

ENSHAM RESIDUAL VOID STUDY COMMUNITY REFERENCE GROUP MEETING MINUTES

STANDING ITEMS

FORMALITIES

Date	Monday 26 th March 2018
Meeting Opened	10.15am
Venue	Mayfair Ridge Tavern - Emerald

ATTENDEES

Position	Name
Independent Chair	Emma McCullagh
Members	Geoff Kavanagh Councilor Megan Daniels Nigel Burnett Nathan Johnson Justin Fontana Carl Morowitz Claire Rogers Marg Shaw
Guests	Daryl Conway Proxy for Peter McTaggart Eddie Shaw
Ensham Representatives	Paul Green (PG) Dave Meyers (DM) Dan Yates (DY) Neil Dale (ND) Gary Gough (GG) Andrea Kanaris (AK)

APOLOGIES

Position	Name

Near Neighbour	Hamish Millar
Councillor	Alan McIndoe
SunWater	Peter McTaggart Proxy – Daryl Conway
IAR	Thomas Neame

FORMALITIES

Introduced new members to the residual void study project team;

Gary Gough – Technical Lead

Andrea Kanaris – Stakeholder Lead

Introduced the Marg and Eddie Shaw. Shaw's will be members of the CRG moving forward as near neighbours.

DECLARATION OF INTERESTS

Chair reminded members to complete their declarations of interest.

Noted;

- Geoff Kavanagh's update – See declaration of Interests
- Noted Shaw's freehold Yongala

CONFIRMATION OF PREVIOUS MINUTES

MOTION THAT: The minutes from previous meeting held on the 7th December 2017 be accepted

MOVED: Nathan Johnson

SECONDED: Megan Daniels

VOTE: Unanimous

Note – Amend minutes to include Cr Megan Daniels as an attendee

BUSINESS ARISING FROM PREVIOUS MINUTES

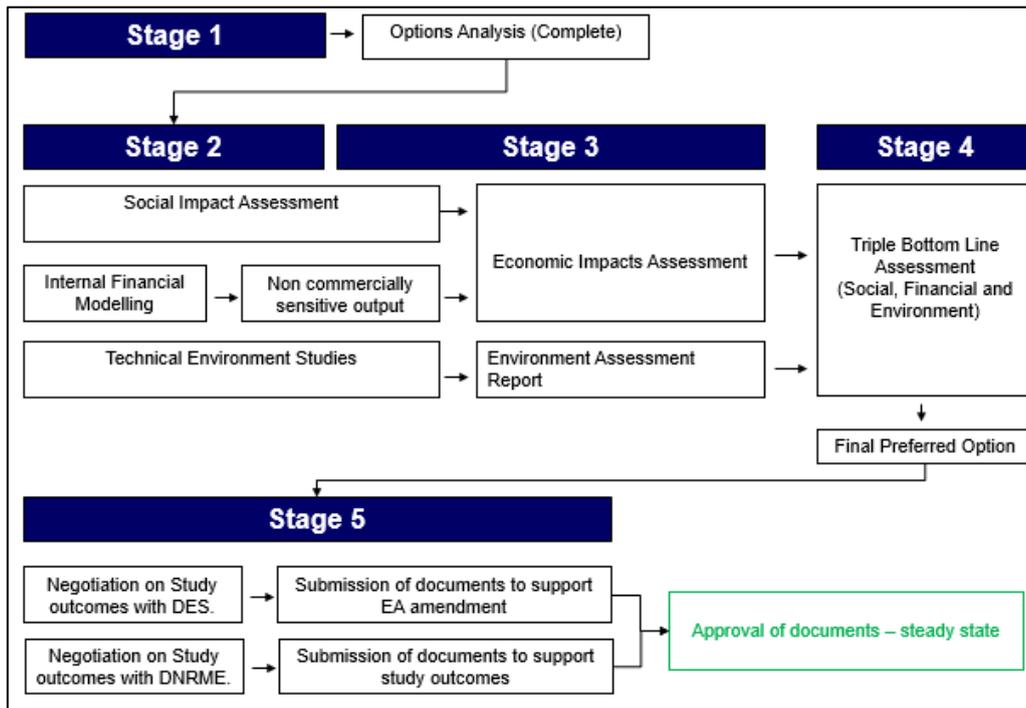
Carried Over.

