

ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR THE EXPANSION OF A MATERIALS RECOVERY FACILITY AT CAPPOGUE AND DUNSINK, BALLYCOOLIN ROAD, DUBLIN 11.

Volume 2 – Main Body of the EIAR Chapter 3 – Alternatives

Prepared for: Padraig Thornton Waste Disposal Ltd. T/A Thorntons Recycling



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VOLUME 2 MAIN EIAR

CHAPTER 3 – ALTERNATIVES

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TABLE OF CONTENTS

3. ALTERNATIVES	1
3.1 Introduction.....	1
3.1.1 Statement of Competency	1
3.2 Legislative Background	1
3.3 Assessment of Alternatives	3
3.3.1 'Do Nothing' Alternative Scenario.....	3
3.3.2 Alternative Development Site Locations.....	4
3.3.3 Alternative Site Layout and Designs.....	9
3.3.4 Alternative Processes	12
3.4 Conclusion on Alternatives Assessment.....	13

LIST OF FIGURES

Page

FIGURE 3-1:	KEY REASONS WHY AN ALTERNATIVE MIGHT NOT BE CONSIDERED TO BE REASONABLE.....	2
FIGURE 3-2:	OVERVIEW OF THREE CONCEPT LAYOUT OPTIONS	10

LIST OF TABLES

TABLE 3-1:	EVALUATION MATRIX SCORING SYSTEM	5
TABLE 3-2:	SCORING MATRIX.....	6
TABLE 3-3:	PROPOSED SITE LAYOUT OPTIONS APPRAISAL	11



3. ALTERNATIVES

3.1 Introduction

The proposed development is defined in Chapter 1 - Introduction and a detailed description of the proposed development is set out in Chapter 4 - Description of the Existing and Proposed Development.

Having established the need for the proposed development in Chapter 2 of Volume 2 of this EIAR, an assessment of reasonable alternatives to the proposal has been undertaken in accordance with Article 5(1)(d) of the 2014 EIA Directive (Directive 2014/52/EU). All reasonable alternatives that have been considered are identified and described, and an indication of the main reasons for selecting the chosen option is provided. In carrying out this assessment regard has been had to the 'Do Nothing' scenario, alternative development site locations, alternative site layout and designs, and alternative processes. Regard has also been had to potential environmental impacts associated with reasonable alternatives considered.

3.1.1 Statement of Competency

This chapter was completed by Eoin O' Connor and Richard Deeney.

Eoin is a Project Environmental Scientist working as part of the Waste and Environment Team in Fehily Timoney & Company (FTCO). He has over 7 years' experience working in the area of environmental assessment and holds a BSc. in Environmental Science and Health and an MSc. in Environmental Technology. Eoin has a substantial amount of experience completing planning applications and EIAR chapters including need, planning and policy and alternatives assessment chapters. He has carried out such work for a variety of project types particular to the waste sector, including materials recovery facilities, waste transfer stations, integrated waste management facilities and anaerobic digestion facilities.

Richard is a Senior Environmental Scientist working as part of the Waste and Environment Team in Fehily Timoney and Company (FTCO). Richard is a Chartered Environmentalist with the Society for the Environment. Richard has 10 years' experience working in the area of environmental assessment/management. Richard has a vast amount of experience coordinating the design, assessment and development of waste management facilities, from feasibility study stage to planning application / EIAR stage. Richard has close familiarity with the process of considering alternative locations, designs and processes during the waste management facility design and the planning process. Richard has a vast amount of experience completing EIA Alternative Assessments for a wide variety of development projects.

3.2 Legislative Background

The identification and assessment of project alternatives is a key part of the EIA process. The 2014 EIA Directive (Directive 2014/52/EU) restated and amended the requirement to consider project alternatives of the 2011 EIA Directive (Directive 2011/92/EU) and introduced the concept of 'reasonable alternatives.'



Article 5(1) of the 2014 EIA Directive states that the developer shall include:

5(1)(d) a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment.

