulked materials are stored inside the main building and in the plastics storage building pending transfer to authorised waste recovery/recycling facilities.

4.10.3 Food Waste

Brown Bin (food waste) is loaded directly into a bulk trailer that is parked inside a stand-alone, fully enclosed structure that has a retractable roof and is accessed by a ramp. The vehicle delivering the waste reverses up the ramp to the off-loading bay. The retractable roof is then opened, the contents of the vehicle emptied into the trailer and the roof closed. Once full the trailer is sent to an authorised biological treatment facility.

4.10.4 C&D Waste

After inspection the large bulky items are removed using front end loaders. The remaining materials are mechanically screened to separate out the metals, timber, rubble and soil. The rubble is stored externally pending consignment off site for further treatment/recovery.

The timber is moved to the timber processing area. Originally it was shredded externally and the shredded material stored pending consignment to other authorised waste management facilities for further treatment/recycling. However, as instructed by the EPA shredding has stopped, but the external storage continues.

The metals recovered from the waste and other source segregated metals accepted at the facility are compacted into bales and stored externally pending consignment.

4.12 Waste Storage

KWD Recycling has prepared a Waste Storage Plan, which identifies the designated storage areas, both internal and external and specifies the maximum volume of waste that are stored on site at any one time. A copy of the Plan is in Appendix 2.

4.13 Resource Consumption and Energy Efficiency.

Site operations involve the consumption of electricity and fossil fuels. The consumption rates over the past two years are provided in Table 4.3. Water usage is not metered.

Table 4.3 Estimates of Resources Used (2014, 2015, 2016)

Resources	2014	2015	2016
Light Fuel Oil	144.7m ³	170m ³	160m ³
Heavy Fuel Oil		3.16m ³	1.20m ³
Electricity	1,575	1,894 MWhrs	1,199 MWhrs

An energy audit was completed in 2008 as required by Condition 7 of the current licence.

4.14 Safety and Hazard Control

KWD Recycling has prepared an Accident Prevention Policy and a Safety Statement that identifies and evaluates the major on-site potential hazards and describes the control measures in place to mitigate these hazards.

All site staff receive the appropriate training for their particular roles. All personnel and visitors are obliged to comply with site guidelines regarding access to and from the facility and on-site traffic movement. All site personnel are provided with and are obliged to wear, personal protective equipment (PPE) appropriate for their particular functions. PPE includes facemasks, gloves, safety glasses, steel-toed footwear, overalls, reflective jackets and helmets.

4.15 Plant Maintenance and Breakdown

The MMW and C&D processing lines are the subject of a preventative maintenance programme and critical spare parts are kept on site in the Maintenance Building.

4.16 Oil / Chemical Storage

Diesel is stored in a 5,000 litre tank and a 1,000 litre tank in a bunded area. Engine and hydraulic oils are also stored in the bund.

4.17 Waste Generation

The processing of the residual municipal waste generates organic fines and metals. The organic fines are sent for biological treatment, while the metals are sent to a metal recycling facility. The welfare facilities and office generate small amounts of food waste, plastic and paper. Plant maintenance generates waste oils and batteries and these are sent off-site for recovery/recycling.

4.18 Emissions

4.17.1 Air

The diesel fuelled generator (520kva) used to power the timber shredder is a point emission source to air when the shredder is operating. There is a second diesel fuelled generator (120

kva) generator located at the side of the administration building that is used as a back-up in the event of disruption to the mains supply. Emissions only occur when the generator is tested and when in use if the mains supply is disrupted.

Potential fugitive emissions to air include dusts from the waste processing and vehicle movement, odours from the waste processing and storage of putrescible wastes and vehicle exhaust gases (nitrous oxide, carbon monoxide, methane, carbon dioxide, benzene and particulates).

Dust emissions and vehicle exhausts will occur during waste acceptance, processing and transfer. There is the potential for odours to occur during waste acceptance, processing, storage and transfer.

4.17.2 Surface Water

Rainwater run-off from the roof of the materials recovery building discharges to a drain that runs through the site. This is weather dependent and periodic.

4.17.3 Ground / Groundwater

Rainwater run-off from the yards where the risk of contamination is low, including the area around the office and the timber storage area, is collected and directed via a Class 1 Oil Interceptor and three settlement tanks to the on-site constructed wetland. The wetland comprises an initial vertical 'glass' reed bed followed by a horizontal 'lagoon' bed. The outflow from the 'lagoon' bed is to an on-site percolation area in the north-west of the site. The emission to ground is weather dependant and periodic.

Sanitary wastewater from the administration building and staff welfare facilities is treated in a proprietary wastewater treatment system (puraflo) and the treated effluent is discharged to a raised percolation area in the north-west of the site. Sanitary wastewater is only generated when the site is operational.

4.17.4 Process Wastewater

Liquid seeps that occur on the floor of the building where the MMW is processed is collected in a floor tank and stored pending removal off-site for treatment in an Irish Water Wastewater Treatment Plant (WWTP). Liquid seeps from the food waste bulking and storage area is collected in a sump and pumped to an above ground holding tank from where it is tankered to the Irish Water WWTP for treatment.

4.17.4 Noise

The waste transport vehicles, the mobile plant and the waste processing lines are sources of noise emissions. Emissions occur during the waste acceptance, processing, storage and transfer.

4.19 Emission Controls

The MMW and the organic fines arising from its processing are sources of odours. The MMW is only accepted and processed inside the main processing building. The building is fitted with a rapid closing door that is only opened to allow vehicles to enter and leave.

As the fines are produced they are loaded into a trailer that is parked inside the building and once the trailer is full it is sent off site. The processed MMW is stored inside the building pending onward shipment.

The food waste, which is delivered in the rear end loaders, is immediately bulked up into an articulated trailer that is in a fully enclosed structure. Once the trailer is full it is sent off site. These measures ensure that the odour forming wastes are typically removed from the site within 48 hours of arrival and are never on site for more than 72 hours.

A road sweeper is permanently on-site and is used to keep the access roads clean to minimise dust generation.

Rainwater run-off from paved areas where there is the potential for significant contamination to occur is collected in sumps and tankered off-site for treatment. Rainwater run-off from other operational yards, including the timber and metal processing areas, passes through settlement tanks, an oil interceptor and a constructed wetland before being discharged to ground.

Diesel is stored in bunded above ground tanks. Engine and hydraulic oil and coolant is also stored in the tank bund.

All underground sumps, the oil tank bund and the oil interceptor are subject to regular integrity tests, as required by the licence conditions. The foul water pipe network was surveyed in 2014 and no defects were found. The most recent tests on the sumps, bund and interceptor were completed in 2016 and all of the structures were found to be fit for purpose. A copy of the report on the sump and bund test report is in Appendix 3.

4.20 Nuisance Control

KWD Recycling implements the nuisance control measures specified in the licence to mitigate the impacts of noise, dust, litter and odours and minimise the risk of site activities being a source of nuisance to neighbours and members of the general public. Site staff carry out daily nuisance and litter inspections and litter picks, as required.

4.21 Environmental Monitoring

KWD Recycling carries out the environmental monitoring specified in the licence, which includes quarterly dust deposition monitoring, surface water and groundwater quality monitoring and noise surveys. The results are discussed in subsequent Chapters.

4.22 Incidents and Complaints

There have been a number of incidents relating to the management of process wastewater and contaminated storm water run-off that had the potential to result in groundwater contamination and these are discussed in Chapter 8. KWD Recycling has not received any complaints either directly from members of the public, or indirectly via the EPA over the past three years.

4.23 Emergencies

An emergency is an accident/incident that has the potential to result in environmental pollution and harm to human health & safety. Condition 9.1 of the licence requires KWD to put in place an Accident Prevention Policy that addresses the hazards on-site, particularly in relation to the prevention of accidents with a possible impact on the environment.

Condition 9.2 requires KWD Recycling to ensure that an Emergency Response Procedure is in place that addresses any emergency situation that may originate on-site. This procedure shall include provision for minimising the effects of any emergency on the environment. KWD Recycling has prepared a procedure and a copy is in Appendix 4.

4.24 Natural Disasters and Major Accidents

Natural disasters that could affect the operation of a waste management facility include earthquakes, landslides, hurricanes and flooding. Given the location of the facility, which is in a seismically stable area, removed from geomorphological features susceptible to landslip, highly unlikely to be affected by hurricanes and not in a flood plain, an assessment of the effects of a natural disaster was not considered necessary.

KWD Recycling has completed an assessment of the environmental effects of the likely accidents and incidents that may occur. A copy of the Environmental Liability Risk Assessment is in Appendix 5. Based on the types of waste that are and will be accepted and the activities carried out, the only major accident that present a significant risk of environmental pollution is a fire.

4.12.1 Fire

The areas where there is the potential for a fire to occur are those where combustible materials are handled and stored. With the exception of the non-timber C&D waste the majority of the materials accepted, processed and stored are combustible.

KWD Recycling has completed a fire risk assessment to identify the measures required to prevent, detect and suppress a fire and a copy of the report is in Appendix 6. KWD has also calculated the firewater retention capacity required to contain the volume of firewater likely to arise during a fire. A copy of the Firewater Retention Assessment is in Appendix 7.

4.25 Proposed Development

It is proposed to increase the amount of waste accepted to 59,000 tonnes annually. The existing infrastructure and processing equipment have the capacity to accommodate the increase, and the proposed development does not involve the construction of any new buildings, will not require the provision of new or additional plant and equipment and will not result in any change to the waste acceptance hours.

The proposed operational hours will be 6.00am to 12.00pm. The expansion of the hours is to allow the processing of the MMW delivered to the facility in the late evening to facilitate its speedy removal from the site. Processing will only be carried out inside the main processing building.

*For inspection purposes only.
Consent of copyright owner required for any other use.*

5 CLIMATE

5.1 Introduction

This Chapter describes the climate at the site and the effects the proposed development will have on it, including a 'do nothing' scenario. It identifies the prevention and mitigation measures that are and will be implemented to reduce the significance of the impacts, and assesses the residual impacts.

5.2 Methodology

The assessment was based on meteorological data obtained from Met Eireann Shannon Meteorological Station, which is 36 km to the east of the site and the EPA's 2016 report on climate change.

5.3 Receiving Environment

The annual average rainfall, temperature, humidity and wind speed and direction for the Met Eireann Shannon Weather Station is presented in Table 5.1. The climate in the area is mild and wet, with the prevailing wind direction from the south and south-west.

Table 5.1 Meteorological Data: (1961-1990)

Rainfall –	
Annual average	926.7 mm
Average maximum month (December)	99 mm
Average minimum month (April)	55.7 mm
Temperature	
Mean Daily	10.1°C
Mean Monthly Maximum (July)	15.7°C
Mean Monthly Minimum (January)	5.4°C
Relative Humidity	
Mean at 0900UTC	84%
Mean at 1500UTC	70%
Wind	
Prevailing direction	South and South West

5.4 Impacts

It is now internationally accepted that there is a link between greenhouse gases and climate change. Greenhouse gases are generated both directly and indirectly at waste management

facilities. Direct emissions are associated with on-site processing and off-site electricity power generation, while indirect emissions are linked to vehicle movements transferring wastes to and from the site. The increased waste inputs will result in an increase in direct emissions associated with the additional processing and indirect emissions associated with the extra traffic movements.

The predicted energy usage when the facility is operating at full capacity is in Table 5.2, which also includes estimates of the associated carbon dioxide emissions calculated using conversion factors published by the Sustainable Energy Authority of Ireland and the US Environmental Protection Agency.

Table 5.2 Predicted Energy Use Per Annum

Resource	Quantity	Estimated CO ₂ Tonnes/annum
Electricity	1,798.5 MWhrs	884.86
Diesel	170	340

Under the EU Effort Sharing Decision (Decision No. 406/2009/EC) for 2013-2020, Ireland's 2020 target is to achieve a 20% reduction of non-Emissions Trading Scheme (ETS) sector emissions (i.e. agriculture, transport, residential, commercial, non-energy intensive industry and waste) compared to 2005 levels, with annual binding limits set for each year over the period.

In 2016 the EPA, which is the responsible authority for reporting on climate change, projected that between 2013-2020 Ireland will cumulatively exceed its compliance obligations by 12 million tonnes of carbon dioxide (CO₂) equivalent under the 'With Measures' scenario and 3 million tonnes under the 'With Additional Measures' scenario.

Emissions from agriculture and transport are key determinands in meeting the targets, and emissions from both sectors are projected to increase up to 2020. However, emissions from the waste sector are projected to decrease by 46% by 2020, primarily due to the reduction in the volumes disposed to landfill and an increase in energy recovery.

5.5 Do Nothing Scenario

If the development does not proceed KWD Recycling will not be able to avail of an opportunity to expand its business and the facility will continue to operate with no change in the amount of direct and indirect greenhouse gas emissions.

5.6 Prevention & Mitigation Measures

Waste processing requires significant energy inputs and energy costs are a significant element of the business overheads. Condition 7 of the licence requires KWD to carry out an energy

audit of the facility to identify all practicable opportunities for energy use reduction and efficiency. KWD Recycling has carried out an audit and the recommendations were incorporated into the Environmental Objectives and Targets in the facility's Environmental Management System.

Diesel fuelled plant engines are only turned on when wastes are being processed and KWD Recycling has a policy of not allowing engine idling. This also applies to waste transport vehicles the facility.

5.7 Assessment of Impacts

All greenhouse gas emissions, regardless of the source, contribute to a cumulative negative environmental effect, unless offset by mitigation or compensatory measures. As referred to above, the proposed development will result in increased energy consumption and traffic, with a consequent increase in greenhouse gas emissions; however this will be somewhat off-site by the reduction in greenhouse gases due to the increased use of waste generated at the facility in the production of waste fuel that will replace fossil fuel.

EPA Guidance on climate change states that a development may have an influence on global climate where it represents *"a significant proportion of the national contribution to greenhouse gases"*. Based on the nature and size of the proposed development, GHG emissions will not be significant in terms of the national carbon dioxide (CO₂) emissions and Ireland's limit under international agreements.

5.8 Residual Impacts

The proposed development will, in conjunction with current operations, have an on-going, imperceptible, negative, impact on the global and local climate.

6 TRAFFIC & TRANSPORT

6.1 Introduction

This Chapter describes existing road traffic conditions and the impacts of the proposed development on the local and regional road network, including a 'do nothing' scenario and an assessment of cumulative impacts. It identifies the mitigation measures implemented to reduce the significance of the impacts and assesses impacts and the residual effects.

6.2 Methodology

The assessment is based on information derived from the traffic assessment completed in the course of the preparation of the 2005 Environmental Impact Statement (EIS) and current traffic movements. A copy of the Transportation and Access Report is in Appendix 8.

6.3 Receiving Environment

6.4.1 Surrounding Land Use

The facility is located in a rural area and the surrounding land use is primarily agricultural, with some forestry. There are approximately twenty (20) residences within 500m of the facility, the majority of which are in a 'ribbon development' along the local road to the north of the site.

6.4.1 Regional and Local Road Network

The facility is approximately 4.5km north of Killarney, and approximately 3.3km off the N22 Killarney - Tralee National Road. The majority of the traffic to and from the site is along the local road between Ballyhar and the N22 junction at Cleeny, which is of mostly a good standard with relatively high traffic flows.

The local Aghalee to Cleeny Road varies in width from over 7m near the N22 junction at Cleeny, to approximately 5m further north towards Aghalee. A school is located approximately 2.7km from Cleeny along this road.

The majority of traffic travelling to the site is from the south, taking a left turn off the Cleeny - Aghalee road at Knockasarnet, onto the local road towards Aghacurreen. This road is mostly of good standard and varies in width from 4.0 - 4.5m. Traffic turns left onto the access road to the site at Aghacurreen. The access road is approximately 3.0m in width and there is a local access road junction immediately to the left of the site entrance.

6.4.1 Traffic Survey

A traffic survey was carried out over a 12 hour period in 2004 to determine the existing traffic flows on the regional road adjacent to the site; establish the traffic patterns at the entrance to the site, and to allow an overall assessment of the impact of the predicted increase in traffic on the existing road network.

