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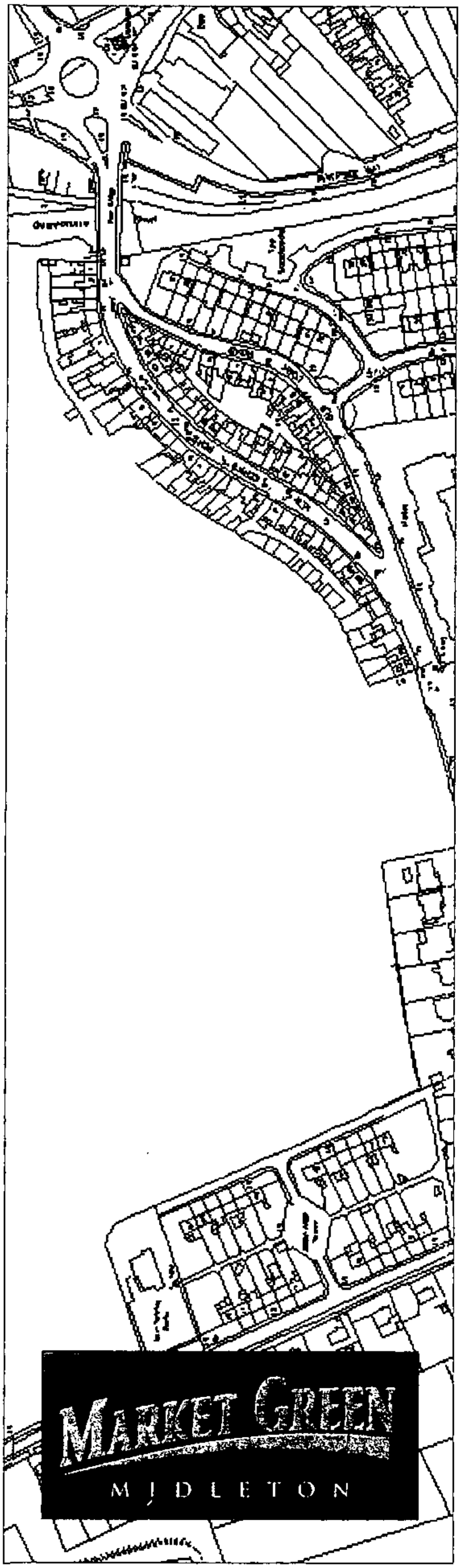

Environmental Impact Statement

For

An Integrated Mixed Use Development on Mart Lands, Midleton, Co. Cork

Prepared on behalf of

Cork Cooperative Marts Ltd

By

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March 2002

INTEGRATED MIXED USE DEVELOPMENT

AT MARKET GREEN,

MIDLETON, CO. CORK.

CONTENTS

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1.0 CHAPTER ONE: INTRODUCTION

Scoping

1.1 This EIS has been prepared by Cunnane Stratton Reynolds on behalf of Cork Co-operative Marts Ltd. The scope and range of issues to be considered within this EIS follow an initial scoping exercise and a number of discussions with the Council, the applicant and their team of consultants. This Environmental Impact Statement ('EIS') has been carried out in accordance with the European Communities (Environmental Impact Assessment) (Amendment) Regulations 1999. The Non-Technical Summary consists of a synopsis of the specialist technical reports, a commentary upon significant direct and indirect effects upon the environment.

Statutory basis

1.2 This Environmental Impact Statement has been prepared to describe the significant effects on the environment arising from the proposal to develop an integrated mixed use development land on lands owned by Cork Co-operative Marts in the townlands of Mogeesha and Knockgriffin, Midleton, Co. Cork. Hereafter the development site area will be referred to as Market Green. The proposed development comes under Infrastructure Projects described in ARTICLE 10 of part II of the First Schedule of the EC (Environmental Impact Assessment) (Amendment) Regulations 1999, SI No. 93/1999. Under Article 10 Infrastructure Projects, which include urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built up area, and 20 hectares elsewhere, the submission of an EIS is a mandatory requirement. Business district is defined as a district within a city or town in which the predominant land use is retail or commercial use. The proposed development is located at the edge of the existing business district and occupies an area in excess of 10 hectares.

Context

1.3 It is the intention of Cork Co-Op Mart to rationalise cattle marketing operations and to construct a state of the art central mart at Fermoy. The relocation of the Midleton Mart releases a significant area of land straddling the Midleton UDC/County Boundary north of Midleton Town Centre. The area of land released is large in terms of the existing town centre and allows for an integrated development of multiple land uses as an extension to the existing town centre.

1.4 A site of this importance, scale and nature requires a strategic and plan led approach which demonstrates a comprehensive and long term solution to all the potential issues. Consequently an EIS has been prepared in respect of the entire land holding which covers an area of 12 hectares (30 acres). The Masterplan approach contained within this EIS gives guidance and direction to all future decision making on the site, thus realising its full potential to create a sustainable development and make a positive contribution to the fabric of the area. The Masterplan will facilitate the phasing of development over time. All major stakeholders will have, through the Masterplan a short, medium and long term understanding of development objectives for this and all subsequent phases of development. This Masterplan sets out parameters and guidance for the overall form of development, the general layout of built and open spaces, the disposition of buildings, and structural planting resulting in a distinctive character to

2.0 CHAPTER TWO: NON TECHNICAL SUMMARY

Proposed Development

2.1 A site of this importance, scale and nature requires a strategic and plan led approach which demonstrates a comprehensive and long term solution to all the potential issues. Consequently a Masteplan approach to the development of these lands has been adopted which gives guidance and direction to all future decision making on the site. The Masterplan will facilitate the phasing of the development over time. All major stakeholders will have, through the Masterplan a short, medium and long term understanding of development objectives for this and all subsequent phases of development. This Masterplan sets out parameters and guidance for the overall form of development across the entire land holding which straddles the jurisdiction of two local authorities namely Midleton UDC and Cork County Council. The Masterplan includes overall design concepts, an open space strategy, and the principles governing the road network and it will provide guidance for the Council to assess future applications for the development of the various parts of the site over a phased implementation programme and to plan and provide linkages in the wider area. The preparation of the EIS has had regard to the impacts of the development on the entire lands and ultimately will be submitted in support of the various supplementary applications which will be submitted to the respective planning authorities. The primary objective of the EIS is to provide a basis for the creation of a coherent urban structure and create a viable mix of uses and facilities over the entire site area which includes 12 hectares of land. The proposed mix of uses on site which includes retail outlets, offices, residential, restaurants retail warehousing, hotel and leisure in association with the adjoining land uses results in the creation of a balanced mix of uses in Midleton town.

2.2 In general terms it is proposed to provide an integrated mixed use development incorporating commercial, retail, leisure, residential, office and amenity uses. The design approach has been developed to provide a development which represents a natural extension to the existing Main Street and an interface with the existing road network. It is our intention that the development is seen as a continuation of the existing town plan providing an architectural form, which maintains and respects the scale of the town. The development will result in the creation of new urban streetscape, plazas and circulation routes including the creation of a new access link over the Owenacurra River, extending as a street through the commercial sectors of the site and linking to Cork Street in the vicinity of the existing hotel and to Knockgriffin Road. The development of a new street culminates in the creation of a town square, fronted by buildings accommodating a mix of retail, commercial, residential, hotel, and leisure uses.

2.3 The development of the site will occur on a phased basis which may be summarised as follows:

Phase One:

This phase of development which is located entirely within Midleton UDC incorporates a retail development with foodstore (gross floor area 4,293sq.m. (2,639sq.m. net sales area)), restaurant and 9no. retail units (gross floor area 1,871sq.m), service yards; 5no. two story two bed residential units. This phase also includes a leisure complex incorporating fast food restaurant and 3no. retail units at ground floor level (1,165sq.m.

gross floor area) with leisureplex and five screen Cineplex at first floor level; café; 5no. retail/commercial units (gross floor area 796sq.m.) with offices overhead (2,973sq.m.); aparthotel incorporating 41no. bedrooms, reception areas, with bar and restaurant at ground floor level and basement storage area; new access bridge over the Owenacurra river, landscaping including riverside amenity area, ancillary parking, infrastructural works, provision of access roads and modifications to existing road layout.

Phase Two:

This phase includes the provision of roads and services infrastructure on the lands adjoining the existing Mart site in the jurisdiction of Cork County Council. These works will ultimately serve the future development of these land and ensure a level of integration with the phase one development.

Future Phases

The third phase of development which may be subdivided into individual applications is likely to comprise of a business park/office development, retail warehouse scheme, petrol filling station, motor showrooms, mixed residential elements including apartments, duplex and semi detached housing units and civic/community facilities. These elements would be located primarily in the County Council area. Future phases will also include the provision of additional buildings to the north of the proposed new Street within the Midleton UDC area to complement the phase one development along the southern boundary of this road resulting in the creation of a coherent streetscape.

2.4 The EIS has had regard to all the above phases of development in assessing the impact of the Market Green proposals

Specified Information & Forecasting Methods

2.5 In general the compilation of the information necessary for the preparation of the Environment Impact Statement did not present significant difficulties. In certain areas however, such as Retailing and Traffic, certain assumptions and projections are necessary. Where required, new survey work has been undertaken to complement data that was available from official sources. These statements have been prepared in line with current best practice and the best available information.

Effects On The Environment

2.6 Consideration of environmental impacts in the EIS was generally restricted to areas that initial scoping had indicated could be impacted by the proposed development. These included;

- Human Beings.
- Flora & Fauna.
- Soils.
- Water.
- Air Quality.
- Climate

- Noise
- Landscape & Visibility.
- Material Assets - Traffic and Parking.
- Material Assets - Retailing and Economic.
- Cultural Heritage - Archaeology.
- Interaction of the Foregoing.

2.7 Each of the above was considered in detail, having regard to both the environment as it currently exists before the development, the likely impacts that a development of this kind would have and the means of reducing the impacts of the development when it is in operation. It should be noted that many of the impacts that the development could have had were excluded at the design stage when a range of different design alternatives were considered. As a result, the impacts identified in this non-technical summary represent a summation of the notable remaining impacts (considered in more detail in the EIS proper) and the means of reducing their impact to a point where they will not be significant.

Human Beings

2.8 The impact that the proposed development would have on human beings was considered by reference to the areas;

- Population – its profile and trends.
- Employment – the labour force profile.
- Community – services and amenities.

2.9 The likely impact that the development may have on human beings has also been addressed in other sections of the EIS. The proposal will provide a valuable community facility for shopping and leisure activities as well as providing additional employment opportunities both during construction and operation. As a result the proposed development is expected to have a positive impact on this aspect of the environment.

Flora & Fauna

2.10 The Midleton Mart site consists of widespread habitats that are typical of semi-urban sites, i.e. pasture fields, waste ground and buildings. However it does adjoin the Owenacurra River which has a relatively rich fauna associated with it, including the otter and salmonid fish. The few bankside trees have an ecological role for this fauna. Development of the site will lead to ecological changes and while these will be significant locally they will not affect heritage values on any broader scale. Otters and other fauna will probably spend less time on the site but they will not disappear or encounter barriers to movement. Additional planting of deciduous trees will favour the use of the site by bats and small birds. The proposed development will result in an overall reduction in vegetation cover. New planting will minimise this loss but will take time to mature. No rare or protected species of plants will be impacted upon. Impacts on mammals will be significant during the construction phase. Most other mammal species will be displaced in the short to medium term but may return as plantings mature. The site currently displays little ecological value and no significant impacts are expected to occur to wildlife as a result of the development.

Soils/Water

2.11 The proposal is not expected to have any significant impact on soils either on the site or in its vicinity. Some soils will be removed and/or reprofiled during the construction process. No mitigation measures are required. No significant impact will occur to either surface or foul water drainage as a result of the proposed development.

Air/Climate

2.12 A baseline ambient air quality survey was carried out in the vicinity of the proposed development. Currently the air quality is good with all levels of criteria pollutants below the relevant European Union guidelines. The main source of air pollution in the area is from motor vehicle exhausts and the concentrations of pollutants decreases with distance from major roads. Future air pollutant concentrations as a result of the development have been predicted using a traffic pollution-screening model. The predictions indicate concentrations in compliance with the relevant legislation for most pollutants whether the proposed development is operation or not. For the pollutant that does not show compliance (nitrogen dioxide), concentrations are proven to be an overestimation based on the ambient air quality monitoring. Furthermore, the predictions indicate a reduction in all pollutant concentrations for the future scenario year with the development in place when compared to the current scenario.

Landscape and Visibility

2.13 The site is predominantly pastoral but also features a livestock market and the Owenacurra river flows along its eastern boundary. Midleton's flat topography and urban structure limits visual connection with the site to specific viewpoints from buildings and spaces on the site peripheries. The site has few unique characteristics although the river is a valuable natural asset which has the potential to be developed as an attractive riverside amenity as part of the development proposals. The site is not subject to a landscape strategy or protection order. Visual impact will result because of the change of the primarily brownfield nature of the site to an area of intensive urban development. Visual impacts will be restricted to site peripheries, given the limited views available into the site from the other parts of Midleton. Moderate to high visual impacts will be experienced from private residences on the site peripheries that have wide, unrestricted views of the site.

2.14 Mitigation will be brought about through a carefully designed landscape package. The primary aims of the landscape plan will be to visually integrate the development with the townscape, encourage public use and ownership of the site and restore and enhance the natural character of the riverside area. Implementation will commence as early as possible in the project. Overall residual impacts on Midleton will be minimal. Residual impacts will be restricted to site peripheries.

Noise

2.15 A noise impact assessment for the proposed Market Green Development has been carried out. The two main stages of the development have been assessed, the construction and operational stages. The construction phase of project has not progressed to a fully design stage as yet. However, the temporary nature of the noise associated with construction and the proposed mitigation steps, should help maintain noise levels to a minimum during this stage. Noise levels from the operational phase of

this development i.e. from building and electrical services is anticipated to be minimal if noise is considered at the design stage of the project. Noise levels from road traffic noise associated with the development should not lead to a significant increase in noise to the surrounding environment.

Retail

2.16 The proposed development is justified on retailing grounds having regard to the spending growth and to the deficiency in retail provision in the town and hinterland. The proposal will not have a significant negative impact on retailing in the surrounding area given that the major anchor for the phase one development is a replacement store. It is envisaged that the retail development will foster competition in the local economy and create a synergy with the existing retail uses, with positive benefits to the local resident community. The benefits of retail development at this location have been envisaged in the Town Development Plan where a large proportion of the site has been zoned for town centre uses. The proposal also accords fully with the Retail Planning Guidelines 2001. There are not expected to be any detrimental impacts on trading patterns in the surrounding area.

Traffic

2.17 The overall development consists of retail, leisure, office, hotel and café type development. The overall proposed development is expected to generate 1200 vehicles approximately in the evening peak hour period. The road network will require additional improvements and road links to enable this traffic volume to distribute onto the road network without causing undue delay. Accordingly, it will be necessary to implement the overall proposed development on a phased basis in conjunction with infrastructural improvements in the road network on the northern side of the town. Phase I of the proposed development is expected to generate 690 vehicles approximately in the evening peak hour period. The existing road network, together with improvements to the main roundabout, can accommodate this increase in traffic.

2.18 A major improvement to the existing roundabout at the northern end of Main Street is also proposed. It involves the construction of a large diameter roundabout, with modified kerblines on all the existing approaches to the roundabout, as well as a new road to the site. The modified kerblines will not affect the monument at the northern end of Main Street. The new roadway from the improved roundabout to the site will require the construction of a new bridge across the Owenacurra River. The improved roundabout and the new road are considered to be an integral part of the proposed development in order to access the site as well as bringing the proposed development closer to the existing town centre. It is considered that this layout provides for an enlargement of the town centre. The impact of the traffic associated with the proposed development has been assessed and the assessment indicates that no adverse impacts occur due to the additional traffic.

Archaeology

2.19 There are no known archaeological sites or Recorded Monuments on the site of the proposed development. One Recorded Monument, Cork Bridge (076-106), forms part of the southern boundary of the site, but the adjacent area will not be subject to development. It is proposed to construct a new bridge to the north of Cork Bridge. A small portion of the site falls within the area of archaeological constraint for Midleton. This area does not contain any known archaeological sites or monuments. Throughout

the site, topsoil removal and extensive excavations for foundations, drainage, deep service trenches, etc. should be monitored by a suitably qualified archaeologist. This is the responsibility of the developer.

Interaction of the Foregoing

2.20 Interactions are expected between human beings/noise, human beings/dust, human beings/air quality, human beings/landscape and visibility, flora and fauna/landscape and visibility and these are fully assessed late.

3.0 CHAPTER THREE: THE DEVELOPMENT

Site Location

3.1 The lands are located north of Cork Street/New Cork road at the north end of Midleton Town Centre. They are bounded on the east and northeast side by the course of the Owenacurra River. On the southeast side, they are bounded by the rear of properties fronting the north side of the new Cork Road. On the southwest side they are bounded by lands occupied by Dairy Gold Co-Op, including a convenience/agricultural materials retail outlet. The lands extend at the west side to Knockgriffin Road. They are bounded on the northwest side by existing industrial development accessed via Knockgriffin Road. In addition to these lands the proposed development site extends across the Owenacurra River to encompass the lands presently occupied by the fire station on Mill Road.

Site Description

3.2 Most of the land is currently laid out in pasture, except for an area of in filled ground to the north of the New Cork Road. The Cattle Market and surrounding hardcore parking areas stand on the in filled ground. The majority of the site is accommodated at two different levels. The lower level comprises the low-lying flood plain of the Owenacurra River, in the north-eastern sector. The south-western sector is elevated behind a flood control levee, at a higher level, and is currently in agricultural pasture, laid out in a single large field.

Context for the proposed development.

3.3 It is the intention of Cork Co-Op Mart to rationalise cattle marketing operations and to construct a state of the art central mart at Fermoy. The relocation of the Midleton Mart releases a significant area of land straddling the Midleton UDC/County Boundary north of Midleton Town Centre. The area of land released is large in terms of the existing town centre and allows for an integrated development of multiple land uses as an extension to the existing town centre.

3.4 The Cork Area Strategic Plan has noted that the region is now witnessing a reversal of migrating trends, with immigration being the key driver of population growth. In addition, in response to rising incomes, changing cultural and societal attitudes, household sizes are diminishing, which combined with migration factors create a need for residential and other land uses. There has been very rapid growth in job creation since the mid 1990s. In the future, reflecting the trend in the growth of service sector activities, such as financial services, banking and retailing, it is probable, and indeed essential that the economy of the sub region moves in the direction of a more modern service based economy. Medium growth projection described in the Cork Strategic Plan indicate a likely requirement for the construction of some 50,000 new houses, and new commercial space in the form of offices, factories, distribution centres, business parks, technology parks and the like; and considerable additions to the sock of retail floor space. Consumer expenditure growth has been faster than predicted and there is more available consumer spending than previously envisaged, in the Cork Retail study or in the National Retail Planning Guidelines.

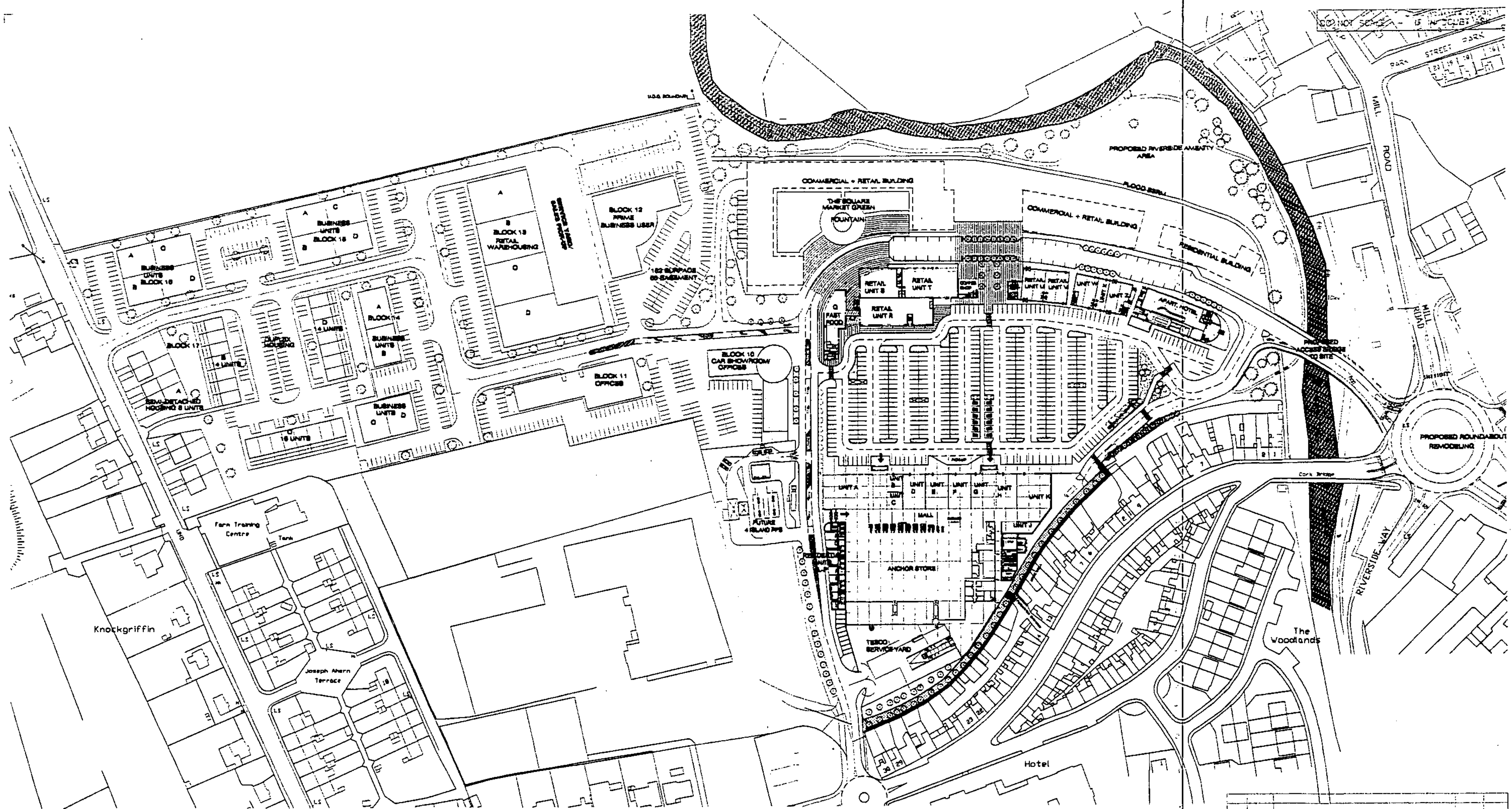
3.5 The Strategic Plan has projected that population growth in Midleton will amount to 18,000 by 2021 with a commensurate growth in employment over this period. To meet this growth the Plan acknowledges that there be a requirement to expand the services available in the town. It is also recommended that the provision of a commuter rail link to Midleton will be actively pursued. In this regard the Draft County Development Plan has identified substantial areas of future housing land in the catchment area of Midleton. CASP also acknowledges that there is a requirement to allow for the development of supermarket and two superstores to be developed over the Plan period. Midleton and its environs is to become a major urban centre, offering higher order services retail and social functions to this hinterland population.

Proposed Masterplan

3.6 The current applications represents the first phases of a multi phased development approach to the lands at Market Green. A Masterplan for the entire site has been prepared for the entire landholding. This Masterplan sets out a framework for providing a variety of uses, reflecting current and future likely market demand which would maximise the development potential of the site.

3.7 It was considered by the applicant that a site of this importance, scale and nature requires a strategic and plan led approach which demonstrates a comprehensive and long term solution to all the potential issues. The Masterplan gives guidance and direction to all future decision making on the site, thus realising its full potential to create a sustainable development and make a positive contribution to the fabric of the area. The Masterplan will facilitate the phasing of development over time. All major stakeholders will have, through the Masterplan a short, medium and long term understanding of development objectives for this and all subsequent phases of development. The plan is consistent with national planning advice and the relevant local development plans of the local authority. This Masterplan sets out parameters and guidance for the overall form of development, the general layout of built and open spaces, the disposition of buildings, and structural planting resulting in a distinctive character to the development. The Masterplan includes overall design concepts, an open space strategy, and the principles governing the road network and it will provide guidance for the Council to assess future applications for the development of the various parts of the site over a phased implementation programme and to plan and provide linkages in the wider area. In summary this approach to the development of the lands will seek to:

- Maximise the development potential of the site.
- Provide guidelines for various types of land uses
- Provide guidelines for open spaces, streets and common areas.
- Create a strong sense of place by providing a hierarchy of urban enclosure, building scale and residential densities.
- Create a truly sustainable environment by providing a range of ancillary uses such as local shopping, and community facilities.
- Realise the full potential of the visual, physical and historical features of the land and landscape.



MARKET GREEN DEVELOPMENT
MASTER PLAN

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED
P1	27.02.02	ISSUE FOR PLANNING	L.K.	K.C.

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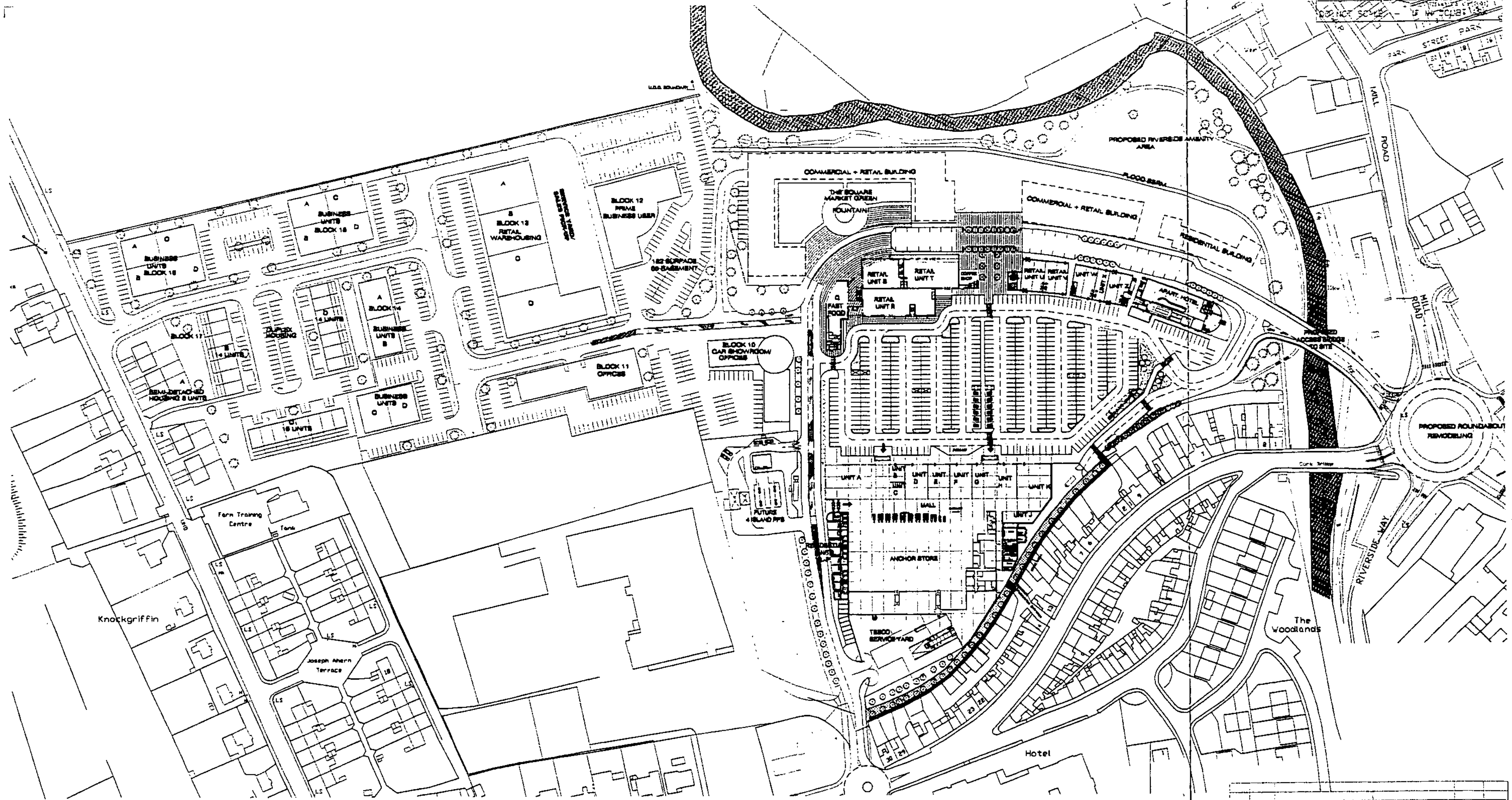
Project.
MARKET GREEN DEVELOPMENT,
MIDLETON, CO. CORK
Client.
CORK CO-OPERATIVE MARTS LTD

Drawing Title.
EIS
MASTER PLAN

Scale.	Job No.	Drawing. No.	Date.
NTS	997	150	FEB 2002



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- Devise a development programme and phasing consistent with maximising the development potential of the site.

- Enhance the quality of life for those in the areas both within and surrounding the site.

3.8 The primary objective of the EIS is to provide a basis for the creation of a coherent urban structure and create a viable mix of uses and facilities over the site area which includes 12 hectares of land. In general terms it is proposed to provide an integrated mixed use development incorporating commercial, retail, leisure, residential, office and amenity uses. The design approach has been developed to provide a development which represents a natural extension to the existing Main Street and an interface with the existing road network. It is our intention that the development is seen as a continuation of the existing town plan providing an architectural form, which maintains and respects the scale of the town. The development will result in the creation of new urban streetscape, plazas and circulation routes including the creation of a new access link over the Owenacurra River, extending as a street through the commercial sectors of the site and linking to Cork Street in the vicinity of the existing hotel and to Knockgriffin Road. The development of a new street culminates in the creation of a town square, fronted by buildings accommodating a mix of retail, commercial, residential, hotel, and leisure uses. The development of the site will occur on a phased basis which may be summarised as follows:

Phase One:

This phase of development which is located entirely within Midleton UDC incorporates a retail development with foodstore (gross floor area 4,293sq.m. (2,639sq.m. net sales area)), restaurant and 9no. retail units (gross floor area 1,871sq.m), service yards; 5no. two story two bed residential units. This phase also includes a leisure complex incorporating fast food restaurant and 3no. retail units at ground floor level (1,165sq.m. gross floor area) with leisureplex and five screen Cineplex at first floor level; café; 5no. retail/commercial units (gross floor area 796sq.m.) with offices overhead (2,973sq.m.); aparthotel incorporating 41no. bedrooms, reception areas, with bar and restaurant at ground floor level and basement storage area; new access bridge over the Owenacurra river, landscaping including riverside amenity area, ancillary parking, infrastructural works, provision of access roads and modifications to the existing road layout.

Phase Two:

This phase includes the provision of roads and services infrastructure on the lands adjoining the existing Mart site in the jurisdiction of Cork County Council. These works will ultimately serve the future development of these lands and ensure a level of integration with the phase one development.

Future Phases

Future phases of development which may be subdivided into individual applications is likely to comprise of a business park/office development, retail warehouse scheme, petrol filling station, motor showrooms, mixed residential elements including apartments, duplex and semi detached housing units and civic/community facilities. These elements would be located primarily in the County Council area. Future phases will also include the provision of additional buildings to the north of the proposed new Street within the

Midleton UDC area to complement the phase one development along the southern boundary of this road resulting in the creation of a coherent streetscape.

3.9 The EIS has had regard to all the above phases of development in assessing the impact of the Market Green proposals.

Design

Site layout

3.10 The Market Green site lies immediately adjacent to the north west of Midleton Main Street. The site itself is of great importance due to its immediate relationship to the town centre. It lies at the road junction connecting Main Street and the New Cork Road and Lower Mill Road which is the principle northern access to and from the town. The proposed new bridge and footways into the Market Green development will provide vehicle and pedestrian access, creating a natural and complementary facility to the existing town and support the town's expansion. The existing topography of the site has been taken into account in generating the proposed masterplan. Careful consideration has been given to levels utilising the flood plain, maintaining and respecting the existing river and flood plain.

Architectural Plan Form

3.11 The architectural form has been developed to provide a natural extension to the existing Main Street and an interface with the existing road network. It is our intention that the development is seen as a continuation of the existing town plan providing an architectural form, which maintains and respects the scale of the town providing a contemporary solution which incorporates a mix of uses which are required for the town centre activities.

3.12 The development incorporates the extension and development of Main Street through the provision of a traditional street form. The broad street is curved with buildings located on both sides and concludes in a public/civic square "Market Green" which acts as a termination to the new Main Street and connects back to the Cork Road and also provides traffic distribution to the west. The principle commercial activities are contained within the area described by the extension of the new Main Street, the new Market Green Square and the road connection from the Square to the Cork Road. The masterplan has therefore concentrated the principle retail commercial activity integrating it with the newly proposed street form providing the necessary support car parking and access without damaging the perception of the natural existing urban form. The scheme also manages as a consequence of its layout to integrate the existing facility of Dairygold therefore drawing the active commercial and retail activities into a harmonium group.

Phase One

3.13 The development of the new bridge and the buildings immediately adjacent to it are designed to form a gateway into the new development which presents a strong architectural presence drawing people into the development and creating a gateway into Market Green. The street is developed with buildings on both sides. The buildings on the southern side of the street which constitute phase one comprise of the following elements:

(a) An apart-hotel with foyer, bar and restaurant areas at ground floor level, 36 bedrooms at first, second and third floor levels and 5 penthouse bedrooms at roof level with ancillary reception areas.

(b) Two office blocks with ground floor retail units.

(c) A pedestrian area which links the car park and main entrance to the shopping mall and supermarket to the south with a public park and river to the north.

(d) A cineplex building with ground floor retail units and a fast food restaurant with five cinemas over and a leisureplex. This building forms the southern side of Market Green Square. This area will be pedestrianised with a facility for temporary market stalls, and hard landscape treatment.

Anchor Store

3.14 The foodstore would have a gross area of 4,293m^2, with a net sales area of 2,639m^2, below the Cap set out in the Retail Planning Guidelines of 3,000m^2. The foodstore would be a modern addition to convenience retailing in Midleton and would replace the existing operation, which is located in a small cramped and inappropriate unit on Main Street. The gross floor area of the proposed store includes a back-of-house area of 1,700 sq m. This back-of-house area includes general storage areas, walk in refrigeration chambers (for storage of chilled and frozen produce), staff facilities including canteen and toilets, training room, computer room, cash office, management offices, etc. The mall area at the entrance to the store would lead customers to nine retail units ranging in size from 73m^2 to 472m^2 gross. These units could accommodate a range of comparison and non-retail service uses.

Future Phases

3.15 The buildings to the north side of the street which will be developed under phase three are of broken form providing views through to the north, the river and the public park. These buildings will be of a mixed use including residential and offices with commercial and retail at street level. After the Civic Square "Market Green", the street forms links to the south and west of the site. The street to the south connects back to the Cork Road. This street will be lined with trees and opens to a car park which will be fully landscaped. On the eastern side there is an entrance to the pedestrian tree lined walkway which forms a buffer between the back gardens of the existing houses on Cork Road and the back of the proposed supermarket. Next there is a walled in service yard followed by five two-storey courtyard type houses which form a screen between the side of the supermarket and the street. This is followed on by a pedestrian entrance to the shopping mall and a landscaped public area.

3.16 The site west of the new Market Square has been developed to provide a connection with the Knockgriffin Road. Phase two includes the provision of the necessary infrastructure to support this development. The buildings which will for part of phase three have been designed to provide firstly a backdrop to Market Green Square where it is proposed to create two commercial buildings which would be for a prime business user. It is envisaged that these buildings would contain a secondary open public space whilst having a different character it compliments and supports the activity of the adjacent Market Square and Main Street.

3.17 The area to the west is allocated for smaller business units. These provide a boundary to the north of our new road connection the Knockgriffin Road and act as a buffer to the existing industrial business units directly to the north of the site. The new roadway to the west from the Market Square to the Knockgriffin Road also provides for a new rear access into the Dairygold development. The western part of the site will include residential units. The character of the Knockgriffin Road is maintained with the continuation of the established street form by providing semi-detached two-storey housing. The area directly behind the street housing has been developed to provide courtyard duplex housing. This housing acts as a buffer between the existing residential use of the Knockgriffin Road and the new development of commercial buildings to the east.

Architectural design

3.19 The building forms that have been used are in themselves contemporary but are of a scale that is reflective of the existing urban fabric and using quality materials that are respectful and harmonise within the context of the local vernacular. The continuation of the street form and the formation of the square is important in maintaining the perception of a small scale satellite town. Market Square creates a focal point for the development. It is the termination of the Main Street extension and acts as pivotal point to connect back to the Cork Road. The Square will be clearly visible from the Cork Road access and again acts as an end point from the Cork Road access.

Planning Context

Retail Planning Context

3.20 The Retail Planning Guidelines for Planning Authorities provide a framework to guide local authorities in preparing development plans and assessing applications, and retailers and developers in formulating development proposals. The Guidelines highlight pressure for new retail development in Ireland over the last decade and likely continuation of high growth rates in consumer spending on convenience and comparison goods. The Guidelines also emphasis the need to support the role of town and district shopping centres. The Guidelines encourage retail development which; (a) Facilitates a competitive and healthy environment for the retail industry in the future; (b) promotes forms of development which are easily accessible, particularly by public transport - in a location which encourages multi-purpose trips; and, (c) supports the role of town and district centres as the preferred location for new retail development. The guidelines emphasise that:

> *"It is not the purpose of the planning system to inhibit competition, preserve existing commercial interests or prevent innovation. In interpreting these guidelines the local authorities should avoid taking actions which would adversely affect competition in the retail market."*

Development Plan

County Development Plan, South Cork 1996

3.21 The County Development Plan for South Cork envisages the development of satellite towns, including Midleton, as distinct communities. It notes that market forces, left to their own devices, would probably have resulted in a continuous expansion of the City eroding the Green Belt with development corridors extending out from the city with the consequent adverse impacts on the satellite towns.

3.22 The Plan categorises Midleton as an important service or district centre for the purposes of retailing but does not outline a detailed strategy for the development of the sector. It also envisages that improvements in retailing, catering and hotel facilities will not only serve the town's large catchment population but will also support the town's expanding role in tourism. The lands the subject of phase two and subsequent phases are located within the County area are not zoned formally zoned in the current Development Plan although they are located within the development boundary of this Plan. This Development Plan is currently under review and it is anticipated that the proposed development within the County lands will ultimately be reflected in the zoning.

Cork Area Strategic Plan 2001-2020

3.27 Metropolitan Cork, as defined in the Strategic Plan includes the towns of Glanmire, Glounthaune, Carrigtwohill, Midleton and others to the east of the City. In Metropolitan Cork, Cork city and satellite towns (including Midleton) will function as a *"single integrated unit"*. Midleton will form part of the major growth corridor that will run from Blarney to Midleton. Midleton lies along the multi-modal corridor leading from Co Cork to Waterford and Rosslare via the N25 and former railway line to Youghal.

3.28 The strategy refers to the Roger Tym & Partners retail study of 1997 and states that since it was carried out the growth it predicted has grown even more rapidly with consequent demand for retail space being even greater than before. In terms of short term retail requirements from 2001 –2006 the strategy states that it is necessary to plan for more retail development rather than less. There is considerable potential for additional convenience, fashion oriented and bulky durable goods provision. The overall strategy for retail provision foresees the development of Midleton as a major centre for retail development to include the provision of two superstores, one comparison retail project and a retail park by 2020. These predictions are however dependent on the conclusions of the Joint Retail Strategy Study currently in the process of preparation.

Midleton Town Development Plan 1998

3.29 The current Development Plan for Midleton town was adopted in March 1998. According to this plan the proposed development site for phase one which includes the anchor supermarket, fast food restaurant, offices and leisureplex is located on land zoned for Town Centre (Mixed Uses) where uses such as retail shops (small convenience and general), take away food shop and restaurants would normally be

permitted. The Development Plan sets out a number of strategic aims for the town, which include the need to;

> *"strengthen and develop the town's status as a commercial, service, employment and cultural centre for the region.*
>
> *provide for change and renewal of existing retail and commercial facilities to meet the developing needs of the town.*
>
> *secure the provision and development of convenient and attractive services and facilities for the town.*
>
> *promote and reinforce the role of the existing town centre as the focus of major commercial and related activities in the area and to discourage the relocation of such uses to peripheral areas*
>
> *rationalise and build on the existing organisation of the town and establish future patterns for consolidation or growth*
>
> *have the Urban District Boundary extended to reflect the present built town of Midleton to allow sufficient land for foreseeable future development"*

3.30 The Plan recognises the importance of Midleton as a service destination for the surrounding area and it also states that shopping has been identified as an essential facility to serve tourism. The Plan considers there to be a strong demand for shopping/retail space in Midleton and states that the Planning Authority should encourage positive change and developments where they are proposed. As part of the Development Plan's specific objectives in relation to commercial/retail development, it states that the Council will;

> *"facilitate the private sector in providing for the changing shopping, dining and commercial needs of the town, where proposals are in keeping with the neighbourhood and other objectives of this Plan"*

3.31 The Plan's land use objective for Town Centre (Mixed Uses). It states that its objective is:

> *"To improve the existing environment and provide for the development and extension of compatible Town Centre Uses. New uses or change of uses may be permitted where they are appropriate and compatible with the neighbourhood in terms of architecture, townscape, traffic safety, noise, smells etc"*

3.32 The proposed development accords with the Development Plan objectives for the area and regional objectives to promote Midleton as a major growth centre as advocated in the Cork Strategic Plan.

Construction Impacts

3.33 The construction of the development will have a different impact than its operation. By its very characteristics, the construction impact will be temporary in nature and must be considered as a transient environmental impact.

Construction Employment

3.34 The construction of the development will provide for on-site employment in the range of 100 to 250 persons. This figure has regard to the different labour requirements that different stages of construction will have. It is estimated that the overall construction employment on site will result in circa 12,000 person weeks of employment.

Construction Hours

3.35 The construction phase of the development will comprise a 6 day week with normal working hours extending from 08.00 to 18.30.

Construction Waste

3.36 Certain wastes will arise from the construction phase. The volume of these wastes is not expected to be significant however, and will be disposed of at an appropriate landfill facility.

CHAPTER FOUR: ALTERNATIVES EXAMINED

Alternative Locations

4.1 The area of the site located within Midleton UDC has been identified in the Development Plan to provide for an extension to the town centre where the proposed mix of uses are normally permissible. As a result no alternative sites were examined.

4.2 In locational terms the proposed development would assist in the provision of a more equitable distribution of facilities in the town. A retail scheme on the site would fill an existing qualitative deficiency in the spatial distribution of shopping developments in east Cork. More particularly, in doing so, it would also meet the needs of the growing population in the surrounding area arising from new housing development. Consequently, we have concluded that no more suitable alternative sites exist in the area.

4.3 The lands the subject of phase two and subsequent phases are located within the County Council area and are not zoned formally zoned in the current Development Plan although they are located within the development boundary of this Plan. This Development Plan is currently under review and it is anticipated that the proposed development within the County lands will ultimately be reflected in the zoning. The mix of uses will complement existing services in the town and integrate with the adjoining development on the UDC lands. The site is located to the north west of Main Street within easy walking distance of the primary shopping core which can be defined for the purposes of this study to begin at the roundabout to the north of Main Street. As there are no other sites located either within the historic core or in closer proximity to the primary retail core, it is judged to be the most appropriate location for this type of development.

Design

4.4 The architectural form has been developed to provide a natural extension to the existing Main Street and an interface with the existing road network. It is our intention that the development is seen as a continuation of the existing town plan providing an architectural form, which maintains and respects the scale of the town providing a contemporary solution which incorporates a mix of uses which are required for the town centre activities.

Alternative Uses

4.5 The Development Plan identifies a number of land uses as appropriate for developments on the zoning applicable to this site. The applicant has assessed the range of permissible uses and is proposing a mix of land uses which are both appropriate to this zoning and are compatible with the physical characteristics of the site and its surrounding area.

5.0 CHAPTER FIVE: SPECIFIED INFORMATION AND FORECASTING METHODS

Difficulties in Compiling Specified Information

5.1 Difficulties arose from the lack of baseline information particularly the lack of up to date information on issues such as retail development and traffic flows in close proximity to the application site. We have therefore undertaken our own surveys to update existing data in order to reflect recent changes in the area and to ensure a robust analysis of the relevant impacts. In relation to the Landscape and Visual Appraisal, the following difficulties were encountered;

- Defining the character of inner Midleton from an objective point of view.
- Rationalising or defining the different character areas of inner Midleton as perceived by different people.
- Accurately assessing the visual impacts on residences facing the site because it was not possible to access dwellings.

5.2 With regard to Air & Climate, measurements were carried out for the purposes of the Statement. It was not possible in the time frame of the monitoring project to obtain ambient air quality data representative of all possible conditions on this site. The varying weather conditions at the time of the survey, i.e. temperatures ranging from 10 – 20 °C, low humidity and wind speeds of *ca.* 0.5 – 10.0 m/s may not lead to worst-case peak and baseline pollutant concentrations. For the other elements of the Study no significant difficulties were encountered in compiling information

Forecasting Methods

5.3 The methods used in Chapter 6 of this Statement to forecast the effects of the proposal on the environment are tried and tested methods employed in each of the relevant fields of expertise. The particular methodologies adopted are detailed in the relevant technical supporting documents making up the full application package.

6.0 CHAPTER SIX: EFFECT ON THE ENVIRONMENT

6.1 HUMAN BEINGS

Introduction

6.1.1 Human beings comprise the most important element of the environment. One of the main concerns in the development process is that people, as communities or as individuals, should experience no diminution in their quality of life from the direct or indirect impacts arising from the construction and operation of a development proposal. Analysis of the socio economic impacts in terms of demographic and employment characteristics, complements the biophysical focus of other sections of the EIS. Indeed the key trade offs in assessing the benefits and costs of a development proposal tend to revolve around the balancing of socio-economic benefits (usually in terms of employment) against biophysical costs all within the broader context of sustainability.

Receiving Environment

Demography and Employment

6.1.2 Over the decade 1986 to 1996 population in Cork City and County increased by 1.9 per cent rising from 412,735 to 420,510 compared to 2.4 and 1.8 per cent at national and regional levels. Trends differed between the City and County over the intercensal periods 1986-1991 and 1991-1996. In the City, population declined continuously over the decade falling from 133,271 to 127,187 persons. Between 1991 and 1996 population declined marginally from 127,253 to 127,187 persons compared to a drop of 0.9 per cent per annum between 1986 and 1991. In sharp contrast, population in the County increased by 5.0 per cent over the decade rising from 279,464 to 293,323 persons. Population growth more than doubled from 0.26 per cent per annum between 1986 and 1991 to 0.71 per cent per annum in the five years to 1996. (See Table 4.1, Population Tables, Appendix I)

6.1.3 Midleton Rural District comprises 19 District Electoral Divisions. Between 1986 and 1996 its population increased by 2.8 per cent rising from 18,045 to 18,558 persons. Over the five years 1986 to 1991 population, following the national and regional trend, declined by 0.9 per cent. This was followed by an increase of 3.8 per cent over the five years to 1996 with population rising from 17,877 to 18,558 persons compared to increases of 2.7 and 2.8 per cent respectively at regional and national levels. (See Table 4.2 in Appendix I) Six of the constituent DEDs – Ballycotton, Carrigtohill, Cloyne, Corkbeg, Midleton Rural DED and Igtermurragh, with a total 1996 population of 12,907 persons, account for almost 70 per cent of the total Rural District population. Midleton Rural and Carrigtohill are the largest of the DEDs with 36.8 per cent of the Rural District population.

6.1.4 Over the decade 1986 to 1996 the population of Midleton Urban District increased by 5.0 per cent from 3,111 to 3,266 persons. Population numbers fell by 3.2 per cent to 2,990 in 1991 rising significantly by 9.2 per cent over the five years to 1996. The 1991 to 1996 increase is the second largest increase of any Urban District in the County exceed only by Kinsale Urban District with 14.2 per cent. In sharp contrast population in the environs of the town fell by 2.0 per cent from 3003 persons in 1986 to 2943 in 1996. Overall the population of the town and its environs rose by 1.6 per cent from 6114 persons in 1986 to 6209 persons in 1996.

6.1.5 In June 2000 Midleton Urban District Council submitted a proposal for an Urban Boundary Alteration which, if accepted by the Department of the Environment and Local Government, would encompass the existing environs resulting in a 1996 population equivalent of 6,209 persons. The proposal emphasises the high degree of interaction between the town and its hinterland identifying the urban area and its environs as a single labour market and as the main shopping, services and cultural centre for the greater area.

POPULATION AGE STRUCTURE

Midleton Rural District

6.1.6 The population profile of Midleton Rural District is maturing. Between 1986 and 1996 the number of children in the age cohort 0 to 14 years declined from 5,682 to 4,685 persons, that is from 31.5 per cent of total population to 25.2 per cent. In the oldest cohort, 60 years plus, there was a 3.2 per cent increase in numbers, from 2,481 to 2,560 persons. Population in the intermediate cohorts, 15 to 59 years, the high spending section of the population, increased from 54.7 per cent to 61.0 per cent. The major increase, 47.1 per cent, occurred in the 45-59 year cohort with population increasing from 2,155 in 1986 to 3,170 persons in 1996. (See Table 4.3 in Appendix I). Overall average age increased from 30.5 years in 1986 to 31.1 years in 1996 in the Rural District compared to a 1996 average of 33.6 years at County level. The accompanying fall in the dependency rate from 41.3 to 35.7 indicates an increase in the spending capacity of the area.

Midleton District Electoral Division

6.1.7 The most significant feature of the changing population structure is the decline in the number of children in the 0-14 age group. This dropped as a percentage of total population, from 34.4 per cent in 1986 to 24.6 per cent in 1996, a fall of 27.1 per cent from 1252 to 912 persons over the decade. This reflects the twin impacts of emigration and falling birth rates. (See Table 4.4, Appendix I). The percentage of persons in the intermediate cohorts from 15-59 years rose from 56.4 per cent to 64.7 per cent of DED population. This represents an increase of 17.0 per cent from 2,050 persons in 1986 to 2,398 persons in 1996. The number of persons aged 45-59 years rose by 64.6 per cent from 429 to 706, the single largest age specific increase. The number in the 60+ age cohort increased by 17.9 per cent rising from 336 persons over the ten years to 1996. In summary average age in the DED rose from 28.0 to 32.2 years over the decade with a 9 point shift in the dependency rate from 41.2 to 32.3 per cent.

Midleton Urban District

6.1.8 The changes in population age structure at UDC level were not as sharp as those at Rural District and DED levels. The percentage of population in the 0-14 year cohort declined from 25.6 in 1986 to 20.9 per cent in 1996 falling from 798 to 682 persons. This was equivalent to a fall of 4.7 percentage points compared to 6.3 and 10.0 at Rural District and DED levels. The number in the 60 years + cohort remained virtually static at 630 and 633 persons respectively in 1986 and 1996. However, the proportionate

share of population rose from 54.1 to 59.7 per cent rising from 1,683 to 1,951 persons over the decade. (See Table 4.5, Appendix I)

6.1.9 Average age in the town increased, with the changing population profile, from 34.6 to 36.3 years. The dependency rate declined from 41.6 per cent in 1986 to 36.6 per cent mainly due to the loss of population in the 0-14 year cohort. In a retailing context the changing population profiles of Midleton Rural and Urban Districts show a shift towards the income earning age groups. In the Rural District population in the 25-65 age cohort increased by 15.5 per cent over the decade to 1996 rising from 7,672 to 8,861 persons. The corresponding increase at Urban District level was 22.0 per cent with population increasing from 1,227 to 1,497 persons.

HOUSEHOLDS

6.1.10 Between 1986 and 1996 the number of private households in Midleton Rural District increased by 13.1 per cent rising from 4,783 to 5,410 households. Over the period average household size declined from 3.73 to 3.37 persons. The number of households in the Midleton District Electoral Division increased at a faster rate, 17.9 per cent, rising from 900 in 1986 to 1,061 private households in 1996.

6.1.11 Average household size is lowest in the Urban District. Over the ten year period it declined from 3.23 persons to 2.93. The number of households in the town rose by 8.7 per cent from 867 to 1,029 in 1996. (See Table 4.6, Appendix I). The increase in the number of households at all levels within the Rural District, which conforms closely with the retail catchment area, has an upward effect in terms of demand for retail goods and services. The trend in the number of households is forecast to continue driven by the continuing fall in average household size and immigration. Among the growth options set out in the Cork Strategic Plan 2001-2020 (Interim Report) is one based on concentration on Cork City with an out of centre focus on the Cork-Midleton corridor. Under this strategy Midleton and its environs, Carrigtohill, Glounthaune and Glanmire would accommodate some 13,000 new homes.

SOCIAL CLASS

6.1.12 In 1996 twenty eight per cent of population in Midleton Rural District were classified as being in the highest social classes (numbers 1 and 2), which include professional, managerial and technical workers. This was higher than the national average of 27.4 per cent of population in these classes. The proportions for Cork City and County were 22.6 and 30.2 per cent respectively. (See Table 4.7, Appendix I). In the intermediate social classes, (categories 3 and 4), the non-manual and skilled manual categories, the proportion of Rural District population was the same as the national average, 38.9 per cent, compared to 37.4 and 39.4 at City and County levels. The percentage of population in the semi-skilled and unskilled categories (numbers 5 and 6), was higher in the Rural District at 23.0 than in the City and County at 22.9 and 20.2 per cent respectively. The national average was 21.3 per cent.

Urban District

6.1.13 The proportion of population in social classes 1 and 2 was 19.3 per cent in 1996 compared to 29.4 per cent in the adjoining Midleton Rural DED, 28.0 per cent in the Rural District as a whole and 27.4 per cent nationally. The intermediate social groups, (numbers 3 and 4) non-manual and skilled workers, accounted for 37.4 per cent of the

Urban District population compared to 39.3 in Midleton Rural DED, 38.9 per cent in the Rural District and 39.4 per cent in the County. (See again Table 4.7, Appendix I)

6.1.14 The number of persons in the semi-skilled and unskilled categories (numbers 5 and 6) amounted to 27.1 per cent of resident population, a significantly higher proportion then elsewhere. The comparative proportions were 22.7 and 23.0 per cent in the adjoining Midleton DED and 23 per cent in the Rural District compared to county and national properties of 20.2 and 21.3 per cent. The percentage of unskilled persons (social class no. 6) at 9.3 per cent was higher than that in Midleton DED with 5.6 per cent. The Rural District, County and national percentages were respectively 8.1, 7.6 and 8.5 per cent.

6.1.15 The social class configuration in Midleton Rural District while lower is broadly similar to that obtaining in the County. The percentage of population in the four higher social classes is 66.7 per cent compared 68.8 per cent in the county. The semi-skilled and unskilled social class categories comprise 23.0 per cent of the Rural District population compared to 20.2 per cent at County level. (See again Table 4.7, Appendix I)

6.1.16 In contrast the social class profile is more skewed towards social classes 5 and 6 with 27.1 per cent of the population compared to 20.2 per cent at County level. It is reasonable to expect that the general class profile will move more towards the County configuration with the increase of housing development in the Cork Youghal Valley and with the possible re-opening and development of the Midleton rail link to the City. This shift generating increased spending will benefit retailing within the Midleton catchment area.

EMPLOYMENT, 1986-1996

6.1.17 The number of workers in the resident labour force in Midleton Rural District increased by 19.2 per cent from 6,454 in 1986 to 7,695 in 1996. The number at work over the same period rose by 27.3 per cent to 6,874 persons. Over the same period the number unemployed in the labour force declined by 18.2 per cent from 896 to 733 with the rate of unemployment declining from 13.9 per cent of the labour force in 1986 to 9.5 per cent in 1996. There were 88 persons seeking a first job in 1996 compared to 157 in 1986. (See Table 4.8, Appendix I). The same trend is evident at Midleton DED level. The resident labour force rose from 1,245 to 1,549 persons over the ten year period. The number at work increased significantly expanding by 33.9 per cent from 1,031 to 1381 persons. Unemployment declined from 14.6 per cent to 9.6 per cent of the labour force in 1996. The number of persons seeking a first job totalled 20.

6.1.18 Between 1986 and 1996 the Urban District labour force increased by 21.4 per cent from 1,062 to 1,289 persons. The percentage at work increased more rapidly rising by 24.5 per cent from 844 to 1,051 persons. Despite the high rate of employment growth the number unemployed rose from 189 to 219 persons with the percentage unemployed falling marginally from 17.8 to 17.0 per cent. (See again Table 4.8, Appendix I) The fall in joblessness is clear from the Live Register. The average annual number of persons on the Live Register in the Midleton Exchange rose from 1,245 persons in 1990 to a 1995 peak of 1,592, falling thereafter to 1,001 persons in the year 2000. The 37.2 per cent decline in the number of persons registered in the period 1995 to 2000 reflects the change in economic fortunes since 1993/4 and indirectly reflects the rise in general prosperity. Over the period June 1996 to June 2000 the average weekly earnings for all industrial workers increased by 20.5 per cent rising from £284.35 to £342.86.

6.1.19 Nationally the standardised average annual rate of unemployment dropped from 11.5 in 1996 to 4.1 in the year 2000. In January the CSO estimates the rate at 3.6 per cent compared to 4.6 a year earlier. The Strategic Plan has projected that population growth in Midleton will amount to 21,000 by 2021 with a commensurate growth in employment over this period. To meet this growth the Plan acknowledges that there be a requirement to expand the services available in the town.

Impacts

6.1.20 The proposed development will provide for additional construction related employment in the Maynooth and surrounding areas during the construction phase. An estimated 100 - 250 persons will be employed during the construction phase. It is anticipated that in excess of 600 full time jobs will be created when the development becomes fully operational. This will have a positive impact on the local economy and help curtail the recent increases recorded on the live register.

Mitigation

6.1.21 The proposed development will have a beneficial impact on employment during construction and operation. No mitigation measures are therefore required.

6.2 FLORA AND FAUNA

Receiving Environment - Flora

Introduction

6.2.1 The site is situated behind the existing mart and consists of three flat fields, the eastern one sloping down to the Owenacurra River floodplain in the east.. The river itself forms part of the northern and eastern boundaries though the site does extend east of it, to the Fire Station. Other boundaries are a hedge and wall on the north side and a road on the west. A field visit was made in November 2000 in order to describe the habitats and any species of interest using the area. The method is similar to a Phase I habitat survey (JNCC, 1991) but uses the terminology of a recent Irish classification (Fossitt, 2000).

Receiving Environment

Habitats

6.2.2 The main habitat on the site is intensive grassland which covers all the pasture area (see habitat map, Appendix II). It is bounded by a hedgerow on the north side and by waste ground and buildings (including a stone-built wall) to the south. The river flows around the eastern section with some woodland on its eastern side between the main channel and a mill race. The habitats will be dealt with in this order followed by notes on the fauna of the site.

Intensive grassland

6.2.3 The pasture areas are in long-established grassland which has been grazed for many years by cattle and sheep. The main grasses are *Lolium perenne*, *Cynosurus cristatus* and *Poa* sp. while the broad-leaved plants include

Trifolium repens	white clover
Ranunculus repens	creeping buttercup
R. bulbosus	bulbous buttercup
Taraxacum Officinale	Dandelion
Cerastium fontanum	mouse-ear
Cirsium arvense	creeping thistle
Bellis perennis	daisy
Brachythecium rutabulum	moss

6.2.4 These species also seem to grow on the slope at the edge of the floodplain though there has been much animal treading. The slope against the mart yard is covered by gorse *Ulex europaeus* with self-heal *Prunella vulgaris*, catsear *Hypochaeris radicata* and creeping thistle *Cirsium arvense*. A damp area behind the proposed supermarket building is enriched by run-off and has a weedy character with spear thistle *C. vulgare*, dyer's rocket *Reseda luteola*, bittercress *Cardamine flexuosa* and chickweed *Stellaria media*. A single plant of an ornamental thistle *Carduus* sp was found, probably an escape from a garden.

Hedgerow

6.2.5 The hedge on the northern side is based on a bank or wall and consists of scattered hawthorn trees *Crataegus monogyna* and bramble *Rubus fruticosus*. In places blackthorn *Prunus spinosa* and gorse *Ulex europaeus* occur, especially towards the eastern end. The basal plants are partly the agricultural weeds that would be expected – spear thistle *Cirsium vulgare*, nettle *Urtica dioica* and goosegrass *Galium aparine* – and partly woodland species, e.g.

Glechoma hederacea	ground ivy
Polystichum setiferum	shield fern
Phyllitis scolopendrium	hartstongue
Veronica chamaedrys	germander speedwell
Geum urbanum	wood avens
Geranium robertianum	herb robert

6.2.6 At the eastern end where the stone facing is found red fescue *Festuca rubra*, ribwort plantain *Plantago lanceolata* and cinquefoil *Potentilla reptans* become prominent with the black spleenwort *Asplenium adiantum-nigrum*.

Waste ground

6.2.7 The southern side of the site has been infilled to take the buildings and associated yards. Now little used, the open areas are colonised by weeds of disturbed soils and grasses. The former are concentrated around the buildings and walls and consist of

Capsella bursa-pastoris	shepherd's purse
Epilobium ciliatum	American willowherb
E.parviflorum	hoary willowherb
Euphorbia peplus	petty spurge
E.helioscopia	sun spurge
Mercurialis annua	annual mercury
Geranium molle	soft cranesbill
G.rotundifolium	round-leaved cranesbill
Senecio jacobaea	ragwort
Sisymbrium officinale	hedge mustard
Barbarea vulgaris	wintercress

6.2.8 Many of these recur in unused corners around the fire station where hawksbeard *Crepis capillaris* and field speedwell *Veronica persica* are additional species. The fringe areas around all buildings are now mostly grass, a mixture of cocksfoot *Dactylis glomerata*, rough-stalked meadowgrass *Poa trivialis*, common bent *Agrostis capillaris* and red fescue *Festuca rubra*. Bush vetch *Vicia sepium*, ribwort plantain *Plantago lanceolata*, creeping buttercup *Ranunculus repens*, winter heliotrope *Petasites fragrans* and the moss *Calliergon cuspidatum* are common south of the fire station while, in the vicinity of the mart, crested dogstail *Cynosurus cristatus* and black medick *Medicago lupulina* take over with cinquefoil *Potentilla reptans*, silverweed *P.anserina*, broad-leaved dock *Rumex obtusifolius* and burdock *Arctium minus*. A little gorse *Ulex europaeus* has seeded in from the field outside. A similar ungrazed area occurs in a small plot beside the river where cocksfoot *Dactylis glomerata*, Yorkshire fog *Holcus lanatus* and false

oat *Arrhenatherum elatius* grow with bramble *Rubus fruticosus* and nettle *Urtica dioica* on ground that is occasionally inundated.

Stone wall

6.2.9 The terrace of houses in the south-east corner is marked by a stone built wall extending from the bridge to the mart entrance. It has been repointed with cement but retains good vegetation on its top. Polypody fern *Polypodium interjectum* is the dominant plant, at least in winter, but there is also:

Cymbalaria Muralis	ivy leaved toadfglax
Festuca rubra	red fescue
Sedum album	white stonecrop
Trifolium dubium	yellow trefoil
Valerianella locusta	lambs' lettuce
Catapodium rigidum	hard grass
Asplenium trichomanes	maidenhair spleenwort
A.ruta-muraria	wall rue
Clematis vitalba	traveller's joy

6.2.10 South of the fire station there is a low road wall which adds mouse-eared hawkweed *Pilosella officinarum* and sandwort *Arenaria serpyllifolia*.

River

6.2.11 The Owenacurra was in flood during the site visit so no clear idea of the marginal vegetation could be obtained. However the species that were obvious were broad-leaved dock *Rumex obtusifolius*, bramble *Rubus fruticosus* and great willowherb *Epilobium hirsutum* with a little reed grass *Phalaris arundinacea*, meadowsweet *Filipendula ulmaria* and soft rush *Juncus effusus*. Single trees of crack willow *Salix fragilis* and ash *Fraxinus excelsior* grow on the bank, in places slightly out of the water with elder *Sambucus nigra* and gorse *Ulex europaeus*. Where the bank is unfertilised hawkbit *Leontodon saxatilis*, yarrow *Achillea millefolium* and red clover *Trifolium pratense* are rather common while scutch *Elytrigia repens*, shepherd's purse *Capsella bursa-pastoris*, scentless mayweed *Tripleurospermum inodorum* and soft cranesbill *Geranium molle* grow, with much *Trifolium repens*, where the animals have access to the water.

Woodland

6.2.12 Trees are established at the eastern end of the site along the riverbank. There are seven alder *Alnus glutinosa* on the west bank of moderate size (up to 30cm), some leaning towards the river channel. On the opposite side, an area of trees occurs between the river and the mill race. Again alder is frequent along the river with a few ash and greater numbers of sycamore and elm. Many of the trees have been cut at one time so have multiple stems, especially those on the river side. They are well grown and mostly in good condition. There is little current disease in the elms though a fallen, decaying trunk is probably of this species. The trees were not marked individually as they form a discrete area in which there can be no development. There are c. 70 trees, though many of the elms are small. These include:

Alder	*Alnus glutinosa*	20
Sycamore	*Acer pseudoplatanus*	13
English elm	*Ulmus procera*	25
Ash	*Fraxinus excelsior*	5
Lime	*Tilia* sp	3
Wych elm	*Ulmus glabra*	2
Hawthorn	*Crataegus monogyna*	2

6.2.13 The ground between the trees is covered by ivy *Hedera helix* with some bramble *Rubus fruticosus* and nettle *Urtica dioica* and frequent elm suckers. It is inundated occasionally so has river debris in places. Ferns are conspicuous - *Polystichum setiferum, Dryopteris filix-mas, D.dilatata* with some *Phyllitis scolopendrium* – and there are plants of distant sedge *Carex remota* and celandine *Ranunculus ficaria.*

FAUNA

Receiving Environment

6.2.14 The vertebrate fauna comprises rabbit, which are numerous in the hedge along the northern side, brown rat and otter, both of which are associated with the river. There are likely to be fox at times with house mice near the buildings. Bats probably feed in the trees during their active season and may roost in buildings adjacent to the area. There are no suitable sites in the mart buildings however as they are mostly of corrugated iron. Otter paths were present in the woodland and the cover here is probably used sometimes by resting animals. It is not a suitable breeding site however.

6.2.15 The area has a varied bird fauna though few species would depend on it alone. The grassland provides some feeding for jackdaw, rook, wood pigeon and oystercatcher, of which 20 were seen on the site visit. Curlew may also occur in small numbers as they are present in the estuary outside and have the habit of feeding on farmland in the hinterland. A little egret was seen flying down the river while a heron was feeding there for a short time. Grey wagtails were seen near the bridge and around the fire station. In summer swallow and martins are likely to feed over the river and fields with occasional dipper and kingfisher.

6.2.16 Smaller species were mostly associated with the trees in the south-east corner where chaffinch, great tit, blue tit, blackbird, robin, wren were seen. A magpie's nest was present also. Elsewhere a few redpolls flew over the river and there was a mobile group of 40 linnet on both sides of the river.

IMPACT

6.2.17 The site is covered by habitats that are typical of farmland and built-up areas and the major part has no ecological interest. The pasture is used occasionally by species of estuarine birds from Cork Harbour but it would have no special significance for them being part of a much larger, similar area. No unusual species of plant was seen in this or other habitat. The Owenacurra river is of significant value and the woodland just above the bridge is locally an important part of this. It provides a small, undisturbed habitat for birds and otters, an infrequent though widespread species. The river has sea trout and a few salmon in winter when they are moving in to spawn in the higher reaches. Brown trout also feed there in good numbers.

6.2.18 The area is not included in any designated area (pNHA, pcSAC, SPA) as yet and is unlikely to be so in future. However it does have habitat for otter and salmon which are both included in Annex II of the EU Habitats Directive as species of Community interest. The conservation of these requires the designation of Special Areas of Conservation but, as indicated, it is unlikely that the Owenacurra would be selected for this. The site does not contain any plant species listed by the Flora Protection Order 1999. The effect of most of the development, which will cover the existing grassland, cannot be regarded as significant in view of the low ecological value of this area. Two features that will have impacts however are the new access bridge over the Owenacurra and the numbers of additional people that will be present beside the river. The bridge will do away with a segment of the tree line rather wider than itself as it will require the bank to be stabilised in order to prevent erosion. Such change is likely to curtail the use of the remainder by otters – at least during daytime. However the animals will still occur and feed in the river and will find alternative resting sites to the north and south where there will be less disturbance. Bird life will be similarly reduced but this can be compensated for by new tree planting in the park area. The effects of additional pedestrians by the river will have a small disturbance effect on fauna but is unlikely to lead to any species disappearing from the site.

6.2.19 Some infill will be required on the floodplain to accommodate the buildings and park. This may lead occasionally to greater water levels higher up the valley but these are unlikely to have significant ecological effects in view of the general gradient of the river bed. Bank strengthening along the river will change the marginal flora but here as elsewhere, the impact will be largely neutral.

MITIGATION MEASURES

6.2.20 Native species of trees (willow, alder, ash) will be used for site planting, especially in the park area and these will increase the diversity of fauna using the site. Willows are particularly rich in insect life and this will have the effect of increasing the birds that feed on them.

6.2.21 Although the provision of a riverside amenity area will generally enhance the use of the river frontage, there will nevertheless be an impact on the fisheries habitat of the Owenacura river. To ameliorate any impacts associated with the development the applicant will consult with the South West Regional Fisheries Board as to their requirements and necessary mitigation works.

6.3 SOILS/SERVICES

Receiving Environment

6.3.1 The site comprises three distinct areas;

- hard standing area comprising of yards, parking, mart sheds, livestock pens, and mart offices.
- grazing lands for livestock.
- lower level floodplain of the Owenacurra River comprising mart grazing lands.

6.3.2 There is a natural 3m step in the topography from the upper platform to the lower level floodplain. The Owenacurra River is originally thought to have followed this course before it subsequently meandered. The Geological Survey of Ireland Sheet 22 – Bedrock Geology 1:100,000 Series shows the site to be underlain by the Waulsortian Limestone Formation which is part of the Dinantian (Courceyan) succession of the Carboniferous age. The Waulsortian Formation is underlain by the Ballysteen Formation which is generally poorly exposed in this area and comprises fossiliferous dark-grey muddy limestone. The dominant rock on which Midleton is centered is the Waulsortian Limestone Formation which consists of massive unbedded lime-mudstones. To the south of Midleton lies the Little Island Formation which consists of massive and crinoidal fine limestone. The Cork Red Marble Formation separates these two units and comprises a red brecciated calcilutite limestone. The bedrock in the locality is shown to be dipping steeply to the south, and a north-south trending fault is shown passing through the western edge of Midleton. Site Investigations in this locality have revealed the presence of cavities within the bedrock. A preliminary site investigation comprising of trial pits was carried out on the lands during December 2001. Fourteen trial pits were undertaken on the site using a tracked excavator to a maximum depth of 4.6m. Details of the trial pits are in Appendix III. The soil profile indicated from trial pits undertaken on site consists of dense sandy gravels underlying light brown sandy clays underlying topsoil. River gravels underly soft brown clay and topsoil within the floodplain. The water table is within two feet of ground level within the lower level floodplain. No groundwater was encountered in trial pits undertaken on the higher platforms.