5(1)(f) any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected.

Annex IV of the Directive point 2 states:

Annex IV(2) A description of the reasonable alternatives (for example in terms of project design, technology, location, size, and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

The European Commission has provided guidance on consideration of reasonable project alternatives in their 2017 EIA guidance document ‘Environmental Impact Assessment of Projects - Guidance on the preparation of the Environmental Impact Assessment Report.’ The Commission’s guidance indicates in Section 1.5.1 reasonable alternatives “*must be relevant to the proposed Project and its specific characteristics*”, and that alternatives should be feasible in terms of technical, economic, legal, and political criteria. Box 29 of the EIA guidance provides some key reasons why a project alternative might be considered unreasonable / infeasible, and includes where technology costs or budget obstacles can preclude certain options (See Figure 1-1 for more detail on reasons an alternative might not be considered to be reasonable).

Box 29: An Alternative may be considered unreasonable/infeasible if:	
▪ There are technological obstacles: high costs of a required technology may prevent it from being considered to be a viable option, or the lack of technological development may preclude certain options from consideration; ▪ There are budget obstacles: adequate resources are required to implement Project Alternatives; ▪ There are stakeholder obstacles: stakeholders opposed to a Project Alternative may make a particular option unattractive; ▪ There are legal or regulatory obstacles: regulatory instruments may be in place that limit/prohibit the development of a specific Alternative.	

Figure 3-1: Key reasons why an Alternative might not be considered to be reasonable

The EIA directive requires a description of the reasonable alternatives relevant to the project and an indication of main reasons for selecting the option chosen, with regards to their environmental impacts. The EU Commission EIA guidance document confirms that developers need to provide the main reasons for selecting the chosen option, but that “intricate” explanation is not necessary provided the reasons are transparent.



This approach also accords with the EPA 2022 ‘Guidelines on the Information to be contained in Environmental Impact Assessment Reports’ which states:

“It is generally sufficient to provide a broad description of each main alternative and the key issues associated with each, showing how environmental considerations were taken into account in deciding on the selected option.”

Having regard to requirements in relation to project alternatives described in Annex IV of the EIA Directive, the 2017 EU Commission EIA Guidance and the EPA 2022 EIAR guidelines, it was determined to assess reasonable alternatives to the Applicants proposed development in this instance under the following headings:

1. ‘Do Nothing’ Alternative Scenario,
2. Alternative Development Site Locations,
3. Alternative Designs,
4. Alternative Processes.

3.3 Assessment of Alternatives

3.3.1 ‘Do Nothing’ Alternative Scenario

The project alternative of a ‘Do Nothing’ scenario is an important part of the assessment of alternatives in EIA.

The proposed, expanded facility will accept and process up to 300,000 tonnes of waste material per annum, including municipal solid waste (rMSW, food waste, construction and demolition waste (C&D), and mixed dry recyclable (MDR) waste.

The ‘Do Nothing’ scenario involves the Applicant not progressing the proposed development. The development site will remain as it is in this scenario. The existing waste facility will continue to operate in accordance with the conditions of the planning consents and Waste Facility Permit.

Grassland / scrubland areas to the south of the existing facility within the confines of the development site will remain as they are. An existing drainage ditch which traverses the site in a north west to south east direction will remain as an open channel. South-western sections of the site bordering Barn Lodge Grove Road may continue to experience fly tipping.

In the ‘Do Nothing’ scenario, the potential residual environmental impacts of the proposed development as set out throughout this EIAR will not occur.

Project benefits will not be accrued in a ‘Do Nothing’ scenario. The benefits associated with improving waste recovery/recycling capacity in the region and nationally will not be realized (these benefits are discussed in Chapter 2, Need for the Proposed Development, in Volume 2 of this EIAR). The benefits associated with promoting and supporting circular economy policy objectives defined in the National Planning Framework, the Waste Action Plan for a Circular Economy (2020), the Eastern Midlands Region Waste Management Plan 2015 – 2021 and the Eastern and Midlands Regional Spatial and Economic Strategy will also not be realized (these benefits are discussed Chapter 5 Planning and Policy Context, in Volume 2 of this EIAR).