PROJECT UPDATE

Stage 1 – Options Analysis report has been presented

Stage 2 – Technical Studies and Reports

Stage 3 – about getting designs out for consultation and feedback. This stage is about a level of detail in engineering and civil work to see how the options will work. This would include how each of the options would work in reality.



Question	When will regulatory compliance be considered across each of the options
Response	<p>All of the reports have been issued to Department of Natural Resources Mine and Energy (DNMRE) and Department of Energy and Science (DES). Formal brief to DES and DRNME every six months, however, the project team are in communication with these departments regularly.</p> <p>The assessment process is in stage five; however, ongoing consultation is occurring so that there are no surprises in November 2018. This stage is about assessing the science and assessing the regulators and communities’ response for each of the options.</p> <p>Currently not triggering any federal legislation.</p> <p>The business is committed to presenting the science led approach.</p>

REPORTS UPDATE

DY noted that the reports are late and indicated that his preference would be to issue the reports two weeks beforehand. DY apologized for the lateness of the reports.

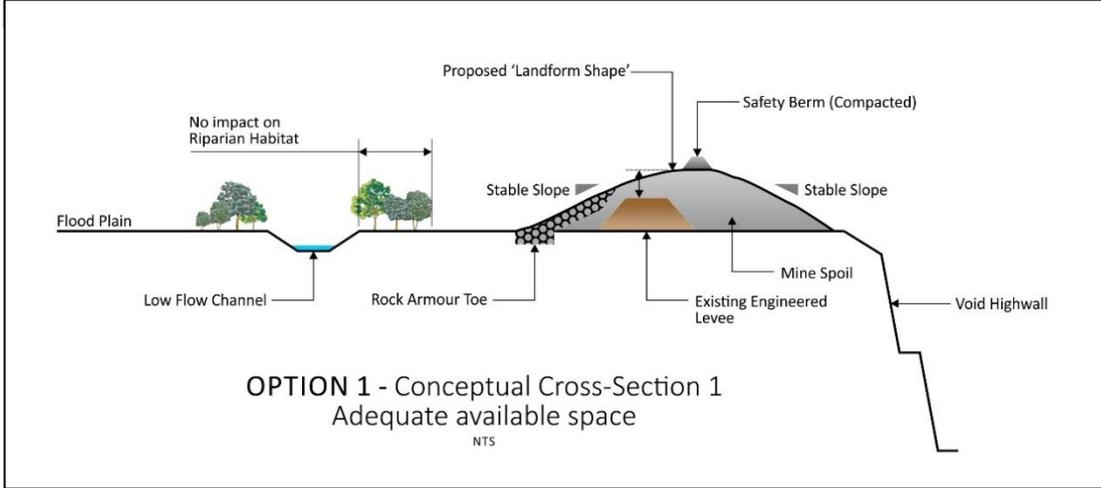
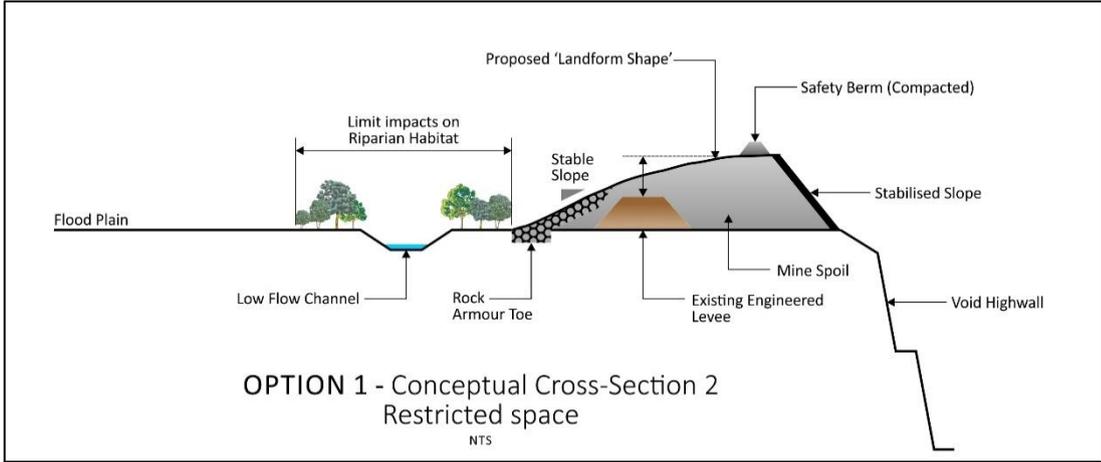
DY indicated that the team are available to clarify information, provide future updates, follow up meetings or provide more detail should members require it. This is for information and feedback only and the meeting is not to rubber stamp the reports.

