

Welcome  
Southern suggestion cost review  
Q & A session #4  
30 April 2012

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# Meeting agenda



Transport  
Roads & Maritime  
Services

- 6.30 Welcome, housekeeping and introductions (Lucy)
- 6.35 Process Overview by RMS Regional Manager (Brad)
- 6.55 Technical investigation group (Adam)
- 7.05 Presentations from technical investigation group specialists:
  - Geotechnical investigations
  - Flooding and Hydraulics
  - Bridges
  - Construction methodology
  - Cost estimating
- 7.25 Independent Reviewers
- 7.30 Opportunity for specialist focus discussions
- 8.15 Close

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# Who is here?



Transport  
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Facilitator, Lucy Cole-Edelstein, Straight Talk

Brad Turner, Regional Manager, RMS Southern Region Office

Project Team

TIG (Subject Matter Experts)

Independent Reviewers

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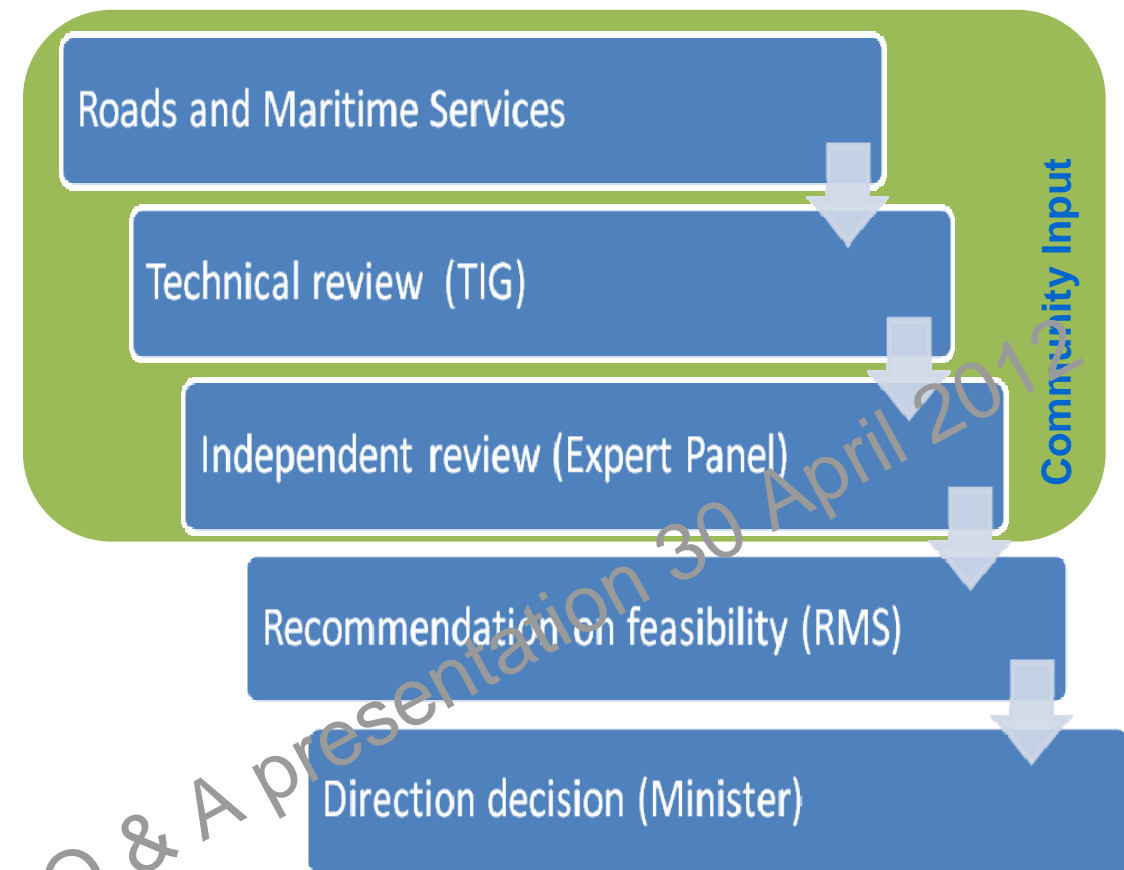
# Welcome by Brad Turner



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We are reaching the decision point.

- The Minister is the decision maker. He is being provided with information from:
  - RMS
  - the TIG
  - the Independent Reviewers
  - the Community
- My task is ensuring the integrity of the process.



- The review is about getting the best possible ‘like for like’ comparison;
- This investigation is limited to a costings review;
- Community input continues to be fed into the process;
- Please look at the process map available in handouts and the project website.

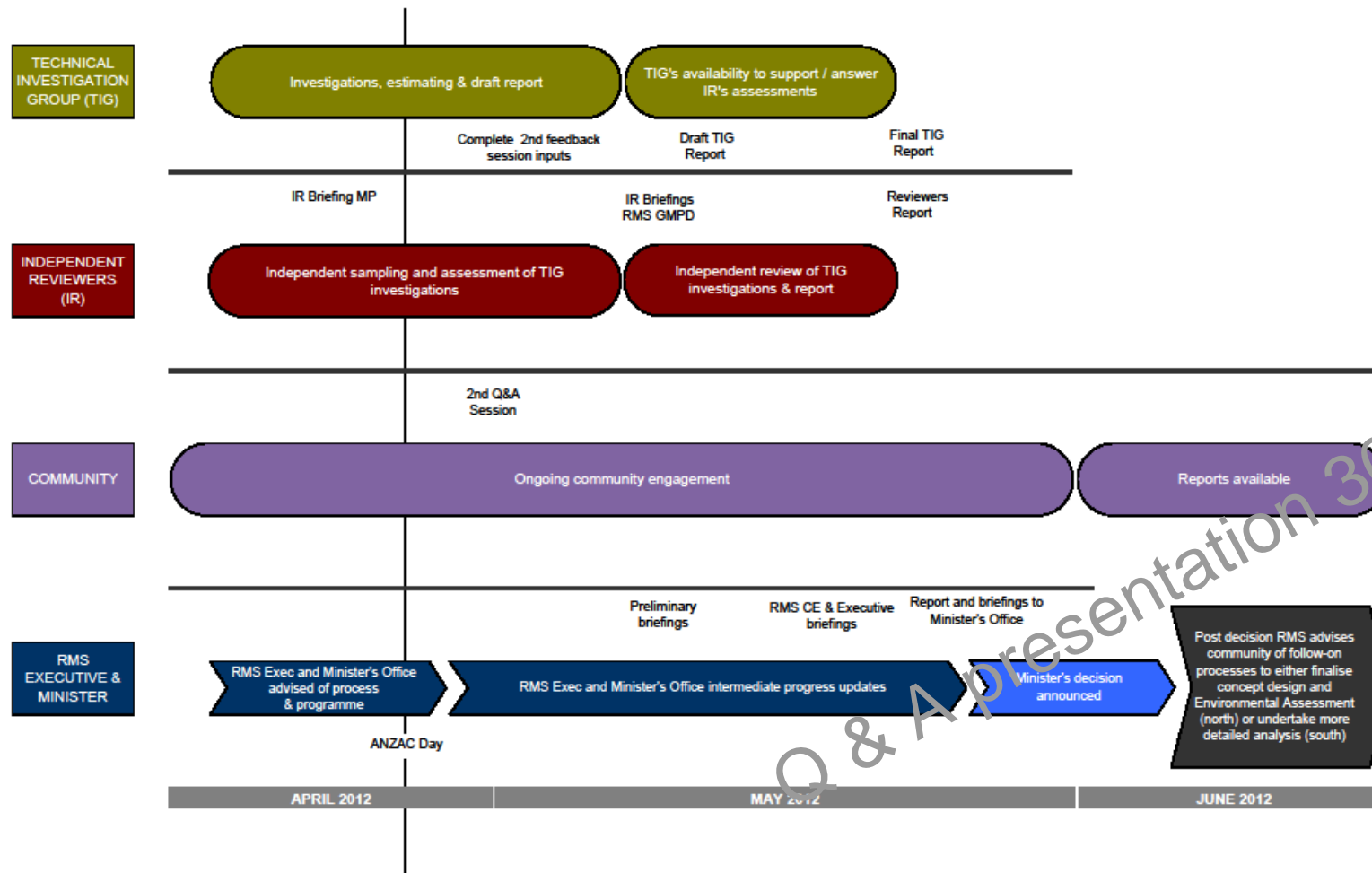
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# Integrity of the process