The socio-economic benefits associated with the proposed development will not be realized. The 'Do Nothing' scenario will not provide job creation associated with the proposed development, both during its construction phase and operational phase. Potential economic benefits to the local economy and business associated with providing and supplying services, goods and materials to the proposed development during either its construction or operational phases will not be realized either.

3.3.2 Alternative Development Site Locations

The Applicant considered several potential site locations for the proposed development prior to selecting the proposed site.

At the outset of the site selection process, the Applicant favoured expanding one of its existing facilities to accommodate an increase in its overall waste management capabilities. On a general level, this approach was considered to be more economic and less environmentally impactful than developing a waste management facility at a greenfield site. It is noted that all of the Applicants existing sites which were considered for the proposed development are situated in locations which are already characterized by commercial, industrial and waste management land uses.

The proposed development site is a partially developed site. The Applicant operates their existing waste facility to the north of the development site. Lands to the south of this facility contained within the confines of the proposed development site are currently undeveloped, but exist in an area characterized more widely by intensive land use.

The development site, once identified, was the favoured site considered for the proposed development given the availability of undeveloped lands directly south of the Applicant's existing waste facility for purchase (through an 'option to buy' agreement with Fingal County Council).

The following sites were considered for the proposed development initially:

- Kilmainhamwood Composting Facility, Ballynalorgan, Co. Meath
- Killeen Road Materials Recovery Facility (MRF), Ballyfermot, Dublin 10,
- Parkwest Dry Mixed Recyclables (DMR) Facility, Park West Business Park, Dublin 12,
- Dunboyne MRF, Dunboyne, Co. Meath
- Cappogue C&D MRF, including lands to the south of the site, Cappogue and Dunsink, Dublin 11.

To determine suitability for the proposed development, a number of broad criteria were applied to the list of potential sites. These were as follows:

1. Site access - distance from centres of waste generation (e.g. population centres in the Greater Dublin region) and major road networks.
2. Site services - adequacy of road network serving the development site, adequacy of site services (E.g. power supply, drainage, water supply).
3. Planning and Environmental constraints.
4. Suitability for the development - capacity to incorporate proposed infrastructure, processes and waste acceptance and storage quantities on-site.



Notwithstanding environmental factors or constraints as being a significant consideration when addressing alternatives, it is also acknowledged that consideration of other non-environmental factors when determining alternatives, not least project economics and land availability, is an important and relevant issue. The following criteria was applied to the list of sites:

- Project economics and land availability

An evaluation matrix was generated to evaluate and score how each potential site performs under each defined criterion. The scoring system used in this matrix is presented in the following table:

Table 3-1: Evaluation Matrix Scoring System

Rating Score	Rating Description	Comments
0	Poor	Not meeting the requirements to facilitate development
1	Fair	Partially meeting the requirements to facilitate development
2	Good	Meeting the requirements to facilitate development

This evaluation matrix is shown in Table 3-2. For the purposes of generating this table, no weightings were applied to the scoring system used, with the result that each relevant consideration was conceptually regarded as being of equal significance. A discussion on how each potential site performed under each criterion is presented after Table 3-2.



Table 3-2: Scoring Matrix

Potential Development Site	Site Access	Site Services	Planning and Environmental Constraints	Suitability for the Development	Project Economics and Land Availability	Total
Kilmainhamwood	0	1	2	2	1	6
Killeen Road	2	2	2	0	0	6
Parkwest	2	2	2	0	0	6
Dunboyne	2	2	2	0	0	6
Cappogue / Dunsink	2	2	2	2	2	10



Site Access

The Kilmainhamwood site was considered by the Applicant to be too distant from the main centres of waste generation and a number of motorway routes regularly used by its waste collection fleet. This site was therefore assigned a score of 'poor' under the 'site access' criterion compared with other potential development sites. All other potential sites were assigned a score of 'good' under this criterion, by virtue of the presence of good site access arrangements, and given the proximity of these sites to centres of waste generation and major road networks.

