

**APPENDIX 17A: OUTLINE CONSTRUCTION AND DEMOLITION WASTE
MANAGEMENT PLAN**



M28 Cork to Ringaskiddy Project

Outline Construction and Demolition Waste Management Plan

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1 INTRODUCTION

This document has been drafted in order to initiate the Construction & Demolition Waste Management Plan for the proposed M28 Road Project. It is preliminary in nature as it has been prepared at a stage (Phase 4 of NRA PMG) when exact quantities and volumes of waste material cannot be determined.

Construction and demolition (C&D) waste is defined as waste which arises from construction, renovation and demolition activities, together with all waste categories mentioned in Chapter 17 of the European Waste Catalogue (EWC). Also included within the definition are surplus and damaged products and materials arising in the course of construction work or used temporarily during the course of onsite activities.

In the event of C&D waste being produced, it will be the responsibility of the appointed contractor in accordance with the contract documents to:

- Identify methods for dealing with the C&D Waste;
- Comply with all necessary planning, environmental and waste legislation;
- Apply for and obtain all necessary approvals, consents and licences in accordance with inter alia the provisions of the Waste Management Acts, as amended, and also with regard to the NRA Guidelines for the management of waste From National Roads Construction Projects (Revision 1, 12 November 2014; and
- Liaise with and secure consent from the relevant landowner where suitable lands are required/ identified outside the CPO.

Having regard to the above, the Outline Construction and Demolition Plan will be a live document and will be developed to form the Project Construction and Demolition (C&D) Waste Management Plan which will be incorporated into the Environmental Operating Plan. The obligation to develop, maintain and operate a more detailed Construction and Demolition Waste Management Plan will form part of the contract documents for the project.

This document has been prepared with reference to the following guidance documents:

- Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects (Department of Environment Heritage and Local Government, July 2006);
- CIRIA document 133 Waste Minimisation in Construction; and
- TII guidelines including Guidelines for the Management of Waste from National Roads Construction Projects (Revision 1, 12 November 2014).

Quantities of materials presented in this report are indicative and subject to detailed design and should not be taken as definitive.

On commencement of detailed design a Waste Management Co-ordinator (WMC) will be appointed by the contractor who will be responsible for the management of wastes during the course of the project. The waste material considered within this Outline (or Preliminary) C&D Waste Management Plan covers the waste generated by the proposed road project. This can be defined as the material generated which does not satisfy the exclusions set out in the Directive on Waste

1.1 REQUIREMENT FOR THE PLAN

A Construction & Demolition Waste Management Plan is required as there may be potential for the project to exceed the thresholds set out in the DoEHLG publication 'Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects', which are set out as follows:-

1. New residential development of 10 houses or more;
2. New developments other than (1) above, including institutional, educational, health and other public facilities, with an aggregate floor area in excess of 1,250 m²;
3. Demolition/renovation/refurbishment projects generating in excess of 100m³ in volume, of C&D waste; and
4. Civil Engineering projects producing in excess of 500m³ of waste, excluding waste materials used for development works on the site.

The NRA Guidelines for the Management of Waste recommends that the drafting and implementation of the C&D waste management begin early in the design process. This Outline WMP has been prepared during Stage 3 (Design) / Stage 4 (EIA/EAR & The Statutory Processes) of the NRA Project Management Guidelines.

2 PROJECT DESCRIPTION

Chapter 3: Description of the Proposed Road Development of the EIS (**Volume 2**) provides a detailed description of the proposed road project. In general terms the project involves the upgrade of approximately 12.5km of the N28 National Primary Route from the N28/N40 South Ring Road Bloomfield Interchange to Ringaskiddy in County Cork.

The proposed M28 Road Project will consist of the construction, operation and maintenance of 10.9 kilometres of dual carriageway motorway from the N40 Bloomfield Interchange to Barnahely, 1.5 kilometres of single carriageway protected¹ road from Barnahely to the eastern side of Ringaskiddy and a service area at the Port of Cork Facility at Ringaskiddy together with ancillary and consequential works.

