Insert Figure 1724/14

4.8 CLIMATE

4.8.1 INTRODUCTION

This section describes the existing climate of Carrick-on-Shannon in terms of rainfall, wind speed and wind direction.

4.8.2 EXISTING ENVIRONMENT

Existing rainfall, wind speed and wind direction data closest to Carrick-on-Shannon were obtained from Met Éireann's meteorological stations.

The rainfall gauge at Carrick-on-Shannon was closed in the early 1990s; therefore, up-to-date rainfall data was obtained from the nearest rainfall station. This station is located at Drumsna approximately 6 km south east of Carrick-on-Shannon. Wind speed and direction data were obtained from the Claremorris Station. This station is located approximately 56 km south-west of Carrick-on-Shannon.

Rainfall for Drumsna is presented in Table 4.8.1. Average annual rainfall for the area is 1,061 mm (20 year average from 1981 – 2000).

Daily rainfall for the years 1990 to 2000 have been graphed in Appendix 8 to show rainfall trends. The driest year in that time period was 1996 (947mm) and the wettest was 1994 (1139mm). The graphs show that rainfall is almost continuous throughout the year with the highest rainfall peaks recorded during the summer as well as the autumn and winter months.

Table 4.8.1 Monthly Rainfall Totals at Drumsna (Albert Lock) (Average 1991 – 2000)

Month	Monthly Rainfall (mm)
January	106
February	88
March	96
April	71
May	66
June	81
July	67
August	92
September	79
October	113
November	89
December	113
Total	***1,061***

Wind speed and wind direction data were also supplied by Met Éireann (Clairemorris Station) from January 1970 to December 1999 and are shown in Table 4.1.2. From the data, a rose diagram has been generated to illustrate wind direction (see graph in Appendix 8 – Part A). The prevailing wind direction in the area is from the south-west. The calms of 4.6% represents the percentage of time for which the wind speed was below 1 knot.

