

## 5.11 Water Quality and Drainage

### 5.11.1 Introduction

Traditionally, roads have not been regarded as a major source of pollution and surface water runoff has been allowed to discharge into receiving watercourses, often rapidly with no or minimal treatment. Pollution from road drainage can arise from a variety of sources including accidents, general vehicle and road degradation, incomplete fuel combustion and small oil or fuel leaks.

Roads are designed to drain freely to prevent build-up of standing water on the carriageway. Contaminants deposited on the road surface are therefore quickly washed off during rainfall. Where traffic levels are high, the level of contamination, and hence the potential for unacceptable harm being caused to the receiving watercourses increases. Though there are many circumstances in which runoff from roads is likely to have no discernible effect, a precautionary approach and best practice indicate the need for the assessment of the possible impact of discharges from proposed trunk roads such as a dual carriageway.

Bearing in mind the aforementioned factors, the water quality aim for a high standard dual carriageway is to ensure that the existing quality of the watercourse is maintained, so that there are no significant pollution impacts associated with surface runoff or spillage of hazardous materials.

### 5.11.2 Objectives

The objective at this stage is to undertake sufficient assessment to provide an appreciation of the likely key constraints and consequences for water quality of a new or widened road within the eight broadly defined route options within the three route corridors.

### 5.11.3 Methodology

In accordance with the requirements of DMRB 11.3.10.7 (Stages of Assessment and Drainage Design), the steps taken include:

- Consultation with Rivers Agency to determine:
  - the location of flood plains and areas particularly at risk to flooding;
  - the location of principal watercourses;
  - location of sensitive areas – potable water sources, fisheries, amenity areas; and
- Consultation with other bodies that have an interest in water quality issues e.g. EHS – Water Management Unit, Fisheries Conservancy Board, DCAL - Inland Fisheries and the Ulster Angling Federation.

There are currently no classification schemes for groundwater in Northern Ireland.

### 5.11.4 River Systems

There are four minor watercourses traversed by the existing A6 between Randalstown and Toome, the most significant of which is the Ivy Burn (Figure 5.11.1). The eight route options within the three route corridors would cross the same minor watercourses, albeit at slightly different locations. Consultation with Rivers Agency has shown there to be no recorded floodplains in the area.

### 5.11.5 Designated Salmonid and Cyprinid Rivers

Environment & Heritage Service (Water Management Unit) has confirmed that there are no designated Salmonid or Cyprinid rivers, under the EC Freshwater Fish Directive, within the study area. Although these

minor watercourses are not designated, they are part of a wider drainage system that is designated under this Directive, namely the Lower Bann system and the Lough Neagh system. Three of the minor watercourses crossed by the proposed route options flow into the Lower Bann (designated Salmonid), two of which are tributaries of the Ivy Burn before entering the Lower Bann. As a Salmonid watercourse, they are considered important game-angling rivers, based on quality. They are also regarded as a migratory route for spawning trout and salmon. Contamination of these minor watercourses could possibly result in subsequent contamination of the Lower Bann, thus the protection of these minor watercourses can be just as important as the protection of the designated river. The tributaries of such designated watercourses are normally used as spawning beds for migrating salmon.

