

January 6, 2016

Dear Friends of The Murrough,

In follow up to my January 1<sup>st</sup> letter and in anticipation of Thursday's public meeting, I would like to offer some additional comments. Since I wrote to you last, I have been monitoring reports and discussions (through social media) of the emergency work being performed by Irish Rail, and I have reviewed the 2007 Coastal Protection Report commissioned by Wicklow County Council.

With regard to the emergency erosion control measures installed in the past week, I understand that Irish Rail has had to act quickly, but the rock armor, as installed, should only be considered a temporary erosion control measure. As I recommended in my previous letter, it was critical that the remaining bank be protected immediately but these measures would be mainly sacrificial and would not be expected to survive multiple storms. The purpose would be to buy the Council/Government enough time to procure a design and construction contract.

Based on the photos and reports I have seen of the Irish Rail work so far, the rock armor does not seem to be intended as temporary, and I am concerned that the makeshift revetment that has been installed defines a new and permanent shoreline that will hinder efforts to reclaim land that has been lost inshore of the main revetment.

Further, the armor is being installed incorrectly, without a filter layer. Armor stone should not be placed directly on a slope without geotextile fabric and graded stone underneath. As installed, there is nothing to stop the waves from jetting between the armor stone, which before long will result in sinkholes along the railway line.

With regard to the 2007 Coastal Protection Study commissioned by Wicklow County Council, I found that the report contains all of the analysis that I called for in my first letter. The report is very thorough in its collection and interpretation of data, and in its discussion of options for coastal protection. However, I would challenge some of its recommendations, especially given the current conditions. There are two major issues I see with the report:

1. The predicted rate of erosion, and therefore loss of amenity land, was grossly underestimated.
2. The economic value of the assets that coastal protection works would protect was all but dismissed.

Unfortunately, a combination of these two factors resulted in a general recommendation of "Do Nothing".

I have provided some more specific comments below:

1. The study does not appear to have considered any variation in the composition of the upland soil as a factor in predicting future erosion rates. This could have been better estimated by performing upland test pits and soil sampling along the length of the study area. (It appears that sediment sampling was limited to the beach itself.) Instead the study used a linear rate based on historical data and assumed uniform cross-shore soil properties. However, it is reasonable to assume that the inshore soil is composed of more river silt and organic soil, and less shingles/rock, as the bank retreats inshore towards the Broad Lough/Leitrim River. If these conditions were confirmed as part of the study, it is likely that higher erosion rates would have been estimated.
2. Section 5.2 Coast Protection Options: 5.2.1 Do Nothing: The report states that “Predicted erosion up to the year 2050 threatens no existing infrastructure assets.” This assumption disregards emergency vehicle and recreational access to the Murrough as an infrastructure asset and does not set an allowable buffer of land between the railway and the eroded bank. Irish Rail may have a different view.
3. Section 5.2.1 Do Nothing: The reports states that doing nothing “...is probably the most sustainable and economically viable option.” This is obviously true if you consider the immediate costs alone, but does not take into account the long term value of transportation infrastructure, recreational amenity, and natural/environmental resource, that the Murrough provides to the area.

The report continues, “There would be some loss of amenity land but the percentage of the area is relatively small.” As of today, the amenity land that has been lost, albeit a small percentage of the total Murrough land, represents 100 percent of public access to the Murrough.

4. 5.2.3 Groynes or Artificial Headlands: The report makes an important point that should be highlighted: “Groynes or artificial headlands work best where there is a predominant sediment drift such as is the case for the Murrough. However the structures provide little protection against the cross-shore transport that also occurs at the Murrough during storm events.” In other words, erosion and transport of sediment do not only occur parallel to the shoreline, in which case groynes would serve their intended purpose and trap sediment thus replenishing the beach, but it also occurs in an offshore direction, in which case groynes would be ineffective without supplemental coastal protection (e.g. beach re-nourishment, bank protection, etc.)
5. 5.2.3 Groynes or Artificial Headlands: In a common theme throughout the report, it is stated that “The cost of installing a groyne field is out of proportion to the value of the assets and amenity they would protect.” However, the study does not include any economic analysis or estimate of the value of assets and amenities that would be protected.
6. 5.2.5 Offshore Breakwaters: The report states that this type of structure is suitable for areas without a large tidal range, and therefore feasible at the Murrough. It also mentions the added benefit of breakwaters that they provide additional habitat for marine life. The unit price for installation estimated in the report of €12,000 per metre seems high but I do not have local labor, equipment, and, material costs to support this assumption. I do believe, however, that the proximity of a quarry and rock loading barge/shipping facility within close range of the construction site could result in lower construction costs.
7. 5.2.5 Offshore Breakwaters: The report makes a similar assumption to that in Section 5.2.3 with regard to the cost of installation versus the value of the assets and amenity they would protect, stating it would not be “economically viable”. However as said above, the study does not include

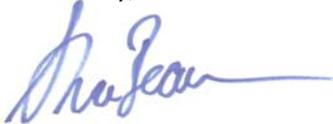
any economic analysis or estimate of the value of assets and amenities that would be protected, therefore the recommendation has limited validity.

8. Section 5.3 Recommended Works: The report makes a recommendation for treatment of the north end of the existing revetment that, if followed, may have prevented the accelerated erosion in the 200-250 m section where Irish Rail has been forced to install emergency measures. The recommendation was for a graded rock beach composed of 2 tonne armor stone at the end of the revetment tapered down to shingle size rock at the bank to prevent “cut-back” of the shoreline.

For all of the reasons outlined above and in my previous letter, my biggest issue with the report is the following statement: “There is no economic justification for undertaking any works along the frontage to the north of the extended revetment, and the coast in this area should be allowed to recede naturally.” I wholeheartedly disagree.

I hope this helps you in preparing for your meeting on Thursday, and in your continued campaign to save The Murrough. Please let me know if you need further assistance in conveying the severity of this situation to the Council or other Government agencies, and feel free to contact me if you have any questions.

Sincerely,



Shane Beacom

Murrough Native