

**Landscape Management Plan
for
For Proposed
Kerry Central Recycling Facility Ltd**

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Status: Final
Date: 23rd June 2009

On behalf of:
Kerry Central Recycling Facility Ltd

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1.0 INTRODUCTION

1.1 Landscape Consultants

This Landscape Management Plan has been prepared on behalf of Kerry Central Recycling Facility Ltd. The implementation of the Landscape Management Plan will be the responsibility of Kerry Central Recycling Facility Ltd.

1.2 Landscape Context

The site of the proposed development is located adjacent to the N22 in the townlands of Scart/Caherdean, approximately 4 km south of Farranfore and approximately 8.5 km north of Killarney in County Kerry. At present it is a Greenfield site and being used as a conifer plantation.

The site is located approximately 10 km north of Killarney Park. The landscape of the National Park comprises glacial formation which form the backdrop of many views from where the site is located.

1.3 Proposed Development

Kerry Central Recycling Facility Ltd proposes to construct a Materials Recovery Facility and Recycling Centre.

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2.0 LANDSCAPE OBJECTIVES

The general aim of the landscape proposals and landscape management plan is to conserve and retain existing trees as far as possible and to develop a quality planting scheme that will reduce visual intrusion and enhance the immediate environs of the development for the benefit of the visitor, neighbours and wildlife.

The objectives are:

- To monitor the condition of existing trees and hedges.
- To reinforce existing boundaries using planting mixes with suitable native diversity of species.
- Integrate the scheme into its surroundings.
- To put in place a long term management plan.

Mainly indigenous species have been selected to blend with the local environment and maximise the biodiversity of the site.

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3.0 LANDSCAPE PROPOSALS

The proposed landscape planting is described in full in drawing number LA0001/01_Rev_F02 Proposed Landscape Mitigation Measures.

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4.0 PHASING & IMPLEMENTATION

It is intended to complete the planting works at the start of the first available planting season following the granting of Planning Approval for the project. The landscape contractor will be responsible for all maintenance and replacements during the first two years after the completion of planting. There after a landscape contractor will be appointed to carry out annual maintenance of the soft landscape.

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5.0 ESTABLISHMENT MAINTENANCE AND LONG TERM MANAGEMENT

This plan should be read in conjunction with drawing number LA0001/01_Rev_F02 Proposed Landscape Mitigation Measures.

TOPSOIL: At the time of starting the work, the areas to be planted will be covered in topsoil 300 mm thick.

CLIMATIC CONDITIONS: Cultivation, planting and other works will be suspended in wet weather and when conditions are unsuitable or likely to cause damage to soil structure.

PLANTING SEASON: Forestry transplants and feathered trees other than evergreens may be planted between November and March inclusive. Evergreens may be planted in October or in April/May. Planting shall normally be carried out during the period from November to inclusive March in suitable open weather.

Containerised plants may be planted throughout the year provided the weather is considered suitable, the soil is sufficiently moist and each plant is watered following planting.

Planting outside the specified planting period will only be permitted in exceptional circumstances at the discretion of the Engineer. Such exceptional circumstance shall include unsuitable weather and no penalty shall be incurred under the heading of liquidated damages provided that any delay is formally accepted by the Engineer as attributable to this cause. In the event that works are delayed by inclement weather, the contractor shall complete them at the earliest opportunity afforded by suitable weather conditions.

To ensure development of the visual screen planting it is intended to plant prepared beds at the first available planting season following granting of planning permission.

NOTICE: The landscape contractor will give 48 hours notice to the Engineer of their intention to commence any of the following operations: setting out, planting, fertilising, herbicide application and maintenance visits. Alternative notification requirement may be stated relating to specific items and these overrule this general requirement.

SETTING OUT: The landscape contractor shall clearly mark boundaries of all planting areas and obtain approval of setting out by the Engineer before commencing work.

CHEMICALS GENERALLY: All chemicals used will be non-toxic to human beings, birds and animals under normal use. No chemicals will be used for any purpose without the prior approval of Engineer. Observe all precautions recommended by the manufacturers and remove containers from site immediately they have been emptied or are no longer required.

PROTECTION OF EXISTING VEGETATION: The landscape contractor will take all precautions to protect in the course of their work, any existing plant materials from malicious or accidental damage and will ensure that no branches will be lopped and

no roots over 50 mm diameter severed from growing trees without written prior permission from the Engineer.

All damaged plant material shall have all cuts made flush leaving no snags or any cut over 50 mm diameter and no bruises or scars on the bark, the injured cambium will be traced back to living tissue and removed. Wounds shall be smoothed so as not to retain water and the treated areas will be coated with "Tree Three" or other approved tree wound paint.

No soil, spoil, constructional materials or rubbish will be stored or tipped and no construction plant or vehicles will be parked within the spread of existing trees, shrubs or hedges.

Where existing vegetation is to be pruned back or overhauled, the Landscape Contractor is to ensure these are carried out to the highest horticultural standards using secateurs, loppers or other methods approved by Engineer. All arisings are to be removed to tip off site and they are not to be burnt or dumped or left on site unless specifically agreed in writing by the Engineer.

