

15.0 LANDSCAPE AND VISUAL

INTRODUCTION

- 15.1 The landscape and visual impact assessment of the proposed Meenaboll Landfill Site Co. Donegal, is concerned with a description of the existing landscape character of the area, the impact of the proposed development on the landscape and visual character, and on views of it. Mitigation measures are also described.

BASIS FOR THE LANDSCAPE IMPACT ASSESSMENT

- 15.2 The assessment of the landscape impact of the proposed development is based on the guidelines laid out by the Landscape Institute and the Institute of Environmental Assessment in the *Guidelines for Landscape and Visual Impact Assessment (2002)* and *The Environmental Protection Agency Guidelines on the information to be contained in Environmental Impact Statements (2002)*.

Landscape in the Existing Environment

- 15.3 The Guidelines note that landscape is a combination of two separate but closely related aspects. "The first is visual impacts, that is the extent to which new developments can be seen. The second is impacts on the character of the landscape, that is, responses that are felt towards the combined effects of the new development".
- 15.4 The Guidelines recommend the following to be included in any assessment.
- (i) Context
Areas from which the existing site can be seen are generally noted with particular attention to views from roads, residences and designated tourism routes and viewpoints. Areas from beyond the site boundary from which the site can be seen should be noted. Principal landscape features and areas of distinctive character should be mapped.
 - (ii) Character
A description of the landscape character differentiates between subjective assessments and objective description. A description of the character of the site as perceived both within the site and wider landscape is important, as is a description of the intensity and character of land use.
 - (iii) Significance
This entails the level of intrusion upon designated views, designated landscape and designated landscape amenity areas.

(iv) Sensitivity

The extent to which the existing landscape or views are capable of being changed before altering the perceived character.

Definition of Visual Impacts

15.5 Visual impact may occur by means of intrusion and/or obstruction. The terminology used in the assessment of impacts is set out in Table 15.1.

Table 15.1

Visual Intrusion	This occurs where a proposed development impinges on an existing view, without obscuring the view.
Visual Obstruction	This is an impact on a view which also involves obscuring the existing view.
Quality of Impacts	
Positive Impact	A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or removing nuisances or improving amenities).
Neutral Impact	A change which does not affect the quality of the environment.
Negative Impact	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).
Significance of Impacts	
Imperceptible Impact	An impact capable of measurement but without noticeable consequences.
Slight Impact	An impact which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Impact	An impact that alters the character of the environment in a manner that is consistent with existing and emerging trends.
Significant Impact	An impact which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Profound Impact	An impact which obliterates sensitive characteristics.

Table 15.1 Continued

Duration of Impacts	
Temporary Impact	Impact lasting for one year or less.
Short-term Impact	Impact lasting one to seven years.
Medium-term Impact	Impact lasting seven to fifteen years.
Long-term Impact	Impact lasting fifteen to sixty years.
Permanent Impact	Impact lasting over sixty years.
Types of Impacts	
Cumulative Impact	The addition of many small impacts to create one larger, more significant impact.
'Do Nothing Impact'	The environment as it would be in the future should no development of any kind be carried out.
Indeterminable Impact	When the full consequences of a change in the environment cannot be described.
Irreversible Impact	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
Residual Impact	The degree of environmental change that would occur after the proposed mitigation measures have taken effect.
Synergistic Impact	Where the resultant impact is of greater significance than the sum of its constituents.
'Worst Case' Impact	The impacts arising from a development in the case where mitigation measures substantially fail.

Method of Landscape and Visual Assessment

15.6 The process for assessing the landscape and visual environment includes;

- Field and photographic survey
- Desktop survey of ordinance survey maps and photographs
- On site visual appraisal
- Analysis of the survey results

Desktop Survey

15.7 The area of visual influence was evaluated using the 1:50,000 and 1:20,000 and 1:10,000 Ordnance Survey maps along with 1:1,000 Survey maps of the Landfill site.

15.8 Three constraints govern the size of the Visual Envelope (VE) or zone of visual influence within the study area. They are; the physical limits to visibility; the nature of the developments and the landscape context of the developments and their surroundings.

15.9 Physical limits are determined by the intervening elements of the landscape arising from topographical settings, vegetation and land uses. These inhibit or screen views of the site, e.g. ridges, hills, buildings, walls and vegetation etc. The mass, colour and form of the landfill facility and its relationship to the landscape i.e. hills, valleys, vegetation etc also influence the VE. The VE has been measured with consideration given to local inhabitants, local and visiting travellers and relates to the road network and adjacent landuses. (Fig 15.1).

Field and Photographic Survey

15.10 The study area was surveyed in changeable conditions, from overcast and dull through to clear, providing an understanding of visibility across a range of weather conditions.

15.11 The purpose of the field and photographic survey was:

- To confirm and record specific viewpoint locations; (Fig 15.2).
- To record specific objective and subjective information for each chosen viewpoint;
- To photographically record each viewpoint; (Fig 15.3, 15.4, 15.5 & 15.6).
- To provide base data for analysis of both existing and proposed landscape and visual analysis.

15.12 The assessment seeks to define the extent of the areas from which the landfill facility may be seen and within that area, qualify the sensitivity of a particular view point, which would be affected by characteristics such as:

- Distance of view from the site
- Frequency of use of the view point.
- Landscape characteristics
- Duration of the view.
- Viewer response (inhabitants/travellers).

15.13 Three types of impact were considered

- Predicted Impact
- 'Do Nothing' Impact
- 'Worse Case' Impact

THE RECEIVING LANDSCAPE

Surrounding Area/Background

- 15.14 The site of the proposed landfill facility is located in the Glendowan Mountains, (Grid ref B996 093) to the north west of Meenaboll Hill, (Height 317m) Co Donegal and close to the head waters of the Owenbeg and Sruhanpollidoo Rivers. The site is 11.6km south of Glenveagh Castle, 14km from the Glenveagh National Park Visitor Centre, and 0.5km east of the SAC site Clogheragoare Bog. Today the Glenveagh National Park occupies some 16,548 hectares. The nearest settlement is Kingarow 4km to the south west.
- 15.15 The greater landscape is open with long distance views to the surrounding hills and mountains. (Figure 15.3 - Photo 1, 2, & 4). Blanket bog covers much of the area. In places it has been drained and planted with conifer forest. The area is remote with no main roads or houses visible from the proposed site. A stoned local road which passes the site connects the R250 Letterkenny to Fintown Road and the R254 Churchill to Doochany Road. This would be the main access route to the site and it is currently used by forestry traffic, local farmers and occasional tourists.
- 15.16 The landscape character reflects the underlying geological structure of the area and the prevailing climatic conditions.

Towns and Settlements

- 15.17 The site lies 18km southwest of Letterkenny and 9.7km northeast of Fintown. Small settlements are scattered throughout the surrounding area and include Glendowan (5.6km) and Doocharry (13km).

Natural Features

- 15.18 The area is located in the Caledonian Province of the Northwest and consists of pre Cambrian, Ordovician and Silurian rocks which have been subjected to several phases of metamorphism by pressure, igneous intrusion and weathering. Folding during the Caledonian period has resulted in the southwest and northeast trend of the river valleys. Differential weathering between quartzites, granites and schist, have produced a marked contrast in the landform. The quartzite ranges have conical peaks such as Mount Errigan and Slieve Snaght, while the granites have smoothly rounded hills, such as the Glendowan and Derryveagh Mountains. Glacial scouring has moulded the mountains and valleys to a considerable degree and the landscape clearly shows its influence.

- 15.19 The proposed landfill site is to be located on the northwest slopes of Meenaboll Hill, which is part of the granite Glendowan Mountain range which includes Moylenana (589m), Crockskallabagh (494m), Croaghacullin (435m) and Crockastoller (415m). These hills dominate the area. The Derryleagh Mountains lie in the distance away to the north and west.
- 15.20 Drainage follows the Caledonian folding which is southwest/northeast. The Owenbeg River flows northeast and the Sruhanpollando flows southwest. The latter is also fed by water from Lough Muck 3.7km to the southwest.
- 15.21 Roads in the area are restricted by the underlying landform and follow the river valleys. 1.5km to the south, the R250 is the nearest road to the site. It links Letterkeny to Fintown. To the north and west is the R254 Glendowan to Doochary road and to the southwest the R252 Fintown to Doochary road. Proposed access to the site would be from the R250 on to a stoned local road that links it to the R254, close to the village of Glendowan. The roads are not visually significant in the context of the general landscape.

Landuse

- 15.22 Extensive areas of poor quality blanket bog cover much of the area and severely limit agricultural activity, which is more evident in the lower sheltered valleys in the form of dairying and beef production. Open grazing is the main agricultural activity on the bogland. Extensive areas of conifer forests cover much of the lower slopes and valley sides in the area. These break up the visual character of the area with their dark form and regular outline at variance with the surrounding landscape. There is also evidence of domestic peat cutting in the local area.
- 15.23 The local area contains some archaeological evidence, with standing stones and megalithic tombs testament to a long period of settlement from mesolithic times to the present. No evidence of archaeological material has been found on the site to date. Sustained rural depopulation is evident from the number of abandoned farmsteads in the wider landscape.
- 15.24 The proposed site is situated in a remote area and lies away from the main tourist routes, however lying to the north and west of the site, the Glenveagh National Park is a major tourist attraction. The main tourist activity is centred at Glenveagh Castle and the Glenveagh National Park Visitor Centre. Hill walking is becoming more important in the local area and a new walking route, Sli na Finne (24km) has been established. It follows the River Finn and its tributaries for most of its length. It is part of the National Waymarked Ways Network in Donegal. The proposed site would not be visible from this walk.