6.4.2 Trip Distribution

In 2004 82% of normal vehicle traffic enters the facility from the Knockasarnet side with the remaining 18% entering from the Barleymount side. Since 2004 there have been no significant changes to either the local road networks, apart from routine repairs, or the distribution of the facility's customer base that have affected the access routes. The trip distribution remains the same with the majority of vehicles accessing the site from the east

6.4.3 Traffic Movements

In 2004 on the day of the traffic survey there were 126 vehicular movements at the facility entrance, and of these 67 were normal vehicle movements (staff vehicles, general public vehicles coming to site for customer services reasons and traffic associate with the private residents who use the access road. 59 were HGV movements. A review of the weighbridge data for 2017 established that there are on average 92 daily HGV movements.

6.4 Predicted Traffic

In 2004 it was predicted that the proposed increase in the waste acceptance limit to 40,000 tonnes/annum would result in 143 HGV movements per day. At the time, due to the distribution of KWD Recycling household customer base many of the waste collection trucks were not full when they arrived back at the facility.

The expansion of household waste collection service allowed more waste to be collected on each run, thereby increasing the payload. This meant that the predicted increase in waste collection vehicle movements was not as great as predicted in the 'worst case' scenario.

Also in 2004 the bulk of the wastes sent for disposal went to the North Kerry Landfill and the wastes were typically transported in roll-on roll-offs (RO/RO) that had a capacity of 12 tonnes. The closure of the North Kerry Landfill and other landfills in the adjoining and nearby counties necessitated the sourcing of alternative outlets for the wastes. These included landfills outside of Munster, overseas waste to energy plants and biological treatment facilities.

Given the distance between the Aughacurreen facility and those licensed/permitted sites that had the capacity to accept and dispose/recover the waste, transport by RO/RO was not practical. The alternative was to transport the wastes in articulated trailers that have a typical capacity of 27 tonnes. This almost halved the number of vehicles transporting waste from the site.

Based on the weighbridge records for 2017, when the facility accepted just under 40,000 tonnes, there were on average 92 HGV movements per day.

6.5 Impacts

The proposed increase from 40,000 tonnes to 59,000 will give rise to an additional 46 HGV movements day. The will result in a total of 138 HGV movements per day. This is less that the 143 movements predicted in the 2004 Traffic Impact Assessment. The development does not require the employment of extra staff and will not give rise to any additional private vehicle movements

6.6 Do Nothing Scenario

If the development does not proceed KWD Recycling will not be able to avail of an opportunity to expand its business and increase recovery and recycling rates. There will be no impact on the local and regional road network.

6.7 Prevention and Mitigation Measures

The visibility splay at the existing site access will be maintained and kept free of obstacles that could obstruct the view. As the proposed development will have no significant adverse impacts on the road networks additional prevention and mitigations measures are not required.

6.8 Assessment of Impacts

The existing local and regional road networks have the capacity to accommodate the increase in traffic.

6.9 Residual Impacts

The development will result in an increase in a slight increase traffic movements, but the local and regional road network and junctions have the capacity to accommodate the increase. The proposed development will have an on-going, slight, negative, impact on the road network.

For inspection purposes only.
Consent of copyright owner required for any other use.

7 SOILS & GEOLOGY

7.1 Introduction

This Chapter describes the soils and bedrock conditions at the facility and the impacts the proposed development will, or is likely to have on the soils and geology within the site boundary, including a 'do nothing' scenario. It identifies the prevention and mitigation measures that are and will be implemented to reduce the significance of the impacts and assesses the residual impacts.

7.2 Methodology

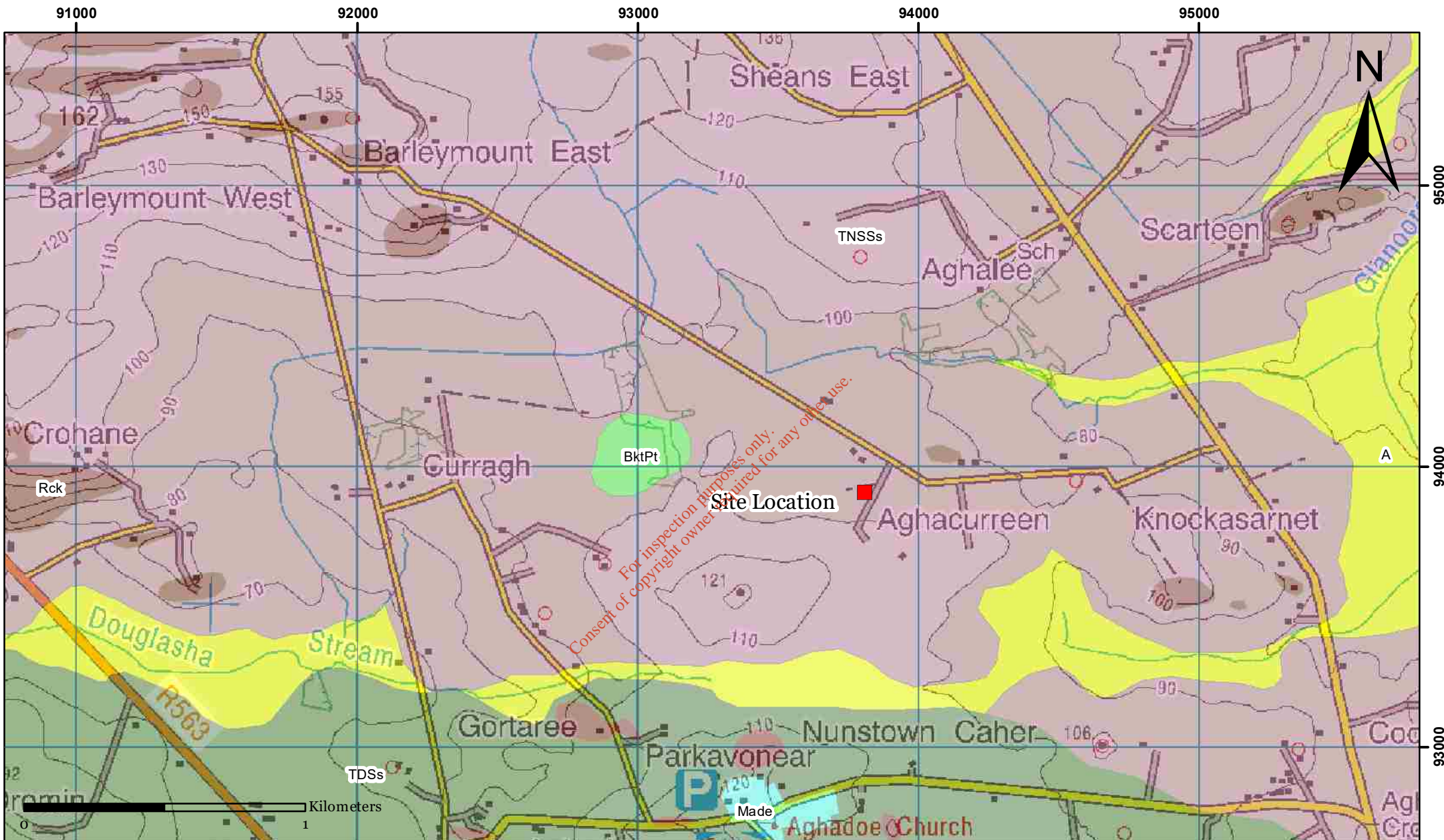
The assessment took into consideration the Institute of Geologists of Ireland (IGI) 'Guidelines for the Preparation of Soils Geology and Hydrogeology Chapters of Environmental Impact Statements' (2013) and the EPA draft guidelines described in the Preamble.

As the proposed development does not involve any ground disturbance, a site investigation was not required and the assessment was based on a desk study based on a review of databases maintained by the Geological Survey of Ireland (GSI), Teagasc, the EIS prepared in 2005 and a report on hydrogeological survey completed in February 2017. This report, a copy of which is in Appendix 9, was submitted to the Office of Environmental Enforcement.

7.3 Receiving Environment

7.4.1 Soils

The Teagasc maps (Figure 7.1) indicate that the subsoils are till derived from Namurian shales and sandstones. The logs of the boreholes installed in 2008 indicate the soils comprise peat overlying tills. The combined thickness ranges from 3m in the east of the site to 5m in the west.




O'Callaghan Moran & Associates,
 Unit 15 Melbourne Business Park,
 Model Farm Road, Cork.
 Tel. (021) 4345366
 email: info@ocallaghanmoran.com

This drawing is the property of O'Callaghan Moran & Associates and shall not be used, produced or disclosed to anyone without the prior written permission at O'Callaghan Moran & Associates and shall be returned upon request.

CLIENT
 Killarney Waste Disposal

TITLE
 Subsoils

Details:








 Site Location	 Rck - Bedrock at surface
 A - Alluvium undifferentiated	 TDSs - Sandstone till (Devonian)
 BktPt - Blanket peat	 TNSSs - Shales and sandstones till (Namurian)
 Made - Made Ground	

Figure 7.1

7.4.2 Bedrock

The GSI bedrock map (Figure 7.2) indicates the site is underlain by Namurian shales and sandstones. The borehole logs indicate the bedrock comprises a black shale, the upper 3 to 5m of which is weathered.

7.4 Impacts

The proposed development does not require any excavation or construction works that would disturb/remove any subsoils. There will be no change to either the quality, or quantity of the on-going discharges to ground and the proposed development will not result in any new direct or indirect emissions.

Currently, there is the potential for leaks/spills to occur to ground during the delivery and handling of the incoming wastes, leaks from the above ground oil storage tank, leaks from the process wastewater storage tanks and leaks from the sanitary wastewater lines. The potential pathways to the soil for contaminants released at the ground surface are infiltration in unpaved areas and areas where the paving has been damaged, and leaks from the surface water drains.

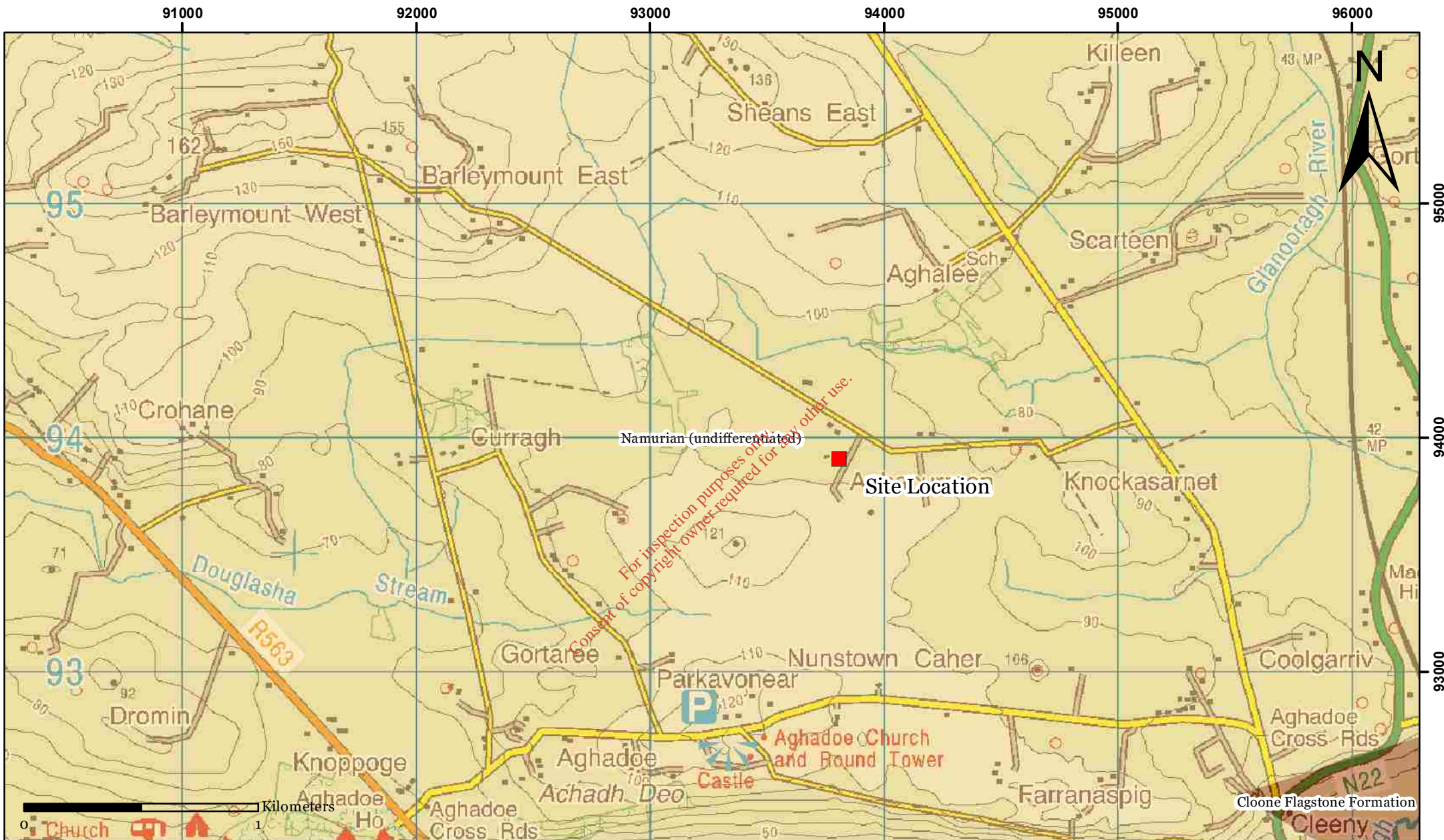
7.5 Do Nothing Scenario

If the proposed development does not proceed the KWD facility will continue to operate and there will be on change to the impacts on soils and geology.

7.6 Prevention and Mitigation Measures

The current operational prevention and mitigation measures required by the licence will continue to be implemented and these include:

- The inspection and repair as required of the paved areas;
- The routine inspection of the surface water drainage system;
- Diversion of rainwater run-off that has the potential to be contaminated to holding tanks.
- Rainwater run-off from the building roofs and car parks passes through settlement tanks and a Class 1 Oil Interceptor and is then treated in the on-site reed beds before discharge to the percolation area.




O'Callaghan Moran & Associates,
 Unit 15 Melbourne Business Park,
 Model Farm Road, Cork.
 Tel. (021) 4345366
 email: info@ocallaghanmoran.com
Environmental Management for Business

This drawing is the property of O'Callaghan Moran & Associates and shall not be used, produced or disclosed to anyone without the prior written permission at O'Callaghan Moran & Associates and shall be returned upon request.

CLIENT
 Killarney Waste Disposal

TITLE
 Bedrock Geology

Details:

- Site Location
- Cloone Flagstone Formation-Greywacke, Siltstone & Shale
- Namurian (undifferentiated)-Shale & Sandstone

Figure 7.2

- Provision of a proprietary wastewater treatment system (puraflo) including percolation area to treat sanitary wastewater from staff welfare facilities.
- Provision and maintenance of spill containment and clean up equipment;
- The adoption of an emergency response procedure and staff training on appropriate incidents and emergency response actions;
- KWD Recycling has completed a firewater retention assessment to determine the available storage capacity for contaminated firewater generated in the response to a fire.

7.7 Assessment of Impacts

The proposed development will not involve any ground disturbance or any changes to the either the quality, or volume of existing discharges to ground (sanitary waste percolation and surface water reed bed percolation area).

The sanitary waste water treatment percolation area was constructed using imported soils that met the permeability requirements for such systems. The installation was certified and, although not a requirement of the licence, the treated effluent is monitored. The results confirm the treatment plant is functioning properly, complies with the manufacturer's design specification and meets the performance standards specified in the EPA's wastewater treatment system guidance.

The quality of the treated water discharging from the reed bed is routinely monitored, as required by the licence conditions. The results, further details of which are provided in Chapter 8, indicate the reed bed is functioning properly and that the treated water does not present a significant adverse risk to soils.

7.8 Residual Impacts

The proposed development, in conjunction with current operations will have a slight, negative impact on soils for the duration of the operation associated with the operation of the percolation areas, but no impact on the bedrock.

8 WATER

8.1 Introduction

This Chapter describes the surface water and the groundwater conditions at the site and the impacts that the proposed development will, or is likely to have on surface water and groundwater within and outside the site boundary, including a 'do nothing' scenario. It identifies the prevention and mitigation measures that are and will be implemented to reduce the significance of the impacts, and assesses the residual impacts.

8.2 Methodology

The assessment of the impact on surface water is based on a review of the South Western River Basin District (SWRBD) Management Plan and databases maintained by the EPA, the National Parks and Wildlife Service (NPWS) and the Office of Public Works (OPW), the EIS completed in 2005 and the results of surface water monitoring carried out in compliance with the licence conditions.

