

RESEARCH PROJECT TITLE: CONSTRUCTION AND OPERATIONAL IMPACTS AT RIVER CROSSINGS ON NATIONAL ROAD SCHEMES

START DATE: December 2008

END DATE: November 2011

CONTRACTOR: University College Dublin

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DESCRIPTION: Construction of river crossings on National Road Schemes has the potential to impact on sensitive river ecosystems, containing protected species; particularly those prone to siltation. These impacts can occur during the construction phase and to a lesser extent, during the operational phase through routine maintenance activities. TII is encountering situations where bridge crossings are in Special Areas of Conservation (SACs) more frequently on many road schemes and this has significant implications for the planning process. A review of construction techniques and guidance for contractors as to how to avoid any pollution events would be beneficial in dealing with situations where these species are known to occur.

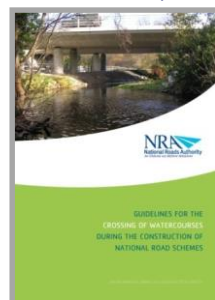
OBJECTIVES:

- To conduct an integrated research programme, examining the environmental effects and methods of watercourse crossings’ construction on sensitive river ecosystems. The research examined the effects on water quality and flow regime, resulting from different construction techniques by comparing the pre-construction, during-construction and post-construction field data, evaluating the performance of mitigation measures and examining the impacts (if any) on aquatic ecology

BENEFITS: This research augmented the NRA's (currently TII) watercourse crossing guidelines and the objectives of stage 4 of our environmental integration model. The scientific data helped to expedite the ecological investigations during the early stages of the planning process: and route selection stages. Once consent is obtained for the construction of a national road scheme, there is an agreed procedure for bridge construction and monitoring that will allow projects to advance in a more timely and efficient manner.

RESEARCH FINDINGS:

- The earthworks associated with clear-span bridge construction had no detectable impacts on adjacent water quality
- The earthworks associated with culvert construction resulted in spikes in SS concentrations during storm events
- Re-vegetation of soil significantly reduces SS transport to watercourses
- Real-time monitoring provides useful water quality data at high frequency, enabling fluctuations in parameters to be recorded and their compliance with limit values to be assessed
- Although there were episodic spikes in SS concentrations, it would appear that the macroinvertebrate populations were not significantly impacted



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