

Completion of Heysham to M6 Link

Planning Application December 2005
Revised Planning Application Report (September 2006)



Technical note

Project	Lune Modelling	Date	10 July 2006
Note	Torrisholme Flood Risk	Ref	DCLUNE/TN/001
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1 Introduction

1.1 Halcrow have been commissioned by Lancashire County Council [LCC] to investigate the flood risk of various aspects of the proposed M6 Heysham link road. As part of this study, an assessment of the flood risk to the stretch of road at Torrisholme is required. This Technical Note reviews the available river and topographic level data to assess the risk of the new road being flooded.

2 The Scheme

2.1 The assessment has been based on drawings supplied by LCC showing the overall layout of the proposed road (Figure 1) and a long section. The new road is to extend approximately 4500m from just east of the existing A683 Northgate junction (Figure 2) to a new Junction 34 on the M6 motorway. The road levels at the western end are determined by the tie-in with the existing road.

3 Flood Risk Area

3.1 The Environment Agency has identified a flood risk area to the north of the River Lune as being at risk from flooding (Figure 3). The proposed road alignment passes through this area between chainages 1300m and 2000m (approximately).

4 Data

4.1 Topographic data for the road and adjacent ground is summarised in Table 1 below:

Chainage (m)	1300	1400	1500	1600	1700	1800	1900	2000	2100
Road level (m AOD)	8.73	9.19	8.19	6.85	6.75	8.83	11.71	13.46	13.50
Ground level (m AOD)	8.73	9.00	7.08	6.46	5.60	5.39	5.13	6.16	6.92

Table 1: Topographic data

4.2 River levels for extreme events have been taken from a modelling report produced during the development of the Lower Lune Flood Risk Management Strategy for the

Environment Agency in 2005, and also the Project Appraisal for the Lower Lancaster Flood Alleviation Scheme. Predicted present-day river levels in various extreme flood events at Lancaster Quay are summarised in Table 2 below:

Return period (years)	1:1	1:10	1:25	1:75	1:100	1:200	1:500
River level (m AOD)	6.12	6.76	7.00	7.32	7.42	7.67	8.00

Table 2: River data

These levels represent predictions of the water levels within the river channel in extreme events. It is likely that associated flood levels within the flood plain would be lower due to attenuation. This has not been allowed for in the present model.

5 Conclusions

- 5.1 On review of the levels of the proposed road and predicted river levels, it is concluded that the low point of the road (ch 1700) will be flooded by tidal/fluvial flood events with a return period in the order in 1 in 10 years. This extends over a length of approximately 50m (ch 1650 to 1700). Approximately 210m length of the new road (ch 1545 to 1755) lies below the 1:200 year flood level. The remainder of the road is above the 1:200 year flood level.
- 5.2 The proposed road is to be elevated above both the land adjacent to it, and the existing road. The risk of flooding along the existing road has therefore been reduced. However, the extent of the flood plain would be curtailed by the new road.
- 5.3 The present predictions are based on levels in the river channel, and represent an upper bound. Further detailed modelling of the floodplain using a 2-dimensional programme such as TUFLOW could be undertaken to refine the predictions, although this would require a detailed topographic survey of the floodplain.



Figure 2: Western End of Proposed Road

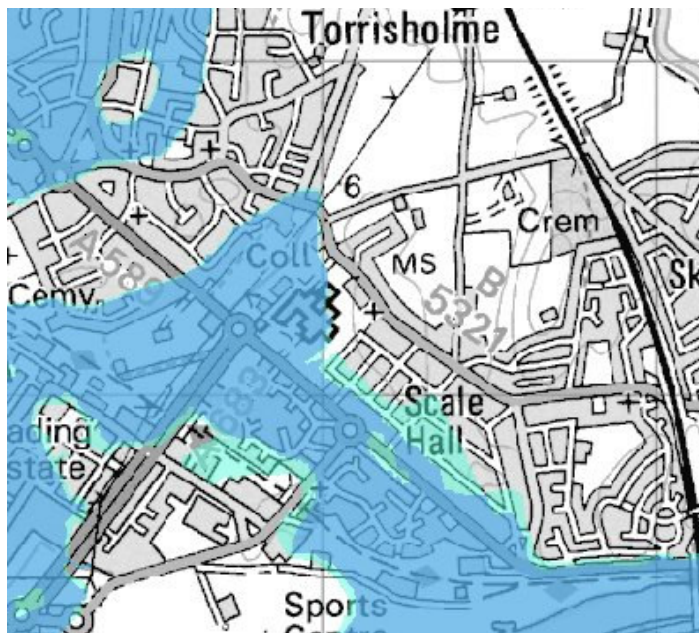


Figure 3: Flood Risk Area (Extracted from EA website, 2006)