## BERRY BYPASS ROUTE FEASIBILITY INVESTIGATIONS PROCESS \*

\* Programme dependent on availability of fieldwork and requirements identified during the Independent Reviewers assessment



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Every Tuesday the website is updated with:

- All issues raised by the community - responses and outcomes are outlined in a critical issues register;
- Technical investigations;
- Meeting register, presentations, handouts, minutes from TIG meetings, notes from Q & A sessions;
- Information updates.

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# Process – TIG



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Independent Reviewers – External SMEC; Lyall & Associates; Internal RMS PMO

Constructability

PETER STEWART CONSULTING  
EVANS & PECK

Road design  
AECOM  
RMS

**TECHNICAL  
INVESTIGATION  
GROUP**

Geotechnical studies  
AECOM

Flood modelling  
AECOM

Structures  
AURECON

**Indicative route for  
the southern  
suggestion:**

Road alignment  
Structures  
Construction Method  
Earthworks  
Construction  
Program

**Route  
feasibility  
strategic  
estimate**

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# Process – Independent Review



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The brief for the independent internal and external reviewers is to test the robustness of the information in the TIG report.

The review process:

- An RMS review team - separate to the technical investigation group and its process and principally focussing on the cost estimate process;
- Lyall & Associates – external water engineering consultant;
- SMEC (principal reviewer) – external engineering consultant.

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# Process – Independent Review



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- The independent reviewers are:
  - Basil Pazpinis (RMS Project Management Office)
  - Nick Bartho (Lyall & Associates)
  - Derek Hitchins (SMEC)
  - Dan Reeve (SMEC)
  - Chris Masters (SMEC)
- Derek Hitchins will speak on behalf of the reviewers.

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- Two key points:
  - Integrity is the cornerstone to this process;
  - Keep checking the website every Tuesday

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# Technical Investigation Group



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Independent Reviewers – External SMEC; Lyall & Associates; Internal RMS PMO

Constructability

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# Geotechnical update



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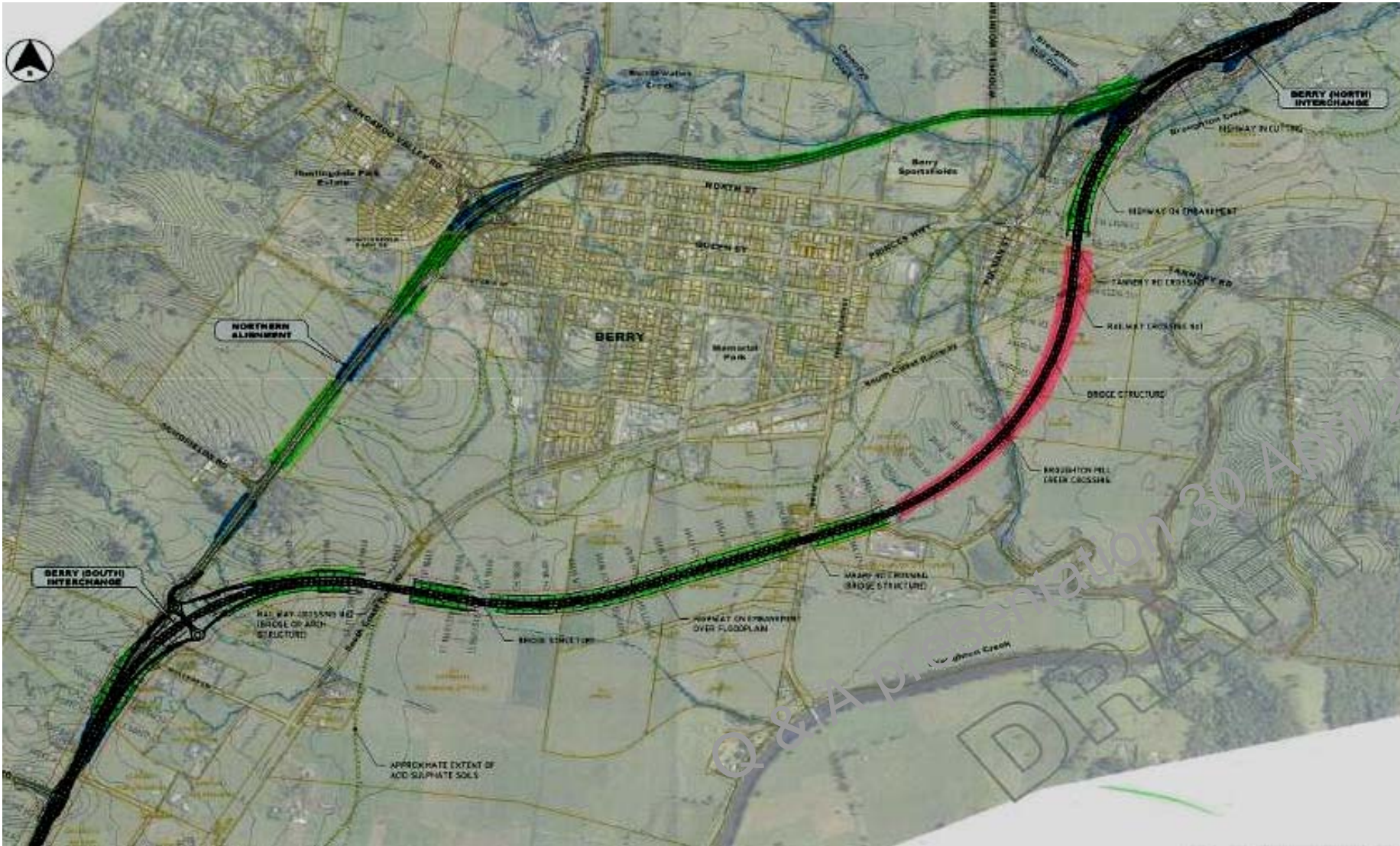
Henk Buys - Geotechnical