TREES/PLANTS GENERALLY: All trees, specimen shrubs, shrubs and ground cover planting, shall conform fully to the specification in respect of species, size and quality. The contractor shall name the supplier in his tender for approval by the Engineer/Landscape Architect. All plants shall be well grown, sturdy and bushy according to type and free from all diseases and defects. Shrubs shall be container grown, rootballed or bare rooted as stated in the plan schedules. If container grown, root growth shall not have been restricted by the containers. The Engineer reserves the right to reject any plant material (not previously approved) before or after planting if it does not conform to the specification. All plant material, which does not conform to the specification, will be automatically rejected and must be removed from site and replaced at the contractor's expense.

BRITISH STANDARDS FOR PLANT MATERIAL: All trees, shrubs and other plant material shall comply with the minimum requirement of the relevant British Standards below:

BS 3936	Part 1: Specification for trees and shrubs
BS 3936	Part 4: Specification for forest trees
BS 3936	Part 5: Specification for Poplars and Willows
BS 4043	Recommendations for transplanting semi-mature trees
BS 5236	Recommendations for cultivation and planting of trees in advanced nursery stock category.

PRE DELIVERY INSPECTION: The contractor will allow the Engineer all facilities for inspection of all plant material in the nursery prior to any deliveries to site and the Engineer must be given at least five working days notice of any such deliveries in order to permit inspection.

INSPECTION OF TREES: The Engineer shall require facilities for inspection of all trees prior to importation to the site. The Engineer must be given at least 10 working days notice in order to permit inspection of trees.

All trees of the same species and size shall be of the same clone. All trees shall have a certificate of origin and the number of times a tree has been transplanted shall be certified.

CERTIFICATION: The contractor will provide a certificate to the effect that all plant materials are fully in accordance with the specification. All plants will be inspected by the Engineer at time of planting for variety and size, but approval from this inspection will not preclude rejection of plant material for defects which may appear later during the progress of the works.

IDENTIFICATION: One plant of each group, bundle or batch of plants will bear a permanent label of metal or other indestructible material, securely attached, having the full botanical name thereon.

SUBSTITUTES OR SIZE VARIATIONS: Upon submission of substantial evidence that certain plant materials are not available at the time of contract, the contractor will be permitted to substitute other plants with the approval of the Engineer and Landscape Architect with an adjustment of price if necessary to that originally specified.

STORAGE: If plants cannot be planted immediately upon arrival they will be heeled in or their roots be adequately covered with moist hessian or, good quality topsoil for a maximum period of 10 days. The roots are to be kept moist throughout this time by adequate watering; waterlogging shall be prevented, as shall exposure to wind, frost or direct sunlight. Any plants which fail due to inadequate protection prior to planting will be rejected and shall be replaced at the contractor's own expense.

The time between the plants arriving on site and their planting shall be kept to a minimum.

PLANT HANDLING AND DELIVERY TO SITE: All plants are to be adequately and carefully packed and protected to survive transport, by whatever means, to the site, without damage in loading, transit or unloading in accordance with the 'Code of Practice for Plant Handling' (July 1985 Edition), drawn up by the Committee of Plant Supply and Establishment. If in spite of these precautions, roots, branches or shoots suffer slight damage they are to be carefully pruned. If major damage has occurred the plants, the Engineer reserves the right to reject plant material which is considered not to have been handled in accordance with the Code of Practice and this is to be replaced at the contractor's own expense.

PROTECT EXISTING GRASS during planting operations by laying boards or tarpaulins. Do not place excavated material directly onto grass.

SURPLUS MATERIAL including subsoil, stones, debris, wrapping material and prunings to be removed from site

PLANTING TREES

PLANTING GENERALLY: Planting shall be carried out during the period from November to March inclusive in suitable open weather. Planting of containerised material may be permitted outside this period with the Engineer's approval. Planting will not be permitted during periods of drought, frost or cold drying winds nor when the ground is waterlogged. All planting operations shall be carried out in accordance with BS 4428 and good horticultural practice. Particular attention must be paid to correct depth of planting ensuring the soil is firmed in around the roots.

Prior to planting all broken roots must be carefully pruned back and any snags to the crown carefully cut back. Bad bruising or abrasion of their cambium must be treated with "Tree Three" or equal and approved tree paint. Roots must be kept well moistened before planting in the prepared pit.

TREE PITS: Tree pits shall be excavated to the dimensions and shape as indicated in Bills. The base of the pit shall be thoroughly forked to a depth of 300 mm to allow roots to penetrate below the pits. The excavated tree pits shall be left open for inspection by the Engineer prior to backfilling and planting. The Contractor shall notify the Engineer at least 72 hours before commencement of tree pit excavations to permit inspection. The Contractor shall draw the attention of the Engineer to any waterlogged pits.

PLANTING OF TREES: A mixture of slow release fertiliser and approved tree compost shall be placed at the bottom of each pit prior to spreading out roots.