An overview of the development comprises the following:-

- 10.9km of mainline motorway from Bloomfield to Barnahely;
- 1.5km of mainline single carriageway protected road from Barnahely to east of Ringaskiddy;
- 4.8km of new and realigned regional and local roads;
- 2.2km of accommodation works tracks;
- 1 full grade-separated interchange at Carr's Hill with associated roundabouts, slip roads and widening of the existing underbridge at Carr's Hill;
- 3 partial grade-separated interchanges at Bloomfield/Rochestown Road, Shannonpark and Shanbally, with associated roundabouts and slip roads, including 2 new underbridges, existing bridge at Rochestown retained as part of the scheme;
- 3 at-grade roundabouts at Barnahely, Loughbeg and eastern Port of Cork entrance;
- Provision of a M28 to N40 westbound link road and improvement of the westbound merge from the M28 to the N40;
- Removal of the existing sub-standard northbound on-ramp at Maryborough Hill;
- Upgrading of the existing sub-standard off-ramp to Mount Oval;
- 4 new road underbridges to allow the proposed M28 Road Project to pass over existing roads;
- 1 underbridge widening at Carr's Hill;
- 2 shared use pedestrian and cyclist underpasses, one at Carr's Hill and one at Old Post Office Road;
- Demolition of the existing Maryborough Hill overbridge and construction of a replacement overbridge at the same location. This overbridge will take Maryborough Hill over the widened M28 below;
- Various other structures including large retaining walls and stream culverts;
- Traffic signalised control to be implemented at key junctions on Rochestown Road, including the replacement of the Rochestown Road roundabout with a signalised junction, signalling of the merge to the M28 and signalling of the Clarke's Hill junction;
- Local road improvements and parallel access roads, etc.;
- Accommodation works and farm accesses as required;
- Provision for footpaths and cycle facilities;
- Relocation of high voltage electricity pylons at Shanbally;

¹No access points other than designated junctions will be permitted to this road.

- Drainage system, including attenuated outfalls, watercourse culverts and realignments;
- Landscaping and environmental mitigation measures; and
- A service area for commercial vehicles including amenity building, fuel facilities, parking etc. within the Port of Cork lands at Ringaskiddy.

2.1 CONTRACT PROCUREMENT

To be confirmed in the updated Plan.

2.2 EARTHWORKS BALANCE

The earthworks quantities and material balances are described in **Volume 2 Main Text** of the EIS in **Chapter 3: Description of the Proposed Development, Chapter 11: Soils, Geology and Hydrogeology** and **Chapter 17: Material Assets**. In particular, Section 3.13.5.1 and 17.4.2 of the main text outlines earthworks quantities. In summary, it is estimated that approximately 225,355m³ of unacceptable material, mainly excavated material, will be generated by the proposed road development. This material will be surplus and will require appropriate collection and storage on-site before being transported off-site to an appropriately authorised waste treatment facility for recovery or disposal, as appropriate.

The preferred option for the management of waste arisings generated during the proposed road project is re-use on site, where possible. However there is an element of cut material that is likely to be considered unsuitable for reuse on-site. The preferred off-site option for this material is management at a licenced soil recovery site, as appropriate, where it is envisaged that this material will mainly be used as backfill material. During the development of waste licenced facilities the assessment of the likely significant effects associated with the treatment methods will have been assessed as part of the planning and appropriate assessment stages for those facilities. There are a range of construction and demolition operations that are likely to generate materials that will require treatment off site including the following principal sources:-

- General Site Clearance of Hedge Row/ Trees;
- Bridge Demolition;
- Dwelling House Demolition;
- Utilities Plant and Materials; and
- Road Signage.

The estimated quantities and sources of C&D waste arisings generated during the project for removal off-site are presented in **Table 2.1**.

Table 2.1: Estimated C&D Quantities for Removal Off-Site

| Waste Material | Unusable fill / waste (m³) |
|---|--|
| Excavated Material | 200,500 |
| Service Area site | 22,300 |
| Demolition waste from house and garage at Maryborough Hill (unsuitable for reuse on site) | 20 |
| Demolished waste from Structure at Shanbally (unsuitable for reuse on site) | 15 |
| Pile Arisings for secant pile installation | 2,520 |
| Total | 225,355 |