The assessment of groundwater is based on a review of SWRBD Plan and databases maintained by the GSI, Teagasc and the EPA, the EIS completed in 2005, a report on the hydrogeological survey completed in 2017 (Appendix ?) and the results of the groundwater monitoring carried out in accordance with the licence conditions. The assessment took into account the IGI 'Guidelines for the Preparation of Soils Geology and Hydrogeology Chapters of Environmental Impact Statements' (2013) and the EPA draft guidelines described in the Preamble.

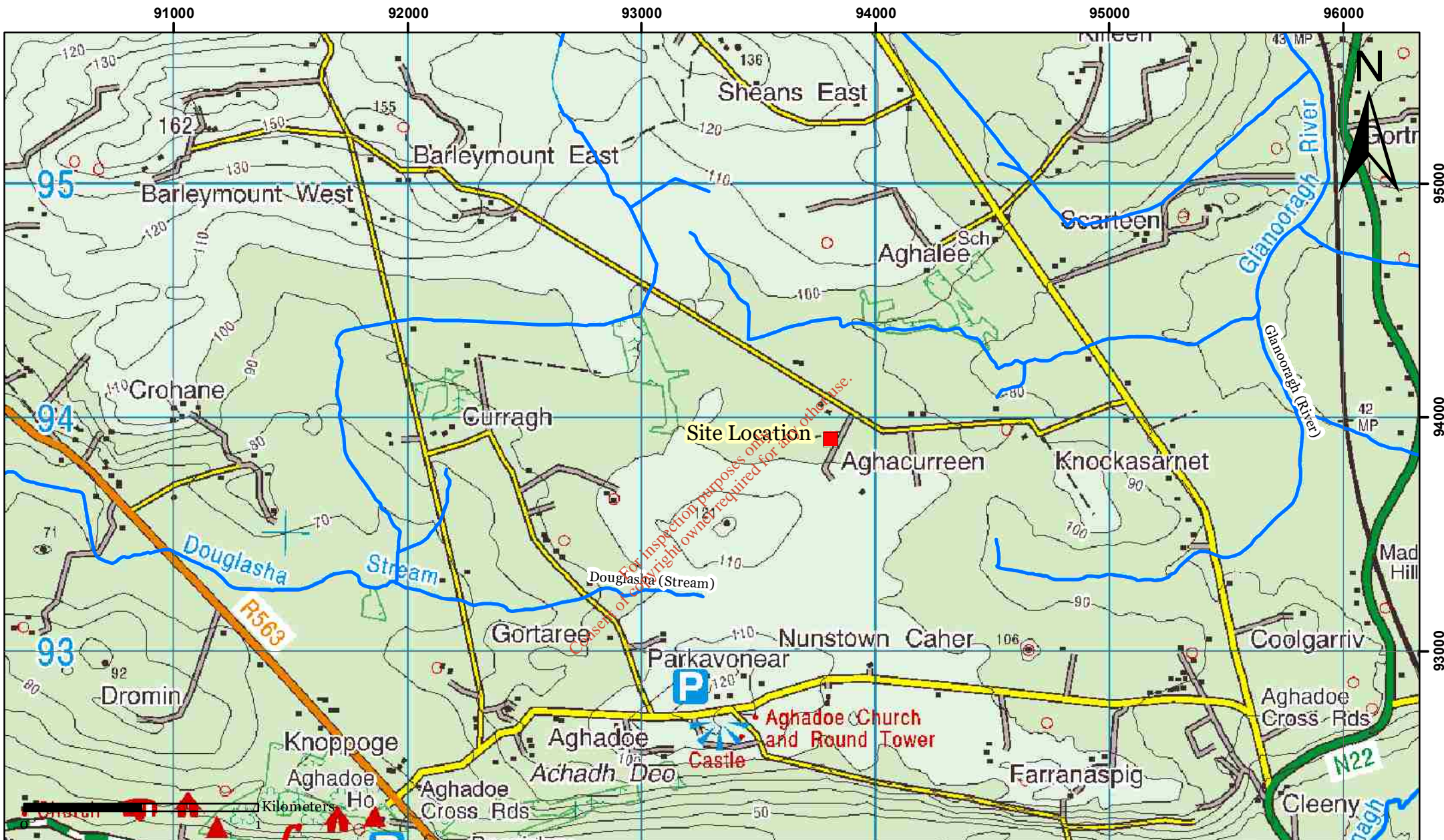
8.3 Receiving Environment-Surface Water

8.3.1 Regional Surface Water Catchment

The regional drainage pattern is shown on Figure 8.1. The site is in the catchment of the Glanooragh River, which is part of the Glanooragh, Trib of Laune' (IE_SW-22_2512) Water Body designated in the SWRBD.

The SWRBD Plan contains reports on the 'Status' of each Water Body. Status means the condition of a watercourse and is defined by its ecological and chemical status, whichever is worse. Waters are ranked in one of five status classes, High, Good, Moderate, Poor and Bad.

The European Union Water Framework Directive (WFD) requires measures to be implemented to ensure waters achieve at least 'Good Status' by 2021 and that their current status does not deteriorate. Where necessary, for example in heavily impacted or modified watercourses, extended deadlines (2027) have been set for achieving the following objectives:-



 <p>O'Callaghan Moran & Associates, Unit 15 Melbourne Business Park, Model Farm Road, Cork. Tel. (021) 4345366 email: info@ocallaghanmoran.com</p>	<p>CLIENT</p> <p style="text-align: center;">Killarney Waste Disposal</p>	<p>Details:</p> <ul style="list-style-type: none"> ■ Site Location — Rivers
<p>This drawing is the property of O'Callaghan Moran & Associates and shall not be used, produced or disclosed to anyone without the prior written permission at O'Callaghan Moran & Associates and shall be returned upon request</p>	<p>TITLE</p> <p style="text-align: center;">Hydrology</p>	<p style="text-align: right; border: 1px solid black; padding: 5px;">Figure 8.1</p>

- Prevent Deterioration
- Restore Good Status
- Reduce Chemical Pollution
- Achieve Protected Areas Objectives

The objectives for particular watercourses are based on 'Pressure and Impact Assessments' of point and diffuse emissions, land use (e.g. peat harvesting, quarrying, industrial and residential use) and morphological conditions (e.g. river depth and width, structure and substrate of river bed) to identify those Water Bodies that are 'At Risk' of failing to meet the WFD objectives.

'At Risk' does not necessarily mean that the Water Bodies have already been adversely impacted, but that there is a likelihood that one will fail to meet its objectives unless appropriate management action is taken.

The 'Glanoorage, Trib of Laune' Water Body is ranked as being of 'Poor' Status based on the overall ecological status. The water body is 'At Risk' of not meeting its objective of 'Restore' by 2021. A copy of the Water Body Status Report is in Appendix 10.

8.3.2 Local Drainage Systems

There is a local high point (121m Ordnance Datum) approximately 500 m to the south-west of the site, from where the ground falls away in all directions.. This high point forms a watershed between tributaries of the Glanooragh River to the north and the Douglasha Stream to the west. Both watercourses are tributaries of the River Laune.

A surface water drain flows through the site in a south-west to north-east direction. At the north-eastern boundary, the drain changes direction to flow south-east along the boundary to the access road, where it turns in a north-easterly direction and joins an unnamed tributary of the Glanooragh River, approximately 250m from the site.

8.3.3 Water Quality

A biological assessment carried out in 2004 identified that the drain was seriously polluted at the point where it entered the KWD Recycling site and that it was moderately or slightly polluted c.200m upstream of the site.

Chemical testing at monitoring points upstream and downstream of the site found elevated levels of Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD), iron and manganese upstream of the site and elevated levels of ammonia, iron, manganese and electrical conductivity downstream of the site.

The licence requires monitoring of the drain up and downstream of the site biannually for pH, electrical conductivity and ammonia. The results of the monitoring carried out in 2016 and to date in 2017 are in Tables 8.1 and 8.2.

The Tables include for comparison purposes the 'average' Environmental Quality Standards (EQS) from the Surface Water Regulations 2009 for 'Good Status' waters.

Table 8.1 Surface Water Quality 2016 KWD Monitoring

Parameter	Units	16/11/2016 Upstream B	16/11/2016 Downstream D	16/12/2016 Upstream B	16/12/2016 Downstream D	EQS
Conductivity	uS/cm	266	261	268	312	
pH	pH Units	6.9	7.3	6.7	7.1	6-9
Ammonia	mg/l	0.07	0.06	0.18	0.27	0.065- 0.140
BOD				2.3	1.2	<1.5 (Mean)
COD				136	52	

In the December event the ammonia exceeded the EQS at both up and downstream locations. The BOD exceeded the EQS in the upstream sample, but not in the downstream one.

Table 8.2 Surface Water Quality 2017 KWD Monitoring

Parameter	Units	13/12/2017 Upstream B	13/12/2017 Downstream D	EQS
Conductivity	uS/cm	216	246	
pH	pH Units	7.2	7.3	6-9
Ammonia	mg/l	0.02	0.09	0.065- 0.140
Suspended Solids	mg/l	860		18
COD	mg/l	113		27
Sulphate	mg/l	21.4	6.81	
Chloride	mg/l	20.6	23.7	

The ammonia levels both up and downstream were below the EQS. The suspended solids and COD were elevated in the upstream sample but not in the downstream one.

In February and March 2016 the Agency monitored the quality in the drain up and downstream of the site and the results are in Table 8.3.

Table 8.3 Surface Water Quality EPA Monitoring 2016

Parameter	Units	16/02/2016 Upstream	16/02/2016 Downstream	07/03/2016 Upstream	07/03/2016 Downstream	EQS
Conductivity	uS/cm	-	-	218	306	-
pH	pH Units	-	-	6.7	7.1	6-9
Suspended Solids	mg/l	9	8	<4	4	-
Ammonia	mg/l	0.038	0.51	0.18	0.27	0.065- 0.140
Chloride	mg/l	30.4	37.8	30.1	32	
Orthophosphate	mg/l	0.047		0.029	0.022	
Nitrite	mg/l	-	-	0.0183	0.0056	
BOD	mg/l	-	-	<1	1	<1.5 (Mean)
COD	mg/l	78	45	57	46	
TON	mg/l	<0.2	0.49	0.49	0.34	
Coliforms	MPN	-	-	-	687	
Faecal Coliforms	MPN	-	-	-	261	

While faecal coliforms were detected in the downstream sample in the March event, in the absence of any results for the upstream sample it is not possible to comment on the significance of this.

The results of the analysis carried out by KWD Recycling and the EPA confirm that facility operations are not impacting on the water quality in the drain.

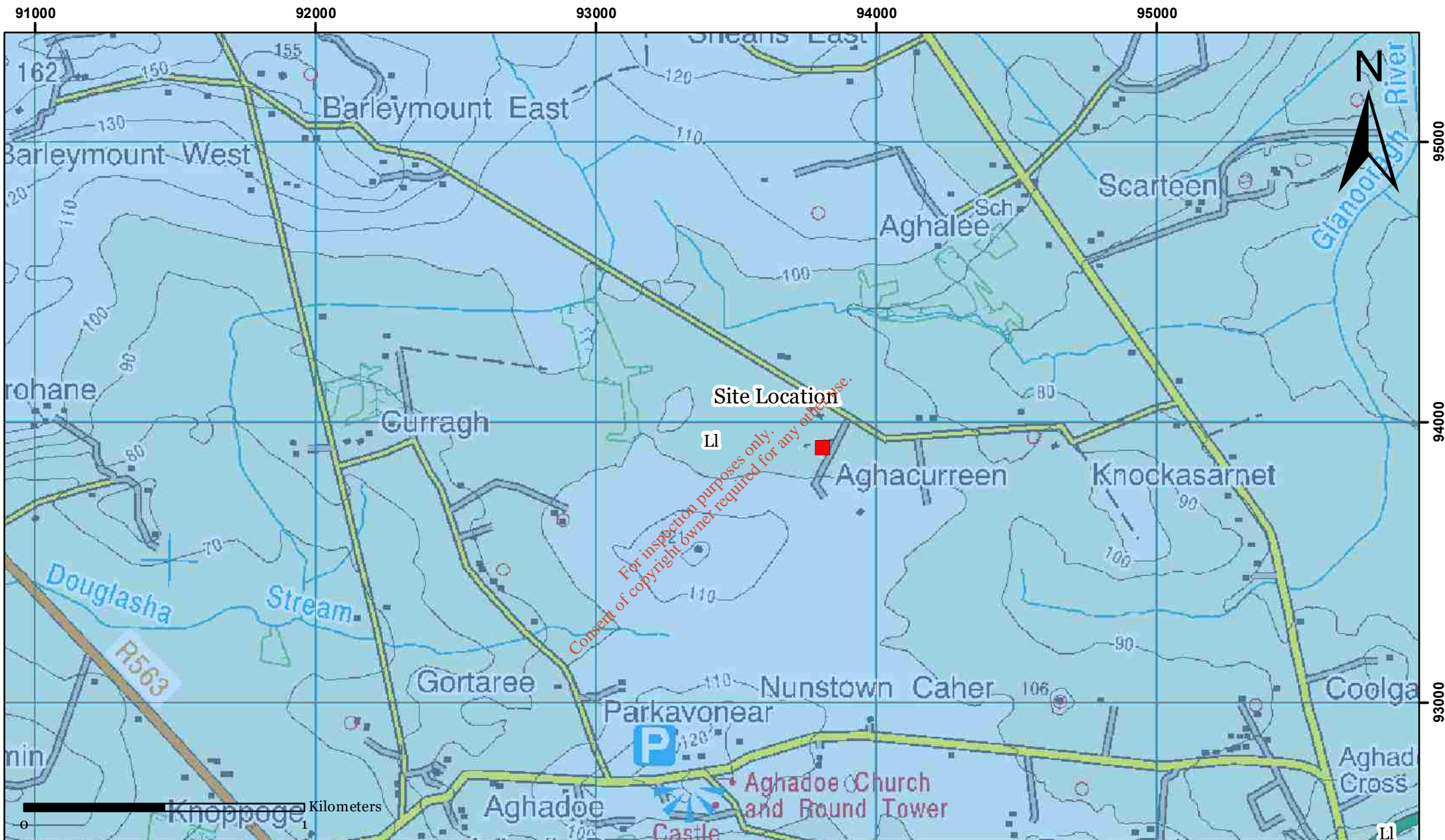
8.4 Receiving Environment-Groundwater


8.5.1 Aquifer Classification

The subsoils are not significantly water bearing. The underlying bedrock is characterised by the GSI as a Locally Important aquifer, which is moderately productive only in Local Zones (LI) (Figure 8.2).

Permeability in the bedrock is highest in the upper few metres but generally decreases rapidly with depth. In general, groundwater flow is concentrated in the upper 15 m of the aquifer, although deeper inflows from along fault zones or connected fractures can be encountered.

The logs of the boreholes installed in 2008 show water strikes at between 11 and 20m below ground level. The water levels recorded in the wells in 2009 and 2010 were all significantly above the top of the bedrock, indicating confined conditions.



 <p>O'Callaghan Moran & Associates, Unit 15 Melbourne Business Park, Model Farm Road, Cork. Tel. (021) 4345366 email: info@ocallaghanmoran.com</p>	<p>CLIENT</p> <p>Killarney Waste Disposal</p>	<p>Details:</p> <ul style="list-style-type: none"> ■ Site Location L1-Bedrock which is moderately productive only in Local Zones
	<p>TITLE</p> <p>Aquifer Classification</p>	<p style="text-align: right;">Figure 8.2</p>

This drawing is the property of O'Callaghan Moran & Associates and shall not be used, produced or disclosed to anyone without the prior written permission at O'Callaghan Moran & Associates and shall be returned upon request.

Significant yields can sometimes be obtained from this formation type where boreholes are drilled into known fault zones; however, the yields are not necessarily sustainable, as the fracture networks are generally not extensive or well connected, but primarily concentrated in the vicinity of the fault zones and tend to reduce significantly in periods of low or no rainfall.

The aquifer is part of the Scartaglin Groundwater Body. The GSI's initial characterisation of this water body (Appendix 10) states that the sandstone beds in the bedrock formation have a slightly higher permeability than the shales due to their greater ability to fracture and that there are a number of artesian supplies where the sandstone beds are confined by the shales and mudstones. Water level measurements in the groundwater wells installed at the site confirm the presence of confined conditions and one of the wells is artesian.

