


Design Review Checklist

Project Name: Mutchilba Downs, Dam Site 2	Review Date: 28/10/17
Assessment and Recommendations: <input checked="" type="checkbox"/> Approved without revision <input type="checkbox"/> Approved with revisions (see Notes) <input type="checkbox"/> Not approved	Notes: See comments for detailed review of design.
Reviewer: Tim Marsden	Signature: 
Artifacts Reviewed: <input type="checkbox"/> Concept Design <input checked="" type="checkbox"/> Detailed Design	<input type="checkbox"/> Operation and Maintenance Plan <input type="checkbox"/> Commissioning Plan <input type="checkbox"/> Monitoring Plan

General Design		Comments
✓	Does the design support project goals?	The design is generally suitable for the maintenance of fish habitat and fish passage values
✓	Is the design feasible from a technology, cost, and schedule standpoint?	
✓	Have known design risks been identified, analysed, and planned for or mitigated?	
✓	Have known fisheries risks been considered and ameliorated?	While the dam site is on an Orange stream, the impoundment is with the green stream risk category, principles for small dams on green streams have been applied
✓	Does the design use proven past design concepts?	
✓	Have all reasonable alternative designs been considered?	Alternatives not feasible due to cost
✓	Does the design address all fisheries concerns at the site, including listed species?	
✓	Have all goals, tradeoffs, and decisions been described?	Proponent has incorporated appropriate fish passage design principles
✓	Are all of the assumptions, constraints, design decisions, and dependencies documented?	
✓	Is the level of detail in the design drawing and technical specifications appropriate?	
✓	Does the level of design support proceeding to the next development step?	
Design Considerations		Comments
✓	Has the site been surveyed to a sufficient level to allow detailed design?	
✓	Have suitable fish passage design criteria been developed? (Does the contractor understand the fish species present)	Criteria have been given to developer and incorporated into design
✓	Has hydrological data analysis occurred to allow determination of fishway operating ranges etc?	
✓	Does the design allow for passage over a range of headwater/tailwater levels?	
✓	Has the design established a stable tailwater control? If not what measures are in place guard against lowering of the tailwater.	Tailwater maintained by downstream control structure within creek
✓	Is the fishway entrance suitably located?	The fishway enters a larger creek downstream adjacent to

		spillway flows, ensuring attraction to the fishway at all flows.
NA	Is the fishway integrated with any outlet works for downstream releases?	
✓	Does the design have suitably sized pools and suitable turbulence levels	
✓	Are the pool to pool slots appropriately sized for the species and size ranges migrating and expected fishway flows?	
✓	Are the drops between pools appropriate for the fish species present?	
✓	Is the fishway exit suitably located?	
NA	Does the design have suitable trash racks or debris exclusion devices?	
✓	Does the design suite the site to which it will be installed?	
✓	Does the design use standard techniques and avoid exotic, hard-to-implement elements?	
NA	Is the design unjustifiably complex?	
✓	Can the design be implemented within technology and environmental constraints?	
✓	Is the fishway designed to resist environmental impacts and last a reasonably long time?	
✓	Does the design take into consideration Fisheries Department concerns and regulatory expectations?	While the dam site is on an Orange stream, the impoundment is with the green stream risk category, principles for small dams on green streams have been applied
✓	Has provision of fish passage during construction been considered?	Construction will only occur over the dry season when no movement occurs in this system due to a lack of flows
Commissioning		Comments
✓	Has a commissioning plan been developed?	
✓	Are timelines for commissioning suitable? (will commissioning be conducted while machinery still available onsite)	
✓	Are there details of how the program will test performance of the fish passage infrastructure against the design specifications and intent?	A commissioning plan will be developed
✓	Are there processes and clear lines of responsibility for rectifying components identified as being non-compliant during commissioning?	
Operation and Maintenance		Comments
✓	Has an operation and maintenance plan been developed?	
✓	Does the design allow for ease of maintenance?	
✓	Does the plan give clear operating rules for the fishway and associated infrastructure?	
✓	Are all performance attributes, assumptions, and constraints clearly defined?	Using the WWBW SAC provides suitable passage performance for approval
✓	Is a suitable level of regular and event-based maintenance outlined?	Plan should be developed to ensure channel maintains habitat values and that weed species do not dominate and choke channel

✓	Is a suitable reporting and responsibility processed detailed?	
Monitoring		Comments
✓	Has a monitoring plan been developed?	A post construction monitoring plan has been provided
✓	Does the monitoring plan reflect the level of risk in the design? (is sufficient monitoring planned given the size, complexity and impact of the proposed structure).	
✓	Are the methods outlined suitable to determine the success (or otherwise) of the fishway?	
✓	Does the proposed monitoring team have sufficient experience and resources to complete the monitoring tasks?	
✓	Will the monitoring cover a sufficient range of flows to determine the success of the fishway	

Comments

1. The design of the fishway will provide adequate passage despite the large drop that occurs at the site. The fishway is long and low gradient and maintains conditions like that of the natural stream in the area.
2. There is only a short delay from commence to flow, to overtopping and fishway operation. This will not unduly delay fish migrations.
3. As the entrance is adjacent to where the short creek the dam sits on enters the main stream, the entrance should be found easily by fish moving upstream