3 WASTE ARISING

3.1 THE WASTE HIERARCHY

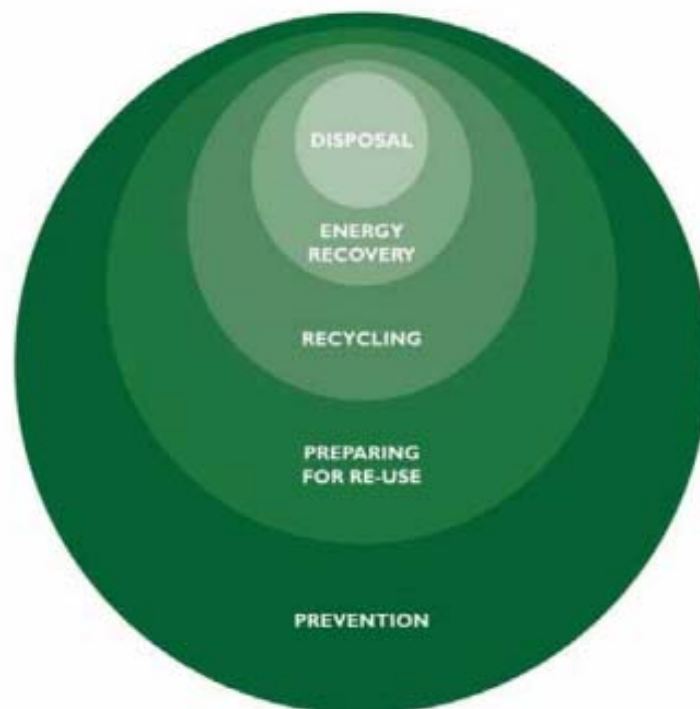
Besides the requirements that the off-site handling of waste generated by this project are subject to the required statutory authorisations under the Waste Management Act, there is also a necessity that it conforms to the Waste Hierarchy.

This is a requirement of Article 4 of the Directive on Waste, being transposed as Section 21A of the Waste Management Act. The Waste Hierarchy only applies to material that is defined as “waste”. This means that it does not apply to the proportion of the spoil that is handled on-site in conformity with the statutory exclusions.

The Waste Management Hierarchy will become activated for any material which does not satisfy the exclusions; in this regard the contract documents for the detailed design/construction project will clearly set out the staged approach which the contractor will be required to adhere to through the use of the Waste Hierarchy.

In order of priority, the hierarchy sets out the most desirable approaches to Waste management as comprising: (a) Prevention; (b) Preparing for re-use; (c) Recycling; (d) Other recovery (including energy recovery); and (e) Disposal;

Figure 3.1: Waste Management Hierarchy, Source; Southern Regional WMP 2015 - 2021



It is important to note, as stated in the Southern Region Waste Management Plan 2015 – 2021, that backfilling activities (of inert waste), which meet the recovery definition and are in compliance with Articles 4 and 13 of the WFD, sit on the other recovery tier of the waste hierarchy.

3.2 EXCLUSION FROM THE LEGISLATION FOR EXCAVATED MATERIAL RE-USED AT A CONSTRUCTION SITE

The Waste Framework Directive contains a number of exclusions which make clear that certain materials are not subject to its requirements. A key exclusion affecting construction projects such as this development is set down in Article 2(1)(c).

This states that the requirements of the EU legislation do not apply to: uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated.

This provision is repeated in the Waste Management Act, as Section 3(1)(c) .

Should materials generated by construction activities fall within this provision, they are not then subject to the other requirements of the EU or national waste legislation. This means that, for example, such materials are not defined as “waste”, do not need to be handled by duly authorised waste collectors and do not need to pass to disposal or recovery facilities that are subject to waste licences or other equivalent form of statutory authorisation.

By-product notifications (under Article 27 of the EC Waste Directive Regulations 2011) provide an opportunity for reuse of surplus clean soil & stone material arising from construction activity. This applies to locations other than authorised recovery facilities e.g. quarries operating under planning permission, GAA clubs or other developments such as road schemes requiring earthworks and importation of clean soil & stone. By-product status means that the material is approved for use at a location that falls outside of the reach of waste legislation.

As outlined in Article 27, Part 3 of EC Waste Directive Regulations 2011, a substance or object, resulting from a production process, the primary aim of which is not the production of that item, may be regarded as not being waste but as being a by-product only if the following conditions are met:

- a) Further use of the substance or object is certain;
- b) The substance or object can be used directly without any further processing other than normal industrial practice;
- c) The substance or object is produced as an integral part of a production process; and
- d) Further use is lawful in that the substance or object fulfils all relevant product, environmental and health protection requirements for the specific use and will not lead to overall adverse environmental or human health impacts.

Where an economic operator makes a decision in accordance with paragraph (1) that a substance or object is to be regarded as a by-product, he or she shall notify the Agency of the decision and the grounds for the decision.

Where there is no notice given to the Agency in respect of a substance or object and the substance or object, as the case may be, is discarded or otherwise dealt with as if it were waste, the substance or object, as the case may be, shall be presumed to be waste until the contrary is proved.

The Agency: -

- a) May determine, in consultation with the relevant local authority and the economic operator concerned, whether a substance or object notified to it as a by-product in accordance with the conditions outlined above, should be considered as waste, and
- b) Shall notify the local authority and the economic operator concerned in circumstances where a determination is made that a substance or object should be considered as waste and not as a by-product.