8.5.2 Aquifer Vulnerability

Vulnerability is defined as the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities. Vulnerability categories range from Extreme (rock close to surface) to **Extreme to High to Moderate to Low** and are dependent on the nature and thickness of subsoils.

The Namurian till has a low permeability and although in some areas it has a stony matrix there is still generally a high clay content due to the weathering of shale clasts. The GSI Vulnerability Map (Figure 8.3) indicates that the vulnerability across the site is **Low** however the logs of the boreholes installed at the site describe the soil and subsoil (peat and till) thickness as ranging from 3 to 5m, indicating the vulnerability ranges from **Extreme to High**.

8.5.3 Groundwater Recharge

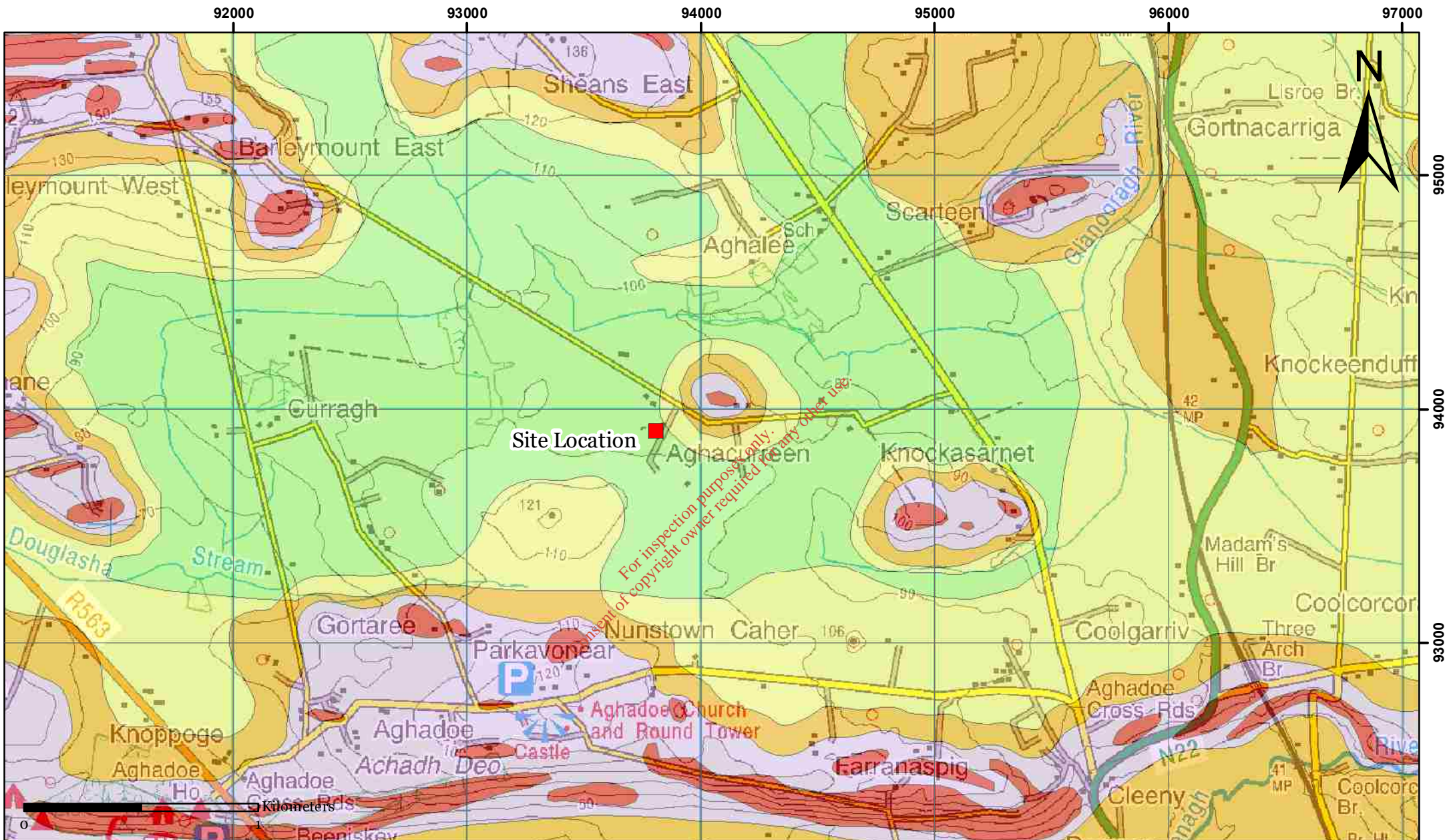
The main hydrogeological controls on groundwater recharge are subsoil permeability, subsoil thickness, saturated soils and the ability of the underlying aquifer to accept percolating water. The GSI database indicates an average groundwater recharge of 97 mm/yr in the vicinity of the site.

8.5.4 Groundwater Flow Direction

Groundwater flow paths in the bedrock are generally short, typically 10s -100s of meters, with groundwater typically discharging to small springs, or streams. The flow direction is expected to mirror the local surface water catchment. In October 2016 KWD Recycling surveyed the four on-site groundwater monitoring wells to Ordnance Datum (OD) and the level of the top of the casing at each of the wells is shown in Table 8.4.

Table 8.4 Monitoring Well Levels

Well	Easting	Northing	OD Top of Casing (m)
MW-1	493661	594052	91.792
MW-2	493612	594086	92.814
MW-3	493519	593989	93.645
MW-4	493570	593933	92.816




O'Callaghan Moran & Associates,
 Unit 15 Melbourne Business Park,
 Model Farm Road, Cork.
 Tel. (021) 4345366
 email: info@ocallaghanmoran.com

This drawing is the property of O'Callaghan Moran & Associates and shall not be used, produced or disclosed to anyone without the prior written permission at O'Callaghan Moran & Associates and shall be returned upon request.

CLIENT
 Killarney Waste Disposal

TITLE
 Groundwater Vulnerability

Details:







 Site Location	 High
 Bedrock near Surface	 Moderate
 Extreme	 Low

Figure 8.3

The water levels recorded in wells MW-1, MW-3 and MW-4 were used to calculate the groundwater flow direction. The flow is from south to north, meaning that well MW-4 is up gradient and MW-3 is side gradient of the operational area, while wells MW-1 and MW-2 are downgradient.

8.5.5 Groundwater Abstraction Wells

A review of the GSI water well database established that the nearest recorded well is 1km up gradient of the site, with the closest down gradient well 2.7km away (Figure 8.4).

8.5.6 Groundwater Quality

The monitoring wells were installed in 2009 and were monitored on three occasions between 2009 and 2010. Biannual monitoring for the parameters specified in the Schedule C of the licence began in 2012.

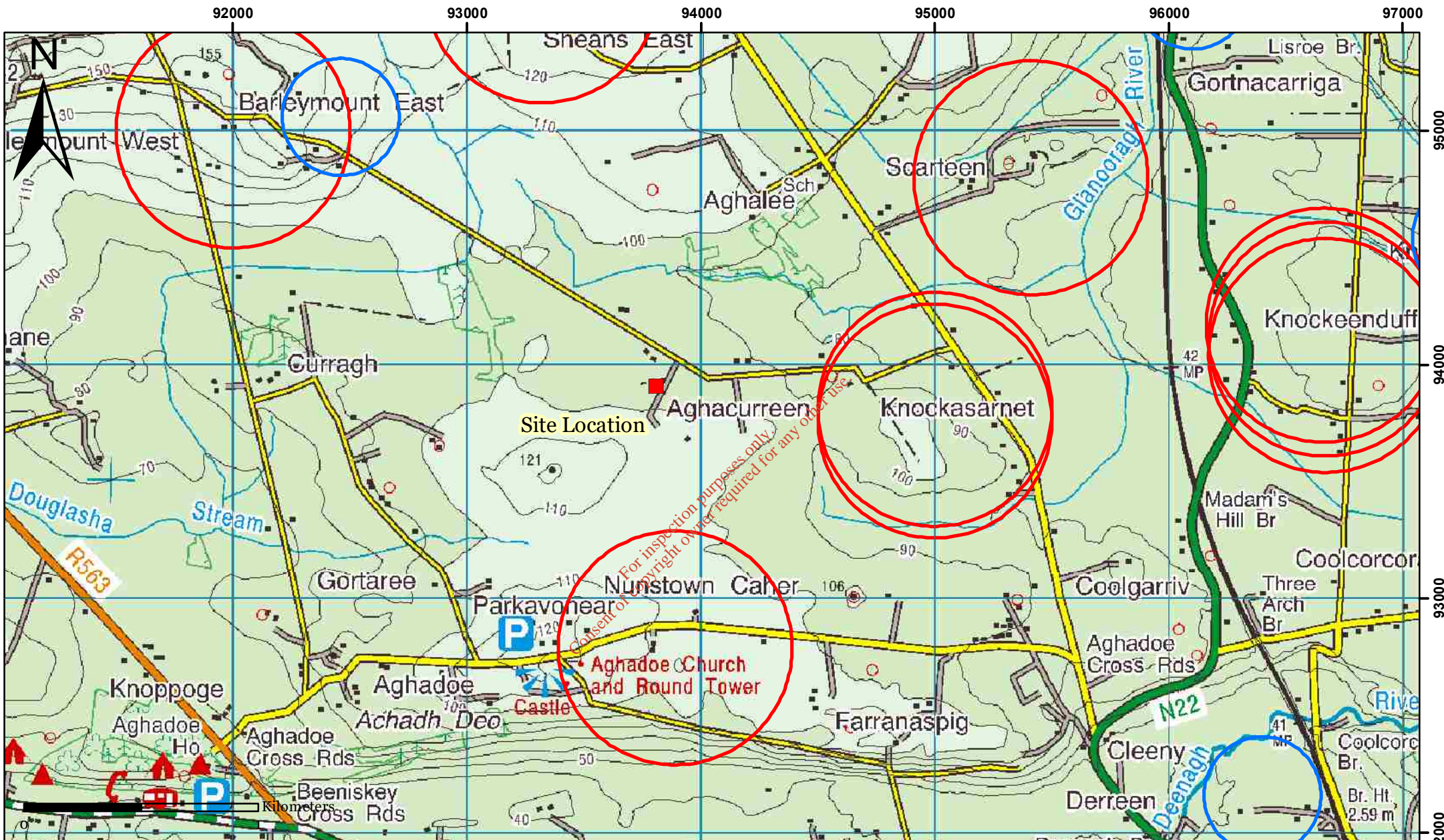
The monitoring results are presented in Tables 8.5 to 8.8, which include, for comparative purposes, the threshold values set in S.I. No. 9/2010 – European Communities Environmental Objectives (Groundwater) Regulations 2010 and the Environmental Protection Agency Interim Guideline Values (IGVs).

While the Groundwater Regulation threshold values are more appropriate for large pumping wells, they are now used by the EPA to assess the significance of contamination in groundwater for those parameters for which thresholds have been established.

Because not all parameters monitored at the site have been assigned threshold values the IGV limits have also been included. The IGVs represent typical Irish background or unpolluted conditions; however levels higher than the IGV can occur naturally, depending on the local geological and hydrogeological conditions.

From the start of the monitoring programme the ammonia levels in MW-1, MW-2 and MW-3 have exceeded the threshold values, while the level in MW-4 has been generally below the TV, with only occasional exceedances. Nitrates have not been detected, and sulphate is only consistently recorded in MW-4. The chloride level in MW-4, while initially similar to that in the other wells has increased over time, with occasional spikes.

In September 2016, KWD Recycling carried out additional monitoring in MW-3, which included the collection of five samples from MW-3 over a four hour period, measuring the dissolved oxygen level and check the redox potential in the field and conduct laboratory analysis for ammonia, chemical oxygen demand (COD), nitrate, nitrite, ferrous and ferric ions and sulphide. The results are presented separately in Table 8.9.




O'Callaghan Moran & Associates,
 Unit 15 Melbourne Business Park,
 Model Farm Road, Cork.
 Tel. (021) 4345366
 email: info@ocallaghanmoran.com
Environmental Management for Business

This drawing is the property of O'Callaghan Moran & Associates and shall not be used, produced or disclosed to anyone without the prior written permission at O'Callaghan Moran & Associates and shall be returned upon request.

CLIENT
 Killarney Waste Disposal

TITLE
 GSI Well Location Data

Details:
 Unfortunately many of the borehole logs in the GSI database do not contain accurate location information. The size of the circles shown above is inversely proportional to the accuracy of the well location (i.e. small circles represent high accuracy, where relatively larger circles represent lower accuracy).




 **Site Location**
 **250m-500m**
 **500m-1km**

Figure 8.5

Table 8.5 : MW-1

Field Readings																				
MW-1 Top of Well Pipe 91.792m (mAOD)	Units	Ground Water Regs SI No 9 of 2010	EPA Interim Guideline Values	Sep-09	Nov-09	May-10	Mar-12	Jul-12	Feb-13	Sep-13	Jan-14	Jul-14	Nov-14	Jan-15	Jul-15	Jan-16	Jun-16	Aug-16	Nov-16	Jan-17
Total Depth	m	-	-	18	18	18														
Depth to Water Level	m	-	-	0.02	0.01	0.2	ND	ND	ND		ND	ND	ND	ND	ND	ND	0	0	0.35	0.35
Water Level (mAOD)	m	-	-	91.772	91.782	91.592	-	-	-		-	-	-	-	-	-	91.792	91.792	91.442	91.442
Temperature	°C	-	25	10.4	10.4	10	-	-	-		-	-	-	-	-	-				
Conductivity	µS/cm	800 - 1875	1000	618	649	663	626	627	637	639	639	640	635	647	633	650	641	661	651	645
pH	pH Units	-	6.5 - 9.5	7.04	7.04	6.67	-	-	-		-	-	-	-	-	-	-	-	-	-
Laboratory Results																				
Total Dissolved Solids	mg/l	NE	1000	325	325	336	-	-	-		-	-	-	-	-	-				-
Ammonia (as N)	mg/l	0.05 - 0.136	0.12	1.77	1	0.9	1.78	2.46	1.81	0.97	1.84	2.07	1.64	1.85	1.11	1.85	0.99	1.06	1.79	1.99
Chloride	mg/l	187.5	30	22.4	23.6	21.6	24.9	24.6	23.7	23.7	22.1	23.6	24.1	22.6	24.3	24.9	24.1	23.5	23.8	24.2
Sulphate	mg/l	187.5	200	<3	<3	<3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.79	<0.5	<0.5	<0.5	<0.5
Nitrate as NO ₃	mg/l	37.5	25	<0.06	<0.06	<0.06	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Diesel Range Organics	ug/l	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	110	<10
Orthophosphate	mg/l	0.03	0.03																	0.03
Total Hardness	mg/l	200	200																	363
Alkalinity	mg/l	NAC	NAC																	368
Iron Dissolved	mg/l	0.2	0.2																	2.01
Manganese Dissolved	mg/l	0.05	0.05																	0.1
Dissolved Oxygen	mg/l	NE	NE																	1.55
Redox Potential		NE	NE																	-86
Coliforms	MPN	0	0																	<1
Faecal Coliforms	MPN	0	0																	<1
NE: Not Established																				
NAC No Abnormal Change																				

