Infrastructure planning

Draft Report

18 July 2024

The Director: Engineering Services
Bitou Municipality
Private Bag X1002
Plettenberg Bay
6600

Attention: Ms Asiphe Mgoqi

Dear Madam

PROPOSED ADDITIONS AND ALTERATIONS TO MILKWOOD MANOR ON SEA, ERF 10190, PLETTENBERG BAY: CAPACITY ANALYSIS OF THE BULK WATER & SEWER SERVICES

The request by Mr Andy Paterson of MORE Family Collection for GLS Consulting to investigate and comment on the bulk water supply and sewer discharge of the proposed development (additions and alterations to Milkwood Manor on Sea on Erf 10190 Plettenberg Bay) refers.

This report should inter alia be read in conjunction with the Bitou Municipality Water Master Plan (performed for the Bitou Municipality) dated June 2020 and the Sewer Master Plan dated June 2020.

The proposed alterations on Erf 10190 were not taken into consideration in the master plans for the water and sewer networks.

1 WATER DISTRIBUTION SYSTEM

1.1 Distribution zone

Erf 10190 in Plettenberg Bay is currently connected to the existing Town PRV 2 water distribution zone through a 50 mm Ø water pipe in Salmack Road, as shown on Figure 1 attached. The Town PRV 2 is supplied with water through the Town reservoir water distribution network.

The development is situated inside the water priority area.

1.2 Water demand

The water analysis for the June 2020 master plan was performed with a total annual average daily demand (AADD) for Erf 10190 (existing demand) of 2,0 kL/d.

For this re-analysis, the total annual average daily demand (AADD) and fire flow for the proposed development were calculated and classified as follows:

- 26 Guest house beds @ 0,35 kL/d/bed = 9,1 kL/d
- Fire flow criteria (Moderate risk 1) = 50 L/s (as supplied by JVR Consulting Structural Engineers)

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1.3 Present situation

1.3.1 Reticulation network

The existing water system has sufficient capacity to accommodate the domestic water demand of the proposed development to comply with the pressure criteria as set out in the master plan. The existing system, however, has insufficient capacity to supply fire flow to the proposed development.

1.3.2 Fire flow

The capacity of the existing system to supply fire flow to Erf 10190 is 2.7 L/s @ 15 m water pressure when fire flow is supplied through the existing 50 mm Ø pipe in Salmack Road, as shown on Figure 2 attached. The fire flow capacity of the upstream 100 mm Ø AC pipe at the corner of Hill and Harding Streets (where the 50 mm diameter supply pipe towards Erf 10190 connects) is 22.3 L/s @ 15 m water pressure.

As an alternative option, fire flow can be supplied to Erf 10190 from the Town reservoir water distribution zone through a connection to the existing 100 mm AC pipe at the corner of Erf 3904, as shown on Figure 2. The capacity of the Town reservoir system to supply fire flow to the existing 100 mm AC pipe at the corner of Erf 3904 is 15.8 L/s @ 15 m head. A new 110 mm Ø supply pipe will be required from the proposed connection point to the Town reservoir water distribution zone (at the corner of Erf 3904) to Erf 10190 (link services item1 on Figure 2).

The existing system has insufficient capacity to supply fire flow to Erf 10190 of more than 15 L/s and it is proposed that fire protection is provided on site if a fire flow requirement of more than 15 L/s is required for Erf 10190.

In order to supply fire flow of roughly 15 L/s at 10 m head the following upgrades should be implemented:

- Upgrade existing 50 mm diameter pipeline from the Town PRV 2 water distribution zone to the development to a 110 mm diameter pipeline, or
- Install a new 110 mm diameter link services pipeline from the Town reservoir water distribution zone (at the corner of Erf 3904) to Erf 10190 (see item 1 on Figure 2).

1.3.3 Reservoir capacity

The criteria for total reservoir volume used in the Bitou Municipality Water Master Plan is 48 hours of the AADD (of the reservoir supply zone). The existing reservoir volume available at the Town reservoirs is 101 hours of the total AADD and is therefore sufficient to accommodate the proposed development.