Site Services

All potential development sites are supplied by site services currently (e.g. power supply, drainage, water supply), and can be readily supplied with additional site services necessary for expansion given the presence of an adequate provision local utility infrastructure.

The immediate road network serving the Kilmainhamwood site was not considered to be sufficient for accommodating a waste management facility which would accept up to 300,000 tonnes of waste per annum. All other potential sites are characterized by the presence of major road networks close by which would adequately accommodate traffic associated with the proposed development.

Given the above, the Kilmainhamwood site was assigned a 'fair score under the 'site services' criterion, and all other sites were assigned a 'good' score.

Planning and Environmental Constraints

An examination of each site and surrounds was conducted to identify any potential significant and planning and environmental constraints that would preclude the carrying out of the proposed development at a site. One key driver when identifying the most suitable site was the avoidance of carrying out the proposed development at a site that had environmental sensitivities.

No significant planning or environmental constraints which would preclude the proposed development were identified at any of the sites. None of the sites are situated in or immediately adjacent to a Natura 2000 site, a Natural Heritage Area, or a proposed Natural Heritage Area. None of the sites are situated in an area which has a zoning objective defined that strictly precludes the development/expansion of a waste management facility at the site. None of the sites drain directly to a receiving surface water body which is protected under environmental nature conservation legislation (E.g. designated salmonid waters, nutrient sensitive rivers, drinking water rivers). None of the site locations are regarded for their landscape character, visual amenity, or cultural heritage value. There are no Recorded Monuments or Protected Structures at any of the sites. All sites are understood to have suitable ground conditions which will allow for the construction of additional built infrastructure on-site based on past site investigation. All of the sites considered are situated in locations that are characterized by existing and surrounding commercial, industrial and/or waste management land uses. Considering this, and considering that the proposed development at each of these sites would operate under an Industrial Emission (IE) licence granted and administered by the EPA, which would serve to regulate, prevent and control environmental emissions from the facility, all sites were assigned a 'good' score under the 'planning and environmental constraints' criterion.



Suitability for the Development

The Killeen Road, Parkwest and Dunboyne sites are all currently operating at their maximum physical capacity and are unable to accommodate the development of additional waste management infrastructure on-site within their existing footprint. The footprint of these sites cannot be expanded to accommodate additional development as there are no lands bordering these sites that are available for purchase. These sites were therefore assigned a 'poor' score in terms of 'suitability for the development.'

Lands immediately surrounding the Kilmainhamwood site, which are currently forested, are under the ownership of the Applicant and can be used to accommodate an expansion of the existing site. Lands adjacent to the Applicant's existing waste facility at Cappogue, which can be utilized to accommodate site expansion, are currently available for purchase from Fingal County Council through an 'option to buy' agreement. The Kilmainhamwood and Cappogue / Dunsink sites were therefore assigned a 'good' score under this criterion as it is possible to expand the footprint of both these sites to accommodate the additional development required.

Project Economics and Land Availability

It is not economically viable to further develop the Killeen Road, Parkwest and Dunboyne sites given that these sites are operating at their maximum physical capacity, and given there is no scope for purchase of lands adjacent to these sites and expansion of these sites. These sites were therefore assigned a 'poor' score under the 'project economics and land availability' criterion.

Expanding the Kilmainhamwood site is possible, however the site is distant from centres of waste generation and major road networks. Carrying out the proposed development at this site is less economically viable given the additional fuel and time costs associated with transport of waste to and from the site. This site was therefore only assigned a 'fair' score under this criterion.

The Applicant determined that it is economical to purchase lands adjacent to its existing facility and develop an expanded MRF at the site. The site is also situated in close proximity to centres of waste generation and major road networks, which would reduce fuel and time costs associated with the transport of waste. This site was therefore assigned a 'good' score under this criterion.