Backfilling shall be with good quality topsoil to BS 3882: 1965 and shall conform to the above specification. The finished surface to the filled tree pit shall be slightly cambered.

In waterlogged areas, at the direction of the Engineer, the pit shall either be over dug by 250 mm and have the base filled with 10 mm gauge pea gravel or tree pit drainage may be required.

CONIFERS / EVERGREENS: Dip in or thoroughly spray with antidesiccant before delivering to site. Apply again soon after planting. Do not apply in rainy or frosty weather. Ensure full coverage of underside of foliage.

ROOTBALLED CONIFERS: Rootballs shall be firm and solid and they shall be well 'rooted through'. They shall be enclosed in hessian (burlap). The size of the rootball must correspond to the species / cultivar and its age and growth rates under the soil or cultural conditions within which it is growing.

All materials used to support rootballs shall decompose within eighteen months of planting and shall not constrict the future growth of the tree.

The conifers shall be well furnished overall from ground level with live shoots. They shall have a single dominant shoot with significant side shoots and be of size specified in Bills.

ADVANCED NURSERY STOCK TREES GENERALLY: Trees shall be full and well shaped. Trees shall have their crowns thinned by 30% according to good horticultural practice and in a manner that does not affect the overall stature, structure or good appearance of the tree. Trees shall have a dense and healthy fibrous root system.

Rootballed trees shall be rootballed immediately when lifted at the nursery. The rootball shall be suitable for the size of crown and the rootball shall be flat bottomed.

The rootball shall be formed through regular transplanting: every 2-3 years minimum. The rootball shall be wrapped in hessian and steel wire netting or other suitable and approved decomposable material.

STANDARD TREES: Extra Heavy Standard trees shall have a clear stem height, 1750-2000 mm from ground level to the lowest branch, a minimum girth measured at 1.0 m above ground level of 140 -160 mm and a total height of 4250 -6000 mm.

Trees shall have a sturdy, straight stem, a well defined and upright central leader, with branches growing out of the stem with reasonable symmetry, or a well-balanced branching head. The crown and root system shall be well formed and in keeping with the nature of the species. Roots shall be in reasonable balance with the crown and shall be conducive to successful transplantation.

Trees scheduled as bare rooted shall have been regularly undercut or transplanted. They shall have been lifted carefully to avoid tearing of major roots and to preserve a substantial proportion of smaller and fibrous roots. Trees shall have been grown on their own roots. Bedded or grafted trees will be rejected.

FORESTRY TRANSPLANTS: Forestry transplants shall be of the size stated, shall conform to the above British Standards and have at least one sturdy, health stem of at least the stated dimension. They shall have been transplanted at least once in their lives as outlined below.

Deciduous Species 1 + 2 *Quercus* species only
1 + 1 all remaining species

All deciduous transplants to be within the 450 to 1200 mm height range with a balanced fibrous root system.

Coniferous Species 1 + 1 all species

All coniferous transplants to be within the 300 to 450 mm height range with a balanced fibrous root system.

PLANTING OF TRANSPLANTS: Excavate planting pockets 400 x 400 x 300 mm deep. Add the following ameliorants to the excavated material (calculated as applied to the area of the pocket), cultivate and incorporate evenly:-

Organic Manure	:	100 mm layer over area of pit
Fertiliser 0:10:10	:	35 g
Fertiliser I.B.D.U.	:	35 g

Partly backfill pocket. Place tree in pocket at same depth as in the nursery, spreading out roots to their natural configuration. Backfill pocket carefully, firming soil around roots, and firm thoroughly on completion.

TREE STAKES: Standard trees shall be staked with double stakes, 2,400 mm long round, pressure treated larch, 100 mm minimum diameter, pressure treated sawn larch, (preserved with water-borne copper-chrome-arsenic to I.S. 131, to a net dry salt retention of 5.3 kg per cubic metre of timber). 1600 mm to be left over ground.

DAMAGED STAKES: Replace any stakes which are split. Remove any snags which may cause chaffing of trees. Damaged tops of stakes to be sawn off at an angle of 45 degrees.

TREE TIES: Ties are to be approved by the Engineer prior to their use. There is to be one tie per stake fixed approximately 150 mm below the top of the stake for standard trees and 75 mm below for transplants.

PREPARATION OF PLANTING BEDS

HERBICIDE GENERALLY: Application: Kill existing grass pre-seeding, and killing weeds germinating in re-spread topsoil. Apply approved herbicide at recommended rates. See 420

HERBICIDES:-

Glyphosate - 'Roundup' by Monsanto Chemicals Limited. Do not apply when rain is forecast within six hours. Do not apply when wind is likely to cause spray drift (over 24 kph/15 mph). Allow leaf symptoms to develop before carrying out any cultivations.

Paraquat - 'Gramoxone 100' by ICI Plant Protection Limited. Do not spray when wind is likely to cause draft (over 24 kph/15 mph). Protect all foliage of transplants or shrubs.

Propyzamide - Apply between 1 October and 20 December only, when ground is damp. Ensure complete cover of the ground.

