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The Department of Planning & Environment

Re: **Yarrabin (Phoenix) Pumped Hydro (SSD-59906734) SEARs**

DPI Fisheries is responsible for ensuring that fish stocks are conserved and that there is no net loss of key fish habitats upon which they depend. To achieve this, DPI Fisheries ensures that developments comply with the requirements of the *Fisheries Management Act 1994* (namely the aquatic habitat protection and threatened species conservation provisions in Parts 7 and 7A of the Act, respectively), and the associated *Policy and Guidelines for Fish Habitat Conservation and Management (2013)*. In addition, DPI Fisheries is responsible for ensuring the sustainable management of commercial, recreational and Aboriginal cultural fishing, aquaculture, marine parks and aquatic reserves within NSW.

AQUATIC ECOLOGICAL ASSESSMENT

An aquatic ecological assessment is required that addresses all direct and indirect impacts of the Yarrabin Pumped Hydro Project on Key Fish Habitat and associated flora and fauna including threatened species, populations, and communities during construction and operation for the life of the asset.

The Aquatic Ecological Assessment should cover the assessment requirements outlined in Chapter 3 of the *Policy and Guidelines for Fish Habitat Conservation and Management (2013)* including:

- Recent aerial photograph (preferably colour), map or GIS of the locality which details the Key Fish Habitat of the development site, all habitats impacted by the development, and waterway classification (CLASS) as defined in Tables 1 and 2 of the *Policy and Guidelines for Fish Habitat Conservation and Management (2013)*.
- Location details of all temporary and permanent infrastructure and construction activities, such as waterway crossings, pump stations, access tracks, tunnels, pipelines, etc.
- Mapping of the full aerial extent of Key Fish Habitat types that will be impacted either directly or indirectly by the development and subsequent operation of the Yarrabin Pumped Hydro Project, with impacted habitats clearly identified on recent aerial photographs, maps or GIS.
- Description, quantification, and mapping of all aquatic and riparian vegetation communities potentially impacted by the development. This should include an assessment of the extent and condition of aquatic and riparian vegetation and the presence of significant habitat features (e.g. gravel beds, snags, reed beds, rock bars, etc).
- Quantification of the extent of aquatic and riparian habitat removal, modification or inundation (whether temporary or permanent) that will result from the proposed development.

- Development of mitigation measures during construction (e.g. Environmental Management Plans) and operation (e.g. Operational Management Plan) including monitoring of proposed mitigation measures and plans to confirm their effectiveness.

DREDGING AND RECLAMATION ACTIVITIES

The EIS should assess any dredging and reclamation activities as defined by the *FMA 1994*, and includes such works (but not limited to) waterway work platforms, coffer dams, river diversions, and excavating or reclaiming the bed or banks of any waterways. The EIS should describe the type and extent of any dredging or reclamation activities within 'water land'. This assessment should include;

- Purpose of works
- Method of dredging and reclamation to be used
- Duration of dredging and reclamation works
- Time of dredging and reclamation works
- Dimension and depth of area to be dredged or reclaimed
- Nature of sediment to be dredged
- Method of disposal of dredge material
- Location and duration of spoil stockpiling, if planned
- Spoil type and source location for reclamation activities
- Details of dewatering activities or use of coffer dams and diversion channels.
- Environmental safeguards to be used during and after works
- Measures for minimising harm to Key Fish Habitat

FISH PASSAGE

The design of new or upgraded bridges, culverts, and waterways crossings should be in accordance with the document *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (NSW Fisheries 2003)* and the *Policy and Guidelines for Fish Habitat Conservation and Management (Update 2013)*.

LOSS OF RIPARIAN VEGETATION

The Yarrabin Pumped Hydro Project has the potential to cause impacts during construction and operation on riparian vegetation, which is listed as a Key Threatening Process (*Degradation of native riparian vegetation*) under the *FMA 1994*. The EIS will need to assess and quantify the full extent of riparian vegetation loss.

PUMP INFRASTRUCTURE

The temporary pump infrastructure in Burrendong Dam should consider the use of extraction screen technology to reduce the impacts of pump infrastructure removing and damaging eggs, larvae, and juvenile fish from the Burrendong Dam during the initial fill and operations.

The potential impacts of pump infrastructure (Both direct and indirect) include:

- The entrainment and loss of eggs, larvae, and juvenile fish (including threatened species) extracted via the pump station and pipeline system
- Mechanical damage and fish mortality from pumps
- Introduction of exotic species (e.g. redfin, gambusia, etc) to the Upper Storage Dam.

THREATENED SPECIES, POPULATIONS AND ECOLOGICAL COMMUNITIES

An assessment under Part 7A of the *FMA 1994* is required to address whether there are likely to be any significant impacts on listed threatened species, populations or ecological communities. Assessment of the impacts may require initial 'Seven-Part Test's. Updated Threatened species distributions can be found at www.dpi.nsw.gov.au/fishing/species-protection/threatened-species-distributions-in-nsw/freshwater-threatened-species-distribution-maps.

NSW BIODIVERSITY OFFSETS POLICY: AQUATIC BIODIVERSITY

An Aquatic Biodiversity Offsets Strategy may be required that is adequately funded to mitigate and manage impacts of the Yarrabin Pumped Hydro Energy Storage during construction and subsequent operation **if alternate locations within key fish habitat are chosen**.

The EIS aquatic ecological assessment will determine all direct and indirect impacts of the Yarrabin Pumped Hydro Project on Key Fish Habitat. The *Policy and Guidelines for Fish Habitat Conservation and Management (2013)* requires a minimum 2:1 offset for Type 1–3 Key Fish Habitats to help redress identified impacts. The *NSW Biodiversity Offsets Policy for Major Projects* outlines requirements for site-based offsets to compensate for the loss of each aquatic habitat type, and/or payment (currently \$114.40 m⁻² adjusted yearly with CPI) to the NSW DPI Fish Conservation Trust Fund to compensate for the value of the aquatic habitat being lost. The EIS should address whether an Aquatic Biodiversity Offsets Strategy that is adequately funded that ensures a minimum 2:1 offset for impacted Type 1-3 Key Fish Habitats is required.

Please refer to *NSW Biodiversity Offsets Policy for Major Projects*, Fact Sheet - Aquatic Biodiversity at: <http://www.environment.nsw.gov.au/resources/biodiversity/14817aqoffs.pdf>.

ABORIGINAL CULTURAL AND RECREATIONAL FISHING AND ACCESS

Burrendong Dam is recognised as providing an important recreational fishery. Aboriginal cultural fishing is also important for the health and wellbeing of Aboriginal communities. The EIS must address potential impacts on the recreational and aboriginal cultural fisheries, including potential impacts on recreational fishing opportunities and recreational fishing access during construction works and subsequent project operation. Engagement with these stakeholders is recommended.

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