Conclusions

The above evaluation confirms the status of the proposed site at Cappogue / Dunsink, Dublin 11 as the preferred development site.

While the proposed development site is broadly comparable to all other sites in terms of planning and environmental constraints, it is preferable due to its ideal location close to centres of waste generation and a number of motorways and national roads, and the lack of capacity at the other sites to accommodate additional development.

The main business, planning, environmental and economic reasons for the choosing the proposed development site are summarized below:

- The Applicant has an 'option to buy' lands adjacent to the existing waste facility at Cappogue from Fingal County Council.



- The Applicant determined that it is economical to purchase these lands, retrofit and incorporate the existing facility to the new facility design, carry out site clearance on additional lands and develop an expanded MRF at the site.
- The site is located in relatively close proximity to centres of waste generation. The site is situated in Dublin 11 and is connected to a good and modern road network making it an ideal site for the Applicant to bring its waste collection vehicles serving the wider area to.
- There is suitable site access from the Ballycoolin and Cappagh roads. The site access road leading to the site is currently utilized by the Applicant transferring waste to their existing facility. HGV traffic movements are currently taking place along this route without impacting road network capacity, integrity or safety.
- The site is situated in area that is already characterised by commercial, industrial and waste management activity and as such would be well suited for a facility of this nature.
- The site can be readily provided adequate site services including power supply, water supply and drainage services.
- There is an absence of planning and environmental constraints at the site that would preclude the carrying out of proposed development.
- Expanding an existing waste facility at an area already characterised by commercial, industrial and waste management land uses will be less environmentally impactful than developing a new waste management facility at a greenfield site.

3.3.3 Alternative Site Layout and Designs

As part of the preliminary design process for the proposed development three different facility configurations and concept layouts were identified by the designers for consideration by the Applicant. An overview of these three concept options is presented in Figure 3-1.

The factors considered when determining the most preferred site layout were as follows:

1. Access to the site,
2. Proximity to site services,
3. Interference with site services / need to relocate site services,
4. Interaction with existing drainage features (E.g. soakaway and drainage ditch traversing the site),
5. Conflict with Wayleaves present at the site,
6. Processing building footprint, siting within the site and orientation,
7. Environmental impact mitigation.

The three concept layout options were appraised based on these factors. Each factor was assigned a score of either Note: 1 = Poor, 2 = Fair, 3 = Good. Scores for each factor were summed for each option to determine the most preferred site layout option. The results of this appraisal process are presented in Table 3-3.

As shown in Table 3-3 'Option 3' was determined to be the preferred concept layout option.