Nothing in this Regulation shall relieve an economic operator from his or her responsibilities under the Act of 1992 or the Act of 1996. The Agency shall establish and maintain a register of by-products to record substances or objects notified to it as by-products. Where the Agency makes a determination that a substance or object should be considered as waste and not as a by-product, the determination shall be final.

This option, where appropriate, can bring significant economic benefits since the transaction may be mutually beneficial. To date there have been a number of examples of surplus clean soil & stone from construction projects which have been successfully notified as by-product. Each individual case is carefully examined by the EPA, with a significant emphasis placed on the intended destination of the material, to ensure that the environment is adequately safeguarded long term.

4 WASTE HANDLING AND STORAGE FACILITIES

4.1 INTRODUCTION

Wastes generated by the proposed road project will be managed in accordance with Waste Management Legislation and the principles of the Waste Hierarchy, as set out in Section 3.1.

4.2 WASTE HANDLING AND PROCEDURES

During the construction phase of the proposed road project the appointed contractor will have responsibility for the development and management of appropriate waste handling procedures in accordance with the relevant legislation. This will involve the identification and segregation of waste arisings encountered into their appropriate categories and designating Waste Storage Areas (WSA's) within the proposed road project CPO for the storage of waste prior to transport for recovery/disposal at suitably licensed/permitted facilities.

An overview of the methods envisaged to handle the expected waste arisings are outlined in the sections below.

4.2.1 Storage of Waste

Waste storage areas shall be selected so that they are set back from watercourses, ecological sensitive areas (as described in **Chapter 12, Figure 12.5**), areas of extreme vulnerability, and away from potential floodplain areas and areas containing invasive species. They shall also be selected to ensure that it is accessible from roads that can cater for predicted volumes of site traffic and has connectivity to a main sewer for treatment of wastewater.

Storage of any waste will be located greater than 100m from a watercourse. Stockpiles within 200m of a watercourse will be covered.

4.2.2 Excavated Material

Excavated waste material (material which does not satisfy the exclusion outlined in Section 3.2) will typically be loaded directly/indirectly onto vehicles for reuse/recovery or disposal within (or outside) the CPO boundary. Temporary stockpiling of this material is therefore not anticipated onsite.

4.2.3 Hazardous Waste Material

There are currently no known hotspots where hazardous waste arisings have been identified within the site. However localised areas of contamination may be identified during the excavation process.

Hazardous waste may also be encountered in the following site clearance/ demolition works:-

- Building demolition where materials that may include asbestos constituents. In such cases a specialist survey will be carried out and a competent contractor will carry out the removal of the materials in accordance with the relevant legislation including the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010; and
- Removal of existing timber including fencing, treated with Copper-Chrome-Arsenic timber preservative may be treated as hazardous waste.

Other hazardous waste arisings that are likely to arise during the construction phase include:

- Vehicle batteries;
- Containers with residues of resins, latex, plasticizers, glues, adhesives, wood preservatives;
- Mineral oils or oily substances;
- Gas cylinders; and
- Wastewater from site facilities.

All hazardous waste encountered will be removed from site by a specialist waste contractor with a waste collection permit.

Hazardous waste facilities are licenced by the Environmental Protection Agency (EPA). The WMC will ensure that the hazardous waste contractor provides a copy of the licence for the facility to which the hazardous waste is being brought.

Consignment notes (C1 Forms) track and monitor the movement of hazardous waste within the State. C1 Forms will be completed for every consignment of hazardous waste other than the movement of waste within the premises where it is produced, stored, treated or deposited.

The export of hazardous waste requires completion of a TFS Form. The local authority issues and monitors Transfrontier Movement of Waste Forms which are used to control and track movements and disposal/recovery of certain categories of waste outside the State. The specialist waste disposal company, employed by the contractor, will arrange for the correct completion of these forms. The WMC will ensure that copies of these forms are completed in conjunction with the waste contractor and are kept for the duration of the project.

4.3 WASTE REMOVAL

Any removal of waste material from the site shall be done so in accordance with the relevant legislation. It shall undergo a comprehensive waste assessment and classification by a suitably qualified person, in accordance with the Waste Management Catalogue and shall be disposed of/treated in a suitably licensed facility.

Waste arisings generated will only be treated at facilities that are authorised to carry out the appropriate waste treatment activity for the specific waste stream. Records of all waste movements and associated documentation shall be maintained on-site such as waste facility authorisation number, expiry date, class of waste accepted, weighbridge records, treatment methods for each waste stream accepted i.e., backfilling, crushing, screening, etc.