Vegetation

- 15.25 Atlantic blanket bog is the predominant form of vegetation. It is a key constituent of the landscape and contributes to the ecology of the area.
- 15.26 Where forestry has taken place, modified peatland now exists and includes areas of grassy heath with wet flushes. Currently blocks of coniferous forest cover large areas of the valley and create intermittent enclosures within the landscape. Ongoing felling operations are changing the shape and extent of forest cover and its visibility within the landscape. (See Flora and Fauna section for a more detailed description of existing vegetation).

EXISTING ENVIRONMENT

Site Description

- 15.27 The environs of the site are characterised by commercial forestry and blanket bog, with a more open landscape of hills and mountains extending beyond.
- 15.28 There are no farm buildings or dwellings within the VE. The scene is generally peaceful in nature with panoramic views over the surrounding landscape. The wilderness quality of the landscape is an important resource for the area.
- 15.29 The vegetation on the site has been significantly modified by drainage and forestry operations. Currently the site is seen as an expanse of modified blanket bog, which is untidy in appearance; the coniferous forest having recently been clear felled. It is littered with tree roots and dead wood but there is also evidence of recent planting.
- 15.30 The proposed site is defined by an existing stoned local road to the south and west. The entrance to the site would be through a new section of road. There is no defining boundary to the north. To the east the site is crossed by a stone forestry track that runs parallel with the contours. This track would be relocated further up the hillside.
- 15.31 The proposed development would occupy an area of approximately 14.5 hectares. The site is roughly square in shape; would have a capacity of 500,000 tons and would take approximately 20 years to fill.
- 15.32 The site is northwest facing and has a cross fall of approximately 30 metres. To the east the ground rises to Meenaboll Hill (317m) where some remnants of forestry remain on the skyline. Binswilly lies further to the northeast (337m).
- 15.33 The site lies close to the source of the Owenbeg River, which flows north east and the Sruhanpolladoo River which flows south west.

- 15.34 The proposed landfill site would be excavated to a depth of between 2-8m metres, with some of the fill material being used in stockpiles for future covering. 2m and 3m high earth bunds would be created on the boundaries of the proposed site, to act as visual barriers.

Drainage

- 15.35 The site is crossed by a number of small drainage channels which were constructed prior to the planting of the coniferous forest. These would be diverted during the proposed construction work.

Vegetation

- 15.36 On the proposed landfill site, the coniferous planting has been removed and is largely covered with poor quality grasses and recently replanted conifers.
- 15.37 As the surrounding area has also been replanted, areas not affected by proposed construction work would be allowed to grow on and along with future planting would help to provide localised screening.

Site Visibility

- 15.38 Visibility of the proposed landfill site is primarily determined by topography and the local screening vegetation of the coniferous forest.

North

- 15.39 Generally, views of the site from the north are restricted by the intervening landform and the remainder of the existing coniferous forest. (Figure 15.3 - Photos 2 & 3).
- 15.40 From the northeast and within 1km of the site, there are views over the site where clear felling has occurred (Figure 15.3 - Photo 4).
- 15.41 From the northwest the existing coniferous forest screens short distance views. Beyond 1km, a section of the remaining forest creates a screen on the edge of the forestry land. A spur of ground leading down from Binswilly screens the site from the remainder of the north east.
- 15.42 There are no views of the proposed site from the existing stoned local road as it ascends through the valley of the Owenbeg River from Glendowan. This is due to intervening landform and the existing conifer forest. (Figure 15.3 - Photo 3). There are no views from any of the properties along this road.
- 15.43 It is not until the proposed entrance is reached that the actual site is revealed, as the forest cover has been removed at this point.

15.44 To the northwest, the forested Brallamore helps to screen the site from lower elevations. Beyond 3km, there are longer distance views of the site from the hills and mountains to the north and northwest. From these areas the proposed site is seen as a small part of a much larger landscape and currently has little impact on the overall scene.

15.45 There are no views from the R254 road to the north and northwest, which is an important route to the Glenveagh National Park. (Figure 15.5 - Photo 14 & 15).

East

15.46 Views of the site from the east are restricted by the intervening rising landform, part of which is covered in forest. There are no views of the site from the R250. (Figure 15.4 - Photo 6 & 7).

15.47 From the east, an important visual barrier is provided by the rising ground of Meenaboll Hill and Binswilly. There are glimpses of the proposed site from the western slopes of these hills, through the remnants of the existing coniferous forest. (Figure 15.4 - Photo 8).

15.48 Site traffic would be visible on the R250 and on part of the existing stone local road close to its junction with the R250.

South

15.49 There are no views of the site from the R250 as the road ascends from Fintown. (Photo 9). Neither are there views from Fintown nor from Kingarrow to the southwest. Approaching the site along the existing stoned local road, views towards the proposed site are screened by landform and existing forest. (Figure 15.5 - Photo 10). It is not until the stoned road starts to round Meenaboll Hill (1km) after passing through a section of forest, that the site is revealed at a lower level with the wider landscape beyond. (Figure 15.5 - Photo 11). Views towards the site from the Sruhanpolladoo River Valley to the southwest are restricted by intervening forest and it is only on the edge of the forest that the site becomes visible. (Figure 15.5 - Photo 13).

West

15.50 The proposed site is more visible from the southwest and northwest, particularly over longer distances where the higher ground provides largely uninterrupted views towards the site. (Figure 15.6 - Photo 14 & 15). However, the site is perceived as a relatively small area in a much larger landscape setting within a forested area. Mountains screen the site from the main roads in the west. Photo 16 (Figure 15.6) is a view from the R254 Doocharry to Glendowan Road looking in the direction of the proposed site, however the site cannot be seen due to the intervening landform.

15.51 The site is only likely to be seen from the west by farmers and walkers occasionally using the hills. Photo 14 shows a view looking southwest from the site down the valley, with the wider landscape in view. Beyond 2km the rising ground would afford views in the direction of the proposed site. Shorter distance views between 0.5-2km are currently screened by intervening forests. There are no views of the site from Lough Muck to the southwest.

15.52 Photo 15 is a view over the proposed site showing the Glendowan Mountains and the Derryleagh Mountains beyond. It shows the areas from which the site can be seen. The extensive open nature of the landscape provides spectacular long distance views. Within this landscape the proposed site is at present inconspicuous.

15.53 Photo 17 is a view from close to the entrance to the proposed landfill site. It looks southwest down the valley, with the surrounding forest clearly in view.

Significance

15.54 The area of the site and the surrounding coniferous planting is not recognised as being sensitive or significant and has not been officially designated.

15.55 However the site does lie close to part of the Glenveagh National Park which is recognised as being both sensitive and significant. The Glenveagh National Park has recently been expanded and includes the acquisition of land opposite the proposed site. Figure 15.1 shows the expanse of the park in relation to the proposed site. It is important to ensure that the setting of the park is not compromised by the proposed development.

15.56 The main visitor attractions of the park are located further to the northwest around Lough Beagh where Glenveagh Castle (11.6km) and the Glenveagh National Park Visitor Centre (14km) are located. The proposed site would have no impact on this area.

15.57 There would be shorter distance views from those parts of the Glenveagh National Park closest to the proposed site. Beyond 5km little detail of the site would be visible from the higher more distant parts of the park; where it would be seen simply as an area of contrasting ground within a forested area and part of a larger landscape setting.

15.58 Currently, the area consists of a wild landscape with large scale open spaces. Forestry has brought a degree of enclosure at lower elevations. Landform and the existing conifer forest currently help to limit views of the proposed site. Apart from the forestry activities, interest is generally passive, low key and peaceful in nature.

15.59 The introduction of coniferous forest into the valley has had a significant effect on the area in terms of its local ecology and visual quality. The forest covers a wide area and its associated drainage works have destroyed the former bog cover. The open nature of the landscape has been broken up with mass planting of mainly spruce, which obliterates the micro topography and provides little visual relief. When felling does take place, the resulting scene is visually unattractive. At present the valley contains areas of mature forest, clear felled areas and recent plantings.

15.60 If the proposed landfill site were approved, there would be a temporary loss of vegetation cover and the removal of an area of young planting. The loss of these elements, which are common in the area, would not be significant. New planting would in time offset this loss of habitat. Proposed earth bunds and planting works would be used to limit the visual intrusion of the proposed site. These works would be followed by the progressive restoration of the site to reduce the amount of disturbed land and limit the visibility of the site. A new landform would emerge to replace the existing one and would be in sympathy with the local topography.

Sensitivity

15.61 This is the degree to which the existing landscape can accommodate the proposed development without detrimental effects on its character. Sensitive receptors would include travellers on the local road, farmers and hill walkers and the landscape of Glenveagh National Park.

15.62 The peace and tranquillity of the area and its sense of remoteness would be affected by the development of the site. Ongoing forestry operations have modified these characteristics and the visual and wilderness qualities of the area have been compromised. It is, nevertheless, a landscape valued by local people and is important in the context of the setting of the Glenveagh National Park. The loss of habitats associated with the proposed development is not considered to be significant as they are abundant in the local area.

15.63 The proposed landfill site would create further intrusion. This would include the development of the site and the creation of a new landform, changes to the visual scene, an increase in noise levels, an increase in dust levels, particularly during periods of dry weather conditions, and the introduction of artificial lighting. Steps would be taken to limit any adverse effects of the above factors.

15.64 Although the character of the area is essentially open, forestry has brought a degree of enclosure. It is this enclosure that would help to limit the visibility of the proposed development within the landscape. The fact that there are no residents or few travellers in the area also makes it amenable to this type of development.

- 15.65 The pattern and scale of the existing landscape is large and open in nature. As the proposed development would take place within an existing forest setting, the pattern and scale of the landscape would not be further disrupted.
- 15.66 As surrounding hills and mountains overlook the site, the proposed site would be visible in the landscape over a large area. However it would be seen only as a small part of a much larger landscape setting and contained within a forestry setting, which is undergoing change. Part of the Glenveagh National Park which lies across the valley from the proposed development, would have largely open views over the proposed site, particularly from higher ground. This, in conjunction with the ongoing forestry operations would have an impact on the local setting. However the cumulative impact of both operations need not adversely affect the sensitivity of the area provided appropriate mitigation measures are put in place. The number of people likely to see the proposed site is also likely to be limited.