6.3.3 The site development works will comprise new roads, footpaths, surface and foul water drainage, watermains, and installation of service ducts for the various utilities such as electricity, gas, and telecommunications services. As part of the Phase 1 development, demolition of the hardstandings and existing mart will be carried out. The initial site development works will involve the importation of material which will be used to form a flood berm to protect the development. Future development of the site will include technology based business units, residential complex, retail warehousing, office developments, new town square, car showroom, petrol filling station, and retail showrooms. Localised cutting and filling to formation level will be necessary. The superstructure of the proposed development will be founded within the dense gravel formation either directly or via piled foundations. The superstructure of the proposed development will be founded within the dense gravel formation either directly or via piled foundations. Foundation design will be confirmed following a detailed site investigation for each main building structure

Impact

6.3.4 A cut and fill operation will be undertaken on the site to the proposed formation level. Retaining walls will be constructed within the floodplain to support the new street. An earth fill flood berm embankment will be formed on the floodplain along the northern and eastern boundary of the development near the Owenacurra River. Potential impacts associated with this development include; impacts on soils through leakage or spillage of liquids during construction phase; possible damage to the existing foul sewer during the earthworks phase of the development; potential settlement of roads and foundations over filled strata.

Mitigation

- During the construction phase, bunded storage facilities will be provided for products that have potential to give rise to soils contamination.

- Foul sewers shall be installed in accordance with BS8010: Code of Practice for Pipelines. Air tests shall be undertaken on new drains to ensure the integrity of pipework thereby minimising potential for leaks.

- Emptying of mart slurry tanks during demolition phase to be undertaken by an approved and licensed waste management contractor.

- A comprehensive landscaping scheme will be undertaken during the construction of the flood relief berm and creation of public park amenity.

- The existing foul sewer should be marked out on site during the construction phase to alert contractors and mitigate against potential damage.

- Piled foundations and ground improvement techniques will be designed and constructed in accordance with proven engineering design methods.

- Topsoil excavated on site will be utilised for onsite landscaping purposes. Existing suitable fill material will be utilised on site during the site development phase.

- Taking into account the reductive and remedial measures previously mentioned, the proposed development should not impact negatively on the underlying soils and geology.

SERVICES - SURFACE WATER DRAINAGE

Receiving Environment

6.3.4 The Owenacurra River runs principally in a north-south direction through Midleton town before discharging into the Ballynacorra River where it meets the Dungourney River at the south side of Midleton town. The Ballynacorra River is tidal and

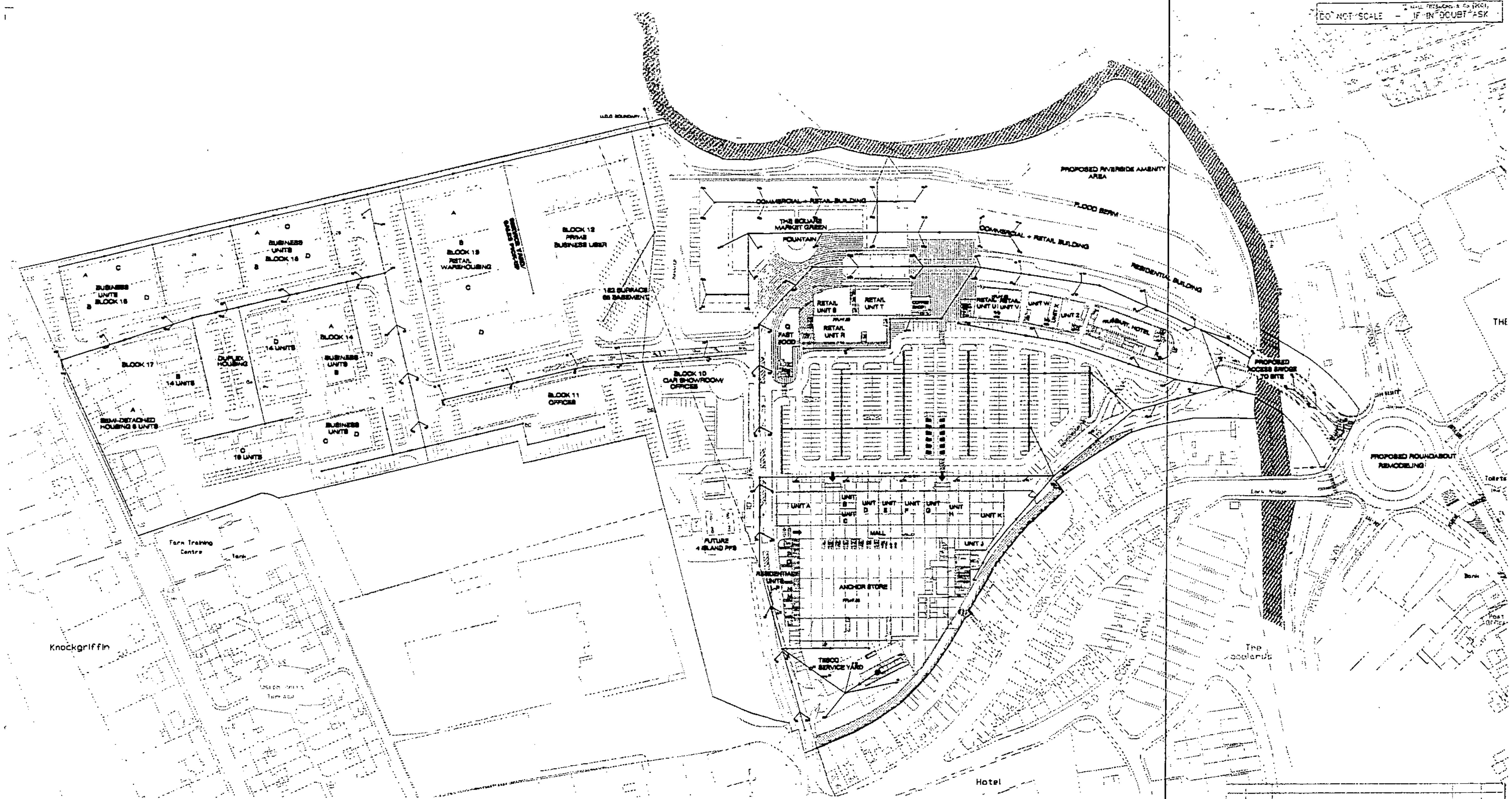
discharges into the harbour at East Ferry. The Owenacurra River bounds the northern and eastern sides of the development site and discharges through the old Cork Road Bridge at the southern boundary of the site. An old mill race channel on the east bank of the river discharges independently through one of the arches in the Cork Road bridge. The quality of the river within the reach of the town is considered medium to low given its urban location. The upper reaches of the river are known to support some fish species. There are a number of surface water soakaways on the lands serving the existing mart business. These will become redundant in time as the Mart is relocated from Midleton town. Surface water disposal from the New Cork Road area and the residential terrace bounding the southern boundary of the site currently discharges to the town sewer. Midleton UDC propose to separate these flows and divert a new surface water drain to the Owenacurra River via the mart lands. Surface water disposal at Kennel Avenue is currently to roadside verges outside the western boundary of the site. Cork County Council will require future provision to connect road drainage to the new surface water outfall drain.

6.3.5 The site development works will comprise new roads, footpaths, surface and foul water drainage, watermains, and installation of service ducts for the various utilities such as electricity, gas, and telecommunications services. The services layout drawings show the proposed surface water drainage layout for the entire landholding. The surface water run-off for the overall site is estimated at 1150 litres/sec. The run off from the County lands is projected as circa 370 litres/sec. The Phase 1 development will account for 513 litres/sec of the overall volume. As the subject site straddles the boundary of two planning authorities and to accommodate future phasing, it is proposed to create two main surface water outfalls to the Owenacurra River. The Phase 1 development within the Midleton UDC lands will have a dedicated outfall through the flood berm which will also cater for future development within the UDC boundary. The future phases within the Cork County Council boundary will have a second dedicated surface water outfall.

Impact

6.3.6 The main areas of potential impact are as follows:

- Silting up of the watercourse.
- Impact on the adjacent watercourse by foul waters
- Discharge of petroleum or diesel fuel from cars and delivery trucks utilising parking and service areas can be a source of contamination of watercourses.
- Due care must be exercised to ensure that the size and gradient of new surface water sewers are such that they are able to cater for future development.
- Siting of drainage services within the development to avoid future undermining/subsidence of building structures.
- Local flooding caused by overloading of the drainage system.
- Potential settlement of services through filled areas of the site.



MARKET GREEN DEVELOPMENT
SURFACE WATER LAYOUT PLAN

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED
P1	27/02/02	ISSUE FOR PLANNING	L.R.	I.L.C.

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Project: MARKET GREEN DEVELOPMENT MIDLETON, CO. CORK
Client: CORK CO-OPERATIVE MARTS LTD.
Drawing Title: EIS SURFACE WATER LAYOUT PLAN

Scale	Job No.	Drawing No.	Date
NTS	997	152	FEB 2002

- Back flows through surface water outfalls during extreme flood events.

6.3.7 Mitigation

- Silt traps will be installed on surface water drains during the site development phases.
- Non-return flap valves or duckbill type valves will be provided on surface water outfall pipes through the flood berm to prevent backflows during extreme floods.
- Local over-sizing of outfall drains will be undertaken to allow a degree of attenuation where required in the event of extreme flood events.
- All foul and other waste waters shall be discharged to the foul drainage system.
- Petrol interceptors shall be provided on all surface water discharge points from service yards.
- Bunded fuel storage tanks will be provided within the development to prevent contamination of the surface water drainage system in the event of a spillage.
- The development street and road network will be finished with a tarmac or asphalt surface which will discharge run-off to a piped drainage system.
- Proven engineering practice shall apply during the hydraulic design process.
- Surface water drains shall be installed in roads and streets and in pre-determined wayleaves adjacent to building structures.

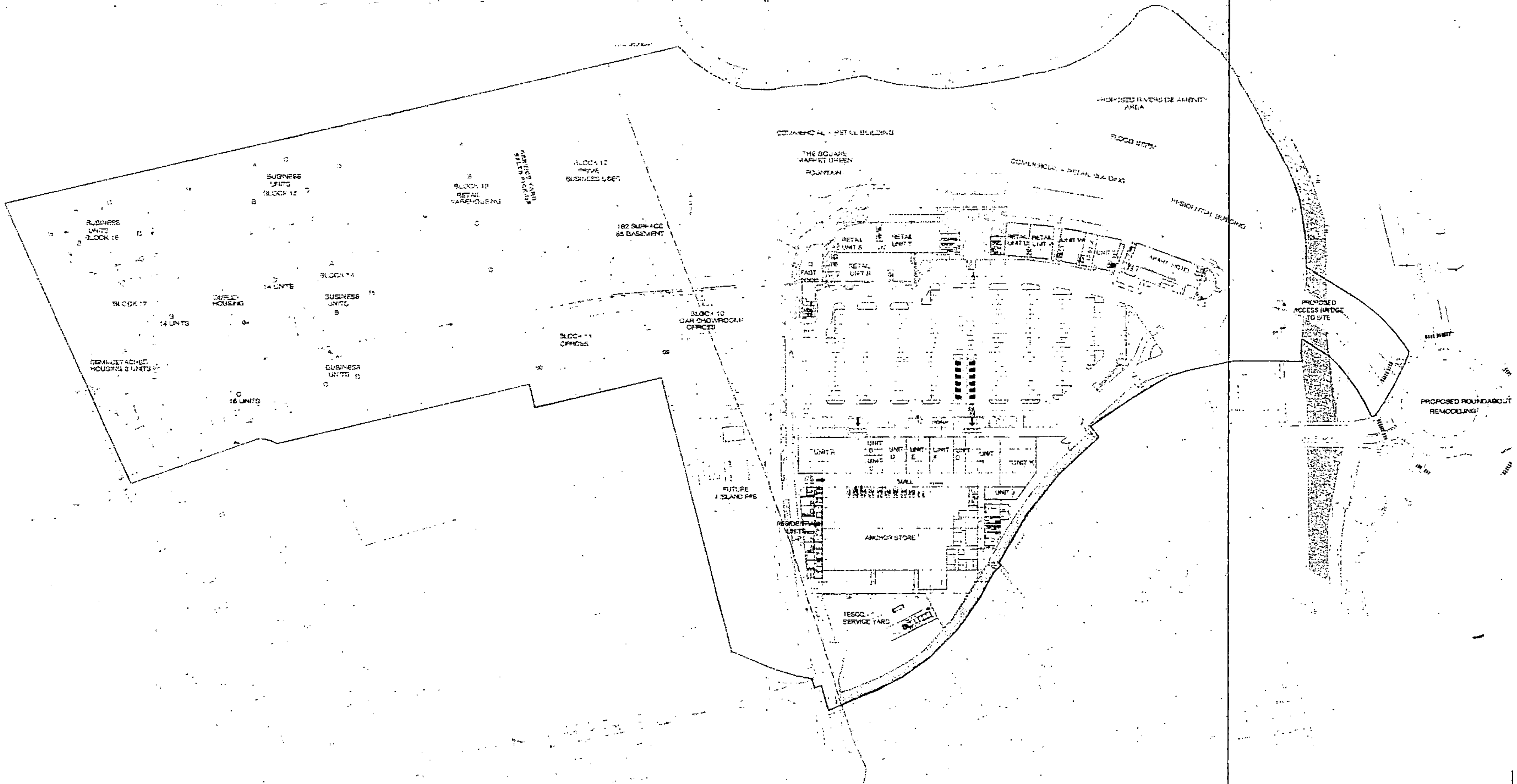
6.3.8 The proposed mixed-use development is not anticipated to contribute an adverse impact on surface water regime given the remedial and reductive measures previously outlined. Normal proven construction reinstatement and backfilling procedures will follow pipe laying and jointing, and testing operations.

SERVICES - FOUL SEWERS

Receiving Environment

6.3.9 Historically, and facilitated by Cork Marts, the residential developments at Joseph Ahern terrace and Knockgriffin were served by a septic tank and soakwaway arrangement within the mart lands.

6.3.10 During 1986 a foul sewer subsequently replaced this system and connected Knockriffin / Joseph Ahern terrace into the town sewerage system. This sewer ran in an easterly direction across the mart lands towards the river where it ran in a southerly direction to a tidal outfall point. In order to comply with the European Urban Wastewater Directives, Midleton UDC and Cork County Council, have recently completed a re-sewerage scheme during 2000/2001 including the construction of a new foul water



MARKET GREEN DEVELOPMENT
FOUL WATER LAYOUT PLAN

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED
	27/02/02	ISSUE FOR PLANNING	LA	KC

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Project.	Drawing Title.
MARKET GREEN DEVELOPMENT, MIDLETON, CO. CORK	EIS FOUL WATER LAYOUT PLAN
Client. CORK CO-OPERATIVE MARTS LTD.	

Scale.	Job No.	Drawing. No.	Date.
NTS	997	151	FEB 2002

treatment plant. The new treatment plant provides full secondary treatment and has a population equivalent of 10,000. The project is currently commissioned and at operating stage. As part of the re-sewerage scheme the old sewer within the mart lands was de-commissioned and a new larger sewer was laid. The new sewer runs in an easterly direction across the lands where it meets the town trunk sewer near the Owenacurra River from where it flows to the new treatment plant on the south side of the N25(E30) national primary route. This sewer is a 300mm diameter concrete sewer and was designed to accommodate the future development of the mart landholding. The re-sewerage scheme and completion of the wastewater treatment plant has brought the town's infrastructure to modern day requirements and opens up the development of the remaining large town centre sites.

6.3.11 The services layout drawings illustrate the proposed foul water drainage system. The overall quantity of wastewater for the overall development has been estimated at 270 cubic metres per day. Wastewater flows within the County lands are projected at circa 64 cubic metres per day. Phase 1 of the development within the UDC lands accounts for 88 cubic metres of projected total. The projected discharge from the entire development can be accommodated within the new foul sewer constructed by Cork County Council in 2001. The new foul sewer is a $\phi 300$ sewer laid at gradient of 1/275. There will be no foul water discharge arising from the initial site development works of the lands within the Cork County Council boundary. Waste arising from temporary sanitary facilities during the construction phase will be disposed of via a local authority approved waste subcontractor.

6.3.12 **Impacts**

- Impacts on surface water drains and watercourse from leaking foul water drainage system.
- Impact on groundwater and aquifers from ingress of foul waters.
- Overloading of foul water drainage infrastructure causing damage and blockages.
- Potential damage to local authority wastewater treatment plant and utilities.
- Impact on soils from leaking or damaged foul water utilities.
- Siting of foul drains to avoid future undermining/subsidence of building structures.

6.3.13 Mitigation

- Proven engineering practice shall apply during the hydraulic design process of the foul sewer network.
- Foul sewers shall be installed in accordance with BS8010: Code of Practice for Pipelines.
- The ability of the ground to support the proposed drainage network has been confirmed by a preliminary site investigation.

- The foul sewer network will be vented in accordance with standard working practice.

- Foul water drains shall be installed in roads and streets and in pre-determined wayleaves adjacent to building structures.

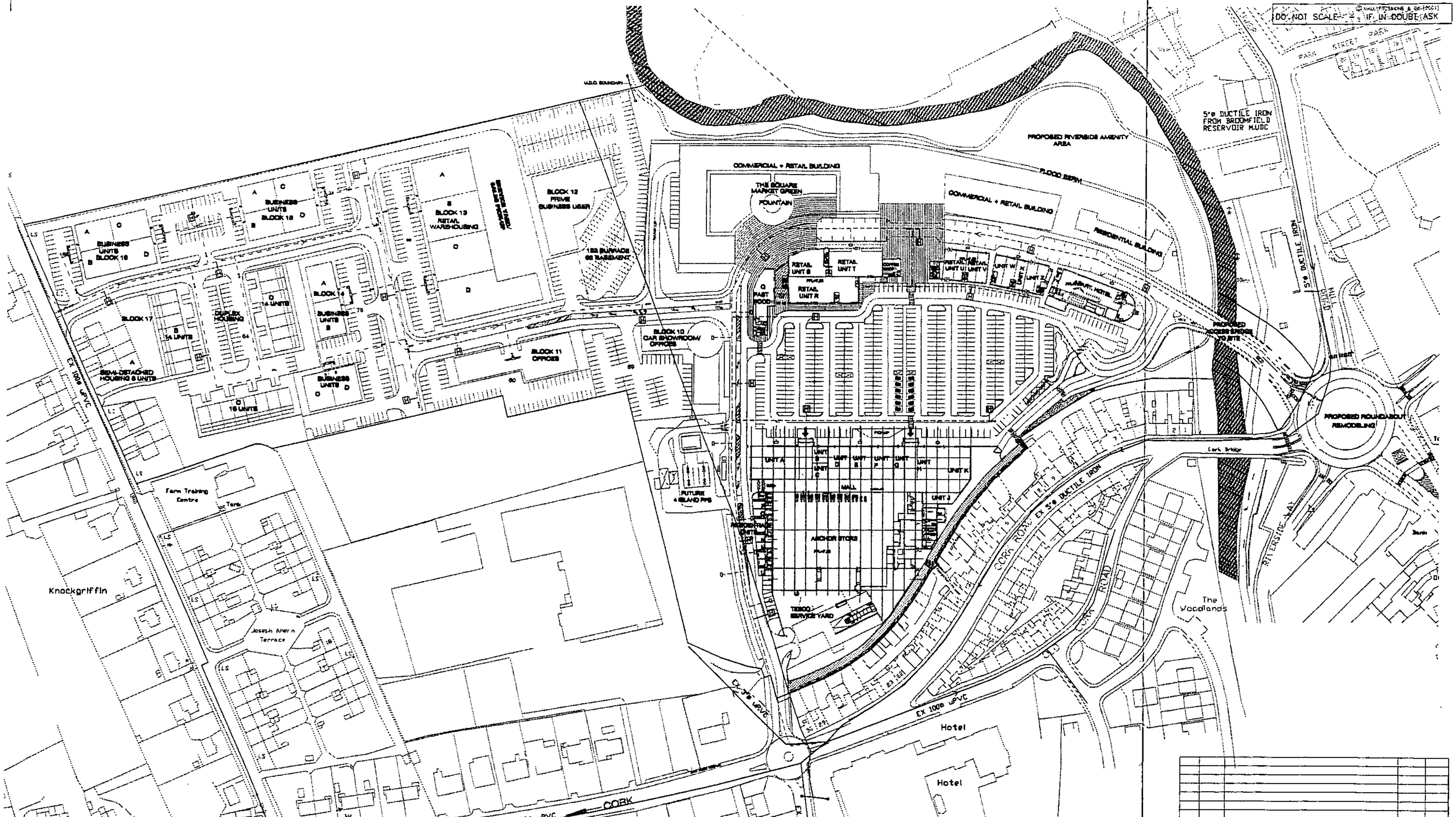
6.3.14 The flows generated by the development can be accommodated within the capacity of the recently completed town re-sewerage scheme and new wastewater treatment plant. There will be no adverse impact on the environment from wastewater arisings. The future development phases within the County Council lands will be regulated by the Local Authority as individual planning applications are processed. Developments producing any significant effluents other than foul water will be regulated by the Environmental Protection Agency via the relevant discharge licensing. However any individual effluent discharge will normally be monitored via discharge licence conditions.

SERVICES - WATER SUPPLY

Receiving Environment

6.3.15 The public potable water supply to Midleton town and environs comes principally from two sources; the Owenacurra River at the UDC Broomfield West reservoir, and the Cobh rural water supply scheme from the Tibbotstown reservoir in Carrigtwohill. The Broomfield reservoir serves all of the Urban District and several areas in the county. The treatment works has undergone various improvements and upgrade works over the past number of years. Larger capacity pumps have been installed which can extract up to 35,000 gallons/hour. The capacity of the treatment plant at Broomfield is currently 840,000 gallons per day and the present average daily consumption is circa 640,000 gallons per day. It is estimated that the demand from the UDC supply will be in the region of 1,000,000 gallons per day within the next 10 years. The maximum predicted abstraction rate from the Owenacurra river is circa 1,000,000 gallons given the dry weather flow experienced in the 1995 drought. It is likely that an alternative source will have to be developed if the demand exceeds 1,000,000 gallons per day. The Cobh rural water supply scheme currently serves the western and southern sides of Midleton town. It is planned for Cobh to be supplied in the future directly from the Iniscarra Reservoir, which will release additional water supply to serve the Midleton area. The existing mart business currently has a water demand of 6,500 gallons per day on mart days. The mart additionally abstracts a non potable supply from the Owenacurra river for washing purposes on mart days. The services drawings submitted in support of the application show the proposed water mains layout for the first phases of the development of these lands.

6.3.19 It is currently proposed that the Urban water supply from the Broomfield reservoir will serve the Phase 1 development and future phases within the UDC boundary and that the Tibbotstown feed will supply those future phases within the County Council boundaries. It is estimated that the demand for potable water for the entire development will be in the region of 100,000 gallons or 455 cubic metres per day. Development within the urban boundary accounts for some 61,000 gallons or 277 cubic metres per day of the overall. The phase 1 development will account for 31,000 gallons or 141 cubic metres of the daily overall demand. The net future demand for the phase 1 development is c 24,500 gallons per day. It is proposed to provide a new ϕ150mm ring



MARKET GREEN DEVELOPMENT
WATERMAIN LAYOUT PLAN

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED
P1	27/02/02	ISSUE FOR PLANNING	LR	LC

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Project.
MARKET GREEN DEVELOPMENT,
MIDLETON, CO. CORK
Client.
CORK CO-OPERATIVE MARTS LTD.

Drawing Title.
EIS
WATERMAIN LAYOUT PLAN

Scale.	Job No.	Drawing No.	Date.
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main for the Phase 1 development linking from the existing ϕ125mm main on Mill Road across the new bridge and new street, and linking back towards the ϕ125mm main in the New Cork Road. A ϕ150mm watermain is proposed within the County lands to serve future development phases. This will connect into the existing ϕ150mm main in Kennel Avenue at Knockgriffin. Water distribution supply to each site will be sized to cater for the requirements of those particular uses. Metered connections will be made to the trunk supply main. Fire fighting supply serving hydrants and sprinkler systems within the site will be detailed under a Fire Safety Certificate.

6.3.20 **Impacts**

- New developments can cause difficulties for existing water supply.
- Reduction of existing storage capacity.
- Reduction of pressure in existing water supply.
- Siting of watermains to avoid future undermining/subsidence of building structures and permit ease of maintenance.

6.3.21 **Mitigation**

- The existing water supply feeds to both the Mart and Dairygold will be protected at all times during construction.
- Watermains shall be installed in roads and streets and in pre-determined wayleaves adjacent to building structures.

6.3.22 The existing UDC water supply will have adequate capacity to meet the projected water demand of the developments within the UDC boundaries. No adverse impact is foreseen on existing water supply or pressure. It is anticipated that the Tibbotstown reservoir will continue to supply the western side of Midleton for the foreseeable future and hence provide the supply to future development sites with the County Council boundaries. Fire fighting provision will have no extra significance over and above any similar town centre development of this kind.

SERVICES - FLOOD CONTROL

Background

6.3.23 Following the January 1996 flood in Midleton town, new developments bounding the Owenacurra River were conditioned to include a comprehensive flood study report as part of the development proposal. Niall Fitzsimons & Co. Consulting Engineers commissioned The Flood Studies Group in University College Cork to undertake a flood study analysis of the Owenacurra River as part of the EIS and to advise on aspects relating to flood protection and floodplain storage. The flood study report is included as Appendix IV.

6.3.24 University College Cork were previously involved with a number of developments along the Owenacurra River, both upstream and downstream of the Cork Marts

site. They have now modelled practically the entire reach of the Owenacurra River from the railway bridge at the north of the town to the Ballinacurra River at the southern end of Midleton, and as such they are best placed to inform the Environmental Impact Statement.

Receiving Environment

6.3.25 The majority of the landholding is green field and has two distinct levels, the lower level being an existing flood plain of the Owenacurra River and the upper level some 3m higher where the existing mart business is located. The flood study relates to a development proposal by Cork Co-operative Marts Ltd on a flood plain of the Owenacurra River between the Cork Bridge and a location 416m upstream. The Owenacurra River runs principally in a north-south direction through Midleton town before discharging into the Ballynacorra River where it meets the Dungourney River at the south side of Midleton town. The Ballynacorra River is tidal and discharges into the harbour at East Ferry.

6.3.26 The Owenacurra River bounds the northern and eastern sides of the development site and discharges through the old Cork Road Bridge at the southern boundary of the site. An old mill race channel on the east bank of the river discharges independently through one of the arches in the Cork Road bridge. Between the Cork Road Bridge downstream and the Railway bridge upstream, the river follows a meandering course which in a few locations divides into two streams. Because of extreme meandering, the conveyance capacity of the river is limited and as a result the river flows overbank at relatively low floods. The river line is also unstable, as witnessed by erosion along the meander banks. There is a risk that erosion which is possible if the high banks on the west side of the meander erode and cave in, may impede the flow in the main channel.

6.3.27 **Impacts**

- Removal of a section of flood plain causing decrease in flood water storage capacity.
- Increase in flood water levels.
- Flooding of the development site.
- Impact of new bridge crossing on river regime.
- Backflows through surface water outfalls during extreme flood events.

6.3.28 **Mitigation**

- The hydraulic analyses will determine the effect of the removal of part of the flood plain for the development, on flood water levels associated with a 50 year flood event with an add on factor for climate change.
- Flood mitigation works in the form of a compound channel design will be undertaken by excavating a low level flood plain where a higher level floodplain previously existed.

- A compound channel will be designed so as to confine the flow and release the remaining flood plain lands for development. This involves the construction of a flood relief berm to protect the development and the formation of a flood relief terrace with a bed level approximately 0.5m above the main channel bed.

- The flood relief berm will be constructed with a safety freeboard of approximately 500mm over the predicted 50 year design flood levels to protect the development.

- In the compound channel scheme, in the event of erosion and deposition the compound has the capacity to carry the flow with negligible impact from the eroded material during a single flood event.

- Local over-sizing of outfall drains will be undertaken to allow a degree of attenuation where required in the event of extreme flood events.

- Non-return flap valves or duckbill type valves will be provided on surface water outfall pipes through the flood berm to prevent backflows during extreme floods.

- Proven engineering practice shall apply during the hydraulic design process.

- The new bridge crossing will be designed with the internal support pier positioned so as not to disrupt the river channel flow. Two unequal bridge spans are proposed with the support pier constructed between the Mill Race channel and the Owenacurra River channel. The abutments and pier will be aligned parallel with the main channel flow.

6.3.29 The proposed mixed-use development is not anticipated to contribute an adverse impact on the flood water regime given the remedial and reductive measures outlined. No future development shall be permitted on the compound channel within the Mart lands. Usage of the land will be restricted to the creation of a public park and walkway amenity.

6.4.0 AIR & CLIMATE

RECEIVING ENVIRONMENT

Ambient Air Quality Standards

6.4.1 The current ambient air quality standards for sulphur dioxide, suspended particulates, lead and nitrogen dioxide, which have been given effect in Ireland, are based on Council Directive 1999/30/EC, has set limit values, which have replaced existing limit values under Directives 80/779/EEC, 82/884/EEC and 85/203/EEC with effect from 19th July 2001. The new directive, as relating to limit values for sulphur dioxide, nitrogen dioxide, lead and particulate matter, is detailed in Table 13.2, Appendix V. The new directive also details margins of tolerance, which are trigger levels for certain types of action in the period leading to the attainment date. The margin of tolerance varies from 100% for lead, to 50% for 24-hour limit value for PM_{10}, 50% for the 1-hourly and annual limit value for NO_2 and 43% for hourly SO_2 limit values. The margin of tolerance commenced in May 1999, reducing from the 1 January 2001 and every 12 months thereafter by equal annual percentages to reach 0% by the attainment date. EU Council Directive 2000/69/EC has recently published limit values for both carbon monoxide and benzene in ambient air as set out in Table 13.3, Appendix V.

6.4.2 The earlier EU Council Directive 96/62/EC on ambient air quality and assessment has been adopted into Irish Legislation (S.I. No. 33 of 1999). The act has designated the Environmental Protection Agency (EPA) as the competent authority responsible for the implementation of the Directive and for assessing ambient air quality in the State.

Current Air Quality

6.4.3 Levels of nitrogen dioxide, sulphur dioxide, volatile organic compounds, dust deposition and odour were monitored to assess current air quality conditions in the region. The surveys were carried out between 7th June – 26th June 2001 at a series of locations on or near the site. These monitoring locations are listed in Table 13.1 and are shown in Figure 13.1 Air, Odour and Dust Monitoring Locations, Appendix V.

Reference	Parameter	Location
A1	NO_2, SO_2, VOCs	Mart Entrance (Old Cork Road)
A2	NO_2, SO_2, VOCs	Junction Old Cork Road/Knockgriffin Road
A3	NO_2, SO_2, VOCs	Northwest Corner of site
A4	NO_2, SO_2, VOCs	Northern boundary of site (Residential Development)
A5	NO_2, SO_2, VOCs	Junction Old Cork Road/Lower Mill Road
O1	Odour	Upwind (Knockgriffin Road)
O1	Odour	Downwind (boundary of site to New Cork Road)
D1	Dust	Northeast of the site
D2	Dust	Main Entrance to existing Mart
D3	Dust	Western boundary of site
D4	Dust	Northern boundary of site

Table 13.1: Air, Odour and Dust Monitoring Locations at Midleton Market Green Development

6.4.4 The results obtained for discrete monitoring of nitrogen dioxide and sulphur dioxide, obtained during the monitoring programme are in compliance with the appropriate

significance criteria. The levels of dust determined are within the TA Luft guideline limit for non-hazardous dusts. There are no relevant significance criteria for volatile organic compounds (with the exception of benzene and 1,3-butadiene) and odour. Overall, levels of all parameters found are indicative of acceptable air quality that is within significance criteria. In addition, the site is not contributing significantly to the background odour of the area.

Nitrogen Dioxide (NO_2)

6.4.5 Nitrogen dioxide is classed as both a primary pollutant and a secondary pollutant. As a primary pollutant NO_2 is emitted from all combustion processes (such as a gas/oil fired boiler or a car engine). Potentially the main sources of primary NO_2 for the proposed development will be from domestic heating emissions and vehicle exhausts. As a secondary pollutant NO_2 is derived from atmospheric reactions of pollutants that are themselves, derived mainly from traffic sources (e.g. volatile organic compounds). Secondary pollution is usually derived from regional sources and may be used as an indicator of general air quality in the region.

6.4.6 The results of this monitoring survey, indicate that levels of NO_2 at the proposed development are within the range of 6.45 – 27.96 $\mu g/m^3$ (Refer Table 13.4, Appendix V). The annual average limit expressed in EU Ambient Air Standard (1999/30/EC – Refer Table 13.2, Appendix V) for NO_2 is 40 $\mu g/m^3$. These results would suggest that levels of NO_2 in the area show typical background levels and are not currently a significant environmental issue. In addition, the highest levels of NO_2 detected are at locations on the major roadways and junctions (A1, A2 and A5). The main potential source of Nitrogen Dioxide on the proposed development is from motor vehicle exhausts from on-site traffic and from heating processes such as domestic boilers.

Sulphur Dioxide (SO_2)

6.4.7 Sulphur dioxide is classed as a primary pollutant principally emitted from the combustion of fossil fuels (diesel, coal, oil, etc.) and in the case of the proposed development the main source of SO_2 would be from burning non-smokeless fuel and traffic related sources (in particular diesel engines). As a traffic based pollutant, SO_2 is mainly emitted from vehicles running on diesel fuel, which will include most LGVs and HGVs delivering and operating on the site. SO_2 emissions from domestic heating may be significant as SO_2 is a major constituent of sulphurous smog. However, in recent years the government has significantly reduced the importance of SO_2 as an air pollutant with the introduction of smokeless fuel. Consequently, concentrations of SO_2 are typically low and this is likely to decrease in future years with the broadening of the ban on non-smokeless fuels.

6.4.8 The results of this monitoring survey indicate that levels of SO_2 at the proposed development are within the range of 13.53 –16.91 $\mu g/m^3$ (Refer Table 13.5, Appendix V). The annual average limit expressed in EU Ambient Air Standard (1999/30/EC – Refer Table 13.2) for SO_2 is 20 $\mu g/m^3$. While the levels of SO_2 determined are within the significance criteria, the levels detected are considered high in relation to ambient air. This is most probably due to the high number of farm machinery in this area, especially the mart/Co-op stores area (e.g. the highest level of SO_2 detected was at the Mart entrance). The main potential source of Sulphur Dioxide on the proposed development is from motor vehicle exhausts from on-site traffic and from heating processes such as domestic boilers

Volatile Organic Compounds (VOCs)

6.4.9 The sources associated with each individual VOC tend to be dependent on the nature of industries in the sample region. Methane is a naturally occurring VOC from plants and animals but is also generated as a by-product of certain industries. Benzene and other aromatic compounds and alkanes are most likely derived from petrol driven vehicle exhausts. Heavier semi-volatile organic compounds are frequently derived from diesel-powered engines.

6.4.10 The results of the VOC monitoring survey indicate that the major VOC pollutants identified in all six locations are aromatic hydrocarbons (benzene, toluene, ethyl benzene, styrene, xylene) and alkanes such as hexanes (c6) to pentadecanes (c15). It would appear that the source of these VOCs is from motor vehicle exhausts from the nearby roads and the town of Midleton. This theory is further supported by the fact that the greatest VOC concentrations are determined close to the roads and junctions (A1, A2 and A5). There are no EU limits expressed for these VOC compounds and the only air quality limit expressed for aromatic hydrocarbons is Benzene (Refer to Table 13.2), which was only detected in this survey at locations A2 and A5. The main potential source of VOCs on the proposed development is from motor vehicle exhausts from on-site traffic.

Odour

6.4.11 Odour is measured in terms of odour units (OU). This is the number of times a sample of air must be diluted before 50% of a trained panel of personnel cannot detect the presence of an odorous compound. Recent work carried out at over 200 industrial sites in the UK suggested that justifiable complaints of odour nuisance are unlikely to occur if the concentration at a given location was below 5 odour units per cubic metre ($5OU/m^3$) most of the time. At $5OU/m^3$ a 'faint odour' may be detected while $10OU/m^3$ may give rise to justifiable complaints if occurring frequently. This nuisance criteria has been applied by water companies in the UK for consideration of abatement requirements to avoid nuisance complaints.

6.4.12 There is no set limit for odour nuisances but there is a guideline regarding odours. Anything above 10-15 OU/m^3 is considered to be above the background odour at any site. This baseline study suggested that the presence of the Mart on the site is not contributing significantly to the odour concentrations in the area with an odour contribution of $7OU/m^3$ (i.e. upwind 34 OU/m^3 compared to downwind 41 OU/m^3 – Refer Table 13.7, Appendix V). The results from the odour assessment carried out showed that the current baseline conditions are low and the presence of the Mart is not causing a significant environmental odour nuisance on the area. In addition, with the removal of the current Mart as part of the proposed development, there is likely to be a positive impact in the lowering of background odour concentrations in the area.

Dust Deposition

6.4.13 The results of the dust deposition monitoring survey have determined dust levels of the range 46.1 to 114.1 $mg/m^2/day$ (Refer Table 13.8, Appendix V). There is good consistency in the four locations. The levels determined are considered low and are significantly below the TA Luft Guideline limit. The main potential for dust emissions from the proposed development is during the construction phase.

Local Meteorological Conditions

6.4.14 The ability of the atmosphere to disperse pollutants is characterised by the prevailing wind speed, mixing height and level of stability (or turbulence). The emissions from traffic-derived sources will be most heavily influenced by very stable atmospheres and low wind speeds when movement of the air is restricted. The frequency of these conditions is low. The prevailing wind is from the southwest and consists of neutral conditions (D stability) with moderate wind speeds, which are favourable for the dispersion of pollutants emitted at low emission heights (as occurs from traffic-derived sources). Climatic conditions are therefore favourable for the majority of the year to reduce any residual potential for the build up of significant levels of pollutants.

6.4.15 Meteorological data for the area has been examined to identify the frequency of the worst-case weather conditions that would give rise to the highest levels of pollutants. For data collated during a series of representative years for the meteorological stations around Ireland, the worst-case conditions occurred for less than 3% of the time.

IMPACT

Construction

6.4.16 There is the potential for a number of emissions to the atmosphere during the construction of the development. In particular, the construction activities may generate quantities dust, which may cause an environmental nuisance in the area. Construction vehicles, generators etc., will also give rise to exhaust emissions of nitrogen oxides, benzene and sulphur dioxide (in particular, from diesel fuelled engines).

Scheduled Emissions

6.4.17 Regarding operations at the proposed town centre, the activities to be located in the development are planned for residential, retail, commercial and municipal buildings. As a result, there are no scheduled emissions (i.e. through stacks, vents, etc.) planned for the development and site activities are unlikely to cause any deterioration in local air quality.

Road Traffic

6.4.18 The traffic access to the site will be via a proposed new road adjoining the roundabout between the Old Cork Road and the Mill Road. Predicted average traffic flows in the vicinity of the proposed development were obtained from the traffic consultants responsible for the section of the Statement devoted to traffic and parking. These traffic calculations are used to predict pollutant concentrations due to the proposed development.

Heating

6.4.19 The space heating for the development is likely to be a combination of mains gas supply (for houses) and electricity based heating (for apartments). Fuel oils and solid fuel are regarded as the worst polluters where natural gas is considered the "cleanest" fossil fuel. The domestic heating systems may effect emissions to atmosphere of carbon monoxide, sulphur dioxide, oxides of nitrogen and particulates. However, concentrations of particulates and sulphur dioxide have greatly reduced with the

introduction of a ban on smoke-less fuel and this trend is likely to continue in future years.

Construction

6.4.20 If a satisfactory environmental impact minimisation plan is implemented, the effect of construction on air quality will not be significant. The main environmental nuisance associated with construction activities is dust. However, if the construction contractor adheres to good working practices and dust mitigation measures, the levels of dust generated will be minimal and are unlikely to cause an environmental nuisance.

Road Traffic

6.4.21 The impact on air quality as a result of the projected increase in road traffic has been calculated using the procedures given in Annex 1 in the UK Dept. of Transport Design Manual for Roads and Bridges (Revised May 1999), Volume 11, Section 3, Part 1, Air Quality. The Annex provides a screening method for the prediction of ground level concentration of various pollutants at sensitive receptor points close to new developments. As the model involves a screening procedure, a worst-case scenario is investigated. Firstly, the emission factors for each pollutant have been biased to overestimate the actual emission rate (but without generating unrealistically high results). Additionally, wind speeds are assumed to be 2 m/s, which is lower than that typically found in Ireland. Furthermore, background concentrations have been incorporated into the model and represent worst-case values for the site. Finally, the traffic counts used in the model scenarios are those for the peak rush-hour periods. A number of features of the procedure are designed to overestimate likely pollution levels and, in consequence, it can be assumed with some confidence that a project will not produce air pollution problems if none are identified by this method.

6.4.22 Average concentrations of carbon monoxide, benzene, nitrogen monoxide and particulate matter (PM_{10}) have been predicted for the most sensitive residential receptor point close to the development, i.e. the residence on the New Cork Road at the Cork Bridge (R1 on Drawing 13.1, Appendix V). Predictions have been made for the current scenario (2001), for the current scenario with the development (2001) and a future design year with the development in place (2004). The year 2004 is chosen due to the availability of relevant traffic data. The receptor chosen is considered to be where the most significant effects of increased traffic flow will be felt, in particular due to the proximity of the proposed new road. Calculations have been made based on traffic flows predicted for 2001, with no development, 2001 with the development and those predicted to result from the proposed development in 2004. As the average speed of traffic, as well as distance of potential receptors from junction points have a significant effect on the generation of pollutants, calculations have been carried out for 2 different traffic speed scenarios. These speeds are 10 km/hr (to represent traffic gridlock conditions) and 40 km/hr (to represent free-flowing traffic conditions for this type of small town). The results of these calculations are presented in Table 13.9, Appendix V.

Screening Study Evaluation

6.4.23 The predicted concentrations of carbon monoxide, hydrocarbons (including benzene) and particulate matter are below the relevant significance criteria for all scenarios. The results indicate that there is a slight increase in pollutant concentrations with the addition of the proposed development in 2001. However, the model has predicted a

decrease in concentration of all pollutants in the future scenario year (2004) with proposed development in operation (Table 13.9, Appendix V). For example at a speed of 40km/hr the predicted annual average concentration of carbon monoxide is 0.336ppm in the existing scenario, the predicted concentration with the development in place increases slightly to 0.377ppm. Finally, in 2004 with the development in place the predicted carbon monoxide concentration is set to decrease to 0.298ppm. These predicted decreases in future scenario years are a result of predicted technical modifications in engine design and fuel content in the next few years. These modifications are driven by legislation (such as environmental emissions limits within the EU) and improved technology (more efficiency in engine design) and are built into the model for predictions of pollution in future years. As a result the vehicles are predicted to cause considerably less pollution even with greater traffic volumes.

6.4.24 In relation to nitrogen dioxide, the predictions indicate that, at the residential receptor R1 on the New Cork Road, potential exceedences of the annual average value may occur for all scenarios. The predicted annual average concentration in 2001, without the development, indicates that the EU standard will be exceeded under both traffic speeds at the nearest residential receptor. For 2001 the additional impact of the development, compared to the current scenario, will be to marginally increase the annual average concentration by approximately 5-6%. However, the model predicts a decrease in the annual average nitrogen dioxide concentration by approximately 10% in 2004 with the proposed development in operation.

6.4.25 It should be noted that the concentrations predicted in the model calculation represent a worst-case scenario for a number of input parameters. As noted earlier, the model assumes that worst-case meteorological conditions (i.e. low wind speeds), overestimation of pollutant concentrations and peak traffic counts. As a result the predicted concentrations are likely to be greater than those determined analytically. For example, the results for ambient air monitoring at the Midleton roundabout (A5) results in a Nitrogen Dioxide concentration of 15.05$\mu g/m^3$ (7.90ppb) compared to the model prediction of 53.5$\mu g/m^3$ (27.90ppb) at the receptor R1 (for 40km/hr traffic speeds).

Heating

6.4.26 Provided that adequate consideration is given to the environmental impact of space heating at the design stage and that the heating systems are operated in accordance with principles of best practice or within consent conditions, then the effect of multiple domestic heating systems on air quality is not considered likely to be significant. In addition, the use of natural gas and electricity powered heating will significantly reduce the potential for emissions of nitrogen oxides, carbon monoxide and in particular, sulphur dioxide which have become a less significant issue in recent years with the advent of smokeless fuel.

Summary of Air Quality Impacts

6.4.27 In summary, the monitoring undertaken as part of the environmental impact assessment have shown that the pollutant concentrations present at the proposed development site are below the legal limits and those expected to arise as a result of the development will also remain below the legal limit.

6.4.28 The screening modelling studies have shown that the pollutant concentrations present at the proposed development site are below the legislative limits even under gridlock

traffic conditions (10 km/hr). Moreover, levels are predicted to decrease for the future scenario year, in comparison to current baseline conditions in 2001. This is due to the DMRB model, which has built-in correction factors for improvements in engine design and fuel composition in future years, leading to decreases in pollutant concentrations even with increased traffic volumes. While the predicted annual average nitrogen dioxide levels are above the EU limit for all model scenarios, the monitoring shows that the results determined from the predictions are an overestimation of the actual concentrations.

MITIGATION

Construction Phase

6.4.29 Construction activities are likely to generate some dust emissions. The potential for dust to be emitted depends on the type of construction activity being carried out in conjunction with environmental factors including levels of rainfall, wind speed and wind direction. The potential for impact from dust depends on the distance to potentially sensitive locations and whether the wind can carry the dust to these locations. The majority of any dust produced will be deposited close to the potential source and as such any impacts from dust deposition will typically be within several hundred metres of the construction area.

6.4.30 In order to ensure that no dust nuisance occurs, a series of measures will be implemented. Site roads shall be regularly cleaned and maintained as appropriate. Hard surface roads shall be swept to remove mud and aggregate materials from their surface. Any un-surfaced roads shall be restricted to essential site traffic only. Furthermore, any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions. Vehicles using site roads shall have their speed restricted, and this speed restriction must be enforced rigidly. On any un-surfaced site road and on hard surfaced roads that site management dictates speed shall be restricted to 20 km per hour. Vehicles delivering material with dust potential shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust. All vehicles exiting the site shall make use of a wheel wash facility, preferably automatic, prior to entering onto public roads, to ensure mud and other wastes are not tracked onto public roads. Public roads outside the site shall be regularly inspected for cleanliness, and cleaned as necessary. Material handling systems and site stockpiling of materials shall be designed and laid out to minimise exposure to wind. Water misting or sprays shall be used as required if particularly dusty activities are necessary during dry or windy periods.

Road Traffic

6.4.31 Emissions of pollutants from road traffic can be controlled by either controlling the number of road users or by controlling the flow of traffic. For the majority of vehicle-generated pollutants, emissions rise as speed drops, although the opposite is true for oxides of nitrogen. Emissions are also higher under stop-start conditions when compared with steady speed driving. Because of these effects, the calculations of the impact of road traffic were made under 2 different speed considerations. The pollutant concentration predictions discussed above show the effect of average speed on the generation of vehicle emissions. The free flow of the traffic in urban areas and in the vicinity of proposed development is normally essential in order to minimise the generation of traffic related pollutants. When this development is operational,

however, even if the average traffic speed drops to 10 km/hr, the model predicts that no significant impact on air quality will occur by the year 2004.

Heating

6.4.32 Space heating devices will be operated according to principles of best practice and within constraints of Irish environmental law.

MONITORING

6.4.33 The monitoring surveys were carried out between 7th June – 26th June 2001 at a series of locations on or near the site. These monitoring locations are listed in Table 13.1 and are shown in Figure 13.1 Air, Odour and Dust Monitoring Locations, Appendix V. The baseline monitoring survey was carried out in accordance with standard procedures. These procedures are outlined below:

Nitrogen Dioxide (NO_2)

6.4.34 The long term monitoring programme was carried out through the use of continuous exposure of NO_2 diffusion tubes over a period of 20 days. NO_2 is absorbed as nitrite by triethanolamine by diffusion of ambient air into the tube. The nitrite is determined spectrophotometrically (UV/Visible) at 540nm at the UKAS Accredited laboratories of Gradko International, Winchester, UK. The results of this monitoring survey are presented in Table 13.4, Appendix V.

Sulphur Dioxide (SO_2)

6.4.35 The long term monitoring programme was carried out through the use of continuous exposure of SO_2 diffusion tubes over a period of 20 days. SO_2 is absorbed as sulphur by diffusion of ambient air into the tube. The sulphur is determined by ion chromatography at the UKAS Accredited laboratories of Gradko International, Winchester, UK. The results of this monitoring survey are presented in Table 13.5, Appendix V.

Volatile Organic Compounds (VOCs)

6.4.36 The long term monitoring programme was carried out through the use of continuous exposure of VOC diffusion tubes over a period of 20 days. VOCs are absorbed by diffusion of ambient air into thermal desorbtion tubes. These tubes are thermally desorbed and analysed by Gas Chromatography/Mass Spectroscopy at the UKAS Accredited laboratories of Gradko International, Winchester, UK. The results of this monitoring survey are presented in Table 13.6, Appendix V.

Odour

6.4.37 Odour concentration levels were determined upwind and downwind of the proposed development. The sampling was carried out using the "lung" method to prevent any contamination of the samples and was analysed by a panel of trained personnel at the ILAB accredited Bord na Mona Environmental Laboratories, Newbridge, Co. Kildare. The analysis was carried out by dynamic olfactometry in accordance with the requirements of the final draft of the CEN prEN "Odour Concentration Measurement by Dynamic

Olfactometry", March 1995. The results of this monitoring survey are presented in Table 13.7.

Dust Deposition

6.4.38 The dust deposition monitoring was carried out using Bergerhoff-Gauges in accordance with the Guideline VDI 2119 Sheet 2, by the Constitution of German Engineers (Verein Deutscher Ingenieure), as the recommended standard method meeting TA-Luft (1986) requirements. TA Luft Guidelines are German Government technical instructions on air quality and these guidelines are recommended by the Irish EPA.

6.4.39 The dust deposition method determines total dust deposition, including wet deposition (in rainfall) and dry deposition by determining the mass of dust deposited on a known area during a known time period (one month recommended). The mass of the dust deposited is determined using gravimetric weight analysis on a calibrated 5-point balance. All gravimetric analysis will be carried out in a controlled environment in the laboratory of RPS Environmental Sciences, Dublin. The detection limit of this method is 35 $mg/m^2/day$.

6.4.40 Wherever possible, the gauges are placed at the recommended distance of 10 times the difference between the measuring height (1.5 m) and the height of objects in the vicinity (e.g. trees), which would otherwise obstruct the airflow. The results of this monitoring survey are presented in Table 13.8 contained in Appendix V.

6.5 NOISE

RECEIVING ENVIRONMENT

6.5.1 The proposed market green development is located in the town of Middleton, approximately 20km from Cork city. The site is bounded by two main roads; the Cork Road to the south of the site and the Mill Road to the east. A number of residential areas are located along all site boundaries while a commercial area is located to the south-west of the site. The southern area is currently a mart and the remaining land used is comprised of grass farmland fields. Ambient noise levels at the boundary of the site were measured over the course of a daytime period to quantify the existing environment. Four environmental noise parameters were measured. These are defined below.

L_{Aeq}	is the A-weighted equivalent continuous steady sound level during the sample period and effectively represents an average value.
L_{Amax}	is the maximum A-weighted sound level measured during the sample period.
L_{A10}	is the A-weighted sound level, which is exceeded for 10% of the sample period; used to quantify traffic noise.
L_{A90}	is the A-weighted sound level, which is exceeded for 90% of the sample period; used to quantify background noise.
A-weighting	is the process by which noise levels are corrected to account for the non-linear frequency response of the human ear.

All noise levels quoted are relative to a sound pressure of $2x10^{-5}$Pa.

6.5.2 A noise survey was carried out at seven boundary locations surrounding the proposed site boundary. Measurements were performed over a typical week day period to obtain noise level data indicative of a typical working day in the surrounding environment. A description of the measurement locations are as follows:

Position 1 - at the south of the proposed site along the Cork Road opposite the Hotel. This position was chosen as it represents the busiest location nearest the site development.

Position 2 – is located to the south west side of the site at a residential property opposite a shopping area. This position was chosen to represent one of the nearest noise sensitive locations to the south west of the site.

Position 3 – is to the west of the proposed site within Joseph Ahern Terrace estate, facing a shopping area. The location is approximately 40 meters from the nearest boundary of the proposed site.

Position 4 – is situated to the north west of the site within a residential area also. This location is approximately 5 meters from the proposed site boundary.

Position 5 – to the north of the site, lies within a housing estate approximately 10 meters from the proposed site boundary. This location was chosen to represent the nearest noise sensitive location to the north of the site.

Position 6 – at the north east of the site is situated at the edge of the Owenacurra River. Positioned next to the nearest noise sensitive property this location is approximately 4 meters from the proposed site development.

Position 7 – to the south east of the site, is located at the rear of a residential property facing a mart within the proposed development.

Full survey details are presented in Appendix VI.

Methodology

6.5.3 Noise level measurements were performed twice at the seven locations noted above. The results were noted onto survey sheets immediately following each measurement. All measurements were carried out in accordance with ISO1996: '*Description and measurement of environmental noise.*'

Survey Results

6.5.4 A full list of survey results are included in Table 14.3, Appendix VI. Noise levels measured during the survey were found to vary depending on the position of the measurement locations. N1, situated along the main Cork Road recorded the highest noise values (L_{Aeq} 68dB) while N3 situated at the rear of a residential property, recorded the lowest noise levels (L_{Aeq} 48dB). The average noise level recorded was L_{Aeq} 55 dB which is considered to be an average noise level for daytime recordings in urban dwellings according to EPA guidelines on environmental noise. The main noise sources noted during the survey were traffic noise and some construction works along surrounding roads. The acoustical impact of the proposed development on the neighbouring environment will be very different during the following two distinct stages:

- construction phase;
- operational phase.

6.5.5 Given the nature of the development, it is unlikely that there will be much overlap of these phases. The construction phase will involve a variety of activities. Excavators, lifting equipment, dumper trucks, compressors and generators will be amongst the plant in use. There will be vehicular movements to and from the site that will, out of necessity, make use of existing roads. Once the development is operational, the main noise sources will be from electrical or mechanical sources used to service the retail and leisure developments. Hotel facilities also have the potential to be impact the surrounding dwellings. Traffic is expected to increase within the area and will be one of the main sources of increased noise at noise sensitive locations. The existing roads for the purpose of this development will carry the bulk of the traffic. Noise from the service yard has the potential to cause noise impact particularly during night time and early morning delieveries

IMPACTS

6.5.6 When considering a building development of this nature, the potential acoustical impact on the surroundings must be considered for each of two distinct stages; the short term impact of the construction phase and the longer term impact of the operational phase.

Construction Phase

6.5.6 Due to the nature of the activities undertaken on a large construction site, there is potential for generation of significant levels of noise. Therefore, it is usual to limit the times during which it is permissible to carry out noisy construction work in order to minimise the impact on nearby noise sensitive locations. The flow of vehicular traffic to and from a construction site is also a potential source of relatively high noise levels.

Operational Phase

6.5.7 Once a development of this nature becomes fully operational, a variety of electrical and mechanical plant will be required to service the leisure and retail units. Most of this plant will be capable of generating noise to some degree. Any mechanical services plant which would operate 24 hours per day would be most noticeable during quiet periods (i.e. overnight). Noisy plant with a direct line-of-sight to noise sensitive properties would potentially have the greatest impact.

6.5.8 Noise impact from the Hotel Facilities, i.e. the restaurant and bar have the potential to cause impacts at neighbouring residences. A new retail and car park development would be expected to generate additional traffic movements on local roads. The impact of such traffic movements is a function of how much of an increase they represent over existing traffic flows in the area. As the area in question is predominately urban, the impact should have a minor impact on the area. The predicted noise increase due to increased traffic flows are summarised in Table 14.1 below. These relate to information on existing and predicted traffic flows as summarised in Table 14.4, Appendix VI.

Location	**Change in noise levels dB(A)**	
	2001 without compared to 2001 with development	2001 with development compared to 2004 with development
Main street	+1	0
Riverside way	+1	0
N1 & N2 Cork road	+1	0
N7 New road	+1	N/a
N6 Mill road	+1	0
Goose green	+1	0

Table 14.1 *Calculation of noise level changes due to traffic increases from the retail park.*

The significance of the impact is summarised below in terms of increase in noise level.

Change in dB(A)	Significance in noise increase
0 – 3	Not significant
3 – 5	Minor significance
5 – 10	Moderate significance
>10	Significant

Table 14.2: *Quantification of change in noise levels.*

6.5.9 Comparing the existing year flows with the case with and without the development, there is a calculated increase of 1dB(A) along all routes. Comparing the year of opening with 5 years after the development, there is no expected increase in noise levels due to traffic. In summary, there is an insignificant impact from the development on the surrounding environment due to traffic noise. The main potential impacts associated with a service yard are loading and unloading trucks and reverse warning alarms. The main potential impacts associated with a service yard are loading and unloading trucks and reverse warning alarms. These will be most noticeable during early morning and night time hours. The proposed supermarkets service yard is located to the south of the site and is approximately 40m from the nearest noise sensitive properties. These properties currently face out along the Cork road. The baseline noise levels measured at a representative property along this road had a measured night time noise level of 67dB L_{Aeq} due to busy traffic along the road. The noise sources from the service yard may cause nuisance at nearest properties if deliveries are carried out during unsociable hours.

MITIGATION

6.5.10 Given that the design of the proposed development has not yet progressed to a detailed stage, it is not currently possible to define the exact noise control measures that will be employed. Likewise, due to the fact that the construction programme has been established in outline form only, it is not possible to specify what noise control measures and acoustic hardware will be appropriate. However, the intention is that noise impact from both construction and operational phases will be kept to a minimum. This can be translated into appropriate criteria by making reference to the results of the background noise measurements described above. This in turn permits the generation of a schedule of noise control measures likely to be employed.

6.5.11 With regard to construction activities, reference will be made to BS5228: *Noise control on construction and open sites,* which offers detailed guidance on the control of noise from demolition and construction activities. It is proposed that various practices be adopted during construction, including:

- limiting the hours during which noisy site activities are permitted;
- establishing channels of communication between the contractor/developer, Local Authority and residents;

- appointing a site representative responsible for matters relating to noise;

- monitoring typical levels of noise during critical periods and at sensitive locations.

6.5.12 Once operational, the primary sources of noise associated with the development will be electrical and mechanical services. Proven noise control techniques should be employed to ensure that emissions from retail or amenity buildings do not lead to any appreciable increase in noise levels in the vicinity. With regard to building services plant it is envisaged that the following will be employed:

- duct mounted attenuators on the atmosphere side of all air moving plant;

- splitter attenuators or acoustic louvres providing free ventilation to plant areas;

- solid barriers screening any external plant;

- Anti-vibration mounts on all reciprocating plant.

6.5.13 With regard to noise from the Hotel and Bar facilities, measures should be made to ensure night time noise levels are maintained to a minimum. This has been achieved by siting bar and restaurant away from noise sensitive properties. Also the hotel will need to be designed to ensure that noise from the bar area is not transmitted to bedrooms. Therefore noise transmission to nearby residential locations should not be an issue. Noise from traffic noise is not anticipated to lead to an impact on the surrounding area. Noise from the service yard can be minimised by at the nearest properties by:

- Maintaining level road surfaces and imposing speed limits in the area.
- Minimising the use of reverse alarms
- Ensuring the boundary wall between properties on the Cork Road and the service yard is high enough so that the line of sight between top floor windows and the service truck is blocked.
- Limiting delivery times to more sociable hours where reasonably practicable.

Construction Phase

6.5.14 During the construction phase of the project the noise impact will vary depending on the location of noise sensitive properties to the development. Given that the development site is in an urban area next to a number of main roads, it is considered that the various noise sources will not be excessively intrusive. Residential properties located furthest away from main roads may experience a greater increase in noise levels. However the application of binding noise limits and hours of operation, along with implementation of appropriate noise control measures (including a boundary fence), will ensure that noise impact is kept to a minimum.

Operational Phase

6.5.15 The operational phase of the development is not considered to have a negative noise impact on its surrounding environment. The implementation of noise control techniques at the design stage of retail, hotel, superstore and leisure facilities can minimise the noise impact of this development on surrounding noise sensitive properties. Traffic noise from the development is not expected to generate significant levels of noise in the vicinity of the site.

6.6 LANDSCAPE AND VISUAL APPRAISAL

Introduction

6.6.1 The term "landscape" encompasses physical components of the environment, such as topography, vegetation, land-use, infrastructure and industrial and urban development. It is an inherent and integral feature of the whole environment. Any impacts on soils, water, flora, fauna and air will be inseparable from the landscape. However, the landscape also encompasses aesthetic/visual, cultural and amenity components which determine people's perceptions of their surrounding environment. The EPA guidelines advise that a description of the existing environment is an essential part of the EIS, in that it provides an accurate description of the relevant aspects of the existing environment, which can be used as a reference point, or baseline information, against which the development's impact upon the environment can be assessed. In order to produce systematic, accurate and comprehensive descriptions the following headings are included in the description;

Methodology

6.6.2 The context gives a description of the existing features which make up the landscape of the receiving environment. It also indicates the extent of visibility, or zone of visual influence of the site. The character of the landscape is identified and described in terms of the natural and human features which create distinctive areas within the landscape. The character of any landscape relies closely on its associations, its history and the perceptions of the public.

SIGNIFICANCE

6.6.3 The significance of the site is described in that, the development may intrude upon designated views, may be within or adjacent to designated landscape amenity areas or may have historical or cultural associations. Furthermore, the site or part thereof may be visible over a wide area or used for activities in which character and views are important. Finally, any trends of change which may be identified or reasonably inferred in the landscape are noted.

Degree of Impact

6.6.4 The significance of an impact is determined by a combination of objective (scientific) and subjective (social) criteria. Topics should be included in an assessment if the development could cause significant impacts on any aspect of the landscape;

- which has been formally or systematically designated as being of importance, or;
- if the potential exists for the development to substantially alter the existing character of some aspects of the environment.

Three objective criteria can be used to determine whether an impact is of significance;

- *Magnitude and Intensity:* any development which can cause effects over a wide area, to a large number of recipients, or effects which are of an intensity which is substantially more than that normally experienced.

- *Duration:* any development which can cause impacts over a long period of time (more than one generation) or which will cause permanent changes to any aspect of the environment.

- *Certainty:* where the magnitude, intensity, duration or consequences of any change cannot be anticipated with a reasonable level of certainty.

6.6.5 The effects of any development on the landscape have two separate but closely related aspects. The first is visual impact, that is the extent to which new development can be seen. The visual aspect refers primarily to the appearance of the landscape, including shape, form and colour, and their interaction to create specific patterns and views that are distinctive to particular localities. The second are impacts on the character of the landscape, that is responses, which are felt towards the combined effects of the new development. The significance of the impacts on the perceived landscape character will depend partly on the number of people affected, but also on judgements about how much the changes will matter, and in relation to other senses, i.e. sound, feeling etc., experienced by those concerned. The following objective scale is used to assess the significance of visual impact. Visual impact occurs by means of intrusion and/or obstruction, where;

- visual intrusion is impact on a view without blocking; and

- visual obstruction is impact on a view involving blocking thereof.

6.6.6 The degree of visual impact by means of intrusion or obstruction on a particular view, may be rated as follows;

- Imperceptible or no impact arises where the proposal is adequately screened by existing landform, vegetation or the built environment;

- Low/slight impact arises where views affected by the proposal form only a small element in the overall panorama;

- Moderate impact arises where an appreciable segment of the panorama is affected or where there is intrusion in the foreground. Generally, there will be open views into a site located in the mid-ground, with the site representing a significant proportion of the overall view. The development may interrupt the skyline. Existing vegetation/townscape provides partial screening except where existing views are elevated;

- High/significant impact arises where the view is significantly affected, obstructed or so dominated by the proposal that it becomes the focus of attention. Generally, there will be open views of the development located in the foreground. The development will give rise to both visual intrusion and visual obstruction and may obstruct the skyline.

- Severe/profound impact arises where a view of significance is completely obscured or altered.

6.6.7 In either case, impacts may be viewed as neutral, positive or negative, where;-

- neutral represents a change which does not affect the quality of the environment;
- positive represents a change which improves the quality of the environment;

- negative represents a change which reduces the quality of the existing environment.

6.6.8 Further to the above, construction impacts which are temporary and generally of a negative nature are also assessed as high, moderate or low. The vegetation in the surrounding off-site areas are largely deciduous in nature. The visual impact assessment was carried out between December 2001and January 2002, when screening by leaf cover is not available and as such represents the worst-case scenario in terms of visual impact relating to vegetation.

Receiving Environment

6.6.9 The site of the MGD forms a sector within inner Midleton that radiates outwards from the roundabout at the northern end of the Main street in a westerly direction. The Owenacurra river meanders around the edge of the site and forms the eastern site boundary. The western edge of the site is bounded by the a road leading to industrial facilities. The southern edge is bounded by amenities built along the Cork Rd. The northern boundary meets the Owenacurra Business Park and a further area of pasture that follows the river north. The site is made up of pasture fields and the Cork Marts livestock and property market. At the time of survey the pasture was grazed by a herd of sheep and a small herd of cattle. The site is fairly flat, the majority at a level of approximately 4.0 m above the river level, the remaining area is a floodplain that follows the river, in most areas less than 1.0 metre above the river. The river floodplain is separated from higher part of the site by a meandering embankment.

6.6.10 The ground under pasture was soft at the time of survey and was quite boggy on the floodplain. A good covering of healthy pasture grass was present and there was little rubbish or litter. Man made features in the pasture are limited to low post and wire fences, some small power lines on timber poles and a small concrete block shed near the river that may have housed a pump. These amenities have a general appearance of neglect. There are some shrubs within the fields and some hedgerow species present along the fence line of the Owenacurra Business Park including whitethorn, blackthorn, furze and briar.

6.6.11 The Cork Marts livestock market consists of a group of large metal framed sheds covering an area of concrete floor and tubular steel pens. The livestock markets are still in use. The day of survey was a Thursday and there was not much activity, a small number of cattle were present, some people were coming and going. There is an office and canteen to the Cork Rd side of the markets and people were eating and gathering around this area. Discarded farm machinery and equipment is lying around the market compound, which is secured by a concrete post and wire fence.

6.6.12 The river is consistently between 5 and 7 m wide, approx 800 mm deep at its deepest and 300 mm at its shallowest. There had not been significant rainfall for the week prior to the day of survey. Rapids formed at the shallow sections where the flow was also faster. The river water appeared clean and there was little rubbish. There was a fast flow of water and a variety of bird life and a mature salmon was observed. The western bank is vegetated by pasture grass and occasional shrubs. The northern end of the eastern bank also has some small trees and a narrow floodplain that meets a second bank. Behind the properties on the Mill Rd the eastern bank is formed by an old high stone wall approximately 30 metres long that meets a semi mature woodland copse at the back of the fire station compound. This copse continues as far as the old stone bridge of the Cork Rd. at the eastern corner of the site. An old stone race and weir runs parallel to the river from the bend at the north eastern corner of the site. The race flows

as far as the Cork Rd. bridge. The clean nature of the river at the site changes as the river passes through Midleton. It becomes wider and slower flowing and appears dirtier, with more rubbish evident, especially along the banks.

Site Peripheries

6.6.13 **Town centre/ roundabout.** The Cork Rd. is a two lane arterial road that crosses the river on an old stone arch bridge. The road carries a constant flow of traffic and on the day of survey, a Thursday, at around 4 pm, traffic was observed backed up from the town centre roundabout to the Cork Marts entrance. The bridge has been widened on the down stream side using concrete block and does not have the same form or character as the original when viewed from this side. At its most easterly point the site has an interface with the town centre roundabout. This roundabout space is a focal point within Midleton and is one of the towns circulation (vehicular and pedestrian) nodal point. Three key traffic routes join here and circulate the roundabout. Main Street begins at one side of the roundabout where there are examples of prominent architecture. The Courthouse is located at the head of Main St. on the eastern side of the space. It has formal stone construction and an official appearance. The AIB Bank occupies the distinctive Queen Anne revival style building opposite the Courthouse. Its intricate roofline and red brick construction make it a prominent landmark within Midleton. Its roof can be seen from many parts of the town creating an excellent visual reference point. A stone Republican memorial is situated in a traffic island between the Courthouse and AIB building.

6.6.14 Other features encircling the roundabout space are a semi modern brown brick EIRCOM building and utilitarian buildings accommodating retail businesses and a car park are positioned behind a low stone wall. The space immediately between the roundabout and the river is a vacant grass patch at one end of the fire station compound. Wrecked car bodies possibly used by the fire service for training, are lying in long grass. The lot is partly screened by a line of trees, poplar spp, planted inside a low wall adjacent to the roundabout. A metal fire training tower, approximately ten metres high exists beside the fire station. The fire station compound and facilities appear to be in a poor state of maintenance.

6.6.15 **The Cork Rd.** The houses that separate the site from the Cork Rd. are historic stone terraces occupied mainly for residential use. The terrace on the north side of the road also features a pub, shoe repairer and physiotherapist. This historic grouping of houses extends across to the Old Cork Rd. They are largely in well kept condition and painted a variety of colours. This historic pocket ends at the Midleton Park Hotel and livestock market entrance on the Old Cork Road. The Woodlands, a modern residential development comprising a singular architectural style, faces the old housing from the south side of the Old Cork Road. An old 2.2 metre high stone wall, in good condition, separates the terrace housing built along the Cork Rd. from the site. A small lane runs behind the houses and forms two backyard spaces on some allotments. Some residents have dedicated effort to personalising a number of the yards. A variety of potted plants, flowering and other decorative planting, painted walls and decorative items lend an individual character to certain yards. Further along the Cork Rd. are commercial premises in the form of a Co-Op Stores supermarket with associated car parking, a motor garage and various commercial premises. Middle class residences occupy the majority of the road frontage.

6.6.16 **Western and northern boundaries.** The south west corner of the site is bounded by warehouses and goods yards of the Co-Op Stores market. Further west are two storey

and exposed sites. No views of the site are present from the N25 as it is built along low ground on the harbour side of the town.

Character Areas

6.6.21 The hills and ridges outside the town environs support farms and scattered small residential land holdings. The landscape exhibits typical rural characteristics. Inner Midleton exhibits different character areas that are principally defined by the style and age of urban development;

- Town centre/ roundabout space. A large roundabout that appears out of scale with the surrounding urban form. The Main St. side of this space feels like the true town centre. The other sides of the space have less prominent and more ill defined nature.