Table 4.8.2

SYNOPTIC STATION AT CLAREMORRIS January 1970 to December 1999

PERCENTAGE OCCURRANCES OF MEAN HOURLY WIND SPEED (knots) AND DIRECTION

DEGREES	1-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	56-63	+63	TOTAL
10	0.3	0.5	0.6	0.4	0.1	0.01	0.01	0	0	0	0	0	1.92
20	0.3	0.4	0.4	0.3	0.1	0.01	0	0	0	0	0	0	1.51
30	0.3	0.3	0.4	0.2	0.01	0.01	0	0	0	0	0	0	1.22
40	0.3	0.3	0.3	0.2	0.01	0.01	0	0	0	0	0	0	1.12
50	0.3	0.3	0.3	0.2	0.01	0.01	0	0	0	0	0	0	1.12
60	0.3	0.4	0.4	0.3	0.01	0.01	0.01	0	0	0	0	0	1.43
70	0.3	0.5	0.5	0.3	0.1	0.01	0.01	0	0	0	0	0	1.72
80	0.4	0.5	0.5	0.4	0.1	0.01	0.01	0	0	0	0	0	1.92
90	0.4	0.5	0.5	0.4	0.1	0.01	0.01	0	0	0	0	0	1.92
100	0.3	0.5	0.5	0.4	0.1	0.01	0.01	0	0	0	0	0	1.82
110	0.4	0.4	0.5	0.4	0.1	0.01	0.01	0	0	0	0	0	1.82
120	0.4	0.4	0.6	0.4	0.1	0.01	0.01	0	0	0	0	0	1.92
130	0.4	0.5	0.7	0.5	0.1	0.01	0.01	0	0	0	0	0	2.22
140	0.4	0.5	0.7	0.5	0.1	0.01	0	0	0	0	0	0	2.21
150	0.4	0.5	0.7	0.5	0.1	0.01	0	0	0	0	0	0	2.21
160	0.4	0.6	0.8	0.6	0.1	0.01	0.01	0	0	0	0	0	2.52
170	0.4	0.7	0.9	0.9	0.2	0.01	0.01	0.01	0	0	0	0	3.13
180	0.4	0.7	0.9	1	0.2	0.1	0.01	0.01	0.01	0	0	0	3.33
190	0.4	0.7	0.9	0.9	0.2	0.01	0.01	0.01	0.01	0	0	0	3.14
200	0.4	0.7	1	0.9	0.2	0.1	0.01	0.01	0.01	0.01	0	0	3.34
210	0.5	0.8	1.4	1.3	0.4	0.1	0.01	0.01	0	0	0	0	4.52
220	0.4	0.8	1.6	1.9	0.5	0.2	0.01	0.01	0.01	0.01	0	0	5.44
230	0.4	0.7	1.4	1.9	0.6	0.2	0.01	0.01	0.01	0	0	0	5.23
240	0.3	0.5	1	1.2	0.4	0.1	0.01	0.01	0.01	0	0	0	3.53
250	0.3	0.5	0.8	0.8	0.2	0.1	0.01	0.01	0	0	0	0	2.72
260	0.3	0.6	0.9	0.9	0.2	0.1	0.01	0.01	0.01	0	0	0	3.03
270	0.4	0.6	1	1.1	0.4	0.1	0.01	0.01	0.01	0	0	0	3.63
280	0.4	0.6	1	1.3	0.4	0.2	0.01	0.01	0.01	0	0	0	3.93
290	0.5	0.7	1.1	1.3	0.4	0.1	0.01	0.01	0.01	0	0	0	4.13
300	0.4	0.7	0.9	0.9	0.2	0.1	0.01	0.01	0	0	0	0	3.22
310	0.6	0.8	0.7	0.6	0.2	0.1	0.01	0.01	0	0	0	0	3.02
320	0.7	0.8	0.7	0.5	0.1	0.01	0.01	0.01	0	0	0	0	2.83
330	0.5	0.6	0.6	0.4	0.1	0.01	0.01	0	0	0	0	0	2.22
340	0.4	0.5	0.7	0.5	0.1	0.01	0.01	0.01	0	0	0	0	2.23
350	0.3	0.5	0.7	0.5	0.1	0.01	0.01	0	0	0	0	0	2.12
360	0.3	0.5	0.8	0.6	0.1	0.01	0.01	0	0	0	0	0	2.32
TOTAL	13.9	20.1	27.4	25.4	6.44	1.83	0.3	0.17	0.1	0.02	0	0	95.66
												Calms	4.6

4.8.3 IMPACTS OF THE PROPOSED DEVELOPMENT

The proposed development is not expected to have any impacts on the climate of the surrounding area either during its construction or subsequent operation.

4.8.4 MEASURES TO MITIGATE ADVERSE IMPACTS

As no impacts on the climate of the area are predicted as a result of the development, no mitigation measures are proposed.

4.8.5 CONCLUSIONS AND NON TECHNICAL SUMMARY

Average annual rainfall for the area is 1,061mm (1991 – 2000), spread evenly over all months of the year. The prevailing wind direction is from the southwest. The prediction is that the new treatment works will have no impact on the climate of the surrounding area.

4.9 LANDSCAPE

4.9.1 INTRODUCTION

This section of the report, prepared by Tíros Resources Limited, considers the potential impact of the proposed Waste Water Treatment Plant on the existing character and quality of the landscape, together with potential impacts on the visual amenity of nearby properties and public vantage points.

A description of the landscape appraisal method is provided as a precursor to a detailed examination of the existing landscape character and the potential impact of the proposed development. Measures to achieve an integrated development that fits with its context are also outlined in Section 4.9.5 Mitigation Measures.

4.9.1.1 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

It is proposed that a new wastewater treatment works will comprise an extension to the existing works at Attirory and may include further settlement and aeration tanks together with associated equipment and buildings. There are no detailed proposals for these at this stage, although various performance parameters have been set for the new installation.

4.9.1.2 BASIS FOR THE ASSESSMENT

The assessment of the landscape and visual impact of the proposed development is based on the guidelines laid out by the Environmental Protection Agency (EPA) in the Advice Notes on Current Practice in the preparation of Environmental Impact Statements' (1995), which were adopted unamended in June 1997. This assessment has been carried out by Frank L. Benson and Partners: Planning, Development and Landscape Consultants.

The Draft 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". The Guidelines recommend the following to be included in any assessment:

Context: Areas from which the existing site can be seen are generally noted with particular attention given 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.

Character: A description of the landscape character differentiates between subjective assessments and objective description. A description of the character of the site as perceived within both the site and wider landscape is important, as is a description of the intensity and character of land use.