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# Recap - General Geotechnical Issues

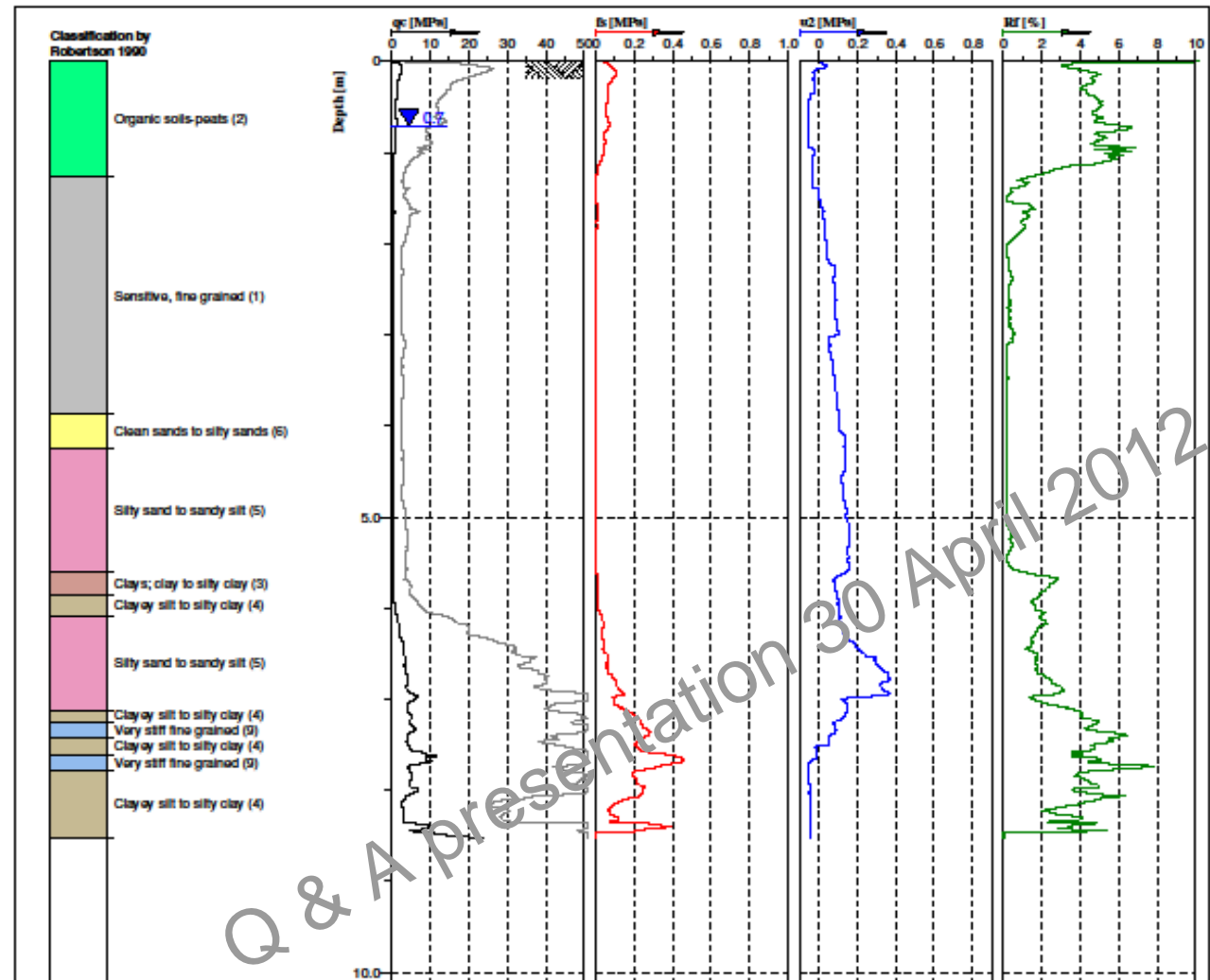


# Soft soils analysis



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- Results are showing the settlement varies:
  - 0.2m with limited depth of firm clay
  - 0.8m with deeper soft clay
- We are looking at the options for dealing with embankments in the flood plain.
- This will feed into the cost estimate