- The Cork Rd. The old stone bridge and terrace housing have a scale that is not present in modern urban areas which presents an undisturbed historical pocket of buildings.

- The Mill Rd. Area of historic terrace buildings with a remnant stone wall an old Mill house and weir. Modern retail developments exist in contrast to neighbouring historic elements.

- Western boundary. Knockgriffin and Joseph Ahern Terrace are residential areas of no unique local character.

- Northern boundary. The Owenacurra Business Park is a typical industrial park located next to an overgrown field.

6.6.21 The initial phase of the proposed development involves the construction of a supermarket and a number of connected smaller commercial, leisureplex, cinema, offices, aparthotel and retail units on the location of the existing livestock markets. Two access points into the site from the town centre roundabout and the Cork Rd. will feed a the car park and goods delivery compound. Following phases include constructing offices, retail warehouses and a mix of commercial and residential buildings along with roads and car parks.

6.6.22 Space set aside for soft landscape treatment includes peripheries of roads, buildings and footpaths and a paved area surrounding the proposed cinema that has potential to be used primarily as a pedestrian zone. A portion of the river floodplain will be reserved for public open space. Correct restoration and landscape treatment should bring other users into the place rather than just those who are shopping, working or living there. Provision should be made for access across the river between the Mill Rd. and the open space should be designed to increase the permeability of the site and encourage a variety of uses and users. The commercial, industrial and residential section to the north-western end of the site caters primarily for vehicular circulation. It features a mass of car parks and low permeability for pedestrian traffic. The mixed land uses proposed should bring a variety of activity to the area thereby ensuring that the spaces are interesting and safe to use at all times.

Impact

6.6.23 The site could be considered of little significance for the following reasons;

- No specific landscape strategies or preservation plans exist for this site.

- The site itself has limited special landscape characteristics. The fields have no unique features or qualities, aside from their location within an urban area.

- It has only a narrow visual window from the town centre space, generally views of the site are restricted.

- There is not much use or involvement with the site by residents of Midleton as it has limited opportunities for use as an amenity. Permeability of the site is limited.

6.6.24 The site could be considered significant for the following reasons;

- The river has a natural character, although the banks require significant restorative measures including re-vegetation.

- The site has an interface with the town centre. At its most central point, the site is only about 60 metres from the Main St.

- The site is a large green space within the town. Its large area of open space brings the surrounding rural landscape into the centre of the town.

Sensitivity

6.6.25 Overall, the site is of limited special significance, however the river is a valuable natural asset. The present pastoral nature of the site makes it sensitive as the proposed MGD will significantly change this quality of the site. The river would be very sensitive to urban development and associated construction works. Its natural character and delicate banks could be disturbed by development and new users. There is also potential for the river to be more hidden than it is presently. The inner zone of Midleton, that which generally contains more historic urban elements, is the most character sensitive area of the town. The old bridge and historic housing along the Cork Rd require protection of their character and form. The quality of the town centre/ roundabout as a focal point is sensitive to dilution by the MGD and its new entrance road. Other areas surrounding the site are of low sensitivity as they contain recent urban development that is at odds with the historic character of Midleton and display no unique qualities as urban areas.

6.6.26 The proposal to construct the MGD in Midleton will inevitably lead to varying degrees of permanent impact on the landscape and visual character of the surrounding environs. These impacts will generally arise from;

- The creation of an urban environment on a site that presently has a rural nature within an urban context. The pastures and Cork Marts will be removed to make way for the new car parks, roads and buildings.

- The development of a new bridge over the Owenacurra River where none exists presently. The new bridge could also draw from the presence of the existing historic stone bridge. The new road and disturbance of the existing woodland copse will increase the visual connection between the site and town centre. Possible damage to river and banks arising from the construction of the bridge.

- The expansion and development of the roundabout at the town centre. A new road will be formed from the roundabout into the MGD and will change the dynamics of the roundabout space. Expanded roads and improved flows will be accompanied by new signage and lighting.

- Visual presence of large, new buildings from certain viewpoints. The mass of proposed buildings in the MGD are different to those along the Cork Rd. and in the town centre space.

- Lighting of car parks, roads and goods yards in the MGD at night. Presently the site has no lighting.

- Expanded traffic amenities such as entrance roads, turning lanes and pedestrian crossings.

- Impact of loss of large areas of unused open space will be offset by the development of public open space and measures to encourage varied use of the site.

- Creation of a significant visual link with the MGD through the new entrance road, change of the focus of the town centre/roundabout space with the introduction of this link.

- Alterations to the ground level and topography of the site. The slope that separates the floodplain from the upper area will have to be rationalised and part of the floodplain is to be filled.

Impact during construction

6.6.27 Any visual impacts created by the MGD will be at their worst during project construction works. Earthworks will change the nature of the pasture, building sites that follow will have disturbing visual qualities.

Specific Viewpoints

6.6.28 **Town centre/ roundabout space.** The most public visual impact within Midleton will be upon this space due to the interface between the site and town centre space and a narrow but largely unrestricted visual window. There will be a moderate impact on this space. It presently has limited screening by the small riverside woodland copse and the poplars planted beside the footpath, both of these stands of vegetation will be removed or significantly decreased in effect by the new bridge and access road. During construction of the bridge and expansion /modification works to the roundabout, impacts will be high and negative. During construction of elements of the MGD that will be visible from this space, the impact will also be negative. Change of the nature of the visual envelope of this space. The character of the space will be changed. Shift of focus from town centre. When the project is completed, the visual impact on this space will be low. Landscaping measures and the appropriate treatment of the access road and bridge will serve to neutralise the eventual impact.

6.6.29 **The Cork Rd.** There will be a high visual impact upon the Cork Rd. bridge which has unrestricted views of the eastern edge of the pasture and river. The impact will be negative during construction of the bridge and associated works and negative following

completion. The nature of the river and banks at this point will be disturbed. Along the Cork Rd. views to the site are blocked by existing buildings. There will be unrestricted views of the site from the higher houses closer to the bridge, the stone wall will largely restrict views of the site from the remaining homes. Slight negative visual impact will affect these houses as there may be views of the roof of the shopping centre.There will be a medium visual impact on the area around the site entrance on Cork Rd. Presently, this entrance and the site inside it are of poor visual quality, landscaping measures and the eventual completion of the project will result in a positive impact. A change of character will result, however, as the Cork Marts will be removed and replaced with a large supermarket building. Further along the Cork Rd. the visual impact will be imperceptible.

6.6.30 **The Mill Rd.** There will be a minimal visual impact on the Mill Rd as views of the site are restricted to a couple of narrow windows between solid structures. The view from the road adjacent the fire station compound will experience a slight visual impact, presently the view is partially screened by the woodland copse, if this is retained and increased, impacts will be minimised and will be of a neutral nature. Apartments in the Mill House and Courthouse residential blocks that face the site will experience moderate to high visual impact. Views from the upper storeys of houses along the southern edge of the Millbrook estate will also experience a high visual impact. The overall quality of outcomes will be positive if extensive and appropriate landscape measures are used to visually integrate the MGD with the site and it's surroundings, and if the river corridor receives quality restorative and amenity treatment. The riparian zone should not encroached upon or turned into a hidden urban waterway.

6.6.31 **Western boundary.** The visual impact on residences along the western site boundary will be high. Present views of largely empty pasture will be replaced by a view of residential development. Landscape treatment to create an interesting streetscape will mitigate the change of scene and the outcome will be a neutral impact.

6.6.32 **Northern site boundary.** Imperceptible visual impact will occur from the Owenacurra Business Park and neighbouring field.

6.6.33 Views from hills to the north. There will be a slight visual impact on these areas. The site forms only a small green space within the urban zone of Midleton, which in turn is part of a panorama of the countryside. Developing the site will change the appearance of the town little and the effect on the overall panorama of the countryside will be even less significant. The overall impact from these areas will be neutral.Any change in an area has a corresponding impact on the character of that particular environment. However, the extent of the impact is dependent on cultural associations, the uniqueness, and the degree of change within that landscape, as well as the nature of the surrounding land uses. Overall there will be little visual impact on the landscape of inner Midleton. Due to the flat nature of the topography of Midleton limited views are afforded across town and into the site. Significant views are restricted to buildings on the site peripheries and the town centre/ roundabout space. The Co-Op stores supermarket already exists adjacent the site of the proposed supermarket. Landscape measures will aim to provide visual integration of the MGD with inner Midleton. Restoration and replanting of the river and riparian zone will enhance its natural quality and provide a valuable and public amenity.

6.6.34 Mitigation

- A visual and landscape masterplan should be developed to guide future design processes.

- Maximise the permeability of the site, particularly for pedestrians. Examine the provision of a footbridge over the river from the old weir on Mill Rd. Examine the possibility of providing a footpath between the New Cork Rd. and the shopping centre through an existing underpass. Provide a series of linked nodes for people- spaces throughout the site that promote interaction and reduce the scale of the MGD for pedestrians.

- Establish a pedestrian and community zone in the Market Green Square space, between the cinema and office block. This space will be developed as a focal point within the MGD for people to gather, meet and interact.

- Riparian zone restoration. Replanting and incorporation of public access and space. This proposal will involve bank stabilisation and specimen trees and woodland planting. This zone will be developed as an important public amenity and serve to bring people into and through the site. Increase number and diversity of users.

- Ensure visual integration of intrusive structures or views. Planting and other landscape measures to mitigate negative visual impact.

- Ensure sightlines into the MGD. These will primarily be along the new access road from the town centre roundabout and along the entrance from the Cork Rd. The purpose is to establish a link between the town and MGD by allowing sightlines between the existing and the new.

- Promote the town centre roundabout space as the central circulation node of Midleton. Develop an appropriate and unified visual character.

- Planting, materials and design principles will follow a guiding landscape theme or concept.

- Promote diversity of function of the MGD. To develop character and have life, the MGD needs to support a range of uses and user types at different times of the day and night. Positive activity and human presence also increases safety.

Programme of Implementation

6.6.35 Implementation of the landscape proposals shall begin as soon as practical to bring about the achievement of the objectives as quickly as possible. Landscape works will run in conjunction with main building works where possible, remaining works will be initiated as soon as the building works are complete. Semi mature trees shall be specified to establish maximum effectiveness of screening and vegetation mass as quickly as possible. The management and restoration programme for the riparian zone and riverside open space area shall be implemented at the time of commencement of other landscape works, as early in the project as building work allows.

Planting specifications

6.6.36 The planting scheme for the MGD will fulfil a number of functions. The overall intention is to develop visual integration with Midleton and create a lively urban area. The riparian zone will be replanted with native species appropriate to the situation. Species for this application would include;

<u>Trees</u>
Quercus petraea- *Sessile oak*
Fagus sylvatica- *Beech*
Carpinus betulus- Hornbeam

<u>Shrubs</u>
Corylus avellana- Hazel
Sorbus aucuparia-Mountain Ash
Malus sylvestris- Crabapple

6.6.37 Prominent public areas of the development will receive planting design using a greater mix of species. Such species would include;

<u>Trees</u>
Liqidamber styracifolia- *Liquidamber*
Rhododendron lutyens-
Liriodendrum tulipifera-tulipwood
Magnolia stellata

<u>Shrubs</u>
Prunus spp.- *cherry*
Rhododendron spp- Rhododendron
Fuschia spp.- Fuschia
Hebe spp.

<u>Planting Requirements</u>

6.6.38 Planting requirements will be governed by the characteristics of the ground on site. A site soil survey shall be conducted as part of the final detailed design to facilitate the development of specific planting requirements. A document of Landscape Works Specifications shall be written and it shall form part of the landscape contract and shall detail correct procedures for planting operations and fertiliser requirements. Specifications shall be developed for plant pits, planting procedures as well as watering and staking. Topsoil specifications shall dictate standards for pH, contaminants, weeds and organic matter. A slow release fertiliser, in the form of a single tablet, such as Osmacote, shall be applied to each plant to allow for optimum growth.

Plant Protection

6.6.39 Appropriate plant protection measures should be employed as part of the Landscape Contractors requirements. This shall be set out in the Works Specifications document as part of the final detailed design. Site specific factors should be taken into account to develop protection measures that would complement standard plant protection measures. Issues such as protection against damage to trees caused by rabbits and protection for plants against damage caused by operations within the development shall be covered in the Specifications document. The landscape plan shall ensure that

planting beds have a higher surface level than surrounding areas to protect trees from excessive runoff from impervious surfaces within the compound.

Planting Management

6.6.40 Any landscape contract should include a Defects Liability and Maintenance Period during which the Landscape Contractor is required to maintain and make good any defects in the completed works. This would include the replacement of dead or unhealthy plants. The maintenance programme shall also require the contractor to conduct the following operations on scheduled site maintenance visits;

- pruning,
- replacement of damaged tree stakes and ties,
- removal and replacement of tree guards,
- watering and fertilising,
- pest, disease and weed control.

6.6.41 The contractor shall be required to issue a written report to the Landscape Architect following each maintenance visit during the establishment period. The dramatic change of the nature of the site from a pasture to an intensive urban area means there will be residual visual impacts upon certain areas. Landscape measures and the treatment of the riparian zone will minimise the residual impact on the town centre/ roundabout space and on residences on the Mill Rd. Landscape treatment of the new entrance road and peripheries will foster integration with the town centre resulting in a neutral residual impact. There will be a moderate residual visual impact from the residences along the Cork Rd. due to the proximity to the new shopping centre. The impact will generally be negative as there will be views of the top of the new supermarket building, other retail buildings and the car park. There are limited opportunities for integrating landscape measures. There residual impact on residences on the Owenacurra Business Park road will be low. Tree planting and new residences will provide an improved streetscape.

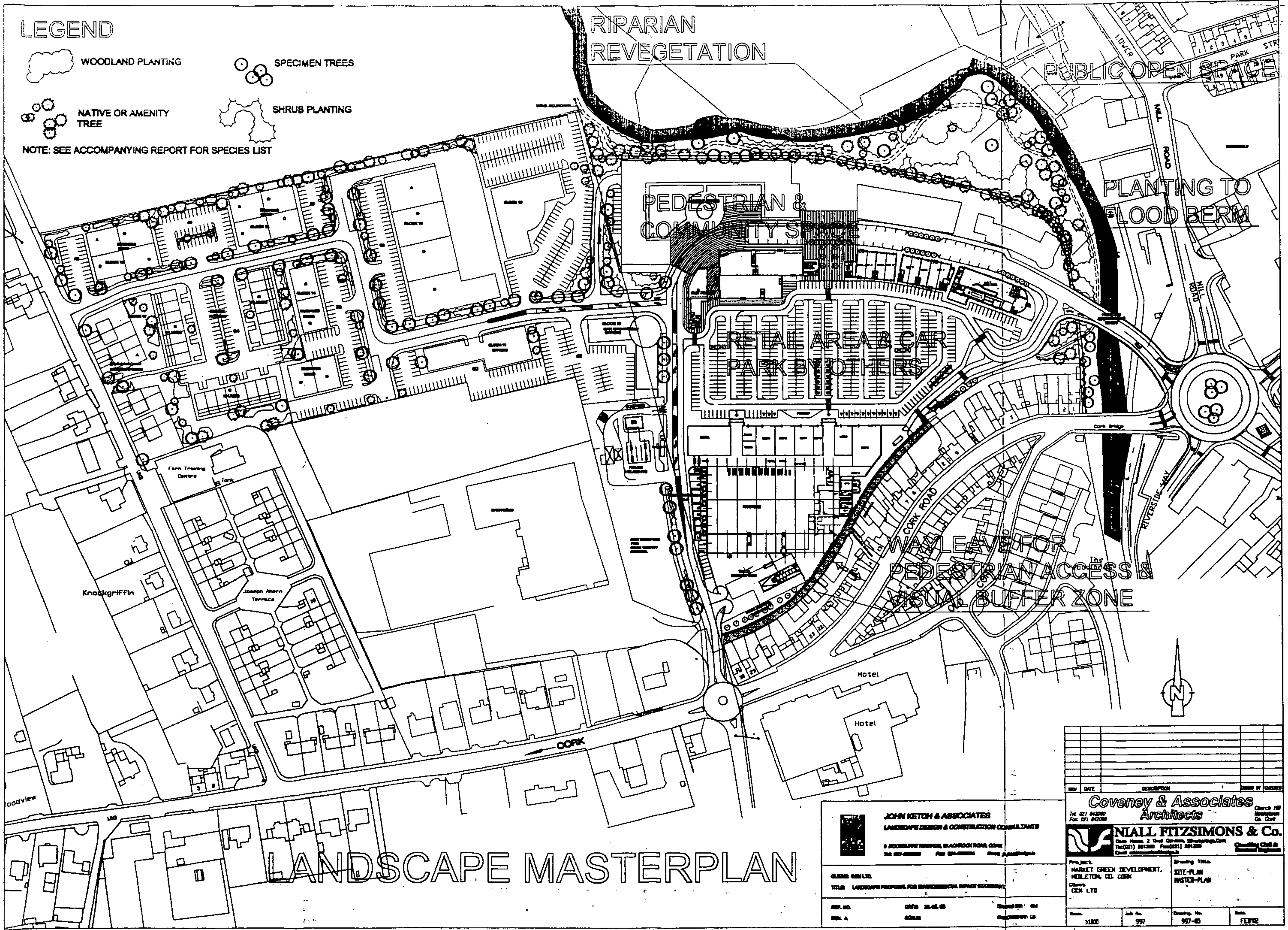
Landscape Proposals

6.6.42 The landscape design and management proposals in this document form part of the holistic development plan for the site. The proposals have been developed with consideration for the surrounding townscape and the MGD. To aim of the landscpase proposals is to integrate the MGD with the landscape character of Midleton and to encourage diversity of use.

a) Promote diversity of function of the MGD.

6.6.43 To develop character and have life, the MGD needs to support a range of uses and user types at different times. The MGD offers a variety of functions and the landscape proposals shall seek to enhance this diversity. The proposals shall also make opportunities that will encourage people to use the place, for whatever reason. Positive activity and human presence also increases safety, therefore the space is unlikely to become empty and unsafe.

b) Ensure visual integration of intrusive structures or views. Mitigate any negative visual impacts on surroundings.


LEGEND
WOODLAND PLANTING
SPECIMEN TREES
NATIVE OR AMENITY TREE
SHRUB PLANTING
NOTE: SEE ACCOMPANYING REPORT FOR SPECIES LIST
RIPARIAN REVEGETATION
PUBLIC OPEN SPACE
PLANTING TO FLOOD BERM
PEDESTRIAN & COMMUNITY SPACE
RETAIL AREA & CAR PARK BY OTHERS
WAYLEAVE FOR PEDESTRIAN ACCESS & VISUAL BUFFER ZONE
LANDSCAPE MASTERPLAN
MILL ROAD
CORK ROAD
RIVERSIDE WAY
Cork Bridge
CORK
Farm Training Centre
Knockgriffin
Joseph Ahern Terrace
Hotel
Hotel
JOHN KETCH & ASSOCIATES
LANDSCAPE DESIGN & CONSTRUCTION CONSULTANTS
REV
DATE
DESCRIPTION
Coveney & Associates Architects
NIALL FITZSIMONS & Co.
Project
MARKET GREEN DEVELOPMENT, MIDLETON, CO. CORK
Client
CCM LTD
Drawing Title
SITE-PLAN MASTER-PLAN
Job No.
997
Drawing No.
997-05
Date
FEB'02

c) Develop a landscape treatment that complements the architecture.

d) Maximise the visual and physical permeability of the development.

e) Ensure the space is safe for users.

6.6.44 The objectives of the landscape strategy will be achieved through the implementation of the following proposals;

- Throughout the site provide substantial footpaths of good width with effective lighting and pedestrian crossings. Provide maximum safety and permeability for pedestrians while still retaining efficient vehicular circulation.

Central Retail Area

- Establish a pedestrian priority open space along the street beside the retail and leisure development. This space will be developed as a focal point within the MGD for people to gather, meet and interact. The design shall seek to lend dynamic form to this space to allow for a variety of functions and activities. It will include amenities for traffic calming, seating, relaxing, people watching, temporary stalls, community events and street performers. Allow the entrances of the shopping centre to be visible and apparent.

- Provide measures that will decrease the scale and sparseness of the car park. This shall include tree planting and lighting measures. Establish vistas within the car park through specimen tree planting. Contain lighting within the site. Lighting of the supermarket car park could impose a visual blight on neighbouring residences on the Cork Rd. Lighting shall be contained within the site, lights shall be directed down and covered with shrouds. Planting will be used to further contain light.

- Provide a large amount of civic amenities such as bins, seating, lighting and paving. Utilise good quality materials to develop user respect for the area.

Riverside Open Space

- Develop the existing river floodplain as a public open space amenity. Installations shall include footpaths, seating and tree and shrub planting. The river and riparian zone shall be subject to protection measures during new works. The river banks shall also receive restorative planting measures designed to stabilise banks and recreate a natural riparian environment. Pockets of new woodland shall also enhance the natural state of the open space area. This area shall provide significant visual mitigation measures for residences across the river.

- Utilise the earthen flood bank, to be installed along the border of the development and the floodplain, to provide visual integration of the car park and the wall retaining the street. The bank shall be planted with species that provide good screening. Additional mitigation measures will include provisions for creepers to grow on the wall.

Town centre/roundabout

- Landscape treatment of the town centre/ roundabout space will involve a simple yet distinctive planting scheme for the roundabout designed to develop a focal point and unified character. The scheme will not detract from the status of the existing monument and will allow sightlines into the MGD and around the roundabout.

Safety and Connections

- Make the area safe, particularly for night time users. Install effective lighting and avoid creating any negative spaces. Provide safe routes for people along access roads and to car parks.

- Ensure sightlines into the MGD from the town centre roundabout and along the entrance from the Cork Rd. The purpose is to establish a link between the town and MGD by allowing sightlines between the existing and the new. Provide visual diversity along the new access road from the Cork Rd.

Detail Design

- Materials and design guidelines will complement proposed architectural style and trim. Planting, materials, and design principles will follow a guiding concept. A landscape masterplan will be developed to ensure a unified landscape scheme that avoids a mix of styles and materials.

Programme of Implementation

6.6.45 Implementation of the landscape proposals shall begin as soon as practical to bring about the achievement of the objectives as quickly as possible. Landscape works will run in conjunction with main building works where possible, remaining works will be initiated as soon as the building works are complete. Semi mature trees shall be specified to establish maximum effectiveness of screening and vegetation mass as quickly as possible. Feature plantings shall be supplied and planted at a mature size for immediate visual impact.

Planting Requirements

6.6.46 Planting requirements will be governed by the characteristics of the ground on site. A site soil survey shall be conducted as part of the final detailed design to facilitate the development of specific planting requirements. A document of Landscape Works Specifications shall be written and it shall form part of the landscape contract and detail correct procedures for planting operations and fertiliser requirements. Specifications shall be developed for plant pits, planting procedures as well as watering and staking. Topsoil specifications shall dictate standards for pH, contaminants, weeds and organic matter. A slow release fertiliser, in the form of a single tablet, such as Osmacote, shall be applied to each plant to allow for optimum growth.

6.6.47 The landscape design proposals herein are for guideline purposes only. A final detailed landscape design shall be prepared for the supplementary planning applications. Site specific issues will arise during the final design and implementation of the landscape scheme. These issues will be dealt with using best practice principles in a way that will maintain the integrity of the design.

6.7 MATERIAL ASSETS – RETAILING

6.7.1 The retail impact assessment focuses on the nature of existing retail provision within Midleton and the surrounding area, together with the relationship of the subject site with the town centre and the likely contribution of additional retailing at this location. In doing so we have undertaken an economic appraisal of the proposed development whilst evaluating the development against relevant planning policies of the Midleton Development Plan 1998, The South Cork Development Plan (1996) and The Cork Strategic Plan (2001) and the Retail Planning Guidelines (January 2001).

PROPOSED DEVELOPMENT

6.7.2 It is proposed to provide an integrated mixed use development incorporating commercial, retail, leisure, residential, office and amenity uses. The design approach has been developed to provide a development which represents a natural extension to the existing Main Street and an interface with the existing road network. It is our intention that the development is seen as a continuation of the existing town plan providing an architectural form, which maintains and respects the scale of the town. The development will result in the creation of a new urban streetscape, plazas and circulation routes including the creation of a new access link over the Owenacurra River, extending as a street through the commercial sectors of the site and linking to Cork Street in the vicinity of the existing hotel and to Knockgriffin Road. The development of a new street culminates in the creation of a town square, fronted by buildings accommodating a mix of retail, commercial, residential, hotel and leisure uses. The key components of the development are the creation of a shopping centre development with a major anchor store and additional comparison outlets, a five screen cinema, fast food restaurant, a mixed residential development, including houses, duplex and apartment accommodation, aparthotel with bar and restaurant areas, retail warehouse units, motor showrooms, business park/offices and petrol filling station.

6.7.3 The report focuses on the nature of existing convenience and comparison retail provision within Midleton and the surrounding area, together with the relationship of the site with the town centre and the likely contribution convenience and comparison retail in this location would make to town centre retailing. In doing so we have undertaken an economic appraisal of the proposed development whilst evaluating the application against relevant planning policies of the Midleton Development Plan 1998, The South Cork Development Plan and The Cork Strategic Plan and the Retail Planning Guidelines (January 2001).

6.7.4 The first phase of development comprises consists of a replacement foodstore to be operated by Tesco Ireland Ltd and a shopping mall of 9 units; a service yard, adjacent surface level car parking; 5 no. residential units; an aparthotel; a retail/commercial development; and a retail/leisure development. This study whilst dealing with the various retail elements of the first phase, also considers the potential impact of future retail facilities proposed as part of subsequent phases which would form part of future planning applications. These phases will incorporate interalia retail warehouse uses. This section is firstly concerned with the retail elements of the proposed development subject of the first phase consisting of the following elements:

Table 1

Floorspace type	Gross m^2	Net m^2
Convenience	4,293	2,639
Comparison retail Units	2,222	1,778*
Comparison	996	797*
Comparison	1,723	1,378*

*** Assumes 20% of gross is set aside for storage and back-up space**

6.7.5 The foodstore forms the anchor of the proposed development and would have a gross area of 4,293m^2, with a net sales area of 2,639m^2, below the Cap set out in paragraph 99 of the RPG of 3,000m^2. Table 2 below sets out the approximate internal floorspace breakdown of the proposed foodstore:

TABLE 2

FLOORSPACE	**SQMS**
CONVENIENCE	2,128
COMPARISON	103
CHECKOUTS	4088
TOTAL NETS SALES	**2,639**
FOOD SERVICES	37
CUSTOMER SERVICES	63
LOBBY	39
TOILETS	38
SUB-TOTAL	**2,816**
STORAGE, MGT OFFICES ETC.	1,477
GROSS	**4,293**

6.7.6 The foodstore would be a modern addition to convenience retailing in Midleton and would replace the existing operation, which is located in a small cramped and inappropriate unit on Main Street. The store would have a wide range and choice of goods under one roof including a complementary selection of non-food goods, customer café and toilets facilities. The layout of the store would incorporate wide aisles, and ample circulation space coupled with fresh meat, fish, bakery and cheese counter space (not present in the current Tesco store on Main Street) as well as ample checkout space to ensure a comfortable and convenience shopping experience. Consumers consider food shopping a chore and therefore the features mentioned above are important to make the trip more enjoyable.

6.7.7 The mall area at the entrance to the store would lead customers to ten retail units ranging in size from 71m^2 to 575m^2 gross. These units could accommodate a range of comparison and non-retail service uses. In addition to the above a separate block to the north of the anchor store comprises of a mixed commercial and retail development accommodating 5 retail units ranging in size from 109m^2 gross to 271m^2 gross and totalling 996m^2. The mixed leisure and retail scheme and has 3 larger retail units. An appropriate level of surface level car parking has also been proposed to ensure

customers can easily find parking spaces close to the foodstore and then transfer their purchase unimpeded from the store to their private vehicle.

6.7.8 The units would accommodate a range of retail and service uses with the possibility of a newsagent or small convenience retailer taking up one of the smaller units within the proposed development. The overall balance of retailing will of course be driven by market demand but is very important for helping to create vibrant and viable new development that can integrate successfully with the overall town centre by encouraging shoppers to move between it and the established primary retail area, including neighbouring retailers such as SuperValu and Co-op.

Retail Floorspace forming part of wider Masterplan and EIS submission

6.7.9 In addition we have been asked to consider as part of the overall EIS and masterplan for the future development of the surrounding lands additional retail provision located within lands in the jurisdiction of the County Council. This future development is expected to incorporate a mix of residential/retail development with 4 small retail units with a gross area of $600m^2$ ($480m^2$ net), 2 retail units with a total gross area of $900m^2$ ($720m^2$ net) and retail warehouse units with a total gross area of $2,860m^2$ ($2,288m^2$ net). Individually, the units measure $715m^2$ gross above the minimum requirement for retail warehousing set out at paragraph 81 of the RPG. Once again these units would be important in creating pedestrian movement during the day ensuring a vibrant new street frontage and the retail warehouse units would help to draw shoppers through the remainder of the overall planned development as it is introduced during the life of the project.

PLANNING POLICY

6.7.10 On 2 January 2001 Retail Planning Guidelines for Planning Authorities were issued under Section 28 of the Planning and Development Act, 2000 and replace the 1998 General Shopping Directive. The Guidelines provide a framework to guide local authorities in preparing development plans and assessing applications, and retailers and developers in formulating development proposals. The Guidelines highlight pressures for new retail development in Ireland over the last decade and the likely continuation of high growth rates in consumer spending on convenience and comparison goods. The Guidelines also emphasise the need to support the role of town and district shopping centres. The document sets out three key policy objectives, which are to provide the framework for accommodating growth in an efficient, equitable and sustainable manner. These are of relevance to the current proposal and include the need to;

- Facilitate a competitive and healthy environment for the retail industry in the future;
- Promote forms of development which are easily accessible, particularly by public transport - in a location which encourages multi-purpose trips; and,
- Support the role of town and district centres as the preferred location for new retail development.

6.7.11 With regard to second objective, it is stressed that;

"It is not the purpose of the planning system to inhibit competition, preserve existing commercial interests or prevent innovation. In interpreting these guidelines the local authorities should avoid taking actions which would adversely affect competition in the retail market".

6.7.12 The Guidelines also consider the role of town centres and advocate that their relative strength should be assessed objectively by carrying out health check assessments. Annex 2 provides advice of the type of indicators, which should be examined. Paragraphs 36 - 54 deal with the function of development plan retail policies. Paragraph 36 sets out in some detail those matters to be included in all future development plans including a broad assessment of the requirement for additional retail floorspace. Such assessments should take account of;

"both emerging demands in the retail market and a general estimate of future requirements based on projected changes in the local population and consumer spending ..... These assessments .... are intended to provide broad guidance as to the additional quantum of convenience and comparison floorspace provision. They should not be treated in an overly prescriptive manner and should not seek to inhibit competition.

6.7.13 Outside the Greater Dublin area, the floorspace cap is set at 3,000 m^2 (paragraph 50). Paragraph 51 clarifies that the cap is to apply to all new development and relates to the total net retail sales space of superstores. The glossary in Annex 1 of the Guidelines defines net retail sales area as;.

"the area of a shop which is devoted to the sale of retail goods (including the area devoted to checkouts)."

6.7.14 In dealing with locational issues, the preferred location for new retail development where practicable and viable is within the town centre. However, the Guidelines specifically state that;

"Where it is not possible to provide the form and scale of development that is required on a site within the town centre then consideration can be given to a site on the edge of the town centre so as to encourage the possibility of one journey serving several purposes."

6.7.15 Edge of centre locations are considered to be those within an easy and convenient walking distance from the primary shopping core of a town centre. The distance will vary according to local circumstances but is unlikely to be much more than 300-400 metres from the edge of the primary shopping area. If there are no suitable, viable or available town centre, or edge of centre sites or premises for the proposed development, alternative out of centre sites can be considered. This is known as the sequential approach to the location of retail development.

6.7.16 Where an application for retail development is made which the local authority considers to be large scale in relation to the existing town centre, the onus will be on the applicant to demonstrate that it will not have an adverse impact on the vitality and viability of the town centre.

6.7.17 Specific guidance is also provided for assessing new large foodstores. In this context the Guidelines recognise that supermarkets, superstores and hypermarkets are all accepted components of the retail hierarchy.

Retail Warehousing

6.7.18 Paragraph 80 of the RPG states that retail park development in the range of 8,000-15,000m^2 would be unlikely to have a material adverse impact on the more important town centres. The minimum unit size for retail warehouses at 700m^2.

EXISTING AND PROPOSED CONVENIENCE AND COMPARISON PROVISION

6.7.19 This section considers the role and function of Midleton within the wider area and, in particular, considers its retail function in terms of both convenience and comparison shopping provision. As a general introduction to retailing in Midleton we firstly turn to briefly consider the Cork Retail Study (1997) prepared by Roger Tym and Partners that gives a good overall impression of the role which Midleton presently plays as a main food and comparison shopping destination. The CRS was carried out for County Cork and divided the County and City into various zones placing Midleton into the East Zone which is very similar to our Study area. (See DPP1, Section H in Appendix VII).

6.7.20 The Study demonstrated that convenience expenditure in the East Zone was shared by Midleton and Youghal with 61.4% and 25.4% market shares respectively. Neither centre appeared to attract much trade from outside the East Zone. In terms of comparison shopping the Cork City Centre attracted 63.9% of clothing and footwear spending from the East Zone compared to Midleton, which attracted 21.9%, which is obviously very low. These results appear to be supported by the shopping survey carried out by the Cork Institute of Technology (CIT).

6.7.21 The CIT study illustrates that shoppers who were interviewed also use Cork City for shopping on a weekly or less frequent basis (Appendix VII, Section C). Although the study did not explore whether such trips included a main food-shopping it could reasonably be assumed that some of these shoppers are travelling to Cork to carry out such as shop whilst using Midleton as a top-up destination. Similarly, Cork was a popular destination for non-food/comparison shopping trips and indeed, Midleton lost out significantly in terms of clothes and footwear shopping to Cork City Centre.

Midleton – Current Role as a Shopping Destination

6.7.22 In shopping terms, Midleton falls within the third tier of the national retail hierarchy, albeit to a more limited extent, as suggested by the Retail Planning Guidelines. The central area of Midleton is defined by the Land Use Zoning Map in the 1998 Development Plan. Midleton has a very compact, strongly defined primary retail area consisting of the Main Street running north to south with lanes and shops running off Main Street. The development of the town has consolidated around the central areas and consequently, the growth of the town has shaped the way in which the retail sector has evolved over time with few large purpose built units in the centre.

6.7.23 The town was defined in the Tym's 1997 Retail Study as a "ring town" along with Bandon, Macroom, Mallow, Fermoy and Youghal. The Study states that under conventional retail classification these towns would be classified as district centres competing with centres inside and outside the study area and to some extent with Cork City centre. Many people use them for low level comparison goods like chemist and basic clothes with the possibility of buying quite sophisticated clothes at a limited number of outlets. Whilst some people do all their comparison shopping at these locations most chose Cork City Centre for special comparison goods. The other

distinguishing factor is that towns such as Midleton are almost wholly devoid of multiple named retailers with most units independently owned and operated. This was confirmed by our own health check assessment of the town

6.7.24 In terms of their convenience role, the ring town supermarket floorspace is generally fragmented between smaller units typically dominated by Centra, SuperValu and Co-op. This is evident is from our own assessment of retail provision in the town. The following table illustrates the breakdown of convenience and comparison units and other ground floor uses in the town centre:

Unit	Convenience	Comparison	Service	Office	Other	Vacant	Total
No.	32	63	72	3	71	18	259
%	12.4	24.3	27.8	1.3	27.4	6.9	100

6.7.24 The above table illustrates the dominance on the comparison sector representing 24% of retail units in the town with convenience uses half this figure.

Convenience Retailing

6.7.25 In the convenience sector, there are three main supermarkets located in or on the edge of the town centre including a Tesco (900m² net) on Main Street, a Super Valu (1,679m² net) on Old Mill Road and a Co-op Superstore (774m²) on New Cork Road. These stores are complemented by a variety of other smaller convenience shops including; butchers, delicatessens, grocers, bakeries, newsagents and off licences. From survey work undertaken by DPP, total existing convenience retail floorspace in Midleton town centre, as a whole, measures approximately 6,509m² net sales area including the as yet undeveloped LIDL store (1,250m² net).

6.7.26 The Tesco store in the context of the Company's portfolio of foodstores is very poor. Located on the main shopping street, the store is small, limiting the range and choice of goods that it can sell. Most notably the store has no fresh meat, fish, bakery, cheese counters all common features of modern convenience shopping. Internally the store has cramped aisles leaving limited room for customers to manoeuvre. The store cannot cater for main/weekly or less frequent shopping trips and this was clear from our own observations of the store as many shoppers were simply carrying out smaller basket or day to day, top up shopping.

6.7.27 SuperValu is located at the northern end of Main Street on Lower Mill Road. The in-store environment is quite modern and vibrant but has a relatively restricted range and choice of goods laid out in a rather awkward and confusing aisle arrangement. The store has adjacent customer car parking, which enhances its ability to meet the needs of the car borne weekly bulk food shopper in a more convenient manner than would be experienced at the existing Tesco store. The Co-op Superstore is situated at the edge of the town centre just west of the application site. The store contains a number of small retail units occupied by a café, off licence, newsagents and clothes shop. The store itself has a dated interior and stocks a limited range and choice of convenience goods. However, it also offers a wide range of comparison/bulky goods. The layout seeks to maximise sales space resulting in reduced circulation space at the expense of customer comfort and convenience, thus the store does not cater satisfactorily for the main weekly bulk food shopping trips although some shoppers appear to use it for this purpose.

6.7.28 Aside from these larger convenience stores, there are a number of smaller independent convenience retailers located in and on the edge of the town centre, these include a Spar (118m^2) on Main Street, Centra (110m^2) on New Cork Road, a Spar (103m^2) and a Mace (65m^2) on Lower Mill Road.

Comparison Retailing

6.7.29 The comparison sector in the town centre accounts for 24.3 percent (See Health Check Section A, Appendix VI) of all ground floor units surveyed. However, there are no chain store retailers in Midleton with the majority of the comparison shopping provision within the town centre operated by small independent traders, offering a modest range of clothing, footwear, gifts, books, jewellery and household goods. Whilst there is a lack of national multiple retailer representation in the town, there is a reasonable range of choice of comparison shops. Typically, the shop units are small, utilising 1st floor space in some cases to achieve larger sales areas. As demonstrated by the shopper survey the town's popularity as a non-food shopping destination is overshadowed by the predominance of Cork City Centre.

Committed Retail Developments

6.7.30 We are aware of one committed retail development in Midleton, which would include a LIDL foodstore of 1,250m^2 net sales area, which is larger than the Groups usual store profile. LIDL is a discount retailer operating in a niche market and tends to attract budget-constrained shoppers. Its role is therefore complementary to stores such as Tesco as it offers a small range and choice of own brand goods at heavily discounted prices.

Economic assessment – methodology and base information

6.7.31 Before considering the methodology in respect of the economic assessment of the retail element of the proposed development it is worth considering the function of the proposed development. The RPG states that where local authorities consider the proposed development to be large scale in relation to the existing town centre the onus is on the applicant to demonstrate compliance with the development plan and that there will be not be a material adverse impact on the vitality and viability of the town centre.

6.7.32 We reviewed the role of Midleton as a "Ring Town" which demonstrated that Midleton functions as an important centre for convenience retailing, albeit fragmented amongst a number of smaller retailers and competes to an extent with Cork city for comparison trade. However, its role will change. Midleton will, in the short term and long term, become a major growth centre and function as a satellite town within the Cork Metropolitan area. This will be promoted through the objectives of the CASP Study and emerging County plan review. It will experience significant population growth and thus it is important to plan for more rather than less retail space in the future as there is and will continue to be great demand for both convenience and comparison floorspace.

6.7.33 Within the context of the RPG and the strategic context of the Cork Strategic Plan, a large area of the proposed development is located on lands designated for town centre uses beside the primary retail shopping area and would represent and extension of the town centre rather than a facility which would be competitive with it. That is, the

proposed development would enhance and reinforce the trading potential of Midleton town centre in terms of its convenience and comparison retail offer and would not detract from it. Insofar as it would add to the town centre turnover the "impact" would therefore be positive rather than negative.

6.7.34 Whilst we consider the impact of the convenience element of the proposed development, the level of growth in the comparison sector is substantially in excess of the convenience sector and it is therefore unnecessary to look at the impact consequences of the former as the scale of growth will more than comfortably absorb the quantum of floorspace proposed.

Methodology

6.7.35 We have adopted a step by step market share methodology to assist with our assessment of convenience retail impact (Steps 1-4 are relevant when considering convenience and comparison capacity;

1. Establish the primary trading or catchment area of the proposed replacement store (Study Area). Split the study area into broad zones to assist assessment.

2. Estimate the population within the defined study area at the current or base year and at the design year i.e. the time at which it is anticipated that the store would be trading.

3. Establish current per capita spending rates for convenience goods as defined in the Irish Retail Planning Guidelines. Project forward to the design year.

4. Calculate the volume of convenience expenditure currently available within the study area at the base and design year.

5. Estimate the convenience goods turnover of relevant main stores and centres within the study area at the base year by reference to their likely potential market share of available spending.

6. Compare the convenience turnover of existing facilities in the study area with the amount of available convenience spending to determine the quantum of convenience goods expenditure that is going to stores and centres outside the study area. This provides a measure of outflow.

7. Estimate the likely uplift in the convenience turnover of the Tesco Ireland store bearing in mind that it would replace the existing town centre store.

8. Estimate the trade diversion from existing convenience stores once the new Tesco store is introduced at the design year 2005.

9. Estimate the level of retail impact on existing retailers and clawback of convenience trade that is currently leaking from thc study area.

6.7.35 The above market share methodology seeks to model existing food shopping patterns in the Midleton area using information already available regarding market share from the CRS and the CIT shoppers' survey. Therefore, it takes account of current market conditions in which the new foodstore would operate.

6.7.36 As the vast majority of the foodstore's turnover would be on convenience goods, we have focused our market share assessment in this retail sector. In terms of base assumptions/conventions, the assessment has been prepared on the following basis;

1. Price Base - 1999 prices
2. Base Year - 2002
3. Design Year - 2005
4. Estimates of spending, floorspace and turnover are expressed wherever possible on a convenience or comparison goods basis.

6.7.37 2005 has been adopted as an appropriate design year to allow time for achieving a planning approval, the actual construction period during which the existing store would continue to trade and time to enable the new store to establish a settled trading pattern. Our economic tabulations are set out at Section E Appendix VII.

Calculation of Base Information

Study Area – Step 1

6.7.38 The study area for the purposes of this project was defined by carrying out a desk top drive time based on 5, 10, 15 and 20 minute isochrones. The extent of the study area will however be affected to an by the influence of other settlements such as Cork to west and Youghal to the east so the study area only extends between 10 and 15 minutes in both these direction. The study area extends to the south coast and as far as Rathcormack in the more sparsely populated north.

6.7.39 To assist in the calculation of population within the study area we have incorporated District Electoral Divisions, which we have then divided into 3 zones. Zone 1 is Midleton and its rural hinterland and Zones 2 and 3 lie to east and west respectively. We use these Zones to assist our assumptions as to where people from within the study area spend their money. For example, those living close to the western boundary of Zone 3 may chose to shop in Cork City rather than Midleton, whilst those who live in Zone 2 may chose Midleton as their first choice destination.

Population – Step 2

6.7.40 Between 1991 and 1996 total population in Zone 1-3 increased from 22,746 to 23,463 a rate of 0.63% per annum. We have therefore applied this growth rate to all DED's within the study area up to 2000. This rate has then been further applied in the study area up to 2005 aside from Midleton Environs and Carrigtwohill, which are expected to grow more rapidly over the next 20 years.

6.7.41 Looking at Midleton Environs and Carrigtwohill in isolation, we have applied a growth rate of 7% per annum up to 2005, based on growth over a 20 year period extracted from Table H.5 (Appendix H, Cork Strategic Plan, Final Report). This table illustrates that the population of Carrigtwohill and Midleton could increase by 158% from 6,650 to 17,220 by 2020.

Expenditure – Steps 3&4

Convenience and Comparison Per Capita Expenditure

6.7.42 In calculating per capita expenditure on convenience and comparison goods we have adopted the Annual Services Inquiry 1997 which set out the turnover of retail floorspace on a national basis both for convenience and comparison goods. This has been adjusted using population at 1997 and disposable income from the 1991-1998 Household Incomes (Regions and Counties) publication, produced by the CSO. The calculation sequence used to formulate per capita expenditure is set out at Section D Appendix VII. We have adopted growth rates for per capita expenditure based on national trends.

6.7.43 We have calculated that per capita expenditure on convenience and comparison goods in 2002 would be £1,818 and £2,008 respectively rising to £1,893 and £2,325 in 2005.

Total Available Convenience and Comparison Expenditure

6.7.44 Table 3A and 3B (Section E, Appendix VII) sets out the total available expenditure for both convenience and comparison goods and illustrates growth in each study Zone and in the study area as a whole. As can be seen, over just a three year period from the base (2002) to the design year (2005) convenience goods expenditure is expected to increase by £5.92m, (€7.16) which represents growth of 12% in three years or 4% per annum. This indicates significant growth in the catchment area.

6.7.45 A similar exercise was carried out for comparison expenditure, which is expected to grow at a much faster pace over the next three years increasing by £12.95m, (€15.66) from £50.79m (€61.45) to £63.74m (€77.12) between 2002 and 2005 representing 25% growth in three years or 8% per annum. In both sectors there would of course be additional growth beyond the design year of 2005 arising from increases in per capita spending and population growth.

Turnover of Existing Convenience Retail Facilities at Base Year – Steps 5 & 6

6.7.46 The calculation of turnover of stores/centre is derived by allocating available convenience goods expenditure in each zone to individual stores/centres. In doing so a number of factors are taken into account including the location of zones in relation to existing food shopping facilities, the size of those facilities, their accessibility by car and their attraction in terms of main food operators present in the centre. The proportion of available expenditure in each study zone allocated to individual stores is shown in Table 4 of Section E Appendix VII. As can be seen whilst the majority of expenditure in Zone 1 is attracted to stores in Midleton, a proportion is lost to stores outside the study area (16%), such as Cork City and its suburban shopping centres such as Douglas. Outflow from zone 3 would be similar to zone 1 with outflow from Zone 3 being higher (30%) given the influence of Cork to the west. Total outflow of convenience spending from the study area (Zones 1-3) is around £8m, which is about 18% (€9.68) of total available expenditure in the study area. Although it is difficult to

accurately predict outflow, it is our opinion, given the results of the Roger Tym study and CIT study that this is a reasonable estimate.

6.7.47 Once all available spending in each zone has been allocated by this iterative process the total amount of spending attracted to an individual centre or store, from the study area, can be calculated. This process only allocates spending by residents from within the study area. Existing stores, for example SuperValu in Midleton, are likely to attract a small element of their turnover from beyond the study area. In the case of the latter it was assumed that it would attract 5% of its turnover from beyond the study area. The resultant turnover levels for 2002 achieved by food and convenience facilities in each centre are shown at Table 5, Section E, Appendix VII.

6.7.48 As can be seen from Table 5, the estimated turnover for the existing Tesco lies around £4.63m (€5.60)(1999 prices). We have discussed the turnover with the Company who confirm it to be a reasonable estimate. So far as other convenience facilities are concerned, Table 5 shows them also to be trading at healthy levels. For example, SuperValu currently achieves a turnover level of some £12.00m (€15.60) which is substantially above what one might expect such a facility to trade.

Turnover of new Tesco Ireland Foodstore 2005 in 1999 prices – Step 7

6.7.49 The convenience element of the foodstore is expected (bearing in mind that only a small area would be set aside for non-food goods) to trade around £14.87m (€17.99) in 2005 at 1997 prices. This has been worked out by using assumptions as to how much money would be diverted from other facilities both inside the catchment area and from outside such as Cork. However, as the existing Tesco store on Main Street would continue to trade until 2005 (at €5.21 – €6.3m) when the new store would open, its trade would in theory be transferred to the new foodstore. Therefore, in real terms the new store would actually only attract an uplift in trade of £9.66m (€11.69) with the balance (£5.21m) representing money already being spent in the town.

Estimated Trade Diversion and Retail Impact from Existing Stores to New Foodstore – Step 8 and 9

6.7.50 The process of estimating trade diversion from existing retail facilities to the new store employs, to a large degree, professional judgement informed by a number of factors not least the quality and location of the proposed new foodstore, and the quality and location existing foodstores. The general theory applied in these circumstances is that like competes with like such that SuperValu (probably the closest store, in terms of its convenience offer to the proposed Tesco) could expect to loss some of its main food shopping trips which would be diverted to the Tesco store (15%). Smaller stores such as the Co-op, which would be used to a lesser degree as a main food-shopping destination would also experience some diversion (8%). LIDL which we have assumed would be open and have established a mature trading pattern by 2005 would only lose a small amount of trade (8%).

Retail Capacity and Impact Consequences

6.7.51 This section considers the theoretical capacity to accommodate additional convenience and comparison floorspace within the study area and assesses the impact consequences of the proposed foodstore. In calculating capacity for both forms of retailing we have applied a two-pronged methodology which firstly compares current *demand* (available retail expenditure) with *supply* (turnover of existing floorspace). Simply, in 2002 if

demand exceeds *supply* then there will be a capacity for additional floorspace and is often referred to as *"headroom"*. Secondly, we consider *growth* in expenditure from 2002 to 2005 (base-design years). The aggregate of both these factors, headroom and growth, lead to the "Theoretical Capacity" for additional retail floorspace by 2005. What format such retail floorspace should take is also explored in this section and is dependent to a degree on the scale, format and quality of existing retail supply.

Convenience Goods

6.7.52 Table A of Section F, Appendix VII sets out our calculations of theoretical capacity for additional convenience floorspace by 2005. Row (a) is the total turnover of all convenience floorspace within the study area at 2002 in 1999 prices (£32.44m (€39.26) - supply), which has been calculated by applying average sales densities to various convenience retail formats. For example in normal trading conditions one would expect SuperValu to trade at around £4,843/m^2. Smaller stores in Zone 2 would trade at much lower levels representative of their role as local top-up shopping destinations.

6.7.53 Row (b) is the total available expenditure in the study area at 2002 (£45.99m - demand) and as such Row (c) represents headroom of £13.54m (€16.39). This therefore indicates that even at the moment there is the capacity for a large foodstore in Midleton. Row (d) is then the growth in convenience spending from 2002-2005 of £5.92m) (€7.16) and so it follows that Row (e) is the aggregate of headroom and growth or total convenience expenditure capacity at 2005 of £19.46m (€23.55).

6.7.54 Row (f) is the turnover of the proposed Tesco store less the turnover of the Company's existing facility (which would close) of £9.66m (€11.69m). So clearly when one compares the turnover of the new store with capacity of £19.46m (€23.55) there is clearly sufficient justification for the proposed quantum of floorspace leaving residual capacity of £9.80m (€11.86). These results would certainly support the suggestion in the Cork Strategic plan that Midleton would require two superstores with at least one superstore required in the short-term up to 2005.

Comparison Goods Capacity

6.7.55 We already know from survey data that a significant number of shoppers from within the study area do their comparison shopping in Cork City Centre indeed the CRS suggests that 64% of clothes and footwear expenditure from the Eastern Zone is attracted to Cork City Centre. The shopper Survey by CIT carried out in November 2001 emphasises this point with 65% of shoppers choosing Cork as their first destination for clothes and footwear. 55% said they chose Cork first for buying household items whilst Midleton was the first choice destination for household furnishings followed by Cork at 37%. Importantly, only 27% for shoppers were very satisfied with the range of non-food shopping in Midleton with the remainder either quite satisfied or dissatisfied.

6.7.56 This shopping pattern is not surprising given the very good communication links between Midleton and Cork, the consumers propensity to travel substantial distances to purchase more expensive luxury items, and, the much wider range and choice of comparison goods offered in the City.

Turnover of Existing Comparison Floorspace

6.7.57 We are aware from information supplied by Cohalan Downing and Associates (Estate Agents and Valuers) that there is 5,295m^2 net comparison sales floorspace in Midleton. We can calculate the overall turnover of this floorspace by applying a sales density of £2,691 per m^2, resulting in a current turnover of £14.25m (€17.24) in 1999 prices (Table B, Row (a), Section F, Appendix VII).

6.7.58 We know that available comparison expenditure in 2002 is £50.79m (€61.45) (Row b). Therefore, some £36.54m (€44.21m) (Appendix VI, Table B, Row c) of comparison expenditure is potentially being lost from the study area to facilities most probably in Cork City. Therefore, Midleton has about 28% (£14.25m, €17.24) retention of comparison expenditure from within the study area, which is a realistic reflection of its current role as a ring town. However, the above figure does not take account of growth in comparison expenditure from 2002 to 2005, which stands at nearly £12.96m (€15.68) (Table B, Row d). Therefore, by 2005 there would be capacity of £49.50m (€59.89) (row e) (£36.54m & £12.96m).

Turnover of the proposed Comparison Retail Units

6.7.59 The proposed development has a total net retail sales area of c.7,441m^2. Of this comparison floorspace in phase 1 would represent 4,000m^2. We have allowed 10% for non-service retail uses so the actual net sales area would be 3,600m^2. This floorspace would have a turnover in 2005 of £11.49m (€13.90) whilst the retail elements of the remainder of the development area in the Council lands would have a turnover of £10.14m

6.7.60 Clearly, there would be more than sufficient capacity in 2005 to accommodate the proposed net increase in comparison floorspace proposed as part of this application with further capacity to support the remainder of the development area. Indeed, there would still be significant spending capacity of just over £28.00m. In terms of the format of comparison retail space required in Midleton, the proposal provides for a wide range of unit sizes ranging from around 100m^2 suitable for smaller specialist shops to retail warehouse units of over 700m^2 capable of catering for bulky goods retailers in an easily accessible location. Given the leakage of clothes and footwear spending to Cork it is not surprising that many shoppers in the CIT survey noted the need for more clothes shops in Midleton. Clearly the above range of units would provide opportunity for clothes and footwear retailers to establish themselves in Midleton.

6.7.61 The addition of comparison floorspace as part of the overall development would be important for the continued vitality and viability of Midleton. It would broaden the range of the comparison offer in the town and help to enhance the vitality and viability of the central area. At the same time it would also be highly sustainable as more people would chose to shop in Midleton for comparison goods thus reducing the number and length of car journeys by shoppers travelling to Cork City Centre.

Retail Impact Consequences

6.7.62 The retail elements of the overall proposal would reinforce and upgrade retailing within the town. There would also be potential for linked trips between the proposed development and the primary retail core with other comparison and non-retail services

likely to benefit from an increased number of shoppers in the town. The proposed development would also have adequate parking, which would service not only the proposed development but the wider town centre, similar to the current role of the SuperValu car park.

6.7.63 The proposed development should be assessed on the basis that it would function effectively as part of the town centre rather than a scheme that would compete with it. Therefore impact consequences whilst minimal, must be assessed with due regard given the very positive function that the development would serve.

6.7.64 In terms of impact the first important point to note is that the proposed foodstore would claw-back nearly half of the convenience spending that is leaking from the study area (£4.97m €6.02m). It is our opinion that some consumers who chose to carry out their food shop in Cork do so for a large/bulk food purchase in larger more modern facilities. The proposed foodstore would offer a modern high quality convenience destination in Midleton resulting is fewer shoppers making the longer journey to Cork. In conjunction with the proposed comparison units more consumers would chose to shop in Midleton and thus the town would benefit from greater retention of trade.

6.7.65 Midleton is also a major growth town in the Cork metropolitan area and will experience significant growth in population and spending over the short and longer term. The Cork Strategic Plan notes the need to plan for more retail floorspace rather than less and actually points specifically to the need for two superstores, a comparison retail development and a retail park to serve the town. There is already capacity for a new foodstore and additional comparison floorpace in Midleton, even before account is taken of growth. When account is taken of growth the need for additional retail floorspace becomes significant. The proposed foodstore and the proposed quantum of comparison floorspace is therefore compatible with the proper planning and sustainable development of the area.

6.7.66 Bearing these factors in mind, it is our opinion that the impact consequences of the proposed foodstore are of lesser consequence to the assessment and consideration of the overall Market Green development. In any event the level of impact shown in Table 5 are very low and the established foodstores would continue to trade successfully after the introduction of the proposed development. Likewise, there is more than sufficient capacity to accommodate the proposed net increase in comparison floorspace proposed as part of the overall development on the Marts land. This additional comparison floorspace would promote the sustainable development of Midleton and enhance the vitality and viability of the town.

THE SEQUENTIAL APPROACH

6.7.67 The preferred location for retail development is in the town centre but where this is not possible the next preference is edge-of-centre. Edge-of-centre is defined as being within 300-400 metres of the primary retail area although this may vary locally. The site is located to the north west of Main Street within easy walking distance of the primary shopping core which can be defined for the purposes of this study to begin at the roundabout to the north of Main Street. As there are no other sites located either within the historic core or in closer proximity to the primary retail core, and bearing in mind that much of the site is zoned for town centre uses, is an extension to the town centre, and, would reinforce retailing in the central area, it is judged to be the most

appropriate location for retail development and the wider commercial/leisure uses proposed.

6.7.68 It is also important to note that the RPG employ a different emphasis applying the sequential approach to site selection for large foodstores. It states:

> *"That wherever possible large foodstores should be provided in a town, major village, or district or on the edge of centre" (our underlining)*

6.7.69 This implies that an equal footing should be given to both town and edge of centre sites when considering the appropriateness of a particular location. This is a logical interpretation of the sequential approach, as it recognised that large foodstores require quite substantial, regular shaped landholdings to accommodate the foodstore, servicing and adjacent, surface level car parking. In our extensive experience throughout Ireland, such requirements can seldom be catered for in town centres (the primary retail core) especially in historic centres such as Midleton. Therefore, it is our opinion that the application site is the most appropriate location for the proposed retail elements of the development.

PLANNING ASSESSMENT

6.7.70 The Retail Guidelines set out five key national policy objectives to guide future retail development whilst paragraph 65 sets out the criteria against which new retail development should be assessed, the first and last of which are not directly applicable in this case.

6.7.71 The second objective seeks to facilitate a competitive and healthy retail environment for the retail industry in the future. The proposal would ensure that Midleton has a modern foodstore capable of competing effectively with other facilities outside the catchment area. The comparison retail units would be a completely new addition to retailing in the area and would succeed in drawing comparison trade back to the town, which is currently flowing to Cork City.

6.7.72 The overall development would also comply with the third objective in that it would be easily accessible, in a location which would encourage multi-purpose shopping between the proposed foodstore and other proposed retail units and given its excellent links would encourage linked trips to the town centre. The fourth objective seeks to support the continuing role of town centres. As above the site is located within lands zoned town centre in the Development plan would represent an extension to the town centre and would therefore have a positive impact and help to reinforce the retailing in Midleton. Therefore, this proposal would only succeed in supporting and enhancing Midleton town centre.

6.7.73 Turning to the more detailed criteria for assessment outlined in paragraph 65 of the Guidelines, it must be demonstrated that the proposed development would comply with the development plan and that there would not be a material adverse impact on the vitality and viability of any existing town centre. The guidelines set out 6 key assessment criteria, which we address in turn.

(i) Support the long term strategy for town centres as established in the development plan and not materially diminish the prospect of attracting private sector investment in one or more town centres

6.7.74 The long-term strategy for Midleton as envisaged in Cork Strategic Plan foresees its rapid growth over the next 20 years with increasing population matched by commensurate increases in both convenience and comparison retail floorspace. At a local level the area of the site within the UDC has been zoned Town centre, within which retail uses would be generally permitted and in strategic terms the proposed development would: strengthen and develop the town's status as a commercial centre; secure the provision and development of convenient and attractive service and facilities in the town; and, promote and reinforce the role of the town centre as a focus of major commercial and related activities. In all respects the proposed development accords with the strategic and local development plan aims for Midleton, which over the next 20 years will play a very important role as a major, sustainable centre for growth. Without the provision of further retail facilities such as those proposed this strategic aim will not be fully realised as residents on Midleton will remain heavily reliant on Cork City and its suburban centres for their shopping needs.

6.7.75 In relation to the second part of the criteria it is our opinion that the proposed development by a major national retailer in Midleton illustrates their continued confidence in the local retail market and this in turn would encourage other retailers to invest in the area.

(ii) Cause an adverse impact on one or more town centres, either singularly or cumulatively with recent developments or other outstanding planning permissions, sufficient to undermine the quality of the town centre or its role in the economic life of the community.

6.7.76 The first important point to note is that the first phase of development forms part of those lands zoned as town centre and given its close proximity to the central area functions very much as part of the town centre. Furthermore, the proposed foodstore and comparison retail units would greatly enhance Midleton's profile as a shopping destination helping to enhance its economic future. We do not foresee any other town centres being adversely affected as a result of the proposed development. Most significantly, there is more than sufficient retail capacity within the study area to absorb the predicted turnovers of both the foodstore and the proposed quantum of comparison retail floorspace.

(iii) Diminish the range of activities and services that a town can support.

6.7.77 The proposed development would increase the range of activities the town centre can support such as introducing retail units to the town that are currently absent or for which there is under provision. In line with Development Plan policy the proposed development would promote and reinforce the role of town centre as a focus for major commercial and related activities.

(iv) Cause an increase in the number of vacant properties in the primary retail area that is likely to persist in the long term.

6.7.78 Notwithstanding the fact that vacancies are already quite low in the town centre, the proposed development is effectively enhancing the role of central area. Whilst the existing Tesco unit would be vacated, it is of a size and layout which is capable of

being used by one large comparison retailer or sub divided into a number of smaller units for various retail and service uses. The release of this unit in our opinion represents a positive opportunity for expanding comparison or related uses in the town centre. Also the change and renewal of this unit would be compatible with the strategic aim of the Midleton Development plan by meeting the developing needs of the town and these could include not only retail but tourism uses. Moreover, the development would draw trade into the town benefiting established and potential new retailers such that vacancy rates should decline. That is notwithstanding the fact that every town, no matter how viable, will always have vacant properties due to the natural turnover of businesses.

(v) Ensure a high standard of access both by public transport, foot and private car so that the proposal is easily accessible by all sections of the community.

6.7.79 The site is firstly located in close proximity to the central core of the town and thus accessible by foot and is close to bus services. The site is also be highly accessible by private car for those who chose to do their main food or bulky goods shopping on the site.

(vi) Will it link effectively with the town centre so that there is likely to be commercial synergy

6.7.80 The proposal would create commercial synergy with the town centre as it would compliment and support its role as a retail and service centre by attracting more shoppers to the town as a whole. The site is also located close the primary core of the town and therefore provides the potential for shoppers to walk between the site and main shopping street.

Conclusion

6.7.81 In our opinion, based on the above retail planning policy assessment and the preceding sections of this report the proposed development complies in all respects with the objectives and assessment criteria set out in the Retail Planning Guidelines.

6.8 MATERIAL ASSETS – TRAFFIC

The Receiving Environment.

6.8.1 The proposed development consists of retail, residential, leisure and office accommodation as well as a hotel. It is located close to the centre of Midleton on the site of the old cattle market. Midleton is situated approximately 20 km. east of Cork city on the National Primary Route from Cork to Wexford, the N25. The proposed development is located to the rear of the properties on New Cork Road and Cork Street, close to the centre of Midleton.

6.8.2 To assess the traffic situation in the vicinity of the proposed development site, traffic counts were taken at the existing roundabout at the junction of Main Street, Riverside Way, Cork Road, Mill Road and Goose Green. Each entry to the roundabout was counted and the exit road of each entering vehicle was noted. The vehicular traffic was also classified into four categories, namely 1. cars and light vans 2. heavy goods vehicles 3. buses and 4. bicycles. The count was carried out on Friday, 20th October 2000 from 7:30 a.m. to 7:30 p.m. and the results obtained in each 15 minute period were recorded. Accordingly, the turning movements of all vehicles entering the roundabout were obtained for each 15 minute period during the count. The results obtained are shown in Tables 1 to 5, Appendix VIII and the total number of vehicles entering the roundabout in each 15 minute period are shown on Chart 1. The peak hour traffic volume recorded occurred between 15:45 and 16:45 and amounted to 2,484 vehicles.

6.8.3 The traffic volumes (in vehicles) recorded were :-

	Peak Hour	12-Hour
Main Street	1,249	12,361
Riverside Way	737	5,659
Cork Road	1,511	13,416
Mill Road	1,152	11,348
Goose Green	319	2,972

6.8.4 The results show that the roundabout generally works well with some slight queuing during the peak hours. Queues of 6 vehicles on Main Street, 6 vehicles on Riverside Way, 5 vehicles on Cork Road, 6 vehicles on Mill Road and 3 vehicles on Goose Green were occasionally noted. Occasionally, traffic flow difficulties on Main Street caused a queue that extended back to the roundabout.

6.8.5 The existing roundabout has a central island of 20 m. diameter and an inscribed circle of 36 m. diameter. This layout makes it difficult for traffic from Riverside Way to enter onto the roundabout. The Cork Road varies in width from 8 m. approx. to 9.5 m. approx. from Cork Bridge to the junction to Knockgriffin and also has frontage development along this length. The peak hour results for the roundabout were analysed using ARCADY. The analysis shows that no significant queuing occurs. Temporary queues may occur due to temporary increases in the rates on flow on different

approaches. These temporary queues then dissipate as the rates of flow reduce. The ARCADY analysis is included in the appendix.

Characteristics of the Proposal.

Phase One:

6.8.6 This phase of development which is located entirely within Midleton UDC incorporates a retail development with foodstore (gross floor area 4,293sq.m. (2,639sq.m. net sales area)), restaurant and 9no. retail units (gross floor area 1,871sq.m), service yards; 5no. two story two bed residential units. This phase also includes a leisure complex incorporating fast food restaurant and 3no. retail units at ground floor level (1,165sq.m. gross floor area) with leisureplex and five screen Cineplex at first floor level; café; 5no. retail/commercial units (gross floor area 796sq.m.) with offices overhead (2,973sq.m.); aparthotel incorporating 41no. bedrooms, reception areas, with bar and restaurant at ground floor level and basement storage area; new access bridge over the Owenacurra river, landscaping including riverside amenity area, ancillary parking, infrastructural works, provision of access roads and modifications to existing road layout.

Phase Two:

6.8.7 This phase includes the provision of roads and services infrastructure on the lands adjoining the existing Mart site in the jurisdiction of Cork County Council. These works will ultimately serve the future development of these land and ensure a level of integration with the phase one development.

Future Phases

6.8.8 Future phases of development are likely to comprise of a business park/office development, retail warehouse scheme, petrol filling station, motor showrooms, mixed residential elements including apartments, duplex and semi detached housing units and civic/community facilities. These elements would be located primarily in the County Council area. Future phases will also include the provision of additional buildings to the north of the proposed new Street within the Midleton UDC area to complement the phase one development along the southern boundary of this road resulting in the creation of a coherent streetscape.

6.8.9 In view of the nature and scale of the proposed development, it is considered that access to the site via the Cork Road and the road at Knockgriffin is inadequate in order for the development to become an integral part of the town centre. It is considered that direct access to the site from the town centre would greatly enhance the effect of enlarging the town centre rather than the proposed development being considered as a commercial development on the periphery of the town. Accordingly, it is proposed to provide a new bridge across the Owenacurra River and to link in to the existing road network between the junction of the Cork Road and Mill Road at the existing roundabout.

IMPACT

6.8.10 The traffic generation potential of all phases of the development has been assessed using the TRICS database of traffic counts for various developments of similar type

and also from traffic counts at similar type developments in Ireland. Table 6 shows the estimated traffic volumes to and from the site in the peak hour. The potential impact of the generated traffic on the existing road network has not been assessed, as the new bridge and link to the existing roundabout at the northern end of Main Street are considered to be an essential component of the proposal.

MITIGATION

6.8.11 The proposed development of phase one will require revisions to the existing roundabout at the northern end of Main Street. It is proposed to provide a new bridge and roadway over the Owenacurra River. This road will link into the existing road network where the roundabout is located. In order to accommodate the new link and to improve access for other road links, notably Riverside Way, it is proposed to provide a 32 m. diameter central island and a 52 m. diameter inscribed circle, resulting in a 10 m. wide circulating carriageway. Modifications to the kerblines on all approaches will be required to achieve this layout. The monument at the northern end of Main Street, on the existing splitter island at the roundabout, will remain in its present position. It is proposed to re-shape the existing splitter island in accordance with the roundabout design.

6.8.12 It is also proposed to provide a runnable mini-roundabout on Cork Street at the access to the proposed development as part of phase one. The central island is 6 m. diameter and the inscribed circle is 26 m. diameter, resulting in a 10 m. wide circulating carriageway. It will be necessary for the central island to be mountable in order that heavy goods vehicles may make right-hand turns.

6.8.13 The other proposed access to the site is from the roadway at Knockgriffin and is a standard tee-junction. Traffic control at this junction will be by means of a "YIELD" sign on the access road. The Knockgriffin road already serves an existing industrial estate to the north of the railway line and beyond that to a minor county road with no effective catchment area that would meaningfully contribute to traffic generation. There is spare capacity on this road and at its junction with the old Cork road. This road links directly to the existing Midleton by pass. This could be used to service the western side the proposed development i.e. for phase two and subsequent phases.

6.8.14 The development of the first phase will contribute a total of 468 vehicles to the peak hour traffic. This represents 18.8% of the existing peak hour traffic. Not all of the traffic associated with the proposed development will use the improved roundabout, due to the access to the site at Cork Street. It is assumed, for the analysis, that generated traffic to and from the Cork direction will use the Cork Street access to the site and that all other traffic will use the roundabout. As the capacity of the road network is generally governed by the capacity of the junctions in the network, it is considered sufficient to assess the adequacy of the proposed roundabout for the peak hour traffic only.

6.8.15 The peak hour two-way traffic volumes are :-

	Existing	Existing + Phase 1	Phase 1+ Future Phases
Main Street	1,249	1,372	1,436
Riverside Way	737	801	830
Cork Road	1,511	1,647	1,712
New Road		467	467
Mill Road	1,152	1,269	1,331
Goose Green	319	346	358

6.8.16 The phase 1 + future phases peak hour traffic provides for a 3% growth rate for 3 years to assess the capacity of the roundabout when the development is complete. The traffic volume on the Cork Road refers to the traffic on Cork Street west of the access to the site. The projected traffic volumes with the development in place were analysed using ARCADY for both the existing + phase 1 and the phase 1 + future phases. The results of the ARCADY analyses indicate that, on average, no significant queuing will occur. A maximum average queue of 2 vehicles is predicted for the future + proposed scenario. Accordingly, it is considered that the improved roundabout will adequately cope with the demands of the existing and all future phases of development. Details of the ARCADY analyses are included in the Appendix VIII.