Table 8.6 : MW-2

Field Readings																				
BH-2 Top of Well Pipe 92.814m (mAOD)	Units	Ground Water Regs SI No 9 of 2010	EPA Interim Guideline Values	Apr-09	Nov-09	May-10	Mar-12	Jul-12	Feb-13	Sep-13	Jan-14	Jul-14	Nov-14	Jan-15	Jul-15	Jan-16	Jun-16	Aug-16	Nov-16	Jan-17
Total Depth	m	-		19.32	19.32	19.32														
Depth to Water Level	m	-		0.54	0.43	0.98	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6	0.35	0.32	0.08
Water Level (mAOD)	m			92.274	92.384	91.834	-	-	-	-	-	-	-	-	-		92.214	92.464	92.494	92.736
Temperature	°C	-	25	10.4	10.4	10.5	-	-	-	-	-	-	-	-	-					
Conductivity	µS/cm	800 – 1875	1000	772	772	828	748	746	747	776	758	787	760	764	769	760	776	796	766	751
pH	pH Units	NE	6.5 - 9.5	7.08	7.08	6.9	-	-	-	-	-	-	-	-	-	-	-	-	7.2	7.2
Laboratory Results																				
Total Dissolved Solids	mg/l	NE	1000	385	385	412	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia (as N)	mg/l	0.05 – 0.136	0.12	2.83	1.86	0.578	1.84	2.11	1.84	1.19	2.07	1.47	1.23	1.16	0.65	1.7	0.53	0.73	1.42	1.76
Chloride	mg/l	187.5	30	24.2	24.7	21.4	24.8	24.1	23.3	22.5	23.1	21.6	23.1	22.1	22.1	24.3	21.9	22.3	22.8	23.3
Sulphate	mg/l	187.5	200	<3	<3	<3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.51	<0.5	<0.5	<0.5	<0.5
Nitrate as NO ₃	mg/l	37.5	25	<0.06	<0.06	0.0799	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Diesel Range Organics	ug/l	10	10	<10	<10	<46	<10	<10	<10	28	<10	<10	<10	<10	<10	<10	<10	<10	149	<10
Orthophosphate	mg/l	0.03	0.03																	0.01
Total Hardness	mg/l	200	200																	421
Alkalinity	mg/l	NAC	NAC																	440
Iron Dissolved	mg/l	0.2	0.2																	4.19
Manganese Dissolved	mg/l	0.05	0.05																	0.15
Dissolved Oxygen	mg/l	NE																		3.35
Redox Potential		NE																		-119
Coliforms	MPN	0	0																	<1
Faecal Coliforms	MPN	0	0																	<1
NE: Not Established																				
NAC: No Abnormal Change																				

Table 8.7 MW-3

Field Readings																				
BH-3 Top of Well Pipe 93.645m (mAOD)	Units	Ground Water Regs SI No 9 of 2010	EPA Interim Guideline Values	Apr-09	Nov-09	May-10	Mar-12	Jul-12	Feb-13	Sep-13	Jan-14	Jul-14	Nov-14	Jan-15	Jul-15	Jan-16	Jun-16	Aug-16	Nov-16	Jan-17
Total Depth	m	-		18.16	18.16	18.16														
Depth to Water Level	m	-		1.49	1.44	1.71	ND	ND	ND	ND	ND	ND	ND	ND	ND		1.9	1.4	1.6	1.7
Water Level (mAOD)	m			92.155	92.205	91.935	-	-	-	-	-	-	-	-	-		91.745	92.245	92.045	91.116
Temperature	°C	-	25	10.3	10.5	11	-	-	-	-	-	-	-	-	-					
Conductivity	µS/cm	800 - 1875	1000	544	556	583	508	515	516	525	516	531	527	528	529	541	539	558	573	548
pH	pH Units	NE	6.5 - 9.5	7.01	6.81	6.64	-	-	-	-	-	-	-	-	-	-	-	-	7.2	7.1
Laboratory Results																				
Total Dissolved Solids	mg/l	NE	1000	272	278	286	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia (as N)	mg/l	0.05 - 0.136	0.12	2.86	1.32	2.54	2.99	3.08	2.91	3.16	3.47	3.21	3.03	3.2	3.2	3.13	2.81	3.35	3.25	2.8
Chloride	mg/l	187.5	30	20.6	21.6	19.6	22.8	21.4	22.4	21.6	21.1	21.1	21.4	20.4	22.5	22.4	22.5	21.4	21.8	22.7
Sulphate	mg/l	187.5	200	<3	<3	4.4	<0.5	1.38	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.71	<0.5	<0.5	<0.5	<0.5
Nitrate as NO ₃	mg/l	37.5	25	<0.06	<0.06	<0.06	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Diesel Range Organics	ug/l	10	10	<10	<10	<46	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Orthophosphate	mg/l	0.03	0.03																	0.03
Total Hardness	mg/l	200	200																	289
Alkalinity	mg/l	NAC	NAC																	311
Iron Dissolved	mg/l	0.2	0.2																	3.64
Manganese Dissolved	mg/l	0.05	0.05																	0.13
Dissolved Oxygen	mg/l	NE																		3
Redox Potential		NE																		-79.6
Coliforms	MPN	0	0																	11
Faecal Coliforms	MPN	0	0																	1
NE: Not Established																				
NAC No Abnormal Change																				

Table 8.8 MW-4

Field Readings																				
BH-4 Top of Well Pipe 92.816m (mAOD)	Units	Ground Water Regs SI No 9 of 2010	EPA Interim Guidline Values	Apr-09	Nov-09	May-10	Mar-12	Jul-12	Feb-13	Sep-13	Jan-14	Jul-14	Nov-14	Jan-15	Jul-15	Jan-16	Jun-16	Aug-16	Nov-16	Jan-17
				Total Depth	m	-		19.9	19.9	19.9										
Depth to Water Level	m	-		0.49	0.1	0.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6	0	1	1	1
Water Level (mAOD)	m			92.326	92.716	92.546	-	-	-	-	-	-	-	-	-		92.816	91.816	91.816	91.816
Temperature	°C	-	25	10.9	10.9	11.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conductivity	µS/cm	800 – 1875	1000	400	407	410	380	389	378	388	392	392	387	397	398	398	396	407	404	405
pH	pH Units	NE	6.5 - 9.5	6.86	6.86	6.28	-	-	-	-	-	-	-	-	-	-	-	-	-	7.2
Laboratory Results																				
Total Dissolved Solids	mg/l	NE	1000	203	203	203	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonium (as N)	mg/l	0.065-0.175	0.12	<0.2	<0.2	<0.2	<0.02	0.03	0.03	0.06	<0.02	0.04	<0.02	0.08	<0.02	<0.02	0.24	0.03	<0.02	0.06
Chloride	mg/l	187.5	30	24.1	24.8	22.4	27	34.6	30.1	26.6	29.9	87.8	32.3	60.3	27	28.3	51	33.4	41	67.8
Sulphate	mg/l	187.5	200	<3	<3	21.9	20.2	34	29.1	22.3	28.2	70.4	27	48.3	45.7	21.6	<0.5	31.4	33.6	63.9
Nitrate as NO ₃	mg/l	37.5	25	<0.06	<0.06	<0.06	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Diesel Range Organics	ug/l	-	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Orthophosphate	mg/l	0.035	0.03																	0.01
Total Hardness	mg/l	NE	200																	190
Alkalinity	mg/l	NE	NAC																	1405
Iron Dissolved	mg/l	NE	0.2																	0.13
Manganese Dissolved	mg/l	NE	0.05																	0.07
Dissolved Oxygen	mg/l	NE	NE																	2.7
Redox Potential		NE	NE																	-41.6
Coliforms	MPN	NE	0																	2
Faecal Coliforms	MPN	NE	0																	64
NE: Not Established																				
NAC No Abnormal Change																				

Table 8.9 Water Quality MW-3 September 2016

Parameter	Units	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Dissolved Oxygen*	mg/l	1.5	2.1	2.9	2.9	3.4
Redox Potential (Eh)*	mV	-132.8	-78	-93.5	-115.9	-106.4
Ammonia	mg/l	3.04	3.13	3.22	3.28	3.28
COD	mg/l	<10	<10	<10	<10	<10
Nitrate	mg/l	<0.25	<0.25	<0.25	<0.25	<0.25
Nitrite	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005
Ferrous ions	mg/l	4.18	4.60	5.17	5.32	5.29
Ferric ions	mg/l	4.77	4.94	4.26	4.20	4.20
Sulphide	ug/l	<5	<5	<5	<5	<5

*Field Measurements

Although the dissolved oxygen was >1.0 mg/l, the redox potential readings (-78 mV to -132.8mV) indicated reducing conditions. Ferrous and ferric ions were present, nitrate and sulphide were not detected and the COD (<10mg/l) was low. The ammonia levels were consistent with those previously measured.

In January 2017 dissolved oxygen, redox potential, alkalinity, hardness, orthophosphate, dissolved iron, dissolved manganese, total and faecal coliforms were included in the range of parameters tested and the results are in Table 8.10.

Table 8.10 Water Quality MW-1 to MW-4 January 2017

Parameter	Units	MW-1	MW-2	MW-3	MW-4
Dissolved Oxygen*	mg/l	1.55	3.35	3.0	2.7
Redox Potential (Eh)*	mV	-86	-119.1	-79.6	-41.6
pH	pH Units				
Orthophosphate	mg/l	0.03	0.01	0.03	0.01
Nitrate	mg/l	<0.25	<0.25	<0.25	<0.25
Total Hardness	mg/l	363	321	289	190
Alkalinity	mg/l	369	440	311	1405
Chloride	mg/l	24.2	23.3	22.7	67.8
Sulphate	mg/l	<0.5	<0.5	<0.5	63.9
Iron**	mg/l	2.01	4.19	3.64	0.13
Manganese**	mg/l	0.10	0.15	0.13	0.07
DRO	ug/l	<10	<10	<10	<10
Coliforms	MPN	<1	<1	11	2
Faecal Coliforms	MPN	<1	<1	1	64

* Field measurement

** Dissolved

The redox potential measurements in MW-3 in September 2016 and in all of the wells in January 2017, in conjunction with the dissolved iron levels in January 2017 and the ferric oxide staining and iron bacteria slime on the headworks at MW-1, confirm the presence of reducing conditions, which are most pronounced in MW-1, MW-2 and MW-3.

Where a well is exclusively screened in one redox state zone, the redox conditions are stable. Where a well screen straddles a number of different zones, for example when water enters the well pipe from both deep in the aquifer, where reducing conditions predominate, and from higher up where oxidising conditions are prevalent, the groundwater in the well pipe will display a mixed redox character.

This means it is possible for a groundwater sample to have indicators of both oxidising (e.g. dissolved oxygen > 1mg/l) and reducing conditions (ammonia, dissolved iron, negative Eh and low levels of nitrate and sulphate), which is the case in the MW-1, MW-2 and MW-3) and low Eh and low nitrate, ammonia and dissolved iron in MW-4. A complicating factor at MW-4 is the potential for surface water run-off to enter the well pipe, which is likely the source of the faecal coliform contamination and the elevated chloride.

The ammonia levels have been persistently elevated in MW-1, MW-2 and MW-3, but not in MW-4 over the monitoring period. While elevated ammonia levels can be indicative of contamination by an organic waste source(s) (e.g. animal slurries, sanitary waste water, leachate), the levels of other indicator parameters (chloride, nitrate, orthophosphate and, in the case of MW-3, COD) are not consistent with an organic waste source

8.5 Flood Risk

The site is not located in an area identified in the Catchment Flood Risk Assessment and Management (CFRAM) databases as being at risk of flooding. The OPW has produced flood risk maps that identify areas susceptible to pluvial, fluvial and coastal flooding events. The OPW map indicates that the site is not within a flood risk zone.

8.6 Impacts

8.6.1 Surface Water

The proposed development is confined to increasing the annual waste throughput and does not require any alterations to the existing surface water drainage system and will not result in any change to the quality or volume of the existing discharges to ground.

Rainwater run-off from the roof of the main processing building discharges at two locations (R1 and R2) to the drain that flows through the site. The discharges are monitored annually as required by the licence. The results of the monitoring carried out in 2015, 2016 and 2017 are in Tables 8.11, 8.12, 8.13, 8.14 and 8.15.

The licence does not specify emission limit values and, for assessment purposes the tables include the environmental quality standards (EQS) for a 'river water body good status' surface waters set in the EC Environmental Objectives (Surface Water) Regulations 2009. Although an EQS is not intended to be either an emission limit, trigger value, it is useful in assessing the likely impact of a discharge

Table 8.11 Surface Water Monitoring Results – 2015 R-1

Parameter	Units	02/09/2015	EQS
pH	pH units	7	4.5-9
Conductivity	uS/cm	19.1	
Ammonia as (N)	mg/l	0.32	<0.065
Chloride	mg/l	3.45	
Total Suspended Solids	mg/l	<2	
Sulphate	mg/l	1.11	
Antimony	ug/l	6.39	
Arsenic	ug/l	<1	20
Cadmium	ug/l	<1	
Chromium	ug/l	<1	32
Copper	ug/l	1.2	5
Lead	ug/l	1.3	
Mercury	ug/l	<0.5	
Nickel	ug/l	<1	
Selenium	ug/l	1.7	
Tellurium	ug/l	<1	
Thalium	ug/l	<1	
Tin	ug/l	2.6	

Table 8.12 Surface Water Monitoring Results – 2015 R2

Parameter	Units	02/09/2015	EQS
pH	pH units	6.5	4.5-9
Conductivity	uS/cm	17.6	
Ammonia as (N)	mg/l	0.3	<0.065
Chloride	mg/l	2.39	
Total Suspended Solids	mg/l	2	
Sulphate	mg/l	1.1	
Antimony	ug/l	5.27	
Arsenic	ug/l	<1	20
Cadmium	ug/l	<1	
Chromium	ug/l	<1	32
Copper	ug/l	<1	5
Lead	ug/l	<1	
Mercury	ug/l	<0.5	
Nickel	ug/l	<1	
Selenium	ug/l	<1	
Tellurium	ug/l	<1	
Thalium	ug/l	<1	
Tin	ug/l	1.3	

Table 8.13 Surface Water Monitoring Results – 2016 R-1

Parameter	Units	01/12/2016	EQS
pH	pH units	7.2	4.5-9
Conductivity	uS/cm	27.7	
Ammonia as (N)	mg/l	1.07	<0.065
Chloride	mg/l	3.45	
Total Suspended Solids	mg/l	62	
Sulphate	mg/l	0.83	
Antimony	ug/l	34.9	
Arsenic	ug/l	<1	20
Cadmium	ug/l	<1	
Chromium	ug/l	<1	32
Copper	ug/l	3.3	5
Lead	ug/l	4.2	
Mercury	ug/l	<0.5	
Nickel	ug/l	<1	
Selenium	ug/l	<5	
Tellurium	ug/l	<1	
Thalium	ug/l	<1	
Tin	ug/l	4.8	

Table 8.14 Surface Water Monitoring Results – 2016 R-2

Parameter	Units	01/12/2016	EQS
pH	pH units	7.2	4.5-9
Conductivity	uS/cm	316	
Ammonia as (N)	mg/l	0.34	<0.065
Chloride	mg/l	24.2	
Total Suspended Solids	mg/l	2	
Sulphate	mg/l	24.4	
Antimony	ug/l	<1	
Arsenic	ug/l	1.7	20
Cadmium	ug/l	<1	
Chromium	ug/l	<1	32
Copper	ug/l	5.1	5
Lead	ug/l	<1	
Mercury	ug/l	<0.5	
Nickel	ug/l	0.28	
Selenium	ug/l	<5	
Tellurium	ug/l	<1	
Thalium	ug/l	<1	
Tin	ug/l	3.7	

Table 8.15 Surface Water Monitoring Results – 2017 R-1

Parameter	Units	02/09/2015	EQS
pH	pH units	7.4	4.5-9
Conductivity	uS/cml	56	
Ammonia as (N)	mg/l	0.18	<0.065
Chloride	mg/l	15	
Total Suspended Solids	mg/l	<2	
Sulphate	mg/l	<0.5	
Antimony	ug/l	7.4	
Arsenic	ug/l	<1	20
Cadmium	ug/l	<.45	
Chromium	ug/l	<1	32
Copper	ug/l	1.2	5
Lead	ug/l	1.3	
Mercury	ug/l	<0.5	
Nickel	ug/l	<1	
Selenium	ug/l	5.7	
Tellurium	ug/l	<1	
Thalium	ug/l	<1	
Tin	ug/l	<10	

Table 8.16 Surface Water Monitoring Results – 2017 R2

Parameter	Units	02/09/2015	EQS
pH	pH units	7.2	4.5-9
Conductivity	uS/cm	17.6	
Ammonia as (N)	mg/l	0.09	<0.065
Chloride	mg/l	20.2	
Total Suspended Solids	mg/l	34	
Sulphate	mg/l	5.53	
Antimony	ug/l	<1	
Arsenic	ug/l	1.7	20
Cadmium	ug/l	<0.45	
Chromium	ug/l	<1	32
Copper	ug/l	2.3	5
Lead	ug/l	<1	
Mercury	ug/l	<0.5	
Nickel	ug/l	<1	
Selenium	ug/l	<5	
Tellurium	ug/l	<1	
Thalium	ug/l	<1	
Tin	ug/l	15.6	

The ammonia levels exceeded the EQS (average value) but the other parameters were, as expected, significantly below the EQS, where these have been established. As the run-off comprises rainwater the cause of the elevated ammonia is not known, but it may be associated with birds roosting on the roof.