2 SEWER NETWORK

2.1 Drainage area

The development falls within the existing Plettenberg Bay pumping station (PS) no. 2 drainage area. Sewage from the development is currently discharged directly into Plettenberg Bay PS no. 2 in Salmack Road, as shown on Figure 3 attached.

The development is inside the sewer priority area.

2.2 Sewer flow

In the original sewer master plan, the peak day dry weather flow (PDDWF) for development on Erf 10190 was calculated at 1,4 kL/d (existing demand).

For this re-analysis, the PDDWF for the proposed development was calculated as 6,4 kL/d.

2.3 Present situation

There is sufficient capacity at the Plettenberg Bay PS no. 2 to accommodate the proposed development on Erf 10190.

3 CONCLUSION

The developer of Erf 10190 in Plettenberg Bay will be liable for the payment of a Development Contribution (as calculated by Bitou Municipality) for bulk water and sewer infrastructure as per Council Policy.

The existing water system has sufficient capacity to accommodate the domestic water demand of the proposed development to comply with the pressure criteria as set out in the master plan.

The existing system, however, has insufficient capacity to supply fire flow to Erf 10190 of more than 15 L/s.

In order to supply fire flow of roughly 15 L/s at 10 m head to Erf 10190 the following upgrades should be implemented:

- Upgrade existing 50 mm diameter pipeline from the Town PRV 2 water distribution zone to the development to a 110 mm diameter pipeline, or
- Install a new 110 mm diameter link services pipeline from the Town reservoir water distribution zone (at the corner of Erf 3904) to Erf 10190 (see item 1 on Figure 2).

It is proposed that fire protection is provided on site if a fire flow requirement of more than 15 L/s is required for the development on Erf 10190.

There is sufficient capacity in the existing sewer system to accommodate the proposed development.

Also, find attached hereto Appendix A which includes general notes from Bitou Local Municipality regarding development approvals and conditions.

We trust that you find this of value.

Yours sincerely,

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REG. NO.: 2007/003039/07

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Per: PC DU PLESSIS

cc. MORE Family Collection
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Attention: Mr Andy Paterson

APPENDIX A **July 2024**

GENERAL NOTES FROM BITOU LOCAL MUNICIPALITY ATTACHED TO GLS BULK WATER AND SEWER SERVICES CAPACITY REPORT

1. The GLS report is a services capacity report and the costs estimated in this report are only approximate values applicable at the time of the study.

2. Should the development be approved by Council the approval will be linked to certain development conditions. These conditions will be the official conditions applicable to the project and will take precedence over this report. Once approval is granted, Council will enter into a formal services agreement with the developer.

3. Costs for network upgrades, etc. As mentioned in the GLS report could change from time to time due to escalation, new tariff structures, additional requirements etc.

4. The Developer may be liable to pay a Development Contribution as per Council policy. The value payable will be calculated using Bitou Local Municipality's Development Contribution Calculator.