6.8.17 The traffic to and from the Cork direction will access the site via Cork Street. In the peak hour the traffic volumes associated with the phase 1 are 38 vehicles left-in from Cork Street and 98 vehicles right-out to Cork Street. These traffic volumes are low and will not give rise to significant queuing at the mini-roundabout.

6.8.18 Construction of the enlarged roundabout, the new bridge and the roadway from the roundabout to the site will involve work on the public roadway. Construction of the roundabout and new kerblines will be in accordance with the Local Authority's standards for such works, and any reinstatement necessary will be in accordance with the Local Authority's requirements. Any roadworks necessary to bring services to the site will also be reinstated to the Local Authority's requirements.

Parking

6.8.19 The car parking provision associated with this phase of development is of sufficient standard to attract customers to a purpose built car park, allowing comfort and safety on access and circulation, and with specific provision for the needs of the disabled, small children and staff parking and accords with standards set out in the Development Plan. The site distribution road offers early segregation of customer and service vehicles, thereby promoting safer pedestrian movement throughout the site. In total there are 763 car parking spaces which are divided between the primary car parking area adjacent to the shopping development (450), designated street parking (35) and a further area of parking to the north of the cinema/leisureplex (278). The additional

parking areas to the north of the street will ultimately service future development proposals as identified in the Masterplan along this street frontage. This area of parking will effectively be screened by the proposed flood berm and ultimately will be located beneath the buildings which are proposed for this area. The car park adjacent to the shopping centre element will be heavily landscaped to enhance the visual impact of this area.

6.8.20 Parking provision is an important issue that needs to be considered in the context of providing a practical level to meet parking demand and to ensure the objectives of achieving sustainable development are properly met. This proposal has been designed to incorporate a level of parking provision that meets the applicable parking standards and which is commensurate with the nature of the development. Parking standards need to allow flexibility in the amount of parking provided, so as to allow commercial developments to carry out their functions properly. It is essential to provide the appropriate parking provision on the site for the operational uses. Too few car parking spaces would result in the abuse of the local residential streets, being used as overflow car parking. The development involves a realistic parking scheme that takes account of the practical considerations of this form of development, balancing the issue of safely catering for demand with the need to encourage the use of alternative forms of travel.

6.8.21 The level of parking for subsequent phases of development will be determined at the planning application stage, but will comply with the prevailing Development Plan standards.

Conclusion

6.8.22 Phase I of the proposed development is expected to generate 470 vehicles approximately in the evening peak hour period. The existing road network, together with improvements to the main roundabout, can accommodate this increase in traffic. The overall development of the site is expected to generate 1200 vehicles approximately in the evening peak hour period. The existing road network and the connections to Knockgriffin Road, the mini roundabout and the improvements to the existing roundabout will enable the entire development to distribute onto the road network without causing undue delay. To facilitate this volume of traffic a signal-controlled operation would be installed at the junction of the Knockgriffin Road and the old Cork Road. Accordingly, the overall proposed development would be implemented on a phased basis in conjunction with proposed road connections and infrastructural improvements in the road network.

6.8.23 However, the roundabout analysis for the improved roundabout and the future flows shows that there is approximately 10% to 15% spare capacity in the roundabout before queuing is likely to become a problem. The proposed Relief Route on the northern side of the town would enable the traffic, generated by the overall proposed development, to disperse onto the road network around Midleton and its environs without causing queuing in the centre of the town.

6.8.24 The impact of the traffic associated with the proposed development has been assessed and the assessment indicates that no adverse impacts occur due to the additional traffic.

6.9 CULTURAL HERITAGE

Introduction

6.9.1 The development will completely modify the site, which comprises approximately 12.2 hectares (30 acres). Most of the land is currently laid out in pasture, except for an area of infilled ground to the north of the New Cork Road. The Cattle Market and surrounding hardcore parking areas stand on the infilled ground. At the time of inspection (7 October 2000) topsoil had been removed from the wayleave corridor for the Midleton Drainage Scheme (Plates 2, 8 and 9 in Appendix IX). The compound surrounding the Fire Station (Plates 10, 11) on Mill Road was also inspected, as was a unit of land along the New Cork Road. These two areas are both distinct units of land from the main Cork Co-operative Marts site (Figure 1a, Appendix IX). All but a small portion of the proposed development site is outside the area of Urban Archaeological Potential for Midleton as defined by the *Urban Archaeological Survey of County Cork* (Figure 3, Appendix IX). A small part of the site, south of the Cattle Market and adjacent to the New Cork Road, falls within the Area of Constraint (i.e. the Urban Archaeological Zone). This section proposes mitigation strategies to ensure that the development will not impinge on any possible archaeological resource of the site or area.

RECEIVING ENVIRONMENT

6.9.2 The site is situated on the north-western side of Midleton town in the townland of Knockgriffin (Imokilly) in the parish of Mogeesha. The site comprises approximately 12.2 hectares (30 acres) of largely undeveloped pasture land (Plates 1–4, 8, Appendix IX). The Cattle Market (Plate 7, Appendix IX) stands on the southern part of the site to the rear (north) of the houses fronting New Cork Road. Two spatially distinctive units of land (A and B) comprise a street-fronting site at New Cork Road and the site of the Fire Station at Mill Road (Figure 1a and b, Appendix IX). The site is bounded on the north by the Owenacurra River (Plate 4) and by a field boundary extending straight west from a northward bend in the river. The eastern side is also bounded by the Owenacurra River (Plates 1, 5). Cork Bridge (Plate 6) occurs at the southern end of the eastern boundary. The bridge is a Recorded Monument (Figure 4, no. 106, and Figure 5). The southern boundary of the site is formed by the backyards of nos 1–30 New Cork Road (Plate 5). To the west of the Cattle Market the site is bounded by the property of the Dairygold Co-operative Stores. A secondary road fronted by modern houses forms the western boundary (Plate 3).

6.9.3 The greenfield area of the site falls into two units: that on the east is the low-lying flood plain of the Owennacurra River (Plates 1, 2, 4 and 5). A pronounced ridge (Plates 7 and 8; Figures 1 and 4, Appendix IX) extends in a crescent shape from the northward bend of the Owennacurra River. The ridge appears to be a manmade levee associated with flood control. The ridge is apparent as a crescent-shaped fence on the 1842 Ordnance Survey map (Figure 2, Appendix IX). A golf course was laid out on this part of the site in the 1930s (Figure 4, Appendix IX). A 'pavillion' or club-house stood to the north of nos 29 and 30 New Cork Road (Figure 4). The golf course site was bought by Cork Co-operative Marts in the 1960s and the site was developed as a Cattle Market with associated parking areas to the north and east of the Mart buildings. The western part of the site remains in pasture and is now laid out in a single large field (Plate 3).

6.9.4 The most recent intervention in the greenfield area is the Midleton Main Drainage works. A wayleave bisects the site and the working corridor was stripped of topsoil (Plates 2, 6, 8, 9) under archaeological supervision. The archaeologist monitoring the work has reported that this particular length of drainage works did not produce any objects or features of archaeological significance. The drainage corridor in effect provides an archaeological test-trench across the entire east/west length of the proposed development site. The absence of archaeological finds and features is of significance in assessing the overall archaeological potential of the site.

History of the Area with its Sites and Monuments

6.9.5 There is evidence for pre-historic settlement in the general area of Midleton, especially close to the mouth of the Owenacurra River. In particular the discovery of a cinerary urn in the townland of Oatencake in the mid-1940s is of significance. The urn was apparently located in a pit burial (RMP 76-062). The burial was located *c.* 150m north of the high tide level of the Owennacurra River (Figure 4, site 62 marked 'x'; Figure 5, no. 4196, Appendix IX). The urn is of Bronze Age date – the practice of placing burials in pits, often in stone boxes or cists, is a characteristic of the Bronze Age in Ireland (Waddell 1991, 84–8). These burials sometimes occur in groups, although many are found singly. Bronze Age pit and urn burials are not usually marked above ground and come to light as chance finds during quarrying or agricultural work (Power 1994, 56).

6.9.6 The monitoring of the Midleton Main Drainage works has also resulted in the discovery of flint objects of prehistoric date, especially in the townland of Oatencake (monitoring archaeologist M. McCarthy, pers. comm.).

6.9.7 The majority of Recorded Monuments in the Midleton area are of medieval and post-medieval/modern date. A Cistercian monastery was founded in the area in the twelfth century. Today there are no visible traces of the monastery, but it was apparently located within or near the graveyard of the present Church of Ireland church (Stalley 1987, 248; Figure 4, no. 63, Figure 5, no. 5601). This abbey was known as the Abbey of St Mary of Chore (Gwynn and Hadcock 1988, 140). It was colonised from Monasteranenagh in 1179 or 1180 and it is said to have been founded by the FitzGeralds. In 1227 it is recorded that the abbey was a centre of violent rebellion against the chapter general. The abbot was replaced and the monks placed under interdict (ibid.). The abbey continued to be troubled by strife and turmoil until it was dissolved in 1541. By then the abbey/church had become parochial (ibid.). Lewis (1837, vol. 2, 369–70) described how the 'last remnants of it were taken down to afford a site for the present church'. A few stone remnants of the medieval abbey can be seen on the site (Stalley 1987, 284).

6.9.8 The lands of Midleton were granted to the FitzGeralds of Cloyne in the sixteenth century, but the FitzGeralds were dispossessed during the Cromwellian period. The town did not receive a Charter of Incorporation until 1670, which granted the Manor of Midleton to Sir John Broderick and gave the borough the right to send two members to the Irish Parliament (Zajac 1995, 79). A parish church (RMP 76-6301) stood in the Manor of Midleton from at least 1694 when it was described as a 'neat structure, and well pewed, and the steeple is capable of holding a ring of bells'. It was replaced in 1823–5 by the present church. The church has an associated graveyard (RMP 76-6302), where the earliest inscribed headstone dates to 1698. Of similar date to the parish church is Midleton College. A List of Archaeological Sites in the Area of the Proposed Development is detailed in Appendix IX.

CHAPTER SEVEN: INTERACTIONS

Flora/Landscape

7.1 The loss of vegetation is offset through extensive new planting of semi mature and extra heavy new trees which will have a significant impact on the character of the landscape.

Human Beings/Air Quality

7.2 General construction procedures will result in a temporary increase in dust levels and a resultant reduction in the quality of air can be expected in the area immediately surrounding the site. The operation of the proposed retail development will also contribute to atmospheric emissions normally associated with a development of this size, but will not adversely impact on air quality. The provision of air filtration measures and the dust reduction qualities of the proposed landscaping will further mitigate against impacts on air pollution.

Human Beings/Noise

7.3 A number of residential dwellings adjoin the site boundary to the south of the proposed development. Noise will be generated through a number of activities such as construction, services and an increase in traffic levels. However, a perceptible increase in noise sufficient to cause harm to residential amenity would not result.

Human Beings/Dust

7.4 Dependant upon weather conditions and time of year, the construction phase may result in some dust emissions. Such emissions are not expected to be significant and will have an impact mainly on the development site, with any minor impact on housing being temporal and mitigated by the existence of the boundary wall and planting.

Human Beings/Landscape/Visibility

7.5 Due to the existing uses on the site, there will not be a loss of visually important or high amenity landscape. The existing site already comprises carparking, cattle mart buildings and hard standing. In particular the visual appearance of the cattle mart is poor and the buildings could be deemed an eyesore. The development does not represent a significant degree of change as there exists large buildings and hardstanding dominating the site. It is anticipated that the proposed development in terms of architectural and landscape proposals would enhance this area.

Human Beings – Material Assets (Traffic/Parking)

7.6 The development will generate an element of construction traffic during the initial development phase but operational hours during this phase could be restricted. The operation of the proposed development will generate an increase in traffic in the area but this will not have a significant or long term impact on human beings as the road network capacity is capable of accommodating the proposed development. The proposed car parking layout is also designed to minimise impact on human beings, with

no parking provision on the boundary of the site which abuts the nearest residential development.

Human Beings/Material Assets (Retailing)

7.7 The proposed development will have a positive impact on residents within the area, enhancing the amenities of this growing residential suburb. Significant economic opportunities will be provided for local people in both the construction and operational phases.

APPENDICES

APPENDICES

APPENDIX I

POPULATION TABLES

Table 4.1: Population Trends by Area, 1986-1996

Area	Population			Percentage Change			Average Annual Percentage Growth Rate		
	1986	1991	1996	1986-'91	1991-'96	1986-'96	1986-'91	1991-'96	1986-'96
Cork Co. Borough	133,271	127,253	127,187	-4.5	-0.1	-4.6	-0.92	-0.001	-0.94
Cork Co.	279,464	283,116	293,323	1.3	3.6	5.0	0.26	0.71	0.97
Cork City & County	412,735	410,369	420,510	-0.6	2.5	1.9	-0.12	0.49	0.37
South West Region	536,894	532,263	546,640	-0.9	1.7	1.8	-0.17	0.56	0.36
State	3,540,643	3,525,719	3,626,087	-0.4	2.8	2.4	-0.08	0.56	0.48

Source: Census of Population, 1986-1996

Table 4.2: **Population Trends by Rural District, DED and Urban Areas.**

Area	Population			Percentage Change		
	1986	1991	1996	1986-'91	1991-'96	1986-'96
Midleton Rural District	18,045	17,877	18,558	-0.9	3.8	2.8
Midleton Rural DED	3,638	3,728	3,706	2.5	-0.6	1.9
Carrigtohill DED	3,017	3,035	3,115	0.6	2.6	3.2
Urban Areas						
Midleton UD	3,111	2,990	3,266	-3.9	9.2	5.0
Midleton Environs	3,003	2,961	2,943	-1.4	-0.6	-2.0
Total Population	6,114	5,951	6,209	-2.7	4.3	1.6
Carrigtohill	1,272	1,212	1,232	-4.7	1.6	-3.1

Source: Census of Population

Table 4.3: Population Structure 1986-1996 Midleton Rural District

Cohort Age	Number of Persons			Percentage Distribution by Cohort			Percentage Change
Years	1986	1991	1996	1986	1991	1996	1986-1996
0-14	5,682	5,043	4,685	31.5	28.2	25.2	-17.5
15-29	4,077	4,154	4,231	22.6	23.3	22.8	3.8
30-44	3,650	3,687	3,912	20.2	20.6	21.1	7.2
45-59	2,155	2,453	3,170	11.9	13.7	17.1	47.1
60+	2,481	2,540	2,560	13.8	14.2	13.8	3.2
Total	18,045	17,877	18,558	100.0	100.0	100.0	-

Table 4.4: Population Structure, Midleton District Electoral Division 1986-1996

Age Cohort	Number of Persons			Percentage Distribution By Cohort			Percentage Change in Numbers
Years	**1986**	**1991**	**1996**	**1996**	**1991**	**1996**	**1986-1996**
0-14	1252	1101	912	34.4	29.6	24.6	-27.1
15-29	858	937	935	23.6	25.1	25.2	9.0
30-44	763	747	757	21.0	20.0	20.4	-0.8
45-59	429	558	706	11.8	15.0	19.1	64.6
60+	336	385	396	9.2	10.3	10.7	17.9
Total	**3638**	**3728**	**3706**	**100.0**	**100.0**	**100.0**	**1.9**

Source: Census of Population, 1986-1996

Table 4.5: Population Structure, Midleton Urban District, 1986-1996

Age Cohort	Number of Persons			Percentage Distribution by Cohort			Percentage Change in Numbers
Years	1986	1991	1996	1986	1991	1996	1986-1991
0-14	798	681	682	25.6	22.8	20.9	-14.5
15-29	784	726	832	25.2	24.3	25.4	6.1
30-44	521	516	619	167	17.3	19.0	18.8
45-59	378	432	500	12.2	14.3	15.3	32.3
60+	630	635	633	20.3	21.2	19.4	0.5
Total	3111	2990	3266	100.0	100.0	100.0	-

Table 4.6: Trend in Household Number and Size

Midleton	Number of Households			Percentage Change	Average Household Size Number of Persons		
	1986	1991	1996	1986-1991	1986	1991	1996
Rural District	4,783	4,963	5,410	13.1	3.73	3.55	3.37
District Electoral Division	900	982	1,061	17.9	4.04	3.79	3.49
Urban District	867	889	1,029	18.7	3.23	3.10	2.93

Source: Census of Population, 1986-1996

Table 4.7: Distribution of Population by Social Class, 1996

Area	Social Class Category * (Percentage)						
	1	2	3	4	5	6	7
Midleton RD	5.2	22.8	16.8	22.1	14.9	8.1	10.1
Midleton DED	4.6	24.8	15.7	23.6	17.1	5.6	8.6
Midleton UD	3.3	16.0	13.9	23.5	17.8	9.3	16.2
Cork County	5.8	24.4	18.9	20.5	12.6	7.6	10.2
Cork CB	5.5	17.1	16.9	20.5	13.9	9.0	17.1
State	5.4	22.0	18.4	20.5	12.8	8.5	12.4

Source: Census of Population, 1996

* Social Class 1: Professional workers
Social Class 2: Managerial and Technical
Social Class 3: Non Manual
Social Class 4: Skilled Manual
Social Class 5: Semi Skilled
Social Class 6: Unskilled
Social Class 7: All others gainfully occupied

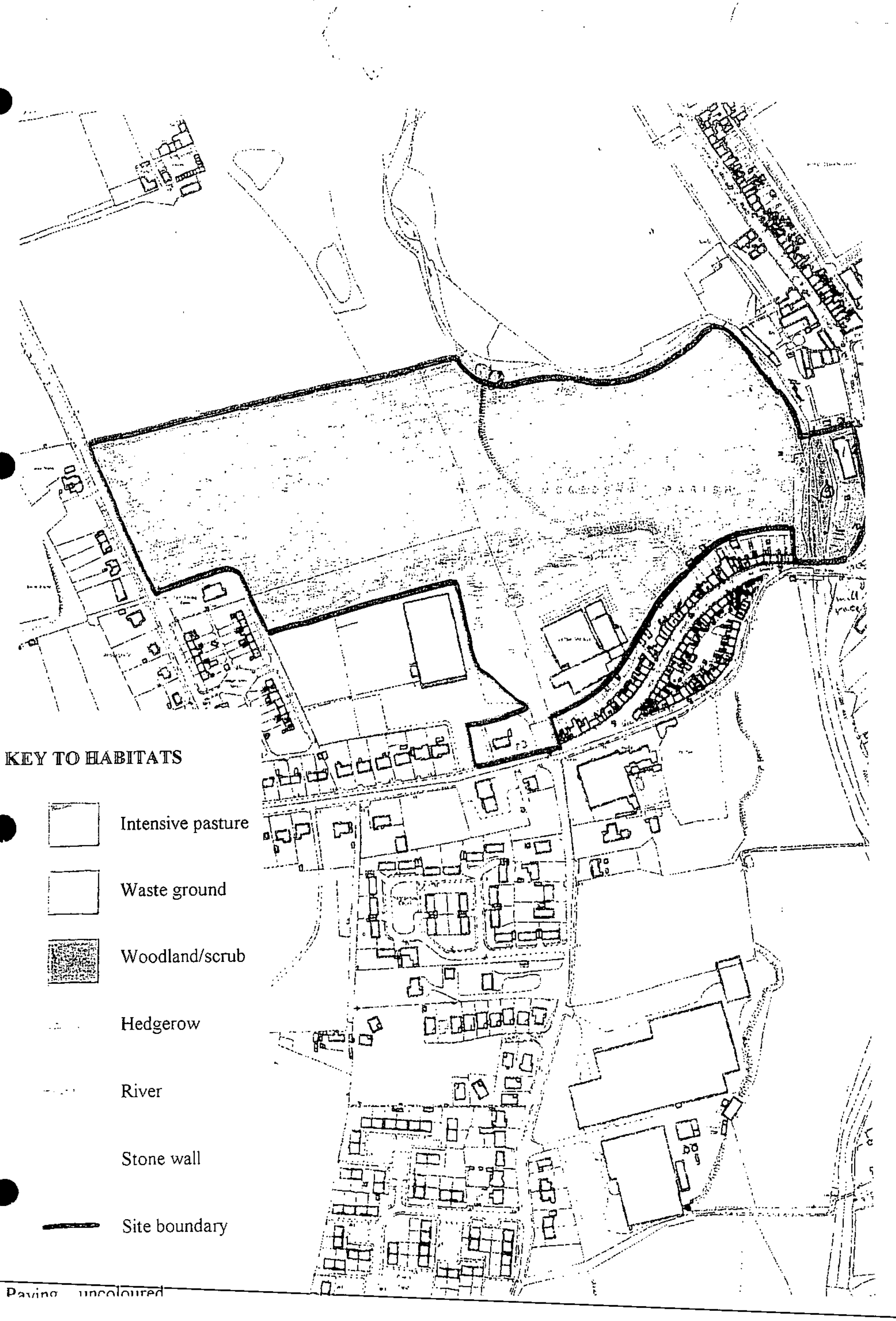
Table 4.8: Trends in the Labour Force and Unemployment, 1986-1996

	Number in Labour Force			Percentage Change	Unemployed as Percentage of Labour Force		
Midleton	**1986**	**1991**	**1996**	**1986-1996**	**1986**	**1991**	**1996**
Rural District	6,454	6,831	7,695	19.2	13.9	11.6	9.5
District Electoral Division	1,245	1,364	1,549	24.4	14.6	11.4	9.6
Urban District	1,062	1,070	1,289	21.4	17.8	16.2	17.0

Source: Census of Population, 1986-1996

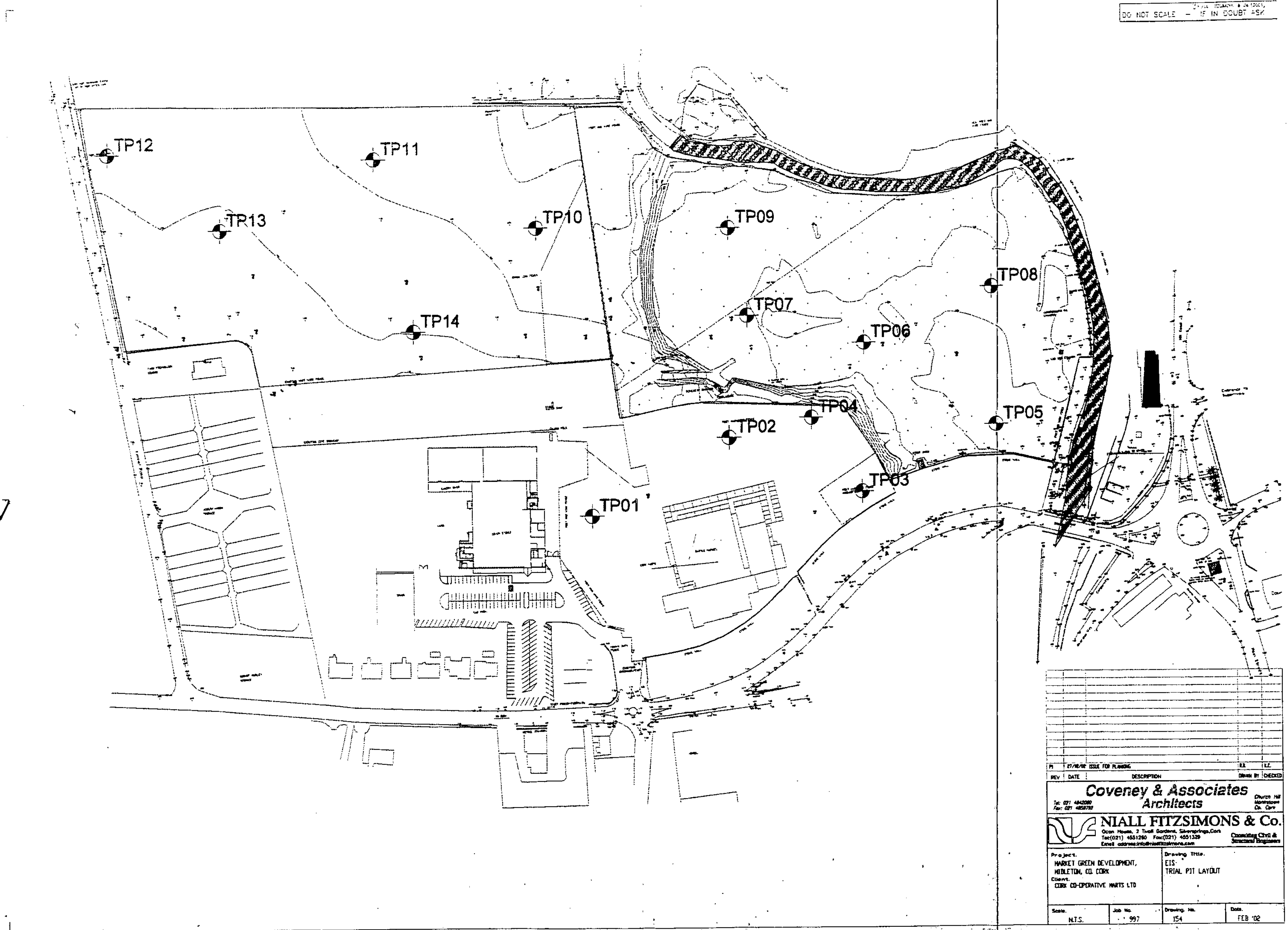
APPENDIX II

HABITAT MAP


KEY TO HABITATS
Intensive pasture
Waste ground
Woodland/scrub
Hedgerow
River
Stone wall
Site boundary
Paving uncoloured

APPENDIX III

TRIAL PIT DETAILS


DO NOT SCALE - IF IN DOUBT ASK
TP12
TP11
TP13
TP10
TP09
TP08
TP07
TP06
TP14
TP04
TP05
TP02
TP03
TP01
REV
DATE
DESCRIPTION
DRAWN BY
CHECKED
ISSUE FOR PLANNING
Coveney & Associates
Architects
Church Hill
Co. Cork
NIALL FITZSIMONS & Co.
Consulting Civil & Structural Engineers
Tel:(021) 4551280 Fax:(021) 4551329
Project.
MARKET GREEN DEVELOPMENT,
MIDLETON, CO. CORK
Client.
CORK CO-OPERATIVE MARTS LTD
Drawing Title.
EIS
TRIAL PIT LAYOUT
Scale.
N.T.S.
Job No.
997
Drawing. No.
154
Date.
FEB '02

Project No. 997	TRIAL PIT RECORD	Niall Fitzsimons & Co. Consulting Engineers

Contract: Market Green Development	Trial Pit No. 1
	Sheet: 1 of 1
Client: Cork Co-Operative Marts Ltd	Excavation Method: Tracked Excavator
	Date Started: 09/12/2001
Location: Mart Site, Midleton, Co. Cork	Date Completed: 09/12/2001
	Ground Level (mOD):

Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Samples			Field Tests
				Ref. No.	Type	Depth (m)	
Gravel		0.40					
Soft, light brown, Clay		0.50					
Soft, brown, sandy, Clay with cobbles and traces of organic material		0.90					
Dense, fine to coarse, Gravel with cobbles and small boulders		3.50					

Groundwater Conditions: No groundwater encountered

Remarks: Pit remained stable

Project No. 997	TRIAL PIT RECORD	Niall Fitzsimons & Co. Consulting Engineers

Contract: Market Green Development	Trial Pit No. 2
	Sheet: 1 of 1
Client: Cork Co-Operative Marts Ltd	Excavation Method: Tracked Excavator
	Date Started: 09/12/2001
Location: Mart Site, Midleton, Co. Cork	Date Completed: 09/12/2001
	Ground Level (mOD):

Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Samples			Field Tests
				Ref. No.	Type	Depth (m)	
Topsoil		0.10					
Loose, sandy, Gravel		0.20					
Soft, brown, sandy, Clay		0.60					
Medium dense, fine to coarse, sandy Gravel with cobbles		1.90					
Medium dense gravelly Sand becoming dense Sand		3.60					

Groundwater Conditions: No groundwater encountered

Remarks: Pit remained stable

Project No. 997	TRIAL PIT RECORD	Niall Fitzsimons & Co. Consulting Engineers
Contract: Market Green Development		Trial Pit No. 3
Client: Cork Co-Operative Marts Ltd		Sheet: 1 of 1
		Excavation Method: Tracked Excavator
Location: Mart Site, Midleton, Co. Cork		Date Started: 09/12/2001
		Date Completed: 09/12/2001
		Ground Level (mOD):

Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Samples Ref. No.	Samples Type	Samples Depth (m)	Field Tests
Limestones chippings		0.05					
Soft, reddish brown, gravelly, Clay		0.15					
Loose, fine to coarse, sandy, Gravel with cobbles and some small boulders		1.55					
Medium dense Gravel		2.00					
Dense Sand		2.90					

Groundwater Conditions: No groundwater encountered

Remarks: Excavation collapsing in from 2.5m

Project No. 997	TRIAL PIT RECORD	Niall Fitzsimons & Co. Consulting Engineers

Contract: Market Green Development	Trial Pit No. 4
	Sheet: 1 of 1
Client: Cork Co-Operative Marts Ltd	Excavation Method: Tracked Excavator
	Date Started: 09/12/2001
Location: Mart Site, Midleton, Co. Cork	Date Completed: 09/12/2001
	Ground Level (mOD):

Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Samples			Field Tests
				Ref. No.	Type	Depth (m)	
Topsoil		0.10					
Soft, light brown Clay		1.20					
Firm to stiff, dark brown, Clay, slightly odorous		4.30					
Medium dense, fine to coarse, gravelly Sand		4.60					

Groundwater Conditions: No groundwater encountered

Remarks: Pit remained stable

Project No. 997	TRIAL PIT RECORD	Niall Fitzsimons & Co. Consulting Engineers

Contract: Market Green Development	Trial Pit No. 5
	Sheet: 1 of 1
Client: Cork Co-Operative Marts Ltd	Excavation Method: Tracked Excavator
	Date Started: 09/12/2001
Location: Mart Site, Midleton, Co. Cork	Date Completed: 09/12/2001
	Ground Level (mOD):

Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Samples: Ref. No.	Samples: Type	Samples: Depth (m)	Field Tests
Topsoil		0.10					
Soft, brown, Clay		0.30					
Loose, saturated, river terrace, Gravels		1.50					

Groundwater Conditions: Groundwater encountered at 0.9m (River level high)

Remarks: Pit collapsing

Project No. 997	TRIAL PIT RECORD	Niall Fitzsimons & Co. Consulting Engineers
Contract: Market Green Development		
Client: Cork Co-Operative Marts Ltd	Trial Pit No. 6	
	Sheet: 1 of 1	
Location: Mart Site, Midleton, Co. Cork	Excavation Method: Tracked Excavator	
	Date Started: 09/12/2001	
	Date Completed: 09/12/2001	
	Ground Level (mOD):	

Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Samples Ref. No.	Samples Type	Samples Depth (m)	Field Tests
Topsoil		0.20					
Soft, brown, Clay		0.50					
Loose, fine to coarse, sandy, Gravel		1.10					
Black, loose, coarse, sandy, Gravel with a strong odour		1.25					
Loose, fine to coarse, sandy, Gravel		2.50					

Groundwater Conditions: Groundwater encountered at 1.10m (River level high)

Remarks: Pit collapsing from 2m

Project No. 997	TRIAL PIT RECORD	Niall Fitzsimons & Co. Consulting Engineers

Contract: Market Green Development	Trial Pit No. 7
	Sheet: 1 of 1
Client: Cork Co-Operative Marts Ltd	Excavation Method: Tracked Excavator
	Date Started: 09/12/2001
Location: Mart Site, Midleton, Co. Cork	Date Completed: 09/12/2001
	Ground Level (mOD):

Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Samples: Ref. No.	Samples: Type	Samples: Depth (m)	Field Tests
Topsoil		0.15					
Loose, brown, gravelly, Clay		0.65					
Loose, saturated, river terrace, Gravels		2.15					
Loose to medium dense, terrace Gravels becoming sandy Gravels		2.50					

Groundwater Conditions:	Groundwater encountered at 1.70m (River level high)
Remarks:	Pit collapsing from 2m

Project No. 997	TRIAL PIT RECORD	Niall Fitzsimons & Co. Consulting Engineers

Contract: Market Green Development	Trial Pit No. 8
	Sheet: 1 of 1
Client: Cork Co-Operative Marts Ltd	Excavation Method: Tracked Excavator
	Date Started: 09/12/2001
Location: Mart Site, Midleton, Co. Cork	Date Completed: 09/12/2001
	Ground Level (mOD):

Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Samples Ref. No.	Samples Type	Samples Depth (m)	Field Tests
Topsoil		0.15					
Soft, brown, Clay		0.45					
Loose, saturated, river terrace, Gravels		2.00					

Groundwater Conditions: Groundwater encountered at 0.9m (River level high)

Remarks: Pit collapsing at 1.2m

Project No. 997	TRIAL PIT RECORD	Niall Fitzsimons & Co. Consulting Engineers

Contract: Market Green Development	Trial Pit No. 9
	Sheet: 1 of 1
Client: Cork Co-Operative Marts Ltd	Excavation Method: Tracked Excavator
	Date Started: 09/12/2001
Location: Mart Site, Midleton, Co. Cork	Date Completed: 09/12/2001
	Ground Level (mOD):

Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Samples Ref. No.	Samples Type	Samples Depth (m)	Field Tests
Topsoil		0.20					
Soft, brown, Clay		0.60					
Loose, saturated, river terrace, Gravels		1.50					

Groundwater Conditions: Groundwater encountered at 1.2m (River level high)

Remarks: Pit collapsing from 1.10m

Project No. 997	TRIAL PIT RECORD	Niall Fitzsimons & Co. Consulting Engineers

Contract: Market Green Development	Trial Pit No. 10
	Sheet: 1 of 1
Client: Cork Co-Operative Marts Ltd	Excavation Method: Tracked Excavator
	Date Started: 09/12/2001
Location: Mart Site, Midleton, Co. Cork	Date Completed: 09/12/2001
	Ground Level (mOD):

Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Samples			Field Tests
				Ref. No.	Type	Depth (m)	
Topsoil		0.40					
Soft, brown, Clay		0.70					
Dense, dark brown, fine to coarse, sandy, Gravel, becoming denser at depth		3.60					

Groundwater Conditions: No groundwater encountered

Remarks: Pit remained stable

Project No. 997	TRIAL PIT RECORD	Niall Fitzsimons & Co. Consulting Engineers

Contract: Market Green Development	Trial Pit No. 11
	Sheet: 1 of 1
Client: Cork Co-Operative Marts Ltd	Excavation Method: Tracked Excavator
	Date Started: 09/12/2001
Location: Mart Site, Midleton, Co. Cork	Date Completed: 09/12/2001
	Ground Level (mOD):

Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Samples Ref. No.	Samples Type	Samples Depth (m)	Field Tests
Topsoil		0.30					
Loose, light brown, gravelly, Clay		0.60					
Dense, fine to coarse, sandy, Gravel		3.30					

Groundwater Conditions: No Groundwater encountered

Remarks: Pit remained stable

Project No. 997	TRIAL PIT RECORD	Niall Fitzsimons & Co. Consulting Engineers

Contract: Market Green Development	Trial Pit No. 12
	Sheet: 1 of 1
Client: Cork Co-Operative Marts Ltd	Excavation Method: Tracked Excavator
	Date Started: 09/12/2001
Location: Mart Site, Midleton, Co. Cork	Date Completed: 09/12/2001
	Ground Level (mOD):

Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Samples			Field Tests
				Ref. No.	Type	Depth (m)	
Topsoil		0.30					
Loose, light brown, gravelly, Clay		0.60					
Dense, fine to coarse, sandy, Gravel		1.90					
Dense, fine to coarse, gravelly, Sand		3.00					

Groundwater Conditions: No Groundwater encountered

Remarks: Pit remained stable

Project No. 997	TRIAL PIT RECORD	Niall Fitzsimons & Co. Consulting Engineers

Contract: Market Green Development	Trial Pit No. 13
	Sheet: 1 of 1
Client: Cork Co-Operative Marts Ltd	Excavation Method: Tracked Excavator
	Date Started: 09/12/2001
Location: Mart Site, Midleton, Co. Cork	Date Completed: 09/12/2001
	Ground Level (mOD):

Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Samples Ref. No.	Samples Type	Samples Depth (m)	Field Tests
Topsoil		0.30					
Loose, light brown, gravelly, Clay		0.60					
Dense, fine to coarse, sandy, Gravel		2.50					
Dense, fine to coarse, Gravel, with pockets of sand and fragments of rock		3.00					
Medium, dense, Sand		3.30					

Groundwater Conditions: No Groundwater encountered

Remarks: Pit remained stable

Project No. 997	TRIAL PIT RECORD	Niall Fitzsimons & Co. Consulting Engineers

Contract: Market Green Development	Trial Pit No. 14
	Sheet: 1 of 1
Client: Cork Co-Operative Marts Ltd	Excavation Method: Tracked Excavator
	Date Started: 09/12/2001
Location: Mart Site, Midleton, Co. Cork	Date Completed: 09/12/2001
	Ground Level (mOD):

Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Samples Ref. No.	Samples Type	Samples Depth (m)	Field Tests
Topsoil		0.30					
Loose, light brown, sandy, Clay		0.60					
Dense, fine to coarse, sandy, Gravel		1.70					
Dense, fine to coarse, gravelly, Sand		3.10					
Medium, dense, Sand		3.40					

Groundwater Conditions: No Groundwater encountered

Remarks: Pit remained stable

APPENDIX IV

UCC FLOOD STUDY

Market Green Development

Owenacurra River

Flood Study

REPORT

November 2000

Prepared by:

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For: **Niall Fitzsimons & Co.**

Consulting Engineers

Ocon House

Tivoli

Cork

1. Introduction

This flood study relates to a development proposal by Cork Co-operative Marts Limited on a flood plain of the Owenacurra River between the Cork Road Bridge and a location 416m upstream, as shown in figure 1 and photograph 1. The commercial and retail complex, referred to as Market Green, will effectively be an extension of Midleton town centre on this thirty acre site. Due to the fact that the proposed development is situated on an active flood plain, it is necessary to determine its effect on projected water levels during severe floods. The appropriate flood return period for this study was taken to be fifty years.

The main objectives of this study were to:

(i) determine the effect of the removal of the flood plain for commercial development purposes, on flood water levels associated with a fifty year flood.

(ii) design a modified river channel which will accommodate the flood flow and the proposed development with no increase in existing flood levels.

The study involved the use of a computer model for steady state river flow simulation. The river channel modifications required for this type of development involve the construction of a flood relief berm, with a bed level approximately 0.5m above the main channel bed. This is known as a compound channel design and the width of the flood berm is selected to provide the required flow area to compensate for the elimination of flood plain flow.

The methodology used in the study was as follows:

(i) Quantify the fifty-year flood

(ii) Acquire river survey data for computer model

(iii) Computer simulation of a fifty-year flood through the river reach for the existing main channel and flood plain geometry.

(iv) A computer simulation of a fifty-year flood with flood plain removed

(v) A series of computer simulations to arrive at a compound channel design which would negate the effect of flood plain development.

2. Hydrology

Two flood studies were carried out by the Department of Civil & Environmental Engineering UCC in 1996[1,2], one for a housing development immediately upstream and the other for a bridge design downstream of the Cork Road Bridge. These two studies quantified the fifty year flood,

Q_{50}, at $70m^3/s$ and $72m^3/s$ respectively. For the purposes of this study a slightly larger value of $75m^3/s$ was used to allow for the increase in runoff due to recent housing developments upstream.

3. River Model

A steady state computer model of the river reach and flood plain adjacent to the proposed development was developed using the following data:

(i) Ten river and flood plain cross-sections at the locations shown in figure 2, supplied by the consulting engineers Niall Fitzsimons & Co.

(ii) The downstream boundary condition water level for the design flood, was taken to be the flood water level just upstream of the Cork Road bridge. This was determined using a value of 4.61mOD given in the 1996 UCC study[1] which was increased slightly to allow for the increase in flow from $72m^3/s$ to $75m^3/s$. The level used was 4.65mOD.

(iii) The 50-year flood (Q_{50}) value of $75m^3/sec$.

(iv) Manning's-n values taken from the calibration computer analysis in the 1996 UCC report for the main channel and from a site inspection.

It is important to note that the compound channel geometry recommended in the 1996 UCC report[1] has been used in the computer model between sections 6 and 10 in this study. A site inspection has indicated that the flood berm is not acting efficiently, at present, due to vegetation. This can be seen in photographs 2 & 3. It is also assumed that the trees on the west bank of the river at the approach to the Cork Road bridge will be removed to improve the channel conveyance. These are visible in photograph 4.

4. Computer analyses

A number of computer simulations were carried out to:

- to determine flood levels in the existing river adjacent to the proposed development for the design flood of $75m^3/s$,
- to determine the effect of the removal of the entire flood plain between A and B in figure 1.
- design a compound channel between A and B in figure 1 which would provide adequate conveyance to compensate for the removal of the flood plain .

The design of the compound channel involved a number of computer simulations, which involved increasing the width of the compound channel until flood levels reduced to those predicted for the existing situation. The design of the compound channel also took into account the footprint of the proposed development and the existence of a sharp bend in the river at C (figure 1). At the channel bend location the width of flood berm is maximum to improve the hydraulic efficiency of the compound channel at the bend.

Computer results

RUN 1 - Existing river and flood plain geometry with Q_{50}

Table 1 gives the variation in water levels from river station 0, at the downstream end of the reach i.e. at Cork Road Bridge, to a location 416m upstream. The downstream water level is 4.65mOD i.e. the downstream boundary condition for Q_{50} and the level at the upstream end of the reach is 5.52mOD. This level is consistent with the 1996 UCC report.

Figures 3 to 13 show the existing channel and flood plain cross-sections and the associated flood water levels. Figure 14 gives the longitudinal water surface profile for this reach. It is apparent that there is considerable overbank flow and the flood plain conveys a considerable portion of the flood flow. At some locations there is up to 1.5m flow depth on the flood plain.

RUN 2 - Q_{50} with flood plain removed

Table 2 gives the variation in water levels over the reach. The downstream water level is retained at 4.65mOD but the level at the upstream end of the reach has increased to 6.98mOD; an increase of 1.46m.

Figures 15 to 25 show the modified channel and flood plain cross-sections to simulate flood plain removal and the water levels associated with the fifty year flood. Figure 26 gives the longitudinal water surface profile for this simulation. The energy gradient has increased significantly from the previous run.

RUN 3 - Q_{50} with compound channel

Following a series of computer simulations in which the flood berm width was incrementally adjusted until the water levels reduced to acceptable values the final water surface levels are

given in Table 3. The downstream water level is retained at 4.65mOD. The level at the upstream end of the reach is reduced from 6.98mOD to 5.53mOD.

Figures 27 to 37 show the channel and flood berm (compound channel) cross-sections required to achieve the necessary conveyance to compensate for the removal of a large section of the flood plain. The flood water levels are also shown on these sections. Figure 38 gives the longitudinal water surface profile for this simulation.

A plan view of the site showing the extent of the compound channel is shown in figure 39.

5. Conclusions and recommendations

(i) Using survey data provided by Consultant Engineers Niall Fitxsimons & Company, a computer model of a 416m reach of the Owenacurra River upstream of road bridge was developed.

(ii) The design flood flow with a return period of 50 years was taken as $75m^3/s$.

(iii) A computer simulation of the fifty-year flood indicated that there is considerable flow on the flood plain.

(iv) The removal of the flood plain had the effect of increasing flood levels by up to 1.6m.

(v) A compound channel was designed to compensate for the flood plain removal. The required geometry at each of the cross-sections is given in figures 27 to 37.

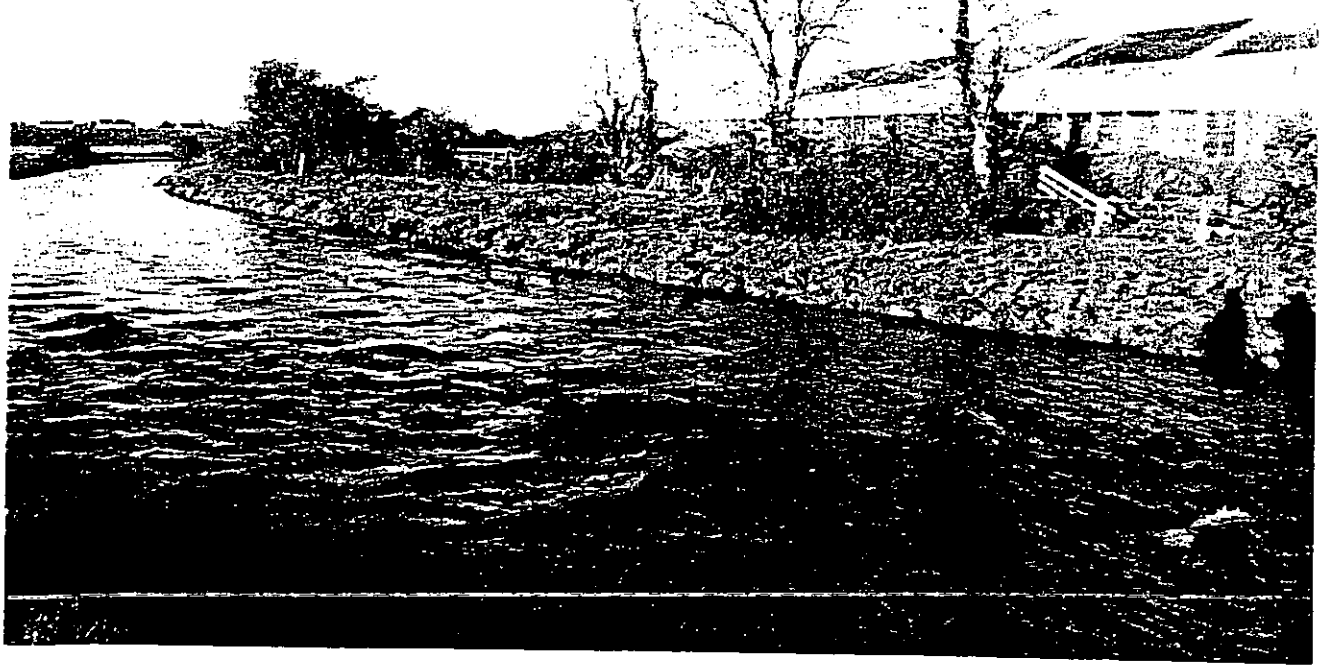
(vi) It is recommended that the development be protected by a flood embankment with a top level 0.5m higher than the predicted fifty-year flood levels.

References

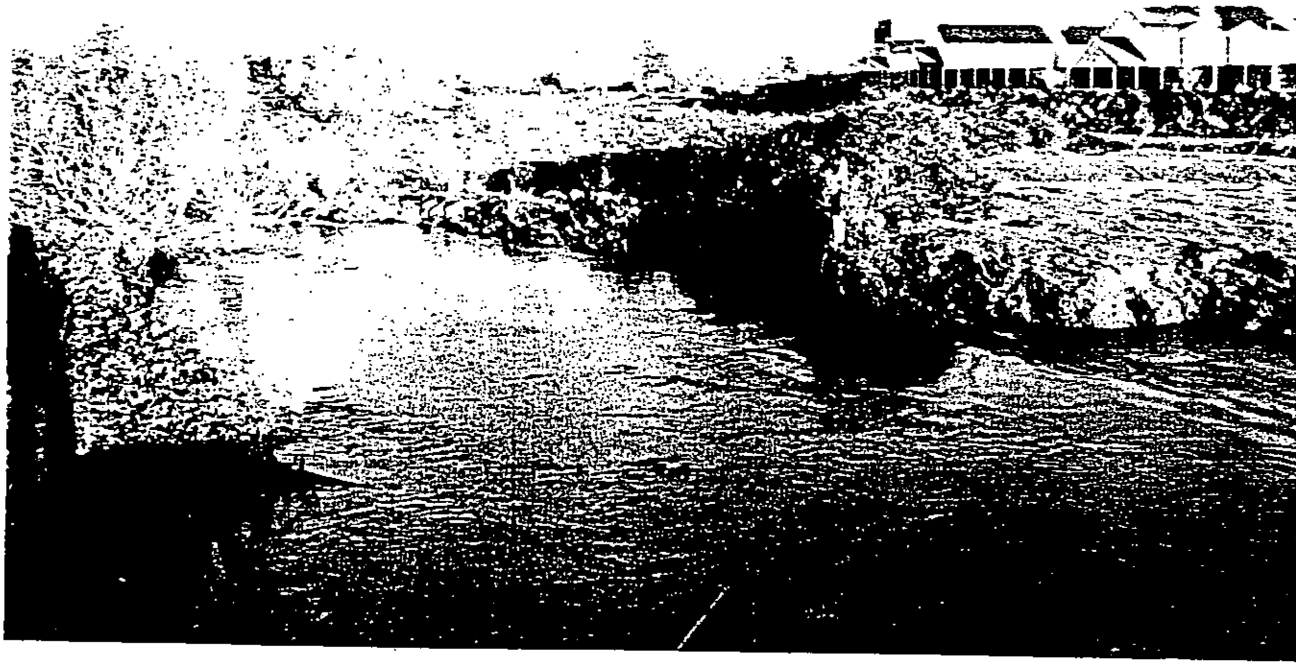
1. Final report on Flood Study of the Owenacurra River at Mill Road, Midleton. June 1996, Flood Studies Group UCC.

2. Flood Study and Hydraulic Design of Proposed Bridge for Commercial Development at Riverside Way Midleton. August 1996, Department of Civil & Environmental engineering UCC.

PHOTOGRAPH 1. View of flood plain looking west



PPHOTOGRAPH 2. View of flood berm looking upstream from section 6.



PHOTOGRAPH 3. View of compound channel looking upstream from section 10.

PHOTOGRAPH 4. View of approach to Cork Road Bridge.

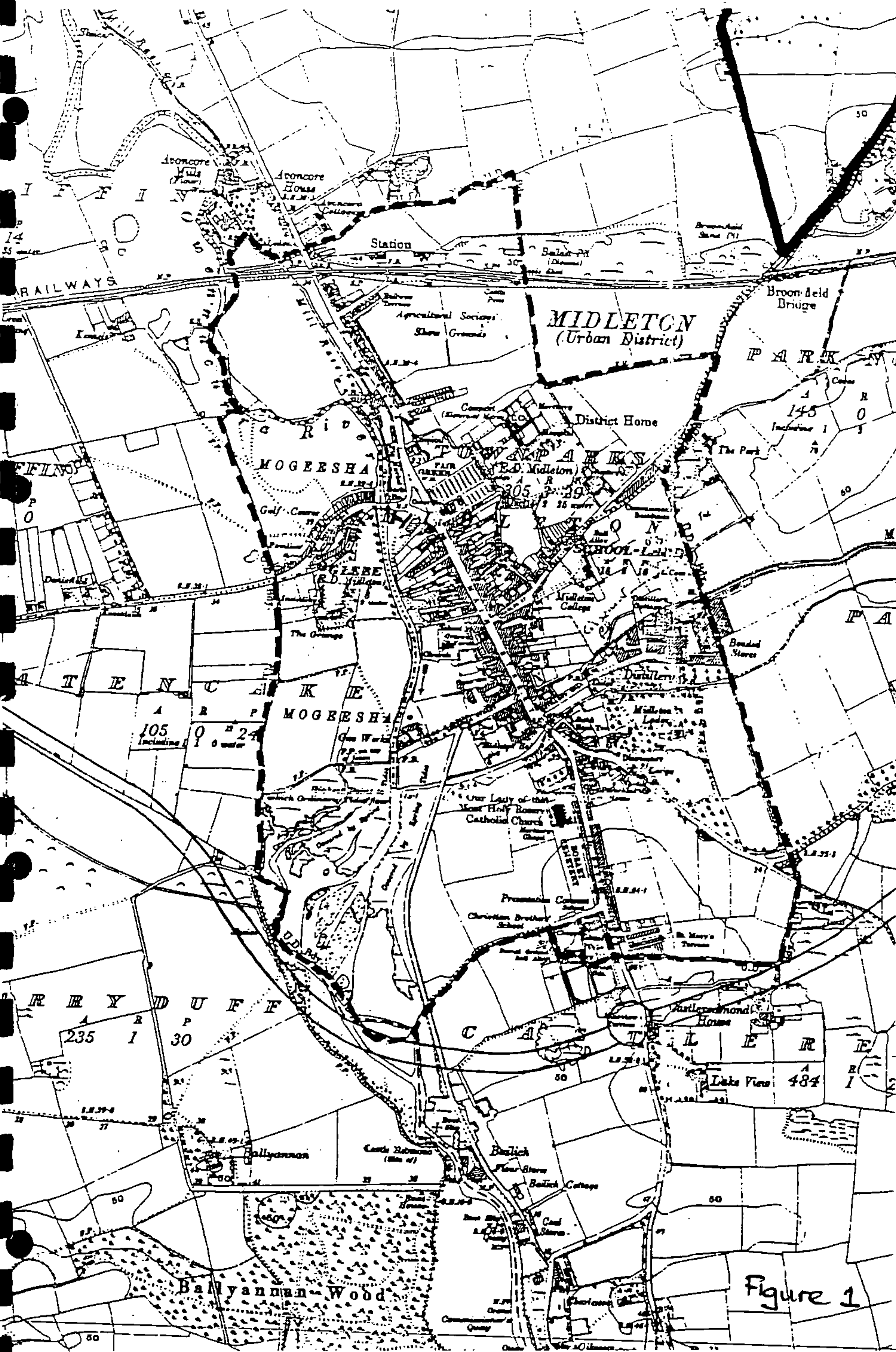

Avoncore Mills
Avoncore House
Station
RAILWAYS
MIDLETON
(Urban District)
Broomfield Bridge
Agricultural Societies' Show Grounds
District Home
MOGEESHA
Golf Course
GLEBE
The Grange
MOGEESHA
Gas Works
Midleton College
Distillery
Bonded Stores
Midleton Lodge
Our Lady of the Most Holy Rosary Catholic Church
Presentation Convent
Christian Brothers' School
St. Mary's Terrace
Castleredmond House
Lake View
Ballyannan
Bailick
Bailick Cottage
Ballyannan Wood
The Park
PARK
105
235
484
145

Figure 1

HEC-RAS Plan: MG -01 Reach: Owenasurra 11/20/2000

River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
	(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
10	75.00	3.70	5.52		5.56	0.003788	1.15	87.02	145.11	0.28
9	75.00	3.78	5.45		5.47	0.001247	0.58	132.49	161.70	0.15
8	75.00	3.33	5.41		5.43	0.000944	0.55	149.73	162.51	0.13
7	75.00	3.54	5.40		5.40	0.000326	0.23	216.98	199.54	0.06
6	75.00	3.16	5.39		5.39	0.000222	0.21	232.78	184.04	0.05
5	75.00	3.16	5.31		5.36	0.003802	1.24	86.12	115.07	0.28
4	75.00	3.00	5.31		5.32	0.000202	0.30	234.73	184.66	0.06
3	75.00	3.14	5.28		5.30	0.001023	0.66	127.77	134.69	0.15
2	75.00	3.14	5.16		5.22	0.004424	1.32	128.48	143.08	0.31
1	75.00	2.80	4.89		5.00	0.004936	1.48	50.80	24.36	0.33
0	75.00	2.65	4.65	3.87	4.80	0.007834	1.71	43.87	25.49	0.42

TABLE 1.

HEC-RAS Plan: MG -02 Reach: Owenasurra 11/20/2000

River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
	(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
10	75.00	3.70	6.98		7.01	0.001457	1.00	126.33	166.32	0.18
9	75.00	3.76	6.93		6.94	0.001510	0.32	168.71	187.15	0.15
8	75.00	3.33	6.85		6.88	0.001579	0.99	137.39	173.18	0.18
7	75.00	3.54	6.76		6.79	0.003134	0.96	118.44	199.67	0.18
6	75.00	3.16	6.59		6.64	0.004010	1.15	90.78	184.04	0.20
5	75.00	3.16	6.15	4.95	6.33	0.008142	2.03	55.60	171.84	0.38
4	75.00	3.00	5.85		5.99	0.005569	1.77	45.62	27.64	0.34
3	75.00	3.14	5.51		5.70	0.008472	2.01	40.64	29.89	0.42
2	75.00	3.14	5.15		5.34	0.009692	1.94	41.64	27.74	0.47
1	75.00	2.80	4.89		5.00	0.004936	1.48	50.80	24.36	0.33
0	75.00	2.65	4.65	3.87	4.80	0.007834	1.71	43.87	25.49	0.42

TABLE 2

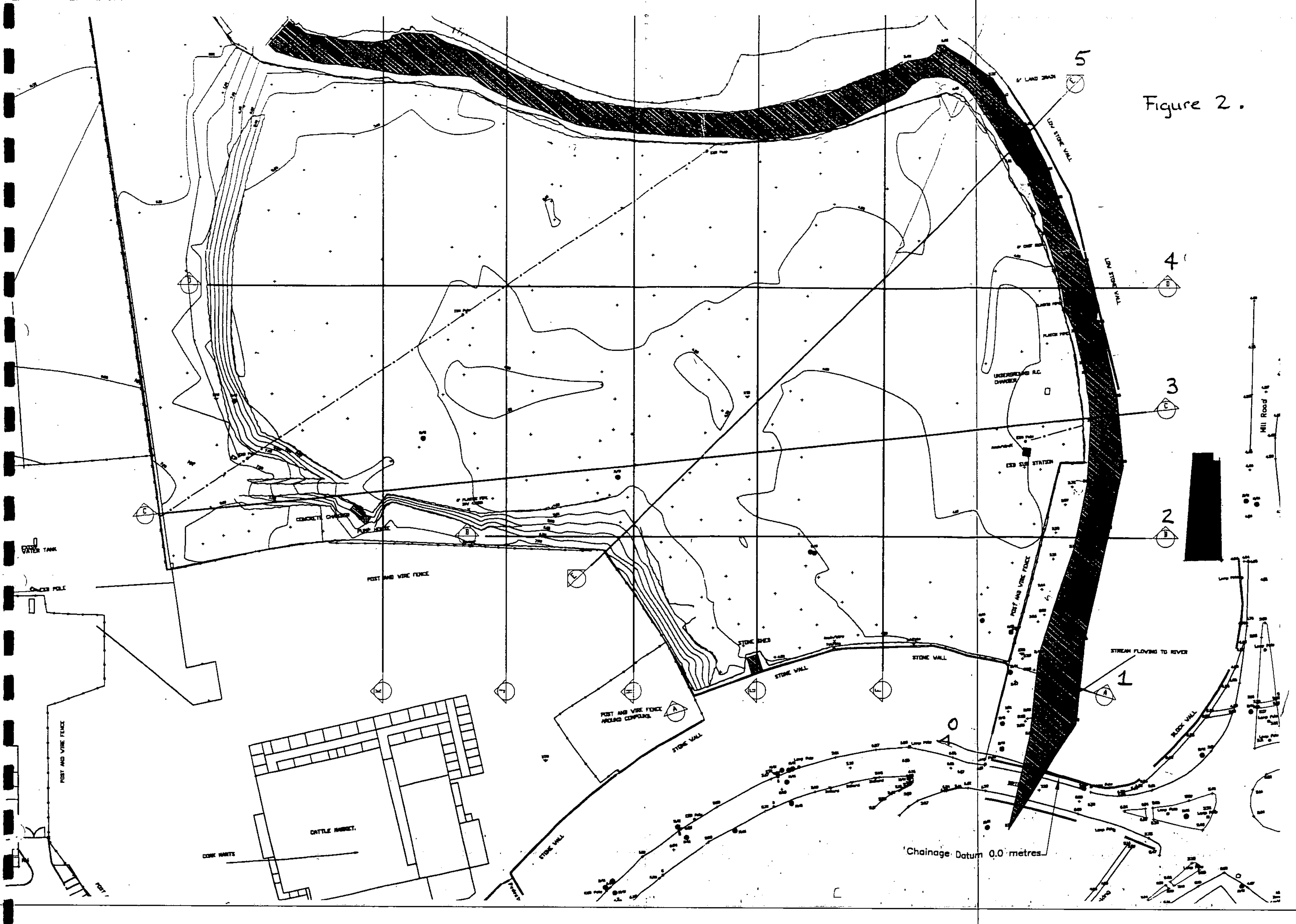

5
4
3
2
1
0
LOW STONE WALL
LOW STONE WALL
UNDERGROUND R.C. CHAMBER
ESB SUB STATION
CONCRETE CHAMBER
PUMP HOUSE
POST AND WIRE FENCE
POST AND WIRE FENCE
POST AND WIRE FENCE
STONE SHED
STONE WALL
STONE WALL
STONE WALL
STONE WALL
STREAM FLOWING TO RIVER
BLOCK WALL
POST AND WIRE FENCE AROUND COMPOUND
CATTLE MARKET.
CORK MARTS
WATER TANK
Mill Road
Chainage Datum 0.0 metres

Figure 2.