PROJECT DESCRIPTION

- 15.67 The proposed development would involve the following:
- Excavation of the site and the storage of over burden materials for future use.
 - The lining of the containing area, provision of drainage and gas collection facilities.
 - The construction of a new internal road to provide access for construction traffic to the site.
 - Litter containment facilities.
 - Progressive filling and capping of 5 phases of operation.
 - Landscape treatments to assimilate the development back into the landscape setting, i.e. grassing and planting works (native species).
 - The creation of earth bunds on the boundaries of the development to help screen the site from view. These would be planted up to create a visual barrier.
 - Regrading the final contours to create a landform, which would harmonise with the surrounding area.
 - Gas flare stack
 - Lighting
 - Buildings and associated facilities i.e. a lagoon, wheel washing
 - Provision of passing points for lorries on the existing stoned local road

LANDSCAPE IMPACT ASSESSMENT

- 15.68 The landscape impact assessment of the area is based on criteria set out in detail in section 15.2, *Basis of Landscape Impact Assessment*. Impacts may be indirect, secondary or cumulative and visual impacts may occur by means of intrusion and/or obstruction. The assessment includes an appraisal of the 'Do Nothing' approach.

Scope of Existing and Proposed Impact

- 15.69 Currently, the proposed site is part of a commercial forest in an open bogland landscape. The proposed landfill site would have an impact on the visually quality of the area, giving rise to changes in the landscape character of the VE. Visual impacts would occur as a result of intrusion on views of the area. Visual impact would be considered in relation to farmers and hill walkers; the Glenveagh National Park and users of the local road.

Proposed Impacts

- 15.70 **Site Development** - Construction of the site and facilities would be completed in approximately 6 months, followed by site infilling, which would be a 5 phased programme lasting 20 years. Site construction traffic would use existing roads bounding the site and the stoned local road would require upgrading and passing points. The construction and infilling works would cause general noise and physical disturbance around the site and create a visual impact in the area. The sense of quiet and wildness in the landscape would diminish.
- 15.71 **Changes in Land Use** - The land would change from forestry use to a landfill site. On completion it would return to native woodland (screen planting) and native grassland. In visual terms, the proposed physical development of the site would represent a significant change to existing conditions. Along with the forestry operations, it would bring changes to an otherwise stable environment.
- 15.72 **'Do Nothing' Landscape Impacts** - Presently the site is used for commercial forestry operations. If the proposed landfill site does not take place, the site would continue as commercial forest.

IMPACT ON VISUAL CHARACTER

- 15.73 Visual impacts would be likely to occur as a result of the following:-
- Excavation and construction works to prepare the site for landfilling
 - Stockpiles of soil/fill materials.
 - Vehicles entering and leaving the site and using surrounding local roads.
 - Filling operations, with vehicles moving and spreading fill materials.
 - Fencing used to limit the movement of wind blown materials.
 - Dust, particularly during periods of dry weather.
 - Exposed areas of bare ground.
 - The colours of fill areas in contrast to surrounding areas.
 - Earth bunds with their steep gradients, until grassing and planting helps to soften their outline.
 - Pollution of roads by run off from lorries
 - Alteration of ground levels

- Changes in landuse from commercial forestry to landfill site and then to native grassland with native woodland planting
- Lighting of site
- Gas flare stack

15.74 When viewed from a number of locations around the site, the completed development would produce visual intrusion as expanded below:-

15.75 When considering visibility and visual impact the following general points need to be considered.

Table 15.2

Factors Influencing Visibility/Visual Impact	
Distance	The greater the distance, the less detail is observable and the more difficult it is to distinguish a site from its background, thus diminishing potential impact.
Elevation	This is in comparison to a viewpoint which is lower than the site feature so that the site is more likely to be viewed against the sky which increases its impact. When the viewpoint is higher than the site, it is viewed against a backdrop which diminishes its impact.
Size	The greater the proportion of the view occupied by the features and activities, the greater the impact. Colour and form can increase or diminish impact, by drawing the eye or by providing camouflage.
Context	The degree to which the development is in character with the context along with features in the view such as landform or vegetation which frame, mask, filter views of the site.
Weather Conditions	Clarity of the air and the angle and direction of the sun at different times of year affect visibility. Upland areas are more prone to misty, cloudy and rainy conditions thus reducing visibility.
Activity	Movement of vehicles and light reflection changing with movement, draw the eye increasing impact.
Change	The degree of change in the view and the rapidity of the process of change affect the degree of impact.

SITE DEVELOPMENT

- 15.76 The proposed site would be excavated and developed to create the site layout as shown in Figure 15.8. It would create a facility with a capacity for 500,000 tonnes of waste and with an estimated life of 20 years. Buildings/site facilities would be located in the northwest corner of the site. This is the lowest part of the site and it would benefit from the screening potential of the existing topography and forest. Buildings/structures would be designed to fit onto the site and local landscape setting in relation to scale, form and colour. For example, bright colours and shiny surfaces would be avoided. The greatest visual intrusion would occur during the construction phase (6 months) when the whole of the site would be worked on and the maximum amount of disturbed land would be visible. When filling is taking place in the upper cells of the site and during capping and restoration works, machinery and fencing may be visible through the vegetation screen.
- 15.77 A gas flume 5m high would be required. It would be located away from the local stoned road but would rise partly above the proposed 3m high earth bund and new planting and would be seen over longer distances until the maturing planting would reduce its impact. There would be no visible smoke or flames associated with the flume.
- 15.78 Perimeter fencing surrounding the proposed site would be of an unobtrusive form i.e. 2.4m high bent arm post with galvanized chain link fence topped with barbed wire. Most of the fence would be behind existing new forest planting which would help to lessen its impact. A further perimeter litter fence would be used at sections of the site to prevent windblown materials escaping into the local landscape and would be typically 5m high. In addition to this it is proposed to use an enclosed litter net at the working face to minimise windblown litter. This litter net will typically be 40m x 40m x 12m high and is discussed in detail in Section 7. There would be visual intrusion from the temporary fencing used to curtain wind blow material in ongoing fill areas, until the proposed planting would help soften its impact. With distance its impact would be reduced.
- 15.79 Perimeter lighting would be required and would be designed to reduce light pollution as much as possible. The site lighting would help to focus attention towards the site and represent a marked change over existing conditions. Proposed perimeter woodland planting would in time reduce the impact of this element. This planting would combine with existing areas of recently planted conifer forest that would be retained for screening purposes.

- 15.80 Earth bunds 3m high (beside the local road and behind the gas flume) and 2m high around the remainder of the site would be created along with a single access road into the site. The bunds would be graded to create a natural profile and planted with native trees and shrubs to help screen future workings and site activities. Future landfill operations would therefore take place behind earth bunds and a maturing vegetation screen. In order to limit the impact of site traffic using the haul routes on the side of the landfill site, a further earth mound 1.5m high would be created to help reduce the impact of vehicles. This would be removed on completion of the site. The 3m high earth bunds on the northwest corner of the site would also screen the two leachate tanks (5m high), which would be sunk 2 m into the ground.
- 15.81 The new planting would include a high proportion of wind firm native species to help to create a more natural woodland cover, which would bring positive benefits to the area and add to its ecological diversity.
- 15.82 As the planting matures over the 20 year life of the landfill site, the screening would become more effective. Screening would also be reinforced by replanted forestry areas which are of evergreen species.
- 15.83 Stockpiles of overburden materials would be located on the north east boundary of the site and in the upper cells of the site away from the local road, so that reworking these areas would not be visible from the road. (See figure 15.8).
- 15.84 Progressive restoration of the proposed site in 5 phases would play an important role in limiting the amount of disturbed land that would be visible (See figure 15.8). Restored ground would be planted with native grass species to create a more natural ground cover in character with the surrounding ecology. This would be particularly important if the site is viewed from higher elevations. This grassland would be maintained to prevent trees establishing on the site the roots of which could damage the integrity of the capping layer.
- 15.85 Filling of the lower cells would allow the perimeter planting to develop before works would commence on the higher, potentially more visible parts of the site. The higher parts of the site would be seen over a greater area, while lower parts of the site would benefit from the screening effects of the existing coniferous forest, earth bunds and new planting. When the proposed planting becomes established on the site boundary, visual obstruction would limit short distance views into the site.
- 15.86 During periods of dry weather, steps would be taken to reduce the impact of dust pollution that can discolour vegetation in surrounding areas, or create clouds of dust which may be visible over longer distances.

- 15.87 The surface of existing local road would be upgraded and passing points for lorries provided.
- 15.88 A constructed wetland is to be created adjacent to the site entrance. Detailed design and extent of this is yet to be determined. This feature would be an environmental gain, as it would provide positive benefits to the area with a new habitat for wildlife.

North

- 15.89 Views of the proposed landfill site from the north would be limited by the nature of the existing topography and forestry planting, which would help to screen the site. Existing conifer forestry planting and proposed perimeter woodland planting would add to the screening effect.
- 15.90 Within 1km of the site there would be short distance views from the land to the north and northeast. The greatest visual intrusion would occur during the construction phase, when visual impact is likely to be significant but of short-term duration. After construction most of the site would be partly screened by bunds and planting. As filling reaches upper cells, there may be views of vehicles working at the highest levels on the site. There would be views of the proposed netting and vehicles using the internal haul routes. Visual impact would be slight and of short term duration.
- 15.91 Short distance views from the northwest would be screened by existing forestry. It would be beneficial if this section of forest could be retained for the life of the proposed landfill site.
- 15.92 The spur of higher ground running down from Binswilly (2km) screens the site from the northeast. Further to the north beyond 2km (Photo 1 & 15), there would be longer distance views towards the site, from part of the Glenveagh National Park around Croaghnanamph (6.5km) and Leahanmore at a distance of 8km. With increasing distance little detail would be visible and the site would be seen simply as an area of disturbed land. Visual impact is likely to be imperceptible but of long term duration. Photo 2 is a view from the north looking back towards the site at a distance of 3.8km. At this distance no details would be visible.
- 15.93 There are no roads from the north from which the site would be visible. An existing forest track that runs through the proposed site would be relocated further up the hillside.
- 15.94 It is important to note that the number of people likely to see the site from the north would be very small.