Significance: This entails the level of visual intrusion upon designated views, designated landscape and designated landscape amenity areas.

Vulnerability: The extent to which the existing landscape or views are capable of being changed in such a way as not to alter the perceived character.

In order to determine the effects of the proposed development on visual amenity and suburban character the following significance criteria have been adopted:

None – There will be no change to an existing view.

Imperceptible – An impact capable of measurement but without noticeable consequences.

Low (Slight) – An impact, which does not cause significant or profound changes to the existing environment.

Moderate – An impact, which by its magnitude, duration or intensity alters an important aspect of the environment.

High (Profound) – The view would be altered to a significant degree as to affect a dramatic change.

The visual assessment uses the following terminology, defined as follows:

Visual Intrusion – This occurs where a proposed development impinges on an existing view without obscuring the view.

Visual Obstruction – This occurs where a proposed development obscures an existing view.

Visual Impacts may be neutral, positive or negative:

Neutral – A neutral impact will neither enhance nor detract from the landscape character or viewpoint.

Positive – A positive impact will improve or enhance the landscape character or viewpoint.

Negative – A negative impact will have an adverse effect on the existing landscape character or viewpoint.

The duration of impacts is defined as follows:

Temporary – Impacts lasting one year or less.

Short-term – Impacts lasting one to seven years.

Medium-term – Impacts lasting seven to twenty years.

Long-term – Impacts lasting twenty to fifty years.

Permanent – Impacts lasting over fifty years.

The significance of any impact on the existing environment will depend partly on the number of people affected, but also on value judgements as to how much the changes will matter.

Once the significance of any impacts have been determined, the principles of mitigating such impacts can be applied as follows:

- Avoid developments in sensitive or prominent landscapes.
- Avoid insensitive or visually intrusive designs.
- Reduce the visual intrusiveness of the design.
- Reduce the visibility of the project.

4.9.2 EXISTING ENVIRONMENT – SITE CONTEXT

This section is accompanied by a series of photographs (see Figure 1724/15 and 16) and cross-sections (Figure 1724/16A, B, C) to illustrate the site characteristics, location, landscape context and visual influence.

The site for the extended treatment works is located southeast of the town adjacent to the marina and the existing wastewater treatment works. New housing lies a short distance to the north and south of the site. It is from the road serving these houses and the existing wastewater treatment plant that access to the site would be gained.

4.9.2.1 LANDSCAPE CHARACTER

Carrick-on-Shannon is a typical rural town, with a distinct core of traditional shops, businesses and community buildings. Notable buildings that are prominent within the town include the churches, hospital and the water tower, which lie on high ground to the north. Carrick-on-Shannon is a growing town, where a great deal of new residential, commercial, social and tourism development has taken place in more recent years. In particular, the eastern side of the town has seen the development of a new school, sports and leisure centre and extensive housing (some still under

construction). Commercial development also continues in the form of the new MBNA call centre facility a short distance north of the Dublin Road.

The area is generally characterised by a gently undulating topography through which the River Shannon follows a winding course. This is a rural area and much of the surrounding land use is given over to pastoral farmland. Fields are of a moderate size and characteristically have substantial hedgerows marking the boundaries. These hedgerows combined with small pockets of woodland and mature vegetation at the edge of residential areas give the landscape a well-vegetated appearance, limiting views in many directions.

Tourism is very important to the economy of the area, with significant demand for boating activities on the River Shannon. This is evident from current levels of activity on the river and the provision of two marina facilities at Carrick-on-Shannon, one to the west of the town's bridge and the other south and west of the proposed development sites.

4.9.2.2 EXISTING SITE CHARACTERISTICS

The extended wastewater treatment comprises an undeveloped field, adjoining the existing wastewater treatment works site, sloping up from approximately 43 to 50 metres above Ordnance Datum. The site lies between two areas of slightly higher ground and a broad band of mature vegetation, including trees, runs across the site east to west and then along the eastern and northern boundaries. The western boundary is vegetated only by a low agricultural hedgerow.