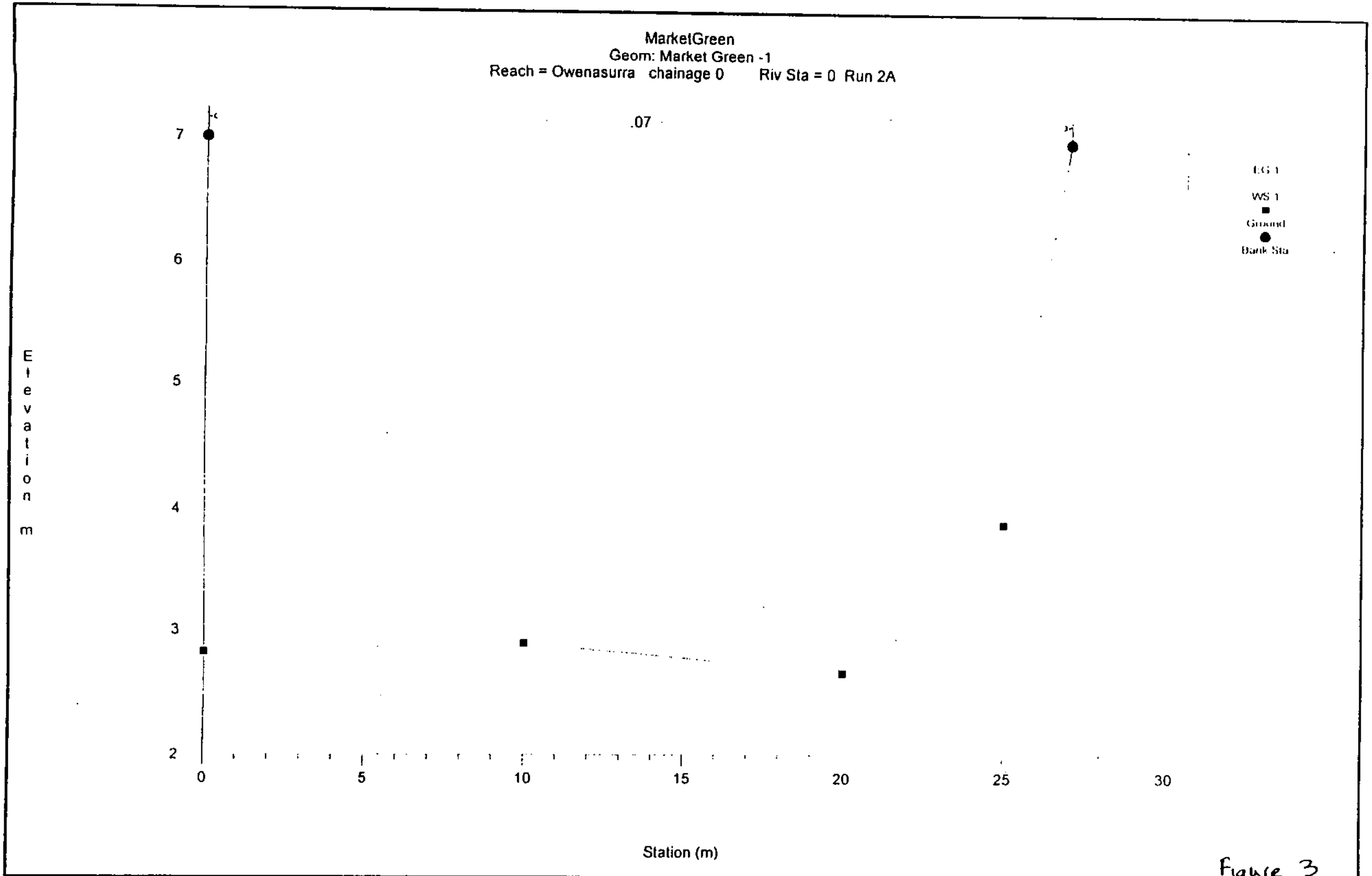

MarketGreen
Geom: Market Green -1
Reach = Owenasurra chainage 0 Riv Sta = 0 Run 2A
.07
Elevation m
Station (m)
WS 1
Ground
Bank Sta
7
6
5
4
3
2
0
5
10
15
20
25
30

Figure 3

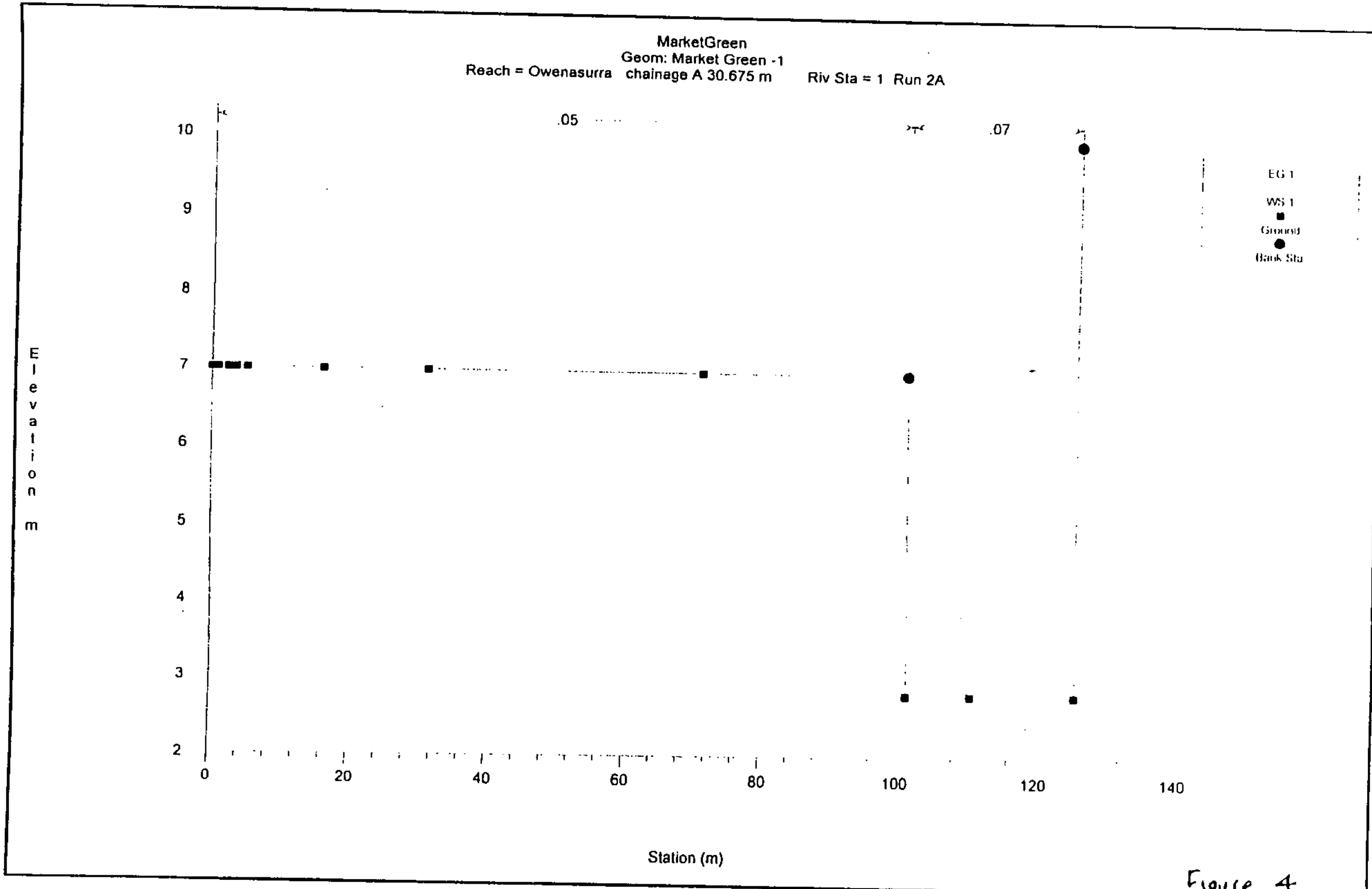

MarketGreen
Geom: Market Green -1
Reach = Owenasurra chainage A 30.675 m Riv Sta = 1 Run 2A
.05
.07
Elevation m
Station (m)
EG 1
WS 1
Ground
Bank Sta

Figure 4

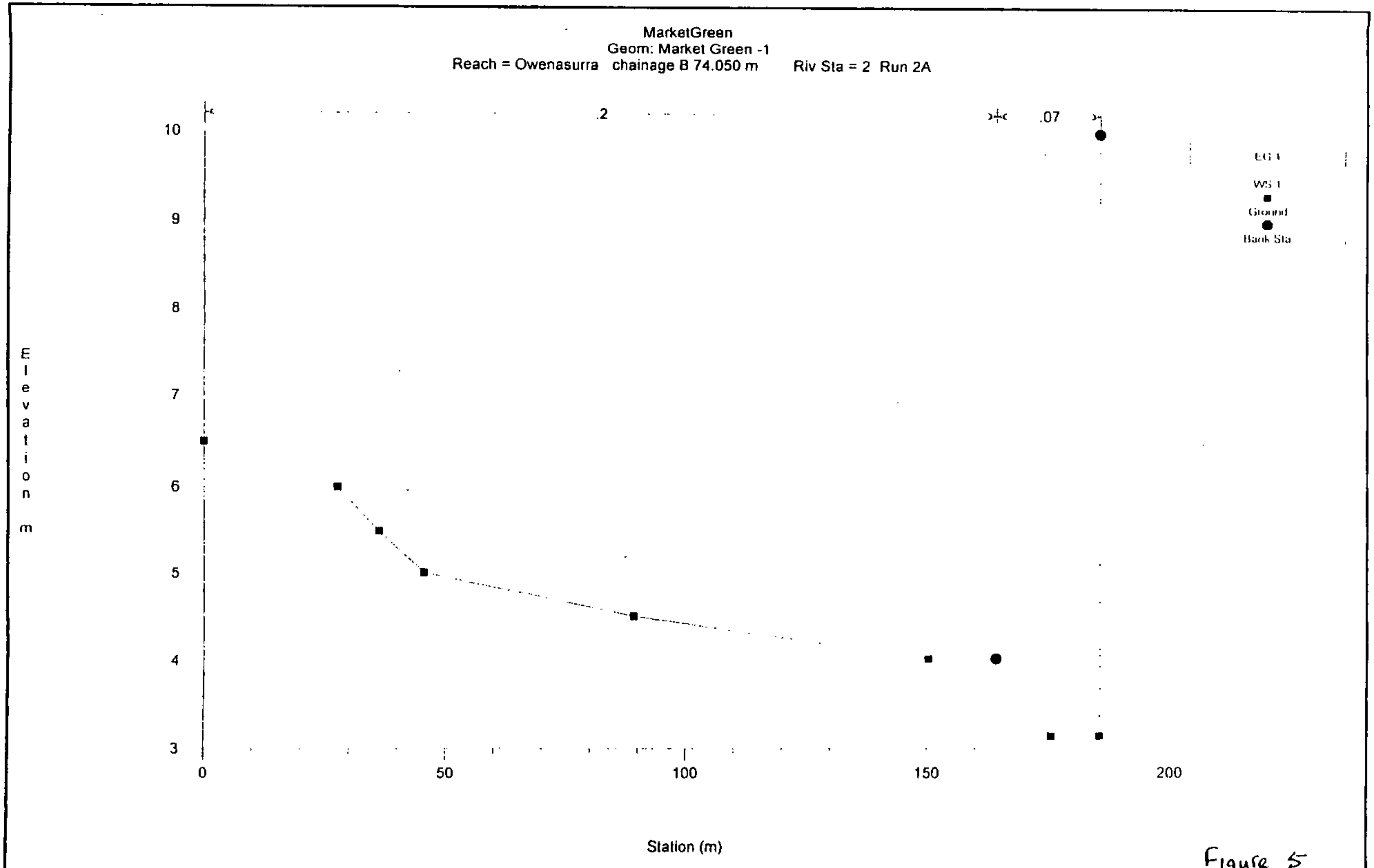
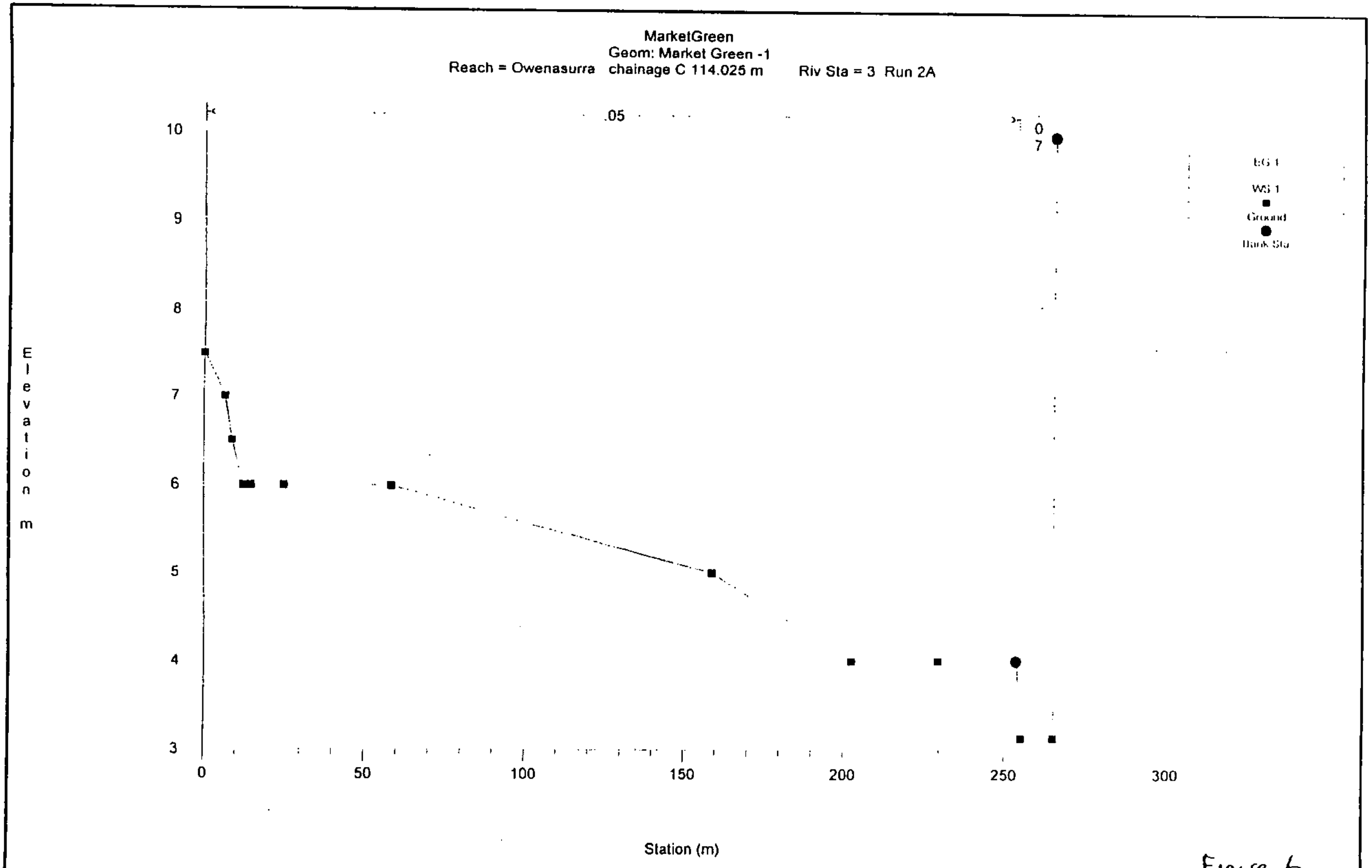

MarketGreen
Geom: Market Green -1
Reach = Owenasurra chainage B 74.050 m Riv Sta = 2 Run 2A
.2
.07
Elevation m
Station (m)
WS 1
Ground
Bank Sta
0
50
100
150
200
3
4
5
6
7
8
9
10

Figure 5



MarketGreen
Geom: Market Green -1
Reach = Owenasurra chainage C 114.025 m Riv Sta = 3 Run 2A
.05
Elevation m
Station (m)
0
50
100
150
200
250
300
3
4
5
6
7
8
9
10
EG 1
WS 1
Ground
Bank Sta

Figure 6

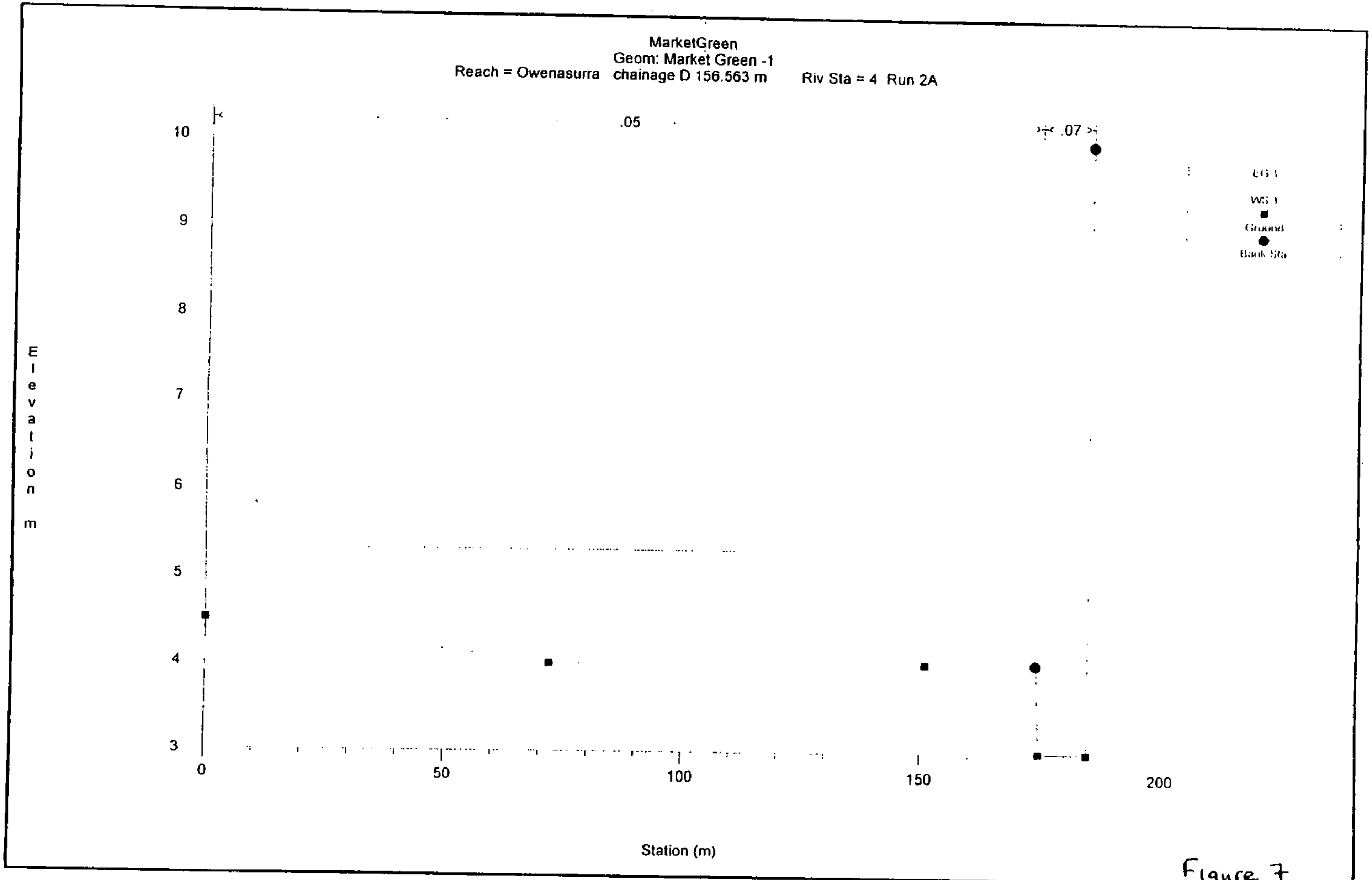
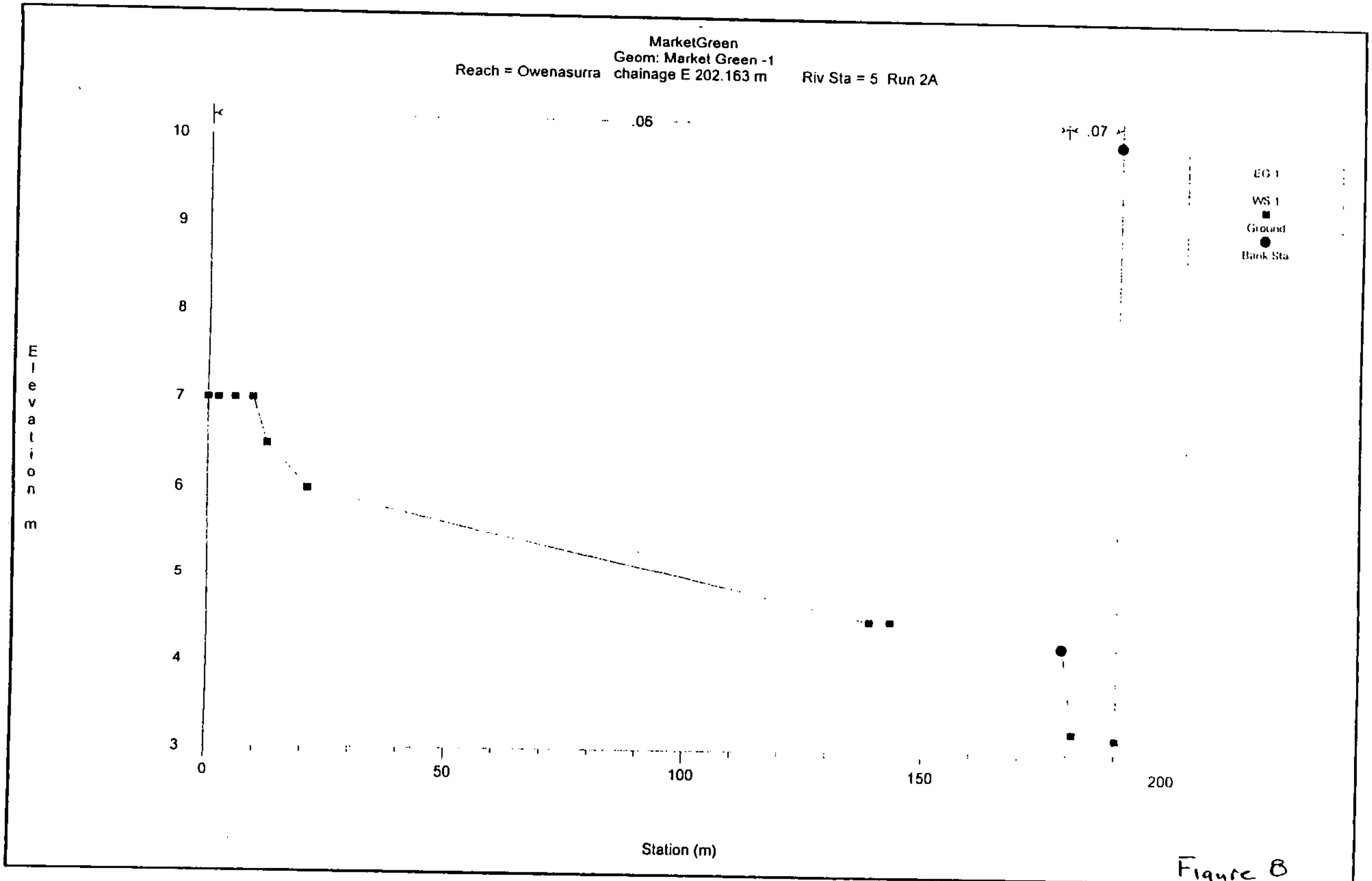
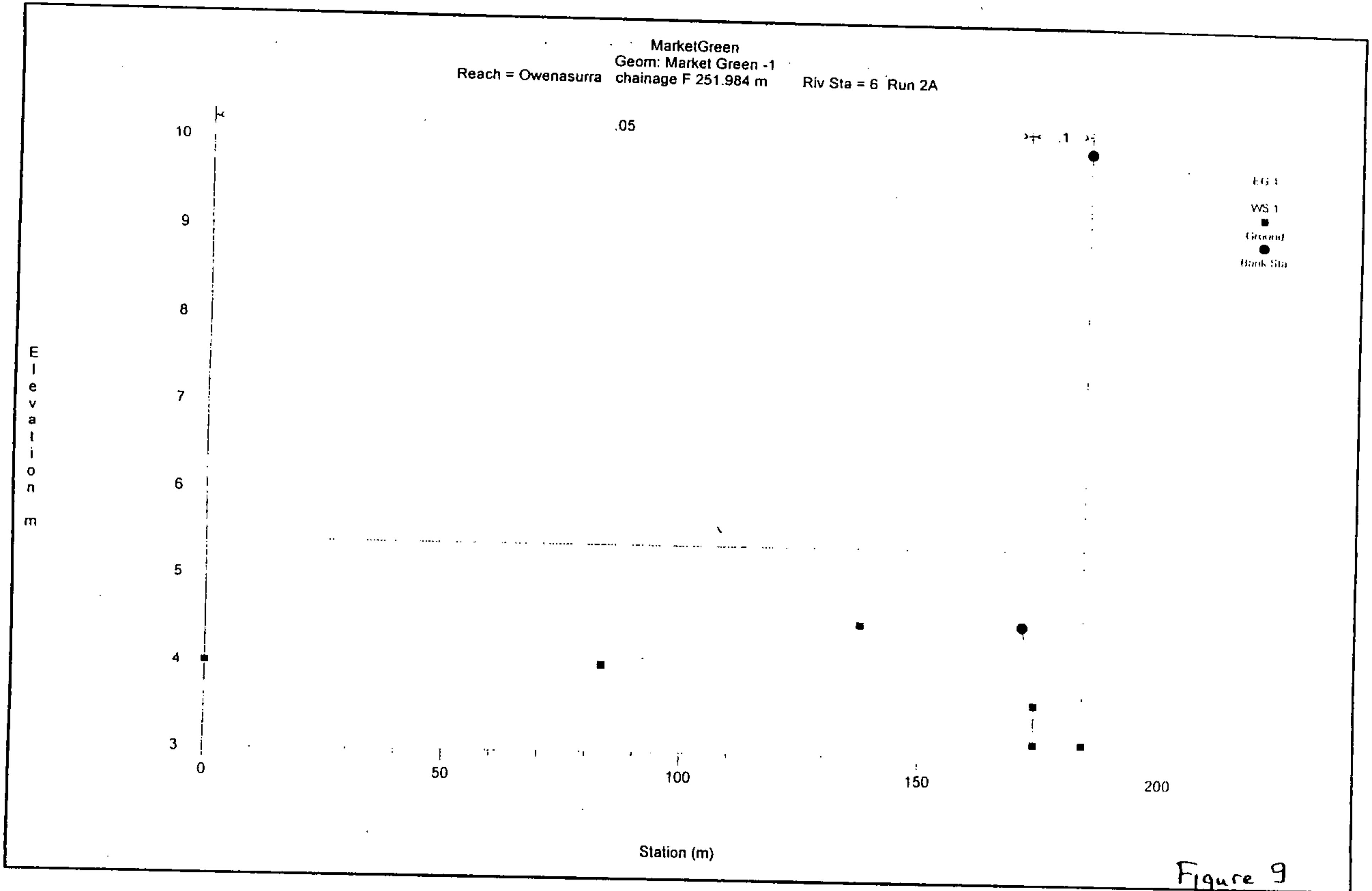

MarketGreen
Geom: Market Green -1
Reach = Owenasurra chainage D 156.563 m Riv Sta = 4 Run 2A
.05
.07
Elevation m
Station (m)
0
50
100
150
200
3
4
5
6
7
8
9
10
Ground
Bank Sta

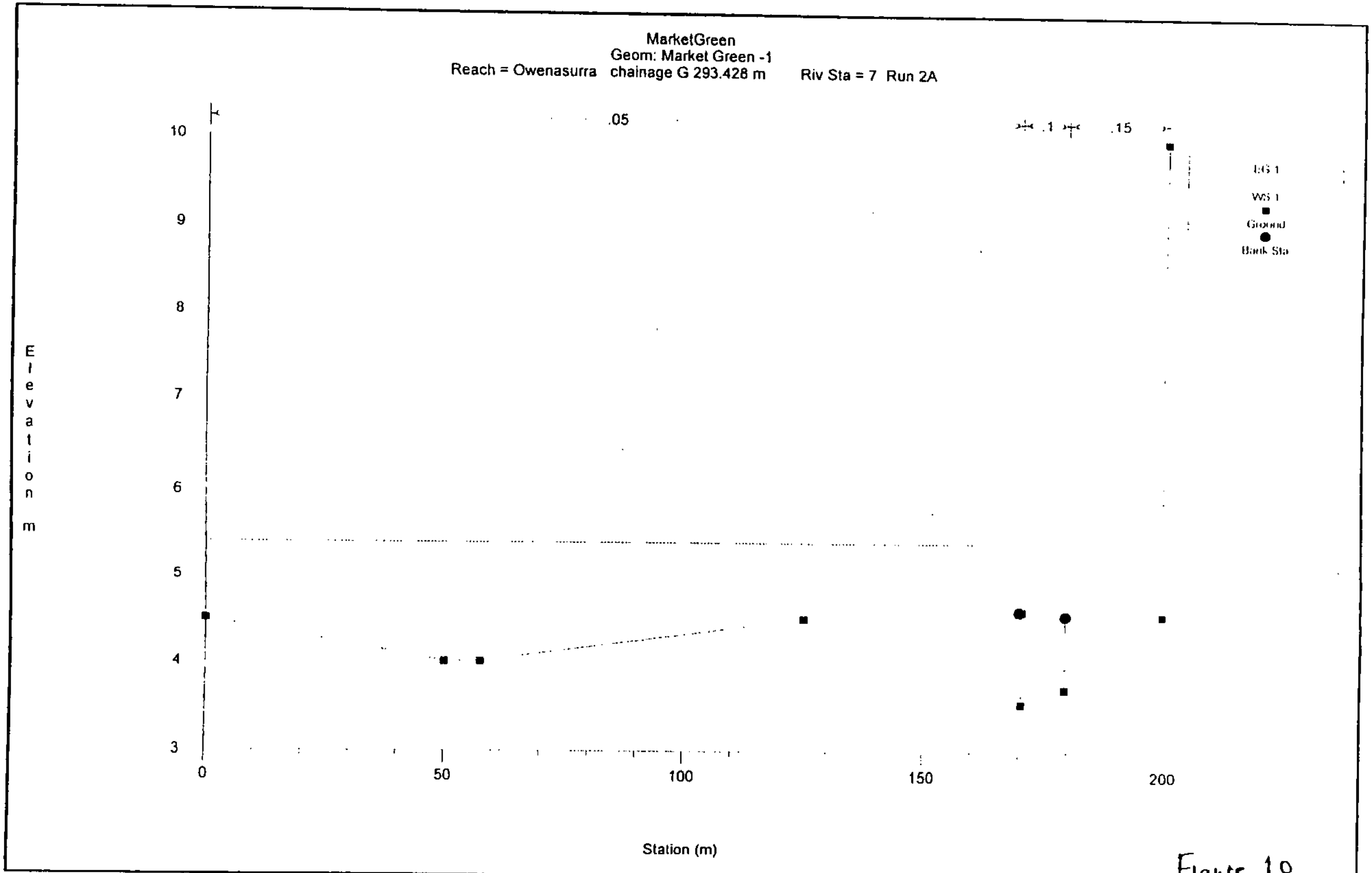
Figure 7


MarketGreen
Geom: Market Green -1
Reach = Owenasurra
chainage E 202.163 m
Riv Sta = 5 Run 2A
.06
.07
Elevation m
Station (m)
EG 1
WS 1
Ground
Bank Sta
10
9
8
7
6
5
4
3
0
50
100
150
200
Figure 8



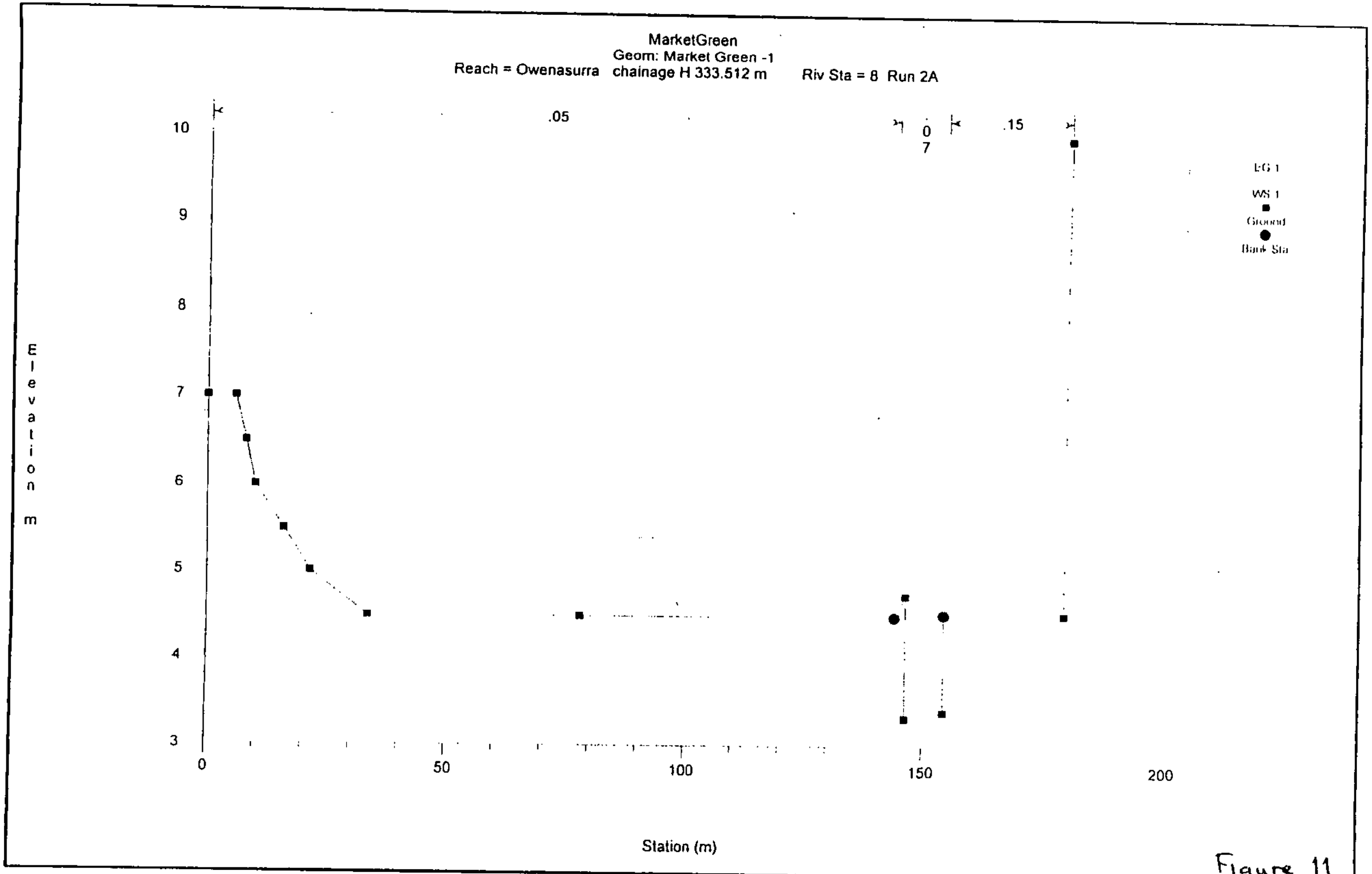
MarketGreen
Geom: Market Green -1
Reach = Owenasurra
chainage F 251.984 m
Riv Sta = 6 Run 2A
.05
.1
10
9
8
7
6
5
4
3
Elevation m
0
50
100
150
200
Station (m)
WS 1

Figure 9



MarketGreen
Geom: Market Green -1
Reach = Owenasurra chainage G 293.428 m Riv Sta = 7 Run 2A
.05
.1
.15
10
9
8
7
6
5
4
3
Elevation m
0
50
100
150
200
Station (m)
EG 1
WS 1
Ground
Bank Sta

Figure 10


MarketGreen
Geom: Market Green -1
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.05
0
7
.15
Elevation m
Station (m)

Figure 11

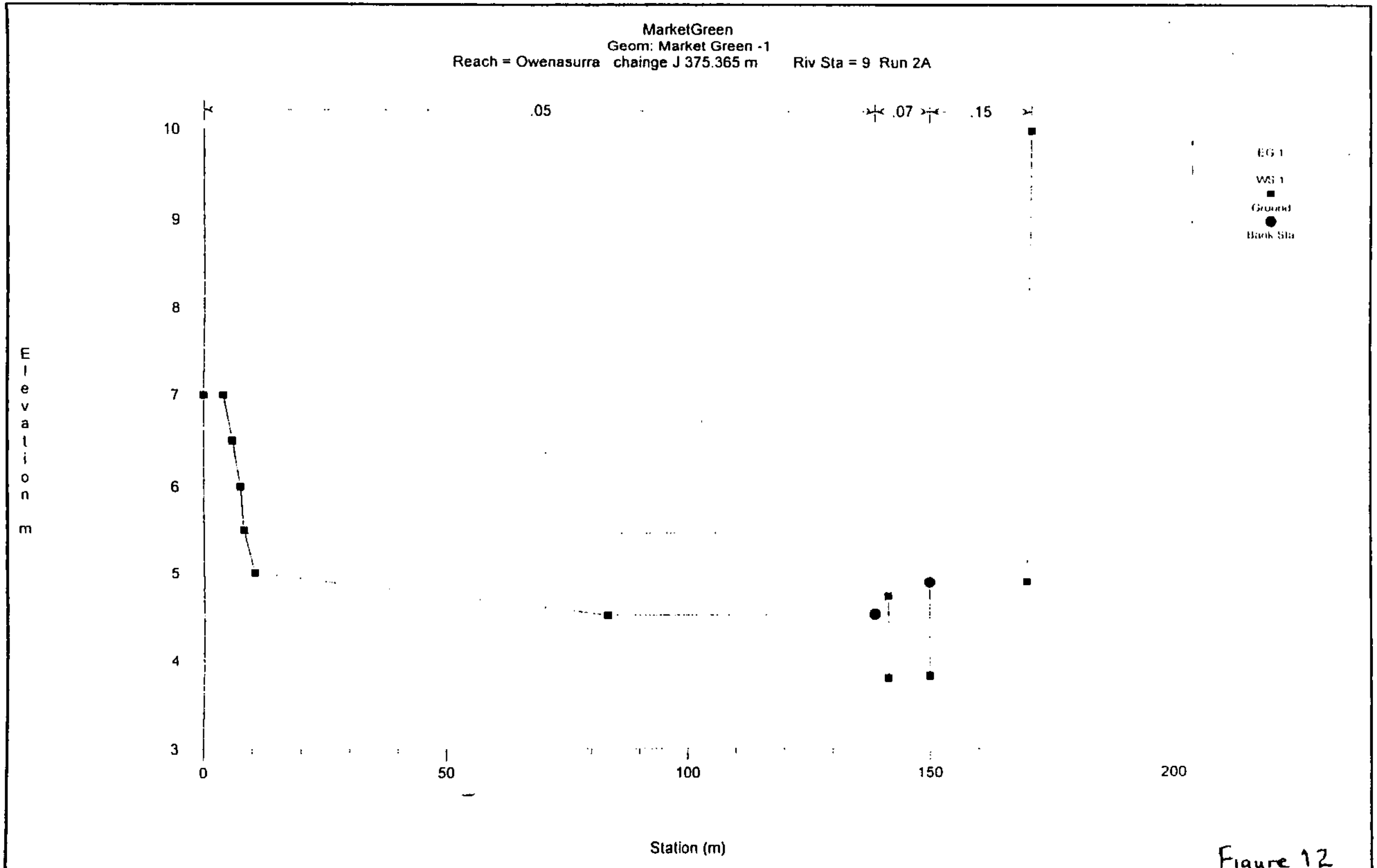

MarketGreen
Geom: Market Green -1
Reach = Owenasurra chainge J 375.365 m Riv Sta = 9 Run 2A
.05
.07
.15
Elevation m
Station (m)

Figure 12

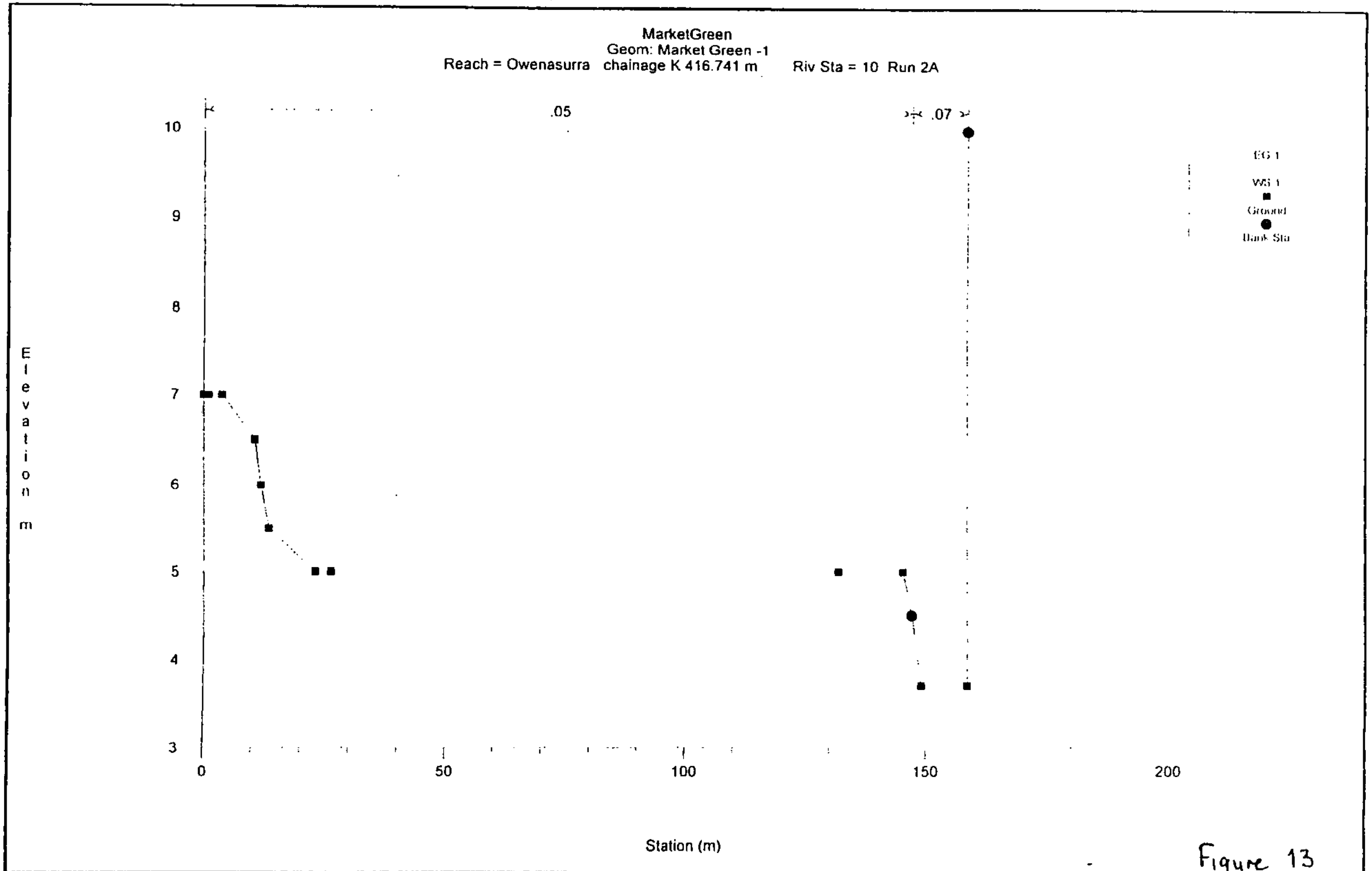

MarketGreen
Geom: Market Green -1
Reach = Owenasurra chainage K 416.741 m Riv Sta = 10 Run 2A
.05
.07
Elevation m
Station (m)
0
50
100
150
200
3
4
5
6
7
8
9
10
Ground
Bank Sta

Figure 13

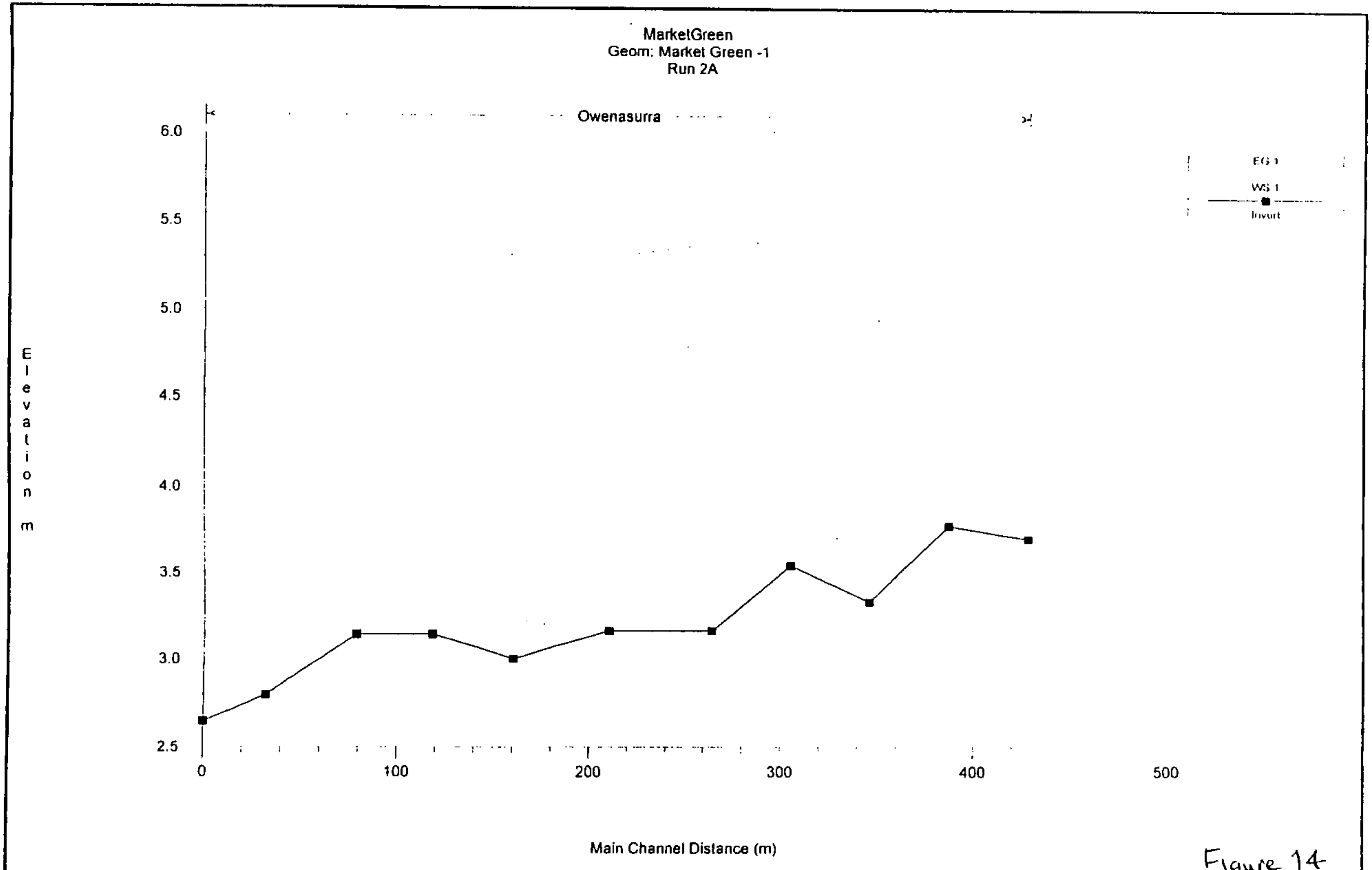
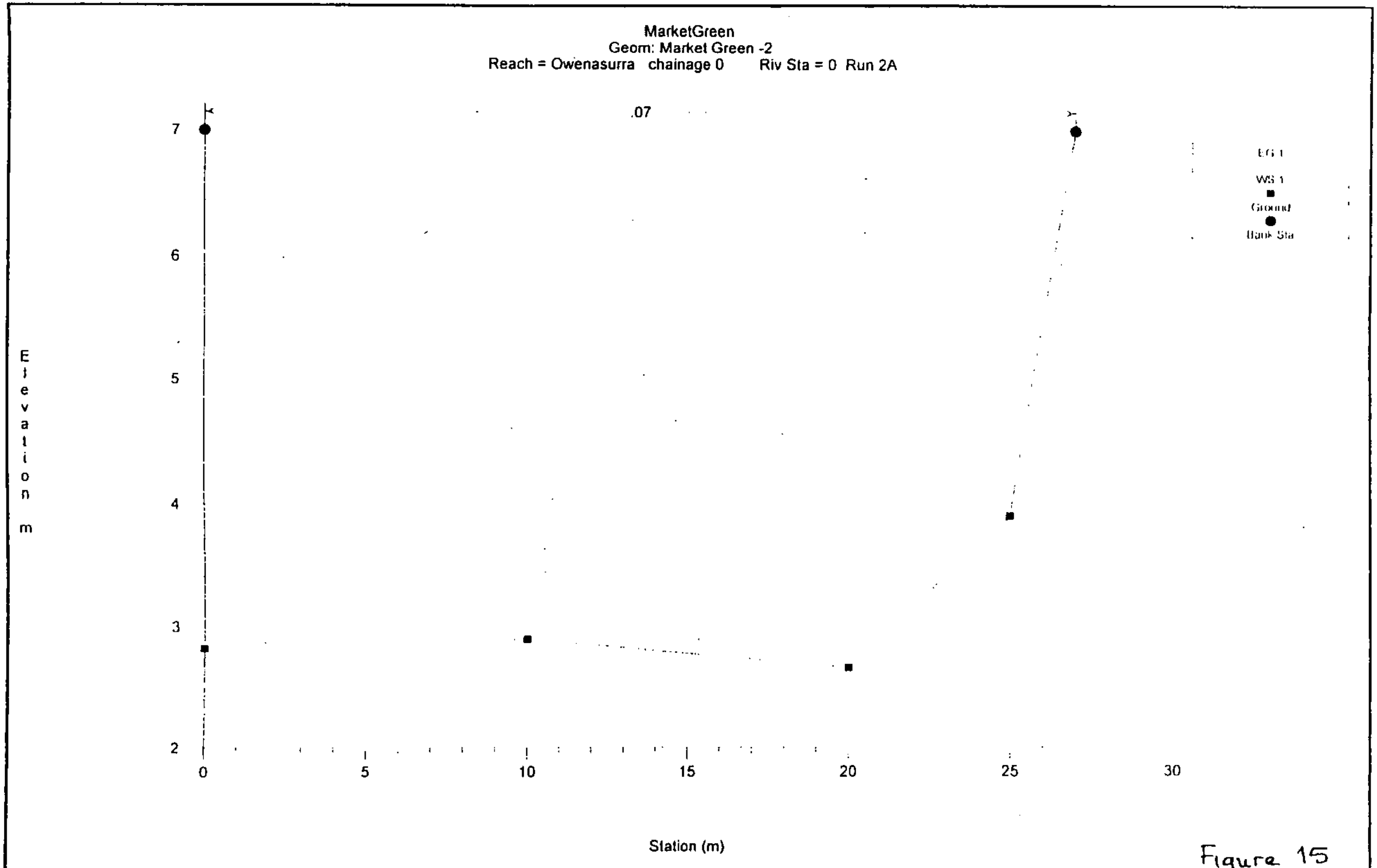

MarketGreen
Geom: Market Green -1
Run 2A
Owenasurra
EG 1
WS 1
Invert
Elevation m
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
0
100
200
300
400
500
Main Channel Distance (m)

Figure 14

HEC-RAS Plan: MG -02 Reach: Owenasurra 11/20/2000

River Sta	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
10	75.00	3.70	6.98		7.01	0.001457	1.00	126.33	166.32	0.18
9	75.00	3.76	6.93		6.94	0.001510	0.32	168.71	187.15	0.15
8	75.00	3.33	6.85		6.88	0.001579	0.99	137.39	173.18	0.18
7	75.00	3.54	6.76		6.79	0.003134	0.96	118.44	199.67	0.18
6	75.00	3.16	6.59		6.64	0.004010	1.15	90.78	184.04	0.20
5	75.00	3.16	6.15	4.95	6.33	0.008142	2.03	55.60	171.84	0.38
4	75.00	3.00	5.85		5.99	0.005569	1.77	45.62	27.64	0.34
3	75.00	3.14	5.51		5.70	0.008472	2.01	40.64	29.89	0.42
2	75.00	3.14	5.15		5.34	0.009692	1.94	41.64	27.74	0.47
1	75.00	2.80	4.89		5.00	0.004936	1.48	50.80	24.36	0.33
0	75.00	2.65	4.65	3.87	4.80	0.007834	1.71	43.87	25.49	0.42

TABLE 2


MarketGreen
Geom: Market Green -2
Reach = Owenasurra chainage 0 Riv Sta = 0 Run 2A
.07
EG 1
WS 1
Ground
Bank Sta
Elevation m
Station (m)
Figure 15

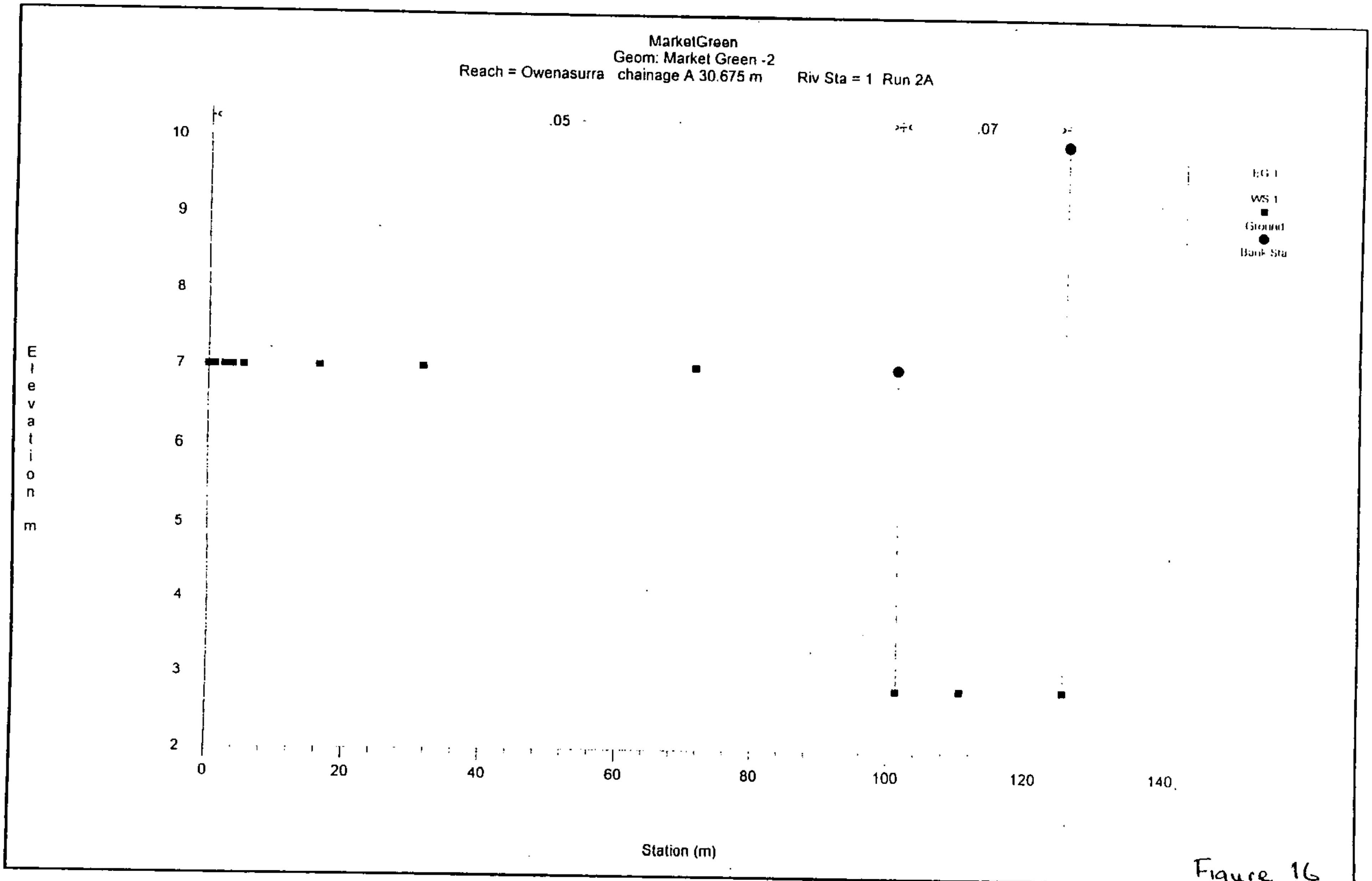
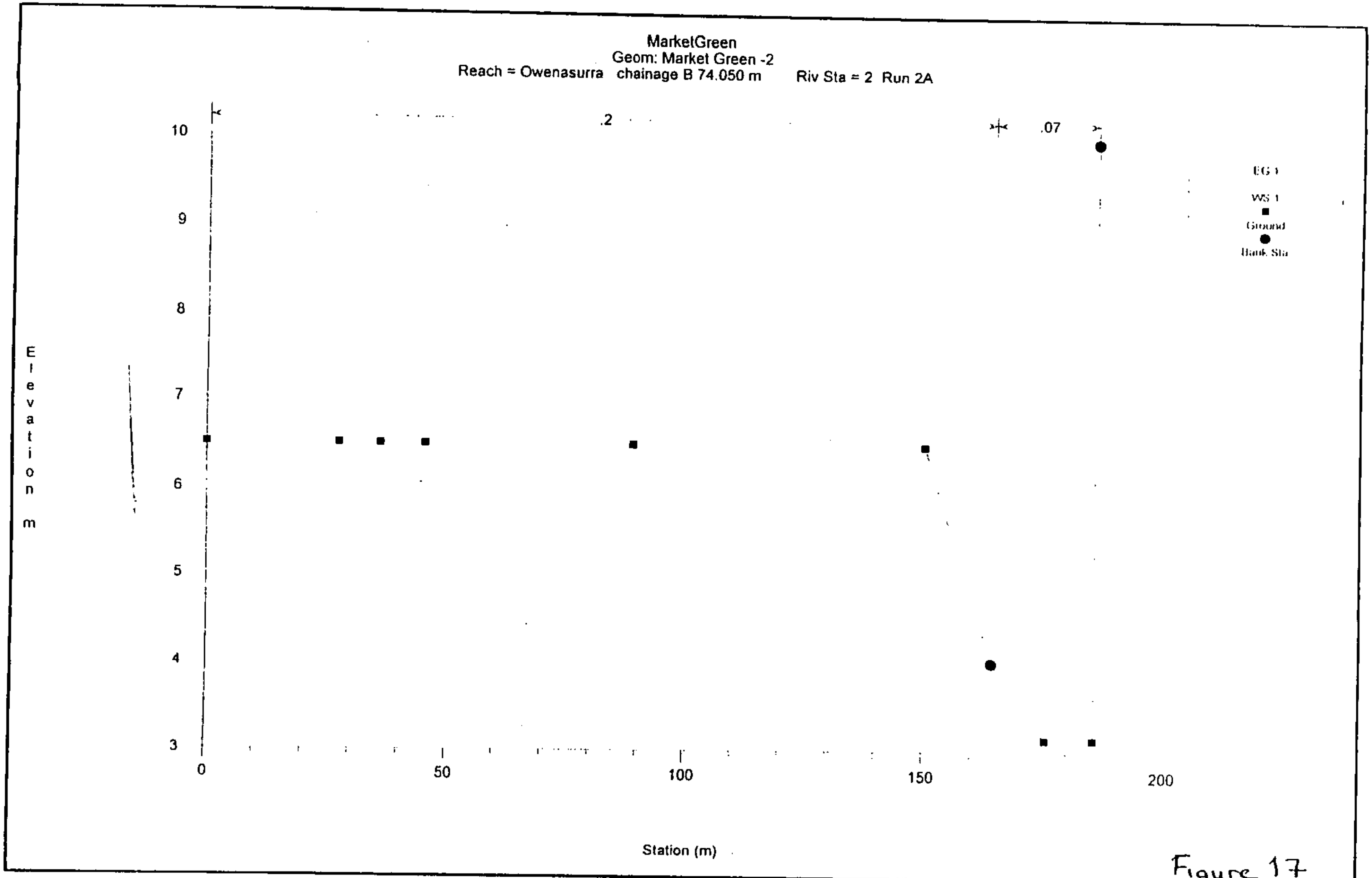

MarketGreen
Geom: Market Green -2
Reach = Owenasurra chainage A 30.675 m Riv Sta = 1 Run 2A
.05
.07
10
9
8
7
6
5
4
3
2
0
20
40
60
80
100
120
140
Elevation m
Station (m)
WS 1
Ground
Bank Sta

Figure 16



MarketGreen
Geom: Market Green -2
Reach = Owenasurra chainage B 74.050 m Riv Sta = 2 Run 2A
.2
.07
Ground
Bank Sta
Elevation m
Station (m)

Figure 17

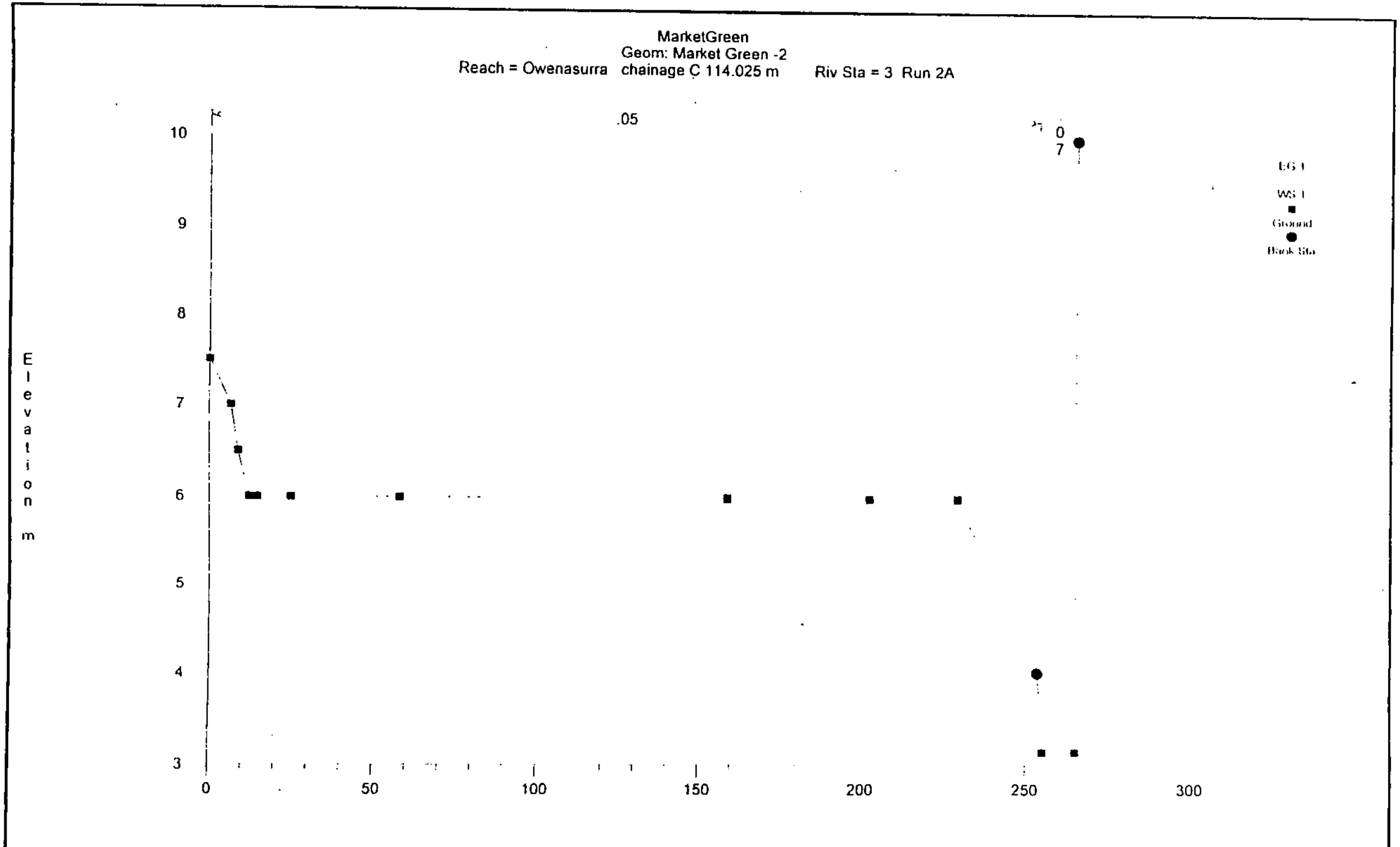
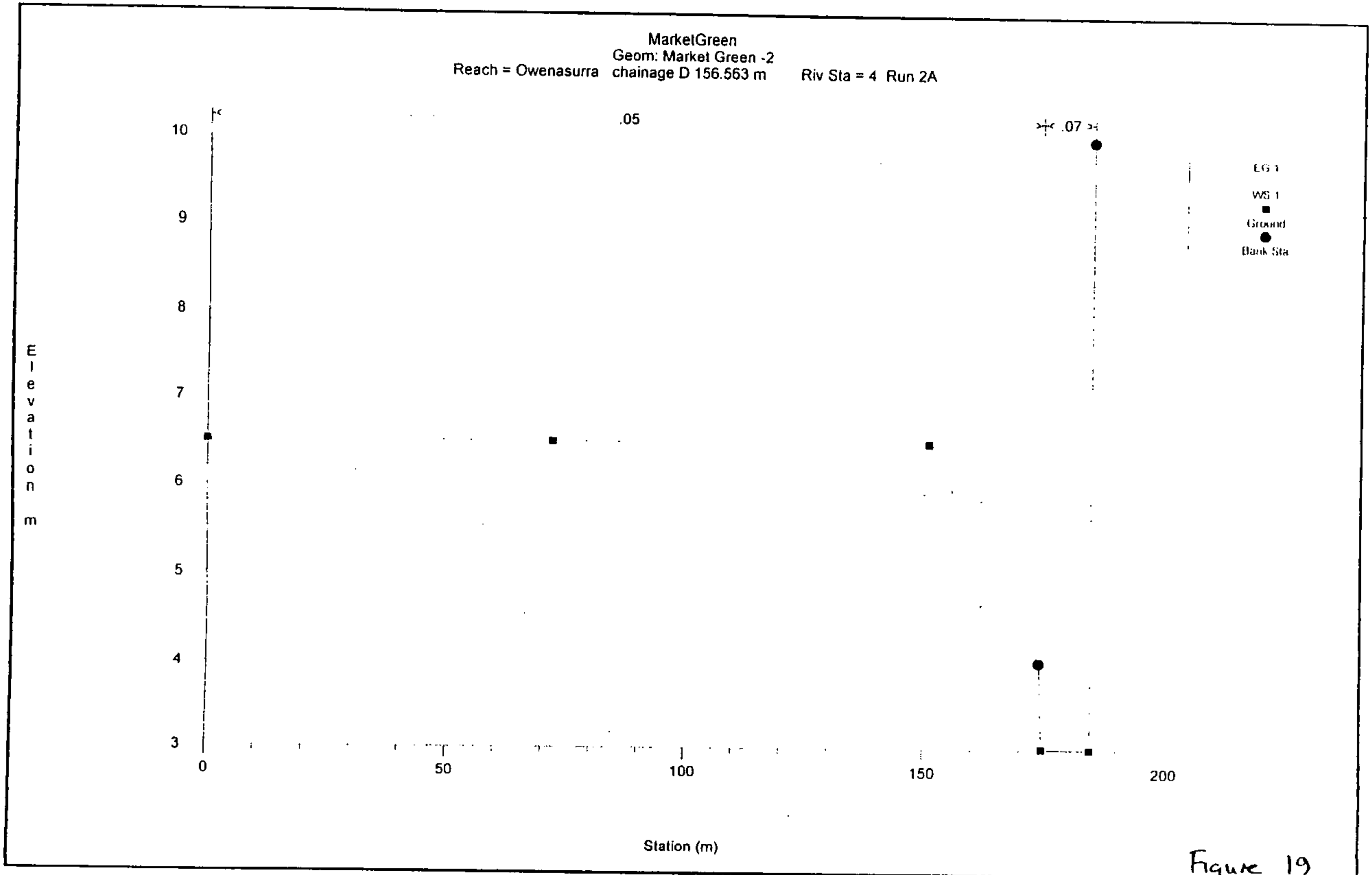

MarketGreen
Geom: Market Green -2
Reach = Owenasurra chainage C 114.025 m Riv Sta = 3 Run 2A
.05
Elevation m
Station (m)
EG 1
WS 1
Ground
Bank Sta

Figure 18



MarketGreen
Geom: Market Green -2
Reach = Owenasurra chainage D 156.563 m Riv Sta = 4 Run 2A
.05
.07
10
9
8
7
6
5
4
3
Elevation m
0
50
100
150
200
Station (m)
EG 1
WS 1
Ground
Bank Sta

Figure 19

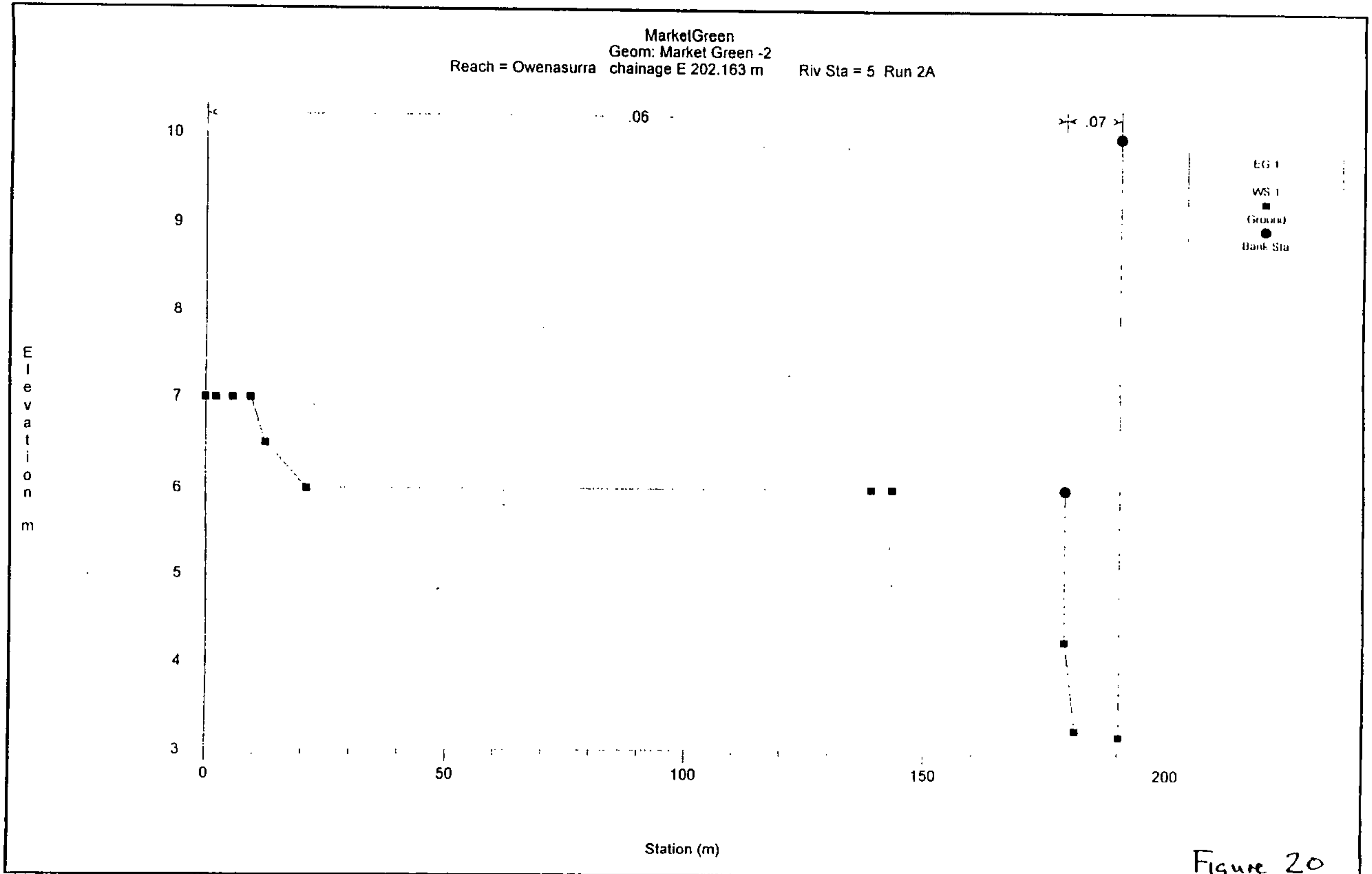

MarketGreen
Geom: Market Green -2
Reach = Owenasurra chainage E 202.163 m
Riv Sta = 5 Run 2A
.06
.07
EG 1
WS 1
Ground
Bank Sta
Elevation m
Station (m)
10
9
8
7
6
5
4
3
0
50
100
150
200

Figure 20

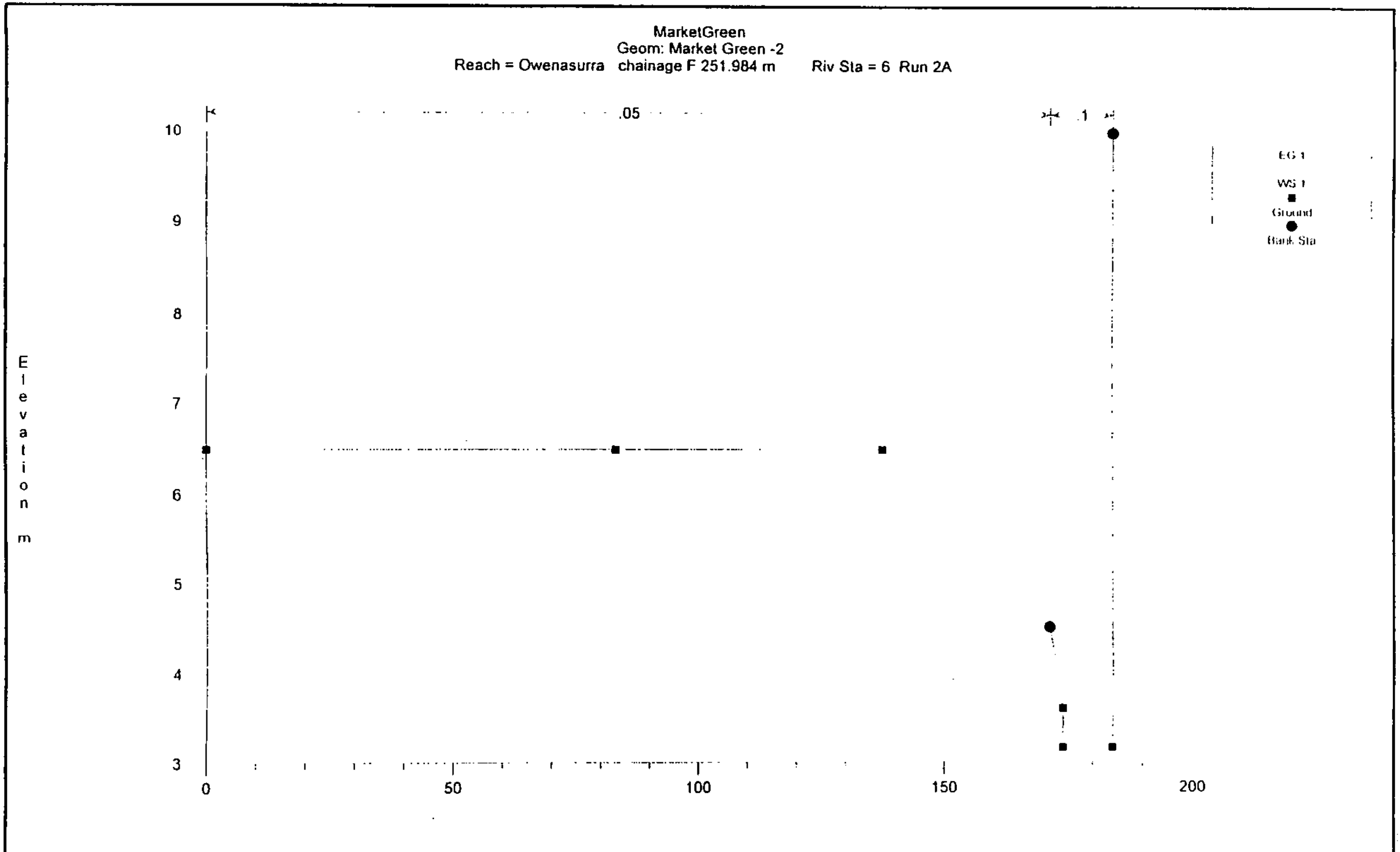
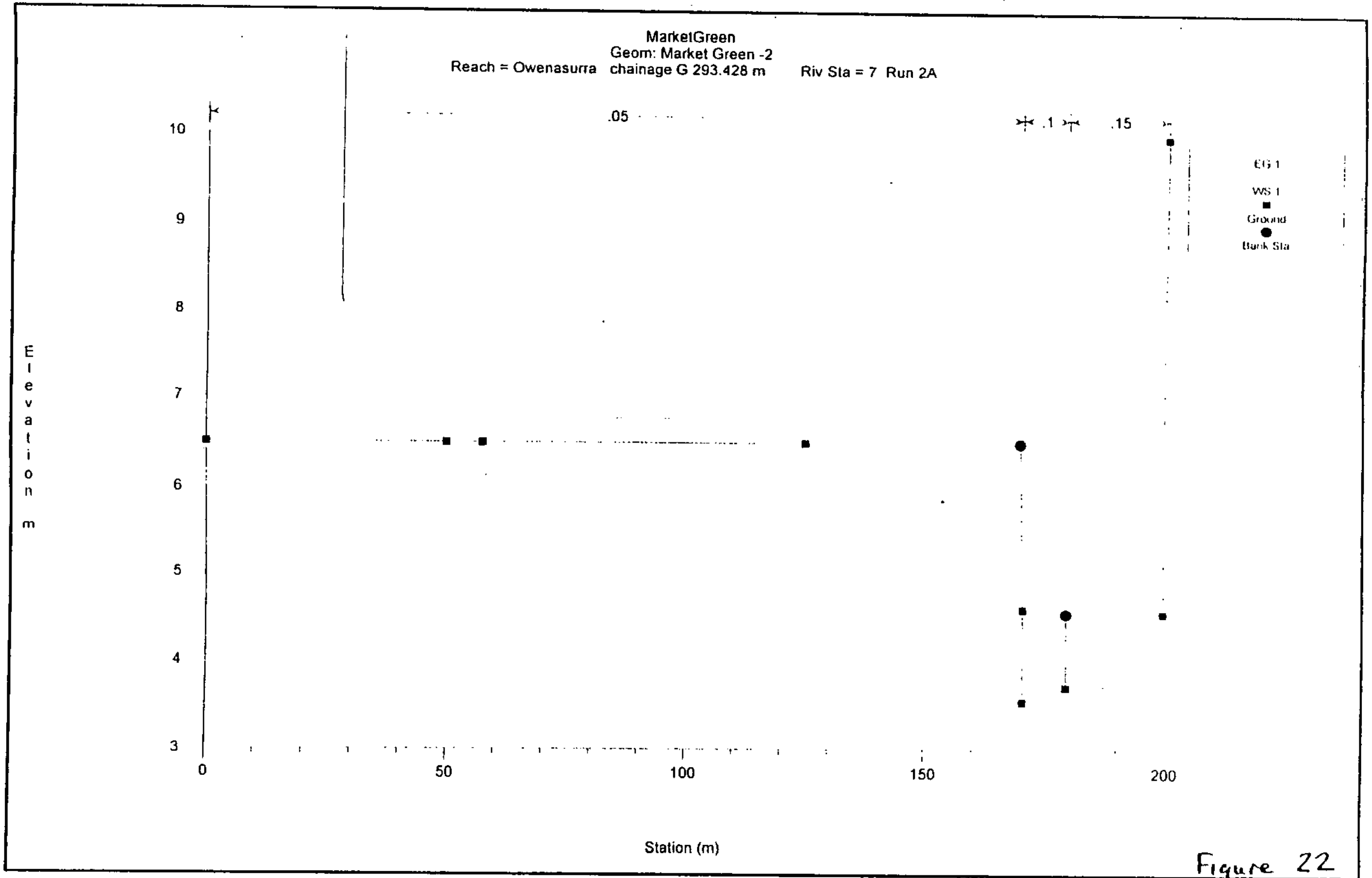