East

- 15.95 Views of the proposed site from the east would be limited to the views within the valleys of the rivers Owenbeg and Sruhanpolladoo; as Binswilly, Meenaboll Hill, and Meenatinny effectively screen the site from the north east, east, and south east. There would be no views of the site from the R250, however, there would be views of traffic going to and from the site and turning off onto the track leading to the site. Predicted visual impact from vehicle traffic would be slight, imperceptible but of long term duration.
- 15.96 Views overlooking the site from Meenaboll Hill and Binswilly would be filtered by the remnants of the former coniferous forest. (Photo 8). From these vantage points only occasional hill walkers, farmers or forestry workers would see views.
- 15.97 During the construction period visual impact from the east, within 1km of the site, is likely to be significant and short term during the construction period, after which it will become moderate. When planting works become established, the visual impact would be reduced to slight. As filling reaches higher levels, there may be views of vehicles working the highest levels of the site. Visual impact would be slight and of short term duration.

South

- 15.98 There would be no long distance views of the proposed site from beyond 1km as the landform of Meenatinny and forestry areas would screen the site from view. (Photo 10).
- 15.99 Within 1km there would be short distance views of the site from the stoned local road as it descends to the north and skirts the proposed site. The first view of the site would occur as the road passes through a section of forest and comes into a clearing where the site would be visible in the distance (Photo 11). Proposed earth bunds 3m high, new planting and new forestry planting on either side of the existing stone road, would add to the screening effect. Visual impact during construction would be significant and short term becoming long term and moderate. As planting matures and progressive restoration continues, it will become slight. As the local road has little vehicular traffic using it, the number of road users likely to see the proposed site would be limited.
- 15.100 There would be glimpses of the top of the gas flume stack from the road until the planting develops and screens it from view.
- 15.101 There would be views of vehicles using the internal haul route located on the southern side of the landfill site. Additional earth mounds 1.5m would be used to reduce the impact of this traffic. As the planting matures visual impact would decrease.

15.102 To the southwest the land falls along the valley of the Sruhanpollidoo River. Most of the valley sides are currently planted in coniferous forest that would help to screen the site from view. Part of the Sruhanpollidoo valley is used for the Sli Na Finne walking trail but there would be no views of the site from the trail.

15.103 Photo 13 shows a view from the current limit of the forest, looking in the direction of the site. Visual impact from this area is likely to be significant and short term during the period of construction after which it would be long term and moderate. As planting matures and progressive restoration continues it will become slight. Photo 14 is a view from the site looking southwest, showing the extent of the current forest cover and indicating some of the more distant areas from which the site would be visible. However with increasing distance, little detail would be visible and the site would be seen as an area of disturbed land. Visual impact is likely to be imperceptible and of long term duration.

West

15.104 There would be no short distance (within 1km) views of the proposed site from the north and northwest or from the local road as existing forestry and landform screen the site. There would however be views from the southwest including the local road as the existing forest has been cleared close to the proposed entrance to the site. Proposed 3m high planted earth bunds would play an important role in limiting visually intrusion from this road. Visual intrusion would be significant during the period of construction after which visual obstruction from the earth bunds would screen much of the site from view. There would be views of the proposed netting used to limit windblown material. In time the proposed planting would limit its impact.

15.105 At lower elevations, between 1-2.5km the forested Brallamore would screen the site from the north and northwest.

15.106 The elevated position of the land to the west of the proposed site would allow open long distance views towards the site. In the overall scene the site would occupy only a small section of the view and its location in a forestry setting provides a degree of screening. It would be visible as an area of disturbed ground in contrasting colour to the surrounding area. The movement and activity within and around the site would focus attention towards the area, as would the proposed site lighting.

- 15.107 The proposed site would be located down the hillside to keep it off the skyline and so the site would be seen against the backdrop of Meenaboll Hill. Progressive restoration would play a critical role in limiting the amount of disturbed land that would be visible. As filling reaches the final stages of completion, visual intrusion would potentially be more noticeable with movement of vehicles, protective fencing, regrading etc would all impact on part of the view. However it would be seen against the backcloth of the hillside and a maturing vegetation screen.
- 15.108 Certain raised viewpoints in the surrounding landscape including parts of the Glenveagh National Park would have open views towards the site. However with increasing distance the clarity of the view would decrease and the area would register more as an area of contrasting ground. It is accepted that neither the earth bunds surrounding works the proposed site or the proposed planting would have much impact in reducing visual impact in the short term. During the life of the site progressive restoration would play an increasing important role in limiting long-term impacts.
- 15.109 Visual impact during construction is likely to be significant short term after which it would become moderate over the long term and as progressive restoration continues it would become slight.
- 15.110 It is also important to note that the number of people likely to see the site from the west would be very small.

Predicted Impact on Landscape Character

- 15.111 The impact of the proposed landfill site on the landscape character of the area is dependent upon the vulnerability and sensitivity of the affected landscape, its importance within the local, regional and national context and its ability to accommodate change.
- 15.112 In terms of its scenic qualities the landscape in this part of Donegal is of high significance within a regional and national context. Within the area of the Owenbeg River and the Sruhanpollando valleys, commercial forestry activities have reduced the significance of the landscape in terms of its value and character. The inclusion of the proposed development would also impact on these qualities.

15.113 The proposed site represents only a relatively small area within a much larger landscape setting, which could be characterised as remote and wild even though it has been modified by forestry activities. The development of the landfill would change the peaceful and tranquil nature of the area and hence would be considered a negative impact on the character of the area of the landfill. In the wider landscape context, the landscape character would not be adversely affected. Its location within a forested setting, along with its associated screening potential, would give the landscape a tolerance to this type of development, provided appropriate mitigation measures are put in place. This tolerance is also due to the relatively low levels of leisure and tourism in the area and the small number of travellers through the area. These are more significant to the north and west.

15.114 Only that part of the Glenveagh National Park close to the proposed site, which has been added recently to the Park Boundary, would be affected by development. This area has been acquired to conserve areas of special natural value. Based on usage of the land by occasional hill walkers or farmers there would be the potential for a negative impact on its setting, however in terms of significant this would be slight but of long term duration.

15.115 High standards in the design and management of the proposed landfill operation would be necessary to ensure that the local area is not compromised in the future. This would include strict ongoing monitoring.

15.116 On completion the site would be returned to a new landform, which would integrate with the surrounding landforms and be covered in natural grasses within a perimeter screen of native trees.

Predicted Impact on Visual Character

15.117 Long and short distance visual impacts are likely. The desktop study suggests the following would be the main receptors of visual impacts in the area.

1. Users of the local road
2. Local farmers, forestry workers and occasional hill walkers
3. The Glenveagh National Park

15.118 The only road from which the site would be visible is from the local road which passes the site. This would be limited to within 1km of the site. (Photo 11) Road users travelling from the south would see the site lower down the hillside, but in the context of the whole landscape, the visual intrusion of the development would be slight giving rise to low visual impacts.

- 15.119 Approaching the southeast corner of the site, the level of visual intrusion would increase, as more of the site would be revealed. Views would include the earth bunds, areas of disturbed ground, fill areas, plant and machinery, fencing and netting. Visual impact would be significant until the proposed planting would mature when the impact would become moderate.
- 15.120 Passing the site, the 3m high planted bunds would act as a visual obstruction and screen much of the site and it would not be until filling has reached higher levels that that visual intrusion would occur. This would give rise to significant visual intrusion of short-term duration. It is important to remember that, when considering the visual and landscape impacts of the proposed development, much of the filling would take place behind planted earth bunds. Maturing intervening conifer forest would also add to the screening effect.
- 15.121 During the period of construction visual intrusion would be significant after which it would become moderate and eventually as the planting matures, slight.
- 15.122 Views of the site from the surrounding landscape would be limited to farmers using the hills, forestry workers and occasional hill walkers. The degrees of visual intrusion experienced by these people would depend on the sensitivity of the receptor and a range of factors, including distance from the site, direction of view, local weather conditions etc. For example in the case of hill walkers, their expectation of views may be considered to be higher and so they may be more sensitive to changes in the visual quality of the area. Effective screening measures and progressive site restoration would be the most effective means of limiting visual intrusion.
- 15.123 There would be visual impacts on that part of the Glenveagh National Park situated 0.5km to the west opposite the proposed site. There would be open views towards the site and it would be perceived as an area of disturbed ground with on-going filling and activity. The site would be seen against the backdrop of Meenaboll Hill. Sights would include areas of disturbed ground, fill areas, spoil heaps, litter netting, buildings and site traffic. Should fill materials contain a high proportion of black plastic bags; the reflection of sunlight from their surface could increase the critical viewing distance. Clouds of dust and dust-covered vegetation can attract attention to the site but measures can be put in place to limit this effect. Although attention would be drawn towards the site, the fact that it would occupy only a relatively small area and would be contained within a commercial forest would help to lesson its visual impact. The proposed perimeter woodland would also help to soften its edge. With increasing distance from the site, impacts will become less discernible.
- 15.124 Visual impacts would be significant during the period of construction but of short duration. Impacts would then be moderate during the filling operation and become slight as progressive restoration continues. There may an increase in visual intrusion during the final capping of the last phases of infilling.