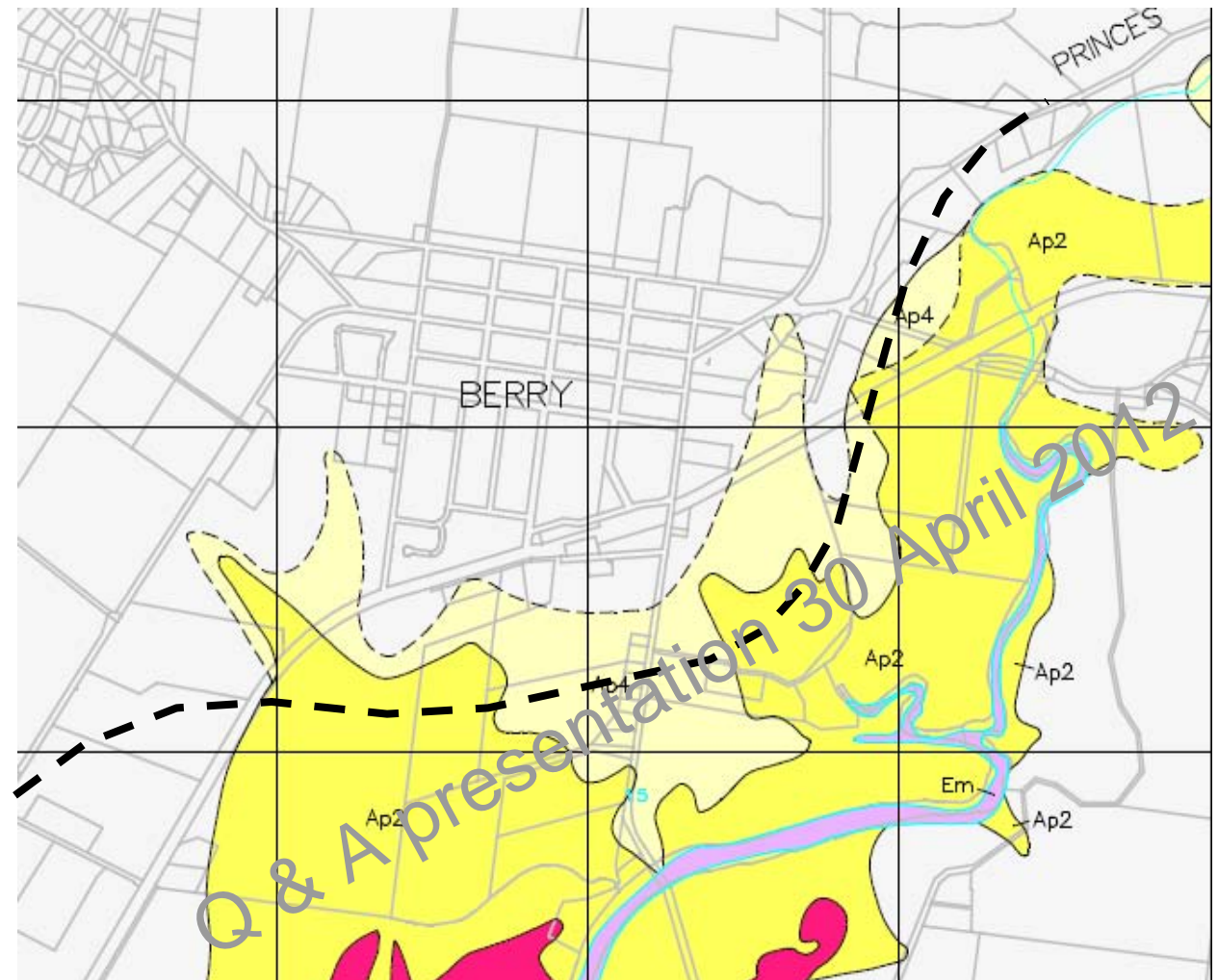


# Acid Sulphate Soils



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- Based on test results an acid sulphate soil management plan will be required
- More than 1000 tonnes of soil will be disturbed



# Flood modelling update



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Ben Noble – Flooding and drainage

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# Flood Assessment Overview



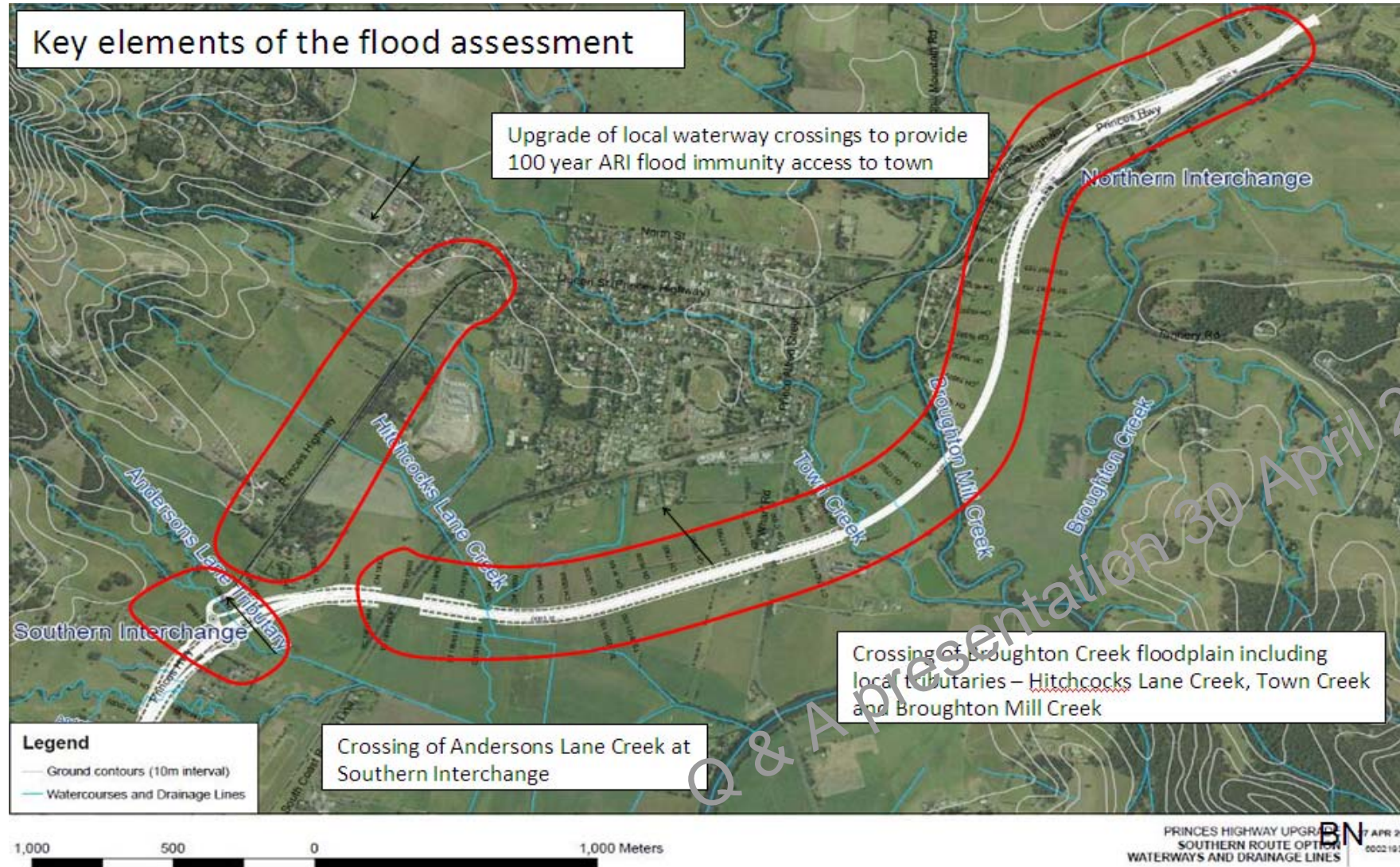
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- Flood Assessment is needed to:
  - Establish design flood levels (1 in 100 year ARI flood standard used for the highway upgrade)
  - Manage impacts on the surrounding environment
- We have reviewed existing flood studies and data
- Developed a detailed flood model to assess flood behaviour across Broughton Creek floodplain