4.9.2.3 VISIBILITY

The wastewater treatment plant extension site lies between areas of slightly higher ground to the northwest, northeast and southeast. To the southwest the land falls away to the river. The areas immediately surrounding the site are well vegetated with tall, mature trees and hedgerows. The combined effect is to screen the site very effectively from the surrounding area and as a result, views of the site are confined to the roads and properties immediately adjoining the site. There are glimpses of the site from the adjoining marina, plus there are filtered views into the site from houses to the southeast, although here the front and rear façades are not orientated towards the site. Dense ornamental planting to the southwest precludes any views of the site from the river.

With regard to the implications on the new development, the eastern portion of the site is more elevated and would be the least suitable location for tall structures, as they would be more prominent in the landscape in this location. Development here should be limited to a maximum of approximately two metres (2 m) above ground level where intrusion into the landscape would be minimal and where additional planting could quickly provide screening.

By contrast, the western portion of the site is at a lower level and better screened by existing vegetation and topography. This part of the site has a greater capacity for development and could accommodate structures to a maximum height of approximately 4.0 metres with minimal impact on the landscape and visual amenity of the surrounding area. Additional mitigation such as screen planting and colour treatment to the structures should also be employed.

4.9.3 EXISTING ENVIRONMENT - PLANNING CONTEXT

The Leitrim County Development Plan 1997-2002 and the Carrick-on-Shannon Development Plan 1996-2001 are the Statutory Plans controlling development in the area.

The Leitrim County Development Plan sets out the development framework for County Leitrim over the 1997-2002 period. Under Section 3 of the Development Plan, 'Development Control', the planning authority sets out qualitative and quantitative standards for new development in the County Leitrim area.

The Carrick-on-Shannon Development Plan forms part of the County Development Plan and Carrick-on-Shannon is the only town in County Leitrim for which the preparation of a Development Plan is a statutory requirement. The Carrick-on-Shannon Development Plan provides a framework for the physical development of the town over the Plan period.

The extended wastewater treatment plant site is zoned for 'general development', which is intended for a mix of land uses that are compatible with the general character of the area.

The Plans do not identify any Protected Views within or surrounding the site, including Areas of Outstanding Natural Beauty, Areas of High Visual Amenity and Outstanding Views and Prospects. The closest protected area is an Area of High Visual Amenity, which lies south of Carrick-on-Shannon, beyond the visual envelope of the site.

There are no trees or woodlands within the subject sites subject to protection or preservation. The Carrick-on-Shannon Development Plan identifies trees along the Dublin Road as being afforded special protection, although no map identifies exactly where those trees are located in relation to the proposed pump house site. However, it is not anticipated that the proposed development will affect these trees.

There are no structures on site except for the existing wastewater treatment plant, which will be retained.

4.9.4 IMPACTS OF THE PROPOSED DEVELOPMENT

4.9.4.1 CONSTRUCTION IMPACT

In the absence of an outline design for the wastewater treatment plant, the details of construction impact can only be addressed in general terms. However, as with most developments, the construction stage will represent a short period of intensive activity.

Construction of the extended wastewater treatment plant is likely to entail the most extensive construction works. Overall, the construction period will remain short, but excavation and construction works will affect the whole of the site at the same time.

The most sensitive receptors are likely to be the nearby houses, lying mainly to the southeast of the site at Attirory in an elevated position. From these locations, there will be moderately open views of activities on the site, giving rise to a moderately negative visual impact. The property lying a short distance to the northwest of the site does not overlook it on account of dense garden vegetation at the perimeter. There will only be brief views of the construction activities from the road at the entrance gate to the property, where potential impacts will be moderately to severely negative.

4.9.4.2 OPERATIONAL IMPACT ON VISUAL AMENITY AND CHARACTER

The existing wastewater treatment plant sets a precedent, representing small-scale 'industrial' development that will be extended by this proposal. The existing development sits very low in the landscape, whereas the proposed development is located on higher ground and has the potential to be more prominent in the landscape.

The settlement tanks are potentially the tallest elements within the proposed development. These and other tall structures should be located towards the western side of the wastewater treatment site where low-lying topography and existing vegetation will provide maximum screening. Building structures (not including hand railings or other minor plant elements) up to approximately 4.0 metres above existing ground level could be accommodated here. Development towards the eastern end of the site should be subject to a maximum height of approximately 2.0 metres above existing ground level. Most elements will reside at or about ground level, except for any control/equipment or storage buildings that may be necessary, where it may be assumed that these will be no larger than those that already exist.