MITIGATION

Mitigation Measures

15.125 The following section describes the mitigation measures and landscape objectives considered as part of the development.

- No shiny surfaces to reflect light
- Lighting to be designed to reduce the impact of light pollution
- Progressive restoration
- Neutral colours to be used on buildings/plant
- Grouping buildings/plant to a defined area
- Planting on earth bunds
- Various netting techniques used to limit the amount of windblown materials
- Methods to disperse flocks of birds
- Dampening of surfaces during periods of dry weather to limit dust pollution

15.126 It has to be accepted that it would be extremely difficult to screen such a development from every location, particularly from higher ground, but where feasible, its impact should be reduced.

15.127 The site would be restored to native grassland and would benefit by additional native tree planting works that would increase the ecological diversity of the area.

Avoidance

15.128 Location - The proposed site has been carefully chosen to be located in a remote area away from main roads and areas of population and within a commercial forest, which screens the site from many viewpoints.

15.129 Layout - The site would be located to reduce the extent of its visibility

- Careful consideration of the site layout to reduce landscape and visual impacts
- Earth bunds and planting works to help to screen the site which would be contoured to provide a gradual transition to the landfill site and would create a more natural profile in harmony with the surrounding landscape
- Locating the site down the hillside to keep the development below the skyline.
- Phased filling of the landfill area to limit visual disruption by ensuring that the whole of the site is not in use during the proposed life of the landfill
- Progressive restoration of the filled areas with native grasses to help limit the amount of disturbed land that would be created.

15.130 Remediation

- Integrate the development, physically and visually, into the receiving landscape, by creating a new landform which would be in sympathy with the local topography.
- The creation of an area of native grassland and native woodland to add to the diversity of the landscape.
- The establishment of wetland lagoon.

15.131 Reduction

- Where possible, screen the site from the adjacent local road. This would be important and take the form of a 3m high earth bund planted with native trees
- Planting to take place in year one to allow increasing growth to screen the proposed development. The restoration proposals are shown on Figure 15.8

15.132 Site Planting

- Provision of native tree shrub and grass areas to help to create an integrated landscape scheme.
- Provision of selected native woodland planting including understory planting.
- Provision of additional tree planting at key areas to ensure that visual intrusion is minimised.
- Regrassing of disturbed areas with native species.

15.133 Maintenance and Management

- Maintenance and management of all planting stock in perpetuity.

Establishment of Planting

15.134 Where feasible certain planting works would begin at the start of the next planting season after the completion of the construction works. In this respect some of the planting works would develop early so allowing basic site screening to become established.

Form and Specification of Site Planting

15.135 Establishment of planting using a range of indigenous trees and woodland lower canopy shrubs.

15.136 Establishment of planting in groups and linear forms to provide adequate screening.

15.137 Planting species to be both evergreen and deciduous and include the following:

Ash	(Fraxinus excelsior)
Hawthorn	(Crataegus monogyna)
Alder	(Alnus glutinosa)
Holly	(Ilex aquifolium)
Elder	(Sambucus nigra)
Hazel	(Corylus avellana)
Willow	(Salix caprea and cinerea)
Birch	(Betula pubescens)
Sorbus	(Sorbus acuparia)
Pine	(Pinus sylvestris)

15.138 Trees would range in size from feathered whips to selected standards of 10-12cm girth
Whips, transplants and forestry stock would range in size from 20-30cm to 60-90cm in overall
height from ground level.

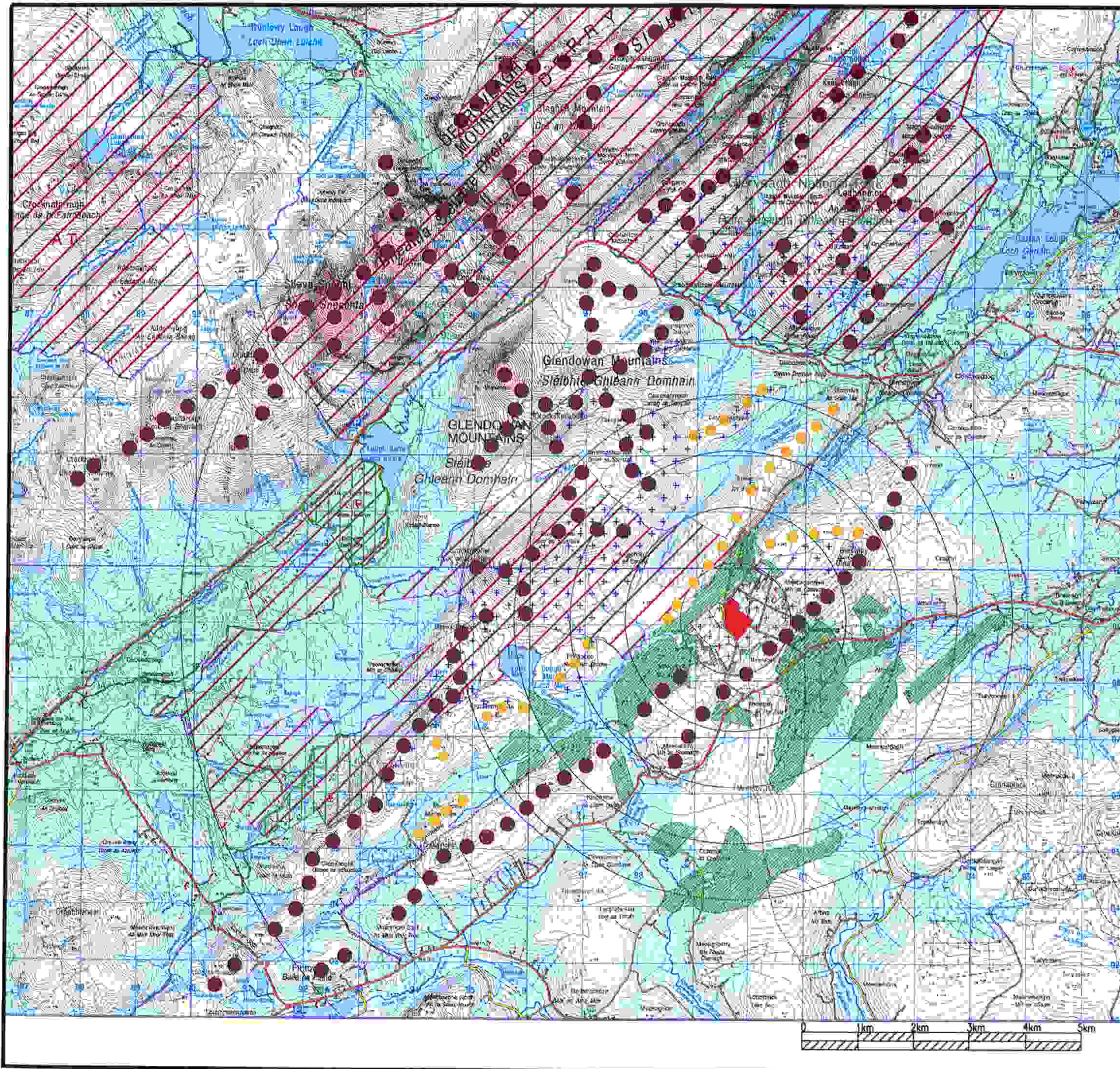
15.139 Woodland planting would be at least 2 per m².

15.140 In order to create a more natural grass cover, typical of that already found in the area,
grassing would be of a native species (Native Irish Species).

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FIGURES

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- KEY**
- Development Site
 - Major Visual Barrier
 - Minor Visual Barrier
 - Significant Vegetation
 - Glenveagh National Park
 - SAC
 - SII Na Finne (National Waymarked Way)
 - Zone of Immediate visual influence
 - Zone of distant visual influence

SCALE: NTS

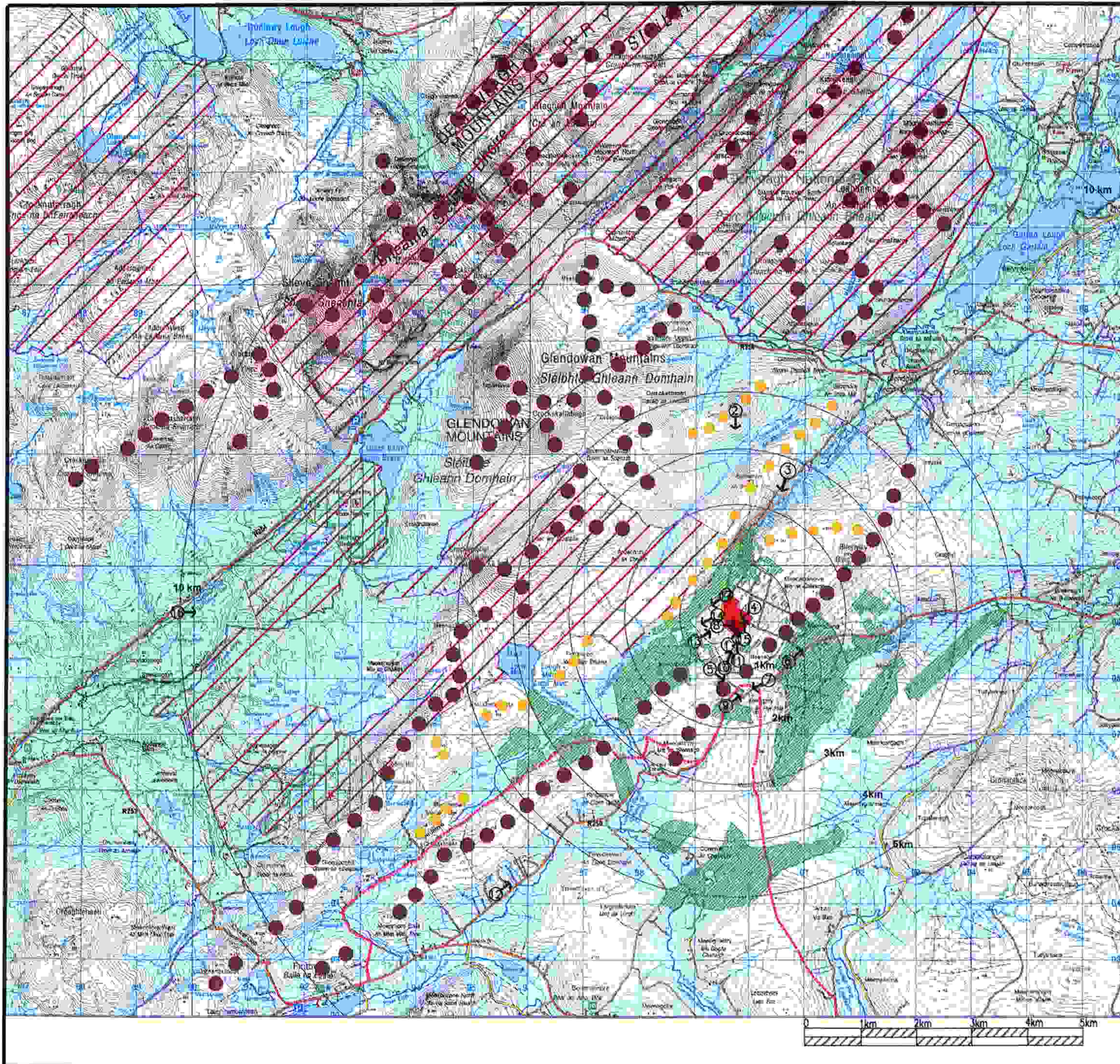
**KIRK McCLURE
MORTON**
CONSULTING ENGINEERS