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# Flood Assessment Overview

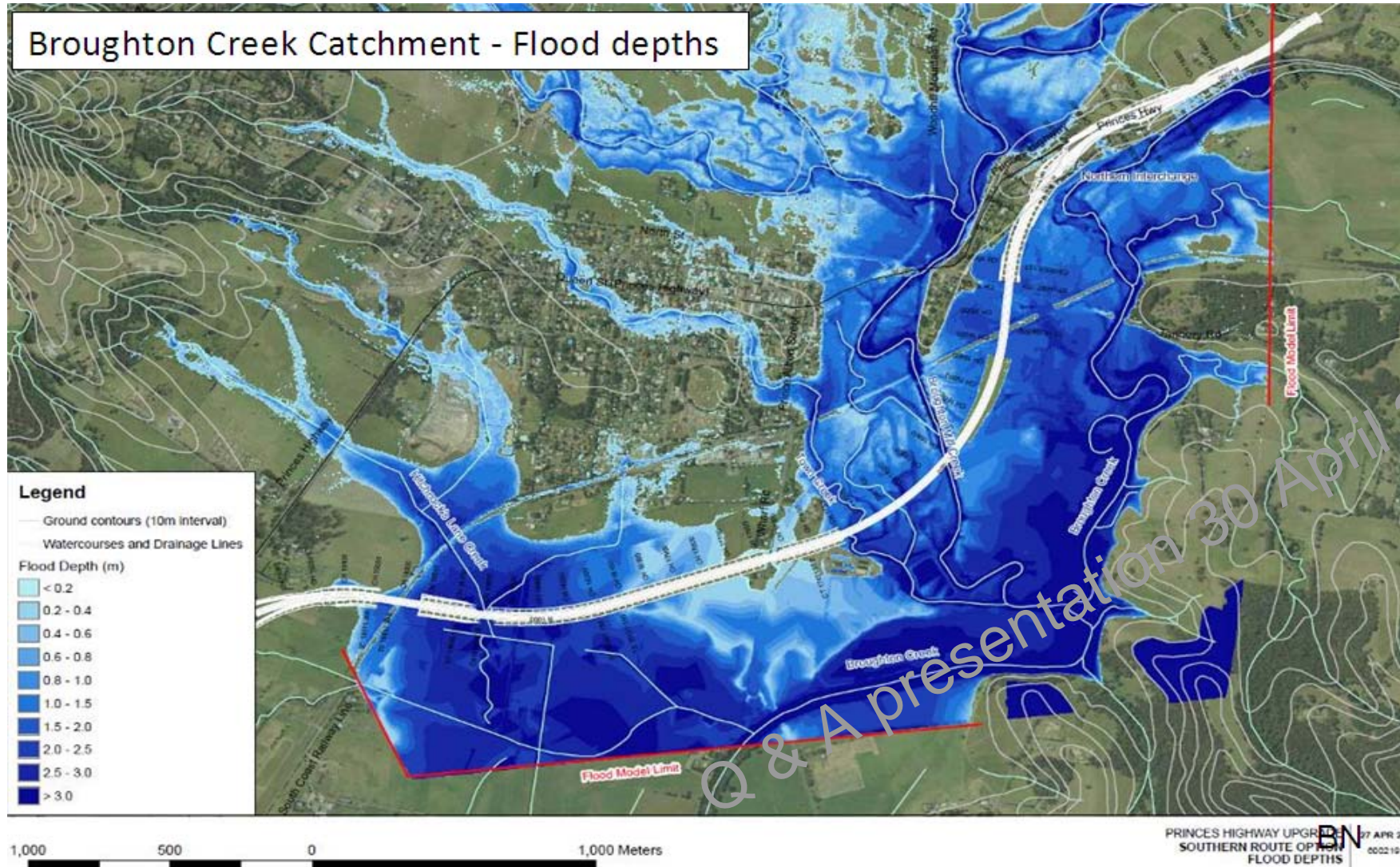




# Flood Assessment Overview



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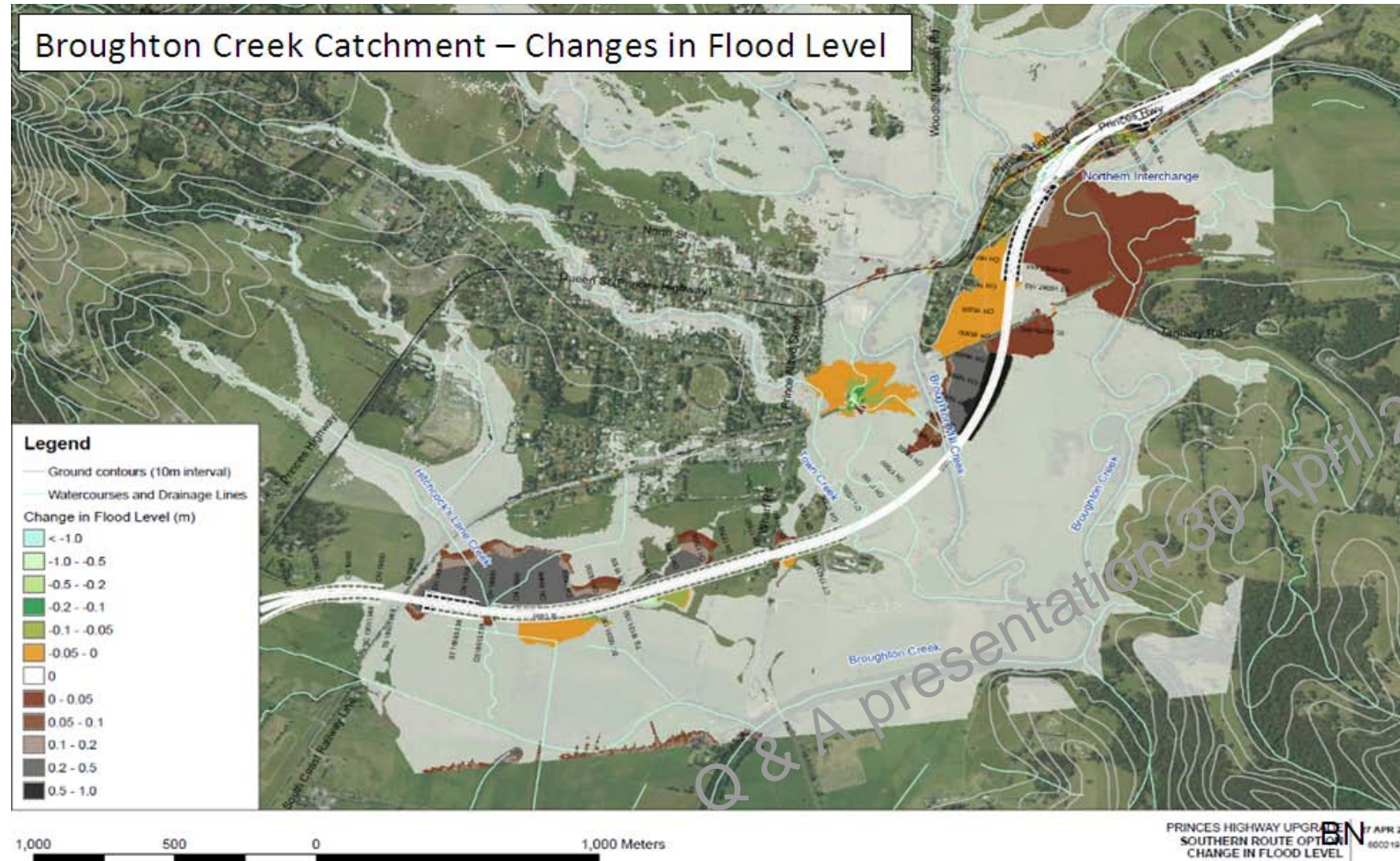