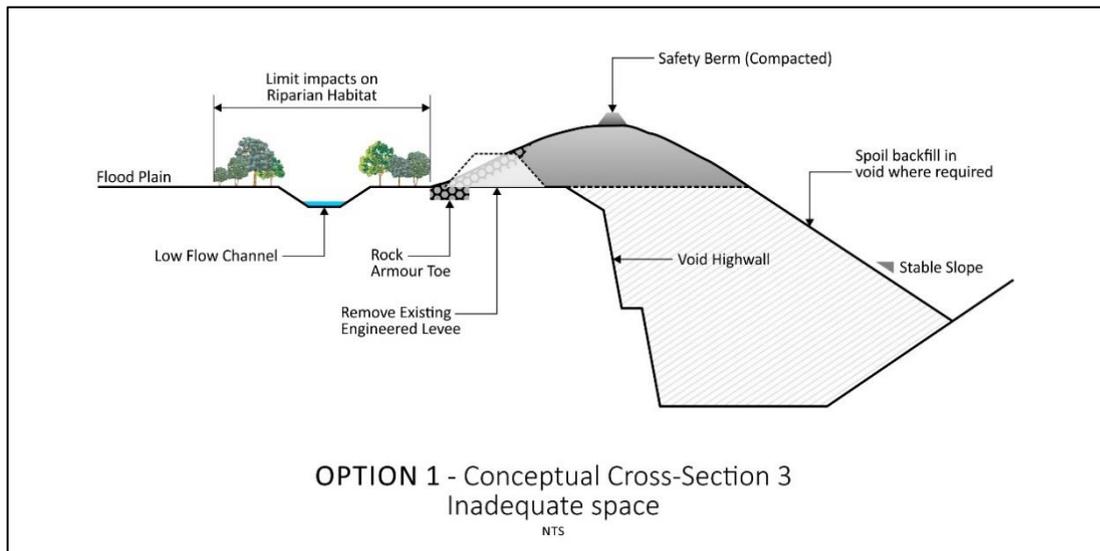
Question	It was assumed that the requirements relating to the voids are in excess of what Ensham was committed to historically. The reports are looking forward and we don't have a comparison to what was deemed to be the original position. What is the change from what was originally committed?
Response	<p>DY – Agreed that there is some work to do to clearly understand what was in the Environmental agreement prior to 2006. This has not been done.</p> <p>GK – if the requirements are broad then we understand that we are forward looking or do we have a baseline?</p> <p>DY - there is a timeline from 2006 onwards but from time of issue of the new EA which was in 2009/10 there was no completion criteria for residual voids. The Residual void study is to agree on a completion criterion for the residual voids</p>

	GK - Not just the financial information but what was the agreed floodplain area from the original agreement. When we present data, we need to present it against what was agreed on originally.
Action	Action – Assess what the original commitment in the for-completion criteria was prior to 2006 and represent this against each of the options moving forward. DY – will come back with a timeframe on when this information will be provided. Request for Freedom of Information with Department of Environment and Science (DES) for Ensham’s file.