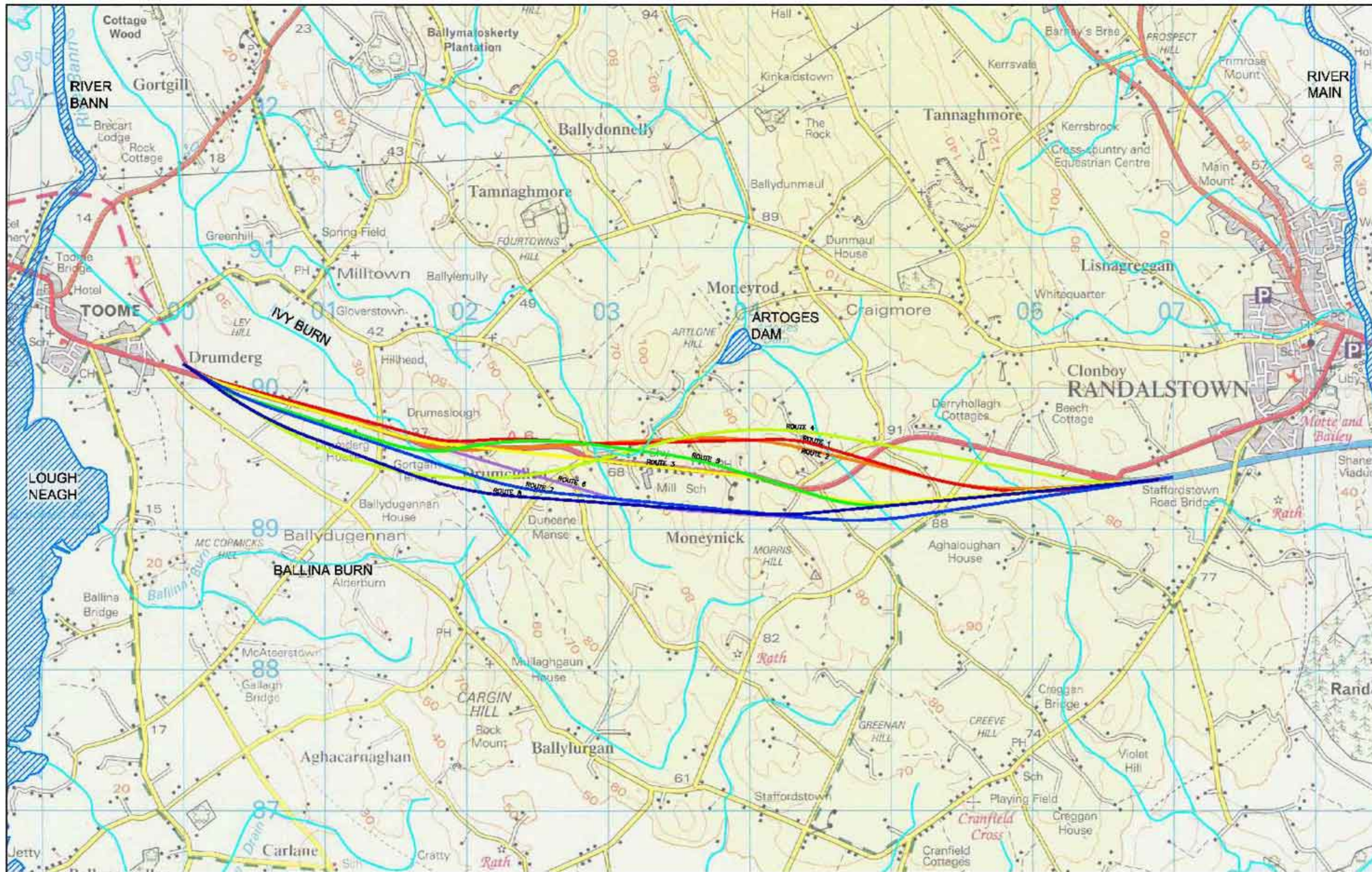
The remaining minor watercourse flows into Lough Neagh, which is designated as a Cyprinid waterbody, suitable for coarse fish, and must also be protected from contamination under the EC Freshwater Fish Directive.

### 5.11.6 Biological and Chemical River Quality

Environment & Heritage Service (Water Management Unit) monitor biological and chemical river quality in Northern Ireland, through a series of monitoring stations on various stretches of river. All monitored rivers are subsequently classified on this basis. Their findings are published annually and based on Year 2000 data, none of the rivers traversed by the A6 between Randalstown and Toome are monitored in terms of their biological or chemical quality.

### 5.11.7 Road Drainage

Suitable methods preventing contaminated water from road drainage entering the watercourses in the area will have to be considered as a part of the drainage design. Conventional road drainage normally entails discharging untreated surface water from carriageways directly into adjacent watercourses, with no form of filtration. However modern methods of road drainage, such as a Sustainable Urban Drainage type system (SUDS), incorporate stone topped filter drains, swales and detention basins, helping to treat and attenuate discharges into watercourses. Such a method should be considered as part of the drainage design for this scheme.



**FERGUSON  
McILVEEN**



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**Notes:**

- MINOR WATERCOURSES
- LARGER WATERCOURSES

- ROUTE OPTION 1
- ROUTE OPTION 2
- ROUTE OPTION 3
- ROUTE OPTION 4
- ROUTE OPTION 5
- ROUTE OPTION 6
- ROUTE OPTION 7
- ROUTE OPTION 8

Scale 1:25,000

**A6 RANDALSTOWN TO TOOME DUALLING**

**WATER QUALITY AND DRAINAGE  
WATERCOURSES**

Figure 5.11.1