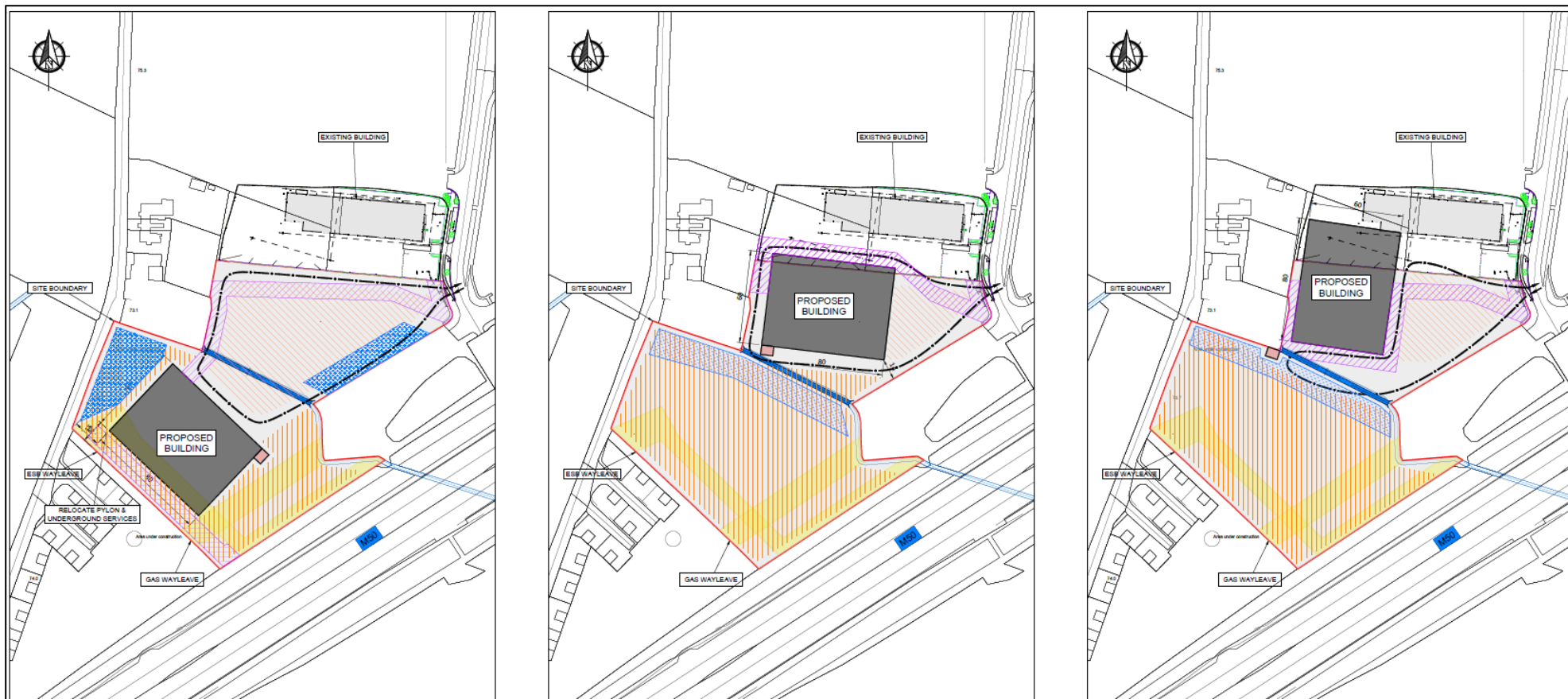


Figure 3-2: Overview of Three Concept Layout Options



Table 3-3: Proposed Site Layout Options Appraisal

Site Options	Layout	Access to the Site	Proximity to Site Services	Interference with site services / need to relocate site services	Interaction with existing drainage features	Conflict with Wayleaves present at the site	Processing building footprint, siting within the site and orientation,	Environmental impact mitigation.	Total
Value Weighting		1	1	1	1	1	1	1	-
Option 1		3	1	1	1	1	2	2	11
Option 2		3	2	1	2	3	2	2	15
Option 3		3	3	1	3	3	3	3	19

Note: 1 = Poor, 2 = Fair, 3 = Good



This site layout was further developed to include ancillary infrastructure and elements (E.g. administration building, vehicle maintenance building etc.).

Following an appraisal process the site layout was further refined as follows:

- The MRF 2 building (as it is now known) was included as part of the proposed development to accommodate the temporary storage of MDR on-site, and the access, egress and loading of HGV vehicles for export of stored MDR materials off-site.
- The proposed Vehicle Maintenance Building was re-located to accommodate additional vehicle parking and movements.
- The footprint of the Vehicle Maintenance Building was reduced, taking into account the Applicant's needs, and given that most of the Applicant's fleet maintenance activities will continue to take place elsewhere.
- The proposed Administration building was reduced from a two story building to a single story building to meet the Applicant's needs, and taking into account that the vast majority of the Applicant Administrative staff will continue to work at other Applicant facilities.
- The footprint and internal processing layout in MRF1 were amended to accommodate the proposed rMSW and food waste processing operations.