REVIEW OPTIONS

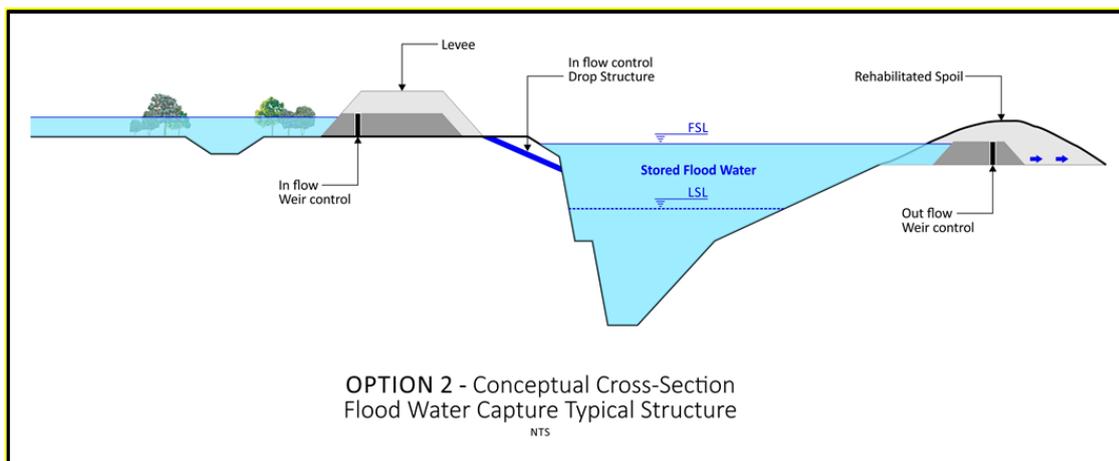
OPTION 1 - LANDFORM





Illustrations (1, 2 and 3) depict different scenarios for each void depending on the space available for landform construction.

OPTION 2 – FLOOD MITIGATION AND BENEFICIAL USE



Conceptual stage only.

Beneficial Use option needs to go through a process to understand how the system would work.

OPTION 3 – BACKFILL TO PROBABLE MAXIMUM FLOOD

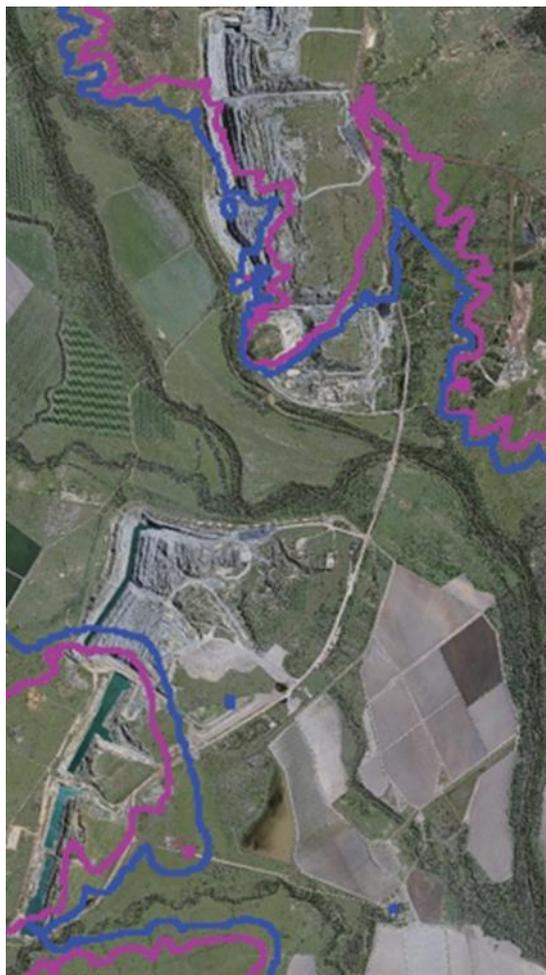
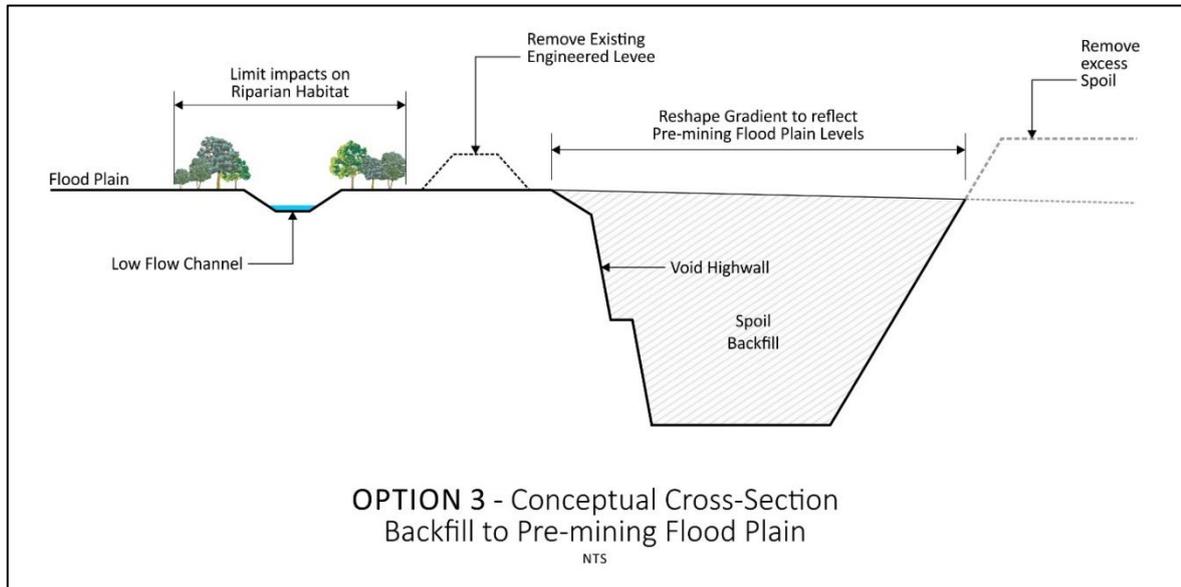