8.6.2 Groundwater

All wastes other than timber, metal and food waste are processed/transferred inside the materials recovery building. Liquid seeps from the waste is collected in an underground effluent holding tank (6.92m³). The tank is made of pre-cast concrete and sits in a second underground concrete tank that provides secondary containment (bund). The wastewater is removed for treatment at the Irish Water WWTP.

Metal and timber wastes were handled in open paved areas where the timber was shredded and the metals baled and sheared. Rainwater run-off from the area is collected in an underground sump. In 2016 KWD Recycling ceased the external processing of the timber and metal, but the external storage of the timber and metal continues.

The food waste is delivered in rear end loaders that are directly off-loaded into an articulated trailer that sits in an enclosed structure that has a concrete paved floor. Rainfall on the storage area is collected in a sump and pumped to an above ground holding tank, from where it is removed for off-site treatment.

Originally rainwater run-off from all the paved open yard areas discharged via an oil interceptor and settling tanks to the on-site reed beds. The outfall from the 'lagoon' reed bed discharges to ground. In 2016 the run-off from the operational yards where there was the potential for rainwater run-off to become contaminated (including the bin washing area and food waste storage), was diverted from the reed beds and into a holding tank, where it is stored pending removal for off-site treatment.

The discharge from the reed bed to the percolation area is monitored weekly in accordance with the licence conditions, and the results of the monitoring carried out in 2015, 2016 and to date in 2017 are presented in Table 8.17. The Table includes the average concentrations over the monitoring period. The licence does not specify any emission limit values.

Table 8.17 Monitoring Results – Discharge to Reed Bed Percolation Area

Parameter	Units	Jan-Dec 2015	Jan-Dec 2016	Jan-Dec 2017
pH	pH units	6.86	7.10	7.71
Conductivity	µS/cm	234.93	263	317
Suspended Solids	mg/l	24.58	17.54	7.69
Ammonia(as N)	mg/l	0.4	0.32	0.21
Chloride	mg/l	30.83	25.88	22.69
Sulphate	mg/l	16.84	17.54	26.7

Sanitary wastewater was previously discharged to an on-site septic tank and associated percolation area located in the north-west of the site. In 2016 the 'puraflo' system and a new percolation area were installed and the original septic tank was decommissioned.

Although not required by the licence, testing of treated effluent before it enters the percolation area is carried out and the results, which are presented in Table 8.18 confirm that system is operating satisfactorily and meeting the performance standards set in the Agency's Code of Practice: Wastewater Treatment and Disposal Systems Serving Single Houses.

Table 8.18 Treated Effluent Monitoring Results 2017

Parameter	Units	PF-1	PF2
Suspended Solids	mg/l	28	10
Ammonia(as N)	mg/l	6.67	8.62
BOD	mg/l	16.7	7.6
COD	mg/l	53	40

In 2009 an access road was formed to facilitate the installation of the constructed wetland. The road was constructed using rubble, (concrete and bricks) recovered from the C&D wastes processed on site. A layer of rubble approximately 300mm deep was placed directly on the natural ground (200m²). Subsequently a top dressing using quarry won aggregate was placed over this layer.

8.7 Do Nothing Scenario.

If the proposed development does not proceed the KWD Recycling facility will continue to operate and there will be no change to the impacts on surface water and groundwater.

8.8 Prevention & Mitigation Measures

The current operational prevention and mitigation measures required by the licence will continue to be implemented and these include:

- The inspection and repair as required of the paved areas;
- The routine inspection and survey of the surface water drainage system;
- Diversion of rainwater run-off that has the potential to be contaminated to holding tanks.
- Rainwater run-off from the building roofs and car parks passes through a Class 1 Oil Interceptor and is then treated in the on-site reed beds before discharge to the percolation area.
- Provision of a proprietary wastewater treatment system (puraflo) including percolation area to treat sanitary waste water from staff welfare facilities.
- Provision and maintenance of spill containment and clean up equipment;

- The adoption of an emergency response procedure and staff training on appropriate incidents and emergency response actions;
- KWD Recycling has completed a firewater retention assessment to determine the available storage capacity for contaminated firewater generated in the response to a fire.

8.9 Assessment of Impacts

The proposed development will not result in any changes to the current emissions to surface water, will not give rise to any new discharge to ground and ground water, and will have no discernible impact on surface water and groundwater quality. It will have no impact on groundwater recharge rates.

The results of the surface water and groundwater monitoring carried out confirm that the facility operations are not having any discernible impacts on either surface water, or groundwater quality.

8.10 Residual Impacts

The proposed development, in conjunction with the current operations, will have no impact on surface waters either inside or outside the site boundaries. The on-going discharge to percolation areas will have an imperceptible, negative effect on groundwater quality beneath the site but will have no impact on the quantitative and qualitative status of the bedrock aquifer water management unit.

For inspection purposes only.
Consent of copyright owner required for any other use.

9 BIODIVERSITY

9.1 Introduction

This Chapter describes the biodiversity of the site and the impacts the proposed development will have on the receiving environment within and outside the site boundary, including a 'do nothing' scenario. It identifies the prevention and mitigation measures that are and will be implemented to reduce the significance of the impacts and assesses the residual impacts.

9.2 Methodology

The Convention on Biological Diversity (CBD) defines 'biological diversity' or biodiversity as 'the variability among living organisms from all sources, including *inter alia* terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems'. In this context, the assessment took into consideration ecosystems (habitats and organisms) inside and outside the facility boundary.

The majority of the site is completely covered by buildings, concrete paving and areas of hardstanding and the biodiversity value is low. The current condition of the site and the nature of the proposed development, which does not involve the disturbance of any on or off-site ecosystems, meant that an ecological survey was not required.

The assessment was based on a review of the databases maintained by the National Parks and Wildlife Service (NPWS) and the National Biodiversity Plan – Actions for Biodiversity 2017–2021 and a site inspection completed in December 2017.

Habitats were classified using the descriptions and codes in the Heritage Council's 'A Guide to Habitats in Ireland' (Fossitt, 2000) and 'Best Practice Guidance for Habitat Survey and Mapping' (2011).

OCM carried out a screening of the significance of the effects, if any, of the proposed changes on Natura 2000 sites within 10 km of the site to inform a decision on the need for an Appropriate Assessment. The screening concluded that the development would not have any likely significant effects on any Natura 2000 Site and therefore a Natura Impact Statement was not required.

9.3 Receiving Environment

9.4.1 Ecosystems Within the Facility Boundary

The operational area comprising the buildings, paved yards and hardstanding areas are classified as 'BL3 Buildings and artificial surfaces'. 'BL3' includes all buildings (domestic, agricultural, industrial and community), other than derelict stone buildings and ruins. It also includes areas of land that are covered with artificial surfaces e.g. roads, car parks, pavements, runways, yards, and some tracks, paths, driveways and sports grounds. These habitats are typically not species diverse.

Outside of the operational area the north-western portion of the site has been reclaimed to pasture - improved agricultural grassland (GA1), although the quality of this has deteriorated. There is also a coniferous plantation (WD4) in the south-west section of the site.

A drainage ditch (FW4) runs south to north in the western section and joins a drain that runs along the northern boundary. There are treelines (WLI) along the south-eastern and north-eastern boundaries. The constructed wetland, for which there is no designated class in Fossitt's guidance, is in the north-west of the site.

Two small stands of Japanese Knotweed (*Fallopia japonica*), which is an invasive species, have been identified in an internal hedgerow to the north of the reed beds.

9.4.2 Ecosystems Outside the Facility Boundary

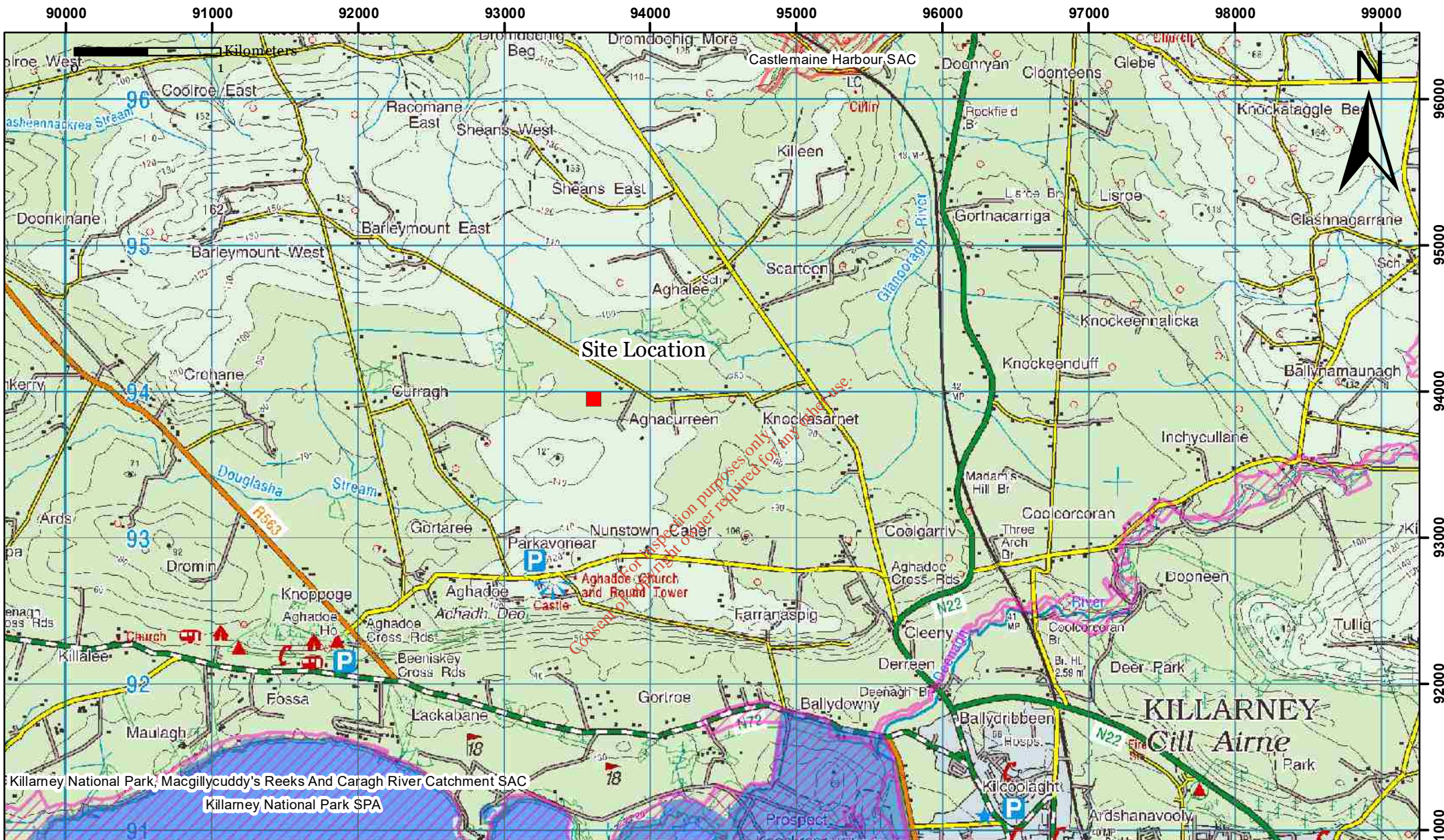
The coniferous plantation extends to the south-west majority of the surrounding area to the west, north-west north is dominated by improved Agricultural Grassland (GA1) traversed by Hedgerows (WL1) and Treelines (WL2). Improved grassland makes up a large proportion of Ireland's productive farmland. Much of it is reseeded, fertilised or heavily grazed, with the result that species diversity is low.

9.4.3 Natura 2000 Sites

The Natura 2002 Sites comprise Special Areas of Conservation (SAC) and Special Protection Areas (SPA). SACs are selected for the conservation and protection of habitats listed in Annex I, and the species, other than birds, listed on Annex II of the Habitats Directive. The habitats listed in Annex I require special conservation measures.

SPAs are selected for the conservation and protection of bird species listed on Annex I of the Birds Directive and regularly occurring migratory species, and their habitats, particularly wetlands.

The facility is not in or adjacent to any Natura 2000 Site. The nearest sites are the Killarney National Park, McGillicuddy Reeks and Caragh River Catchment SAC (Code 000363) which is 2km to the south-east and the Castlemaine Harbour SAC (Code 000343, which is 2.5km to the north (Figure 9.1). The drain that runs through the facility connects to a tributary of the Glanooragh River which itself is a tributary of the River Laune. The majority of the Laune catchment is in the Castlemaine Harbour SAC.



O'Callaghan Moran & Associates,
 Unit 15 Melbourne Business Park,
 Model Farm Road, Cork.
 Tel. (021) 4345366
 email: info@ocallaghanmoran.com

CLIENT

Killarney Waste Disposal

TITLE

Natura 2000 Sites

Details:

- Site Location
- Castlemaine Harbour SAC
- Killarney National Park, Macgillicuddy's Reeks And Caragh River Catchment SAC
- Killarney National Park SPA

This drawing is the property of O'Callaghan Moran & Associates and shall not be used, produced or disclosed to anyone without the prior written permission at O'Callaghan Moran & Associates and shall be returned upon request.

Figure 9.1

The qualifying interests (habitats and species) for the Killarney National Park, McGullicuddy Reeks and Caragh River Catchment SAC are:

- Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]
- Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130]
- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation [3260]
- Northern Atlantic wet heaths with *Erica tetralix* [4010]
- European dry heaths [4030]
- Alpine and Boreal heaths [4060]
- *Juniperus communis* formations on heaths or calcareous grasslands [5130]
- Calaminarian grasslands of the *Violetalia calaminariae* [6130]
- *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]
- Blanket bogs (* if active bog) [7130]
- Depressions on peat substrates of the *Rhynchosporion* [7150]
- Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [91E0]
- *Taxus baccata* woods of the British Isles [91J0]
- *Geomalacus maculosus* (Kerry Slug) [1024]
- *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029]
- *Euphydryas aurinia* (Marsh Fritillary) [1065]
- *Petromyzon marinus* (Sea Lamprey) [1095]
- *Lampetra planeri* (Brook Lamprey) [1096]
- *Lampetra fluviatilis* (River Lamprey) [1099]
- *Salmo salar* (Salmon) [1106]
- *Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303]
- *Lutra lutra* (Otter) [1355]
- *Trichomanes speciosum* (Killarney Fern) [1421]

- *Najas flexilis* (Slender Naiad) [1833]
- *Alosa fallax killarnensis* (Killarney Shad) [5046]

The qualifying interests (habitats and species) for the Killarney National Park, McGullicuddy Reeks and Caragh River Catchment SAC are:

- Estuaries [1130]
- Mudflats and sandflats not covered by seawater at low tide [1140]
- Annual vegetation of drift lines [1210]
- Perennial vegetation of stony banks [1220]
- Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
- *Salicornia* and other annuals colonising mud and sand [1310]
- Atlantic salt meadows (*Glauco-Puccinellietalia maritima*) [1330]
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410]
- Embryonic shifting dunes [2110]
- Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]
- Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]
- Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) [2170]
- Humid dune slacks [2190]
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [91E0]
- *Petromyzon marinus* (Sea Lamprey) [1095]
- *Lampetra fluviatilis* (River Lamprey) [1099]
- *Salmo salar* (Salmon) [1106]
- *Lutra lutra* (Otter) [1355]
- *Petalophyllum ralfsii* (Petalwort) [1395]

A statement of Conservation Objectives is prepared for each designated site to ensure that the relevant habitats and species present on a site are maintained, and where necessary

restored, at a Favourable Conservation Status. Favourable Conservation Status of a habitat, as defined in 2011 Birds and Natural Habitats Regulations, is when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The Favourable Conservation Status of a species is when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The objective for designated sites is to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species as listed above for which the SAC/SPA has been selected. Copies of the Conservation Objectives for the Killarney McGillicuddy Reeks and Caragh River Catchment and the Castlemaine Harbour SACs are in Appendix 11.

9.4 Impacts

The proposed development does not involve any ground disturbance, changes to the surface water and foul water drainage systems and will not result in any loss of habitats either within, or outside the site boundary. It will result in an expansion of the operational hours to 6.00am to 12.00 pm. All operations will be carried out inside the main processing building.