MarketGreen
Geom: Market Green -2
Reach = Owenasurra chainage F 251.984 m Riv Sta = 6 Run 2A
.05
.1
EG 1
WS 1
Ground
Bank Sta
10
9
8
7
6
5
4
3
0
50
100
150
200
Elevation m
Station (m)

Figure 21


MarketGreen
Geom: Market Green -2
Reach = Owenasurra chainage G 293.428 m Riv Sta = 7 Run 2A
.05
.1
.15
EG 1
WS 1
Ground
Bank Sta
Elevation m
10
9
8
7
6
5
4
3
0
50
100
150
200
Station (m)
Figure 22

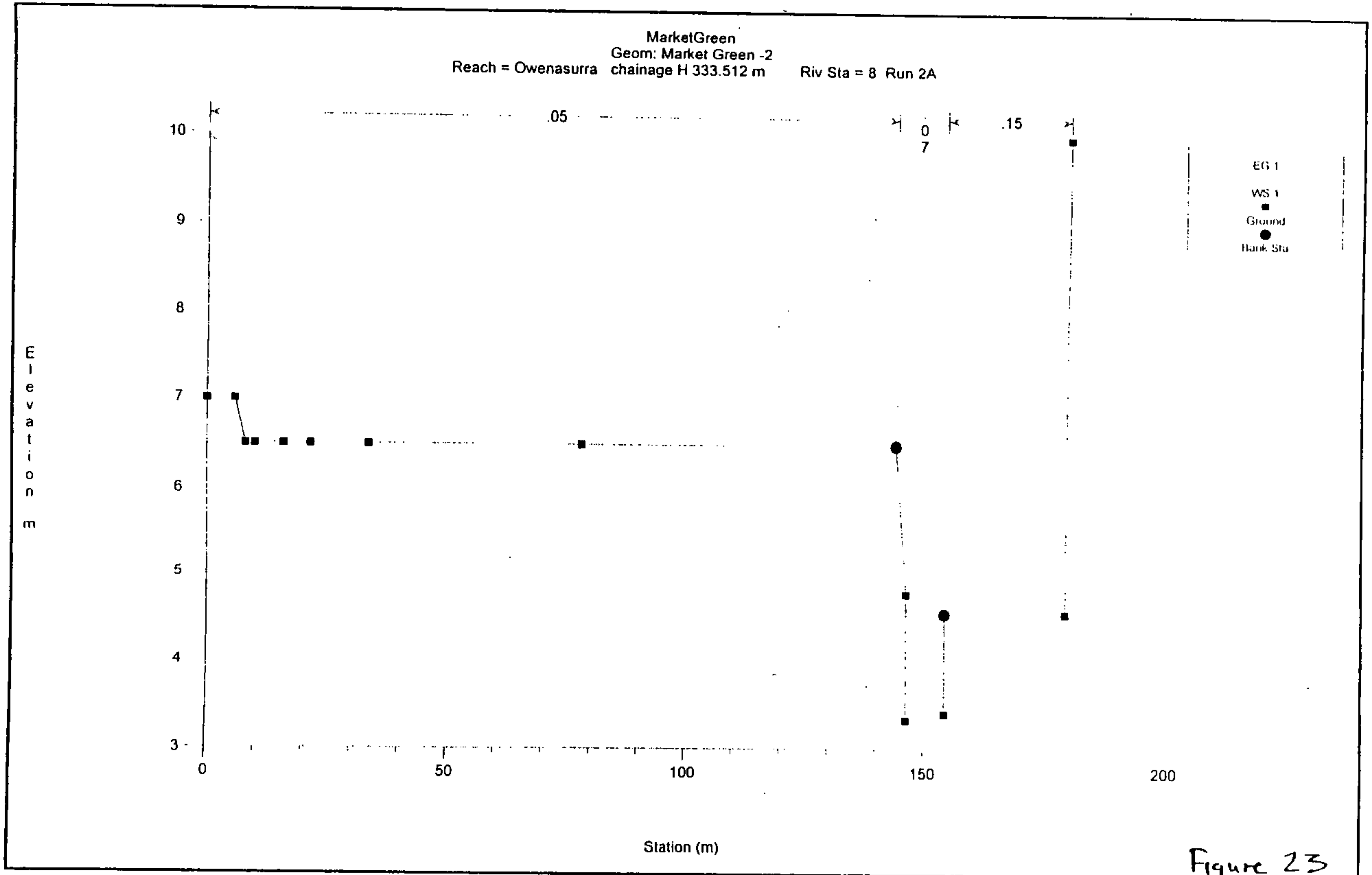

MarketGreen
Geom: Market Green -2
Reach = Owenasurra chainage H 333.512 m Riv Sta = 8 Run 2A
.05
0
7
.15
EG 1
WS 1
Ground
Bank Sta
Elevation m
10
9
8
7
6
5
4
3
0
50
100
150
200
Station (m)

Figure 23

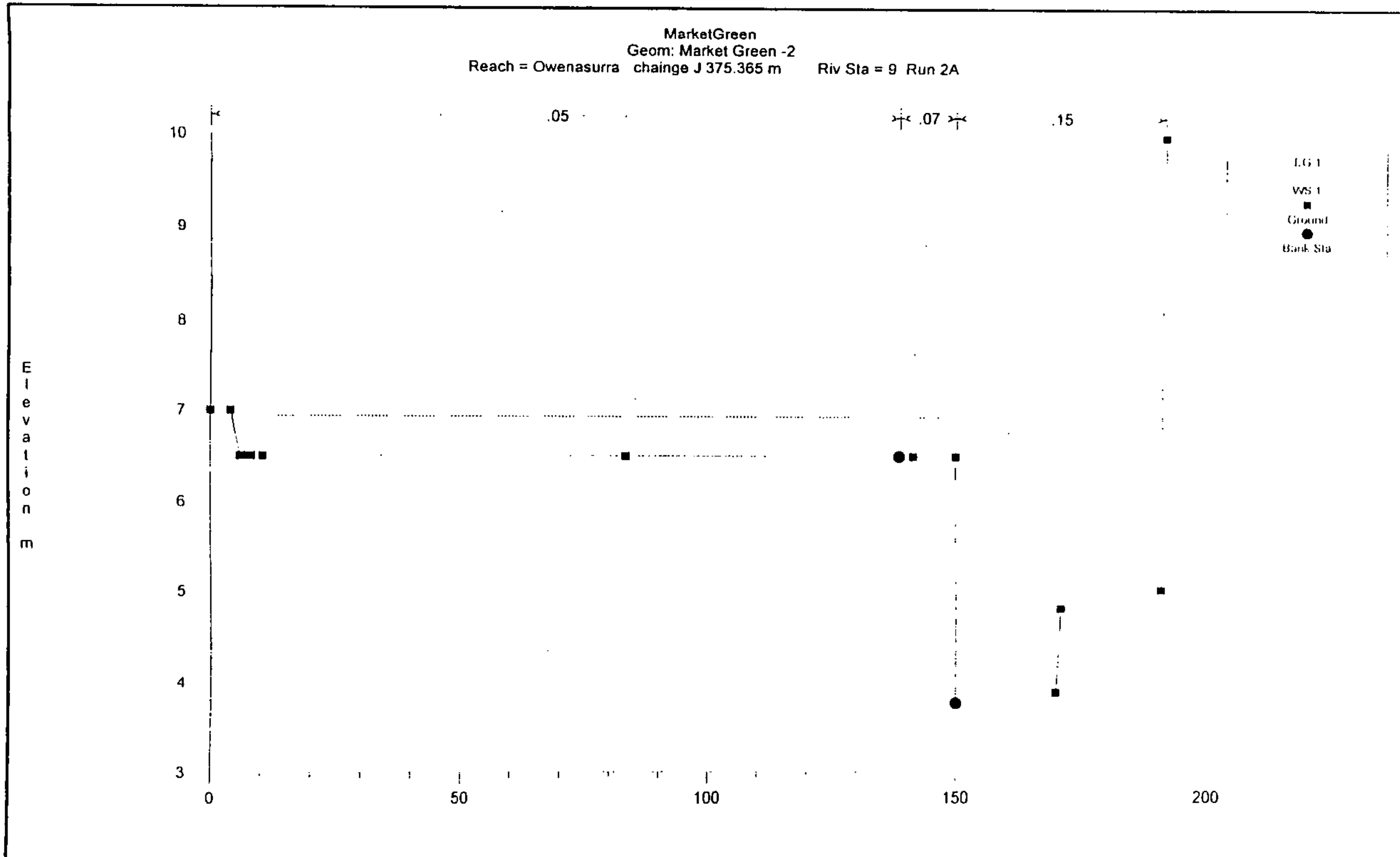
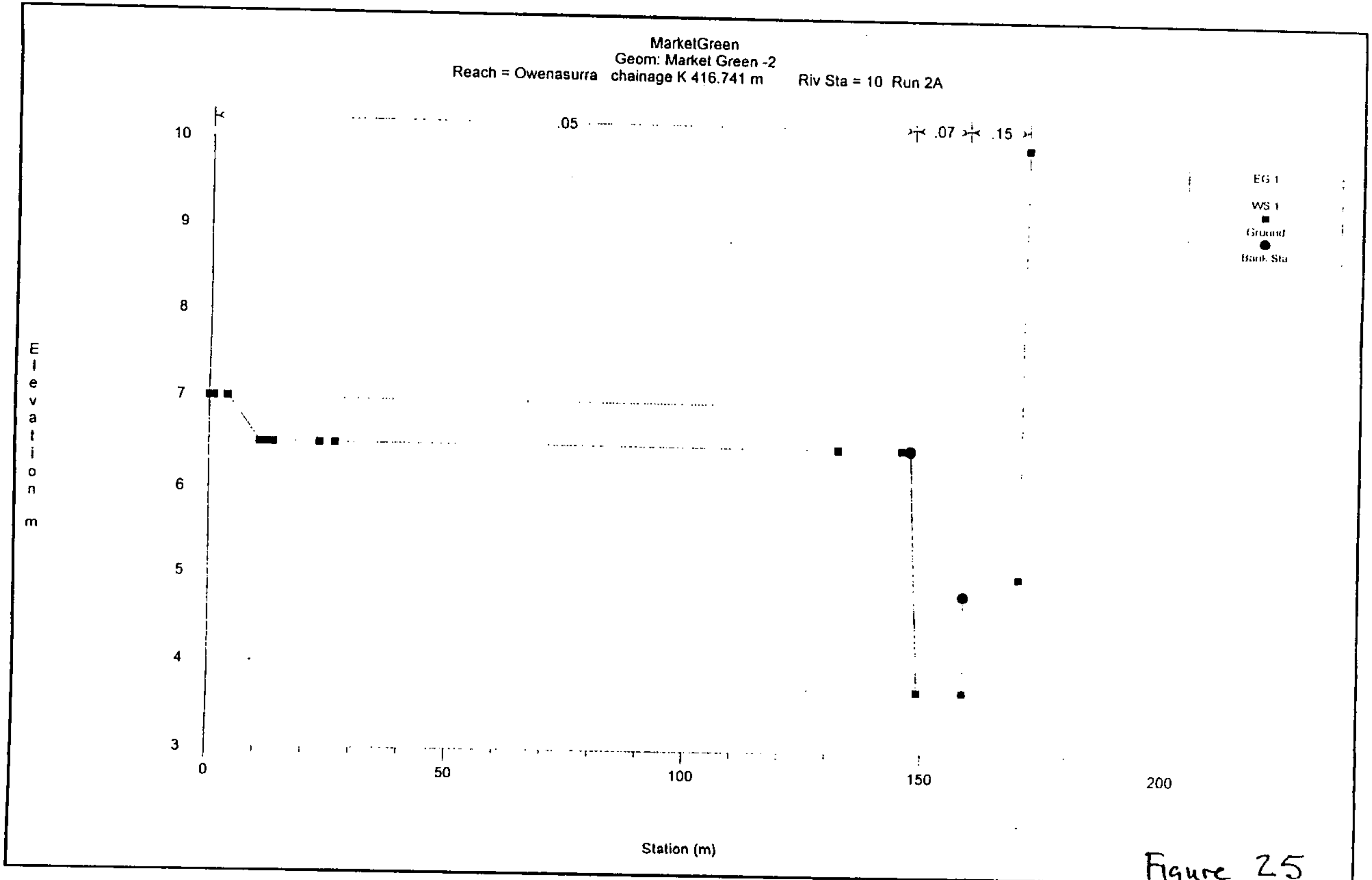
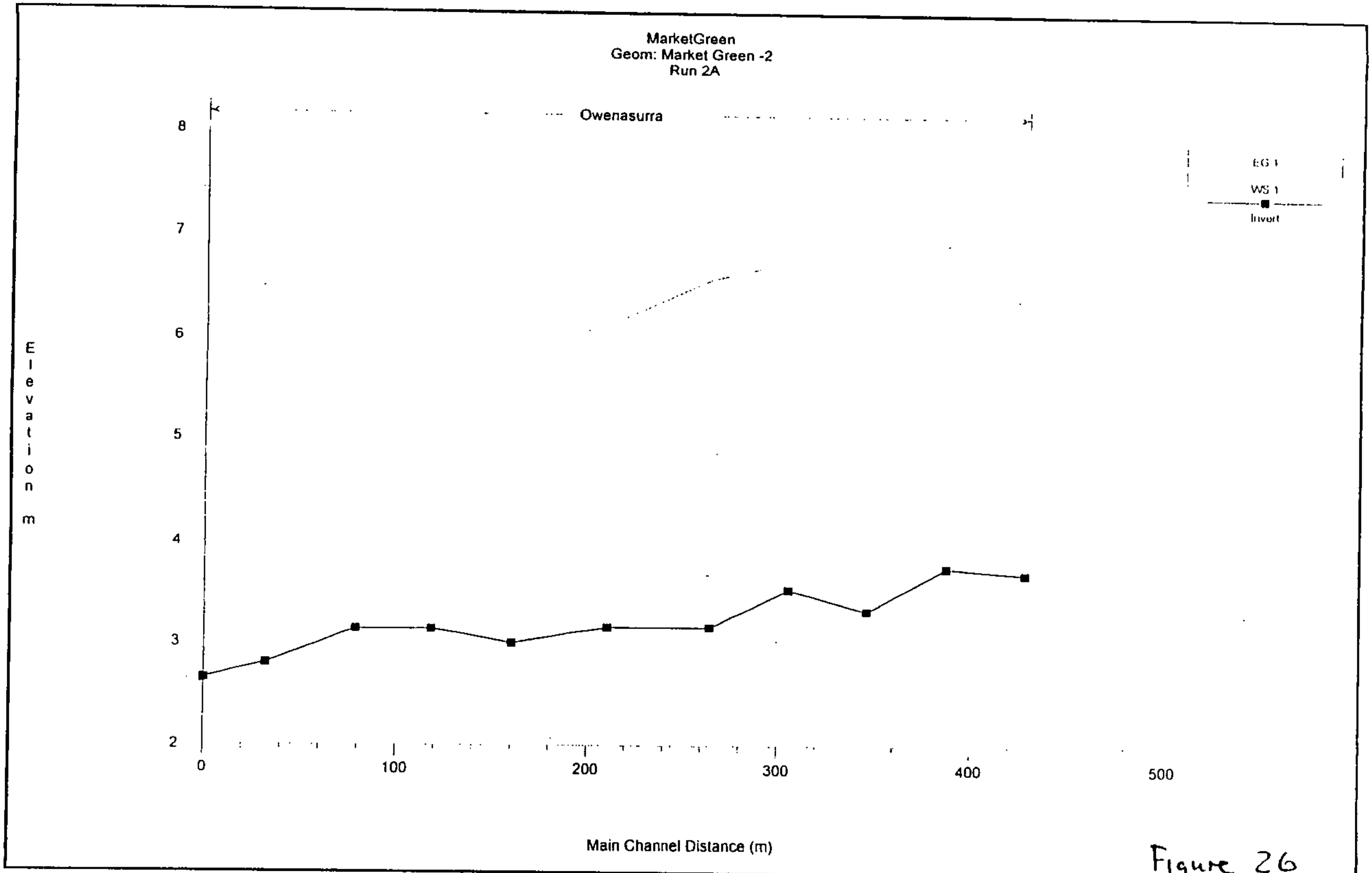

MarketGreen
Geom: Market Green -2
Reach = Owenasurra chainge J 375.365 m Riv Sta = 9 Run 2A
.05
.07
.15
Elevation m
Station (m)
WS 1
Ground
Bank Sta
10
9
8
7
6
5
4
3
0
50
100
150
200

Figure 24



MarketGreen
Geom: Market Green -2
Reach = Owenasurra chainage K 416.741 m Riv Sta = 10 Run 2A
.05
.07
.15
EG 1
WS 1
Ground
Bank Sta
Elevation m
10
9
8
7
6
5
4
3
0
50
100
150
200
Station (m)

Figure 25



MarketGreen
Geom: Market Green -2
Run 2A
Owenasurra
EG 1
WS 1
Invert
Elevation m
8
7
6
5
4
3
2
0
100
200
300
400
500
Main Channel Distance (m)

Figure 26

HEC-RAS Plan: Plan 13 Reach: Owenacurra 11/23/2000

River Sta	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
10	75.00	3.70	5.53		5.61	0.002126	1.00	61.26	52.40	0.24
9	75.00	3.30	5.50		5.55	0.000789	1.16	85.34	75.00	0.27
8	75.00	3.33	5.44		5.50	0.001274	1.40	71.66	68.48	0.31
7	75.00	3.54	5.29		5.41	0.003691	1.62	48.91	57.80	0.53
6	75.00	3.16	5.30		5.33	0.000648	0.53	98.79	72.60	0.12
5	75.00	3.16	5.28		5.31	0.000324	0.37	118.27	71.05	0.08
4	75.00	3.00	5.28		5.29	0.000205	0.60	127.46	69.34	0.13
3	75.00	3.14	5.16		5.27	0.001549	1.46	52.14	32.00	0.33
2	75.00	3.14	5.04		5.18	0.002891	1.04	49.42	31.60	0.24
1	75.00	2.80	4.89		5.00	0.004936	1.48	50.80	24.36	0.33
0	75.00	2.65	4.65	3.87	4.80	0.007834	1.71	43.87	25.49	0.42

TABLE 3.

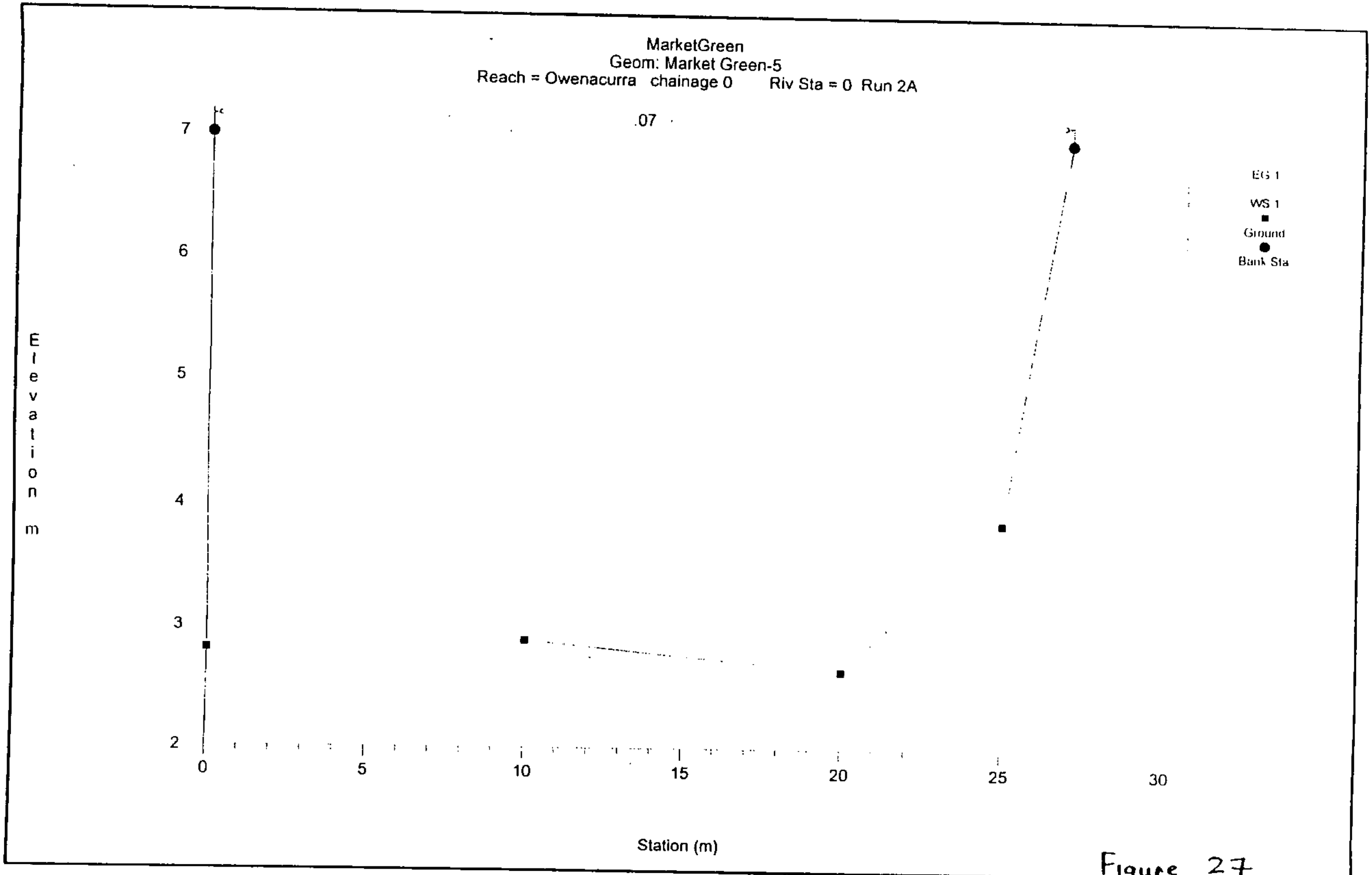
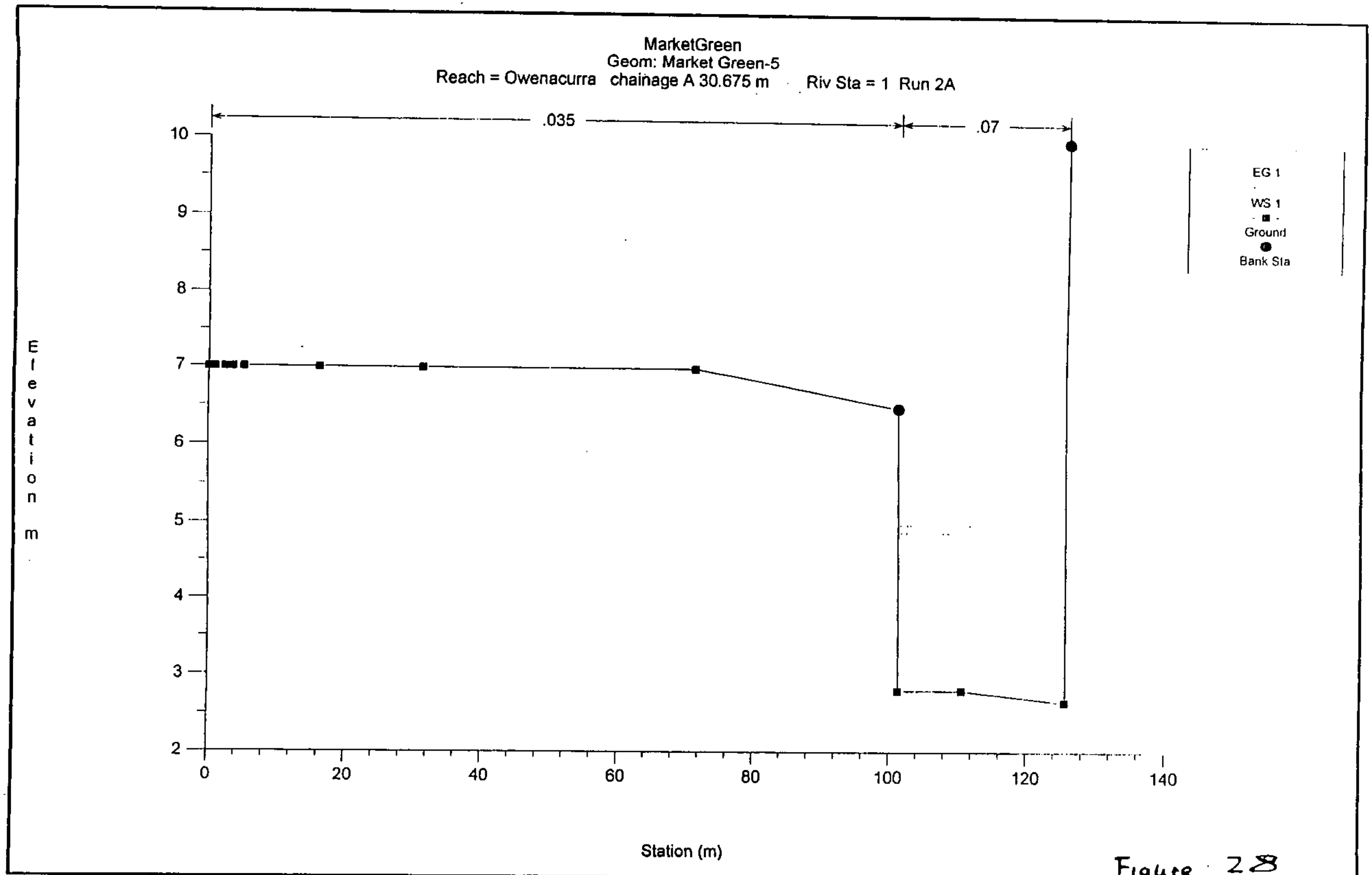
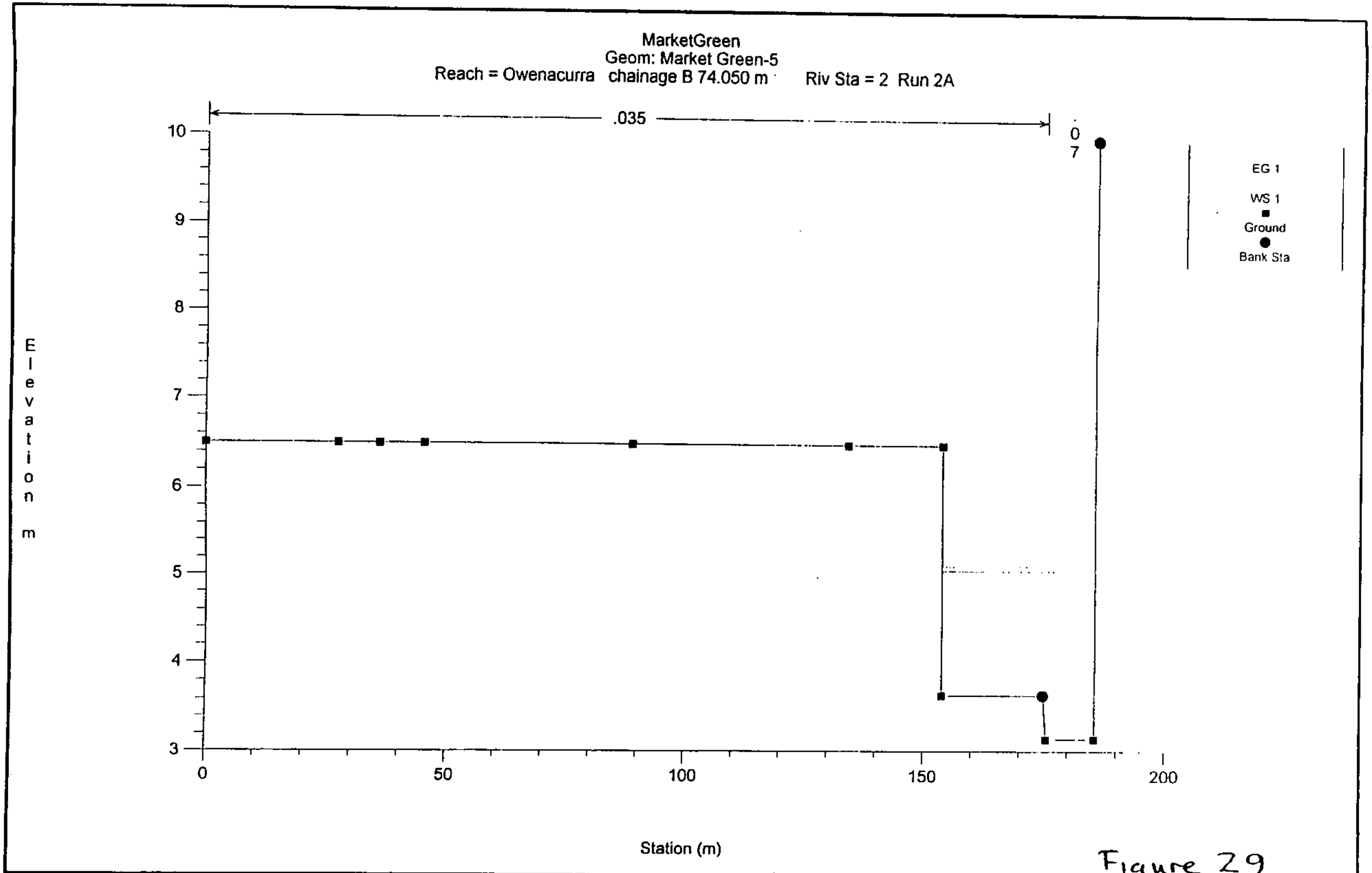

MarketGreen
Geom: Market Green-5
Reach = Owenacurra chainage 0 Riv Sta = 0 Run 2A
.07
EG 1
WS 1
Ground
Bank Sta
Elevation m
Station (m)
7
6
5
4
3
2
0
5
10
15
20
25
30

Figure 27



MarketGreen
Geom: Market Green-5
Reach = Owenacurra chainage A 30.675 m Riv Sta = 1 Run 2A
.035
.07
EG 1
WS 1
Ground
Bank Sta
Elevation m
Station (m)
10
9
8
7
6
5
4
3
2
0
20
40
60
80
100
120
140

Figure 28



MarketGreen
Geom: Market Green-5
Reach = Owenacurra chainage B 74.050 m Riv Sta = 2 Run 2A
.035
0
7
EG 1
WS 1
Ground
Bank Sta
Elevation m
Station (m)

Figure 29

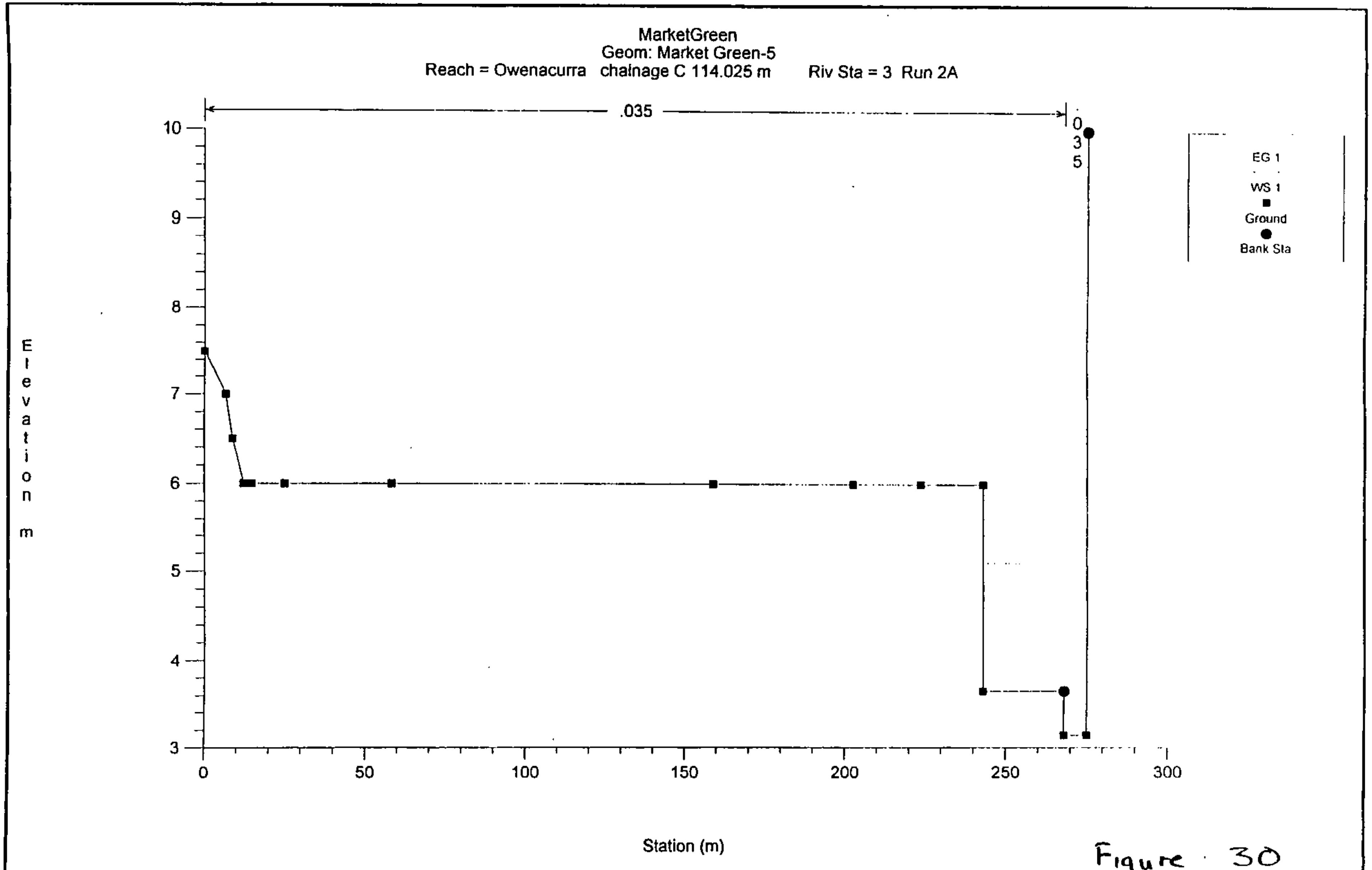

MarketGreen
Geom: Market Green-5
Reach = Owenacurra chainage C 114.025 m Riv Sta = 3 Run 2A
.035
0
3
5
EG 1
WS 1
Ground
Bank Sta
Elevation m
Station (m)

Figure 30

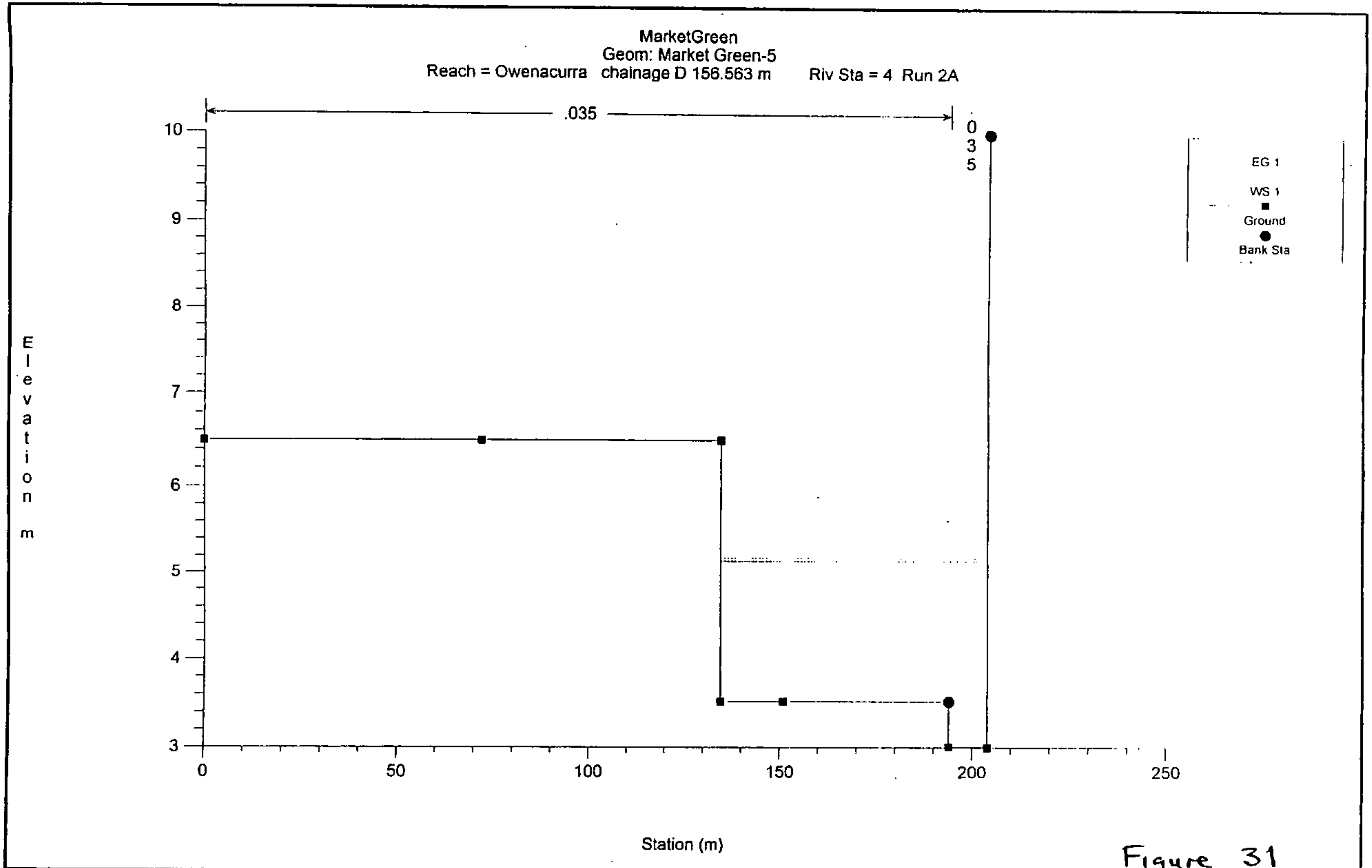

MarketGreen
Geom: Market Green-5
Reach = Owenacurra chainage D 156.563 m Riv Sta = 4 Run 2A
.035
0
3
5
EG 1
WS 1
Ground
Bank Sta
Elevation m
Station (m)
10
9
8
7
6
5
4
3
0
50
100
150
200
250

Figure 31

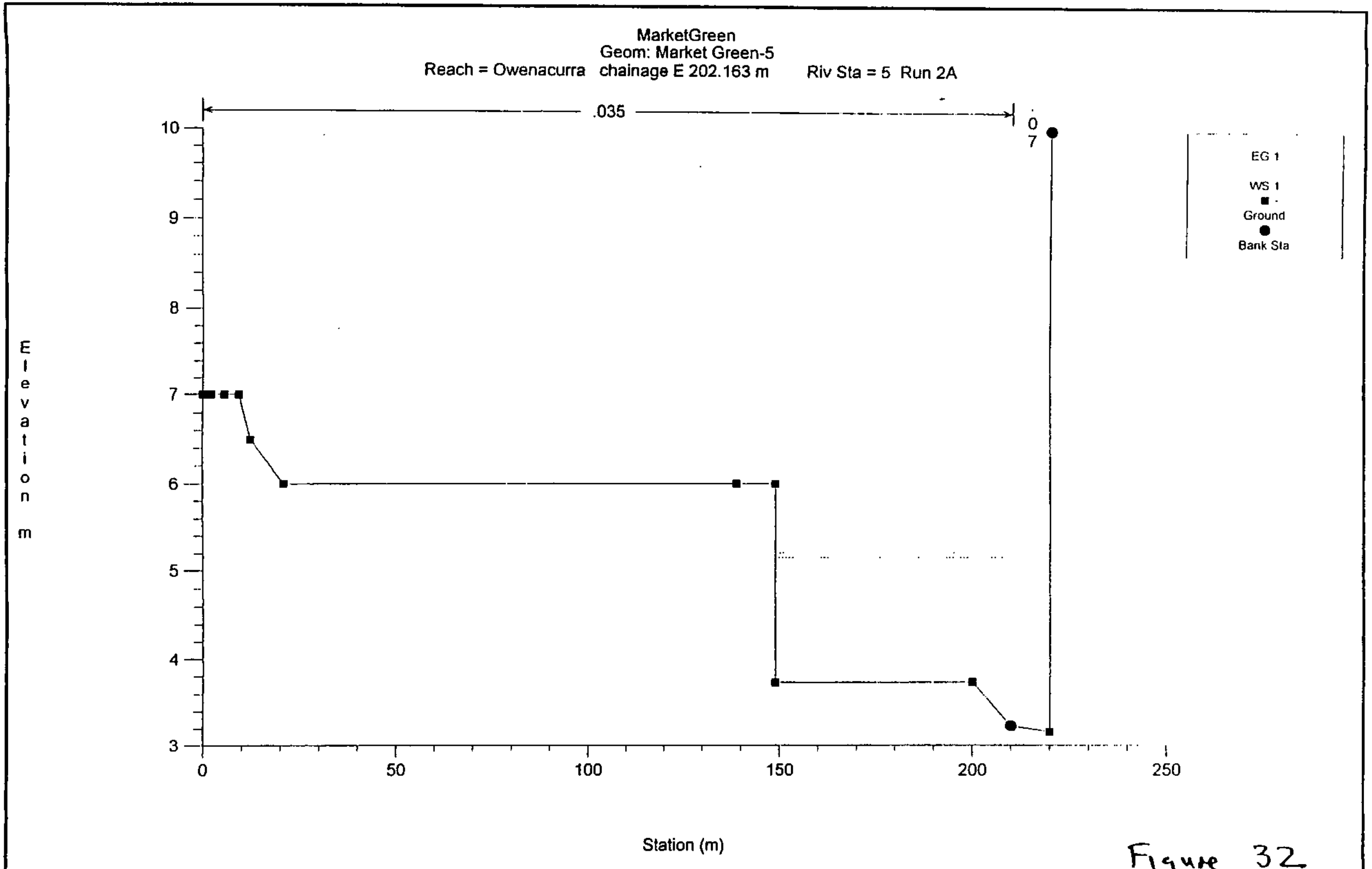

MarketGreen
Geom: Market Green-5
Reach = Owenacurra chainage E 202.163 m Riv Sta = 5 Run 2A
.035
0
7
EG 1
WS 1
Ground
Bank Sta
Elevation m
10
9
8
7
6
5
4
3
0
50
100
150
200
250
Station (m)

Figure 32

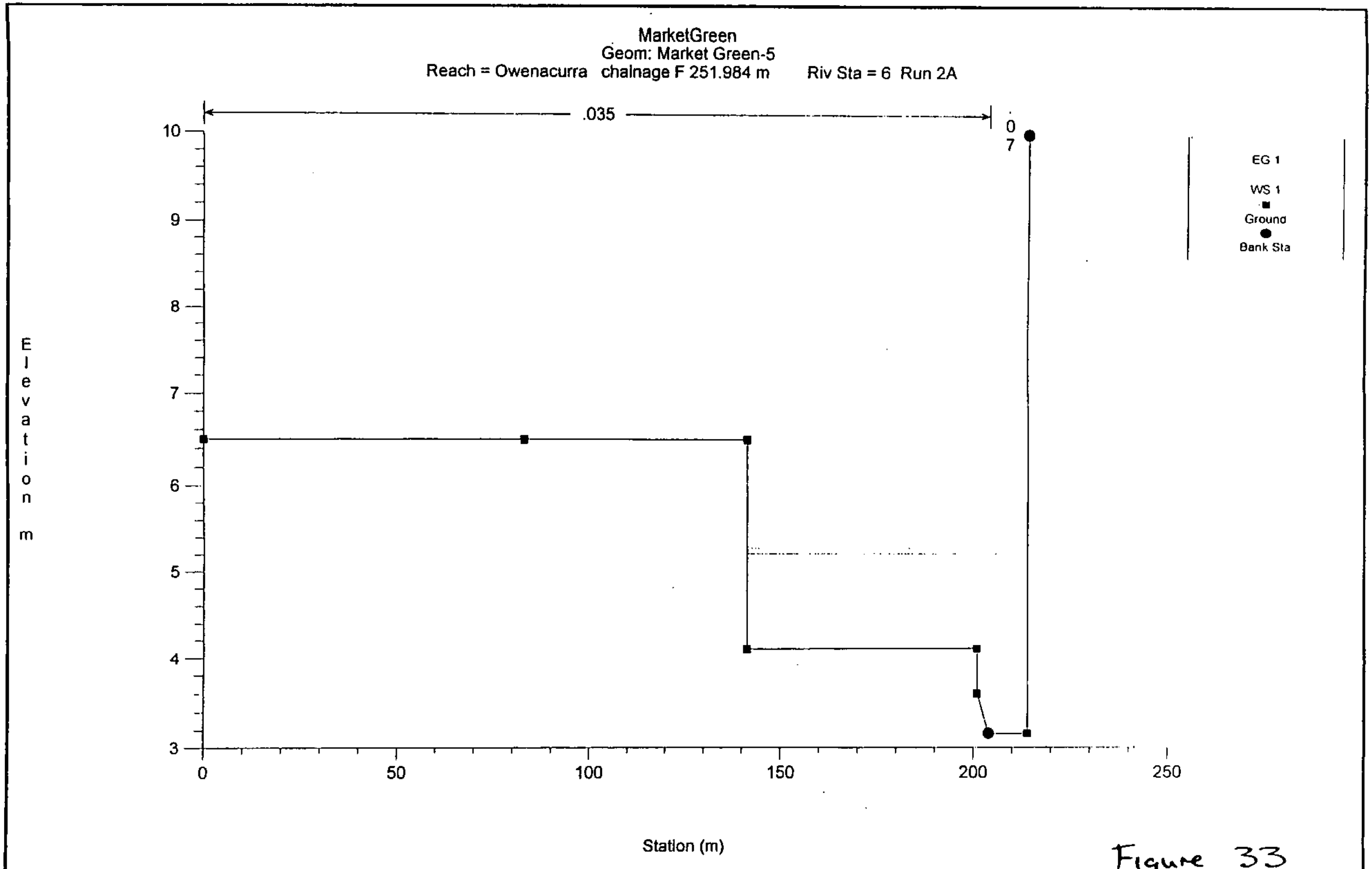
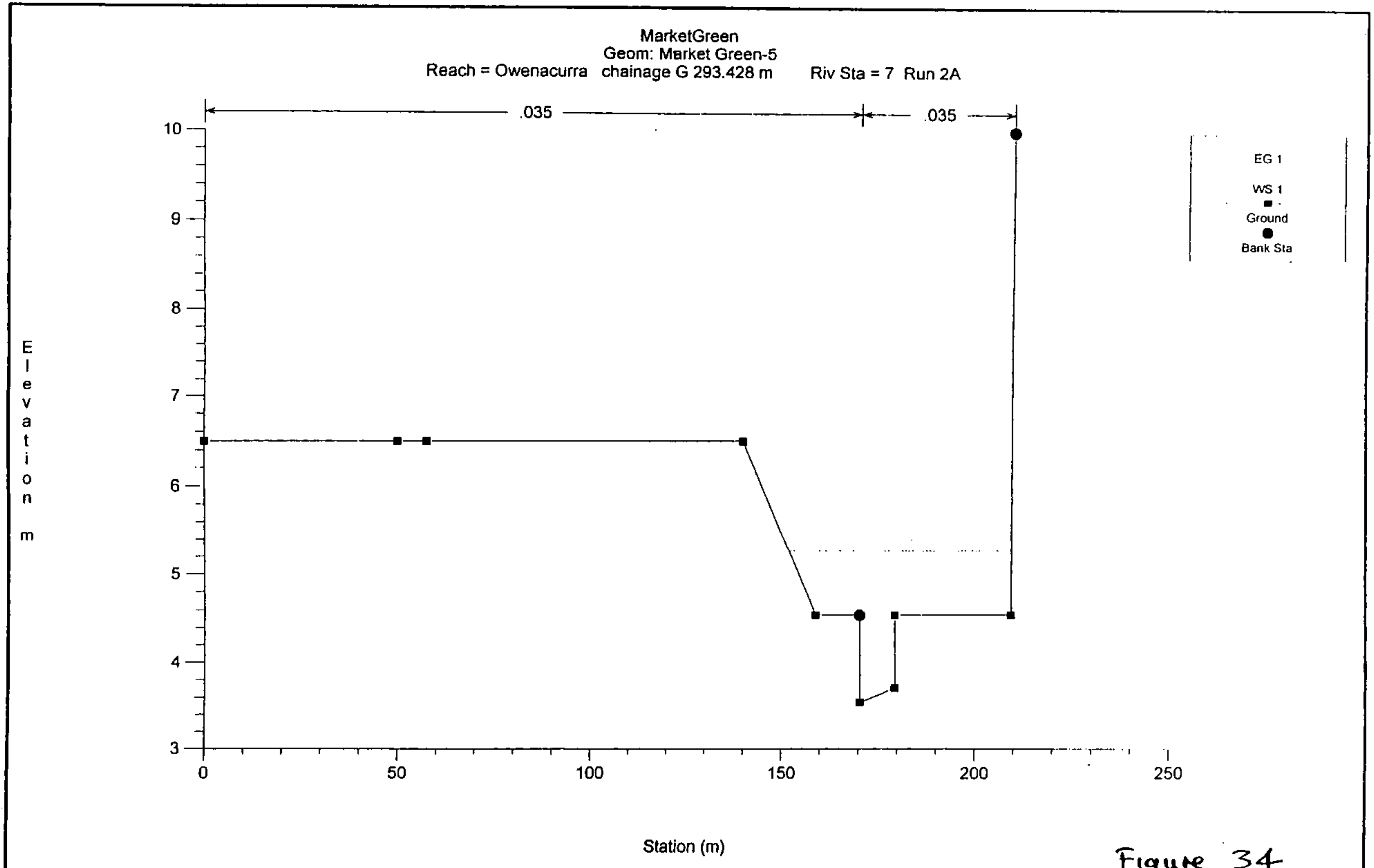
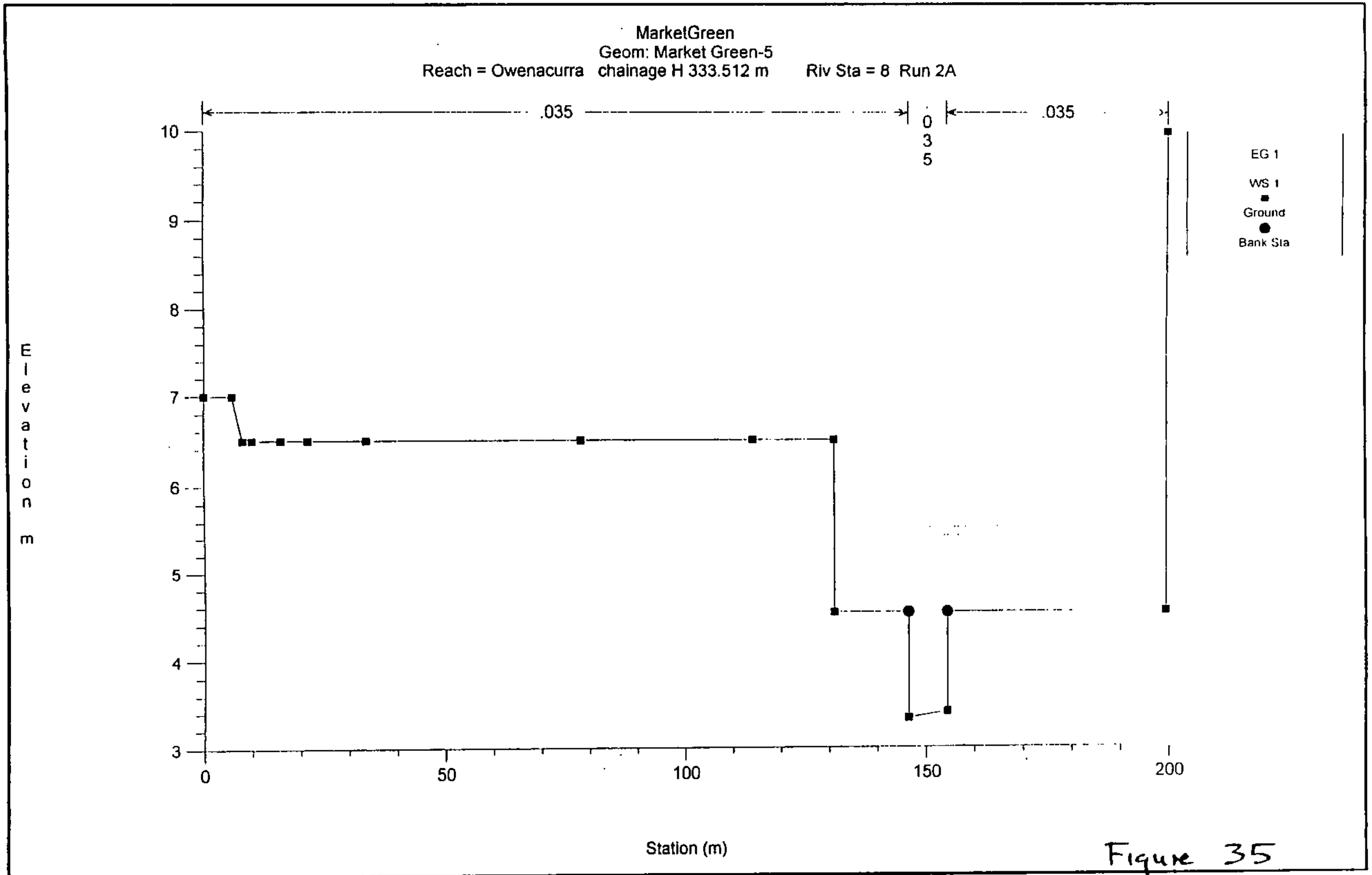

MarketGreen
Geom: Market Green-5
Reach = Owenacurra chainage F 251.984 m Riv Sta = 6 Run 2A
.035
0
7
EG 1
WS 1
Ground
Bank Sta
Elevation m
10
9
8
7
6
5
4
3
0
50
100
150
200
250
Station (m)

Figure 33



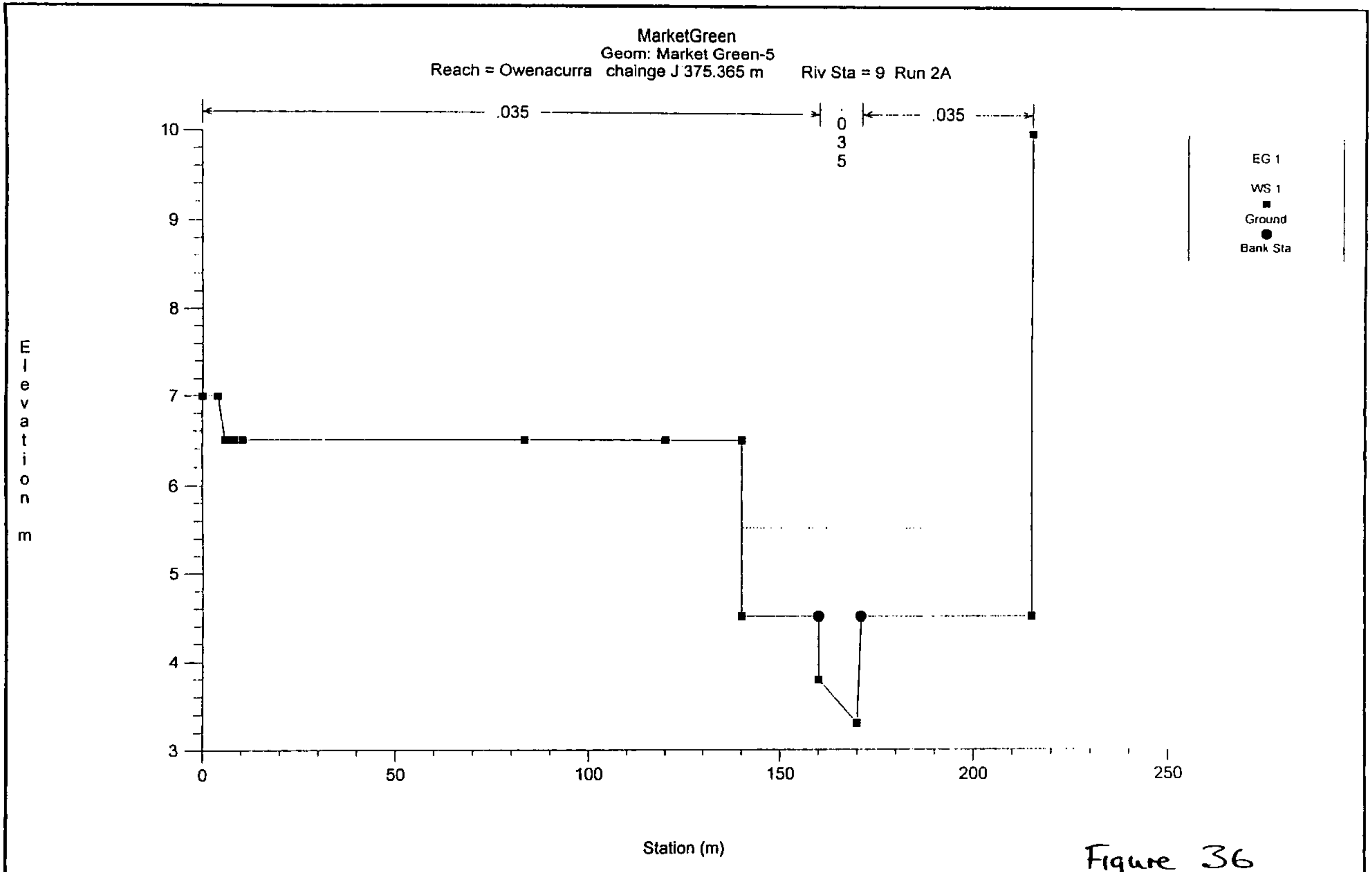
MarketGreen
Geom: Market Green-5
Reach = Owenacurra chainage G 293.428 m Riv Sta = 7 Run 2A
.035
.035
EG 1
WS 1
Ground
Bank Sta
Elevation m
Station (m)

Figure 34



MarketGreen
Geom: Market Green-5
Reach = Owenacurra chainage H 333.512 m Riv Sta = 8 Run 2A
.035
0
3
5
.035
EG 1
WS 1
Ground
Bank Sta
Elevation m
Station (m)
10
9
8
7
6
5
4
3
0
50
100
150
200

Figure 35



MarketGreen
Geom: Market Green-5
Reach = Owenacurra chainge J 375.365 m Riv Sta = 9 Run 2A
.035
.035
.035
EG 1
WS 1
Ground
Bank Sta
Elevation m
Station (m)

Figure 36

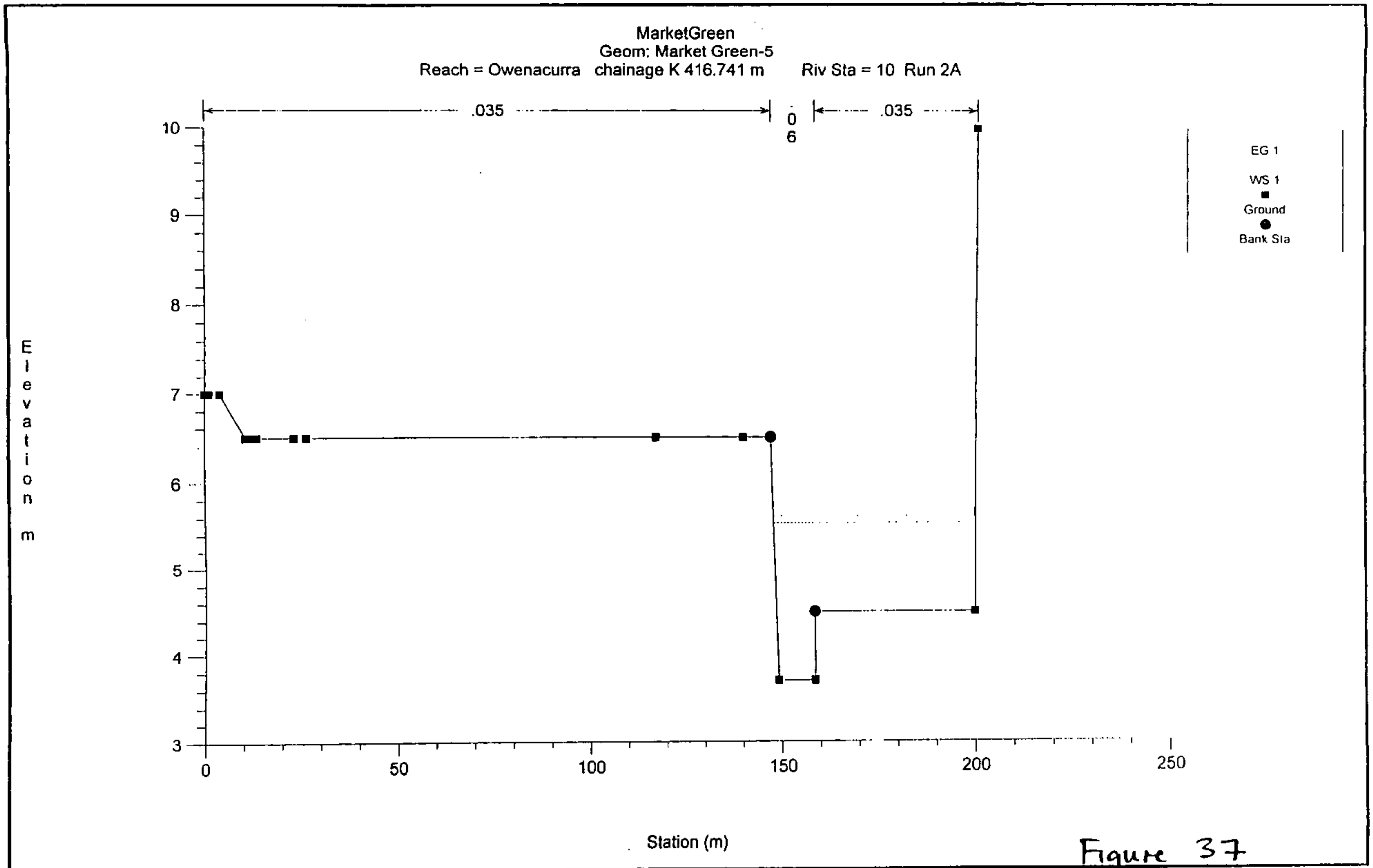

MarketGreen
Geom: Market Green-5
Reach = Owenacurra chainage K 416.741 m Riv Sta = 10 Run 2A
.035
0
6
.035
EG 1
WS 1
Ground
Bank Sta
Elevation m
Station (m)
10
9
8
7
6
5
4
3
0
50
100
150
200
250

Figure 37

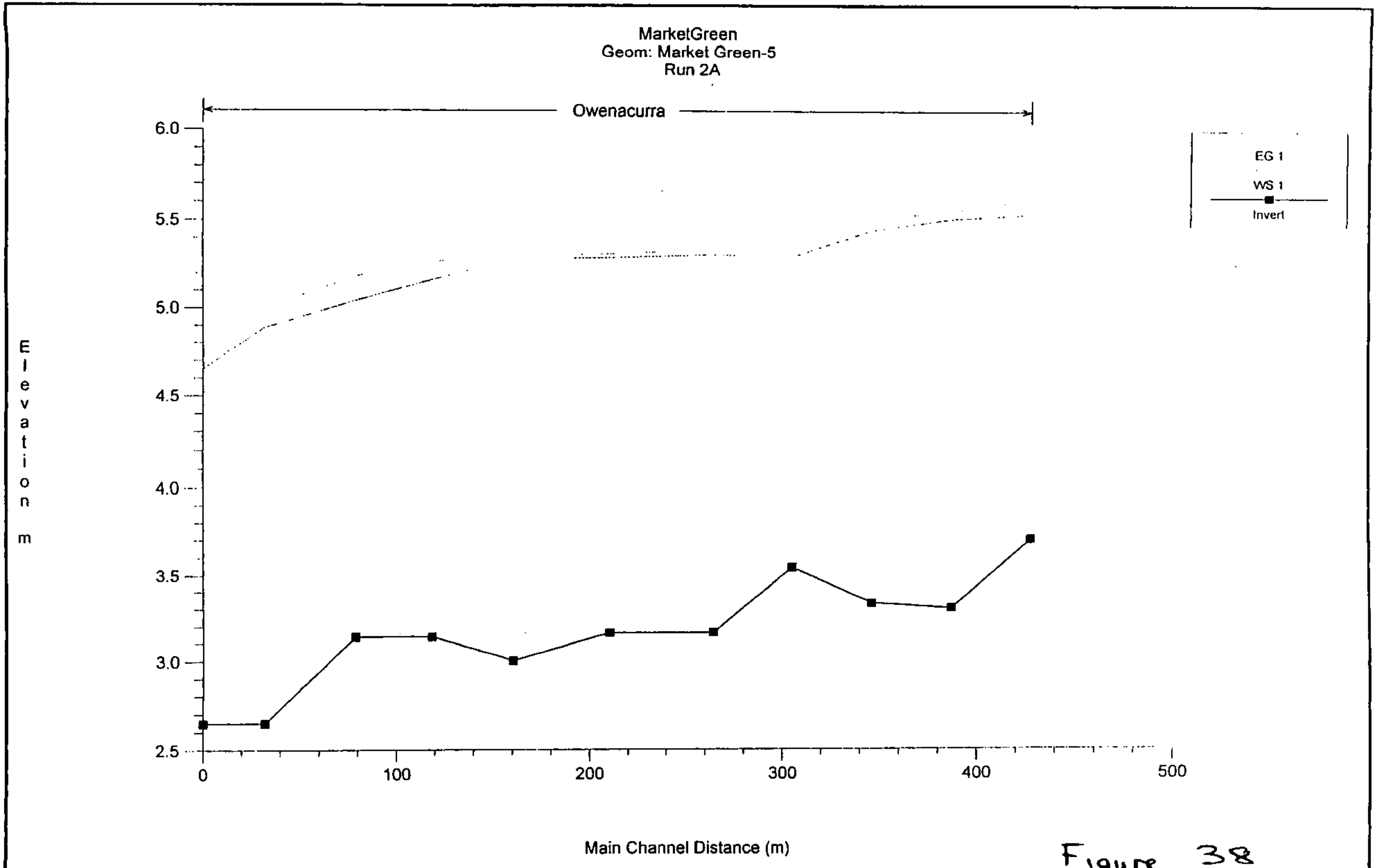

MarketGreen
Geom: Market Green-5
Run 2A
Owenacurra
EG 1
WS 1
Invert
Elevation m
Main Channel Distance (m)
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
0
100
200
300
400
500

Figure 38

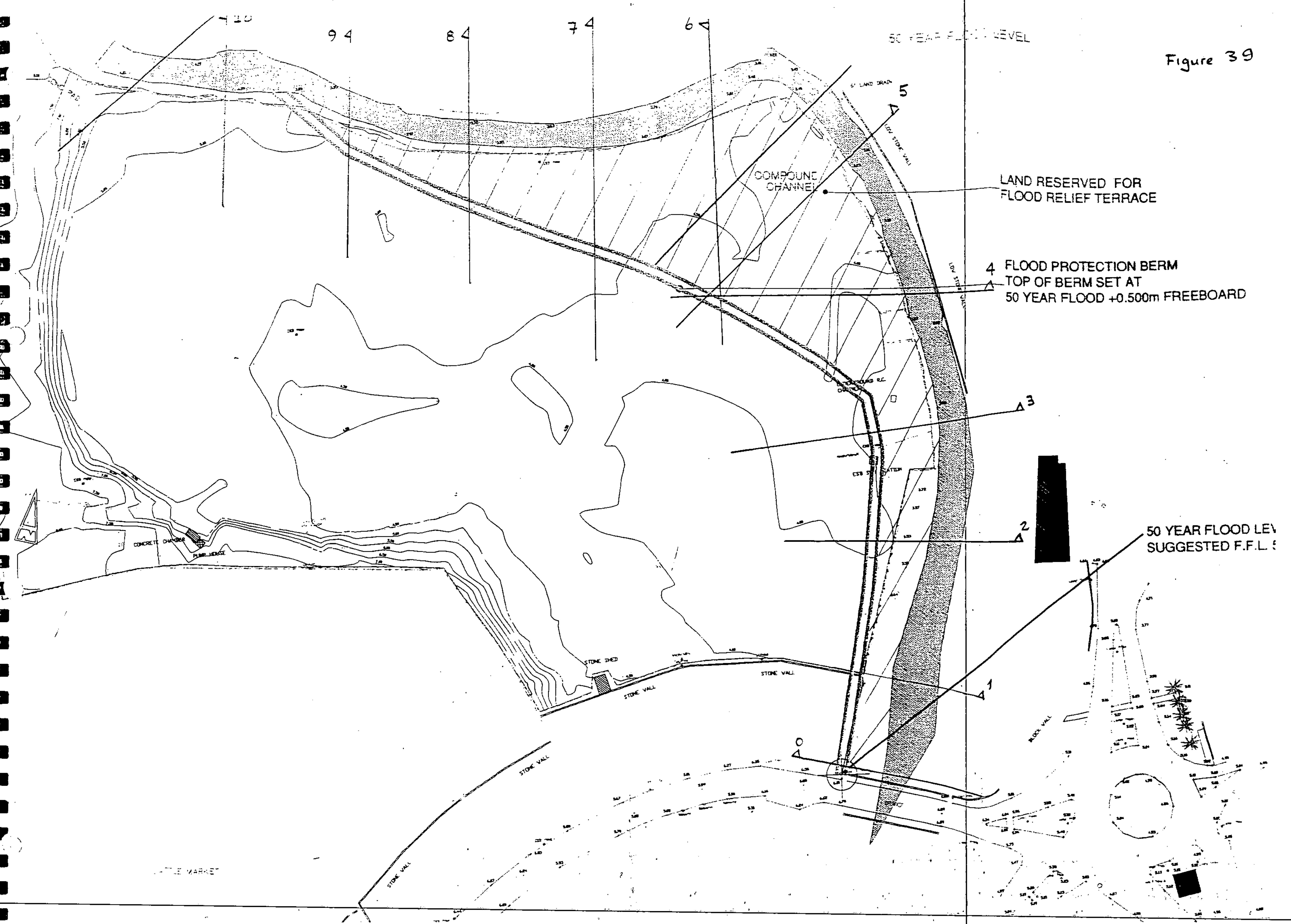

LAND RESERVED FOR
FLOOD RELIEF TERRACE
FLOOD PROTECTION BERM
TOP OF BERM SET AT
50 YEAR FLOOD +0.500m FREEBOARD
50 YEAR FLOOD LEV
SUGGESTED F.F.L.
COMPOUND
CHANNEL
CONCRETE CHAMBER
PUMP HOUSE
STONE SHED
STONE WALL
BLOCK WALL
ESB SUBSTATION

Figure 39

APPENDIX V

AIR & CLIMATE SURVEY TABLES

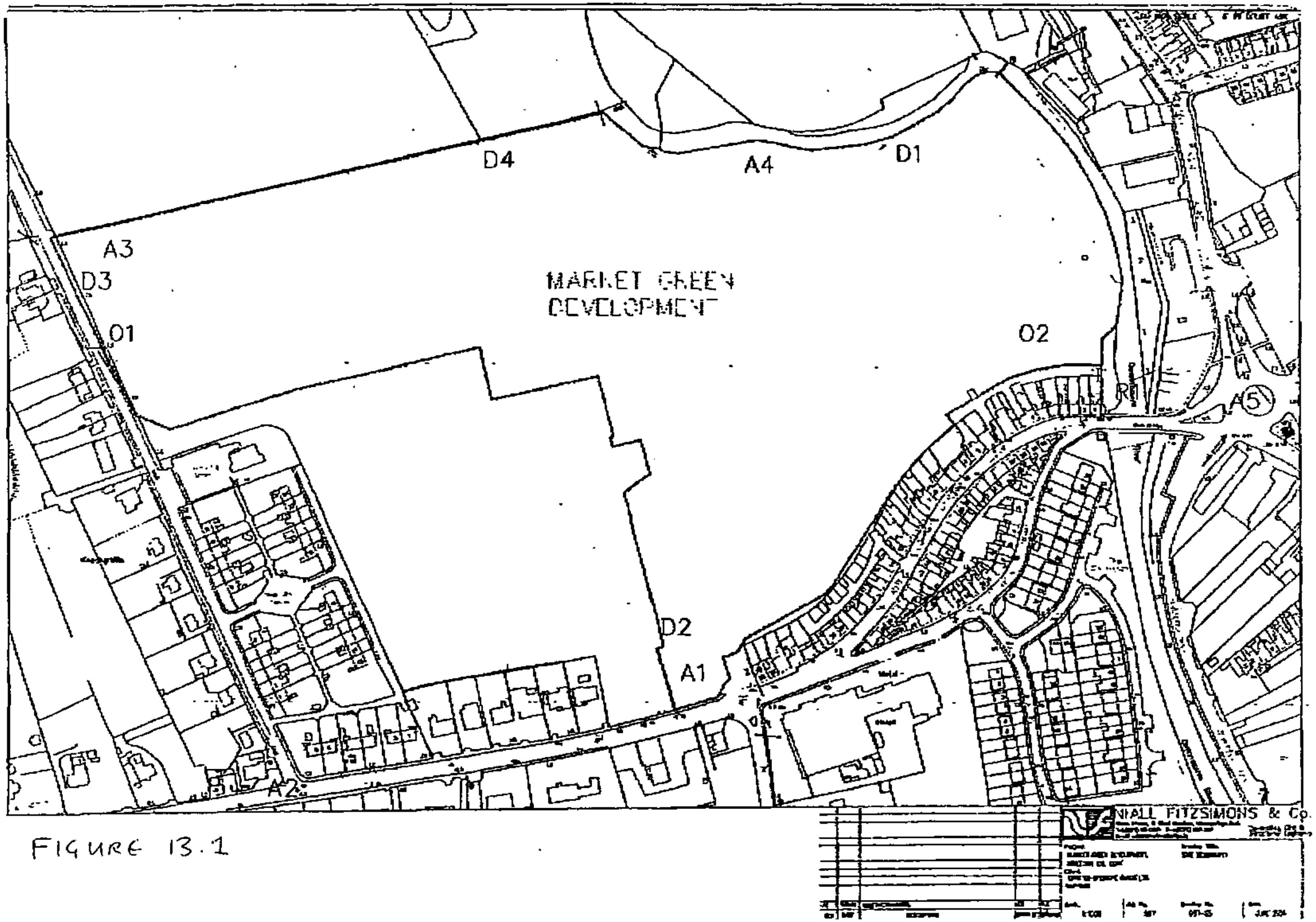

D4
A4
D1
A3
D3
MARKET GREEN
DEVELOPMENT
O1
O2
A5
D2
A1
A2
NIALL FITZSIMONS & Co.

