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4. TOPOGRAPHY AND GEOMORPHOLOGY

This section addresses Section 3.2.1 of the TOR. Maps are provided locating the Project and its environs in state, regional and local contexts. The topography is described, using contours shown with respect to Australian Height Datum (AHD). Significant features of the landscape are included on the maps.

4.1. Description of environmental values

4.1.1. Methodology

The methodology used to describe the existing environment for the Project area included the following broad steps:

- a desktop review of the current topography of the Project area, based on current and historical aerial imagery and topographic maps; and
- a desktop review of contour mapping.

4.1.2. Dam and surrounds

The topography of the dam and its surrounds is dominated by the Connors River valley (**Figure 4-1**). The dam site is situated at Connors River AMTD 95.7 km, some 5 km downstream of the confluence of Murray and Collaroy Creeks (the upstream limit of the Connors River). At the dam site, the bed of the Connors River is at an approximate Reduced Level (RL) of 140 m AHD. Upstream the catchment is bounded by a number of ranges that include; Sugarloaf Mountain (520 m AHD) to the north, the Connors Range (averaging 400 m AHD) to the east, Pine Mountains (elevations ranging from 400 m to 800 m AHD) to the west and Five Mile Mountain (352 m AHD), Pint Pot Mountain (370 m AHD) and White Bluff Mountain (522 m AHD) to the south. These ranges are drained by Murray, Cattle, Whelan and Collaroy Creeks and also by the Connors River itself.

The Connors Range to the east of the dam site strikes generally north-northwesterly and includes the Collaroy State Forest. The Connors Range consists of multiple escarpments and includes the peaks of Mt Toobier at 567 m AHD and unnamed protrusions of volcanic rock within the Collaroy State Forest at up to 642 m AHD.

The Pine Mountains to the northwest of the dam site rise to 815 m AHD, with the Tierawoomba State Forest also including the topographic feature named Gins Leap, an exposed volcanic peak at approximately 382 m AHD. The southern side of Connors River opposite Gins Leap is occupied by the peaks of Mt Bridget at 372 m AHD and The Tower at 392 m AHD. These peaks dominate the natural landscape along with a smaller ridgeline known as Chinaman Ridge.

4.1.3. Pipeline

The pipeline route traverses numerous terrain units from the dam site to Moranbah (**Figure 4-2**).

Starting at the damsite, the first approximate 20 km of the alignment traverses generally upstanding country that is underlain either by relatively resistant volcanic rocks or alluvium/slope wash soils. Elevations in this section of the alignment vary between approximately 150 m and 250 m AHD.

Between approximate pipeline chainages 20 km and 50 km, the pipeline grades very gently downslope and traverses relatively flat or gently undulating country mostly underlain by alluvial sediments. By chainage 50 km, the RL is approximately 175 m AHD.

From an approximate chainage of 50 km, the route is orientated westward, generally parallel to the Peak Downs Highway. This section of the pipeline route is overall uphill until an approximate chainage of 115 km, at which point an approximate elevation of 350 m AHD is obtained. The country is still quite flat to gentle undulating.

From approximate chainage of 115 km to Moranbah the route is overall gently downhill to a terminal storage with an approximate elevation of 270 m AHD.

The following topographic features occur to the south of the central section of the pipeline route:

- the Dipperu National Park; and
- to the west of the National Park a number of peaks and mesas are present including Mt Flora, Mt Orange, Mt Marion and The Sisters. At these locations spot heights vary from 530 m to 300 m AHD.

4.1.4. Associated infrastructure

The associated infrastructure is located within the area of the dam and surrounds and the pipeline route. As such, the topography and geomorphology relevant to associated infrastructure is as described in **Sections 4.1.2 and 4.1.3.**

4.2. Potential impacts and mitigation measures

The Project will have negligible impact on the topography of the Project area and no mitigation measures are proposed. Discussion on the potential impacts to geology and soils and fluvial geomorphology are provided in **Section 6** and **Section 14** respectively.

Objectives for re-contouring or consolidation, rehabilitation, landscaping, fencing and monitoring are discussed in **Section 6.2**.