# Flood Assessment Overview



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# Bridge structures update



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Ken O'Neill - Bridges

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# Bridge structures update



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Update since last workshop on 19 March 2012:

- Railcorp have advised that overhead wiring cannot attach to the bridge structures - Required clearance to the bridge soffit from rail is 6.5 m
- Precast concrete manufacture on site is feasible for the long bridge
- No borehole information for substructure design yet
- Arches are comparable on price to Super-T girders. Super-T girders adopted to reduce the embankment fill heights on approaches
- Bridges to be built full width to accommodate future lanes
- A typical pier type has been applied to the southern and northern routes for cost gateway

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## Peter Stewart – Construction Methods

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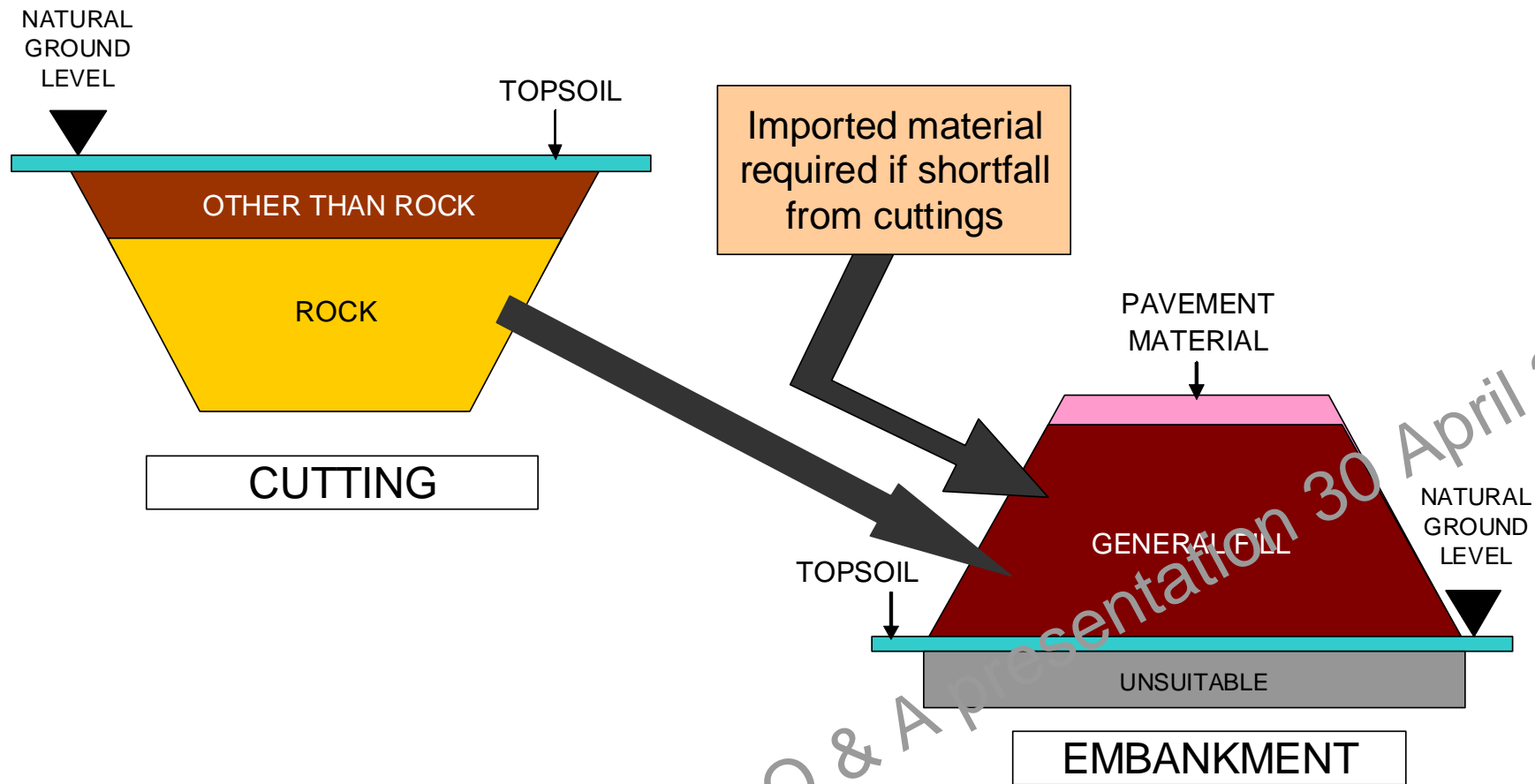
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Constructability:  
Why is it  
important:

- Safety of workers and public
- **Cost of construction**
- **Construction has a high risk profile**
- Use of proven construction methods
- **Logical efficient sequencing of major activities**
- Duration of project
- Impacts on community/businesses/others
- Environmental impacts

