

Geophysical Research Abstracts,
Vol. 10, EGU2008-A-11749, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-11749
EGU General Assembly 2008
© Author(s) 2008



Construction and demolition waste and dredge material as landfill liner in Ireland

J. P. Murphy (1), J.D. Riordan (1), J. Harrington (2), C. Sheehan (1)

(1) Department of Civil, Structural & Environmental Engineering,

(2) School of Building & Civil Engineering

Cork Institute of Technology,

Bishopstown,

Cork, Ireland.

Tel: +353 21 4326313; Fax: +353 21 4345244

john.riordan@cit.ie john.pmurphy@cit.ie

colm.sheehan@cit.ie joe.harrington@cit.ie

Construction and Demolition (C&D) Waste and Dredged Sediment are significant bulk waste streams in the Republic of Ireland. This paper studies the feasibility of combining these waste streams to produce a viable geotechnical clay liner for landfill and achieve a sustainable option for the management of river and estuarine sediments.

The Republic of Ireland currently generates on average approximately 1.2 million wet tonnes of silt and clay in dredged sediment annually. This material has primarily been disposed offshore. New sustainable dredge management alternatives involving greater beneficial reuse are required.

Landfill was the only option available for the 1.8 million tonnes of Municipal Waste disposed of in the Republic of Ireland in 2004. A demonstration C&D waste recycling project showed that there was an excess of fine material, indicating that up to 8 million tonnes of fine material is generated annually.

This project investigates the possibility of integrating these two waste streams to establish a viable form of geotechnical clay liner for landfills.

Samples of C&D fine material and dredged sediment were tested to establish relevant characteristics. They were combined in various proportions to evaluate the possibility of producing a material suitable for use as a geotechnical liner. A methodology was developed to model a composite sample on a typical natural liner material. The environmental and economic aspects of the implementation of a scheme of substitution of natural clay liner with composite liner from C&D waste and dredged sediment are examined. This work suggests that there is potential to combine C&D waste with dredged sediment to form a landfill liner.