Where waste generated is not reusable on-site, samples will be taken and waste acceptance criteria (WAC) laboratory testing will be undertaken on the excavated material. The results of the laboratory testing will be used to determine whether a waste is inert, non-hazardous or hazardous. Authorised waste facilities will be contacted to establish what their waste acceptance criteria requirements are. The excavated waste from the proposed road project will be compared with the facility waste acceptance criteria, and sent to the waste facilities which are authorised to accept the material in line with the waste acceptance criteria. Where practical, the closest suitable facilities to the proposed road project will be selected to reduce impacts associated with vehicle movement such as air emissions.

5 DEMOLITION PLAN

In general, the proposed road project has sought to avoid existing dwellings and properties where possible. There are two residential buildings (located on Maryborough Hill and Shanbally) that will be acquired and demolished as part of the works.

A Demolition Plan shall be prepared by the appointed contractor and included as an integral part of the Project C&D Waste Management Plan. The principal objective of the Demolition Plan will be to ensure that where a building or structure requires demolition, the sequence of operations to be followed is predetermined and documented, thereby ensuring that an appropriately selective dismantling/demolition methodology is employed.

Special attention will be paid to the sorting/segregation arrangements employed to separate the demolished structure into individual material fractions. In addition, the transportation and reception arrangements associated with the movement of materials to other construction sites for reuse or reprocessing will also be considered.

Health and Safety procedures will be adhered to in accordance with the requirements of the relevant authorities in the removal of hazardous waste material during the demolition process.

The procedures and processes for removal of hazardous waste material will be identified in the Project C&D Waste Management Plan by the appointed contractor.

Special or hazardous wastes will be retained in isolation from other wastes to avoid further contamination. Certain C&D materials are hazardous e.g. lead, tars, adhesives, sealants. Asbestos containing construction materials are classified as hazardous (see European Waste Catalogue Codes in Appendix 2 of the *'Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects'* for a schedule of hazardous construction materials).

If such materials are mixed with non-hazardous materials e.g. lead-based paint tins discarded onto a stockpile of brick and concrete, the entire quantity of material becomes hazardous and must be managed as hazardous waste.

6 ROLES, TRAINING AND RESPONSIBILITIES FOR C&D WASTE

A WMC shall be appointed by the contractor prior to the construction stage of the proposed road project. This Coordinator will have overall responsibility for waste management onsite. The role will include the important activities of conducting waste checks/audits and adopting construction and demolition methodology that is designed to facilitate maximum reuse and/or recycling of waste.

The Plan shall make provision to ensure that the C&D WMC is appropriately trained and is assigned the authority to require measures to be taken to fulfil the Plan's objectives and targets for each stage of the project.

The role of the C&D WMC will ensure that the opportunity is taken to educate all colleagues, site staff, including external contractors and suppliers, about alternatives to conventional construction waste disposal. The Plan will make provision for the C&D WMC and site crew to be trained in materials management thereby being in a position to:-

- Distinguish reusable materials from materials suitable for recycling;
- Ensure maximum segregation at source;
- Co-operate with site manager on the best location's for stockpiling reusable materials;
- Separate materials for recovery; and
- Identify and liaise with operators of waste collection and waste management operators.

7 RECORD KEEPING AND WASTE AUDITING

7.1 RECORD KEEPING PROCEDURES

The contractor shall develop a record keeping system that will ensure that details of all arising's including movement and treatment of C&D waste are recorded. All materials being transferred from the site, whether for recycling or disposal, shall be subject to a documented tracking system which can be verified and validated.

7.2 WASTE AUDITING PROTOCOLS

Waste auditing protocols shall be the responsibility of the WMC who shall carry out auditing in accordance with an Audit Plan for the project to be included in the developed Construction and Demolition Waste Management Plan.

The audit will cover the following elements:-

- A systematic study of all waste management practices which have been adopted on-site;
- Special attention will be dedicated to obvious opportunities for waste reduction, but all areas and stages within the project will be reviewed;
- Details of raw material inputs and the quantity, type and composition of all waste from the site will be identified;
- The audit findings will highlight corrective actions that may be taken in relation to management policies or site practices in order to bring about further waste reductions; and
- A tracking system shall be stipulated to determine the success or failure of corrective actions.

Regular summary audit reports outlining types, quantities of waste arisings and their final treatment method shall be sent to the Environmental Manager who will be appointed by the client.

8 REFERENCES

NRA Project Management Guidelines: National Roads Authority (2010)

Guidelines for the management of waste From National Roads Construction Projects (Revision 1, 12 November 2014) (2009)

Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects: DoEHLG

Guidelines for Construction and Demolition Waste: Sligo County Council

NRA Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan: National Roads Authority (2007)

S.I. No. 126 of 2011; European Communities (Waste Directive) Regulations: Statutory Office (2011)