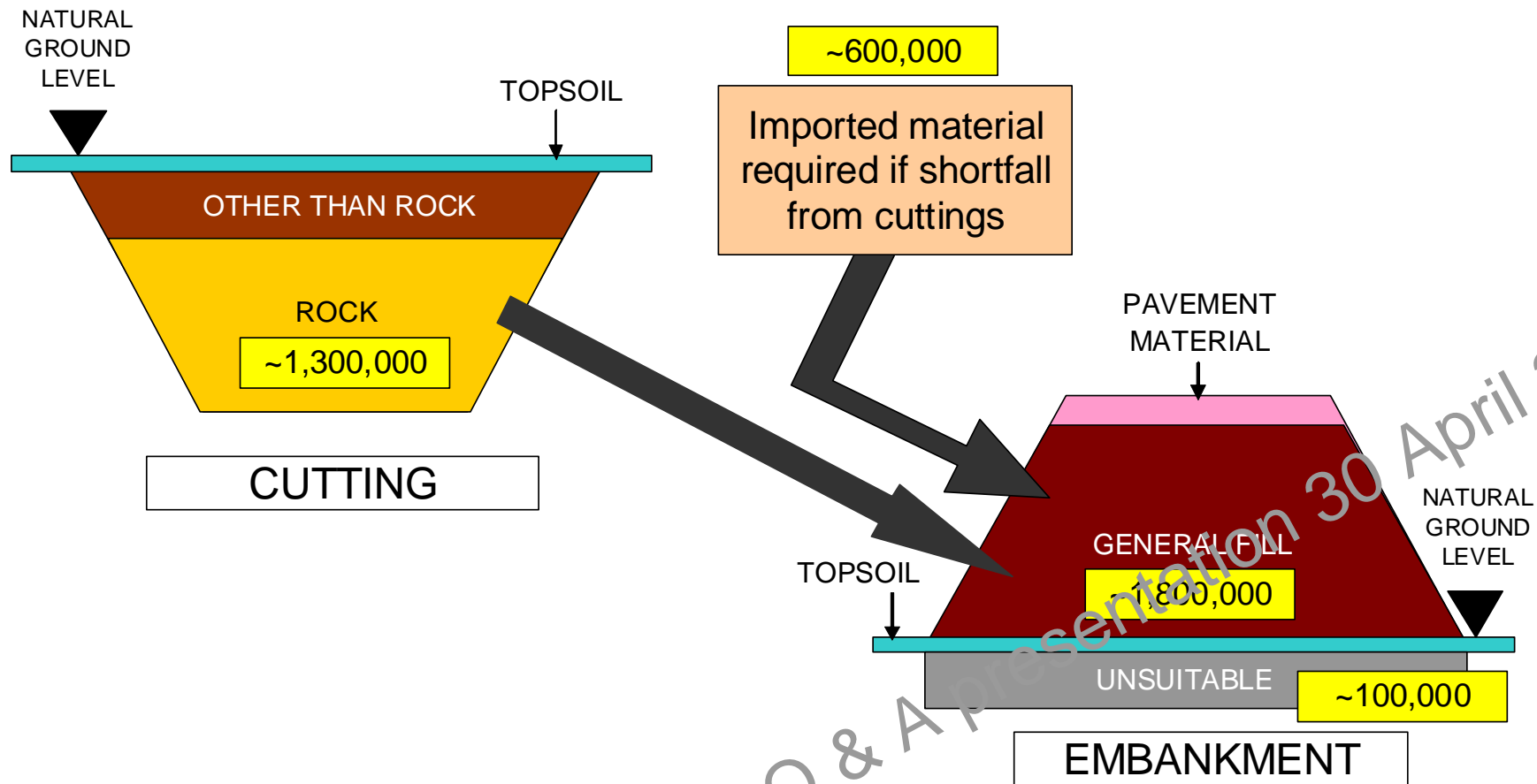
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# Construction: Earthworks



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# Construction: Earthworks

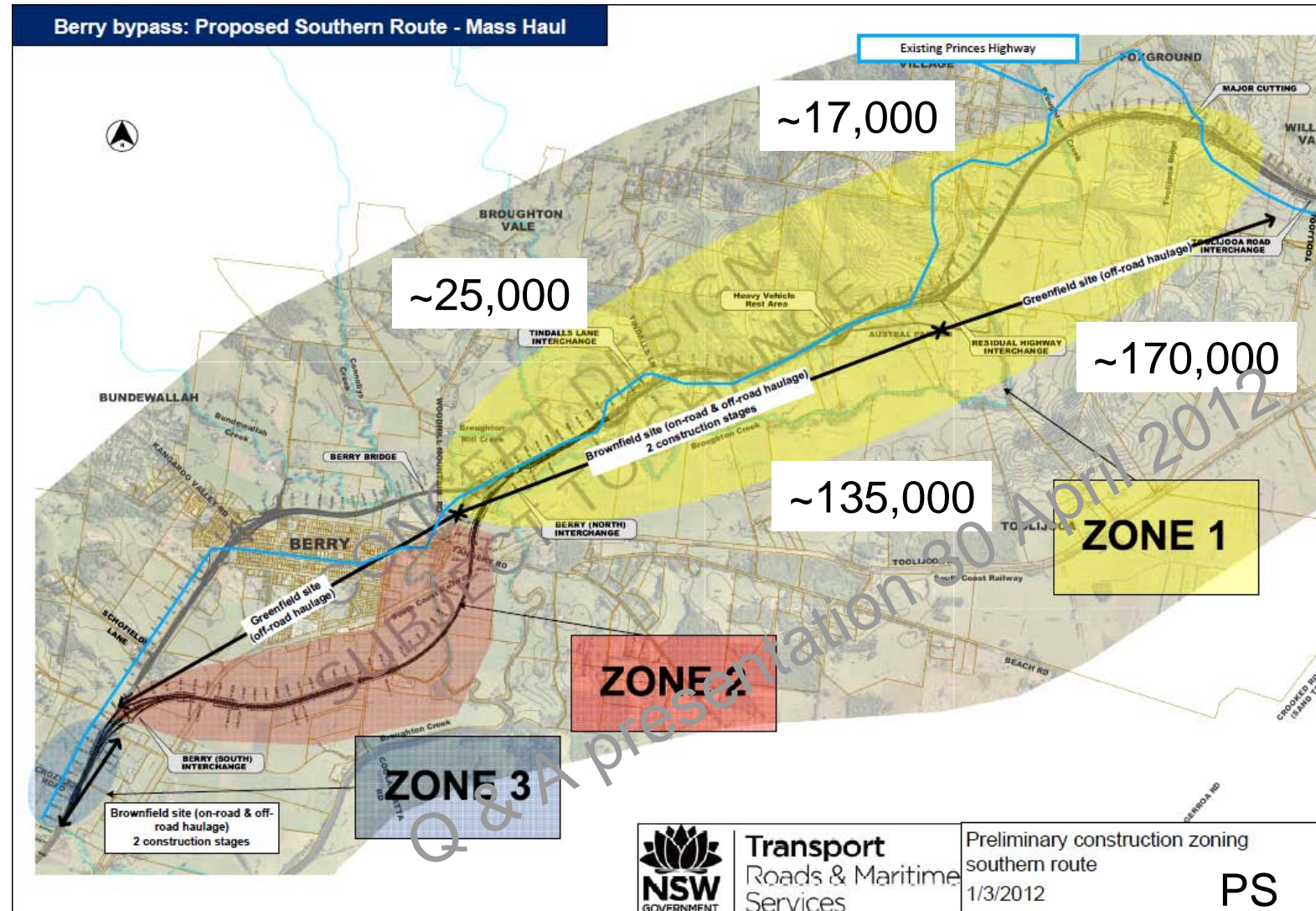


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# Construction: Earthworks



- Key issues:
- Mass haul – targeting a balanced earthworks outcome and minimising the haul distance
- Sequencing & staging of the works