Photo 1 – Blue Line Previous Probable Maximum Flood Level

Purple Line new Probable maximum flood level

Action	Probable maximum flood (PMF) from the floodplain to below Ensham DY will share the new PMF that has been modelled from across the floodplain
Question	Can we make sure the options are labelled the consistently throughout each of the reports?

	Make sure the options are clearly from the original reports? Risk that the anyone reading the reports may get lost if there is inconsistency in the reports.
Response	DY – Noted.

GROUNDWATER MODELLING REPORT

Overview:

- Dr. Noel Merrick completed the groundwater modelling
- He has taken the previous AGE (Australasian Groundwater and Environmental Consultants Pty Ltd) (existing model for Ensham) model work that was completed and updated and refreshed it to ensure that it is current and gives consideration to recent changes e.g. – the current underground area, climate data, future underground expansion
- Groundwater recovery, movement and impacts on migration between the 3 options.
- The groundwater report is NOT a final report. This is a summary of what work has been completed to date.

The groundwater phase of the project is being undertaken as follows;

Phase 1 – Review existing groundwater work, validate the assumptions.

Phase 2 – Make adaptations to the model that reflect current best practice relating to groundwater. Included and updated the mine plans. Climatic updates, considered the water inside the pits.

Phase 3 - Phase three is in stage 3 of the residual void project. Includes re-calibration of the model and testing the model against the preferred option(s)

DY - Apologies that presenter Thomas Neame is unavailable to present on the groundwater data.

What did this report consider?

Option 1 – Landform Levy

What would happen to water in the voids under the landform levy? Groundwater would migrate into the voids, over a period of time, minus evaporations, plus rainfall. What would happen and how would the groundwater interact with the voids?

Option 2 – Flood Mitigation and Beneficial Use

How inflows and outflows of water that is harvested would impact the groundwater?

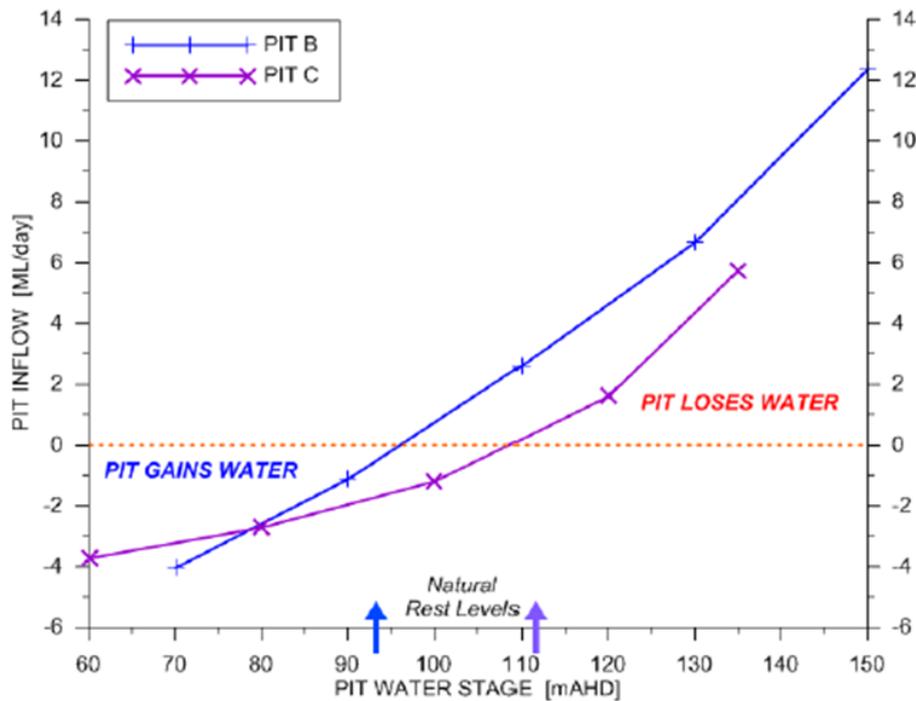
Option 3 – Backfill to Probable Maximum Flood