MEENABOLL LANDFILL PROJECT

ZONE OF VISUAL INFLUENCE

FIGURE
15.1



- KEY**
- Development Site
 - Major Visual Barrier
 - Minor Visual Barrier
 - Significant Vegetation
 - Photo Location
 - Glenveagh National Park
 - SAC
 - Sli Na Finte [National Waymarked Way]

SCALE: NTS

**KIRK McCLURE
MORTON**
CONSULTING ENGINEERS



MEENABOLL LANDFILL PROJECT

LOCATION OF PHOTOGRAPHS



PHOTO 1 View looking north west over the proposed site with the Glendowan and Derryveagh Mountains in the distance



PHOTO 2 View from the north looking south west in the direction of the proposed site with the intervening landform limiting views towards the site .



PHOTO 3 View towards the proposed site from the north east where the 3rd class road follows the valley of the Owenbeg River. The site is screened from view.



PHOTO 4 View from the north west looking over the proposed site with the wider landscape beyond. Note the extensive areas of commercial forest.



PHOTO 5 Panoramic view of the landscape from the 3rd class road as it descends east to the R250. This will be the main access road to the site.



PHOTO 6 View looking north east along the R250. Rising ground between Binswilly and Meenaboll Hill and an existing forest will screen views of the site from the road.

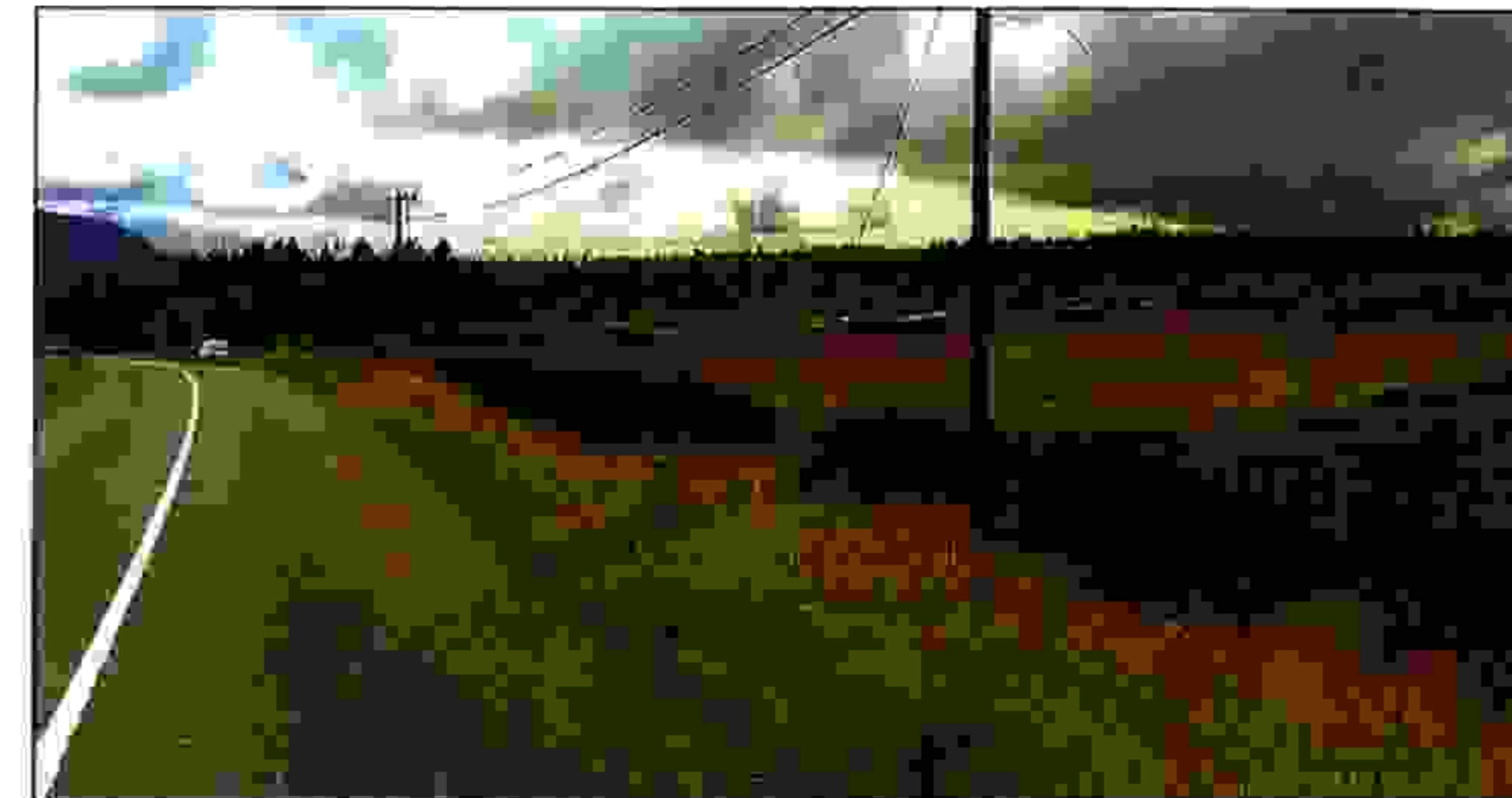


PHOTO 7 View looking south west along the R250. The parked car is at the entrance to the 3rd class road leading to the site. Site vehicles will be visible travelling along this road.

ENVIRONMENTAL PROTECTION
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PHOTO 8 View looking east over the site. The ground rises gently to Meenaboll Hill with remnants of the commercial forest cover visible on the skyline.

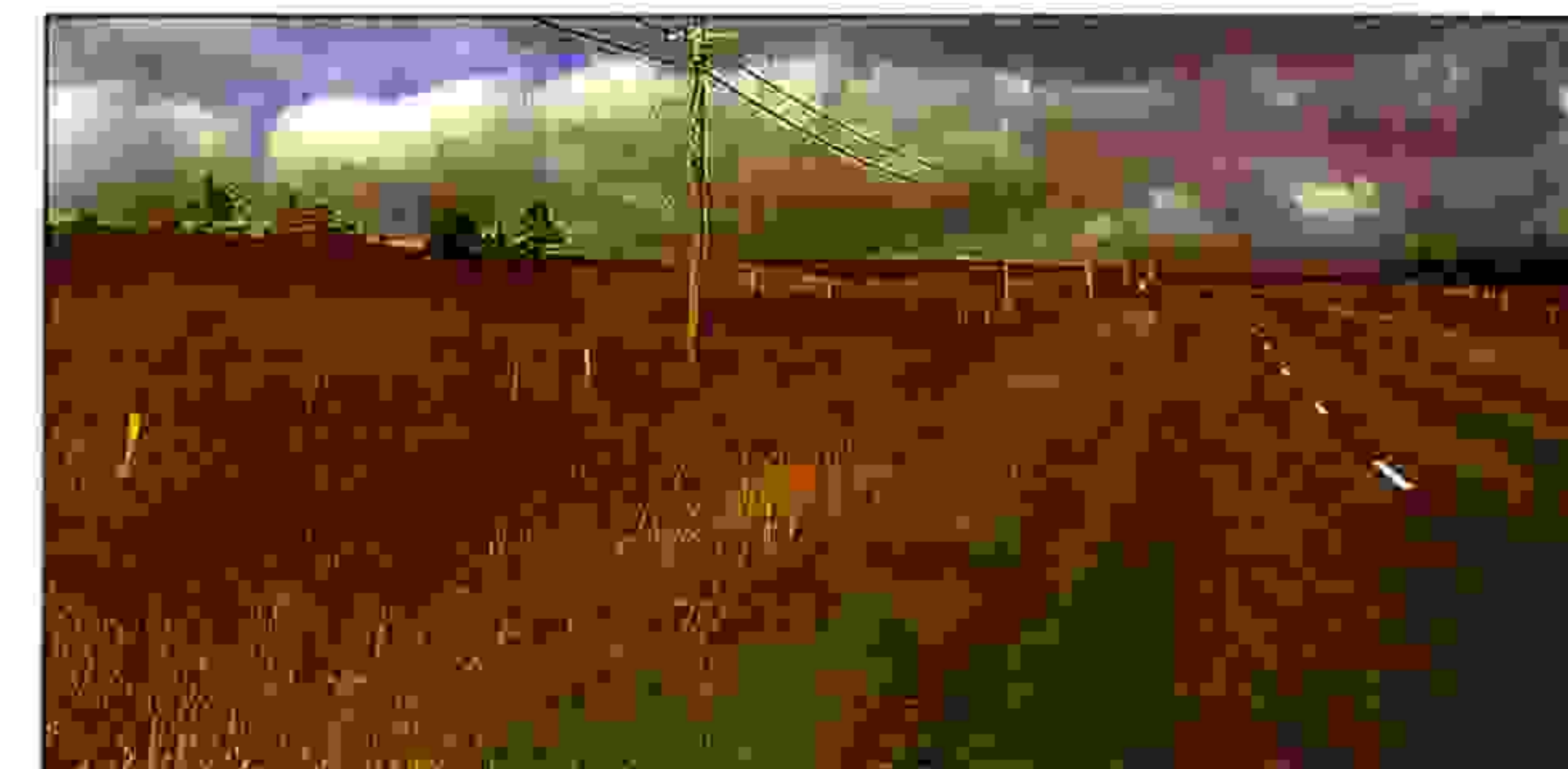


PHOTO 9 View from the site looking north east along the R250. The rising ground to the west will screen the site from this road.

