

Appendix 4:

Response from Shoalhaven Water to Council's infrastructure supply to the proposed development:

- Email from Lujupcho Lazarevski and attachments (13 June 2013);

4.3.3 Shaolin Temple Residential and Tourist Development

The Shaolin Temple and tourist site comprises approximately 1,248 hectares and is located 6.0 km south of South Nowra; this development comprises a Buddhist Temple sanctuary complex, Kung-Fu academy, hotel, commercial centre, and permanent residential development. The site rises from less than 1.0 m AHD along the banks of Currumbene Creek to a maximum height of 76.0 m AHD towards the eastern boundary. The expected growth of the Shaolin Temple Residential and Tourist Development is summarised in Table 55 below.

Table 55 Shaolin Temple Residential and Tourist Development

Development Type	Area (Approx.) (ha)	Stage 1 Capacity (ET)	Ultimate Capacity (ET)
Buddhist Sanctuary Precinct	44	10	20
Educational Precinct	6	30	55
Village Centre Precinct	8	25	205
Wellness Precinct	3	25	40
Hotel Precinct	14	35	70
Residential Precincts A, B & C	155	100	300
Total	230	225	690

The site is likely to be sourced from the Brundee Trunk main (i.e. Brundee-Vincentia supply system) which has a 450 mm diameter MSCL trunk main located approximately 3.1 km east of the site, supplying the townships of Woollamia, Huskisson and Vincentia. The development may need to consider the construction of a local reservoir to supply adequate flow and pressure to the proposed development.

It is recommended that the Shaolin Temple development is serviced with a 200 mm main with the final mix of pipe sizing depending on the actual distribution of customer connections and loads that eventuate. The identified main will form the backbone of the reticulation and will need to be augmented with smaller diameter local mains for customer connection. An analysis of the 2041 PDD model indicated that no upgrades were required in terms of capacity in the existing Brundee-Vincentia supply system to meet the additional loads imposed by the Shaolin Temple and Tourist development.

An alternative to serve the Temple development is to connect it to the Radar Hill reservoir zone. The Shaolin Temple subsystem demand was loaded onto a DN600 in the Radar Hill trunk system (i.e. Asset ID: 49824). The 2041 PDD run results indicate that no low pressure problems are anticipated in the Radar Hill reservoir zone and therefore no additional boosting is required on top of the head maintained by the Radar Hill reservoir. Table 56 below summarises the system upgrade options investigated.

Table 56 Shaolin Temple System Upgrade Options

Option	Description	Summary of Required Work	Preliminary Capital Cost (Ultimate)	NPV (\$)
1	Rezoning to Vincentia	3.1 Km DN200	\$ 0.43 M	339,272
2	Rezoning to Radar Hill	3.4 Km DN200	\$ 0.48 M	372,105

In general, both strategic options proposed are hydraulically feasible. However, Option 2 is likely to be a more cost-effective solution with all gravity supply system and no need for an additional pumping (i.e. Option 1). It is anticipated that the construction of the development will be over a 5-10 year period. The Buddhist Temple Sanctuary will be constructed in the first stage, followed by the residential components of the development. The staging of the development will be subject to demand and availability of site services and infrastructure, as well as the required finances.

The independent living units/ villas and the hotel are anticipated to be constructed in two phases, with the second stage commencing as demand arises. Figure 33 shows the Shaolin Temple and Tourist development area and the location of the existing and proposed mains.