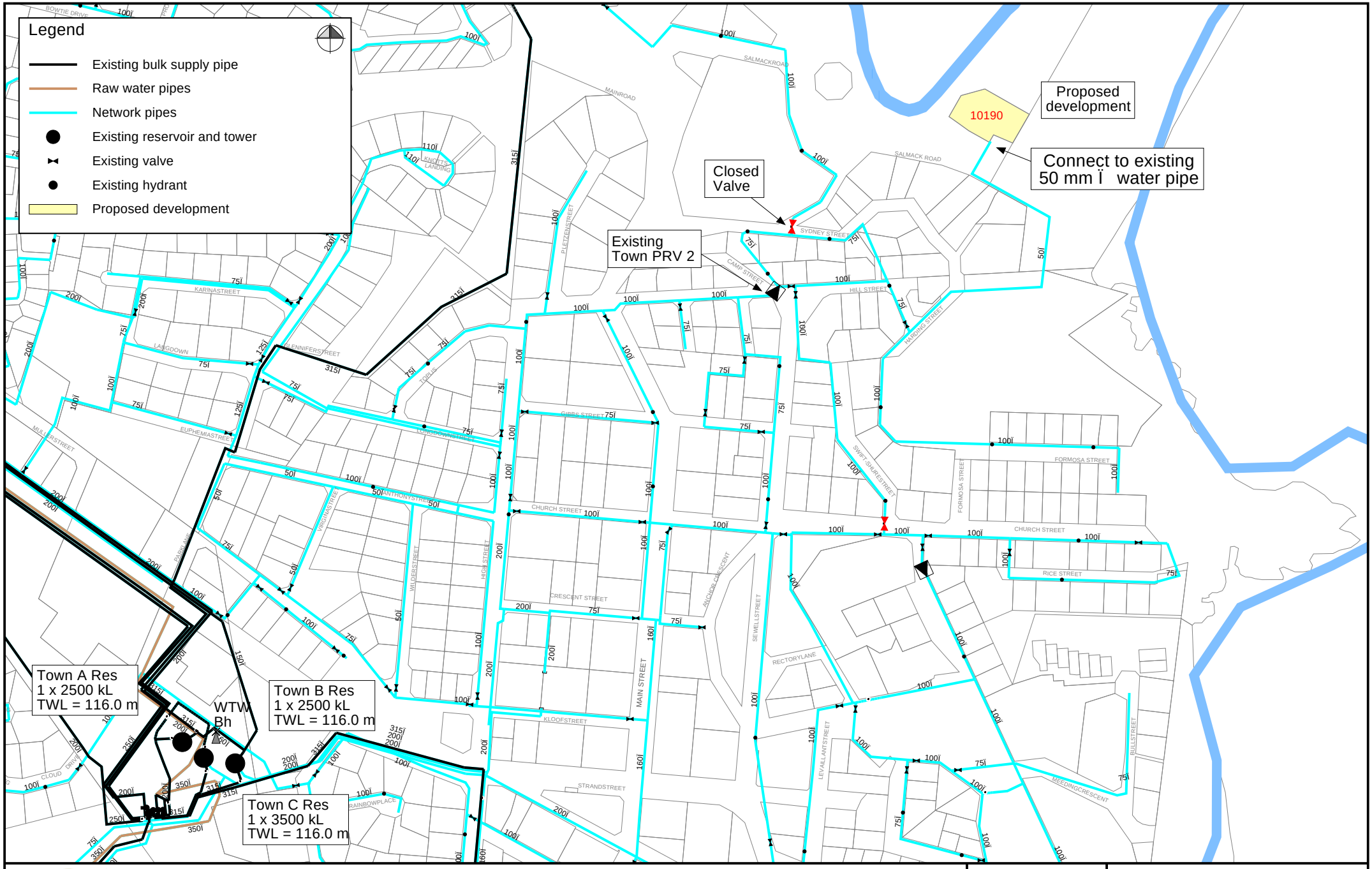
5. The Development Contribution monies are calculated according to the approved Council Policy at the time of payment.

6. The Development Contribution monies are payable before the approval of the building plan certificate or final approval of the subdivision for the transfer of units will be issued, as applicable for the type of development.

7. Where servitudes are required, all the costs and arrangements therefore will be for the developer's account.

8. The developer will be solely responsible for the cost of the link services as identified in the GLS report. The developer will also be responsible for the costs of upgrading to the minimum requirements of the services as identified in the GLS report. These costs may however be offset against the Development Contribution monies payable.