It will not result in any new or additional discharge to the drain/ Glanooragh River and groundwater, will not result in any change to the volume and quality of the surface water discharge to the drain that runs through the site. This is a pathway between the site and the Castlemaine Harbour SAC.

9.5 Do Nothing Scenario

If the proposed development does not proceed, the current activities will continue with no change to the risk presented to biodiversity.

9.6 Prevention & Mitigation Measures

The current operational prevention and mitigation measures required by the licence will continue to be implemented and these include:

- Diversion of rainwater run-off from operational areas where there is the potential for significant contamination to occur to holding tanks, from where it is tankered off-site.
- Rainwater run-off from the remaining operational yards, building roofs and car parks passes through a Class 1 Oil Interceptor and is then treated in the on-site reed beds before discharge to the percolation area.
- Appointment of a vermin and pest control contractor.
- Provision and maintenance of spill containment and clean up equipment;
- The adoption of an emergency response procedure and staff training on appropriate incidents and emergency response actions;
- KWD Recycling has completed a firewater retention assessment to determine the available storage capacity for contaminated firewater generated in the response to a fire.
- KWD Recycling has engaged a specialist contractor to eradicate the Japanese Knotweed in a controlled manner.

9.7 Assessment of Impacts

The key pressures on Ireland's habitats and species include direct habitat damage from peat cutting, wetland drainage/reclamation, over and under-grazing, water pollution, unsustainable exploitation (e.g. over-fishing), invasive alien species and recreational pressures.¹

The proposed development will not result in any changes to the current emissions to surface water and will have no discernible impact on surface water quality in the drain. It will have no impacts on the habitats either within, or outside the site and it will not contribute to the introduction/spread of invasive plant and animal species.

The Castlemaine Harbour SAC is the only Natura 2000 Site where there is a pathway (surface water) between it and the KWD Recycling facility. Rainwater run-off from the roof of the main processing building will continue to discharge to the drain. The discharge will be weather dependent and periodic.

¹ Ireland 'Environment An Assessment 2016 (EPA)

The results of the monitoring carried out by KWD indicates that the rainwater discharge has no perceptible effect on the water quality in the drain (Sections 8.3.3 and 8.6.1) . As referred to above, the proposed development will not result in any change to either the volume or quality of the discharge to the drain.

Given the nature of the emission to the drain and the distance between the site and the stretch of the Laune that is in the Castlemaine Harbour from the Natura 2000 Sites, the proposed development will not have any perceptible effect on any of the Conservation Objectives for the Castlemaine SAC.

9.8 Residual Impacts

The proposed development will, in conjunction with the current activities, have no impact on the ecosystems within the site boundary and will not give rise to any impacts on habitats outside the boundary.

*For inspection purposes only.
Consent of copyright owner required for any other use.*

10 AIR

10.1 Introduction

This Chapter describes the ambient air quality and the impacts the proposed development will have on the receiving environment within and outside the site boundary, including a 'do nothing' scenario. It identifies the prevention and mitigation measures that are and will be implemented to reduce the significance of the impacts and assesses the residual impacts.

10.2 Methodology

The assessment is based on data derived from ambient air quality databases maintained by the EPA and the dust deposition monitoring carried out by KWD Recycling. The latter is done using Bergerhoff gauges specified in the German Engineering Institute VDI 2119 document entitled "Measurement of Dustfall Using the Bergerhoff Instrument (Standard Method).

10.3 Receiving Environment

The facility is located in a rural area and the surrounding land use is primarily agricultural, with some forestry. There are approximately twenty (20) residences within 500m of the facility, the majority of which are in a 'ribbon development' along the local road to the north of the site.

10.4.1 Ambient Air Quality

Under the Clean Air for Europe Directive, EU member states must designate "Zones" for the purpose of managing air quality. For Ireland, four zones were defined in the Air Quality Standards Regulations (2011). The zones were amended on 1 January 2013 to take account of population counts from the 2011 CSO Census and to align with the coal restricted areas in the 2012 Regulations (S.I. No. 326 of 2012). Killarney is in Rural Zone D.

The EPA implements an air quality monitoring programme at a number of stations across the country. The closest monitoring station that is representative of air quality at the site is at Tralee, which is part of the national monitoring network. Tralee is in Zone C and is not representative of conditions in Rural Zone B. Furthermore the most recent available data for the station is from 2004.

The licence requires KWD Recycling to carry out dust deposition monitoring at three locations within the site boundary four times annually. The results of the monitoring carried out in 2015, 2016 and 2017 are presented in Tables 10.1, 10.2 and 10.3, which also include the dust deposition limit (350 mg/m²/day) specified in the licence.

Table 10.1 Dust Monitoring Results 2015

	Q1	Q2	Q3	Q4	Deposition Limit mg/m ² /day
D1	226	156	147	N/A	350
D2	306	554	157	N/A	350
D3	565	115	87	N/A	350

Table 10.2 Dust Monitoring Results 2016

	Q1	Q2	Q3	Q4	Deposition Limit mg/m ² /day
D1	133	142	378	457	350
D2	103	152	-	260	350
D3	-	223	668	206	350

Table 10.3 Dust Monitoring Results 2017

	Q1	Q2	Q3	Q4	Deposition Limit mg/m ² /day
D1	135	163	119	452	350
D2	135	305	119	158	350
D3	147	347	159	253	350

10.4 Impacts

Emissions from waste storage operations with potential to adversely impact on air quality include odours, dust and vehicle exhaust gases. The residual household and commercial waste, which is a potential source of odour, will continue to be off loaded and processed inside the main processing building. The brown bin waste will continue to be stored separately from the other waste inside the dedicated enclosure.

The extra traffic will result in additional vehicle exhaust gas emissions and are a potential contributor to dust emissions associated with movements over the paved areas during dry weather.

10.5 Do Nothing Scenario

If the development does not proceed there will be no change to the existing site operations and the associated emissions to air.

10.6 Prevention & Mitigation Measures

10.6.1 Odours

The following techniques are currently implemented at the site to minimise odour emissions:

- All unloading, processing and loading of waste that have the potential to be a source of odour occurs within the main processing building and the brown bin storage area ;
- All odour forming wastes are typically removed from the site within 24 hours of arrival and are never on site for more than 72 hours, and
- Regular inspection and cleaning of waste handling areas.

10.6.2 Dusts

The following techniques are applied to minimise dust emissions;

- Provision of rapid closing door on the entrance to the main processing building;
- All open yards are paved and are routinely cleaned using a road sweeper and damped down with water in extended periods of dry weather, and
- A 20km/h speed limit on all vehicle movements within the site boundary.

10.6.3 Vehicle Exhausts

The heavy goods vehicles accessing the facility are fitted with Selective Catalytic Reduction (SCR) systems. A diesel exhaust fuel (AdBlue) is used in the SCR to reduce the nitrous oxide levels in the exhaust gases. It is KWD Recycling's policy to ensure that engine idling is not permitted.

10.7 Assessment of Impacts

10.7.1 Odours

The effectiveness of the odour control techniques applied by KWD Recycling is confirmed by the lack of odour complaints, which is the yardstick against which odour nuisance at a waste management facility is measured. In the past three years the facility has not received any complaints from neighbours concerning odours.

Compliance inspections conducted by the Office of Environmental Enforcement (QEE) have never identified any concerns that odours could give rise to any nuisance or impairment outside the facility boundaries.

The current activities are not a source of odour nuisance and the proposed development does not involve taking in any new potentially odorous waste types.

10.7.2 Dust

There have been occasional exceedances of the dust deposition limits at monitoring locations all of which are located inside the facility boundary, but KWD Recycling have never received any complaints about dust deposition limits outside the boundary. The proposed development will not give rise to any new sources of dust emissions.

10.7.3 Vehicle Exhausts

The proposed increase in the amount of waste processed at the site will result in an increase in the number of waste transport vehicles entering and leaving the site. This increase will result in additional exhaust gases, which will have a slight negative impact on air quality for the operational lifetime of the facility.

10.8 Residual Impacts

The proposed development, in conjunction with the current operations, will have a slight, negative impact on air quality due to the increase in vehicle movements.

For inspection purposes only.
Consent of copyright owner required for any other use.

11 NOISE

11.1 Introduction

This Chapter describes the existing noise sources and the impacts the proposed development may have on the receiving environment within and outside the facility boundary, including a 'do nothing' scenario. It identifies the prevention and mitigation measures that are and will be implemented to reduce the significance of the impacts and assesses the residual impacts.

11.2 Methodology

The assessment is based on the findings of the biannual noise surveys carried out at the site. The report on the noise monitoring carried out in 2017 by Damian Brosnan Acoustics (dBA) which includes details of the noise survey methodology is in Appendix 12.

11.3 Receiving Environment

The facility is located in a rural area and the surrounding land use is primarily agricultural, with some forestry. There are approximately twenty (20) residences within 500m of the facility, the majority of which are in a 'ribbon development' along the local road to the north of the site.

11.4 Impacts

The sources of noise emissions are the staff vehicles, waste transport vehicles, the mobile plant (forklifts, grabs), the MMW and C&D sorting lines, the baler, the generator for the wood shredder and the movement of skips. Noise emissions only occur during the waste acceptance and operational periods. At other times the site is not a source of noise.

The current licence sets daytime (55 dB $L_{A(T)}$) and night time (45dB $L_{A(T)}$) emission limits and requires biannual noise surveys to be carried out at four locations. NML 1, at the entrance to the site beside the visitors car park and near the office; NML 2 is close to a noise sensitive location to the south-west, and NML 3 NML 4 beside nearest noise sensitive locations to the north of the site. The locations are shown on the Figure in Appendix 1 of the dBA report.

The results of the monitoring carried out in 2015 and 2016 are summarised in Tables 11.1 and 11.2 and 11.3, which contain the day and night time emission limits specified in the licence. At the time the monitoring was carried out the external shredding of timber and the baling and shearing of the metal was on-going.

Table 11.1 : Noise Monitoring Result 2015

Date	Time Period	Location	Laeq	ELV
03/11/2015	Day time	NML1	59-63	55
03/11/2015	Night time	NML1	24-31	45
03/11/2015	Day time	NML2	34-39	55
03/11/2015	Night time	NML2	25-35	45
03/11/2015	Day time	NML3	<35	55
03/11/2015	Night time	NML3	<30	45
03/11/2015	Day time	NML4	<40	55
03/11/2015	Night time	NML4	<22-27	45

Table 11.2 Noise Monitoring Results 2016

Date	Time Period	Location	Laeq	ELV
19/10/2016	Day time	NML1	58-64	55
20/10/2016	Night time	NML1	<24	45
19/10/2016	Day time	NML2	31-32	55
20/10/2016	Night time	NML2	<20	45
19/10/2016	Day time	NML3	<34	55
20/10/2016	Night time	NML3	<30	45
20/10/2016	Night time	NML4	<21	45

Table 11.3 Noise Monitoring Results 2017

Date	Time Period	Location	Laeq	ELV
19/10/2016	Day time	NML1	58-63	55
19/10/2016	Day time	NML2	34-47	55
19/10/2016	Day time	NML3	<35	55
20/10/2016	Night time	NML4	<35	55

Condition 4.3 of the current licence specifies that site emissions shall not exceed daytime and night-time noise limits at the site boundary. However, the licence was granted in 2006 and more recently issued licenses set limits that apply to noise sensitive locations (NSLs) only.

As there are no NSLs immediately adjacent to the site boundary it is considered that noise limits specified in the licence are not relevant to NML1 located at the facility gate. The limits are applicable to the three offsite stations NML2, NML3 and NML4, all of which are situated in proximity to nearby dwellings.

With the exception of NML1, which is close to the site entrance and where the dominant noise source is traffic movements, the levels at all of the monitoring locations are consistently within the licence limits.

11.5 Do Nothing Scenario

If the proposed development does not proceed there will no change to the existing noise emissions.

11.6 Prevention & Mitigation Measures

All waste processing, with the exception of the metal baling, is carried out inside the main processing building. Site staff are instructed to avoid unnecessary revving of machinery, turn off equipment / plant when not in use and limit the hours of activities that are likely to give high noise level emissions. During night time hours operations will only be carried out inside the main processing buildings and the doors will be closed.

11.7 Assessment of Impacts

The current operations are not a source noise emissions that give rise to off-site nuisance and impairment of amenity. The proposed development will not give rise to any increases in noise emissions or any new emission source.

The noise monitoring carried out at the off-site noise sensitive locations has established that noise from facility operations do not exceed the night time limit and the proposed expansion of the operation hours will not be a source of nuisance at off-noise sensitive locations.

11.8 Residual Impacts

The proposed development will, in conjunction with the current operations, have an on-going, imperceptible, neutral impact over its lifetime.

*For inspection purposes only.
Consent of copyright owner required for any other use.*

12 LANDSCAPE & VISUAL IMPACT

12.1 Introduction

This Chapter provides an assessment of the visual impacts of the proposed development on the landscape and visual amenity, which includes a 'do nothing' scenario. It identifies the prevention and mitigation measures that are and will be implemented to reduce the significance of the impacts and assesses the residual impacts.

12.2 Methodology

The assessment was carried out in accordance with the guidelines in the document '*Landscape and Landscape Assessment, Consultation Draft of Guidelines for Planning Authorities*' published by the Department of the Environment and Local Government (June 2000). It took into consideration the policies and objectives relating to landscape in the Kerry County Development Plan (2015-2021).

The objective was to determine the magnitude and significance of the proposed development to the landscape character and visual setting. Significance depends on the sensitivity of the affected landscape and visual receptor and the magnitude of change that is judged to have resulted from the proposed development. In considering the magnitude and significance, the following were taken into account:

- The sensitivity of the view taking into account both the public accessibility of the land where views are possible and the likely sensitivity of that view given the distance, travelling speed (if relevant), intervening vegetation and land usage;
- The quality and value of the existing landscape;
- The degree to which the development will be visible within the surrounding area, and
- Any other changes in the existing landscape e.g. new road junctions.

The study area was defined by the visibility of the site and an analysis of public viewpoints. The choice of viewpoint was influenced by the presence of private residences, key vantage points and the visibility of the existing structures.

12.3 Receiving Environment

The County Development acknowledges that the outstanding landscape of County Kerry is one of its defining features, with few other counties having the range of different landscapes that

are found in Kerry - from the beautiful unspoilt beaches and rolling hills and pastureland of North Kerry to the rugged coastline and elevated mountainous wilderness of South Kerry.

This scenery and unspoiled landscape is of enormous amenity value to the people of the county and is one of the major features attracting tourists each year. The job creation and income generated as a result of this tourism is of enormous economic benefit to the county. The protection of this asset is therefore of primary importance in developing the potential of the county.

The Development Plan defines the sensitivity of a landscape as being a measure of its ability to accommodate change or intervention without suffering unacceptable effects to its character and values. In Kerry the sensitivity of the landscape varies and falls into five zones

- Urban
- Rural Prime Special Amenity
- Rural Secondary Special Amenity
- Rural General
- Industrial

The site is not in an area of Prime or Secondary Special Amenity and is an area that falls under the Rural General Zoning. Landscapes in this zoning generally have a higher capacity to absorb development than the other rural designations. The site is not overlooked by any designated Views and Prospects.

The topography of the site and surrounding lands is generally low lying. The surrounding undulating agricultural landscape comprises medium sized open fields and hedgerows, with a conifer plantation to the south-west. There is a series of residential properties to the north-west, as well as to the south and south-east of the site.

12.3.1 Site Layout

The existing site layout is shown on Drawing No.1. The facility is a relatively moderately scaled waste management facility, with one main building and annexes aligned south-west to north-east, a two storey office and welfare facilities and car park to the north-east of the main building, a small plastic storage building to the west of the main building and the remainder of the operational area covered by paved and hardstanding areas.

The facility has an industrial appearance, given the layout, building design and the colour and nature of the materials used in the building fabric, the exception of the reed bed in the north west of the site.

The main processing building is a portal frame constructed of mass concrete walls to 2 m above which are metal clad side walls and a metal clad roof. There is one main entrance door on the northern elevation (Photograph 1). The office is similar in construction and finish to a private residence (Photograph 2). The operational yards are paved and discrete handling and storage areas are delineated by portable concrete walls (Photograph 3).



