



**KILGALLEN & PARTNERS**

CONSULTING ENGINEERS

**Carlow County Council**

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**Carlow Town Centre Public Realm and Pedestrian  
Linkage Regeneration Project**

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**Engineering Services Report**

<b>Carlow County Council</b> <b>County Buildings</b> <b>Athy Road</b> <b>Carlow</b> <b>R93 E7R7</b>			<b>Kilgallen &amp; Partners</b> <b>Consulting Engineers</b> <b>Danville Business Park</b> <b>Co. Kilkenny</b>	
		<b>23042-ESR</b> <b>Issue PL1</b>		

**REVISION HISTORY**

<b>Client</b>	Carlow County Council
<b>Project</b>	Carlow Town Centre Public Realm and Pedestrian Linkage Regeneration Project
<b>Title</b>	Engineering Services Report

<b>Date</b>	<b>Detail of Issue</b>	<b>Issue No.</b>	<b>Origin</b>	<b>Checked</b>	<b>Approved</b>
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## 1. INTRODUCTION

### 1.1 Introduction

This report relates to the roads, drainage and water supply services for the proposed development ('the Development') of a site ['the Site'] at Carlow Town Centre, Carlow, Co. Carlow and is submitted in support of an application for Part 8 Planning Permission for the Development.

The proposed development includes the undertaking of works along Shamrock Square, Tullow Street, Potato Market, Kennedy Avenue, sections of Barrack Street and a cleared site (formerly Nos. 23-24) Barrack Street, in the townland of Carlow, Carlow Town, County Carlow. The Proposed Development includes:

- clearance/removal of the existing public realm including existing roadway surface finishes and associated structures,
- the provision of streetscape upgrades including new roadway finishes, paving and the creation of new public plazas/spaces,
- carriageway realignment works,
- amendments to existing junctions including the provision of signalisation at selected junctions,
- traffic calming and pedestrian crossing measures,
- provision of new and upgraded pedestrian areas including the provision of a new pedestrian link crossing Barrack Street connecting Fairgreen Shopping Centre and Carlow Shopping Centre/Potato Market. To create this new pedestrian link across Barrack Street it will be necessary to demolish an existing wall at the rear of the units formerly known as Nos. 23-24 Barrack Street as well as the providing a new boundary wall at the northern boundary of the cleared site, at the boundary of the units formerly known as Nos. 22-23 Barrack Street
- provision of active travel infrastructure including new cycle paths,
- amendments to vehicular movements including the provision of one-way directional traffic along sections of Tullow Street and Potato Market,
- alterations to street parking including taxi ranks, ambulance parking and accessible parking spaces,
- the provision of street furniture including planters, public seating, public lighting, CCTV and a new glazed canopy structure at Potato Market,
- provision of public Wi-Fi, and
- landscaping works, drainage/attenuation works (including SUDS measures) and all associated ancillary site works and site service provision.

These works will be delivered on a phased basis, and it is intended to provide the construction compound within the proposed development boundary.

For the purposes of clarity, references to works at Shamrock Square that are included in this report include the works that are proposed on Staplestown Road and Green Lane. As the works at Staplestown Road and Green Lane are minor and are designed to integrate with the works at the Shamrock Square junction, it is not considered practical to reference Staplestown Road and Green Lane throughout the document. Furthermore, references to works at Kennedy Avenue junction, including works proposed to Hanover Street are minor and are designed to integrate with the works at the junction with Kennedy Avenue. Again, it is not considered practical to reference Hanover Street throughout the document.

The following drawings should be read in conjunction with this report:

## Carlow Town Centre Public Realm and Pedestrian Linkage Regeneration Project

<b>Drawing No.</b>	<b>Title</b>	<b>Issue</b>
23042-C-DR-501	Drainage & Watermain General Layout – Sheet 1 of 5	PL1
23042-C-DR-502	Drainage & Watermain General Layout – Sheet 2 of 5	PL1
23042-C-DR-503	Drainage & Watermain General Layout – Sheet 3 of 5	PL1
23042-C-DR-504	Drainage & Watermain General Layout – Sheet 4 of 5	PL1
23042-C-DR-505	Drainage & Watermain General Layout – Sheet 5 of 5	PL1
23042-C-DR-506	Drainage & Watermain – Engineering Details	PL1
23042-C-DR-701	Pavements General Layout – Sheet 1 of 5	PL1
23042-C-DR-702	Pavements General Layout – Sheet 2 of 5	PL1
23042-C-DR-703	Pavements General Layout – Sheet 3 of 5	PL1
23042-C-DR-704	Pavements General Layout – Sheet 4 of 5	PL1
23042-C-DR-705	Pavements General Layout – Sheet 5 of 5	PL1
23042-C-DR-706	Pavements General Layout – Engineering Details	PL1
23042-C-DR-1100	Paved Areas – Traffic Loading Categories	PL1
23042-C-DR-1101	Paved Areas General Layout – Sheet 1 of 5	PL1
23042-C-DR-1102	Paved Areas General Layout – Sheet 2 of 5	PL1
23042-C-DR-1103	Paved Areas General Layout – Sheet 3 of 5	PL1
23042-C-DR-1104	Paved Areas General Layout – Sheet 4 of 5	PL1
23042-C-DR-1105	Paved Areas General Layout – Sheet 5 of 5	PL1
23042-C-DR-1106	Paved Areas General Layout – Engineering Details	PL1

