MEETING NOTES

Name of meeting: Foxground &Berry Bypass Route Comparison Study: Technical Investigation Group Weekly Progress/Coordination Meeting 12

Location of meeting: AECOM, 420 George Street, Sydney

Meeting facilitator: Steve Zhivanovich

Date: 02/05/2012 **Time:** 10am

Attendees:

Name	Initials	Organisation
Henk Buys	HB	AECOM
Gillian Goldsmith	GG	Evans & Peck
Phil Jorgensen	PJ	Evans & Peck
Annabel Killen	AK	Evans & Peck
Michael Moore	MM	Evans & Peck
Ben Noble	BN	AECOM
Ken O'Neill	KO'N	Aurecon
John Poposki	JP	RMS
Ron de Rooy	RdR	RMS
Glen Smith	GS	AECOM
Peter Stewart	PS	Peter Stewart Consulting
Steven Zhivanovich	SZ	RMS

Independent reviewers:

Name	Initials	Organisation
Derrick Hitchins	DH	SMEC (External reviewer)
Chris Masters	CM	SMEC (External reviewer)
Basil Pazpinis	BP	RMS PMO (Internal reviewer)

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Transport Roads & Maritime Services

Additional distribution:

Name	Initials	Organisation
Dan Reeve	DR	SMEC (External reviewer)
Jon Williamson	JW	AECOM
Alan Thomas	AT	RMS PMO (Internal reviewer)
Adam Berry	AB	RMS

Attachments: Outstanding actions from past minutes

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	Item	Discussion	Independent reviewer input	Action
1.	Review and update of outstanding actions from previous minutes	Outstanding actions reviewed	External reviewer highlighted the importance of 1. Ensuring that the best possible engineering solutions are being applied to both routes 2. Ensuring that community ideas are included in developing the route designs and construction methods	Noted
2.	Critical Issues Register	**Northern route drainage structures** Design workshop to be arranged prior to 09/05 to develop design solution to achieve adequate clearance under the bridge. Representatives from RMS, AECOM and Aurecon to attend.	External reviewer noted that solutions to address the very low clearance under the structure may also need to include revising the vertical alignment of the bridge, albeit not as much as in the original design.	JP
		Constraints on vertical alignment from flooding		AK

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		Further flood modelling investigations have provided refined flood level information. Register to be updated with current information discussed below.		
		Island embankment Register to be updated to incorporate available results from the further flood modelling as detailed below.		AK
		Earthworks optimisation Options for reducing fill requirements investigated as provisional items. Register to be updated to incorporate available results from Peter Stewart's work as detailed below in item 5. Preliminary information indicates thatquarry just south of Tindalls Lane is not likely to be an appropriate source of fill. RdR awaiting advice from owner to confirm.	External reviewer advised that the TIG should not be distracted from the primary purpose of the cost gateway exercise which is to produce the best possible engineering solution for the southern option to achieve the minimum cost.	RdR
		Mature tree removal An aerial study to estimate approximate number of mature trees requiring removal	External reviewers noted that this issue should be given consideration as it is of concern to the community.	RdR

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		will be undertaken for inclusion in the cost estimate for both routes. It was noted this issue is not a major cost item.	Agreed with aerial study to approximate the number of trees affected to estimate the cost impact.	
		RMS design requirements for width of roadway on structures Discussion regarding current wording in critical issues register. Agreed that current wording does not clearly state the agreed RMS design criteria. All structures are to provide for maximum of two lanes in each direction and include adequate shoulder width and minimum sight distance requirements. Issues register to be updated.	External reviewers noted that this issue was of concern to the community and needed to be clarified.	AK
		Structures visualisations KO'N stated that community members had expressed concern with the visual impact of the structures. Visualisations of structures to be made available on the project website.	External reviewers note that this issue was of concern to the community, especially the actual heights which were difficult to ascertain from some of the drawings.	AK

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3.	Further flood modelling	**Constraints on vertical alignment of southern route from flood levels** Preliminary results from the refined flood model are now available. Revised indicative results at this stage at critical points are: 1. HitchcocksLaneCreek (Ch16800): Prior information indicated a 100 year flood level of 5.1m, further modelling indicates a level of 5.0m 2. Southern abutment of bridge (Ch18600): Prior information indicated a 100 year flood level of 5.5m, further modelling indicates a level of 5.3m The refined model results appear consistent with the initial coarser assessment, although the flood levels are lower. The results have yet to be reviewed by Lyall Associates, independent reviewers. Pending the new information being	External reviewers noted that the technical investigation group has performed a significant amount of additional modelling work to achieve a more accurate assessment of this critical issue. Any reduction flood immunity height achieved as a result must be reflected in the design of the southern route to reduce the need for embankment fill	

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		reviewed, the level information will be applied to vertical alignment by GS to lower the embankment heights and reduce the quantity of fill required in this area.		
		Island embankment Further flood modelling has indicated that this is a feasible alternative to a continuous viaduct and will therefore be addressed as a provisional item in the cost estimate. The option is not however viewed as the best engineering design outcome and introduces significant risk to the project. The cost impact has been assessed as minimal. The main reason for this outcome is that the island embankmentintroduces a discontinuity in construction the continuous viaduct and the significantly increases the requirement for fill and abutment structures.	External reviewers supported the decision to leave the island embankment out of the base case design, but recognise any cost differential as a provisional item in the strategic cost estimate.	