The landscape contractor may cause use alternative formulations of the above herbicides, by other manufacturers, with the prior approval of the Engineer.

GENERAL FERTILIZER: Controlled release fertiliser N:P:K 15:9:11 plus trace elements - Osmocote plus or similar approved applied at specified rates.

COMPOST: A non-peat based organic compost/manure shall be used, eg spent peat compost (eg for tomatoes) or other medium.

BULKY ORGANIC MANURE / MUSHROOM COMPOST: Bulky organic manure shall consist of spent peat compost, spent mushroom compost, spent hops, or of well rotted farmyard manure. Farm manure shall consist predominantly of faecal matter and shall be free of loose, dry straw and undigested hay. Manure shall be free of surplus liquid effluent. This shall be used on mounds only. Well-spent mushroom compost shall be used in all ornamental planting areas.

PLANTING SHRUBS

PLANTING GENERALLY: Prior to planting all bare rooted plants shall be completely immersed in a container of Alginate Root Dip (1:99) solution and container grown plants shall be sprayed with the solution in accordance with the manufacturer's instructions.

All plants will be planted in an excavated pit 300 x 300 x 300 mm give 50 mm minimum growth space (whichever is the greater) to accommodate root spread.

The landscape contractor shall mix planting compost and Slow Release fertiliser with sufficient excavated topsoil and place 50 mm of the mix at the bottom of the pit. The plants shall be carefully removed from the container and shall be placed in the pit and carefully backfilled with the mix ensuring that the planting depth is correct, the total root system is covered and the plant is firmed in. Any surplus topsoil shall be spread evenly over the surrounding areas.

After planting the plants shall be thoroughly watered to field capacity and the planting area left clean and tidy. If planting is performed after grass area preparation, proper protection to grass areas should be provided and any damage resulting from planting operations removed promptly.

The landscape Contractor shall water the plants to field capacity as and when necessary, until practical completion is achieved.

On completion of planting, any broken branches shall be pruned, damaged areas of bark shall be neatly pared back to sound tissue and all cuts and wounds over 25 mm in diameter shall be treated with a fungicidal sealant.

CONTAINER GROWN SHRUBS: to BS 3936: Part 1; Container grown shrubs shall conform to the above British Standards. Shrubs shall be of the minimum size specified in the schedules with several stems originating from or near ground level and of reasonable bushiness, healthy well grown, and with a good root system. Plants shall not be pot bound, nor with roots deformed or restricted. Bare root material will only be accepted where specified.

HEDGES: to BS 3936: Part 1; Excavate a planting trench, to receive the plants at the same depth as in the nursery. Set out plants in a single straight line or double row staggered as specified, in the hedge trench, evenly spaced at centres indicated on drawings/schedules. Backfill carefully incorporating 100 mm deep layer of compost into excavated material, consolidating the soil carefully around the roots, and leaving the plants vertical and in line. Cut back plants before or after planting as scheduled.

PLANTING LOCATIONS: All plants to be positioned in locations and in the required numbers and centres indicated on the planting plan or otherwise agreed with the Engineer. In all cases where mixes are indicated, plants shall be mixed in groups of each species unless otherwise specified. The Engineer reserves the right to adjust the planting design shown on the schedules and drawings as planting proceeds.

No tree pits for large plant material shall be dug until final positions have been pegged with approval of Engineer.

PROTECTING/MAINTAINING/MAKING GOOD DEFECTS

MAINTAINANCE GENERALLY: The Landscape Contractor shall be responsible for Establishment of all planting until completed. One year of maintenance operations will commence on that date ceasing 12 months from the date of completion.

The Landscape Contractors attention is drawn to the fact that the site shall be open to traffic during the Establishment and Aftercare period. The Landscape Contractor shall seek the Engineers approval to his proposed method of working to ensure safety of both the road user and the Landscape Contractors employees. When carrying out works to road verges and the central reservation, for example, the Landscape Contractor should make allowance for road cones and warning signs. 48 hours notice should be given to the Engineer of each maintenance visit to allow satisfactory arrangements to be made in this respect.

DEFECTIVE PLANT MATERIAL AND DEFECTS LIABILITY PERIOD: All trees, shrubs, transplants and hedging plants shall be guaranteed for a period against death, deformation, dieback, or disease other than that caused by malicious damage. The defects period shall cover the growing season following planting. A plant inspection shall take place within 12 months of the date of substantial completion, as certified by the Engineer to assess plant failures.

The Landscape Contractor shall replace any defective plant material with material of the same size, specification and species as that originally planted to the full satisfaction of the Engineer. Any such replacements, including planting, shall be entirely at the Contractor's expense.

ORGANISATION: The maintenance programme will be organised as follows:

- Scheduled operations, in whose timing the Contractor will be permitted some flexibility, and which will be the basis of payment to the Contractor.
- Performance standards, which the Contractor is required to meet at all times. The Contractor will be issued with maintenance record sheets upon which their performance will be assessed and payments made.
- Critical dates, by which time scheduled operations shall have been completed, and at which performance will be assessed.