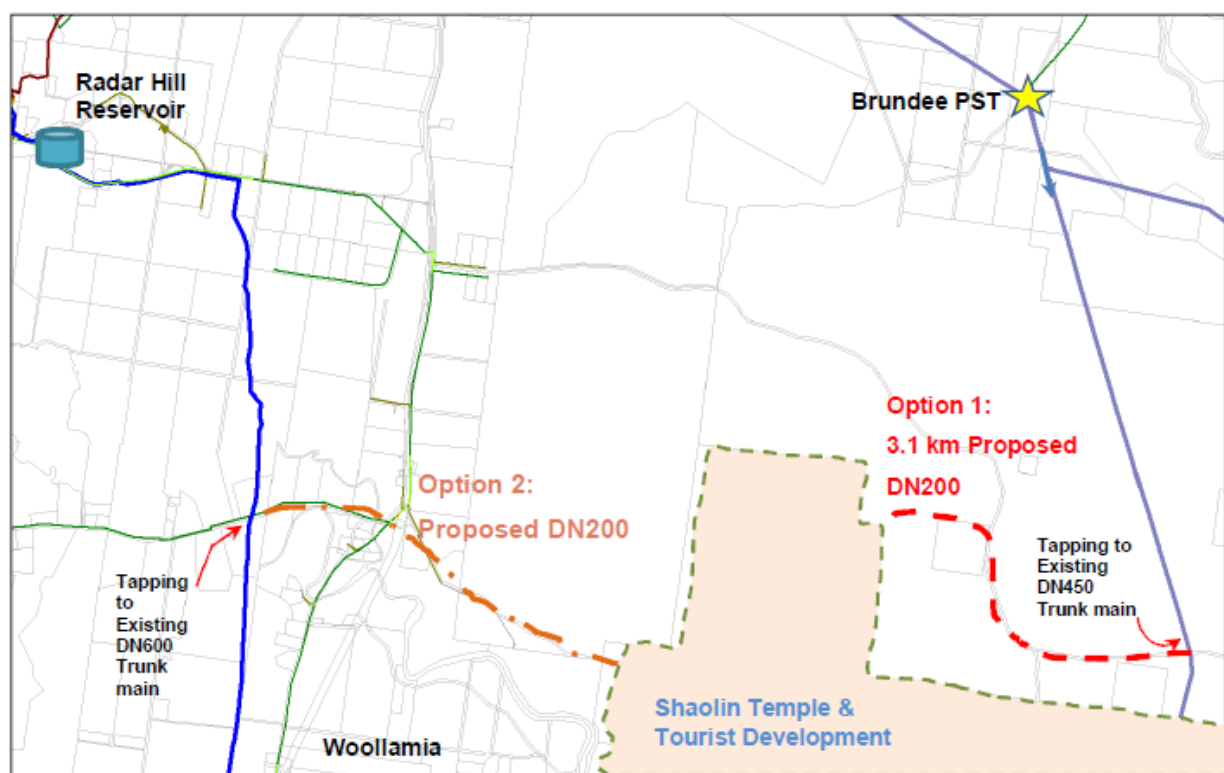


Figure 33 Shaolin Temple and Tourist Development

11.4 Servicing Strategies for New Developments

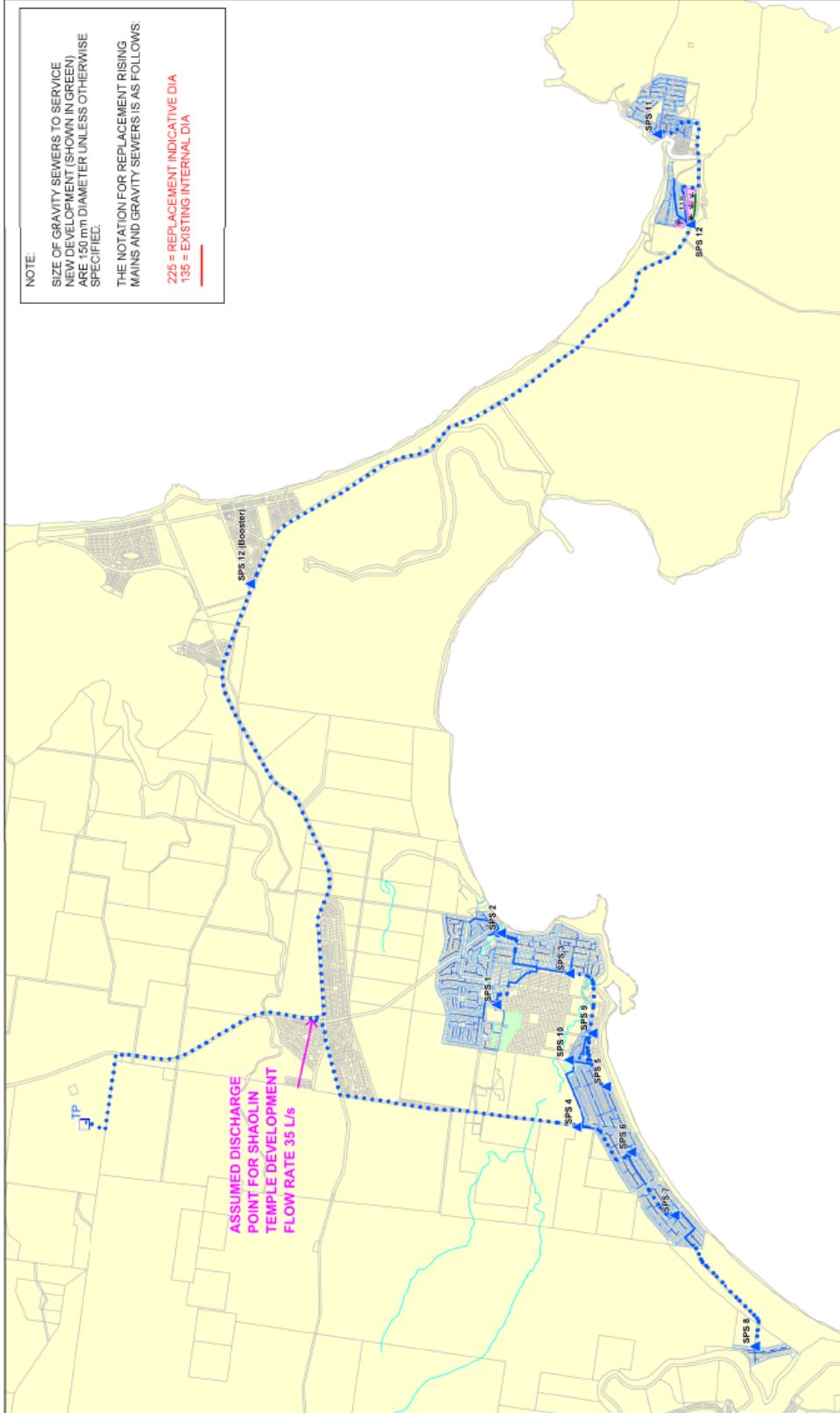
There is one new development, at Currarong, it does not require any major infrastructure (i.e. sewers > 150 mm diameter or pump stations). Additionally the proposed Shaolin Temple and Academy located at Callala is proposed to connect to the existing rising main from SPS4.

A summary of the servicing requirements for new developments are shown in Table 11.4.1 and illustrated in Figure 11.4.1.

Table 11.4.1 Callala – Servicing Requirements for New Developments

Reference	118	N/A
Name	Currarong Future Residential	Shaolin Temple and Academy
Proposed Increase in ET 2011 – 2041:	28	690
Proposed Development Year:	2014	Not known
Connection Point (s) to 225 mm sewer / pump station	243444	SPS4 Rising Main
Sewers > 150 mm Diameter Required	Nil	Not known
Pump Stations Required:	Nil	1 x 35 L/s
Rising Mains Required:	Nil	8.5 km x 200 mm dia
Estimated Capital Cost*	Nil	\$2.0 M

* Capital costs shown are for sewers 225 mm diameter and greater and pump stations, where applicable.



11.5 Upgrades for Hydraulic Capacity

Hydraulic analysis indicated that the system is able to transfer design PWWF in both the 2011 and 2041 scenarios. No upgrades for hydraulic capacity were required.

Hydraulic analysis was also undertaken to assess the impact of the Temple development on the system. It was assumed that flows from the Temple are discharged into the 540 mm diameter rising main from SPS4 and SPS 12 at a rate of 35 L/s. The discharge point was assumed to be near the intersection of Forest Rd, Currarong Rd and Coonamia Rd. The hydraulic analysis indicated that the additional flow in the rising main would increase the pressure in the pipeline by approximately 2 metres, causing a small decrease in flow at SPS 4 and SPS 12 as follows:

- ▶ SPS 4 decrease by 3%
- ▶ SPS 12 decrease by less than 1%

Both pump stations were still predicted to be able to transfer the design PWWF with the decrease in flows.