This design process yielded the proposed site layout as detailed in the Proposed Site Layout Plan drawing provided in Volume 4 of this EIAR (Drawing Reference: P21-150-0200-0001).

PV panels were initially planned to be mounted on the eastern slope of the roof of the proposed Building MRF 3. A glint and glare assessment was undertaken which determined that in theory and without the presence of intervening structures in place in reality, the array on the eastern slope of the roof of MRF3 could impact the air traffic control tower at Dublin Airport. Out of an abundance of caution the proposed PV panel array was re-designed specifically to entirely remove panels from the eastern slope of the roof of the proposed Building MRF 3 to ensure there is no potential for any glint and glare effects to occur at the ATCT at Dublin Airport. The glint and glare assessment determined that the arrays on the western slope of MRF 3 and MRF 1, as proposed in this planning application, will not impact on any receptors at Dublin Airport. This glint and glare assessment is contained in Appendix 4.1 of Volume 3 of this EIAR.

3.3.4 Alternative Processes

Facility processing operations were designed and evolved in a manner that ensures the facility is capable of accepting and processing the variety of waste types collected by the Applicant in the surrounding regions. The array and type of processes that are proposed for the facility on-site will facilitate the effective management of waste in line with relevant public policy on the circular economy.

The Applicant initially intended on accepting rMSW, C&D waste and food waste only at the proposed development. The Applicant subsequently decided to accept MDR at the facility also, following a review of its waste collection operations and considering future waste generation predictions and the need for additional recycling.

The Applicant considered processing accepted rMSW to produce Solid Recovered Fuel (SRF). SRF is a waste derived fuel material typically used as an alternative fuel for cement kilns or at energy recovery facilities.



rMSW accepted at the facility would have needed to be processed and refined to yield a material comprising shredded fragments of waste plastics, paper, cardboard, timber and fabrics with high calorific value. However, for commercial reasons, and due to changing requirements at destination energy recovery facilities, the Applicant decided that the generation of SRF at the proposed facility was not required and the processing of rMSW would be limited to trommel screening and extraction of metals via inline magnet and eddy current.

The Applicant considered carrying out composting and/or anaerobic digestion at the proposed development, however, ultimately, decided not to given the existing level of food waste treatment capacity under their control at the Kilmainhamwood facility.

No other alternative processes were considered for the proposed development.

3.4 Conclusion on Alternatives Assessment

It was concluded that the proposed development would bring about significant improvements in waste recovery/recycling capacity in the region and would result in a number socio-economic benefits. As such, the 'Do Nothing' Alternative in this case would result in the loss of these potential benefits.

Following an extensive site selection process, the Applicant determined that the subject development site is preferable due to its ideal location close to centres of waste generation and a number of motorways and national roads, the lack of capacity at the other sites to accommodate additional waste management development, and a lack of significant environmental and planning constraints. The development site was ultimately selected on the basis of economic criteria, business criteria and environmental criteria.

The site layout was developed via a reiterative design process between the Applicant and FTCo, the selected proposed layout was deemed to be the most suitable layout having regard to operational criteria and environmental criteria.

Facility processing operations were designed to ensure the effective management of waste in line with relevant public policy on the circular economy, and current and future waste generation and management predictions.

Overall, it is concluded the proposed development, as designed, maximises benefits to the Applicant, the local area, wider region and society generally compared to the alternatives considered. Conversely, it is concluded that the proposed development achieves the minimum possible environmental impact on surrounding environmental receptors compared with the alternatives considered and the option of developing a new waste facility at a greenfield site.

References

1. Environmental Protection Agency (EPA), "Guidelines on the information to be contained in Environmental Impact Assessment Reports," 2022.
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3. European Commission, "Directive 2014/52/EU of the European Parliament and of the Council, amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment," 2014.
4. European Commission, "Environmental Impact Assessment of Projects - Guidance on the preparation of the environmental impact assessment report (Directive 2011/92/EU as amended by 2014/52/EU).



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