# Cost estimating update



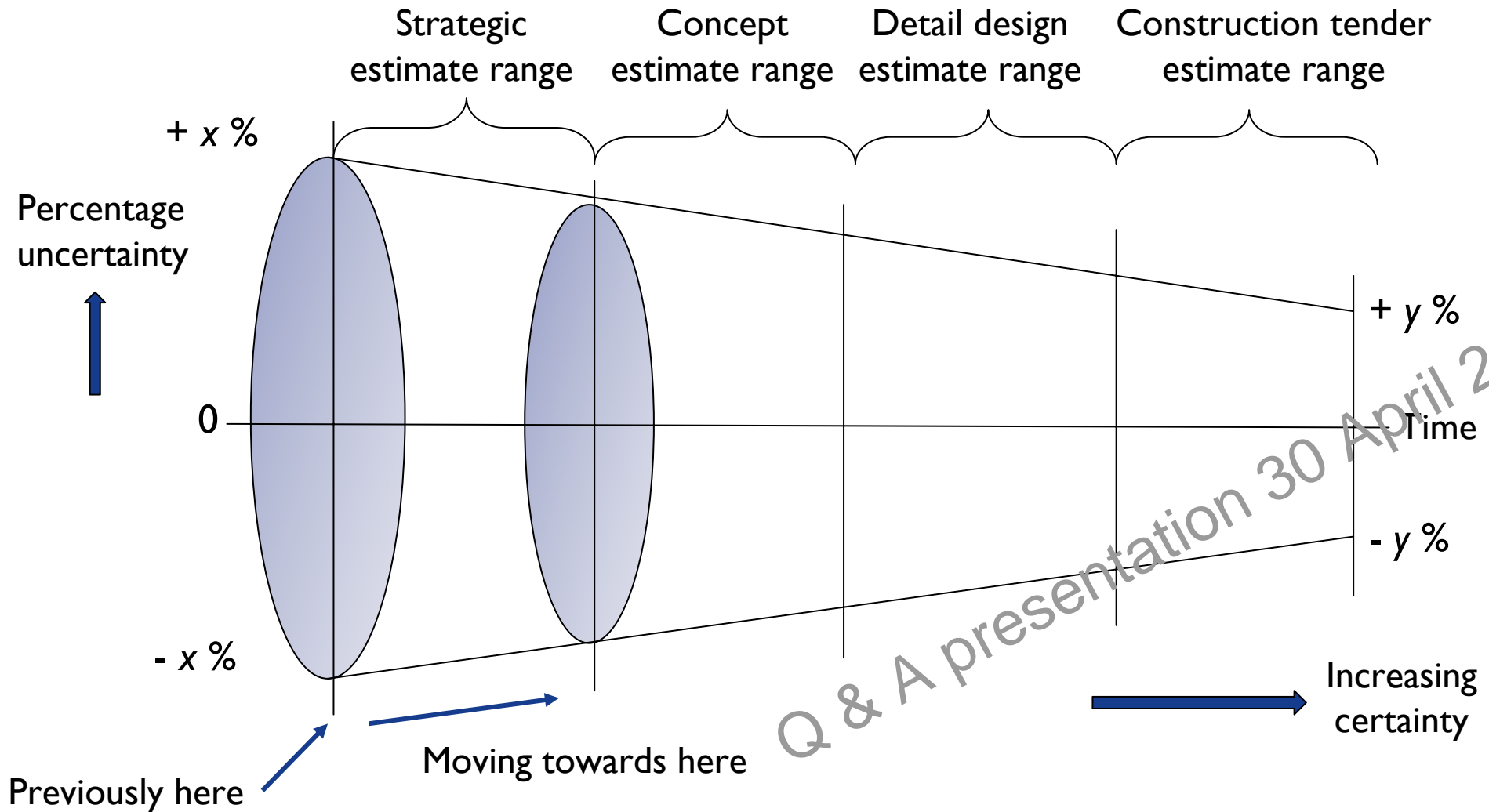
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Phil Jorgensen - Estimating

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# Estimating 'Windsock Diagram' - Risk & Uncertainty

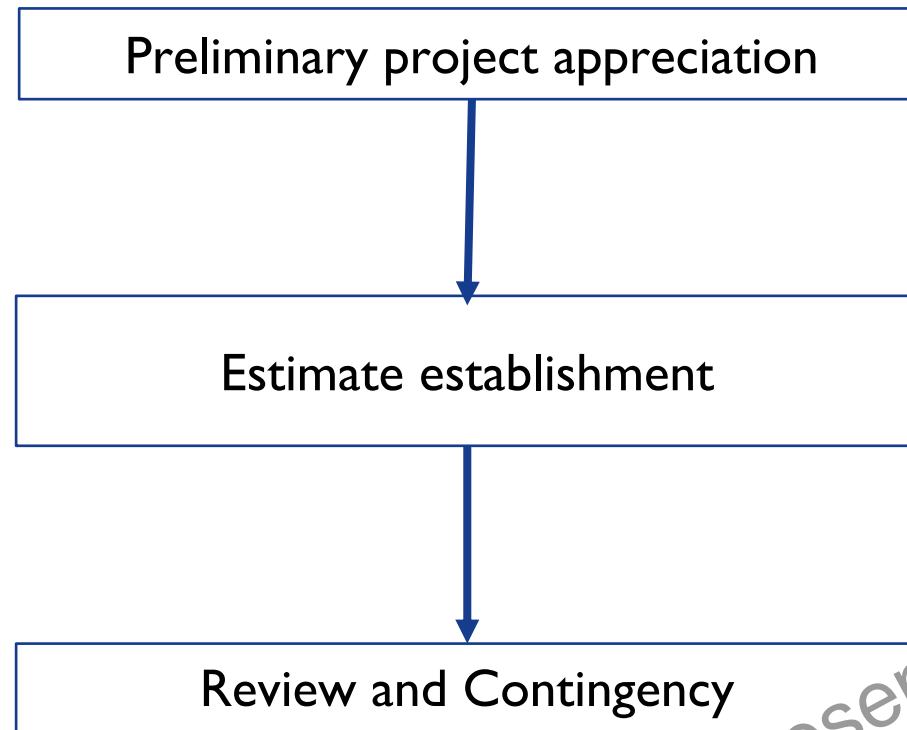




# Estimating Strategic Estimate – Preparation Flowchart



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# Principal external review team



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- **I. Scope of independent external review**
- The principal objective of the independent review is to observe and record the nature of the TIG process to ensure it has been thorough and even handed when evaluating the strategic route feasibility estimate for the southern bypass and the technical inputs required to produce it.

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- **2. Scope of independent external review (cont)**
- Technical investigations have been conducted in an unbiased and even handed manner for both routes
- TIG has adequately questioned and challenged the scope of work and outputs
- Scope of work and outputs are in line with community and RMS expectations
- All reasonable measures been taken to ensure a 'like for like' comparison of the two bypass routes
- The best possible engineering solutions have been applied to both routes

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- **3. Scope of independent external review (cont)**
- Applicable suggestions from the community and others have been included in developing the route designs and construction methods
- Proposed constructability methods are realistic and reasonable
- Any innovations carry a risk premium
- Appropriate risk factors and contingencies have been adopted, and are properly documented
- Construction program is realistic and production rates in line with construction industry norms
- Cost estimate is thorough and complete

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# Principal external review team



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- **4. External review team**
- Dan Reeve: Review Director
- *General Manager Transport, SMEC Australia*
- Derrick Hitchens: Technical Leader
- *National Sector Leader, Traffic and Transport Planning, SMEC Australia*
- Chris Masters: Review Support
- *Manager Environment, Central Region, SMEC Australia*

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# Thank you



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