## 2. ROADS AND STREETS

### 2.1 Drainage and Construction

Surface water run-off from roads will discharge to a new gullies and rain gardens located throughout the Development. All roads are designed to ensure that sufficient crossfalls and gradients are available to drain all areas of the road network.

Pavement depths for roads will be determined based on site investigation information consisting of cores being taken from the existing carriageway. This will be done in conjunction with the "*Specification for Roadworks*" as published by Transport Infrastructure Ireland (TII).

Paved area build ups will be determined by traffic loadings as stated in Table 2.b of "*BS 7533: Pavements constructed with clay, concrete or natural stone paving units*" as published by the British Standards Institute. All paved areas areas will be a bound construction.

Traffic load categories were determined to be category 7 and/or 9 and category 4. Load category 7 & 9 is defined as "Adopted highways and commercial/industrial developments used by a high number of commercial vehicles". Load category 4 is defined as "Urban footways with no planned vehicular overrun. Pedestrian areas used by light commercial vehicles, emergency vehicles and maintenance vehicles."

### **3. WASTEWATER**

#### **3.1 Existing Network**

The existing wastewater network consists of several combined sewers which are located throughout the Development. As part of this Development, there will be no new wastewater sewers and there will be no increase in wastewater generation which means there will be no impact on the existing wastewater flows.

## 4. SURFACE WATER DRAINAGE

### 4.1 Collection Network and Outfall

The combination of new surface water sewers, existing combined sewers and existing surface water sewers will be used for the collection and disposal of surface water run-off. A new section of surface water sewer will be constructed in Kennedy Avenue extending on from the existing surface water sewer. The existing drainage flow pattern on Kennedy Avenue flows in a south easterly direction where it is collected at the existing surface water sewer. As seen in Fig 4.1 below, the new section of surface water sewer will allow collection of surface water run-off at an earlier stage before connecting to the existing network which will reduce surface water run-off along the road.



**Fig. 4-1 New section of surface water sewer on Kennedy Avenue**

The rest of the development will be collected by the existing combined and surface water sewers. The existing combined sewers discharge to the Carlow WWTP and the existing surface water sewers that are being connected into discharge to the River Burren. There will be no new outfalls constructed as part of the Development.

The new surface water sewers will be constructed in accordance with the '*Specification for Roadworks*' as published by the TII.

### 4.2 SUDS Strategy

The surface water run-off from the development, where possible, will discharge to rain gardens located adjacent to the carriageway. A porous stone base under the rain garden will allow first-flush run-off from rainfall events to infiltrate to ground to the maximum extent that sub-soil permeabilities allow. An overflow gully located within the rain garden will discharge to the existing sewers when the level of surface water in the rain garden reaches a certain level.



Tree pits will also be utilised in both pedestrian areas and adjacent to carriageways.

There is no increase in impermeable area for the development and the existing drainage patterns will remain the same. It is not anticipated that there will be an increase in volume of surface water run-off that will be discharging to Carlow WWTP and the River Burren.

#### **4.3 Surface Water Drainage System- Operation and Maintenance**

The surface water drainage system operates entirely under force of gravity.

Drains and gullies in public areas should be inspected on an annual basis, with covers lifted to ensure that manholes remain accessible. Where the inspection reveals evidence of silt or other deposits, these should be sucked out and disposed of appropriately. However, given the nature of the development and the traffic flows that it will generate, it is not anticipated that significant maintenance measures will be required for this infrastructure.

Maintenance of electrical infrastructure will not be required.

A Safety File for the infrastructure in public areas will be prepared in accordance with the Safety, Health and Welfare at Work (Construction) Regulations. In terms of the operation and maintenance of the surface water drainage system, the Safety File should set out:

- Drawings and details of the surface water drainage system together with a description of how the system operates and how damage or failures of the system will manifest themselves;
- The maintenance regime to be applied, based on the designer's assessment of maintenance requirements and manufacturer's recommendations;
- Designer's assessment of risks in maintenance or repair that may not be obvious to a competent caretaker of remedial works contractor.

## **5. WATER SUPPLY**

### **5.1 Existing Network**

There is no requirement for new water mains as part of the Development. There will be no impact on the existing water demand.

