

Meeting Notes



Transport
Roads & Maritime
Services

15 MARCH 2012

Meeting to discuss design development of southern suggestion

Meeting between Bruce Ramsay (BR) and Steve Zhivanovich (SZ) to discuss design development of southern suggestion.

RMS Pyrmont Offices,

1030 – 1200hrs

15 March 2012

Notes from meeting

- BR tabled drawings with amendments to the alignment (attached) and described the changes and motives behind them.
- BR expressed concern that Aecom appear to have a biased view when it comes to the Southern Route - especially pertaining to the Island Embankment proposal.
- SZ emphasised that all technical investigation group members have been briefed on presenting facts to inform the strategic costing of the current northern option and suggested south bypass route. The technical investigation costing has no bias towards any route and is solely focussing on making the best like for like technical assessment. Inevitably investigations will identify issues which favour or disadvantage a particular aspect of either route. The technical investigation group needs to openly evaluate all issues and use its experience to problem solve, make changes and undertake other investigations it considers necessary and possible within the time constraints.
- SZ reaffirmed (per meeting at Aecom's offices 1 March 2012) that the effect of the island embankment on the flood catchment would be investigated. SZ had requested Aecom to investigate what useful modelling could be done in the time available.
- BR proposed that the Island Embankment would be armoured, if necessary with Reno Mattresses or equivalent, plus a flood relief culvert located at about mid point along the embankment.
- SZ acknowledged that these measures would be included in the investigations of the island embankment.
- BR expressed his concern over the issue of "Berry flood evacuation route" as raised by Aecom as added bias and cost implications against the Southern Route. BR stated that the Southern Route leaves Berry in its current form for the next 100 years, with no changes required to the existing flood evacuation routes as currently provided by Queen Street through to Kangaroo Valley Road. BR queried if Aecom considers the Northern Route as providing a flood evacuation route - how do they envisage access will be provided for the residents to access it in a flood emergency - given traffic, surrounding terrain & sound walls, etc.
- SZ stated that there is no bias towards or against the southern route. The technical investigation group have identified that a by-product of the northern bypass route is its provision of flood mitigation to the town. The investigation raised the question whether the same mitigation needs to be provided if the south route were to become an option. In addition, Shoalhaven Council are interested in understanding what the are costs to them if they were to undertake these works.
- BR stated the current draft vertical alignment for the Southern Route as detailed by Aecom does not reflect the most economical design when it comes to the road gradients and in particular the north-eastern embankment approach to the interchange near Muller's Lane.



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- SZ reassured BR that the design will be looked at in this area and that if appropriate the embankment would be lowered, bearing in mind the nature of the interchange would need to be altered so that the under-passed link road between roundabouts would be replaced by an overbridge.
- BR was keen to demonstrate the impact of the viaduct on the southern route would not be as great as some of the community were suggesting. BR tabled his version of long sections of the viaduct to give an indication of the scale and visual impact.
- SZ acknowledged that is a good idea and that the technical investigation group will produce similar long sections, cross sections and other supporting visualisations to help the community understand what a southern route would look like.
- BR expressed his view that it is the responsibility of the design consultant is to ensure that the client is obtaining the best value for money that is possible, within the boundaries of acceptable engineering practice. BR said he would have hoped that Aecom could have used their ingenuity to improve the economic viability of the Southern Route concept, rather than suggest problems that can only be resolved by costly changes.
- SZ assured BR that the technical investigation group was working hard to make the south route as efficient as possible in a similar manner to the process involved on developing the northern route late 2011. SZ stated that the technical investigation group consists of many construction professionals from different disciplines and organisations. The technical investigation group will comply with its brief (as posted on the RMS website) and its work will be reviewed by an independent external reviewer (SMEC) and an independent internal reviewer (RMS Project Management Office). In addition specific areas will be independently reviewed, namely flood modelling and drainage by Lyall & Associates and the interpretation of geotechnical data by an external consultant to be advised.
- BR urged the adoption of horizontal alignment changes at the eastern end of the south route in the vicinity of Pulman Street and the sewage treatment plant. BR said he had made these changes in response to the feedback he was getting from the community.
- SZ reiterated that the BR's suggest alignment changes would not be adopted in the technical investigation group investigations as the knock-on effect on the whole process would be significant and delay the delivery of the reported outcome. However the new ideas will be examined by the technical investigation group to see if they can be inserted into the design without delaying the process. In addition the technical investigation group will attempt to cost these changes in isolation as a comparison with the initial south route suggestion. SZ pointed out that on quick examination the new ideas may not provide any cost benefits to the south route as they lengthen it by approximately 200 metres.
- BR said he wanted to know if the most efficient construction methodologies were being used in order for a meaningful budget estimate to be produced. For comparison with the northern option, a well planned construction programme taking into account the works in the Foxground section in parallel with the southern route, should be considered. In respect of the Southern Route, BR stated that he would envisage that a large percentage of the excess fill material (400,000m³) generated from the Toolijooa Cutting could be disposed of in the form of "imported fill" for the embankment construction across the floodplain.
- SZ confirmed the technical investigation group has a number of constructability experts and a construction programmer as part of the group. With respect to earthworks, mass-haul analyses are in the process of being completed to determine the most efficient use and movement of the various types of material generated by both the north and south routes within the context of the whole Foxground and Berry Bypasses project.
- BR said the viaduct substructures (piling, pile caps & piers) for the southern route could also be started ahead of time and overlapping with the Foxground section of the works. BR proposed that by leap-frogging these two elements (embankments & substructure) in the planning process it could shorten the overall construction period for the southern route and reflect in major cost savings relating to time, with the added cost bonus relating to the quantity reduction of disposal and double handling of the imported fill.