PERFORMANCE STANDARDS

PLANTING GENERALLY: Noxious weeds (Dock, Thistle, Ragwort) shall not be allowed to flower and shall be cut back/killed and arisings removed before they attain a height of 200 mm.

Bindweed, bramble and horsetail re-growth shall be treated at each visit, and shall be killed by the end of the contract period. At no time shall these weeds be allowed to become invasive.

Total planted area shall be maintained substantially weed free at all times. The Contractor shall programme herbicide and hand weeding operations so as to maintain less than 10% weed cover at any time.

EXTRA HEAVY STANDARDS AND LARGER CONIFER TREES: Shelters, tree stakes and ties shall be secure and correctly adjusted at each visit. These items are included in the Contractor's rates and an accurate record of the works completed at each visit shall be maintained. These shall be invoiced accordingly.

Total weed kill shall be achieved in planted areas and 1000 mm diameter in seeded grass areas around trees.

All weeds in the circles shall be killed at each maintenance visit.

Grass growth in shelters shall be removed before attaining a height above the transplant within.

Weed free band 1000 mm wide along hedgeline shall be maintained with no more than 10% weed cover at any time.

Weeds shall not exceed 150 mm in height.

All weeds shall be killed or removed at each visit.

TRANSPLANT, SHRUB AND GROWDCOVER AREAS: Total planted area shall be free of weeds over 75 mm high, clumps and tussocks of grassy weeds with no more than 10% weed cover at any time between visits. Weeds shall be controlled by use of approved herbicides applied according to good practice and the manufacturer's instructions and by selective hand weeding. All arisings and dead weeds to be removed at each visit.

All plants shall be alive, healthy, free of minor defects and free of weedkiller or cultivation damage. The Landscape Contractor shall replace plants damaged by his operatives at his own cost.

Planting areas shall be free of litter and debris from weeding, cultivation or pruning after each visit.

Mulches, where present, shall be maintained in continuous cover. Topping up of levels shall be undertaken as necessary. Small quantities shall be deemed to be included. An application for extras shall be made in severe cases only.

Damage caused by hares and rabbits shall be reported to the Engineer. Plants shall be replaced at Contractor cost if damage arises from inadequate maintenance or protective fencing or guards. Otherwise replacements shall be at Client cost.

The Landscape Contractor shall alert the Engineer immediately of any drainage problems arising, particularly waterlogging in planted areas.

HEDGING: This item is measured per visit and each visit shall include:

- The Landscape Contractor shall remove all litter, debris etc. and shall lightly fork the mulch surface and shall thoroughly clean out and hand weed all hedge beds to remove all noxious and other weed growth to include roots.

- The Landscape Contractor shall inspect all plants refirming as necessary. All dead wood and broken, damaged or deformed branches to be removed by careful pruning. Any dead or badly damaged plants to be removed and replaced as required.
- Hedges shall be maintained trim. Tops and both faces of hedges trimmed to a regular and neat line.
- All resultant debris to be removed off site.

SCHEDULE AND PROGRAMME OF OPERATIONS: The Landscape Contractor will be expected to meet the performance standards as defined and as such will have flexibility in his work programme to achieve same. This flexibility will allow for some variation in the work programme which shall be agreed with Engineer representative in advance. The Landscape Contractor shall submit a programme with his tender defining dates for site maintenance visits which will meet the performance standards set. The number of visits to be undertaken is itemised in the schedules. The Contractor shall use the schedule of maintenance regimes for guidance to achieve the maintenance standards required, and shall inform the Engineer well in advance of the need for additional maintenance operations to the scheduled. The programme of operations shall be agreed with the Engineer before commencing on site on the basis of the bills provided by the Contractor at time of tender. Any information required in this regard shall be provided in written form. This is particularly relevant in respect of herbicide use; where the Contractor wishes to vary is programme for herbicide application to achieve the performance standards this shall be notified in writing at tender stage.

The Contractor will be deemed responsible for programming the following operations to achieve the performance standards as set out above.

Shrub/Groundcover

Weed Control: Hand weeding and contact/translocated herbicide.

Pruning: As specified.

Miscellaneous: Fertiliser.
Top up bark mulch as necessary.
Remove litter.

Trees in Grass

Weed Control: Herbicide application and hand weeding.

Miscellaneous: Adjust tree ties and refirm as necessary.
Fertilise.

INSPECTIONS: The Engineer / Landscape Architect will inspect the site with the Contractor on each critical date, or as soon as possible thereafter. At all other times the client representative shall inspect the site with the Contractor as necessary. Critical dates for inspection by Engineer/Landscape Architect to be confirmed.

WEEDKILLER APPLICATION: All weedkillers shall be applied with properly designed equipment, maintained in good working order and calibrated to deliver the specified volume, evenly, and without local over-dosing. Measure all quantities of weedkiller with a graduated measuring vessel.

Protect foliage of all plants during application of a non-selective foliar-acting herbicide with an 'Arboguard', 'Politec' guard, or equivalent, to the satisfaction of the Engineer. No plant, foliage or stem shall be directly sprayed, even in winter. Take particular care when using Glyphosate.