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		Flooding assumptions Further flood modelling has provided more refined information allowing a slightly less conservative approach to be taken. Previously route was designed with capacity for concurrent 100 year ARI events for local streams and the ShoalhavenRiver. Current design allows for 20 year ARI local stream event with 100 year ARIShoalhavenRiver event and vice versa.		
4.	Geotechnical field work results	Preliminary results from geotechnical fieldwork provided for discussion. Noted that these have not been finalised and are awaiting further information. There are preliminary indications of problems with stability and settlement from soft soils in some areas of the route. These could significantly increase the cost of a southern route The TIG discussed the possibility of moving the southern interchange further		

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		north towards Hitchcocks Lane to avoid the worst areas of soft ground. SZ noted in the first place the TIG should await receipt of the finalised geotechnical interpretive results. Depending on the results the TIG create its own provisional item to assess whether moving the alignment further north between Wharf Road and the existing Princes Highway could be less costly. It was noted moving the alignment further north would adversely impact the skew angle of the bridge over the South Coast Railway and also bring the route closer to the southern edge of Berry. It would also impact different properties between Jaspers Brush and Berry. If geotechnically viable, this exercise would be carried out after other investigations are complete.	External reviewer suggested using a GIS map overlay to better visualise the combination of geotech, flooding, noise, acid sulphate soils and other relevant criteria to assess whether a further adjustment of the horizontal alignment of the southern route towards the north is warranted to create a new provisional item.	
5.	Earthworks cut/fill balance optimisation	GS has modelled the earthworks balance with an alignment that includes the following provisional items:	External reviewer noted that the best engineering solution for a project rarely resulted in achieving a perfect earthworks balance. The TIG must not become pre-	GS PS

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		1. 5m deeper cut through Toolijooa Ridge 2. Lowering the mainline through the southern interchange so local traffic is dealt with by an overbridge rather than an underbridge. 3. Diversion south of the sewerage treatment plant 4. Diversion towards the east at MillCreek These provisional items would save approximately 100 000m3 from the fill requirements. However, they would introduce significant risks and costs to the project due to 1. Deeper cutting in Toolijooa Ridge increases risk of environmental impacts on aquifers and excavating / blasting in harder rock. 2. Lowering the southern interchange will impact its flood immunity and measures required to flood protect the	occupied with achieving an earthworks balance to the detriment of other factors. The TIG should work to an acceptable balancing margin reflective of the overall volume of material to be moved. A margin of +/- 50,000m3 would be deemed an acceptable outcome.	

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		south route. 3. Diversion south of the sewerage treatment plant requires more construction in areas of soft soils, with significant cost impacts, as well as more construction in the flood plain These suggestions to be investigated as further information is received and other criteria are determined. SZ requested HB to assess the impact on aquifers and water table if the Toolijooa cutting is further excavated as this could have significant environmental impact and is of concern to the local community. An additional item is to be added to critical issues register to recognise this.		HB
6.	Cost estimate	Flood immune access for the town of Berry to be included in the cost estimate Design information to be developed for provision of flood immune access to town. Existing cross section to be maintained.	External reviewer and BP reminded the TIG this had been discussed a number of meetings previously. To ensure like for like comparison between north and south routes the estimate should include the cost of providing flood free access to Berry by	PJ

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			both routes.	
7.	Comparative Report	Comparative report deliverables and deadlines summarised in spreadsheetpresented. Cost estimate completion is dependent on final information from geotech and flooding. First draft of TIG's report to be submitted to external reviewers 7/5.		Noted
8.	AOB	Acknowledgement of receipt of a submission from a community member containing a new design proposal for the south route with costing information. The TIG to undertake an assessment of the submission's against the previously agreed design criteria and design standards before an evaluation of the differences in quantities and costs. An MX model will be produced in the first instance.	External reviewer confirmed that the independent review team had received the same submission at the 30 April community meeting. External reviewer advised the first exercise the TIG must undertake is an evaluation of whether the submission conforms to the RMS project design parameters and relevant design standards.	JP
		Role of independent reviewers	External reviewer advised that according	DH

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		Noted that the role of the independent reviewers in the process has not been clearly stated to the community. Minutes to be presented to more clearly identify the input and role of the independent reviewers. Suggested column for IR comments to be added to minutes.	to the feedback the reviewers had received at the meeting of 30 April, the community was unaware of the nature and method whereby the External Reviewer team are challenging the TIG's investigations. Including reference to the contribution by the External reviewers in the TIG meeting minutes should be adopted to address this concern. External reviewer said that they would produce a fact sheet to list the direction and actions instigated by the reviewers to ensure the integrity of the investigation process is transparent.	
		Information updates to the community SZ advised that between now and the publication of the TIG report, fact sheets will be issued to inform the community of aspects of the investigations as they become known. The first TIG fact sheet will be issued for the 15 May website update.	External reviewer suggested further publication of Fact Sheets addressing aspects of the investigations that are of concern to the community. These are to be issued as critical aspects of the design are finalised and resolved.	SZ

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		Next TIG meeting Due to the need for consolidation of investigation results to be concluded for the TIG draft report, the next TIG meeting will be held on Wednesday 16 May, venue TBC.		