Voids be backfilled and the spoil in the backfill would be compacted at different levels and there would be water in the pore space.

What was the output?

Option 1 and 3 (not where there would be backfill) - If the water in the voids is lower than the groundwater, then the groundwater will migrate to it. Groundwater is of a worse quality than what is in the voids so there would be a mixing of the water and if left then without any significant freshwater then will become hyper saline in quality. The water in the voids would be similar quality to the groundwater over time if there was no introduction of freshwater.

Option 2 - Water in the voids would be kept higher than the ground water so the better quality would migrate to the groundwater. Option two can run better quality water than was initially thought.



Option 3 – Backfill to Probable Maximum Flood (PMF)

For the voids that sit in the footprint of the PMF then they would be backfilled to pre-mining and would hold significantly less water than voids that are traditionally rehabilitated. The water will be held in the pore space in the spoil.

Environment Assessment

Environmental Assessment (EA) Report at the end of stage two summarises all the of the technical reports into a report that illustrates the findings across the three options. The EA report is actually three reports, one for each option. Summarise all the studies and against each of the options. Umwelt will be completing the Environmental Assessment report. The EA will go to independent peer review.

Comment	Expectations of the session and the CRG group
Response	Can we add 15 minutes to the end of the meeting to discuss the expectations of the group. Ensham are committed to doing a better job to update people on the reports This meeting is an overview, we don't expect that people will have a deep understanding of the reports by the end of this session.
Comment	Geoff Kavanagh comment on the presentation of the reports
Response	<ul style="list-style-type: none"> • Could the final report of the groundwater report include illustrations relevant to information be included throughout the report rather than as an appendix. • PowerPoint needs a reference for the report with page numbers • Hard copy of the slide show for the members of the group to follow • For the final reports we need to make sure that the tables, graphs and illustrations are not reduced.
Comment	Graphs and tables are illegible in some of the reports
Response	They have been reduced and are not able to be read. The final version needs to have greater clarity for readability. Claire Rodgers commented that the groundwater report was an excellent report. Executive summary is well written.
Comment	The groundwater report does not cover the quality of the water?

	It covers the groundwater interaction. When will water quality be covered?
Response	There is a technical report for water solute and water balance that will cover water quality.
Comment	What is the mAHD at the top of the pits? Include the top of the pit height in the reports.
Response	Top of the pits is 150 (mAHD) Noted that the pit height should be included in the report

GEOTECHNICAL REPORT

Geotechnical report and landform report are completed by the same consultant - WSP

What did this report consider?

Objectives for Stage 2:

- i. work collaboratively with other consultants that are completing reports to consider the impact of groundwater, hydrology on each of the options.
- ii. to establish conceptual land surfaces for each option
- iii. what are the materials required to complete each option – e.g.: structure of dirt for each option

Geotechnical Design Scope of Study:

- i. Complete literature review of existing Ensham studies
- ii. Preliminary Site Material Assessment

Output?

- i. Production of selected design criteria for stability assessment modelling.
- ii. Assumptions about how soils perform differently under different circumstances
- iii. The technical phase found that the parameters that have been used in a previous report are correct.
- iv. What is coming in Stage three?
 - a. Will do a final validation of the reports and studies by doing site visits and ensuring they match
 - b. Review other reports and ensure that there is no new information from across the industry or from the other technical reports
 - c. How good is the dirt, the survival of the dirt over the long term and this information will be used by the civil consultants when doing designs.

Geotechnical design is not new to Ensham and all rehabilitation and infrastructure designs are underpinned by geotechnical reporting. There is an extensive amount of information already available.