Trees in Grass - 1 m diameter around all trees to be kept weed free using approved herbicides. Avoid mechanical damage to trees and herbicide spray drift.

Weeding

Remove weeds by surface hoeing and pulling. Dig out all roots of deeply rooted or noxious species. Remove all weeds from site each day and dispose. Make good disturbance to mulch.

FIRMING: Firm any plant loosened by front or wind, or during cultivation. Straighten stakes and tighten ties as necessary to keep taut.

PRUNING: Unless instructed by the Engineer, prune only and remove dead, damaged or discoloured branches, suckers or epicormic shoots. Prune only with a sharp knife, or saw if limb is large, to sound growth immediately above a healthy bud, or to a healthy main stem. Leave no snags or pegs.

If pruning trees, cut so as to leave the branch bark ridge intact. A representative sample of formative pruning to trees shall be undertaken for inspection by the Engineer at the August site visit. This work shall then be completed in autumn.

PESTS AND DISEASES: The Contractor shall report to the Landscape Architect any outbreak or build up of insect pest, fungus disease or disorder affecting the plants, or grass, as soon as it is noticed. The Engineer shall issue instructions for treatment of the outbreak.

WATERING: The Contractor should note especially that in any period of four weeks having less than a total rainfall of 5 mm the Contractor shall water all planted and grass areas at a rate of 30 litres per sq m continuously as and when required. The Contractor shall be responsible for watering necessitated by dry weather.

The Contractor shall be held responsible for replacing all material which, in the opinion of the Engineer / Landscape Architect, is dead or seriously retarded in growth as a direct result of poor condition of material or poor workmanship during the planting. The watering of grass areas and all plant material in periods of drought during the aftercare period shall be the sole responsibility of the Contractor.

Any deaths due to lack of watering will be the responsibility of the Contractor.

During drought conditions should emergency legislation restricting the use of water during drought conditions be imposed, the Contractor shall ascertain the availability of and arrange to collect and apply second water by bowser or other means from an approved sewage works, deliver to site and apply as specified.

MAINTAINANCE PROGRAMME: This programme will reflect the works required to be executed during the Aftercare period from 30th Nov 2009 to 30th Nov 2010.

The provision of this programme shall in no way remove the responsibility of the Contractor to give 48 hours prior notice to the Engineer of his intention to carry out any or all of the work scheduled in the programme.

All works carried out under the aftercare programme must be approved by the Engineer after completion of each operation.

LITTER: Litter and artefacts which will include all deleterious matter, tipped refused, abandoned items, barrels, paper, bottles, cans etc, to be picked up from the whole site and removed to a coup found and paid for by the Contractor.

Litter removal responsibility extends throughout the site area. It shall be carried out without damage to seeded, planted or existing vegetation, paved areas, paths, water or other areas on site.

LIABILITY FOR REPLACEMENT: All plant material that dies prior to the end of the Aftercare Period, other than by vandalism, shall be replaced at the Contractor's expense during the following planting season. The Contractor must notify the Engineer of incidents of vandalism known to him when they occur.

All failed or damaged grass areas other than vandalised areas shall be made good either by re-seeding or re-turfing in accordance with the specification prior to the end of the Maintenance Period. This shall include all depressions and/or subsidence which may occur which shall be made good as previously specified.

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ITEM 28

The cross section of the existing Local Primary Road L3023 is unsuitable for this type of development as it is 'too narrow to accommodate passing traffic', as stated in section 4.2 of the document 'New access junction to proposed Materials Recovery Facility', Appendix P of the Environmental Impact Statement. The overall road width including verges on a section of this road has been measured on site as being 5.5m, with a carriageway width of 4m. The site layout drawings submitted, DG0007/01 and DG008/02 indicate that the road widening proposed on the Local Road L3023 lies outside the landownership boundary of the applicant. The Roads, Transportation and Safety Department cannot assume that the necessary lands may be acquired to facilitate this proposed road widening and the existing road width is considered totally inadequate to cater for the traffic associated with the proposed development.

The cross section proposed for the widened section of the L3023 as outlined in drawing number DG0014/03 is considered inadequate. A minimum carriageway width of 7m with two 2m grass verges (to accommodate roadside drainage and services) is considered the minimum required to service this development.

The Local Road L3023 has a bend of radius approximately 15m on the immediate approach to the N22/L3023 junction. This bend would not conform to TD 9/07 of the NRA Design Manual for Roads and Bridges where the minimum horizontal curvature is 255m (two steps below the desirable minimum with super elevation of 7%) for a design speed of 85 kph. As there will be a significant intensification of traffic and particularly HGV traffic on this section of road associated with the development, it is considered that the geometric alignment of the L3023, particularly at this location, is unsuitable to cater for this increase. The tight horizontal curve radius on this bend also results in inadequate forward visibility to the N22/L3023 junction when travelling eastward towards the junction.