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- SZ agreed that sequencing and concurrency optimisation of the programme would increase productivity and bring cost benefits. Both routes would be programmed in this manner as would be expected of a top tier civil engineering contractor who would ultimately undertake the works.
- BR expressed his concern in respect of the vertical alignment. BR raised as a major issue Aecom's interpretation of the 2100 year 1% AEP, Cardno Flood Study as adopted by the Shoalhaven City Council (SCC). BR stated that his advice from SCC was that the current 1% AEP that they have adopted is 5.0m at the South Coast Rail embankment at Berry. On top of this they have allowed 50mm rise due to the 2100 Climate Change prediction of a 900mm rise in ocean level at Shoalhaven Heads. The basis for the 50mm figure is the predicted tail-water rise as measured at the Nowra Bridge. The SCC estimates that the rail embankment at Berry is at a similar distance from Shoalhaven Heads and therefore attracts a similar rise.
- SZ said that this appeared not to differ greatly from the technical investigation group's interpretation of the impact of climate change and that a section explaining the levels of the height of the road at the Ch 18650 low point is being produced.
- BR observed that the South Coast railway is on embankment and as such acts as a weir resulting in backing - up of the flood waters on the northern side, until such time that overtopping of the embankment occurs.
BR proposed that the top of the embankment at this point is at approx. R.L.6.0m whereas the downstream side of the adjoining floodplain is about 3.0 - 4.0m. The downstream side of the embankment then acts as a spillway and as such is susceptible to erosion down its face with further damage to the rail track - as has been the case in the past.
BR observed that as the southern route is to the south of this affected area the height setting for the embankments on the southern alignment are not affected by this overtopping affect. BR therefore proposed that the critical height for the design of the southern route embankments is 5.05m (SCC) plus freeboard of 0.5m, giving a minimum height for the road of 5.550m. BR said that the Aecom interpretation of the flood study for the embankment height, as discussed previously of 7.5m is grossly overstated by 1.95m which results in unnecessary major cost increases to the southern route. BR said his proposals have been based on a centreline road height setting of 6.0m (to allow for super elevation) with a general maximum road gradient of 2.5% and where a level section is designed a minimum gradient for drainage of 0.5%.
In BR's opinion the current Aecom draft design does not reflect these criteria and as such huge embankments in excess of 10.0m plus have resulted, e.g. between the rail and existing Princes Highway.
- SZ acknowledged the points raised by BR and asked for the continuing technical investigation group investigation process to allow these and other issues to rise to the surface for examination and verification. For each criterion there are numerous policies, standards and specifications which need to be complied with and invariably these dictate the design outcome.
- BR expressed his overall concern that the engineering design is not being optimised from a cost point of view. BR said he would not like to think that the RMS and the technical investigation group are wasting their time reviewing the least competitive solutions for the southern route and felt it is time that these issues were properly addressed in order to ensure a fair assessment of cost.
- SZ reassured BR that these concerns are being addressed through the technical investigation group process. Any benefits identified from submissions by BR, other community members, technical investigation group members and independent reviewers for either or both north and south routes will be included. The cost gateway exercise the technical investigation group is undertaking is to inform the decision of whether the south route (or one similar to it) can be considered a feasible option to be taken to the next step.