Comment/Action	If anyone would like a copy of the reports that are referenced in the geotechnical report; they can be provided
Response	Noted

LANDFORM DESIGN

This report links the geotechnical reports with the landform design reports.

What did this report consider?

WSP (consultants) were instructed to reference back to the rehabilitation requirements as below;

- i. Safe for humans and animals
- ii. Non-polluting
- iii. Stable

- iv. Where possible, sustain, agreed post mining land use

There is not agreed post mining land use for the voids. The residual void project is the process to determine a post mining use for the residual voids.

WSP considered;

- ACARP
 - C14048 Rehabilitation of High Walls
 - C12031 Rehabilitation of dispersive
 - Tertiary spoil in the Bowen Basin
- BMA Caval Ridge Final Void & Landform Management Plan
- Ensham studies – Landloch 2015

Caval Ridge final void rehabilitation management plan was approved recently. Noted, residual voids will become water storage and there is no completion criteria for residual void. They will take the life of the mine to complete the technical studies throughout the life of the mine.

Comment	What was the agreed use for water storage in the Caval Ridge final void and landform management plan
Response	To be determined in the future.

What is next? - Stage Three

Final stabilised residual void landforms will be developed during stage three after the finalization of the geotechnical studies.

Comment	When will the economics of moving the dirt be considered, where is the dirt coming from, what is the cost of moving the dirt and from within site and from off site?
Response	This will be considered in the economic model. The economic modelers need to work closely with the civil designers.

CIVIL DESIGN

Report compiled by WSP

Civil Design Report Scope of Work:

- i. Stage 2 work compiled criteria for the civil engineering elements of the project
- ii. Conceptual landform work undertaken in Stage 2

Stage Three

- iii. Civil design will ramp up once landform design work is further advanced in Stage 3

Backfilling to PMF and landform civils are very similar. Option 1 is building the landform up on the surface and option 3 Backfill to PMF is building it up in the void.

Option 1 Landform Levy

- Quite a significant amount of dirt that is required and modelling where it may come from. What impacts occur when rehabilitation dirt is moved to build landform levy. Does it have an impact on the pinch point?
- When dirt is moved, there needs to be an assessment of how the floodplain operates after any changes. How it impacts upstream or downstream.

- Within the landform option there will be some slight variations relating to design to be considered during stage 3

Option 2 – Beneficial Use

- Use post mining voids for water storages
- Pits A/B south of the Nogoia and Pits C/D north of the Nogoia could function as two separate entities or together
- The volume of inflow and the timing of inflow needs to optimize the water quality to support beneficial use
- Water levels in the pits need to be maintained at a certain minimum to stop groundwater migration
- No flood structure to be engineered into the river – overland flow option
- River breaks it banks 1/10 years and the location needs to be modelled
- Should be able to provide conceptual drawing on how the water would be contoured in to the storage
- May need to induce more regular water flows – may chose to use water license or acquire licenses
- Goal of this option is to have no net impact on the regional water plan. Find water through efficiencies and make up the difference through licenses

Comment	Is the water system a fully allocated system?
Response	GK -Two types of water allocations a. Supplemented b. unsupplemented Supplemented allocations are those that are supplemented by a water storage Strategic reserves are unsupplemented and have been set aside for strategic development Would need to go through a government process for a project to use strategic reserves DY - DNRME have indicated that there are no strategic reserves for this section of the system. Would use existing water licenses. Ensham voids are a lot deeper then the Fairbairn dam are and could be more efficient in terms of evaporation. More work and consideration needs to be given to this.
Question	What total volume of water is being considered?
Response	This will be delivered in the next report
Question	Would this water be suitable for agriculture after it has been through the voids?
Response	Modelling is available for this scenario. This will be provided in the environmental assessment reports.
Question	Will the capacity of the voids be considered in the next reports?
Response	Yes, this will be addressed in the environment assessment reports
Question	How can Ensham gain the efficiencies proposed through reduced evaporation compared to Fairbairn Dam?
Response	This is at a conceptual level. Could the voids be part of a wider system? Geoff Kavanagh comments; <ul style="list-style-type: none"> • More efficient outcome of water use. • Only possible to gain the efficiencies if the voids will be part of the supplemented allocation as part of the Fairbairn system • Could store the system yield from the Bedford Weir bag that is no longer there and distribute water downstream Dan Yates – more work needs to be conducted
Comment	The water in the pits would be saltier then the water in the Fairbairn Dam.
Response	The water balance will be critical to determining the water quality. Dan Yates – if one of the options does not stack up because of the science or regulation, then it will not be considered.
Comment	Will the water be directed into the pit?
	Overland flows – direct the water into the pits. Civil designs are being prepared.
Comment	How will changing water levels in the pit affect water quality due to leaching from the spoil.