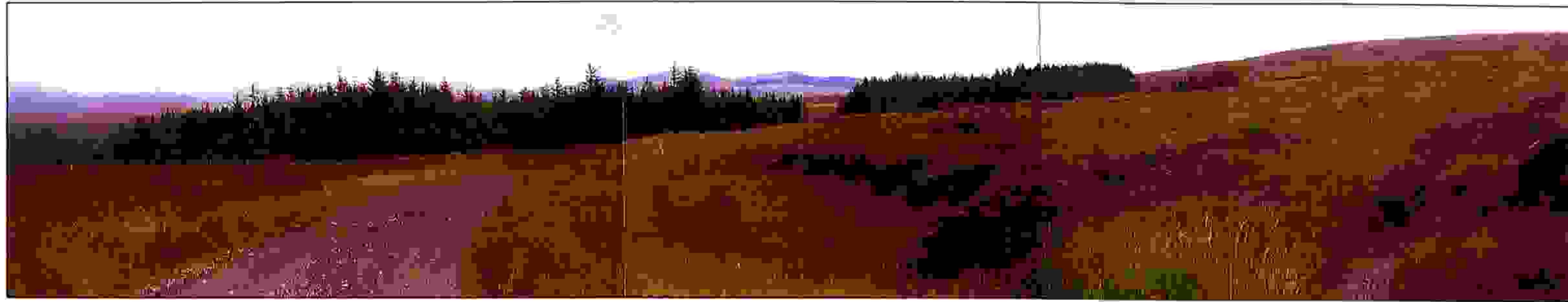


PHOTO 10 View looking along the 3rd class road as it turns to the north east. The existing trees and rising ground screen the site from view.



PHOTO 11 Further along this road after emerging from the forest the site is revealed down the hillside to the north.

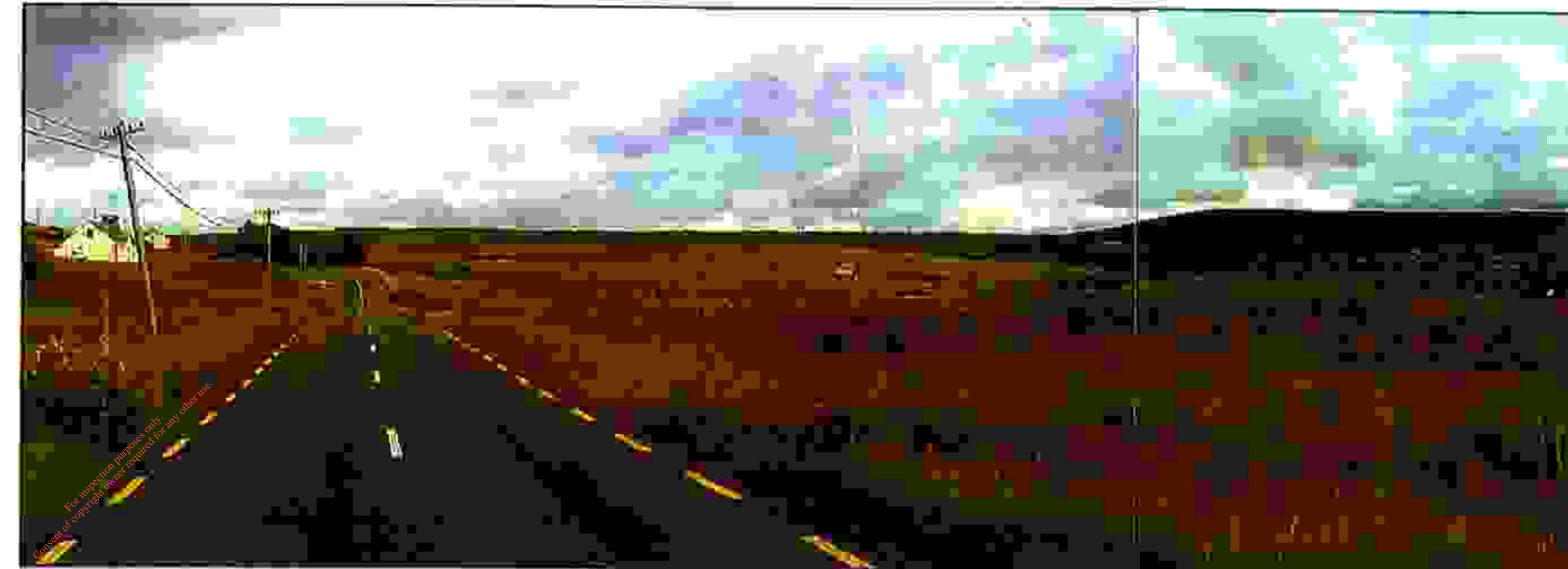


PHOTO 12 Longer distant views looking north east from the R250 road close to its junction with the R252. Rising intervening landform screens the site from view.

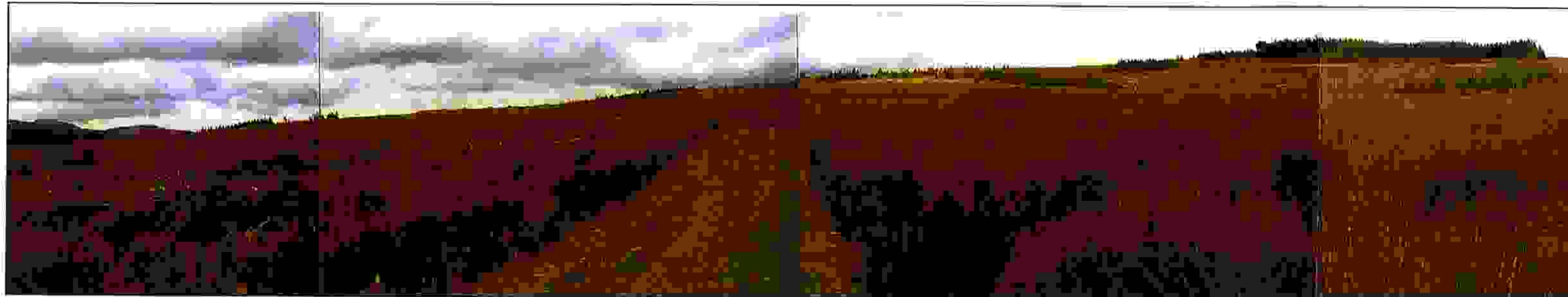


PHOTO 13 Views of the proposed site from the south west from a stone forest road as it emerges from the existing forest.



PHOTO 14 Views from the edge of the site looking south west down the valley with forestry and higher ground in the distance. The site will be visible from the higher ground but will be seen as a small area in a much wider landscape setting.



PHOTO 15 View looking over the site to the west and north west with the hills visible in the distance. There would be from higher ground including parts of the Glenveagh Nation Park



PHOTO 16 View from the R254 road to the south west of the site. No views of the site are visible due to intervening landform.