FIGURE 13.1

Table 13.2: EU Ambient Air Standard - Council Directive 1999/30/EC.

Pollutant	Regulation	Limit Type	Margin of Tolerance	Value
Nitrogen Dioxide	1999/30/EC	Hourly limit for protection of human health - not to be exceeded more than 18 times/year	50% until 2001 reducing linearly to 0% by 2010	200 $\mu g/m^3$ NO_2
		Annual limit for protection of human health	50% until 2001 reducing linearly to 0% by 2010	40 $\mu g/m^3$ NO_2
		Annual limit for protection of vegetation	None	30 $\mu g/m^3$ NO + NO_2
Sulphur dioxide	1999/30/EC	Hourly limit for protection of human health - not to be exceeded more than 24 times/year	43% until 2001 reducing linearly until 0% by 2005	350 $\mu g/m^3$
		Daily limit for protection of human health - not to be exceeded more than 3 times/year	None	125 $\mu g/m^3$
		Annual & Winter limit for the protection of ecosystems	None	20 $\mu g/m^3$
Particulate Matter Stage 1	1999/30/EC	24-hour limit for protection of human health - not to be exceeded more than 35 times/year	50% until 2001 reducing linearly to 0% by 2005	50 $\mu g/m^3$ PM_{10}
		Annual limit for protection of human health	20% until 2001 reducing linearly to 0% by 2005	40 $\mu g/m^3$ PM_{10}
Particulate Matter Stage 2	1999/30/EC	24-hour limit for protection of human health - not to be exceeded more than 7 times/year	To be derived from data and to be equivalent to Stage 1 limit value	50 $\mu g/m^3$ PM_{10}
		Annual limit for protection of human health	50% until 2005 reducing linearly to 0% by 2010	20 $\mu g/m^3$ PM_{10}

Table 13.3: EU Ambient Air Standard – 2000/69/EC.

Pollutant	Regulation	Limit Type	Margin of Tolerance	Value
Benzene	2000/69/EC	Annual limit for protection of human health	100% until 2003 reducing linearly to 0% by 2010	5 $\mu g/m^3$
Carbon Monoxide	2000/69/EC	8-hour limit (on a rolling basis) for protection of human health	50% until 2003 reducing linearly to 0% by 2005	10 mg/m^3

Table 13.4: Background Levels of NO_2. Results of NO_2 Diffusion Tube Monitoring carried out at 5 locations in the vicinity of the proposed development.

Sample Date	Location(1)	Average NO_2 Concentration ($\mu g/m^3$)
07/06/01-26/06/01	A1	18.28
07/06/01-26/06/01	A2	27.96
07/06/01-26/06/01	A3	6.45
07/06/01-26/06/01	A4	8.60
07/06/01-26/06/01	A5	15.05
Limit Value	-	40(2)

Notes: (1) Locations listed in Table 13.1 and shown in Figure 13.1
(2) EU Ambient Air Standard (1999/30/EC) (as an annual average)
Listed in Appendix A1.

Table 13.5: Background Levels of SO_2. Results of SO_2 Diffusion Tube Monitoring carried out at 5 locations in the vicinity of the proposed development.

Sample Date	Location(1)	Average SO_2 Concentration ($\mu g/m^3$)
07/06/01-26/06/01	A1	16.91
07/06/01-26/06/01	A2	15.56
07/06/01-26/06/01	A3	13.53
07/06/01-26/06/01	A4	13.87
07/06/01-26/06/01	A5	13.53
Limit Value	-	20(2)

Notes: (1) Locations listed in Table 13.1 and shown in Figure 13.1
(2) EU Ambient Air Standard (1999/30/EC) (as an annual average)

Table 13.6: Background Levels of VOCs. Results of VOC Diffusion Tube Monitoring carried out at 5 locations in the vicinity of the proposed development.

Sample Date	Location(1)	Total VOC Detected (mg)
07/06/01-26/06/01	A1	0.47
07/06/01-26/06/01	A2	2.45
07/06/01-26/06/01	A3	0.45
07/06/01-26/06/01	A4	7.67
07/06/01-26/06/01	A5	1.66

Notes: (1) Locations listed in Table 13.1 and shown in Figure 13.1
(2) No limit specified for Total VOCs

Table 13.7: Background Levels of Odours. Results of Odour Monitoring carried out at 2 locations in the vicinity of the proposed development.

Sample Date	Location(1)	Odour Concentration OU/m^3
07/06/01	O1	34
07/06/01	O2	41

Notes: (1) Locations listed in Table 13.1 and shown in Figure 13.1
(2) Sample date was mild, with low winds (<5m/s). Samples were taken within 30 mins of each other. Wind direction was westerly.

Table 13.8: Dust Deposition Levels. Results of Dust Deposition Monitoring carried out at 4 locations in the vicinity of the proposed development.

Sample Date	Location(1)	Dust Deposition level ($mg/m^2/day$)
26/06/01-18/07/01	D1	114.1
26/06/01-18/07/01	D2	-(3)
26/06/01-18/07/01	D3	102.4
26/06/01-18/07/01	D4	46.1
Guideline(2)	-	350

Notes: (1) Locations listed in Table 13.1 and shown in Figure 13.1
(2) Guideline specified by TA Luft Technical Instructions on Air Quality. Guideline for non-hazardous dusts.
(3) Dust gauge D2 had been tampered with.

Table 13.9: Screening Air Quality Assessment, Proposed Market Town Centre, Midleton. Summary of predicted Air Quality at receptor R1 located at Cork Street Bridge using the Design Manual for Roads and Bridges (Revised May 1999), Volume 11, Section 3, Part 1, Air Quality.

Scenario	Traffic Speed (km/hr)	Carbon Monoxide (ppm)		Hydrocarbons (ppb)			Oxides of Nitrogen (ppb)				PM_{10} ($\mu g/m^3$)	
		Annual Average	Maximum 8-hour	Annual average hydrocarbon	Annual average benzene	Annual mean 1,3-butadiene	Annual average NO_x	Annual average NO_2	98th %ile hourly NO_2	Maximum hourly NO_2	Annual average[1]	99th %ile of 24-hr values
2001 existing	**10**	0.656	6.56	142.76	1.44	0.29	82.54	33.10	82.75	165.50	8.78	26.33
	40	0.336	3.36	53.47	0.72	0.14	55.61	27.90	69.75	139.50	8.76	26.27
2001 existing with proposal	**10**	0.772	7.72	163.79	1.48	0.30	93.69	35.32	88.30	176.60	8.79	26.36
	40	0.377	3.77	65.24	0.81	0.16	63.06	29.19	72.98	145.95	8.76	26.28
2004 future with proposal	**10**	0.580	5.80	103.87	1.10	0.22	73.57	31.55	78.88	157.75	8.20	24.60
	40	0.298	2.98	38.72	0.58	0.12	48.01	26.40	66.00	132.00	8.18	24.54
Standards			**8.6**[2]		**1.5**[2]			**21**[1]	**105**[1,3]		**40**[1]	**50**[1,4]

1 EU Council Directive 1999/30/EC.
2 EU Directive 2000/69/EC.
3 Hourly limit of 105 ppb not to be exceeded more than 18 times per year (99.8 %ile).
4 24-Hour limit of 50 $\mu g/m^3$ not to be exceeded more than 35 times per year (95.9 %ile).

APPENDIX VI

NOISE SURVEY LOCATIONS & TABLES

TABLE 14.3 - NOISE LEVELS MEASURED AT SITE BOUNDARY

Measurement Time	L_{Aeq}	L_{Amax}	L_{A10}	L_{A90}	Notes
			Position 1		
08:30	69	84	72	58	Heavy and constant traffic Some construction noise nearby.
11:40	67	81	70	57	Traffic still heavy.
			Position 2		
08:51	60	89	60	47	Main traffic noise loading and unloading of trucks at co-op stores.
			Position 3		
09:20	47	66	49	41	Some local movement
12:02	48	69	49	42	Some local movement
			Position 4		
09:40	64	87	62	43	Generator noise from nearby road works approx. 30m. Dog barking
12:20	62	85	63	44	Traffic dominant noise source. Also bird song.
			Position 5		
10:05	43	59	45	40	
12:45	56	76	51	40	Some construction at house nearby.
			Position 6		
10:30	51	74	53	47	Local and distant traffic noise
13:30	53	74	53	47	
			Position 7		
11:05	50	70	51	45	Traffic noise
13:35	47	64	48	43	
Average	**55**	**75**	**56**	**46**	

Table 14.3 *Noise levels measured*

TABLE 14.4 TRAFFIC FLOW INFORMATION

ROAD	Current Year	Current + Proposed Development	2004 + Proposed Development
Main Street	1249	1372	1436
Riverside way	737	801	830
Cork Road	1511	1647	1712
New Road	N/A	467	467
Mill Road	1152	1269	1331
Goose Green	319	346	358

Table 14.4 *Traffic flow information.*

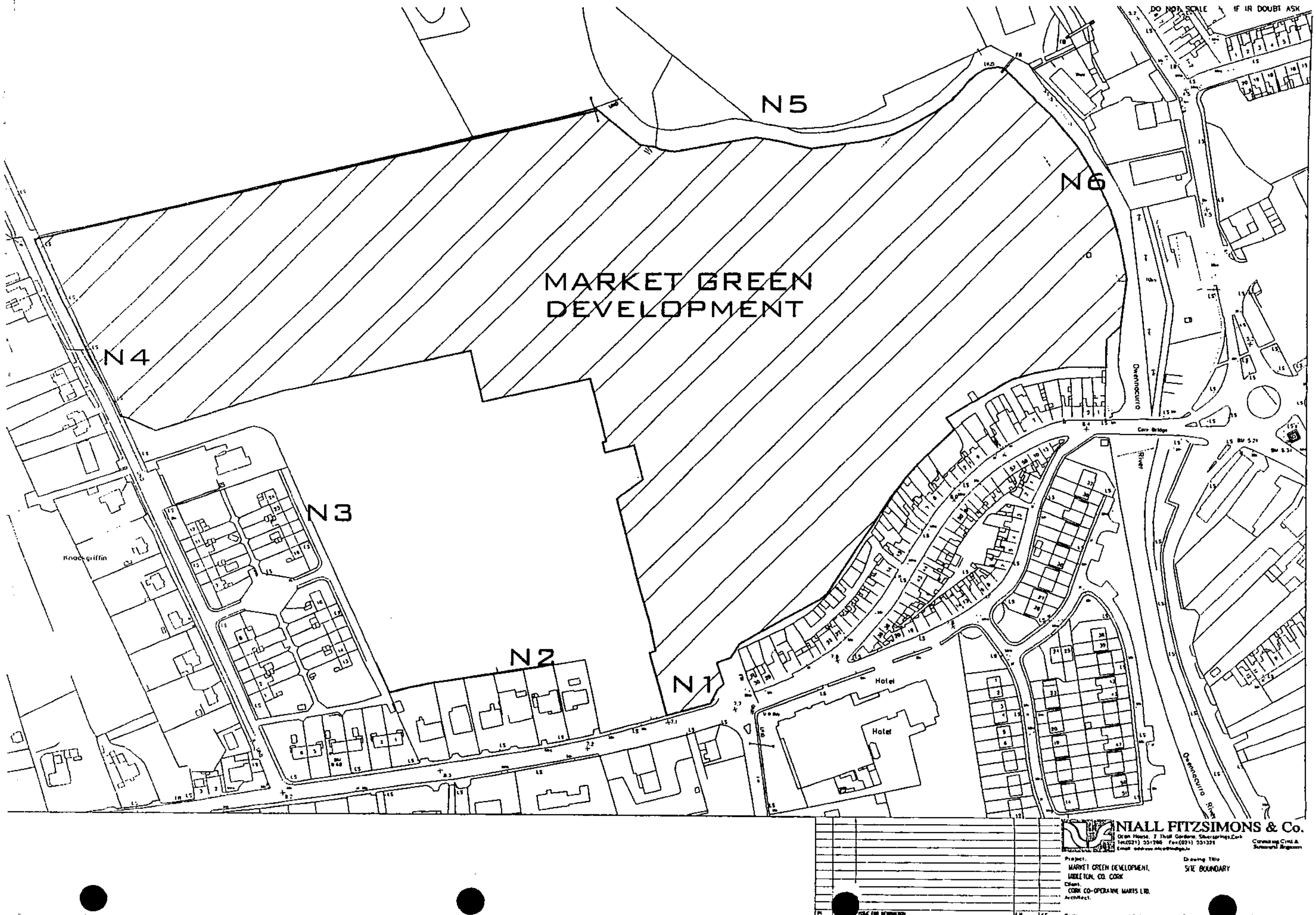

DO NOT SCALE IF IN DOUBT ASK
MARKET GREEN
DEVELOPMENT
N1
N2
N3
N4
N5
N6
Hotel
Hotel
Owennacurra
Owennacurra River
River
Knockgriffin
Corr Bridge
NIALL FITZSIMONS & Co.
Consulting Civil & Structural Engineers
Project.
MARKET GREEN DEVELOPMENT,
MIDLETON, CO. CORK
Client.
CORK CO-OPERATIVE MARTS LTD.
Architect.
Drawing Title
SITE BOUNDARY
ISSUE FOR INFORMATION
DATE
Scale.
Job No.
Date.

TABLE 14.3 - NOISE LEVELS MEASURED AT SITE BOUNDARY

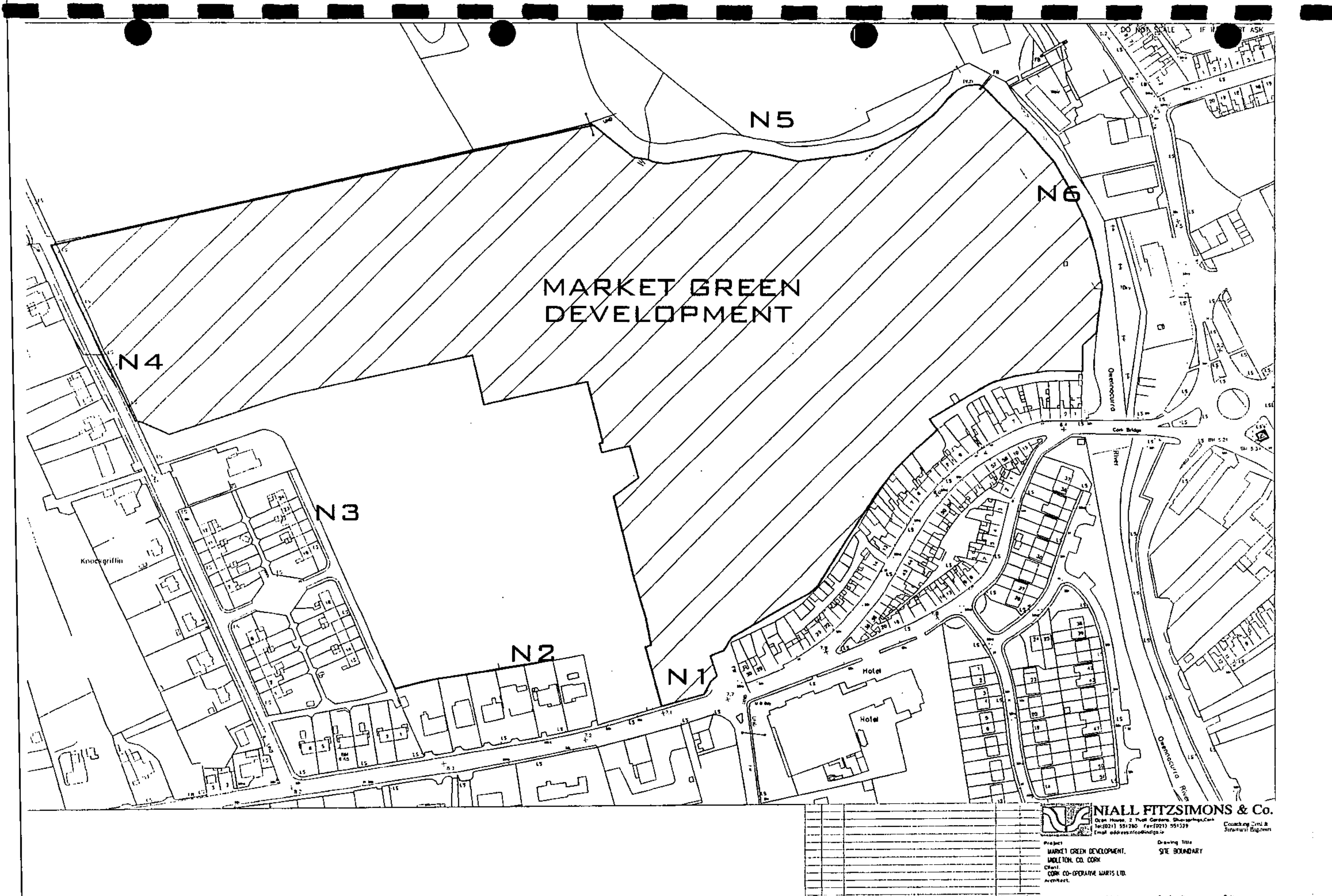
Measurement Time	L_{Aeq}	L_{Amax}	L_{A10}	L_{A90}	Notes
Position 1					
08:30	69	84	72	58	Heavy and constant traffic Some construction noise nearby.
11:40	67	81	70	57	Traffic still heavy.
Position 2					
08:51	60	89	60	47	Main traffic noise loading and unloading of trucks at co-op stores.
Position 3					
09:20	47	66	49	41	Some local movement
12:02	48	69	49	42	Some local movement
Position 4					
09:40	64	87	62	43	Generator noise from nearby road works approx. 30m. Dog barking
12:20	62	85	63	44	Traffic dominant noise source. Also bird song.
Position 5					
10:05	43	59	45	40	
12:45	56	76	51	40	Some construction at house nearby.
Position 6					
10:30	51	74	53	47	Local and distant traffic noise
13:30	53	74	53	47	
Position 7					
11:05	50	70	51	45	Traffic noise
13:35	47	64	48	43	
Average	**55**	**75**	**56**	**46**	

Table 14.3 *Noise levels measured*

TABLE 14.4 TRAFFIC FLOW INFORMATION

ROAD	Current Year	Current + Proposed Development	2004 + Proposed Development
Main Street	1249	1372	1436
Riverside way	737	801	830
Cork Road	1511	1647	1712
New Road	N/A	467	467
Mill Road	1152	1269	1331
Goose Green	319	346	358

Table 14.4 *Traffic flow information.*



DO NOT SCALE
N5
N6
MARKET GREEN
DEVELOPMENT
N4
N3
N2
N1
Knockgriffin
Hotel
Hotel
Cork Bridge
Owennacurra
River
NIALL FITZSIMONS & Co.
Consulting Civil & Structural Engineers
Project
MARKET GREEN DEVELOPMENT,
MIDLETON, CO. CORK
Client
CORK CO-OPERATIVE MARTS LTD.
Architect
Drawing Title
SITE BOUNDARY

APPENDIX VII

RETAIL & ECONOMIC TABLES AND SUPPORTING INFORMATION

SECTION A

MIDLETON TOWN CENTRE
HEALTH CHECK ASSESSMENT

MIDLETON TOWN CENTRE
HEALTH CHECK
(Assessment of Vitality and Viability)

1.0 Introduction

1.1 The Irish Retail Planning Guidelines (December 2000) advocate the use of health check assessments of existing centres in order to determine their vitality and viability. In undertaking such an assessment Annex 2 sets out those matters, which should be taken into account as follows;

1. Diversity of uses;
2. retail representation;
3. shopping rents;
4. proportion of vacant street level property;
5. Accessibility;
6. environmental quality;
7. customer views and behaviour;
8. perception of safety and crime;
9. commercial yields; and
10. pedestrian flows.

1.2 Although Midleton is not strictly recognised as a third tier town in the Retail Planning Guidelines, the Guidelines do regard Midleton as a third tier shopping location, albeit to a more limited extent. Paragraph 10 of the Guidelines states that such locations contain convenience goods outlets on a par with settlements identified in the third tier of towns, and most have national supermarket chain representation.

2.0 Definition of Midleton Town Centre

2.1 Midleton central area is outlined by the Land Use Zoning Map in the 1998 Development Plan. It includes a designation for 'Town Centre/Mixed Uses', which covers an extensive area, including the application site. Midleton has a very compact, strongly defined primary retail area consisting of the Main Street running north to south with lanes and shops running off Main Street. In our opinion, the primary retail area of Midleton is based around Main Street, Connolly Street and Broderick Street.

3.0 Diversity of Uses and Retailer Representation

3.1 The structure of Midleton Town Centre and diversity of uses was established by undertaking a survey of the town centre and recording the uses of all ground floor properties within the main shopping area.

3.2 The table below illustrates the breakdown of various uses. As can be seen, retailing, comparison and convenience, dominates the centre accounting for 36.7% of existing units with comparison shopping dominant in terms of overall retail provision (63 units or 24%). The retail sector generally, is characterised by independent traders rather than multiples, which would be anticipated for a centre such as Midleton and reflects the findings of the Cork Retail Study 1997.

Table 3.1

Unit	Convenience	Comparison	Service	Office	Other	Vacant	Total
No.	32	63	72	3	71	27	268
%	11.9	23.5	26.9	1.1	26.5	10.1	100

3.3 In terms of convenience provision, there is 1 national retailer in the town centre, namely Tesco Ireland. The company's store is located in the primary retail area to the south of Main Street. SuperValu operate a unit on the edge of the primary retail area, at the northern end of Main Street. A Co-op

Superstore provides a unit outside of the primary retail area to the west of Main Street on New Cork Road.

3.4 The convenience floorspace offered by Tesco is $705m^2$. The Tesco store is located to the southern end of Main Street. The store is small which limits the range and choice of goods that it can sell. Most notably the store has no fresh meat, fish, bakery or cheese counters. Internally the store has narrow, cramped aisles leaving limited room for customers to manoeuvre. The store cannot cater for main/weekly or less frequent shopping trips, confirmed by or observations of the facility as many shoppers were simply carrying out smaller basket or day to day, top up shopping.

3.5 SuperValu is located at the northern end of Main Street on Lower Mill Road. The in-store environment is quite modern and vibrant but has a relatively restricted range and choice of goods laid out in a rather awkward and confusing aisle arrangement. The store has adjacent customer car parking, which enhances its ability to meet the needs of the car borne weekly bulk food shopper in a more convenient manner than would be experienced at the Tesco store.

3.6 The Co-op Superstore is located to west of Main Street on New Cork Road and contains a number of small retail units occupied by a café, off licence, newsagents and clothes shop. The store itself has a dated interior and stocks a limited range and choice of convenience goods, but offers a range of comparison/bulky goods. The layout seeks to maximise sales space resulting in reduced circulation space at the expense of customer comfort and convenience, thus the store does not cater for the main weekly bulk food shopping trip in the way that would be provided for by the SuperValu store.

3.7 Aside from these larger convenience stores, there are a number of smaller convenience retailers located in, on the edge and outside of the town centre, these include a Spar ($115m^2$) on Main Street, Centra ($110m^2$) on New Cork Road, a Spar ($103m^2$) and a Mace ($65m^2$) on Lower Mill Road. The existing

supermarkets are complemented by a range of independent small convenience outlets including newsagents, butchers, grocers and off licences.

3.8 The comparison sector is characterised by smaller shops offering a modest range of clothing and footwear, gifts, books, jewellery and household goods including a furniture store, electrical shop and decoration shop. Whilst there are a lack of national multiple retailers in the town, there is a reasonable range of choice of comparison shops. Nonetheless the town's popularity as a non-food shopping destination is overshadowed by the predominance of Cork City Centre, demonstrated by both the 1997 Cork Retail Study and the CIT Shopper Survey.

3.9 In addition to conventional retailing, the town centre provides a mix of other uses including tourism related facilities. Midleton is situation on the major tourist route from Rosslare to the West and offers a convenient base for tourists visiting East Cork. The development by Irish Distillers of the Old Distillery as a major Industrial Museum and Heritage Centre has helped to promote tourism in Midleton. Tourism is supported by a small number of hotels and public houses, restaurants, cafes, and a tourist office.

3.10 In addition to retail and tourism, there is a range of services in Midleton including hairdressers, banks, estate agents and other office uses. Coupled with residential uses nearby, the town centre is active and busy with uses that add vibrancy both during the day and evening.

4.0 Vacancy Rates

4.1 One factor often used to provide an indication of the health of a centre is the proportion of units, particularly in the primary shopping area, that are vacant. Table 3.1 above shows that in 2002 vacancy rates stand at 10.1%.

4.2 Within the town centre of Midleton there has been a number of new retail units built as part of larger housing office developments. Most of the vacant units are located away from the key shopping streets and do not form part of

the natural commercial core. There are 6 vacant units in total located at Corballey Court and behind Distillery Walk there are a further 3 vacant units. The estate agent acting on behalf of the developer has informed us, that the units were completed in December 2001 and although they have yet to be occupied, there has been much interest, with one unit having already been taken. The estate agent envisages potential occupiers to include uses such as, a ladies clothes shop, hair salon, furniture shop and coffee shop.

4.3 Taking into account the 10.1% vacancy rate, it can be considered that overall the vacancy rate is very low and therefore it is not at a level that warrants concern regarding the health of the town centre as some vacancies always exist in any centre to allow for the natural turnover of business premises.

5.0 Shopping Rents and Yields

5.1 Zone 'A' rental levels over time provide an indicator of viability of a town centre. Informal discussions with the agent acting on behalf of Tesco Ireland suggest that in the prime shopping area of the Main Street, Zone 'A' rents reach up to £20 per square foot, which would be expected for this local market and a town the size of Midleton.

5.2 Yields are also often used as a factor to help assess the viability of a town centre. Some caution, however, must be attached to the use of yields in isolation as they can distort the reality of the market. However, the agent to Tesco informed us that there are no available figures on the property yields for Midleton.

6.0 Accessibility

6.1 Accessibility has been identified as a problem in Midleton Town Centre. Over recent years there have been a number of improvements to the road network in and around Midleton namely, the development of the by-pass (N25), the development of the inner relief road (Riverside Way) and the widening of Church Lane to allow easier access from Main Street to Riverside Way.

6.2 Although these improvements have led to a reduction in through traffic and improved the conditions on Main Street, congestion on Main Street is still caused by delivery vehicles and on street/double parking. The Midleton Development Plan states that new parking regulations restricting parking to 2-3 hours on Main Street, Connelly Street and Broderick Street have come into force, however the lack of enforcement has resulted in great difficulty in obtaining parking spaces on Main Street (Paragraph 2.3.5). Despite the Council's efforts to reduce the level of on street parking it is evident from visiting the town that it is still a major cause of traffic congestion through the town.

6.3 In addition to the traffic congestion, facilities for pedestrians crossing Main Street are poor. There is currently only one pedestrian crossing located to the northern end of the town. However, the Development Plan states that a further crossing is proposed at the southern end of Main Street, immediately north of the junction with Broderick Street (Paragraph 2.3.9).

6.4 As part of the Council's general aims and objectives for the development of Midleton, the Development Plan sets out a number of general transport policies. These include:

> *"To facilitate the provision of adequate public and private transport to serve the area*
>
> *To provide adequate parking facilities to serve the town*
>
> *To provide ease of access to pedestrians to the shops and other facilities in the town and to ensure the free flow of traffic through the town*
>
> *To encourage Iarnrod Eireann to re-establish the rail service between Cork and Midleton"* (Paragraph 3.5.1 – 3.5.4).

6.5 In relation to car parking facilities, there are a number of small car parks located within the town centre. However, several of the car parks are located off narrow streets and this combined with traffic congestion can reduce

accessibility. In terms of pedestrian access, with residential areas located in close proximity to the town centre, this enables those living nearby to walk in or cycle.

6.6 With regard to public transport, Midleton is served by 20 Bus Eireann services to and from Cork each day. Many of these continue to other destinations such as Youghal, Waterford and Ballycotton. The bus stop is located in the town centre on Main Street. Although a train station is located to the north of the town centre, it is currently closed. The Council is in early discussions with Iarnrod Eireann to the possibility of re-opening the station and establishing a rail service between Cork and Midleton.

7.0 Pedestrian Flows

7.1 We are not aware of any available survey data on pedestrian flows in Midleton although from our own observations of the various streets within the town centre it is clear that the main flow of shoppers occurs along Main Street.

8.0 Perception of Safety and Occurrence of Crime

8.1 With the range of uses in the town centre, including shops and other attractions such as restaurants and public houses, the centre is relatively busy during the daytime and into the evenings ensuring a safe and secure environment.

9.0 State of the Town Centre Environmental Quality

9.1 The Town Centre presents a reasonably attractive layout, conducive to pedestrian activity due to its compact scale. The primary retail area of the town is composed of three main streets: Main Street, Connolly Street and Broderick Street.

9.2 The visual quality and attractiveness of the town has been improved recently through shop front innovation and appropriate signage. However, further work

in upgrading shop fronts would do much to improve the overall perception of the environmental quality of the centre.

9.3 The impact of through traffic does have a detrimental impact on the environmental quality of the town centre. However, the Council's aims to provide adequate parking facilities, improve accessibility for pedestrians and to facilitate the provision of adequate public transport will have a beneficial impact on the town centre's environmental quality. Such improvements will enhance the pedestrian amenity and encourage further general environmental improvements.

9.4 The town appears to have a high maintenance standard with little impact from litter or graffiti.

9.5 The built environment of Midleton is of a reasonable standard with a small number of buildings and features of architectural interest including: the Courthouse, the Old Town Hall and the properties currently occupied by the AIB Bank and the Roses Coach Inn all of which are located on Main Street and are considered by the Council to be of historic and archaeological merit.

9.6 Over recent years there have been a number of environmental improvements to the town namely the development of Distillery Walk with high quality footpaths, adjacent to which the improvement to the Owenacurra River which as been opened up and part landscaped. More recent retail and residential development in the town centre has occurred to the rear of Main Street at Corballey Court. The mix of commercial and residential uses in the town has added to the sense of vibrancy both during the day and the night.

9.7 Overall, Midleton town centre presents a relatively attractive built environment, but one that would benefit from further investment and upgrading.

10.0 Conclusion

10.1 Midleton is an attractive and busy town, which offers a choice of predominantly comparison shopping providing the mainstay of trade in a compact, safe and attractive environment. Traffic congestion has been noted as a problem for the town's environmental quality, exacerbated by conflict between on street parking and through traffic. Our wider examination of Annex 2 indicators of the Retail Planning Guidelines demonstrates that the town centre is healthy and is both vital and viable.

SECTION B

CORK RETAIL STUDY- ROGER TYM AND PARTNERS (1997)

DEVELOPMENT ECONOMISTS AND PLANNERS

Roger Tym & Partners

RECEIVED
2 4 SEP 2001

A RETAIL STUDY OF COUNTY CORK

For
Cork County Council
City of Cork Corporation

LONDON GLASGOW MANCHESTER TRURO WARSAW HONG KONG

4.6 All telephone surveys suffer from this problem, since telephone subscribers tend to have higher-than-average incomes. Nevertheless the correlation between telephone connections and car ownership seems to be especially high in the Cork area. At the same time, the differences are not as serious as they seem from the table since there have been substantial increases in car ownership since the Census. Between 1991 and 1995 there was an increase of 19 per cent in the number of cars registered in the areas covered by Cork Corporation and Cork County Council.

4.7 We combined these data on current vehicle registrations with estimates of the number of households to obtain the number of cars per household in each year since the Census. In 1991 the ownership rate was 0.90, an identical figure to that given by the Census. By 1995 the rate had risen to 0.99. Projecting the trend forward to 1997 gives a rate of 1.06. To compare this rate with the survey results we needed to translate it into the type of distribution given by Table 4.1, that is the percentages of households with no car, one car and two or more cars. In doing this we were guided by the 1991 Census distribution in two of the Study area zones, where car ownership had already risen above 1.06 cars per household by the time of the Census. The resulting estimate gave 23.0 per cent of households with no car, 51.9 per cent with one car and 25.2 per cent with two or more cars. The survey results were then weighted to give this distribution.

Shopping Patterns

4.8 Respondents were asked in the survey to name the centres they used for three categories of shopping: supermarket shopping, clothing and footwear and bulk durables. For each category they were asked to name the main centre used and any secondary centre. To convert the results into estimates of market shares we needed to convert the data for "main" and "second" centres into a single distribution. The two distributions were therefore merged, using weighting factors derived from previous Roger Tym & Partners surveys. The results are given by Tables 4.2 to 4.4, which are now discussed in turn.

Supermarket Shopping

4.9 Table 4.2 gives the market share picture for supermarket shopping. Each cell of the table gives each centre's market share of available supermarket expenditure in the relevant zone. Thus it will be seen that Cork City centre was the main location for the City North zone, accounting for 62 per cent of the expenditure of respondents living in that zone. This dominance of the City centre is explained by the scarcity of suburban shopping in the northern part of the City: Ballyvolane is the only significant suburban centre in the north but there are many suburban centres in the south, notably Bishops Court, Bishops Town, Douglas Court, Douglas Village and Wilton. Residents of the southern part of the City directed most of their convenience expenditure to these centres, with the City centre accounting for less than one third. Further out, in the inner ring, the City centre was still less prominent. About half the expenditure went to the six suburban centres named above, with most of the remainder going to the three main centres located within this ring: Ballincollig, Carrigaline and Cobh. These are termed "satellite towns" in the LUTS study and the South Cork Structure Plan.

4.10 In the outer parts of the survey area most supermarket expenditure was captured by the county towns. In the Northern zone, trade was dominated by the two main centres, Fermoy and Mallow, which accounted for almost 90 per cent of the expenditure of respondents living in that zone. Similarly, the

TABLE 4.2 MARKET SHARE, SUPERMARKETS

	Survey Area %	City North %	City South %	Inner Ring %	Outer West %	Outer North %	Outer East %
No place/ don't buy							
Cork City Centre	20.4	62.2	30.8	11.7	6.3	3.9	2.3
Bandon	3.2				24.0		
Ballincollig	4.1			10.1	7.4		
Ballyvolane	6.9	25.5	1.0	8.4	0.2	0.6	3.9
Bishopstown	1.5		4.1	0.8	3.0		
Bishops Court	3.4	0.4	5.5	4.5	5.6		0.2
Blarney	0.9			2.1	1.5		
Carrigaline	2.6			7.7	1.9		
Clonakilty	0.1				0.4		
Cobh	3.3			11.0			
Douglas Court	8.3	0.7	14.3	15.9	1.7		0.2
Douglas Village	6.0	0.2	9.6	12.3	0.4		0.7
Fermoy	2.7			0.2		29.6	
Glanmire/ Riverstown	0.4			1.5			
Kinsale	1.2			0.1	8.6		
Macroom	2.2				16.3		
Mallow	5.9		0.2		4.3	58.3	0.2
Midleton	7.9			2.8		0.6	61.4
Togher	0.6		2.2	0.3	0.4		
Wilton	8.1	3.7	22.7	6.6	5.0		
Youghal	2.9						25.4
Woodies							
Atlantic Homecare							
Cobh Cross							
Hollyhill	0.9	6.3					
Mail Order							
Other/ various	6.5	0.9	9.6	4.1	12.9	7.0	5.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Eastern zone was dominated by Midleton and Youghal. The Western peripheral zone was more fragmented: about half the expenditure went to the indigenous centres of Bandon, Macroom and Kinsale, while most of the remainder went to other zones, including a proportion who used the suburban centres in the southern part of the City. We have employed the term "ring towns" to collectively describe the first six of these centres as this is their designation in the County Cork Structure Plan

4.11 As expected, Dunnes, Quinnsworth and Roches were the main operators for residents of the two City zones and the Inner Ring. Further out, the SuperValue and Centra chains gained importance, together with the Co-op and other smaller operators.

Clothing and Footwear

4.12 Table 4.3 gives the market share distribution for clothing and footwear. Later in this report we take this distribution as a proxy for "pure comparison shopping" in general and have labeled this table accordingly. Pure comparison shopping covers that type of shopping which typically occurs in high street retail cores. The term excludes bulk durable shopping.

4.13 The picture was dominated by Cork City centre, which had a commanding position over the entire survey area. It accounted for around 80 per cent of expenditure in the two City zones and was by far the largest centre for the other four zones, except in the North where its trade was narrowly exceeded by that of Mallow. Once again, the county towns - particularly Mallow and Midleton - were prominent in the outer zones and the suburban centres of South Cork took a fair share of trade in the South City Zone and the Inner Ring.

4.14 There does not seem to be much leakage of comparison trade from the survey area. The residual group of 'other' centres, which only accounted for a few per cent of the total, includes all the external centres such as Dublin (together with some miscellaneous centres within the Survey Area). Only about two per cent of Study Area expenditure went to these 'other' centres.

4.15 The survey does not give any direct information about expenditure flows in the opposite direction - from people living outside the survey area to the City centre and other places within the survey area. But it is clear from the results that the influence of the City centre must extend over a considerable distance. The rate of attrition of this influence with distance is quite low - from 80 per cent to 90 per cent in the two City zones, down to 70 per cent in the Inner Ring but still more than 35 per cent in the outer zones. It is evident that the level will only approach zero at points well outside the survey boundary. This is in line with the analysis of the national shopping hierarchy given in Section Two. The closest regional centres are Waterford and Limerick, while for certain specialist functions the closest competitor is Dublin.

4.16 These observations apply to clothing, footwear and other forms of 'pure' comparison shopping. With bulky goods the influence of the City centre declines more rapidly with distance (see below) while for supermarket shopping the results have demonstrated highly localised shopping patterns.

TABLE 4.3 MARKET SHARE, CLOTHES/SHOES

	Survey Area %	City North %	City South %	Inner Ring %	Outer West %	Outer North %	Outer East %
No place/ don't buy							
Cork City Centre	70.0	89.8	78.8	70.5	54.3	35.5	63.9
Bandon	2.3			0.7	16.0		
Ballincollig	0.5	0.2		1.2	0.9		
Ballyvolane	1.8	6.1	0.3	1.7		0.5	2.7
Bishopstown	0.7		1.9	0.6	1.1		
Bishops Court	1.1		1.1	1.5	3.2		0.2
Blarney	0.1	0.2		0.1	0.6		
Carrigaline	0.3			0.9	0.2		
Clonakilty	0.1				0.5		
Cobh	1.0			3.3			
Douglas Court	3.9	0.3	5.2	8.2	1.3		0.5
Douglas Village	1.5	0.4	2.9	2.6		0.2	0.2
Fermoy	1.3		0.1	0.3		16.4	0.2
Glanmire/ Riverstown							
Kinsale	0.1				0.9		
Macroom	1.6			0.3	13.5		
Mallow	3.7			0.4	3.1	41.6	
Midleton	3.1	0.4	0.4	1.3			21.9
Togher	0.0		0.1				
Wilton	3.5	1.0	8.1	4.2	2.6		
Youghal	0.9						7.4
Woodies							
Atlantic Homecare							
Cobh Cross							
Hollyhill							
Mail Order							
Other/ various	2.2	1.6	1.1	2.0	1.9	5.7	3.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 4.4 'MARKET SHARE, BULKY GOODS

	Survey Area %	City North %	City South %	Inner Ring %	Outer West %	Outer North %	Outer East %
No place/ don't buy							
Cork City Centre	53.7	75.0	66.4	61.1	42.2	14.5	17.1
Bandon	2.9		0.1	0.3	21.7		
Ballincollig	1.5	1.1	0.4	3.3	2.0		
Ballyvolane	0.2	1.2		0.0			
Bishopstown	0.1		0.2	0.2	0.1		
Bishops Court	0.0		0.1				
Blarney	0.0	0.1		0.0			
Carrigaline	0.9			2.6	0.6		
Clonakilty	0.5		0.4	0.2	2.8		
Cobh	0.7	0.1	0.4	1.4	0.1		1.4
Douglas Court	0.8		0.8	1.9	0.6		
Douglas Village	1.8		3.0	3.9			
Fermoy	1.7			0.2		23.0	
Glanmire/ Riverstown	0.1			0.3			0.1
Kinsale	0.5		0.1		3.8		
Macroom	1.6				15.0		
Mallow	3.8	0.5			0.7	48.2	
Midleton	7.1	0.1		2.9		1.0	51.1
Togher	0.2	0.1	0.2	0.5			
Wilton	1.2	0.6	4.4	0.7	0.1		
Youghal	2.7						22.4
Woodies	7.3	5.8	11.9	11.2	2.9		1.3
Atlantic Homecare	3.6	9.9	7.4	2.0	0.6		0.1
Cobh Cross	1.8	0.7	1.4	2.9		1.1	2.9
Hollyhill	0.2	0.8		0.3			
Mail Order							
Other/ various	4.8	4.0	3.0	3.9	6.9	12.3	3.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Bulk Durables

4.17 With bulk durables (Table 4.4), the City centre was again important, though to a lesser extent than with clothing and footwear. It accounted for more than 60 per cent of the expenditure of the two City zones and the inner ring. In the outer zones the satellite towns, particularly Mallow and Midleton, were again prominent, while the City suburban centres were again only minor players.

4.18 There are not many retail warehouses in the survey area. Woodies (DIY) and Atlantic Homecare accounted for some 10 per cent of expenditure in the two City zones. There are peripheral areas of the City where there is some local concentration of shops selling a high proportion of furniture and DIY items – i.e Blackpool, Washington Street and Kinsale Road.

North Main Street

4.19 Respondents who had named Cork city as a main or secondary centre for any of the three shopping categories were asked about their use of North Main Street. Did they ever use North Main Street or was their shopping confined to the main part of the centre, around Saint Patrick Street, Grand Parade, Oliver Plunkett Street and Merchant's Quay? The answers confirmed the view that North Main Street is favored by people who live in the northern part of the City (Table 4.5). Less than a third of them said they never used North Main Street, compared with half of those from the southern part of the city.

Mode of Transport

4.20 Tables 4.6 to 4.8 give the mode of transport normally used to get to the main centres for the different kinds of shopping trip. Comparing these tables with Table 4.14, which gives car availability by zone, it will be seen that a fair proportion of car-owning households did not always use their cars for shopping. One reason is that the family car will often have been in use by the husband when the wife went shopping. In addition trips to the City centre are not always easily made by car - because of road congestion and poor parking facilities - while public transport in the City is better than outside. The car is more often used for bulk durables and for supermarket shopping than for clothes and shoes, partly for ease of carriage but also because the last type of shopping often involves trips to the City centre.

Satisfaction with Shopping Facilities

4.21 We asked respondents to consider the shopping facilities that were accessible to their homes and to say how they felt about them.(Table 4.9) In previous surveys carried out by Roger Tym & Partners such questions have often elicited a level of dissatisfaction but here the results are overwhelmingly favourable. Well over a half of the respondents said they were 'very satisfied', while a further quarter said things were 'all right' Hardly anybody expressed extreme dissatisfaction with the situation. The level of satisfaction seemed somewhat higher in the City than in the County areas but the differences were not great.

SECTION C

EXTRACTS FROM THE SHOPPER SURVEY BY CORK INSTITUTE OF TECHNOLOGY

Retail Shopping Survey

Midleton

Co Cork

Charts and Tables

January 2002

Report by
John Murphy
and Michael Walsh
Cork Institute of Technology

For
Cohalan Downing and Associates
Estate Agents and Valuers
Cork

Table 5: Shopping Patterns for Food in Competing Locations

Absolute Break % Respondents	Base	Cork City Centre	Blackpool	Ballyvolane	Douglas	Wilton	Youghal
Base	1314	219	219	219	219	219	219
No reply	6 0.5%	1 0.5%	1 0.5%	1 0.5%	1 0.5%	1 0.5%	1 0.5
Grid Table							
Shop Daily	11 0.8%	5 2.3%	1 0.5%	- -	1 0.5%	- -	4 1.8
Shop Weekly	77 5.9%	47 21.5%	- -	9 4.1%	12 5.5%	1 0.5%	8 3.7
Shop on occasions	334 25.4%	91 41.6%	29 13.2%	44 20.1%	75 34.2%	47 21.5%	48 21.9
Don't shop	887 67.5%	76 34.7%	188 85.8%	165 75.3%	130 59.4%	170 77.6%	158 72.1

SECTION D

PER CAPITA SPENDING CALCULATIONS- METHODOLOGY

Per Capita Expenditure Methodology
1997 Prices

Annual Services Inquiry 1997 - Retail Turnover

Total Turnover	£,000	€,000
Convenience	6,032,121	7,298,866
Comparison	4,978,236	6,023,666

Disposable Income - Household Incomes 1997 - CSO Table 6a

	£ 1997	€ 1997	Population 1997	Disposable Income £m	Disposable Income €m	Pecentage
Cork	7,893	9,551	422,510	3,334,871,430	4,035,194,430	11.54%
State	7,894	9,552	3,660,000	28,892,040,000	34,959,368,400	100%

Implied Per Capita Expenditure 1997 in 1997 Prices

Turnover	Convenience £,000	Convenience €,000	Comparison £,000	Comparison €,000
National	6,032,121	7,298,866	4,978,236	6,023,666
Cork	696,259	842,474	574,614	695,283
Implied per Capita	£ 1,648	1,994	£ 1,360	1,646

SECTION E

ECONOMIC TABLES

TABLE 1
POPULATION

Zone		1991	1996	2002	2005
	1	6,718	6,972	7,742	8,786
	2	5,478	5,609	6,247	7,119
	3	10,550	10,882	11,300	11,515
TOTAL		22,746	23,463	25,289	27,420

TABLE 2A
Per Capita Expenditure Convenience Goods
£ AND € 1997 Prices

	1991	1996	2002	2005
£	1481	1,619	1818	1893
€	1792	1959	2200	2291

TABLE 2B
Per Capita Comparison Expenditure
£ AND € 1997 Prices

	1991	1996	2002	2005
£	664	1207	2008	2325
€	803	1460	2430	2813

TABLE 3A
Total Available Convenience Expenditure
1997 Prices

	1991	1996	2002	2005
Zone 1	£ 9.95 12.04	£ 11.29 13.66	£ 14.08 17.04	£ 16.63 20.13
Zone 2	£ 8.11 9.81	£ 9.08 10.99	£ 11.36 13.74	£ 13.48 16.31
Zone 3	£ 15.62 18.90	£ 17.62 21.31	£ 20.55 24.86	£ 21.80 26.38
TOTAL	£ 33.68 40.75	£ 37.98 45.96	£ 45.99 55.64	£ 51.91 62.81

TABLE 3B
Total Available Comparison Expenditure
1997 Prices

	1991	1996	2002	2005
Zone 1	£ 4.46 5.40	£ 8.41 10.18	£ 15.55 18.81	£ 20.43 24.71
Zone 2	£ 3.64 4.40	£ 6.77 8.19	£ 12.55 15.18	£ 16.55 20.03
Zone 3	£ 7.00 8.47	£ 13.13 15.89	£ 22.69 27.46	£ 26.77 32.39
TOTAL	£ 15.10 18.27	£ 28.31 34.26	£ 50.79 61.45	£ 63.74 77.13

TABLE 4

MARKET SHARES

	Zone 1 Midleton	Zone 2 Cityside	Zone 3 Youghal
ZONE 1 Midleton			
Tesco	11.00%	7.00%	10.00%
SuperValu Sarsfield St	32.00%	23.00%	25.00%
Co-op Superstore	12.00%	8.00%	10.00%
LIDL	16.00%	11.00%	15.00%
Other Convenience	13.00%	8.00%	10.00%
ZONE 2			
Convenience	0.00%	13.00%	0.00%
ZONE 3			
Convenience	0.00%	0.00%	15.00%
Outside Study Area	*16.00%*	*30.00%*	*15.00%*
TOTAL	100.00%	100.00%	100.00%

TABLE 5

CONVENIENCE TRADE DIVERSION AND RETAIL IMPACT

		Turnover 2002 £m €m	Turnover 2005 £m €m	Tesco Replacement Uplift £M €m	Trade Diversion £m €m	Retail Impact %
ZONE 1 Midleton		Col 1	Col 2	Col 3	Col 4	Col 5
Tesco - Replacement Store		£4.63 5.60	£5.21 6.31		£ 9.66 11.69	185%
SuperValu Sarsfield St		£12.90 15.61	£14.60 17.67		-£ 2.26 - 2.73	-15%
Co-op Superstore		£4.90 5.93	£5.53 6.69		-£ 0.42 - 0.51	-8%
LIDL		£6.93 8.39	£7.80 9.44		-£ 0.63 - 0.76	-8%
Other Convenience		£4.79 5.80	£5.42 6.56	£ 9.66 11.69	-£ 0.27 - 0.32	-5%
ZONE 2 Convenience		£1.48 1.79	£1.75 2.12		£ -	0%
ZONE 3 Convenience		£3.08 3.73	£3.27 3.96		£ -	0%
<u>Outside Study Area</u>		£8.74 10.58	£9.97 12.07		-£4.97 - 6.02	-50%

Notes:
Tesco Turnover in Column 3 is theuplift in turnover once the trade from the town centre store is subtracted. £14.87-£5.21

SECTION F

THEORETICAL CONVENIENCE AND COMPARISON RETAIL CAPACITY TABLES

TABLE A
CONVENIENCE RETAIL CAPACITY (1997 PRICES)

	Net Sales Area sqms	Average Sales Density £/sqm	Average Turnover £m		
ZONE 1					
Midleton					
Tesco	900	6458	£	5.81	
SuperValu Sarsfield St	1679	4843	£	8.13	
Co-op Superstore	774	4843	£	3.75	
LIDL	1250	4305	£	5.38	
Other Convenience	1906	2691	£	5.13	
ZONE 2					
Convenience	449	2691	£	1.21	
ZONE 3					
Convenience	1127	2691	£	3.03	
Total Turnover 2002 £m			£	32.44	Row (a)
				39.26	€
Total Available Expenditure 2002 £m			£	45.99	Row (b)
				55.64	€
Headroom*			£	13.54	Row ©
				16.39	€
Growth in Convenience Expenditure					
2002-2005			£	5.92	Row (d)
				7.16	€
Total Convenience Expenditure Capacity by 2005			£	*19.46*	Row (e)
				23.55	€
Turnover of Tesco foodstore after subtracting Turnover of existing Tesco at 2005			£	9.66	Row (f)
				11.69	€
Residual Convenience Capacity			£	9.80	Row (g)
				11.86	€

* - Headroom represents the position whereby demand (or available expenditure) is greater than the turnover of existing retail floorspace.

TABLE B
COMPARISON RETAIL CAPACITY (1997 PRICES)

	Net Sales Area sqms	Average Sales Density £/sqm		Average Turnover £m	
Total Comparison Floorspace in Midleton	5,295	2,691	£	14.25	Row (a)
				17.24	€
Total Available Comparison Expenditure 2002			£	50.79	Row (b)
				61.45	€
Headroom			£	36.54	Row ©
				44.21	€
Growth in Comparsion Expenditure 2002-2005			£	12.96	Row (d)
				15.68	€
Total Available Capacity by 2005			£	49.50	Row (e)
				59.89	€
Turnover of proposed Comparison floorspace 2005 (Blocks 1,3 & 4)*	3,558	3,229	£	11.49	Row (f)
				13.90	€
Turnover of Blocks 6,7&13*	3,139	3.229	£	10.14	Row (g)
				12.27	€
Residual Comparison Capacity in 2005			£	27.87	Row (h)
				33.72	€

* - Total comparison floorspace minus 10% for non-retail service uses

SECTION G

RETAIL IMPACT METHODOLOGY- EXPLAINED

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February 2002

Retail Impact Assessment Methodology Explanatory Note

Tony Bamford BSc(Hons) TRP MRTPI
Senior Planner

On behalf of
Tesco Ireland Ltd

LPA Refs:
Job Ref: 419702/NB0001

1.0 INTRODUCTION

1.1 This note has been prepared to assist planning authorities in their interpretation of retail impact assessments.

2.0 RETAIL IMPACT ASSESSMENT METHODOLOGY

2.1 Section 5 of the submitted Retail Assessment sets out the broad step by step methodology, which reflects that recommended in Annex 4 of the Retail Planning Guidelines. Although the methodology we have used in Section 5 differs slightly because we are replacing the an existing foodstore it nonetheless accords with the following broad steps;

1. Establish the primary trading or catchment area of the proposed store (Study Area). Split the study area into broad zones to assist assessment (DPP1).

2. Estimate the population within the defined study area at the current (2002) or base year and at the design year (2005) i.e. the latter being the time at which it is anticipated that a store would have established a settled trading pattern.

3. Establish current per capita spending rates for convenience goods and project forward to the design year.

4. Calculate the volume of retail expenditure currently available within the study area at the base and design year.

5. Estimate the convenience goods turnover of relevant main stores and centres within the study area at the base year by reference to their likely potential market share of available spending.

6. Calculate the expected turnover of the proposed store at the design year by estimating the market share it is likely to achieve on a zonal basis.

7. Calculate the total quantum of retail spending diverted from each existing store/centre to give a measure of trade diversion.

8. Express trade diversion as a proportion of a centre's turnover at the design year to provide a measure of impact.

9. Consider the likely economic implications for existing convenience facilities.

2.2 Steps 1-4 are relatively self explanatory so this explanatory note concentrates on steps 5 to 9 which relates to the calculation of turnovers of existing stores are calculated in the study area and diversion of trade to the proposed Tesco Ireland supermarket.

Step 5 – Estimate the convenience goods turnover of main stores and centres within the study area at the base year and design by reference to their likely potential market share of available spending

2.3 The step-by-step market share methodology provides a systematic framework within which the existing shopping system can be assessed as a basis for testing the effects arising from the introduction of a new store.

2.4 Under the market share approach, the calculation of the turnover of existing shopping facilities at the base year is carried out by allocating available spending in each study zone to existing facilities in the study area and beyond based on market shares (percentage flows, Table 4 attached Appendix 5). A market share is the proportion of available spending in a particular zone that is attracted by a

particular store. For example, in Zone 1, 32% of available convenience goods spending is attracted to the SuperValu foodstore.

2.5 The market shares therefore represent the percentage of a zones spending attracted to identified locations (stores/centres). This then produces monetary flows from zones to stores/centres. To determine what proportion of available expenditure in each zone would be attracted to a particular store or shopping centre (i.e. what their market share would be), a number of factors are taken into account as follows:

- Location of zones in relation to existing shopping facilities.
- Population distribution within the zones.
- Relative size of existing shopping facilities in the study area and beyond.
- Accessibility of existing shopping facilities.
- Attractiveness of existing centre/facilities in terms of size, operator and retail offer.
- The likely quality of a particular facility having regard to its size, location, accessibility and, range of goods sold.
- The function of a shopping facility.
- First hand observations at different times on different days of the trading performance of existing shopping facilities.

2.6 Individuals make decisions regarding their preferred shopping destination based on a number of factors and as such the above considerations are, to an extent, all inter-related. Taken together they assist in the judgements made as to where available convenience expenditure in each zone would be likely to be spent.

2.7 Aside from those factors listed above, there are also a number of general principles applied. For example, it would be expected that the larger a shopping facility is, the more attractive it is likely to be as it would be able to offer a wider range and choice of goods.

2.8 Operator preference would also have an effect, quality of the facility in terms of internal design, whether or not a store or shopping centre is always congested and therefore inconvenient in terms of moving around. Much of this information can be collated by site observations of individual stores and shopping centre trading characteristics.

2.9 Set against the attractiveness of individual facilities and shopping centres, there will also be a range of factors which would deter people from visiting a particular store. For example, lack of convenient and easy access by car, particularly when considering main food shopping, is likely to be a negative factor.

2.10 In some cases people will choose to shop at facilities outside the study area and is commonly referred to as 'outflow'.

2.11 There would also be a distance deterrent function i.e. in general terms, the further someone lives from an individual facility, the less likely they would be to visit it. Therefore, it would be expected that the largest amount of expenditure in a particular zone would be captured by facilities located within that zone. This may be less so for comparison shopping than convenience shopping. The former may be concentrated into the town centre such that the vast majority of spending in this category would be directed there.

2.12 Whilst actual survey data on shopping patterns can help inform judgements made as to the relative attractiveness of centres for particular types of shopping, in the

case of more rural areas such as Midleton, where there are only a limited number of food shopping destinations, it is just as effective to apply reasonable professional judgements based on local knowledge and factors identified above.

2.13 Overall, the process of allocating expenditure to stores in order to build up turnover levels does, by necessity, rely to a degree on professional judgement. However, having regard to those factors outlined above which assist in this process, we consider that the market share approach is robust as it takes into account local circumstances by first calculating the amount of money that is actually available to people in the study area to spend on different types of goods and then seeking to understand where that money is spent.

2.14 Once all available spending in each zone has been allocated by this iterative process, the total amount of spending attracted to an individual store from the study area can be calculated by totalling each row in the resulting monetary flow table. This process obviously only allocates spending by residents within the study area. Some stores/centres within the study area will also attract an element of trade from beyond the study area. An assumption is then made, where appropriate, as to the proportion of a store's turnover that would be derived from outside the study area (i.e. inflow). Added to the turnover from within the study area, provides a total turnover estimate for that store.

2.15 The output of this stage is an estimate of <u>actual turnover levels</u> for individual stores/centres at the base year of the assessment. The turnovers calculated in this way are shown in Column 1 of Table 5 in Appendix 5 of the REA (Turnover at 2001).

2.16 The contribution made by the growth in available spending during the study period (2001 to 2004) is allocated in the same proportion as the market shares at

the base year, before account is taken of the proposed Tesco Ireland supermarket. This produces turnover levels in Column 2 of Table 5 (Turnover at 2004).

Step 6 – *Calculate the expected turnover of the proposed store at the design year by estimating the market share it is likely to achieve on a zonal basis.*

2.17 The **market share approach** takes as its starting point available spending in each zone at the design year. Spending availability literally represents the potential market that a new development could capture or attract. Judgements are then made as to the proportion of available spending in a particular zone (i.e. market share) that would be attracted to a proposed development. In making these judgements, the exercise has regard to a number of factors, including the scale, location, quality and trade draw pattern of other stores and shopping centres in the surrounding area. Regard is also had to accessibility and the distance/deterrence function i.e. the further away you are from a proposed development the greater the number of intervening opportunities that exist (i.e. alternative facilities of a similar size, quality etc., that you would have to pass to reach the new development) the less likely you would be attracted to the proposed development. Accessibility may depend very much on proximity of the site to the main road network or walk-in trade from residential areas.

Step 7 – *Calculate the total quantum of retail spending diverted from each existing store/centre to give a measure of trade diversion*

2.18 Under the **market share approach**, the effect of introducing a proposed development can be modelled on a zonal basis by adjusting market shares of established facilities, taking account of current shopping patterns and the pattern in which a proposal is likely to attract its trade. Clearly if the Tesco Ireland store is going to attract spending then other stores will lose market share. A percentage deduction must therefore be made from one or a number of existing facilities in

that zone and this may also include trade claw-back, which was previously flowing out of the study area (claw-back of outflow). A reduction in market share will be reflected in a decrease in the amount of trade attracted to a specified store/centre from each zone. These reductions or monetary diversions will produce lower turnovers for those stores. The consequent monetary loss of trade from each store is shown in Column 4 of Table 5 and can be expressed as a proportion of its total turnover before the new Tesco opened. This gives an impact percentage (see Column 5 of Table 5) (Step 8 in the market share methodology).

2.19 The market share methodology therefore seeks to build up a picture of change within an identifiable and systematic framework backed by qualitative judgements. Consequently it has to have an internal consistency and logic otherwise its credibility would be questioned.

Step 9 – *Consider the likely economic implications for existing convenience facilities – Interpreting Impact Results*

2.20 Whilst impact percentages are the output of the quantitative side of a retail impact assessment, of significantly greater importance is how the impact level is interpreted i.e. what does it mean, will adverse harm occur to established town centres?

2.21 The answer lies not in the actual percentage but the context within which the impact takes place i.e. the vitality and viability of a centre and the location of the proposed development. Impact percentages are only the first step in any impact assessment. A common misinterpretation of impact percentages is to assume that any impact above a certain benchmark would be harmful. This misunderstands the concept of material harm in a planning sense.

2.22 When interpreting impact results it needs to be remembered that it is not the function of the planning system to prevent competition and that retailing is a competitive industry with all retailers, large and small, constantly seeking to carve out, maintain and grow market share and develop niche opportunities. A good example of the latter are discount traders such as Aldi and Lidl.

2.23 Health checks, based on a number of indicators, determine vitality and viability of an existing centre. Conclusions drawn are supported by the findings of the quantitative analysis which helps to understand if existing stores are trading at high levels (over-trading). In a situation where stores are significantly overtrading, alleviation of some of their trade may have no consequential affect on their future trading viability. In the case of Midleton.we consider that existing stores in the town centre is **are trading well and capable of losing trade without any adverse affect on their future trading viability.**

2.24 When considering impact implications, a further common misinterpretation is that any possible closures arising from a new development represents material planning harm. Whether or not an individual store closes is not the correct policy test. The correct test is whether or not the proposed development would have a harmful affect on the vitality and viability of a centre <u>as a whole</u> and not one store.

2.25 Even if one convenience store were to close, and we do not in any way predict this in the case of Midleton, this would not represent planning harm. Its closure may simply be indicative of consumer preference for a more modern store and this represents healthy competition, something encouraged by the Retail Planning Guidelines (National Objective 2 of the Retail Planning Guidelines). However, often the result of a competitor opening is that instead of closing, existing stores

respond by upgrading their offer. This can only be of benefit to the consumer. In this way the overall quality of food shopping provision in a town is improved as a result of a new development coming forward.