	As water level rises in the void, water will migrate into the spoil and when the water level drops, water will return from the spoil bringing salts with it. Extent will be determined from studies.
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FINANCIAL MODELLING

MEC are the 70% finished on the financial model

Stage Three – will cover off civils and landform for each of the three options as they become available in stage three.

STAKEHOLDER ENGAGEMENT AND SOCIAL IMPACT ASSESSMENT

Social Impact Assessment – Environmental Assessment

- Look at the technical studies and consider the direct and indirect human impacts of each option
- ABS Data, baseline of the data – paint a picture of the community
- Visiting the region to start to talk to the community and assess how it will impact the community
- How the values of the community are impacted and actual real impacts
- This will form part of the environment impact assessment

Stakeholder Engagement

- Communicating the results of the technical studies
- Communication to the wider community on the Residual void study

Also engaging with the different levels of government to keep everyone informed

There will be an opportunity to have an engagement with Andrea through the social impact assessment process.

Question	Have the stakeholders been identified?
Response	Andrea will send the identified stakeholders Paul Green – please notify Ensham of any stakeholders that need to be included.
Action	Send the stakeholder list to CRG members so that they can identify any gaps or make further suggestions.

SET MEETING DATES

Emma to send meeting date claimer.

COMMUNITY REFERENCE GROUP EXPECTATIONS

Paul Green– is there enough information for people? Is there still a gap between what people need to bridge the information gap. Would there be value in having small groups to communicate the information relating to the

Andrea Karanis – any information that we need along the way then we need to have those questions communicated along the way.

Claire Rogers – groundwater report was an important report and needed to have the expert available to present it.

Dan Yates – available to do some small groups or specific sessions on any of the reports for members. Send any requests through to independent chair. Two issues, the reports were too late and Thomas Neame was not available to present today

Nathan Johnson – allowing some more time for people to explore concepts and be interactive. More time for discussion and engaging method of presentation. Allow longer than two hours. Need to have the technical reports but allow time for consideration on how to present it to the CRG.

Geoff Kavanagh – were there any gaps in the process. At each meeting can we identify any gaps that are within the process. When we read the reports we need read them and have a look at the conclusion and assess if it answers the questions that were asked. Consider when we read the reports;

- Conclusion
- Gaps
- Directions

Action –

- Paul Green to do a ring around to see what people want more information on. How to do a better job of information transfer.
- Emma to send out a date claimer for next meeting
- Communication Pack for all participants on key items from the meeting and reports.
- Consider different ways to present the information – interactive

Question	Will the cost of accessing the water be covered in the financial model?
Response	It will be covered in the economic impact assessment model

MEETING CLOSED

Close the meeting – at 12:37pm.

Next Meeting Date: TBC

SUMMARY OF ACTION ITEMS FROM 7TH DECEMBER 2017

Item No.	Action Detail	Person Responsible	Due Date
1	Do you have any photographs of the 2010 flood event?	DM	
2	Are there any species that were here before that aren't being grown as part of the rehab?	ND	
3	What stage will the underground pits be completed?	DY	
4	ACTION: ND to share water report electronically	ND	Completed
Actions from Monday 26th March 2018			

1.	Assess what the original commitment in the for-completion criteria was prior to 2006 and represent this against each of the options moving forward. DY – will come back with a timeframe on when this information will be provided. Request for Freedom of Information with Department of Environment and Science (DES) for Ensham's file.		
2.	Send the stakeholder list to CRG members so that they can identify any gaps or make further suggestions.		
3	Include the height of the pits in the reports.		
4.	<ul style="list-style-type: none"> •Emma to send out a date claimer for next meeting •Communication Pack for all participants •Reports concentrating – conclusion, gaps and direction •Different way to present the information. 		
5.	<p>Probable maximum flood (PMF) from the floodplain to below Ensham</p> <p>DY will share the new PMF that has been modelled from across the floodplain</p>		