Overall, the proposed development will be slightly to moderately prominent in the immediate vicinity of the site. Depending of how much existing vegetation is retained within the site and at its perimeter, the visual impact is likely to be slightly to moderately negative. Mitigation measures are recommended below to reduce this impact (see section 4.9.5).

4.9.4.3 VIEWS FROM ROADS

The extended wastewater treatment works will not be visible from any main roads, but only from short stretches of those minor roads serving nearby houses and the Marina at Attirory. Where such views do exist, the visual impact will be slightly to moderately negative, largely on account of being in such close proximity to the development.

4.9.4.4 VIEWS FROM RESIDENTIAL PROPERTY

There is likely to be partial views of the extended wastewater treatment plant at Attirory from the houses to the southeast on elevated ground. These will be oblique views rather than directly in line with the front/rear house façades. The degree of impact will depend greatly on the amount of existing vegetation removed from the existing site, but is likely to be slightly negative in the long term. The full extent of the development will remain largely screened and well below the horizon.

4.9.4.5 VIEWS FROM PUBLIC OPEN SPACE

There is no public open space within the visual envelope of the proposed extension to the wastewater treatment plant. Therefore, potential visual impact will be neutral.

4.9.5 MEASURES TO MITIGATE ADVERSE IMPACTS

Mitigation against potentially negative impacts on landscape and visual amenity should be addressed in the detailed design of the proposals. The points that may be addressed may include the following:

Detailed consideration of site layout, in so far as is possible, to ensure that larger/taller buildings and other structures are located in positions that take full advantage of existing screening by topography and/or vegetation. For example, the taller structures in the wastewater treatment plant are likely to be the settlement tanks – if possible the layout should avoid placing these on the higher ground within the site. This would reduce their prominence, maximise the effects of perimeter and other screening, keep them below the horizon and avoid obscuring longer-distance views. On lower ground adjoining the existing wastewater treatment plant, building structures (not including hand railings or other minor plant elements) may comfortably extend to 4.0 metres above ground level, while elsewhere they may be placed partly or completely below ground.

Maximise the retention of existing vegetation in all locations. Negative impacts can arise from the removal of existing landscape features as well as opening up views of

new development. The site for the extended wastewater treatment plant supports substantial vegetation that would provide good screening. The site layout should seek to retain as much of this as possible.

Colours used to paint and render structures should take account of significant viewpoints and be selected accordingly. Light grey colours feature best against the skyline, whereas darker greys, olive greens and browns blend well with a backdrop of trees, fields and other buildings.

Where new planting and/or earth banking would achieve a significant benefit by screening parts of or the entire proposal, this should be incorporated into the detailed design.

4.9.6 CONCLUSIONS AND RECOMMENDATIONS

The proposed wastewater treatment plant will be located where existing topography and vegetation provide a significant degree of screening. Careful location of taller structures up to 4.0 metres high, maximum retention of existing vegetation, colour treatment to structures and perimeter planting will all ensure that the potential impacts are no more than slightly negative in the immediate surroundings. There will be no significant impact on the character of the wider landscape.

4.9.7 NON TECHNICAL SUMMARY

This section of the report considers the potential impact of the proposed development on landscape character/quality and the visual amenity of nearby properties and public vantage points.

The proposed site lies southeast of the town adjacent to the existing wastewater treatment works. The site slopes towards the existing works and the river but is well screened by adjoining and nearby vegetation. There are localised views into the site from its immediate surroundings, principally open views from adjoining minor roads and partial views from nearby residential property, but no medium or long distance

views. There are no views from the river or nearby marina. The most sensitive receptors are nearby houses, where potential impacts may be moderately negative during construction, reducing to slightly negative during operation.

Mitigation against potentially negative impacts on landscape and visual amenity will be addressed in the detailed design of the proposals and include: optimising site layout to minimise visual intrusion; retaining existing vegetation as far as practical; careful selection of colour for external finishes; earth banks and screen planting where appropriate. At the waste water treatment plant site, building structures (not including hand railings or other minor plant elements) may extend to approximately 2.0 metres above ground level on the existing higher ground and approximately 4.0 metres on the existing lower ground adjoining the current WWTW with minimal impacts upon the surrounding landscape.

Insert Figure 15