SECTION H
CATCHMENT AREA PLAN

APPENDIX VIII

TRAFFIC TABLES

TRANSPORT RESEARCH LABORATORY

CAPACITIES, QUEUES AND DELAYS AT ROUNDABOUTS

Visual ARCADY 4 ANALYSIS PROGRAM
RELEASE 2.1 (OCT 1998)

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
IN NO WAY RELIEVED OF HIS RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:- "e:\arcady4\samples\midton20.vai" at 10:02:11 on Monday, 18 February 2002

.ROUNDABOUT CAPACITY AND DELAY
++++++++++++++++++++++++++++

RUN TITLE
+++++++++

Middleton Roundabout - Existing Flows + Development Traffic - Feb. 2002

.INPUT DATA
++++++++++

ARM A - Main Street
ARM B - Riverside Way
ARM C - Cork Road
ARM D - New Road
ARM E - Mill Road
ARM F - Gooses Green

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.50	7.50	999.00	10.00	52.33	25.0	0.682	36.680
ARM B	3.50	6.00	5.00	10.00	52.33	30.0	0.507	21.429
ARM C	4.50	6.20	15.00	10.00	52.33	20.0	0.597	28.613
ARM D	3.50	5.00	10.00	10.00	52.33	23.0	0.523	22.232
ARM E	6.00	7.00	25.00	10.00	52.33	16.0	0.669	34.766
ARM F	3.50	3.50	999.00	10.00	52.33	40.0	0.439	16.197

.TRAFFIC DEMAND DATA

TIME PERIOD BEGINS 15.30 AND ENDS 17.00
LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE FOLLOWING INPUT DATA -

ARM	TIME WHEN FLOW STARTS TO RISE	TIME WHEN TOP OF PEAK IS REACHED	TIME WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.30	15.45	16.45	10.68	10.69	10.68
ARM B	15.30	15.45	16.45	7.98	7.99	7.98
ARM C	15.30	15.45	16.45	13.67	13.68	13.67
ARM D	15.30	15.45	16.45	4.50	4.51	4.50
ARM E	15.30	15.45	16.45	9.12	9.13	9.12
ARM F	15.30	15.45	16.45	3.50	3.51	3.50

TIME	FROM/TO	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D	ARM E	ARM F
15.30 - 17.00							
	ARM A	0.000	0.098	0.367	0.114	0.371	0.050
		(0.0)	(0.0)	(5.1)	(4.1)	(4.2)	(3.1)
	ARM B	0.084	0.000	0.470	0.113	0.307	0.026

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 I                    I         I (  0.0)I (  0.0)I (  1.3)I (  0.0)I (
0.0)I ( 0.0)I
 I                    I         I        I        I        I        I
I      I
 I                  I  ARM C  I  0.473 I  0.170 I  0.000 I  0.000 I  0.299
I  0.059 I
 I                    I         I (  2.8)I (  4.3)I (  0.0)I (  0.0)I (
5.7)I (  0.0)I
 I                    I         I        I        I        I        I
I      I
 I                  I  ARM D  I  0.378 I  0.174 I  0.000 I  0.000 I  0.374
I  0.074 I
 I                    I         I (  2.0)I (  4.3)I (  0.0)I (  0.0)I (
4.0)I (  0.0)I
 I                    I         I        I        I        I        I
I      I
 I                  I  ARM E  I  0.389 I  0.155 I  0.269 I  0.113 I  0.000
I  0.074 I
 I                    I         I (  1.9)I (  9.4)I (  3.4)I (  3.2)I (
0.0)I (  5.0)I
 I                    I         I        I        I        I        I
I      I
 I                  I  ARM F  I  0.190 I  0.119 I  0.400 I  0.114 I  0.177
I  0.000 I
 I                    I         I (  2.5)I (  0.0)I (  0.0)I (  0.0)I (
0.0)I (  0.0)I
 I                    I         I        I        I        I        I
I      I
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 THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS
 **WARNING** The sum of the turning proportions was not exactly 1.0
 and they have been scaled to sum to 1.0 (AG24 REF 7.19.1)

 .        QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
          -----------------------------------------------------

.------------------------------------------------------------------------
---------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I            (VEH/MIN)  (VEH/MIN)  CAPACITY        FLOW       QUEUE   QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                               (RFC)     (PEDS/MIN)  (VEHS)  (VEHS)   TIME
SEGMENT)  TIME SEGMENT) I
 I                                                              15.30-15.45
I
 I ARM A      10.69     27.96   0.382                  0.0     0.6        9.0
I
 I ARM B  .    7.99     13.24   0.603                  0.0     1.5       20.5
I
 I ARM C      13.68     20.58   0.665                  0.0     1.9       26.9
I
 I ARM D       4.51     10.10   0.446                  0.0     0.8       11.1
I
 I ARM E       9.13     24.42   0.374                  0.0     0.6        8.7
I
 I ARM F       3.51      6.99   0.502                  0.0     1.0       13.3
I
 I
I
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 --------------------
 .--------------------------------------------------------------------------
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 I TIME      DEMAND  CAPACITY  DEMAND/  PEDESTRIAN  START   END      DELAY
GEOMETRIC DELAYI
 I           (VEH/MIN)  (VEH/MIN)  CAPACITY        FLOW       QUEUE   QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                                 (RFC)    (PEDS/MIN)  (VEHS)  (VEHS)   TIME
SEGMENT)  TIME SEGMENT) I
 I                                                                15.45-16.00
I
 I ARM A     10.69     27.89   0.383                 0.6    0.6        9.3
I
 I ARM B      7.99     13.18   0.606                 1.5    1.5       22.5
I
 I ARM C     13.68     20.52   0.667                 1.9    2.0       29.3
I
 I ARM D      4.51     10.00   0.451                 0.8    0.8       12.0
I
 I ARM E      9.13     24.33   0.375                 0.6    0.6        8.9
I
 I ARM F      3.51      6.92   0.507                 1.0    1.0       14.9
I
 I
I
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 --------------------
 .--------------------------------------------------------------------------
 --------------------
 I TIME      DEMAND  CAPACITY  DEMAND/  PEDESTRIAN  START   END      DELAY
GEOMETRIC DELAYI
 I           (VEH/MIN)  (VEH/MIN)  CAPACITY        FLOW       QUEUE   QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                                 (RFC)    (PEDS/MIN)  (VEHS)  (VEHS)   TIME
SEGMENT)  TIME SEGMENT) I
 I                                                                16.00-16.15
I
 I ARM A     10.69     27.89   0.383                 0.6    0.6        9.3
I
 I ARM B      7.99     13.19   0.606                 1.5    1.5       22.7
I
 I ARM C     13.68     20.52   0.667                 2.0    2.0       29.6
I
 I ARM D      4.51     10.00   0.451                 0.8    0.8       12.2
I
 I ARM E      9.13     24.33   0.375                 0.6    0.6        9.0
I
 I ARM F      3.51      6.92   0.507                 1.0    1.0       15.1
I
 I
I
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 .--------------------------------------------------------------------------
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 I TIME      DEMAND  CAPACITY  DEMAND/  PEDESTRIAN  START   END      DELAY
GEOMETRIC DELAYI
 I           (VEH/MIN)  (VEH/MIN)  CAPACITY        FLOW       QUEUE   QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                                 (RFC)    (PEDS/MIN)  (VEHS)  (VEHS)   TIME
SEGMENT)  TIME SEGMENT) I
```

```
 I                                                              16.15-16.30
I
 I ARM A      10.69     27.89   0.383                  0.6    0.6         9.3
I
 I ARM B       7.99     13.19   0.606                  1.5    1.5        22.8
I
 I ARM C      13.68     20.52   0.666                  2.0    2.0        29.7
I
 I ARM D       4.51     10.00   0.451                  0.8    0.8        12.2
I
 I ARM E       9.13     24.33   0.375                  0.6    0.6         9.0
I
 I ARM F       3.51      6.92   0.506                  1.0    1.0        15.2
I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY
GEOMETRIC DELAYI
 I              (VEH/MIN)  (VEH/MIN)  CAPACITY        FLOW       QUEUE   QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                                   (RFC)     (PEDS/MIN)  (VEHS)  (VEHS)   TIME
SEGMENT)  TIME SEGMENT) I
 I                                                              16.30-16.45
I
 I ARM A      10.68     27.90   0.383                  0.6    0.6         9.3
I
 I ARM B       7.98     13.19   0.605                  1.5    1.5        22.9
I
 I ARM C      13.67     20.52   0.666                  2.0    2.0        29.8
I
 I ARM D       4.50     10.01   0.450                  0.8    0.8        12.2
I
 I ARM E       9.12     24.34   0.375                  0.6    0.6         9.0
I
 I ARM F       3.50      6.93   0.506                  1.0    1.0        15.3
I
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I
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--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START   END      DELAY
GEOMETRIC DELAYI
 I              (VEH/MIN)  (VEH/MIN)  CAPACITY        FLOW       QUEUE   QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                                   (RFC)     (PEDS/MIN)  (VEHS)  (VEHS)   TIME
SEGMENT)  TIME SEGMENT) I
 I                                                              16.45-17.00
I
 I ARM A      10.68     27.90   0.383                  0.6    0.6         9.3
I
 I ARM B       7.98     13.19   0.605                  1.5    1.5        22.9
I
 I ARM C      13.67     20.53   0.666                  2.0    2.0        29.8
I
 I ARM D       4.50     10.01   0.450                  0.8    0.8        12.2
I
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 I ARM E      9.12     24.34   0.375                         0.6    0.6        9.0
I
 I ARM F      3.50      6.93   0.505                         1.0    1.0       15.3
I
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I
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.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
15.45	0.6 *
16.00	0.6 *
16.15	0.6 *
16.30	0.6 *
16.45	0.6 *
17.00	0.6 *

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
15.45	1.5 *
16.00	1.5 **
16.15	1.5 **
16.30	1.5 **
16.45	1.5 **
17.00	1.5 **

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
15.45	1.9 **
16.00	2.0 **
16.15	2.0 **
16.30	2.0 **
16.45	2.0 **
17.00	2.0 **

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
15.45	0.8 *

16.00	0.8 *
16.15	0.8 *
16.30	0.8 *
16.45	0.8 *
17.00	0.8 *

.QUEUE AT ARM E

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
15.45	0.6 *
16.00	0.6 *
16.15	0.6 *
16.30	0.6 *
16.45	0.6 *
17.00	0.6 *

.QUEUE AT ARM F

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE
15.45	1.0 *
16.00	1.0 *
16.15	1.0 *
16.30	1.0 *
16.45	1.0 *
17.00	1.0 *

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * * DELAY *		* INCLUSIVE QUEUEING * * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	961.7	641.1	55.5	0.06	55.5	0.06
B	718.7	479.1	134.3	0.19	134.3	0.19
C	1230.8	820.5	175.2	0.14	175.3	0.14
D	405.5	270.3	72.1	0.18	72.1	0.18
E	821.3	547.5	53.5	0.07	53.5	0.07
F	315.5	210.3	89.1	0.28	89.2	0.28
ALL	4453.6	2969.1	579.6	0.13	579.9	0.13

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

TRANSPORT RESEARCH LABORATORY

CAPACITIES, QUEUES AND DELAYS AT ROUNDABOUTS

Visual ARCADY 4 ANALYSIS PROGRAM
RELEASE 2.1 (OCT 1998)

THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS IN NO WAY RELIEVED OF HIS RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:- "e:\arcady4\samples\midton21.vai" at 10:03:12 on Monday, 18 February 2002

.ROUNDABOUT CAPACITY AND DELAY
++++++++++++++++++++++++++++

RUN TITLE
+++++++++
Middleton Roundabout - Future Flows + Development Traffic - Feb. 2002

.INPUT DATA
++++++++++
ARM A - Main Street
ARM B - Riverside Way
ARM C - Cork Road
ARM D - New Road
ARM E - Mill Road
ARM F - Gooses Green

.GEOMETRIC DATA

ARM	V (M)	E (M)	L (M)	R (M)	D (M)	PHI (DEG)	SLOPE	INTERCEPT (PCU/MIN)
ARM A	7.50	7.50	999.00	10.00	52.33	25.0	0.682	36.680
ARM B	3.50	6.00	5.00	10.00	52.33	30.0	0.507	21.429
ARM C	4.50	6.20	15.00	10.00	52.33	20.0	0.597	28.613
ARM D	3.50	5.00	10.00	10.00	52.33	23.0	0.523	22.232
ARM E	6.00	7.00	25.00	10.00	52.33	16.0	0.669	34.766
ARM F	3.50	3.50	999.00	10.00	52.33	40.0	0.439	16.197

.TRAFFIC DEMAND DATA

TIME PERIOD BEGINS 15.30 AND ENDS 17.00
LENGTH OF TIME PERIOD - 90 MINUTES.
LENGTH OF TIME SEGMENT - 15 MINUTES.

.DEMAND FLOW PROFILES ARE SYNTHESISED FROM THE FOLLOWING INPUT DATA -

ARM	TIME WHEN FLOW STARTS TO RISE	TIME WHEN TOP OF PEAK IS REACHED	TIME WHEN FLOW STOPS FALLING	RATE OF FLOW (VEH/MIN) BEFORE PEAK	AT TOP OF PEAK	AFTER PEAK
ARM A	15.30	15.45	16.45	11.57	11.58	11.57
ARM B	15.30	15.45	16.45	8.65	8.66	8.65
ARM C	15.30	15.45	16.45	14.92	14.93	14.92
ARM D	15.30	15.45	16.45	4.50	4.51	4.50
ARM E	15.30	15.45	16.45	9.85	9.86	9.85
ARM F	15.30	15.45	16.45	3.78	3.79	3.78

TIME	FROM/TO	TURNING PROPORTIONS (PERCENTAGE OF H.V.S) ARM A	ARM B	ARM C	ARM D	ARM E	ARM F
15.30 - 17.00							
	ARM A	0.000	0.099	0.370	0.105	0.375	0.051
		(0.0)	(0.0)	(5.1)	(4.1)	(4.2)	(2.9)
	ARM B	0.085	0.000	0.474	0.104	0.310	0.027

```
 I                    I        I (  0.0)I (  0.0)I (  1.2)I (  0.0)I (
0.0)I (  0.0)I
 I                    I        I        I        I        I        I
I       I
 I                    I  ARM C  I  0.474 I  0.170 I  0.000 I  0.000 I  0.298
I  0.058 I
 I                    I        I (  2.8)I (  4.6)I (  0.0)I (  0.0)I (
5.6)I (  0.0)I
 I                    I        I        I        I        I        I
I       I
 I                    I  ARM D  I  0.378 I  0.174 I  0.000 I  0.000 I  0.374
I  0.074 I
 I                    I        I (  2.0)I (  4.3)I (  0.0)I (  0.0)I (
4.0)I (  0.0)I
 I                    I        I        I        I        I        I
I       I
 I                    I  ARM E  I  0.393 I  0.157 I  0.271 I  0.105 I  0.000
I  0.074 I
 I                    I        I (  1.7)I (  9.7)I (  3.1)I (  3.2)I (
0.0)I (  4.5)I
 I                    I        I        I        I        I        I
I       I
 I                    I  ARM F  I  0.194 I  0.119 I  0.405 I  0.106 I  0.176
I  0.000 I
 I                    I        I (  2.3)I (  0.0)I (  0.0)I (  0.0)I (
0.0)I (  0.0)I
 I                    I        I        I        I        I        I
I       I
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 THE PERCENTAGE OF HEAVY VEHICLES VARIES OVER TURNING MOVEMENTS

.        QUEUE AND DELAY INFORMATION FOR EACH 15 MIN TIME SEGMENT
         ------------------------------------------------------


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 I  TIME      DEMAND  CAPACITY  DEMAND/  PEDESTRIAN  START   END       DELAY
GEOMETRIC DELAYI
 I            (VEH/MIN)  (VEH/MIN)  CAPACITY         FLOW      QUEUE   QUEUE
(VEH.MIN/      (VEH.MIN/   I
 I                                  (RFC)     (PEDS/MIN)  (VEHS)  (VEHS)   TIME
SEGMENT)  TIME SEGMENT) I
 I                                                              15.30-15.45
I
 I ARM A     11.58     27.46   0.422                  0.0    0.7        10.6
I
 I ARM B      8.66     12.64   0.685                  0.0    2.1        28.0
I
 I ARM C     14.93     20.12   0.742                  0.0    2.7        37.3
I
 I ARM D      4.51      9.07   0.497                  0.0    1.0        13.4
I
 I ARM E      9.86     23.80   0.414                  0.0    0.7        10.2
I
 I ARM F      3.79      6.31   0.600                  0.0    1.4        18.8
I
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TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
15.45-16.00								
ARM A	11.58	27.36	0.423		0.7	0.7	10.9	
ARM B	8.66	12.58	0.689		2.1	2.1	31.7	
ARM C	14.93	20.05	0.745		2.7	2.8	42.0	
ARM D	4.51	8.93	0.505		1.0	1.0	14.8	
ARM E	9.86	23.68	0.416		0.7	0.7	10.6	
ARM F	3.79	6.22	0.609		1.4	1.5	22.0	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.00-16.15								
ARM A	11.58	27.36	0.423		0.7	0.7	11.0	
ARM B	8.66	12.58	0.689		2.1	2.2	32.4	
ARM C	14.93	20.04	0.745		2.8	2.9	42.8	
ARM D	4.51	8.93	0.505		1.0	1.0	15.1	
ARM E	9.86	23.68	0.416		0.7	0.7	10.7	
ARM F	3.79	6.22	0.609		1.5	1.5	22.7	

TIME	DEMAND (VEH/MIN)	CAPACITY (VEH/MIN)	DEMAND/ CAPACITY (RFC)	PEDESTRIAN FLOW (PEDS/MIN)	START QUEUE (VEHS)	END QUEUE (VEHS)	DELAY (VEH.MIN/ TIME SEGMENT)	GEOMETRIC DELAY (VEH.MIN/ TIME SEGMENT)
16.15-16.30								

```
 I ARM A      11.58      27.36    0.423                        0.7     0.7         11.0
I
 I ARM B       8.66      12.58    0.688                        2.2     2.2         32.6
I
 I ARM C      14.93      20.05    0.745                        2.9     2.9         43.1
I
 I ARM D       4.51       8.93    0.505                        1.0     1.0         15.1
I
 I ARM E       9.86      23.68    0.416                        0.7     0.7         10.7
I
 I ARM F       3.79       6.22    0.609                        1.5     1.5         22.9
I
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--------------------
 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START    END         DELAY
GEOMETRIC DELAYI
 I             (VEH/MIN)  (VEH/MIN)  CAPACITY         FLOW        QUEUE   QUEUE
(VEH.MIN/      (VEH.MIN/    I
 I                                 (RFC)     (PEDS/MIN)  (VEHS)  (VEHS)   TIME
SEGMENT)  TIME SEGMENT) I
 I                                                                 16.30-16.45
I
 I ARM A      11.57      27.37    0.423                        0.7     0.7         11.0
I
 I ARM B       8.65      12.58    0.688                        2.2     2.2         32.7
I
 I ARM C      14.92      20.05    0.744                        2.9     2.9         43.2
I
 I ARM D       4.50       8.93    0.504                        1.0     1.0         15.2
I
 I ARM E       9.85      23.68    0.416                        0.7     0.7         10.7
I
 I ARM F       3.78       6.22    0.608                        1.5     1.5         23.0
I
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 I  TIME      DEMAND  CAPACITY  DEMAND/   PEDESTRIAN  START    END         DELAY
GEOMETRIC DELAYI
 I             (VEH/MIN)  (VEH/MIN)  CAPACITY         FLOW        QUEUE   QUEUE
(VEH.MIN/      (VEH.MIN/    I
 I                                 (RFC)     (PEDS/MIN)  (VEHS)  (VEHS)   TIME
SEGMENT)  TIME SEGMENT) I
 I                                                                 16.45-17.00
I
 I ARM A      11.57      27.37    0.423                        0.7     0.7         11.0
I
 I ARM B       8.65      12.58    0.687                        2.2     2.2         32.8
I
 I ARM C      14.92      20.05    0.744                        2.9     2.9         43.3
I
 I ARM D       4.50       8.93    0.504                        1.0     1.0         15.2
I
 I ARM E       9.85      23.68    0.416                        0.7     0.7         10.7
I
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 I ARM F       3.78      6.22   0.607                  1.5    1.5        23.0
I
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I
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.QUEUE AT ARM A

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
15.45	0.7	*
16.00	0.7	*
16.15	0.7	*
16.30	0.7	*
16.45	0.7	*
17.00	0.7	*

.QUEUE AT ARM B

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
15.45	2.1	**
16.00	2.1	**
16.15	2.2	**
16.30	2.2	**
16.45	2.2	**
17.00	2.2	**

.QUEUE AT ARM C

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
15.45	2.7	***
16.00	2.8	***
16.15	2.9	***
16.30	2.9	***
16.45	2.9	***
17.00	2.9	***

.QUEUE AT ARM D

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
15.45	1.0	*
16.00	1.0	*
16.15	1.0	*

16.30	1.0	*
16.45	1.0	*
17.00	1.0	*

.QUEUE AT ARM E

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
15.45	0.7	*
16.00	0.7	*
16.15	0:7	*
16.30	0.7	*
16.45	0.7	*
17.00	0.7	*

.QUEUE AT ARM F

TIME SEGMENT ENDING	NO. OF VEHICLES IN QUEUE	
15.45	1.4	*
16.00	1.5	*
16.15	1.5	**
16.30	1.5	**
16.45	1.5	**
17.00	1.5	**

QUEUEING DELAY INFORMATION OVER WHOLE PERIOD

ARM	TOTAL DEMAND		* QUEUEING * * DELAY *		* INCLUSIVE QUEUEING * * DELAY *	
	(VEH)	(VEH/H)	(MIN)	(MIN/VEH)	(MIN)	(MIN/VEH)
A	1041.8	694.5	65.4	0.06	65.4	0.06
B	779.0	519.3	190.2	0.24	190.3	0.24
C	1343.3	895.5	251.7	0.19	251.9	0.19
D	405.5	270.3	88.8	0.22	88.8	0.22
E	887.0	591.3	63.5	0.07	63.5	0.07
F	340.7	227.1	132.3	0.39	132.4	0.39
ALL	4797.4	3198.3	791.8	0.17	792.4	0.17

* DELAY IS THAT OCCURRING ONLY WITHIN THE TIME PERIOD.
* INCLUSIVE DELAY INCLUDES DELAY SUFFERED BY VEHICLES WHICH ARE STILL QUEUEING AFTER THE END OF THE TIME PERIOD.
* THESE WILL ONLY BE SIGNIFICANTLY DIFFERENT IF THERE IS A LARGE QUEUE REMAINING AT THE END OF THE TIME PERIOD.

END OF JOB

Market Green Development
Master Plan - Accomodation Schedule

January 2002
Preliminary Draft Copy

Block	Unit	Area	Description / Location	Car Space Rate	Car Spaces	Provided	Location	Shortfall / Surplus
1			Shopping Centre					
Phase 1	A	575	Retail	4.5	26		surface	
	B	71	Retail	4.5	3			
	C	71	Retail	4.5	3			
	D	207	Retail	4.5	9			
	E	207	Retail	4.5	9			
	F	207	Retail	4.5	9			
	G	142	Retail	4.5	6			
	H	142	Retail	4.5	6			
	I	4293	Anchor Retail	4	172			
	J	175	Retail	4.5	8			
	K	425	Retail	4.5	19			
	L	140	Office 1 & 2 fl.	3	4			
	M	140	Office 1 & 2 fl.	3	4			
	N	140	Office 1 & 2 fl.	3	4			
	O	140	Office 1 & 2 fl.	3	4			
Total		7075			286			
2			Aparthotel					
Phase 1	A1	300	Bar	2	9			
	B1	300	Restaurant	1.5	5			
	C1	44 No.	Bedrooms	1 per room	44	24	basement	
Total					58			
3			Retail / Commercial				New Street	
Phase 1	U	271	Retail	4.5	12			
	V	161	Retail	4.5	7			
	W	115	Retail	4.5	5			
	X	114	Retail	4.5	5			
	Y	116	Retail	4.5	5			
	Z	109	Retail	4.5	5			
	Z1	110	Retail	4.5	5			
	Z2	2973	Offices	3	89			
Total		3969			133			
4			Retail / Leisure					
Phase 1	Q	555	Fast food	1.5	8			
	R	484	Retail	4.5	22			
	S	299	Retail	4.5	13			
	T	385	Retail	4.5	17			
	T1	800 seats	Cineplex	0.2 per seat	160			
	T2	300	Bowling Alley	14	42			
	T3	100	Coffee Dock	2	2			
	T4	200	Snooker Hall	2	4			
Total		2323			268			
		+ 800 seats						

Retail	Offices	Bar	Restaurant	Bedrooms	Fast food	Cineplex	Bowling Alley	Coffee Dock	Snooker Hall	Apartments	Showroom	Warehouse	Storage	Production	Houses	Duplex
575	140	300	300	44 No.	555	800 seats	300	100	200							
71	140															
71	140															
207	140															
207	2973															
207																
142																
142																
4293																
175																
425																
271																
161																
115																
114																
116																
109																
110																
484																
289																
385																

Retail	Offices	Bar	Restaurant	Bedrooms	Fast food	Cineplex	Bowling Alley	Coffee Dock	Snooker Hall	Apartments	Showroom	Warehouse	Storage	Production	Houses	Duplex
8679	3533	300	300	44 No.	555	800 seats	300	100	200							

Traffic Generation in Evening Peak Hour

	Retail	Offices	Bar	Restaurant	Bedrooms	Fast food	Cineplex	Bowling Alley	Coffee Dock	Snooker Hall	Apartments	Showroom	Warehouse	Storage	Production	Houses	Duplex	Total
To Development	273	5	6	6	5		8	10		5	0	0	0	0	0	0	0	Total to Development 318
From Development	273	49	8	8	8		18	6		3	0	0	0	0	0	0	0	Total from Development 373

Turning Movements 15:45 - 16:45 Total New Traffic to Roundabout To Site 318 vehicles From Site 373 vehicles

			Main Street Exit 1		Riverside Way Exit 2		Cork Road Exit 3		New Road Exit 4		Mill Road Exit 5		Gooses Green Exit 6		Totals		
			Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	
Main Street	Entry 1	Existing	0	0	63	0	223	12			228	10	31	1	545	23	
		Proposed							70	3							
Riverside Way	Entry 2	Existing	40	0	0	0	222	3			147	0	13	0	422	3	
		Proposed							54	0							
Cork Road	Entry 3	Existing	377	11	133	6	0	0			231	14	48	0	789	31	
		Proposed							101	4							
New Road	Entry 4	Existing															
		Proposed	100	2	45	2	101	3	0	0	97	4	20	0	363	11	374
Mill Road	Entry 5	Existing	209	4	77	8	142	5			0	0	38	2	466	19	
		Proposed							60	2							
Gooses Green	Entry 6	Existing	39	1	25	0	84	0			37	0	0	0	185	1	
		Proposed							24	0							
															2407	77	
			665	16	298	14	671	20			643	24	130	3	2484		
			681		312		691				667		2407	77			
									309	9							
													2484				
									318								

Turning Movements 15:45 - 16:45 Total New Traffic to Roundabout To Site 318 vehicles From Site 373 vehicles Cork Road included in Distribution

Existing + Development

		Main Street Exit 1		Riverside Way Exit 2		Cork Road Exit 3		New Road Exit 4		Mill Road Exit 5		Gooses Green Exit 6		Totals		veh per hour	veh per min
		Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	Total	
Main Street	Entry 1	0	0	63	0	223	12	70	3	228	10	31	1	615	26	641	10.68
				Proportion	0.098	Proportion	0.367	Proportion	0.114	Proportion	0.371	Proportion	0.050				
				% Heavy	0.0%	% Heavy	5.1%	% Heavy	4.1%	% Heavy	4.2%	% Heavy	3.1%				
Riverside Way	Entry 2	40	0	0	0	222	3	54	0	147	0	13	0	476	3	479	7.98
		Proportion	0.084			Proportion	0.470	Proportion	0.113	Proportion	0.307	Proportion	0.027				
		% Heavy	0.0%			% Heavy	1.3%	% Heavy	0.0%	% Heavy	0.0%	% Heavy	0.0%				
Cork Road	Entry 3	377	11	133	6	0	0	101	4	231	14	48	0	890	35	925	15.42
		Proportion	0.419	Proportion	0.150			Proportion	0.114	Proportion	0.265	Proportion	0.052				
		% Heavy	2.8%	% Heavy	4.3%			% Heavy	3.8%	% Heavy	5.7%	% Heavy	0.0%				
New Road	Entry 4	100	2	45	2	101	3	0	0	97	4	20	0	363	11	374	6.23
		Proportion	0.273	Proportion	0.126	Proportion	0.278			Proportion	0.270	Proportion	0.053				
		% Heavy	2.0%	% Heavy	4.3%	% Heavy	2.9%			% Heavy	4.0%	% Heavy	0.0%				
Mill Road	Entry 5	209	4	77	8	142	5	60	2	0	0	38	2	526	21	547	9.12
		Proportion	0.389	Proportion	0.155	Proportion	0.269	Proportion	0.113			Proportion	0.073				
		% Heavy	1.9%	% Heavy	9.4%	% Heavy	3.4%	% Heavy	3.2%			% Heavy	5.0%				
Gooses Green	Entry 6	39	1	25	0	84	0	24	0	37	0	0	0	209	1	210	3.50
														3079	97	3176	
		Proportion	0.190	Proportion	0.119	Proportion	0.400	Proportion	0.114	Proportion	0.176						
		% Heavy	2.5%	% Heavy	0.0%	% Heavy	0.0%	% Heavy	0.0%	% Heavy	0.0%						
	Totals	765	18	343	16	772	23	309	9	740	28	150	3				
		783		359		795		318		768		153					
													3176				

APPENDIX IX

ARCHAEOLOGICAL PLATES & FIGURES

National Monuments Legislation

All archaeological sites have the full protection of the National Monuments legislation (Principal Act 1930 and Amendments 1954, 1987 and 1994).

In amendment of Section 2 of the Principal Act (1930) in the National Monuments (Amendment) Act 1987, a 'monument' is defined as:

Definition of a monument

(a) any artificial or partly artificial building, structure or erection or group of such buildings, structures or erections,

(b) any cave, stone or other natural product, whether or not forming part of the ground, that has been artificially carved, sculptured or worked upon or which (where it does not form part of the place where it is) appears to have been purposely put or arranged in position,

(c) any, or any part of any, prehistoric or ancient –

(i) tomb, grave or burial deposit, or
(ii) ritual, industrial or habitation site,

and

(d) any place comprising the remains or traces of any such building, structure or erection, any such cave, stone or natural product or any such tomb, grave, burial deposit or ritual, industrial or habitation site...'

Under Section 14 of the Principal Act (1930):

Interference with a monument

'It shall not be lawful for any person...

(a) to demolish or remove wholly or in part or to disfigure, deface, alter, or in any manner injure or interfere with any such national monument without or otherwise than in accordance with the consent hereinafter mentioned [a licence issued by the Office of Public Works National Monuments Branch], or

(b) to excavate, dig, plough or otherwise disturb the ground within, around, or in the proximity to any such national monument without or otherwise than in accordance with the

consent hereinafter mentioned [a licence issued by the Office of Public Works National Monuments Branch]...'

Under Amendment to Section 23 of the Principal Act:

Reporting of an archaeological find 'A person who finds an archaeological object shall, within 4 days after the finding, make a report of it to a member of the Garda Síochána...or the Director of the National Museum or a servant or agent of his...'

The latter is of particular relevance to any finds made during development.

The 1994 Amendment (Section 12 (1–4) of the Principal Act (1930) established the Record of Monuments. All the sites and 'places' recorded by the Sites and Monuments Record of the Office of Public Works were provided with a new status in law. This new status provides protection to the listed sites which is equivalent to that accorded to 'Registered' sites (Section 5 - (1–10), National Monuments (Amendment) Act 1987) as follows:

The Record of Monuments

(1) The Commissioners shall establish and maintain a record of monuments and places where they believe there are monuments and the record shall be comprised of a list of monuments and such places and a map or maps showing each monument and such place in respect of each county in the State.

(2) The Commissioners shall cause to be exhibited in a prescribed manner in each county the list and map or maps of that county drawn up under *subsection (1)* of this section and shall publish in a prescribed manner information about when and where the lists and maps may be consulted.

(3) When the owner or occupier (not being the Commissioners) of a monument or place which has been recorded under *subsection (1)* of this section or any person proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such monument or place, he shall give notice in writing of his proposal to carry out the work to the Commissioners and shall not, except in the case of urgent necessity and with the consent of the Commissioners, commence the work for a period of two months after having given the notice.'

In effect the Record is the list of known archaeological sites and areas drawn up from the Sites and Monuments Record and Inventories for County Cork. It includes:

1) All known monuments, e.g., ringforts, castles, etc. dating to before 1700AD, each surrounded by a standard circle defining a Zone of Archaeological Potential associated with the monument.

2) The details of the proposed record and its existence in law from the 1st January 1999 were advertised on the national papers on Wednesday 30th December 1998.

3) It requires that each person intending to undertake works on their property within a monument or zone must notify the Commissioners. The onus is on the owner/developer.

FIGURES

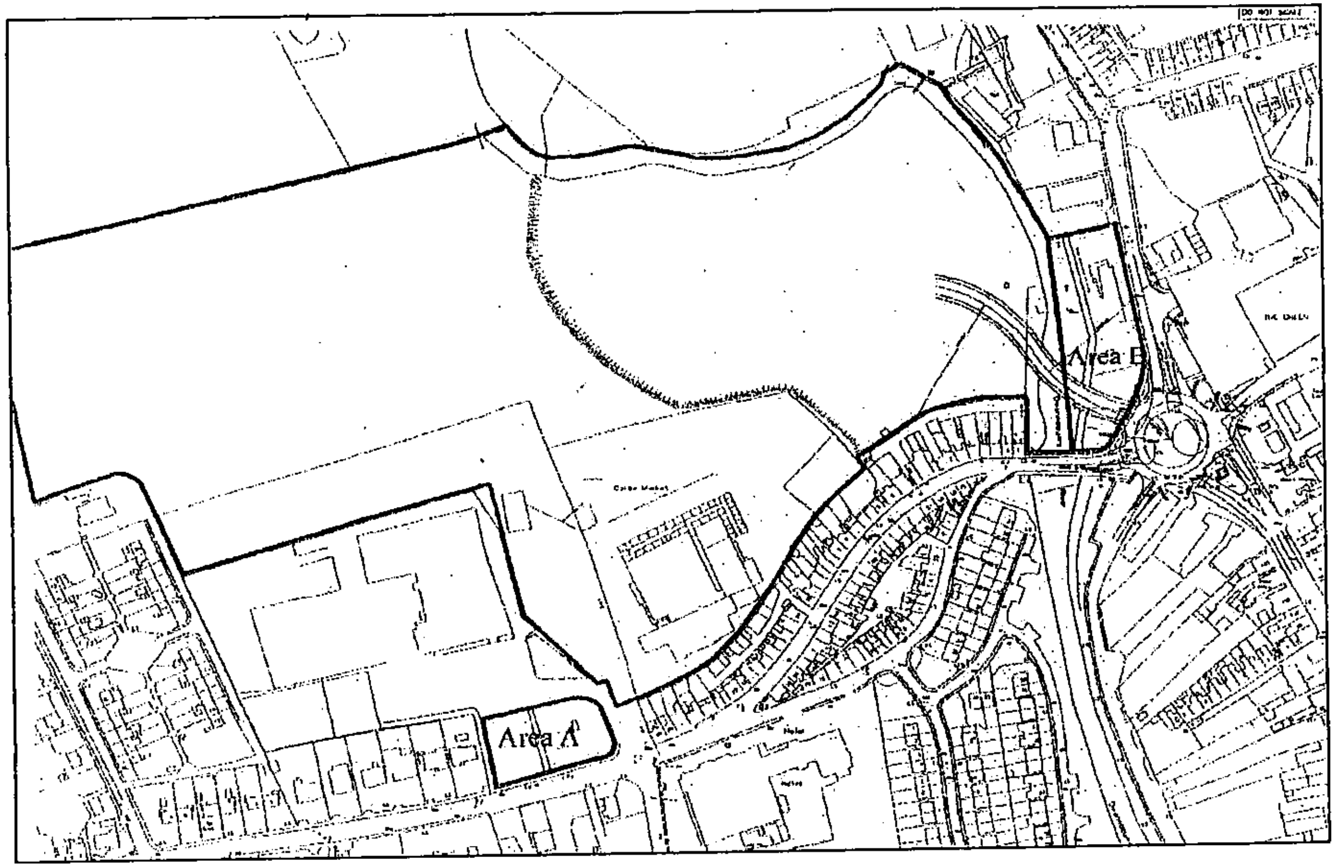


Figure 1a: Site location, including areas A and B, outlined in red

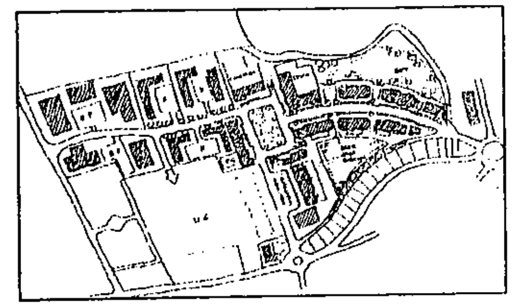


Figure 1b: Sketch of proposed development

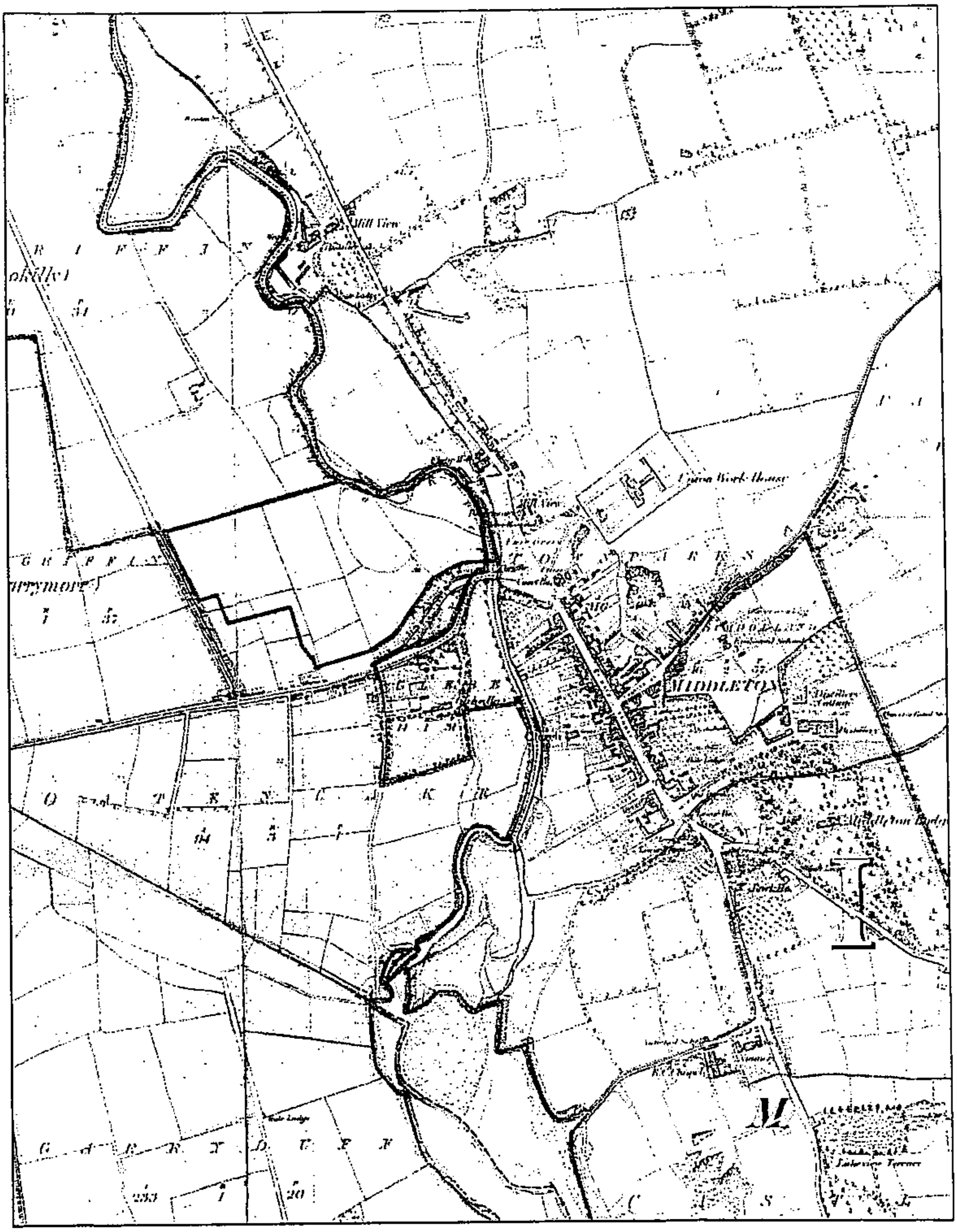


Figure 2: Ordnance Survey Map (1842) with proposed development site outlined in red

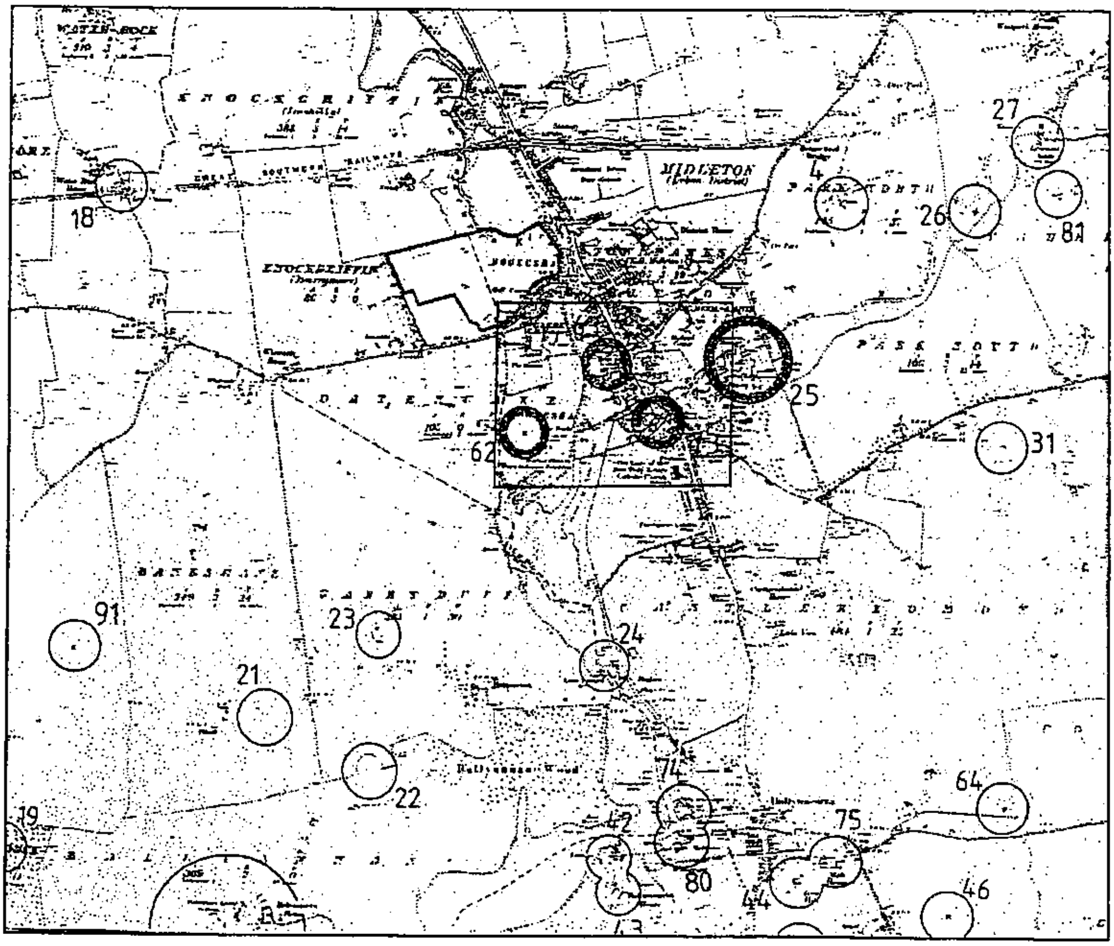


Figure 3: Midleton Constraint Map, showing Recorded Monuments (Zajac 1995). Proposed development site outlined in red.

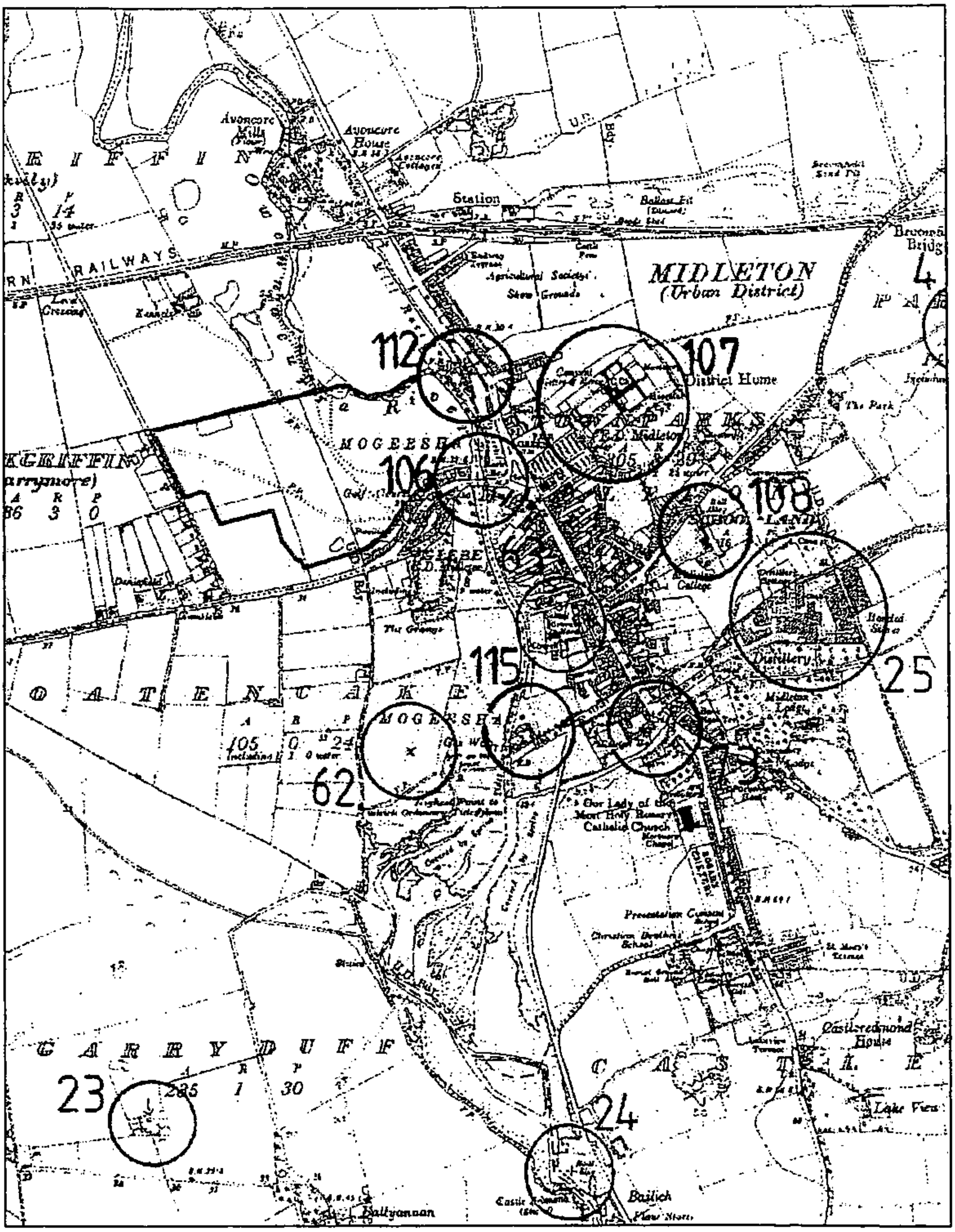


Figure 4: Ordnance Survey Map (1:1,560) showing Recorded Monuments in area of proposed development site (outlined in red)

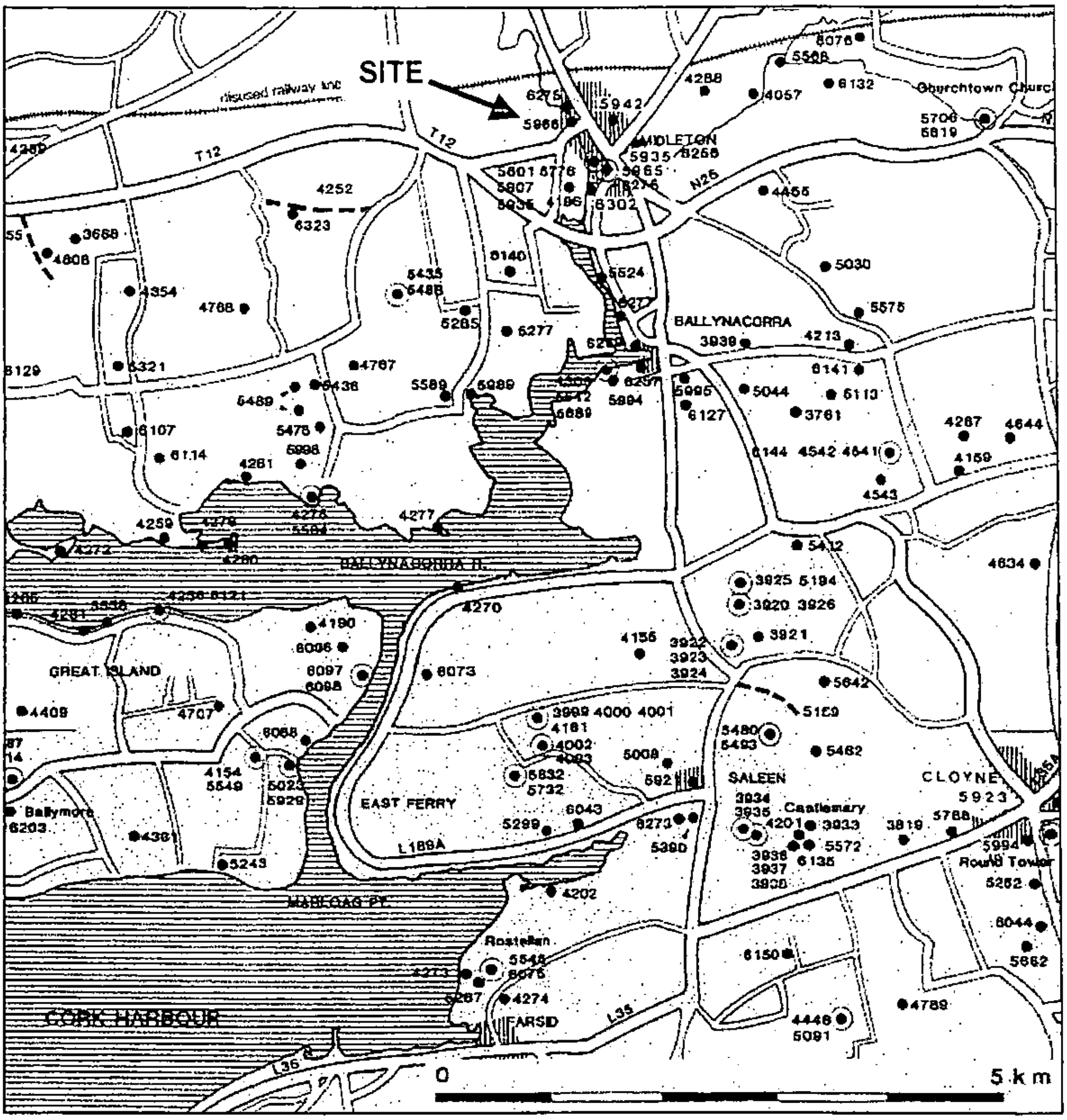


Figure 5: Inventory Map (Power 1994) for locality of proposed development site.

PLATES

Plate 1

General view of the site looking west from the banks of Owennacurra River.

Plate 2

General view of the site looking east from the Cattle Market. The refurbished mill is in the background.

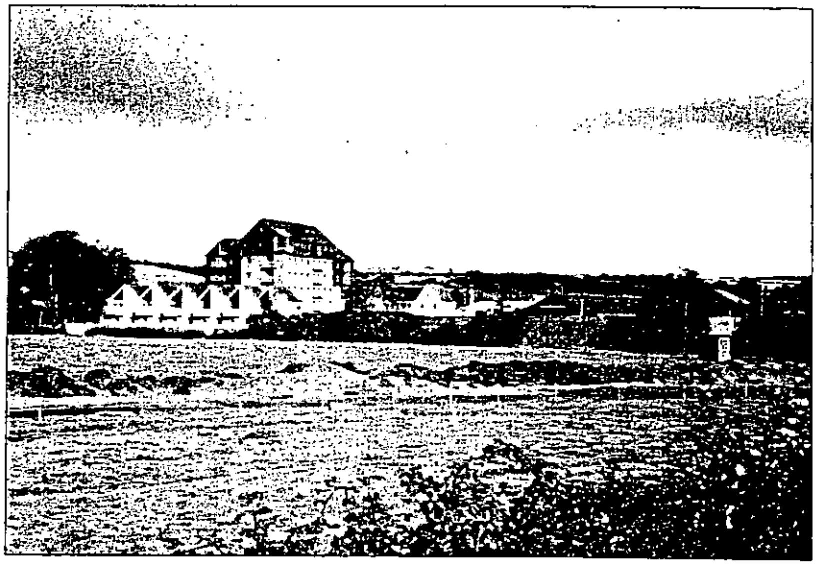


Plate 3

The western part of the site looking west from north of the Cattle Market.

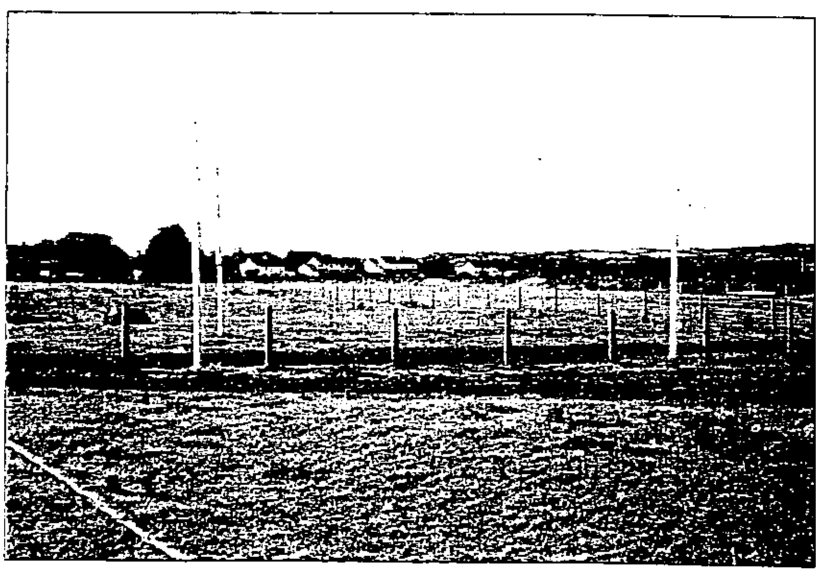


Plate 4

The Owennacurra River forms the northern boundary of the site. Looking west.

Plate 5

The eastern boundary of the site looking south

Plate 6

Cork bridge, looking south. Drainage works on right.

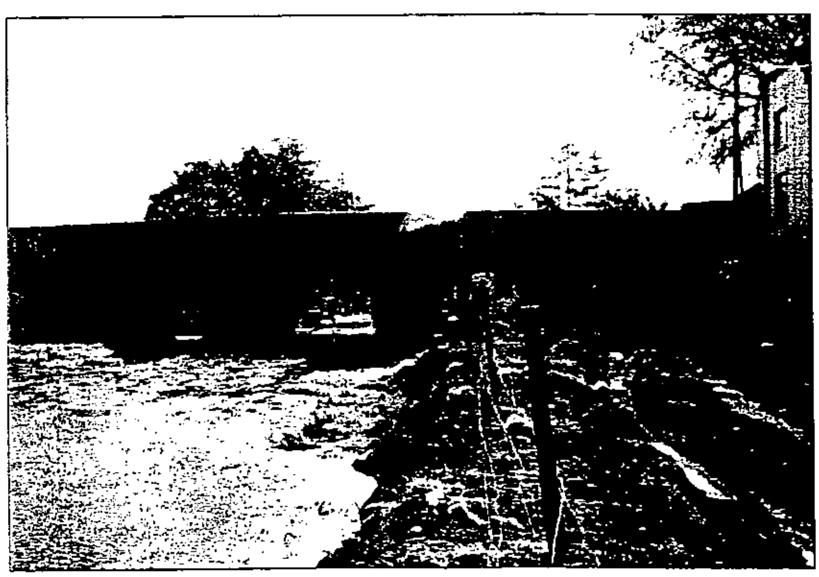


Plate 7

Ridge/terrace in centre of site with buildings of Cattle market in background (upper left), looking west.

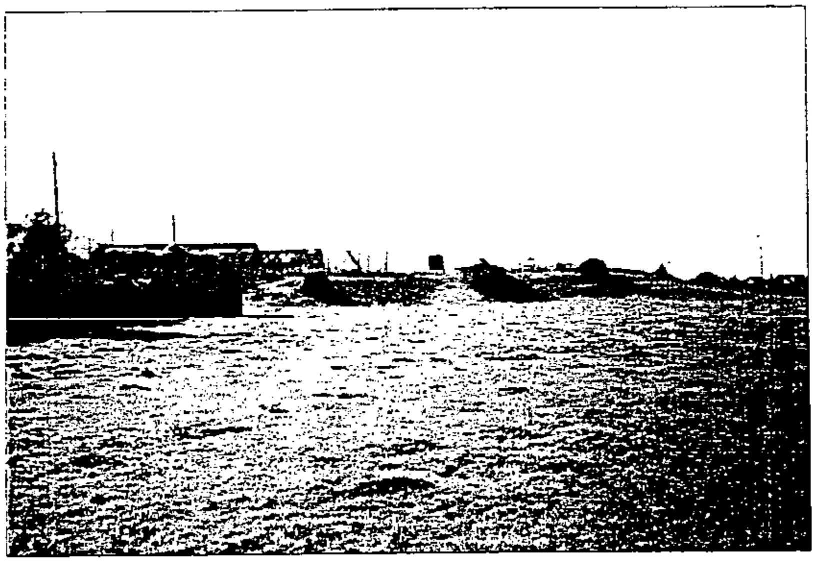


Plate 8

Ridge/terrace, in the centre of the site, looking north from Cattle market.

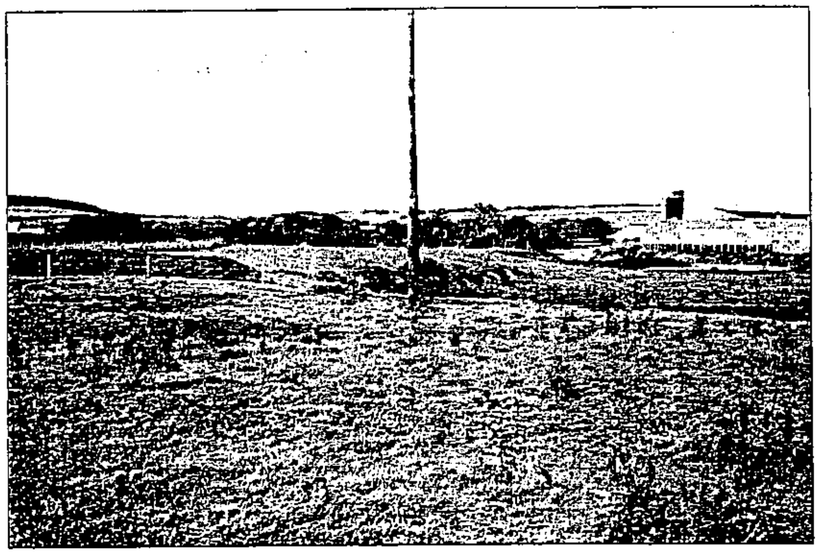
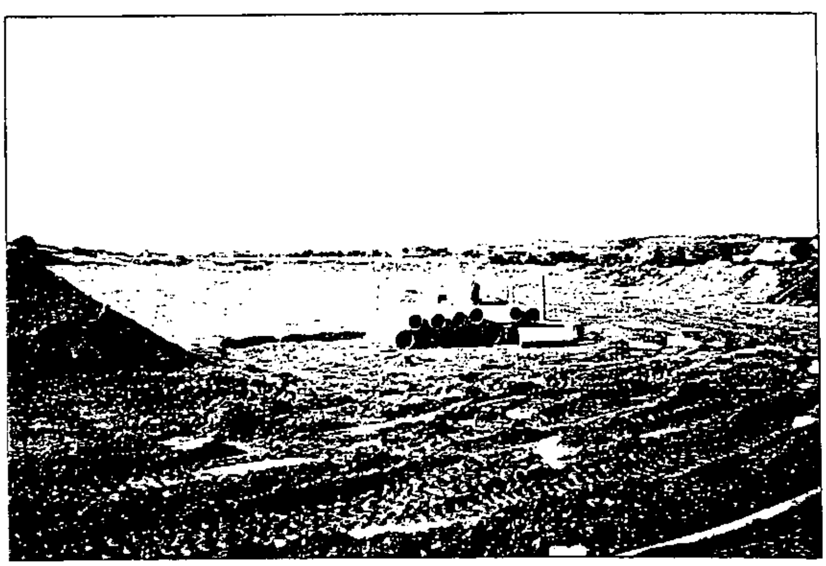


Plate 9

Drainage works bisect the site, looking west/north-west



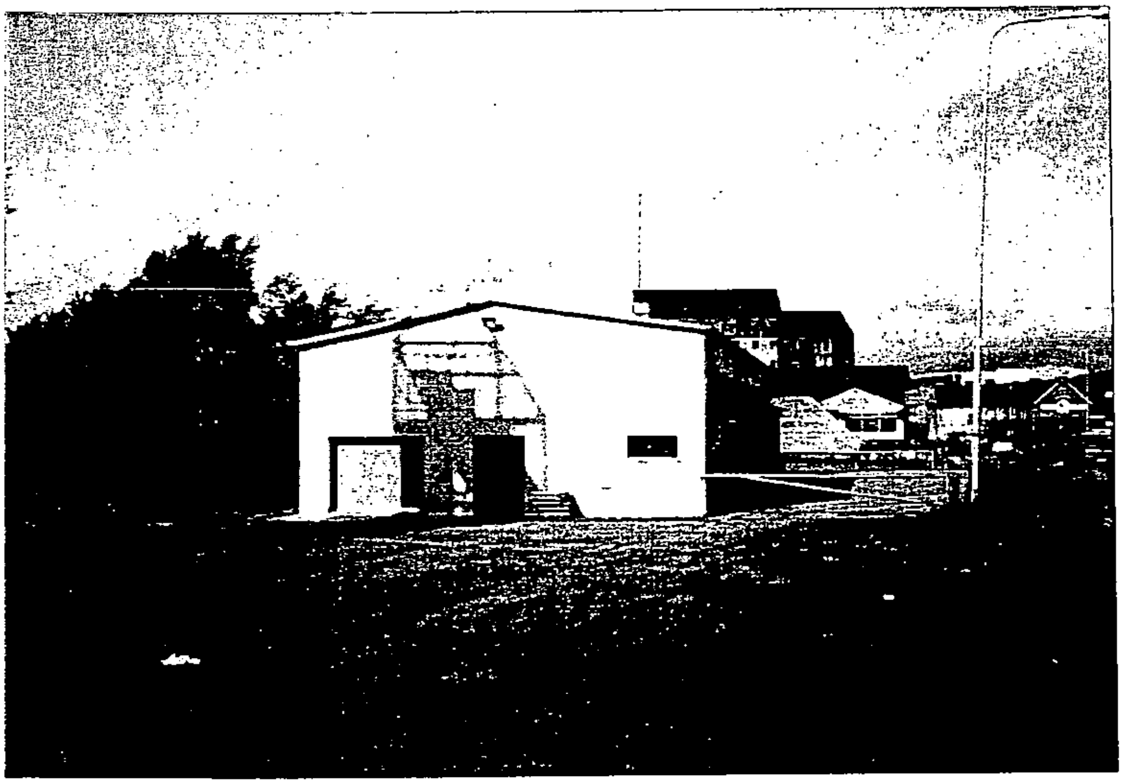


Plate 10 The modern Fire Station building fronting Mill Road, looking north.

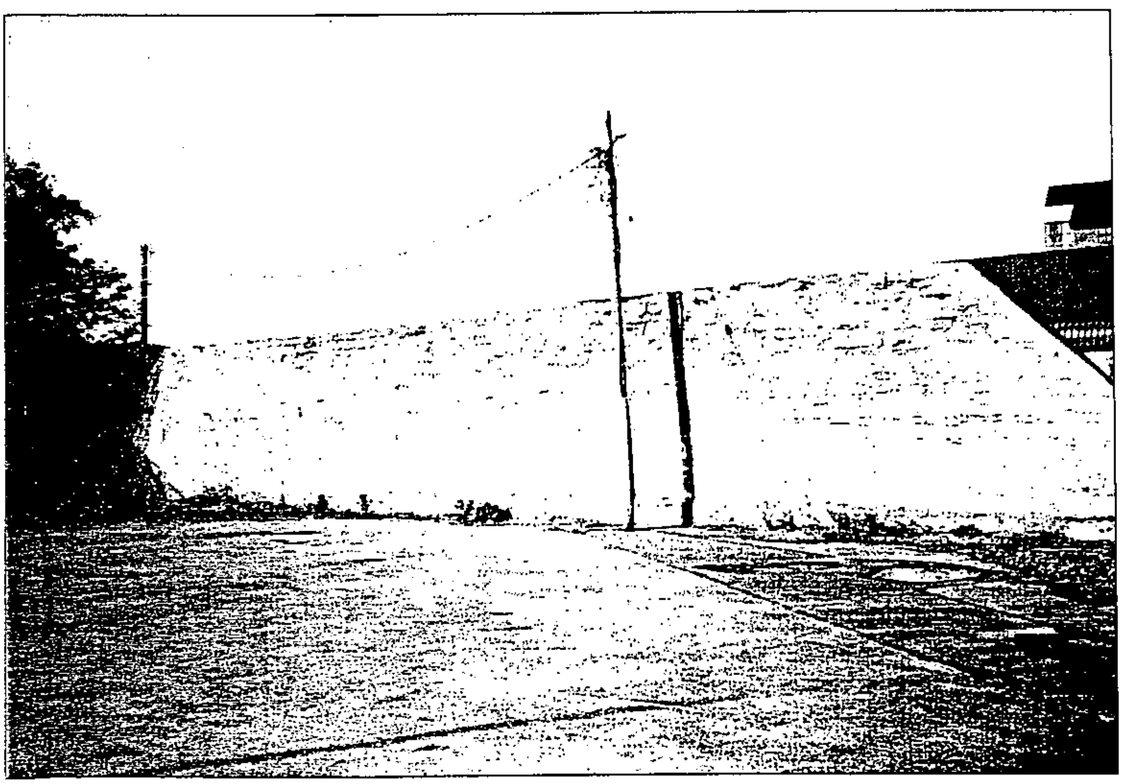


Plate 11 Wall of former mill building to the north of Fire Station, looking north.

List of Archaeological Sites in the Area of the Proposed Development

All the sites listed below are Recorded Monuments.

Site type:	***Pit burial***
Townland:	Oatencake
SMR no.:	076-62
Inventory no.:	4196
Description:	In adjoining townland. 'Situated *c*. 150m N of highest tidal reaches of Ballynacorra river; Midleton to NE. Cordoned urn found during drainage work; grave destroyed before investigation could take place...Vessel contained human bones, probably adult female. Kavanagh (1976, 359) describes urn with 'two cordons...decorated with crudely incised repeated chevron motif...and a simple incised criss-cross pattern roughly executed...ware coarse...buff to red in colour.' Urn now in Cork Museum.' (Power 1994, 56). Approximately 348m south of the proposed development boundary.

Site type:	***Graveyard***
Townland:	Townparks
SMR no.:	076-6301
Inventory no.:	5776
Description:	'Set back on W side of Main Street in Midleton, L-shaped graveyard (*c*. 60m E–E; *c*. 80m N–S) enclosed by stone wall, well kept. On or near site of Cistercian abbey of Chore (**5601**); C of I church (**5907**) to S of centre. Large collection of 18th- and 19th-century headstones, table and chest tombs; earliest noted headstone in Imokilly here, date 1698: rectangular slab, decorated at base only with 'Angelic Form with Trumpet, surmounting a Skull and Crossbones, symbolic of the Resurrection and Mortality' (O'Shea 1988, 68). Earliest 18th-century headstone dated 1708; decorated with 'Cross and Sacred Monogram in false relief'; otherwise headstones date from 1730s onwards. Two fine neo-Classical 18th-century mausolea against inside of E boundary wall... Sundial in graveyard made from top of spire blown down in 1903.' (Power 1994, 271). Approximately 338m south-east of the proposed development boundary.

Site type:	***Church of Ireland Church***
Townland:	Townparks
SMR no.:	076-6302
Inventory no.:	5907

Description:	'In Midleton, in S half of graveyard, on or near site of Cistercian abbey (**5601**) and on site of earlier C of I church called 'St John's Church'. This latter church described as 'in good repair' in 1694 (Brady 1863, vol. 2, 109); described by Smith (1750, vol. 1, 146) as 'neat structure, and well pewed, and the steeple is capable of holding a ring of bells'. New church built 1823–5...designed by Pains of Cork; rectangular, built of limestone ashlar in 'later English style' (Lewis 1837, vol. 2, 369), with tower at W end 'crowned with pinnacles surmounted by a light and elegant spire' (ibid.). Pinnacles atop corners of church and on apex of gables; slender engaged buttresses on corners and between windows. Three wide pointed windows in N and S walls and on E gable, with wooden perpendicular tracery. Door with pointed arch on W face of tower, surmounted by date plaque '1825'. Top of spire blown down 1903, now used as sundial in graveyard; spire repaired. Tower flanked by later additions in neo-Tudor style. Interior underwent extensive 'improvements' in late 19th century (Cole 1903, 179), including insertion of chancel screen. Inside are monuments from earlier church, notably that of Bishop Berkeley dated 1787.' (Power 1994, 301). Approximately 338m south-east of the proposed development boundary.
Site type:	***Abbey***
Townland:	Townparks
SMR no.:	076-6303
Inventory no.:	5601
Description:	'In Midleton; Cistercian abbey of Chore, also called St. Mary of Chore...founded in 1180 'almost certainly by Irish and not Anglo-Normans' (Stalley 1987, 248). In '1541 the jurors found that the abbey church had been parochial and that all other buildings on the one-acre site were necessary for the farm' (Gwynn and Hadcock 1988, 140); supressed in 1543 (ibid); in 1580 Seneschal of Imokilly 'retired to the abbey whence he was also expelled, probably with much damage to the building' (Power 1929, 23); in ruins in 1615... According to Lewis (1937, vol. 2, 369–70), 'last remains of it were taken down to afford a site for the present church'. Site now occupied by Midleton C of I church and graveyard [Inventory nos **5907**, **5776** respectively]. No upstanding remains of abbey but some stones survive in graveyard including 'a late medieval door head and a piece of circular shafting' (Stalley 1987, 248).' (Power 1994, 240). Approximately 338m south-east of the proposed development boundary.

Site type: *Market house*
Townland: Townparks
SMR no.: 076-6304
Inventory no.: 5935
Description: 'Mid-18th-century 2-storey structure on main street of Midleton town; presently being converted to library [1991]. Entrance front (E) has 5-bay arcading at ground floor; 5 tall round-headed windows at 1st floor. Ground floor of coursed ashlar and 1st floor of random rubble; divided by cut limestone band course. Hipped roof with finials behind parapet with cornice; central cupola with clock and weather vane.' (Power 1994, 305).

Approximately 370m from the proposed development boundary.

Site type: ***Corn store***
Townland: Townparks
SMR no.: 076-7301
Inventory no.: 6276
Description: 'Corn store at S end of Midleton, adjacent to Midleton House. Consists of two ranges of L-shaped buildings with yard between. Range to S consists of 15-bay, 5-storey late 18th/early 19th-century store (long axis SW–NE). Central hoist on both sides; lower addition at SW end making overall plan L-shaped. Recent additions attached. To N, 3-storey, L-shaped range with date stone inscribed '1865 C'.' (Power 1994, 355).

Approximately 570m from proposed development boundary.

Site type: ***Bridge***
Townland: Townparks
SMR no.: 076-7302
Inventory no.: 5965
Description: 'In Midleton, road bridge over Dungourney river. Ashlar limestone construction; single segmental arch; rusticated voussoirs.' (Power 1994, 311).

Approximately 570m from the proposed development boundary.

Site type: ***Bridge***
Townland: Townparks
SMR no.: 076-106
Inventory no.: 5966
Description: 'Road bridge (*c.* 5m) over Owennacurra river, at N end of Midleton. Five semicircular arches; cut-stone voussoirs; piers of cut limestone. Bridge widened (Wth *c.* 3m) to N in late 19th century with 5 slightly taller semicircular arches; cut limestone voussoirs with chamfered edge; rounded breakwaters; ornate solid piers at either end of cut stone parapet wall. Concrete extension to S (Wth *c.* 1.5m).' (Power 311).

Site known as 'Cork Bridge'. Forms southern boundary of proposed development site. Approximately 100m from the area of development subject to buildings (Figure 1b).

Site type: ***Workhouse***
Townland: Townparks
SMR no.: 076-107
Inventory no.: 5942
Description: 'In Midleton, indicated on 1842 OS map. Warden's house on W side replaced 1950s by present hospital complex. Central accommodation block survives as 14-bay, 2-storey structure (long axis N–S), with gabled attic windows along roof; 3-storey double-gable-ended terminals built at right angles to main block making plan 'H'-shaped; now a nursing home. One-storey building extends to E which would have connected to the original hospital building of 2 storeys (long axis N–S), which was demolished 1970s. Complex enclosed by stone wall with entrance piers to W. Convent, indicated on 1902 OS map immediately N of central accommodation block, survives. Fever hospital indicated on 1842 OS map to W no longer survives.' (Power 1994, 306–7).

Approximately 250m from proposed development boundary.

Site type: *Corn Mill*
Townland: Townparks
SMR no.: 076-112
Inventory no.: 6275
Description: 'Indicated as 'Flour Mill' on 1842 OS map [see Figure 2] with mill-race flowing along W end; on N side of Midleton. Indicated on 1902 OS map as 'Condensed Milk Factory'. Access to mill yard and buildings not gained. Rectangular (long axis E–W) roofless 8-bay, 5-storey mill. Random rubble limestone construction; two upper storeys have chamfered limestone quoins, similar to quoins of building attached to E. Brick surrounds to opes. According to local information turbine replaced waterwheel in 1940s. Three-storey kiln attached to E; 3-storey structure attached to N side of kiln and mill. Yard to S with multiphase buildings along roadside boundary. Two-storey gable-ended residential house to N, now part of separate property. According to local information burnt twice in recent past.' (Power 1994, 355).

Refurbished in late 1990s as residential apartment complex. Approximately 211m north-east of the proposed development boundary.

Site type: ***Gasworks***
Townland: Townparks
SMR no.: 076-115
Inventory no.: 6302
Description: 'In Midleton, on E bank of Owennacurra river. Remains of late 19th-century gas works complex. Marked on 1902 and 1934 OS maps. According to local information, closed in 1950s, converted to Midleton Foundry and Engineering Works which was in operation until recently [1992]. Main block of buildings consists of wide gable-ended structure (long axis N–S) with chimney on N gable; limstone quoins. Photograph taken in 1953...shows condenser, washer and scrubber along S external elevation. Little remains except a few iron troughs and hoists. Attached to E is similar wide gable-ended structure, slightly higher and longer to N, sharing limestone quoins of structure to W; brick quoins elsewhere. Both buildings have brick detail around opes. Attached to N gable and extending W is one-storey structure. Photograph also shows lean-to structure along S of building running E–W, housing purification machinery (no longer survives). Overgrown remains of two circular gas holders (diam. 9.7m) defined by earthen bank which retains wall along inner edge (in. H 1.5m; Wth 2m). Stone wall along S side of complex with entrance gates at E end. Remains of office (long axis E–W) adjacent to S. One-storey work shop (long axis N–S) to W

with remains of gas holders on either side.' (Power 1994, 361).

Approximately 400m south/south-east of the proposed development boundary.