Photograph 1 Main Processing Building



Photograph 2 Site Office

*For inspection purposes only.
Consent of copyright owner required for any other use.*



Photograph 3 Operational Yards

12.3.3 Visibility

The site visibility depends on the vegetation cover and time of year. The site is in a generally low lying area and is exposed to long range views to the north-west (Barleymount) and also to shorter range views from the northern side as well as southwest of the site.

Looking at the site from the south, a varied degree of visual screening is possible, due to the double hedgerow set alongside the private access road to the site. The site is generally exposed on the north-west and to a lesser extent on the north-eastern boundaries. The site is not visible from the west and south-west due to the screening provided by the conifer plantation.

On approach the roadside hedgerows and planting screen the site (when travelling along the main access road from east to west). The hedgerows, in particular on the north-eastern and south-eastern boundaries screen the site, but the effectiveness is seasonal due to the predominance of deciduous trees.

12.4 Impacts

The proposed development does not involve either construction works, or material changes to the existing buildings and operational areas.

12.5 Do Nothing Scenario

If the development does not proceed, the facility will continue to operate in its current condition.

12.6 Prevention & Mitigation Measures

The natural hedgerows and treelines along the access road partially screen the site and this has been augmented by the provision of raise banks and planting on the northern and western boundaries. As the facility is not visually intrusive and the proposed development will not alter its external appearance additional prevention and mitigation measures are not required.

12.7 Assessment of Impacts

The proposed development will not result in any material change to the existing buildings.

12.8 Residual Impacts

The development will, in conjunction with the current operation, have a neutral impact on the existing landscape character and visual amenity.

For inspection purposes only. Consent of copyright owner required for any other use.

13 POPULATION & HUMAN HEALTH

13.1 Introduction

This Chapter describes the socio-economic activity and land uses in the vicinity of the proposed development and assesses the impacts of the proposed development on the population and human health. The assessment considered a 'do nothing' scenario and identifies the prevention and mitigation measures that are and will be implemented to reduce the significance of the impacts and assesses the residual impacts.

13.2 Methodology

The assessment was based on the planning zoning status, the land use in the vicinity of the facility, population density and employment sectors. The information was derived from data bases maintained by the Central Statistics Office and the Kerry County Development Plan (2015-2021).

13.3 Receiving Environment

13.3.1 Land Use

The facility is located in a rural area and the surrounding land use is primarily agricultural, with some forestry. There are approximately twenty (20) residences within 500m of the facility, the majority of which are in a 'ribbon development' along the local road to the north of the site.

13.3.2 Population, Labour Force and Health

The site is in the hinterland of Killarney. In the 2011 census, which is the most recent one for which detailed information is available, Killarney had a population of 14,219, consisting of 6,917 males and 7,302 females. The population of pre-school age (0-4) was 980, of primary school going age (5-12) was 1,241 and of secondary school going age (13-18) was 769.

There were 2,210 persons aged 65 years and over. The number of persons aged 18 years or over was 11,325. There were 7,224 persons aged 15 years and over in the labour force and of these, 83.2 per cent (6,011 persons) were at work. The unemployment rate for this area was 16.8 per cent, compared to a national average rate of 19.0 per cent.

12,247 persons stated they were in very good or good health, representing 86.1 per cent of total persons. This compares to 88.3 per cent of total persons nationally. 179 persons stated they were in bad or very bad health, representing 1.3 per cent of total persons in the area. Again this compares with 1.5 per cent of total persons nationally.

13.4 Impacts

13.4.1 Human Health & Safety

Waste management facilities that handle biodegradable waste are a source of odours with the potential to extend outside the site boundaries. While odours do not present a direct risk to health, they can be a significant nuisance and cause of discomfort, which can indirectly affect human health.

A fire at the site would present a risk to site staff and there is the potential, depending on the weather conditions, for smoke to affect other occupants of the port and residential, industrial and commercial premises outside the port.

13.4.2 Environmental Nuisance

Waste management facilities that accept and process putrescible wastes are potential sources of nuisance (dust, noise, vermin and pests) that can significantly adversely impair the environment outside the site boundaries if they are not properly designed and operated.

13.4.3 Traffic

Traffic movement to and from waste management facilities can, depending on the size, location and capacity of the local road network, be a cause of congestion that affects local residents.

13.5 Do Nothing Scenario

If the proposed development does not proceed, the current operations will continue and there will be no change to the potential for impacts on human beings.

13.6 Prevention & Mitigation Measures

13.6.1 Human Health

All unloading, processing and loading of waste that have the potential to be a source of odour occurs within the main processing building and the brown bin storage. Only non-odorous waste are stored in the open yards.

KWD Recycling has completed an Environmental Liability Risk Assessment (ELRA) for the facility that assesses the environmental effects, including impacts on humans, of incidents and accidents. The most significant impacts are associated with a fire. A copy of the ELRA is in Appendix 5.

13.6.2 Environmental Nuisances

The only source of dust emissions are waste processing inside the building and vehicle movements on the yards. The waste transport vehicles do not travel across any unpaved areas and the wheels do not have any debris that can be a source of dust in dry weather. A road sweeper is used to clean the yards as required.

Daily site inspections are carried out to check for vermin and pests. KWD Recycling has contracted a specialist vermin control company that provides and maintains external bait boxes and also carries out insect control measures as required. Daily odour and litter inspections are carried out by site-staff.

Site staff are instructed to avoid unnecessary revving of machinery, turn off equipment / plant when not in use and limit the hours of site activities that are likely to result in high noise level emissions.

13.6.3 Traffic

The increase in the amount of waste accepted at the site will result in additional traffic. An assessment of the increase (Ref to Chapter 6) has determined that the local road network has the capacity to accommodate the increased traffic movements.

13.7 Assessment of Impact

The mitigation measures that are currently implemented are designed to control odours, dusts, noise and pests and are proven to be effective, with no complaints received from the general public in relation to odour, noise, dust and traffic between 2015 and 2017.

13.8 Residual Impacts

The development, in conjunction with the current operations, will have an on-going imperceptible, negative impact on population and human health associated with noise emissions and traffic movements over the lifetime of the facility.

14 ARCHAEOLOGY, ARCHITECTURE & CULTURAL HERITAGE

14.1 Introduction

This Chapter describes the archaeological, architectural and cultural heritage significance of the facility and its environs and assesses the impact of the proposed development including a 'do nothing' scenario, and the residual impacts.

14.2 Methodology

As the proposed development does not require any ground disturbance or the construction of any new buildings an archaeological field survey was not required. The assessment was based on information derived from the Records of Monuments and Places published by the Department of Arts, Heritage & Gaeltacht, the EIS prepared in 2005 which included an archaeological and cultural heritage assessment, and information contained in the Kerry County Development Plan (2015-2021). A copy of the report on the archaeological and cultural heritage assessment completed in 2004 is in Appendix 13.

14.3 Receiving Environment

The operational area comprises buildings, paved yards and hardstanding areas. Outside of the operational area the north-western portion of the site has been reclaimed to pasture. There is a coniferous plantation in the south-west section of the site. A drainage ditch runs south to north in the western section and joins a drain that runs along the northern boundary. The constructed wetland occupies the -western portion of the site

14.4.1 Archaeological and Historical Background

The Sites and Monuments Records Map and the Registered Monuments Manual do not contain any record of any archaeological feature within the site and there are no listed monuments within 500m of the site. There six recorded archaeological sites within 1km boundary of the site in the surrounding townlands (two. Fulachta Fiadh, three. Enclosures and one Ringfort).

14.4.2 Architectural Heritage – Protected Structures

There is no record of any protected structure (e.g. medieval structure, church) within the site boundary.

14.4.3 Cultural Heritage

There is no record of any ritual and religious associations, riverine and estuarine sites, find spots of archaeological or heritage objects, designed landscapes, natural landscapes with cultural heritage associations, relic landscapes and folklore associations within the site boundary.

14.4 Impacts

There is no record of any archaeological feature, protected structure or cultural heritage feature on the site. The proposed development does not require any excavation or ground disturbance works and there is no risk of any impacts on any unidentified archaeological features.

14.5 Do Nothing Scenario

If the development does not proceed the facility will continue to operate in its current configuration and the potential for impacts on the archaeology, architecture and cultural heritage will remain unchanged.

14.6 Prevention and Mitigation Measures

As the proposed development will not have any impact on any archaeological, architectural or cultural feature, prevention and mitigation measures are not required.

14.7 Assessment of Impact

The proposed development will have no impact on any archaeological, architectural or cultural feature.

14.8 Residual Impacts

The development will not have any residual impact on any archaeological, architectural or cultural heritage features.

15 MATERIAL ASSETS / NATURAL RESOURCES

15.1 Introduction

This Chapter describes the material assets on and in the environs of the site. It identifies the potential impacts, describes the proposed prevention and mitigation measures and assesses the impacts, including residual impacts. It also addresses a 'do nothing' scenario.

15.2 Methodology

The assessment was based on information derived from the current Kerry County Development Plan 2015-2021 and the Central Statistics Office databases.

15.3 Receiving Environment

15.4.1 Surrounding Land Use and Amenity Value

The facility is located in a rural area and the surrounding land use is primarily agricultural, with some forestry. There are approximately twenty (20) residences within 500m of the facility, the majority of which are in a 'ribbon development' along the local road to the north of the site. The surrounding lands while of local agricultural importance do not have any particular general amenity value (Figure 15.1).

15.4.2 Infrastructure

The local and regional road network and the impact of the proposed development is described in Chapter 6. The increase in waste inputs will result in additional traffic movements to and from the site; however the local and regional road networks have the capacity to accommodate the extra traffic.

15.4.3 Socio-Economic Activity

KWD Recycling currently employs 60 staff, contributing to employment in the locality and the overall economy. Maintaining waste activities at the site will ensure the continuation of support for local goods and services provided by KWD Recycling.

The facility accepts household, and commercial and construction and demolition waste material from Killarney and environs. This benefits local economy, as it minimise waste management costs and benefits the community socially and environmentally by promoting sustainable development, reducing the need for landfills and preventing pollution.



For inspection purposes only.
Consent of copyright owner required for any other use.



O'Callaghan Moran & Associates,
Unit 15 Melbourne
Business Park,
Model Farm Road, Cork.
Tel. (021) 4345366

Title:
Land Use Zones

Client:
Killarney Waste Disposal

- Legend**
- = G3 Conservation
 - = G4 Active Open Space
 - = M4 Built Up Area
 - = S2 Health & Related
 - = S6 Other Community Services
 - = Site Location
 - = R1 New/Proposed Residential
 - = R2 Existing Residential
 - = S3 Community Facilities
 - = C2.1 Industrial
 - = G1 Open Space
 - = C3 Business Park

Figure 15.1

This drawing is the property of O'Callaghan Moran & Associates and shall not be used, reproduced or disclosed to anyone without the prior written permission of O'Callaghan Moran & Associates and shall be returned upon request.

The proposed development will assist in securing the long term viability of the KWD Recycling facility and contribute to maintaining employment levels, and therefore will have a positive impact on employment in the area.

15.4.4 Resource Consumption

The increase in the amount of waste accepted at the facility will result in additional energy consumption (electricity and diesel) associated with the new processing plant and equipment and extra traffic.

KWD Recycling has carried out energy audit of the facility to identify all practicable opportunities for energy use reduction and efficiency. Diesel fuelled plant engines are only turned on when wastes are being processed and KWD Recycling has a policy of not allowing engine idling.

15.4 Impacts

The development will not result in any impairment of either amenity value, or agricultural use. There will be a slight increase in traffic movement; however the local and regional road network has the capacity to accommodate the increase.

It will increase energy consumption, with associated greenhouse gas emissions, but this will be somewhat of- set by the increased use of the residual waste generated at the facility in the production of refuse derived fuel, which replaces fossil fuel. The development will contribute to sustaining employment at KWD Recycling.

15.5 Do Nothing Scenario

If the proposed development does not proceed, there will be no socio-economic benefit accruing to KWD Recycling. There will be no increase in traffic movements and energy consumption rates will not change.

15.6 Prevention & Mitigation Measures

KWD Recycling implements the nuisance control measures specified in the licence to prevent impacts on local amenities and also applies resource consumption control measures to minimise usage. These are described in Chapter 4 Site Description, Chapter 10 Air and Chapter 11 Noise.

15.7 Assessment of Impacts

The current operations are not a source of adverse environmental nuisance or impairment of amenities outside the site boundary and the local road network has the capacity to deal with the increase in traffic.

KWD Recycling operations have not adversely affected the existing economic activities in the surrounding area, nor have they reduced the potential for the future expansion of such activities. The proposed development will have a slight socio-economic benefit associated with maintaining local employment levels, but will result in an increase in natural resource consumption.

15.8 Residual Impact

The proposed development will not have any adverse impact on amenity values and socio-economic activities in the locality. It will have a slight negative impact in relation to the consumption of fossil fuels, but will have a slight positive local economic benefit.

*For inspection purposes only.
Consent of copyright owner required for any other use.*

16 INTERACTION OF THE FOREGOING

16.1 Introduction

Earlier Chapters describe the impacts associated with the proposed development and the proposed mitigation measures. This Chapter discusses the significance of the actual and potential direct, indirect and cumulative effects of the changes due to interaction between relevant receptors, which are Climate, Population & Health, Air, Noise, Traffic, Water and Biodiversity. It is based on the physical and environmental impacts of the existing facility and the proposed development on the receiving environment.

16.2 Population & Health / Air / Noise

The proposed development has the potential to impact on human beings from noise, dust, and vehicle exhaust emissions. The proposed method of operation has taken account of these emissions and effective mitigation measures have been identified. These measures are described in detail in Chapters 10, 11 and 13.

16.3 Human Beings / Traffic

The proposed development will result in an increase in traffic; however the local road network and junctions have the capacity to accommodate the additional traffic movements and they will not give rise to congestion.

16.4 Climate / Air/Traffic

The development will result in an increase in greenhouse gas emissions associated with the processing the additional wastes and the extra traffic movements. The vehicle exhausts will increase the emissions of particulates, nitrous oxides and oxides of sulphur. However the additional greenhouse gas emissions will be somewhat off-set by the increase in the production of refuse derived fuel.

16.5 16.5 Surface Water / Biodiversity

Rainwater run-off from the building roofs discharges to a drain that connects to a tributary of the Glanooragh River which is a tributary of the River Laune that forms part of the Castlemaine Harbour SAC. The quality of the run-off is good and the proposed change will not result in any deterioration in water quality that might affect the SAC.

16.6 Cumulative Effects

The assessment of the impacts of the proposed development took into consideration the impacts of the existing facility. The noise and ambient air quality surveys were conducted during typical operational hours and the predictive assessments include the impacts of both the existing emissions and those associated with the proposed development.

*For inspection purposes only.
Consent of copyright owner required for any other use.*

Table 16.1 Interaction of Impacts

	Climate	Traffic	Soils & Geology	Water	Biodiversity	Air	Noise	Landscape	Public Health	Heritage	Material Assets
Climate		√				√					
Traffic						√			√		
Soils & Geology											
Water					√						
Biodiversity											
Air									√		
Noise									√		
Landscape											
Public Health											
Heritage											
Material Assets											

For inspection purposes only.
Consent of copyright owner required for any other use.

APPENDIX 1

*For inspection purposes only.
Consent of copyright owner required for any other use.*

APPENDIX 2

*For inspection purposes only.
Consent of copyright owner required for any other use.*

APPENDIX 3

*For inspection purposes only.
Consent of copyright owner required for any other use.*

APPENDIX 4

*For inspection purposes only.
Consent of copyright owner required for any other use.*

APPENDIX 5

*For inspection purposes only.
Consent of copyright owner required for any other use.*

APPENDIX 6

*For inspection purposes only.
Consent of copyright owner required for any other use.*

APPENDIX 7

*For inspection purposes only.
Consent of copyright owner required for any other use.*

APPENDIX 8

*For inspection purposes only.
Consent of copyright owner required for any other use.*

APPENDIX 9

*For inspection purposes only.
Consent of copyright owner required for any other use.*

APPENDIX 10

*For inspection purposes only.
Consent of copyright owner required for any other use.*

APPENDIX 11

*For inspection purposes only.
Consent of copyright owner required for any other use.*

APPENDIX 12

*For inspection purposes only.
Consent of copyright owner required for any other use.*

APPENDIX 13

*For inspection purposes only.
Consent of copyright owner required for any other use.*