The drawings submitted do not indicate that 160m of forward sight distance is available for vehicles turning right off the Local Road L3023 into the proposed development.

The legend on the Autotrack drawing DG0015/02 states that a 16.5m Articulated Truck was utilised in the analysis. An inspection of the drawings indicates that at the junction of the N22/L3023, a shorter Rigid Truck was used when examining the exit from the junction. An Autotrack Analysis by the Kerry County Council Road Design

Office indicates that the swept path of an articulated truck would be likely to conflict with another articulated truck positioned on the right turning lane of the N22 ghost island.

RESPONSE

The issues raised by the Roads, Transportation and Safety Department of Kerry County Council in the Further Information Request can be summarised as follows:

- The existing road cross section was deemed unsuitable for the type of development and a minimum carriageway width of 7m with 2m verges was recommended. The Roads, Transportation and Safety Department stated that they could not assume that the necessary lands would be acquired to facilitate the proposed road widening works.
- The horizontal curve at the existing N22 priority junction was deemed substandard with restricted forward visibility.
- The forward visibility at the proposed junction location required clarification.
- Autotrack analysis for all turning movements at the existing N22/L3023 junction using the maximum legal 16.5m articulated vehicle was requested.

This response to the issues raised should be read in conjunction with the following drawings which are contained in Folder No. Two of this Response:

<u>Drawing No.</u>	<u>Title</u>
DG0014/01 Rev P02	Access & Road Network Plan
DG0014/02 Rev P02	Development Access Junction with Junction Visibility Envelope
DG0014/04 Rev P02	Local Road Widening on the North Side of the Local Road
DG0014/05 Rev P02	Local Road Improvement Plan & Typical Cross Sections
DG0014/06 Rev P02	Stopping Sight Distance on Approach to the Development Entrance
DG0014/07 Rev P02	Development Road Plan & Profile
DG0015/01 Rev P02	Overall Plan of Auto Track Analysis
DG0015/02 Rev P02	Auto Track Analysis (1-6)

DG0015/03 Rev P02 Auto Track Analysis (7-9)
DG0015/04 Rev P02 Auto Track Analysis (10-15)

In order to address the items raised by the Planning Authority the Applicant has consulted with Mr. Padraic Teahan, Senior Executive Engineer, Roads, Transportation and Safety Department, Kerry County Council to ascertain a preferred road design proposal to meet the Planning Authority requirements. The Applicant has also acquired additional land required for the proposed junction location and L-3023 widening.

The cross section of the existing Local Primary Road L3023 is unsuitable for this type of development as it is 'too narrow to accommodate passing traffic', as stated in section 4.2 of the document 'New access junction to proposed Materials Recovery Facility', Appendix P of the Environmental Impact Statement. The overall road width including verges on a section of this road has been measured on site as being 5.5m, with a carriageway width of 4m. The site layout drawings submitted, DG0007/01 and DG008/02 indicate that the road widening proposed on the Local Road L3023 lies outside the landownership boundary of the applicant. The Roads, Transportation and Safety Department cannot assume that the necessary lands may be acquired to facilitate this proposed road widening and the existing road width is considered totally inadequate to cater for the traffic associated with the proposed development.

The cross section proposed for the widened section of the L3023 as outlined in drawing number DG0014/03 is considered inadequate. A minimum carriageway width of 7m with two 2m grass verges (to accommodate roadside drainage and services) is considered the minimum required to service this development.

With respect to the concerns and recommendations highlighted in the Further Information Request above the Applicant has amended the original development proposal as follows:

The Applicant acquired an additional parcel of land to the east of the site that borders the north side of the Local Primary Road L-3023 and extends to the N22. This land acquisition has made it possible to move the proposed development access road to a location on the L-3023 where more land is available to provide a junction design compliant with the NRA DMRB. This new location also allows for road widening to the existing L-3023 in accordance with the road cross section requirements requested by the Planning Authority in the Further Information Request.

The extent of the road widening proposed from the development entrance to the N22 is shown on Drawing **DG0014/01 Rev P02** - Access and Road Network Plan. The proposed widening lies within the boundary of the lands now available to the Applicant. The local road widening works will be carried out on the north side of the existing L-3023 as shown on Drawing **DG0014/04 Rev P02** - Local Road Widening.

The 7.0m carriageway with two 2.0m grass verges typical road cross section Y-Y is shown on Drawing **DG0014/02 Rev P02** - Development Access and Junction Visibility and Drawing **DG0014/05 Rev P02** - Local Road Improvement Plan and Typical Cross Sections. The L-3023 widening will provide ample road carriageway width to cater for all passing traffic.

All proposed development work will be carried out within lands available to the Applicant. Private third party lands will not be affected or disturbed.

The Local Road L3023 has a bend of radius approximately 15m on the immediate approach to the N22/L3023 junction. This bend would not conform to TD 9/07 of the NRA Design Manual for Roads and Bridges where the minimum horizontal curvature is 255m (two steps below the desirable minimum with super elevation of 7%) for a design speed of 85 kph. As there will be a significant intensification of traffic and particularly HGV traffic on this section of road associated with the development, it is considered that the geometric alignment of the L3023, particularly at this location, is unsuitable to cater for this increase. The tight horizontal curve radius on this bend also results in inadequate forward visibility to the N22/L3023 junction when travelling eastward towards the junction.