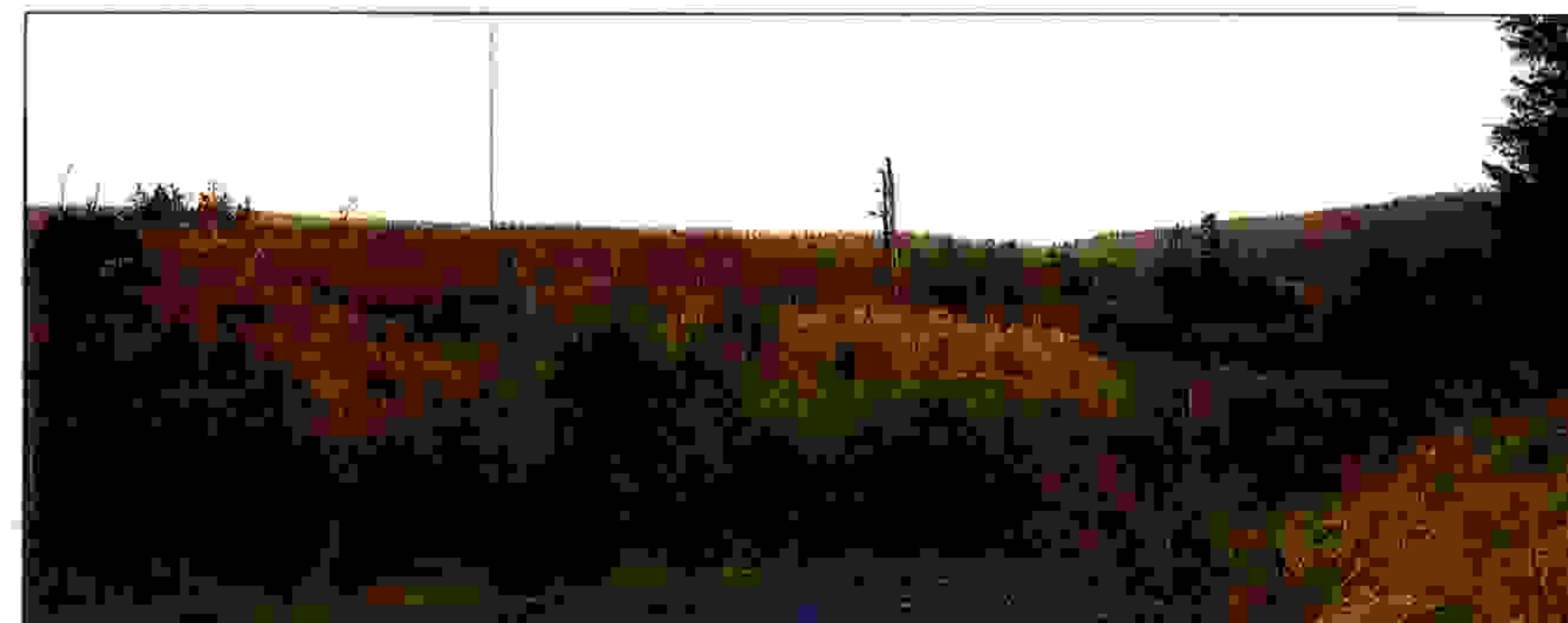
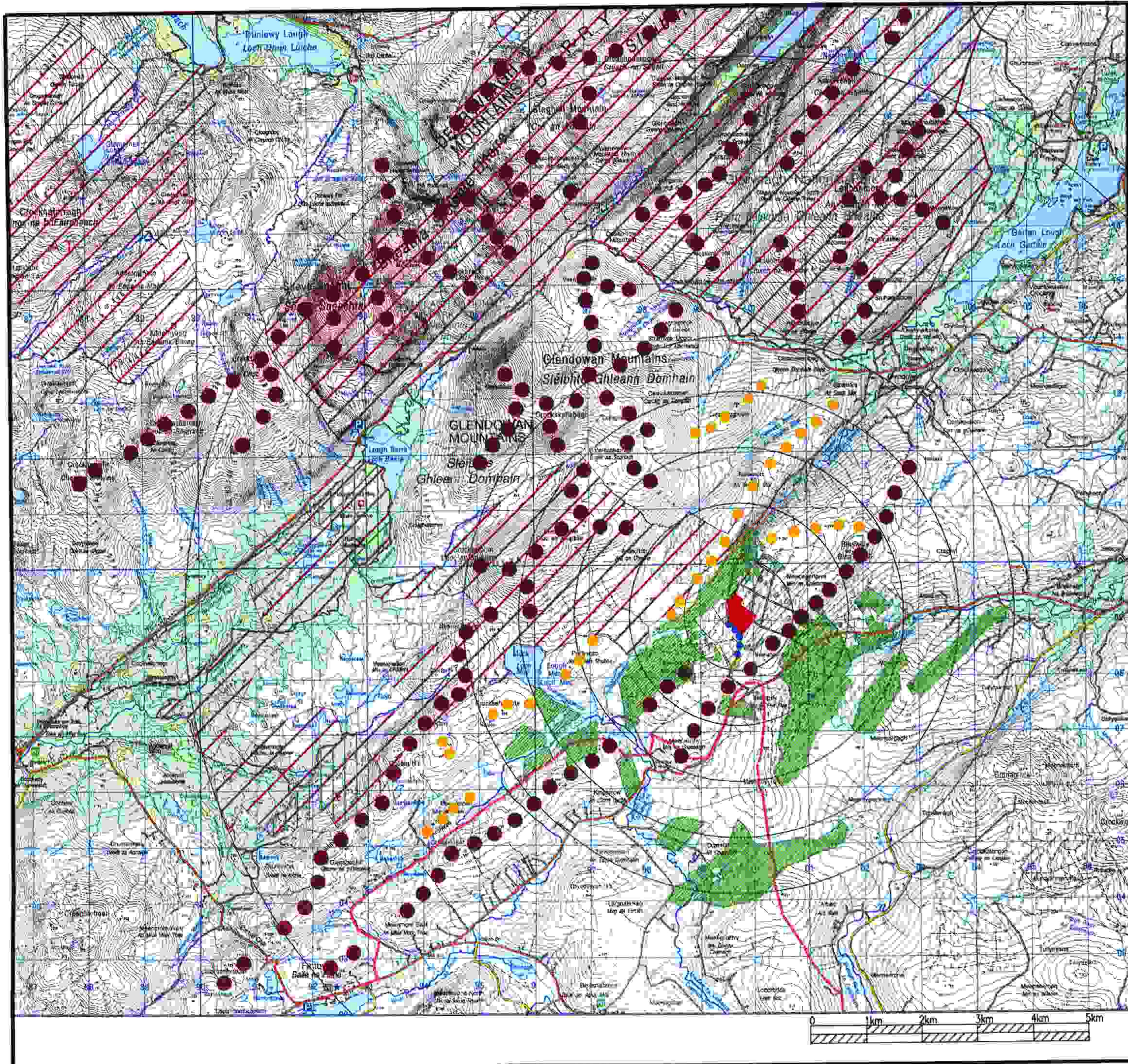


PHOTO 17 View close to the entrance of the proposed site looking south down the valley with the forest clearly visible.



KEY

- Development Site
- Major Visual Barrier
- Minor Visual Barrier
- Significant Vegetation
- Glendowan National Park
- SAC
- Sli Na Finne [National Waymarked Way]
- Road with open views of site

SCALE: NTS

**KIRK McCLURE
MORTON**
CONSULTING ENGINEERS



MEENABOLL LANDFILL PROJECT

VISUAL IMPACT

FIGURE
15.7



PHASE 1



PHASE 2



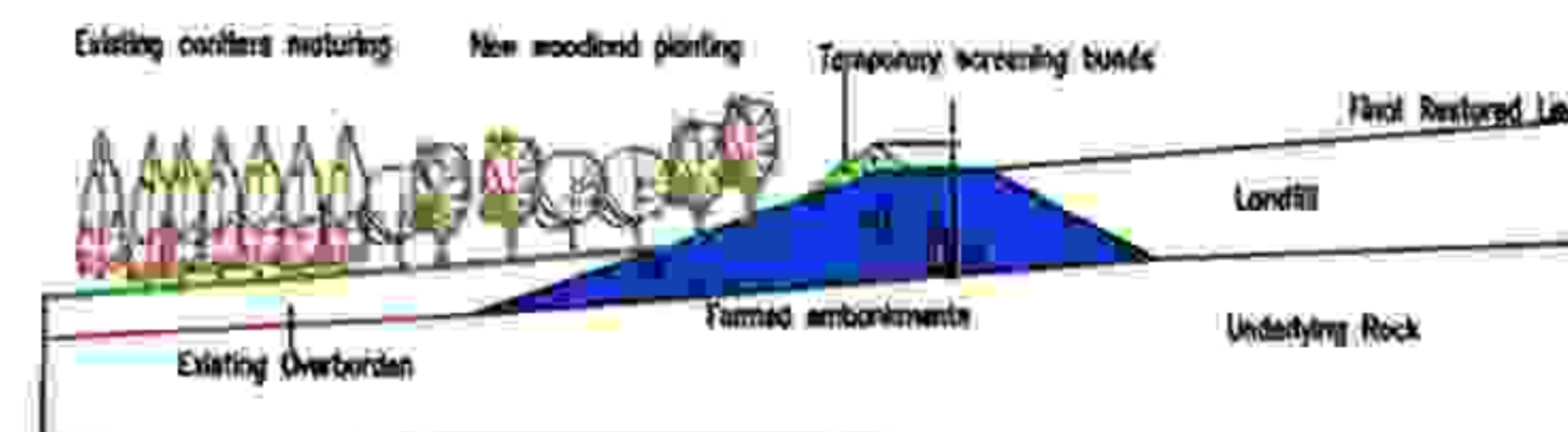
PHASE 3A & 3B



PHASE 4A & 4B



PHASE 5A & 5B



TYPICAL SECTION THROUGH BUND

KEY

Phase 1
Construction of cells 1-5, perimeter bunds created and completion of perimeter screen planting works.
Progressive filling of cell 1, capping, topsoiling and grass seeding.[native species]
Construction of 3m high bunds around the leachate tanks and gas flume stack and the bunds planted with woodland screen planting.
Construction and planting of reed beds

Phase 2
Progressive filling of cell 2, capping, topsoiling and grass seeding.[native species]
Continued growth and maintenance of perimeter screen planting, along with grass maintenance.

Phase 3
Progressive filling of cells 3A and 3B, capping, topsoiling and grass seeding.
Continued growth and maintenance of perimeter screen planting, along with grass maintenance.

Phase 4
Progressive filling of cells 4A and 4B, capping, topsoiling and grass seeding.[native species]
Continued growth and maintenance of perimeter screen planting along with grass maintenance.

Phase 5
Progressive filling of cells 5A and 5B, capping, topsoiling and grass seeding.[native species]
Continued growth and maintenance of perimeter screen planting along with grass maintenance.

Continued maintenance of planting, and grass to ensure planting objectives are realized and the site is assimilated back into the landscape setting

- Existing conifer plantation.
- Proposed woodland screen planting.
- Proposed reed Beds
- Proposed native grass seeding.
- Internal service road
- Temporary spoil heaps
- Building
- Proposed contours

SCALE: NTS



PROJECT

MEENABOLL LANDFILL PROJECT

TITLE

PLANTING PROPOSALS & PHASING

FIGURE

15.8