The Applicant has amended the proposed design to include improvements to the small radius curve on the immediate approach to the N22/L3023 junction in order to improve the safety of the road at this location. The road widening described above extends as far as the N22/L-3023 junction. The widening of the L-3023 existing cross section has increased the stopping sight distance available to 160m which is the desirable minimum stopping sight distance for an 85kph design speed in accordance with NRA DMRB TD 9/07 Table 3 and Table 11/3. The 2.0m grass verge has been widened to cater for the stopping sight distance visibility splay on the inside of the small radius as shown on Drawing **DG0014/02 Rev P02** - Development Access Junction with Junction Visibility Envelope and Drawing **DG0014/05 Rev P02** - Local Road Improvement Plan and Typical Cross Sections. The carriageway width at the small radius will be increased which will (a) increase forward visibility and (b) allow for the swept path of passing 16.5 m articulated vehicles.

The proposed road works will improve the safety of the small curve in order to cater for an intensification of traffic and particularly HGV traffic as follows:

- The road and verge widening and increased stopping sight distance will permit approaching drivers to appreciate the road layout ahead when travelling eastward towards the junction and vehicles at the N22/L-3023 junction will be able to see the proposed development entrance ahead, and
- The lane widening to cater for the swept paths of long vehicle at the small curve on the immediate approach to the N22/L3023 junction will mitigate passing long vehicles migrating into the opposing lane on the tight curve.
- The existing Local Primary Road L-3023 cross section narrows immediately after the N22/L-3023 junction on the tight curve. Stopping sight distance is very restricted and vehicle passing is not possible within the existing road carriageway. The proposed road widening works will remove this problem and provide a smooth transition from the N22/L-3023 junction to the Local Primary Road L-3023.

The drawings submitted do not indicate that 160m of forward sight distance is available for vehicles turning right off the Local Road L3023 into the proposed development.

The Applicant has amended the proposed design by repositioning the proposed development entrance to ensure that 160m forward sight distance is available for vehicles turning right off the Local Road L-3023 into the proposed development as shown on Drawing **DG0014/06 Rev P02** – Stopping Sight Distance on the Approach to the Development Entrance. This is made possible by the acquisition of additional lands to the east of the site by the Applicant and by confirmation from Kerry County Council that they would permit works immediately adjacent to the N22/L3023 junction on lands under their ownership for the purpose of road widening and improvement. The works proposed will widen and level the existing grass verge on the inside of the small curve to improve and increase the existing forward visibility at the N22/L3023 as shown on Drawings **DG0014/02 Rev P02**, **DG0014/04 Rev P02**, **DG0014/05 Rev P02** and **DG0014/06 Rev P02**. This improvement has allowed the Applicant to propose a junction design which achieves the 160m stopping sight distance in accordance with the Further Information Request and the NRA DMRB requirements for junctions TD 41/95 and TD 42/95.

The legend on the Autotrack drawing DG0015/02 states that a 16.5m Articulated Truck was utilised in the analysis. An inspection of the drawings indicates that at the junction of the N22/L3023, a shorter Rigid Truck was used when examining the exit from the junction. An Autotrack Analysis by the Kerry County Council Road Design Office indicates that the swept path of an articulated truck would be likely to conflict with another articulated truck positioned on the right turning lane of the N22 ghost island.

The Applicant has amended the proposed design and Autotrack analysis at the N22/L3023 to address the Further Information Request. A 16.5m articulated vehicle was analysed at the N22/L3023 junction and lane widening was included to ensure the swept paths of passing 16.5m articulated vehicles will be catered for as shown on Drawing **DG0015/02 Rev P02** Autotrack 1 and Autotrack 2. The Autotrack analysis shows that there will be no conflict at the ghost island junction while another 16.5 m articulated vehicle is positioned on the right turning lane of the N22 ghost island. The lane widening was possible due to the acquisition of additional land by the Applicant and agreement in principle from Kerry County Council to use the existing wide grass verge at the N22/L3023 junction for junction improvement works.

The analysis has also not examined the path of an articulated truck turning left from Killarney into the junction. An Autotrack analysis by the Road Design Office has indicated that the swept path of an articulated truck would be likely to conflict with the path of an articulated truck on the L3023 approaching the junction.

The Applicant has amended the proposed design and Autotrack analysis at the N22/L3023 to address the Further Information Request and to include an articulated truck turning left from Killarney into the junction. A 16.5m articulated vehicle was analysed at the N22/L3023 junction and lane widening was included to ensure the swept paths of passing 16.5m articulated vehicles will be catered as shown on Drawing **DG0015/02 Rev P02** Autotrack 1. The Autotrack analysis shows that there will be no conflict at the N22/L3023 junction for articulated vehicles turning left from Killarney into the junction while another articulated vehicle is in the opposing lane.