9. The above conditions are subject to any approved Council policies, which may be amended from time to time.



July 2024

Erf 10190 - Plettenberg Bay

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Figure 1 (Draft)

Proposed Development
Erf 10190 - Plettenberg Bay
Existing Water Reticulation

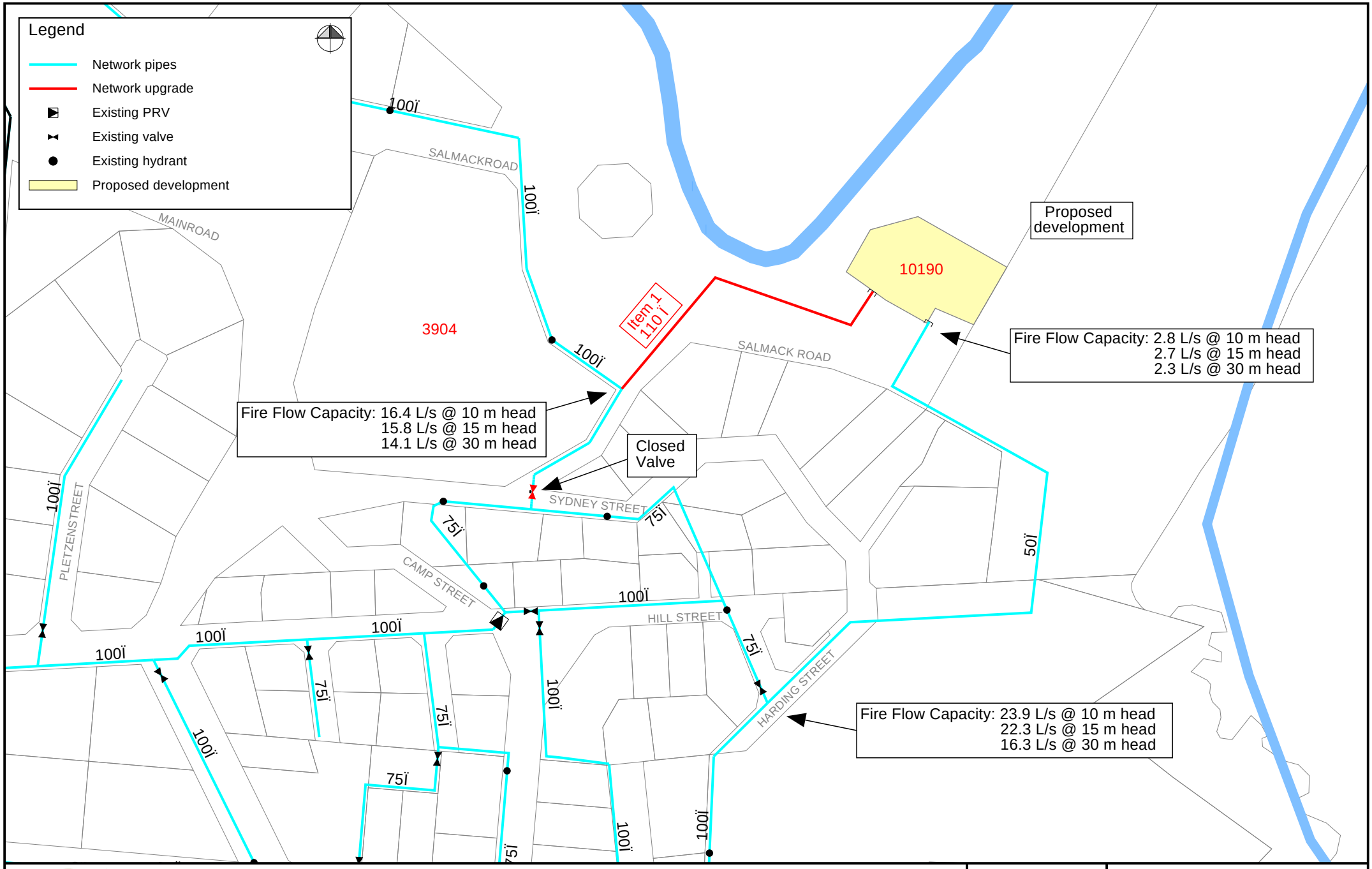

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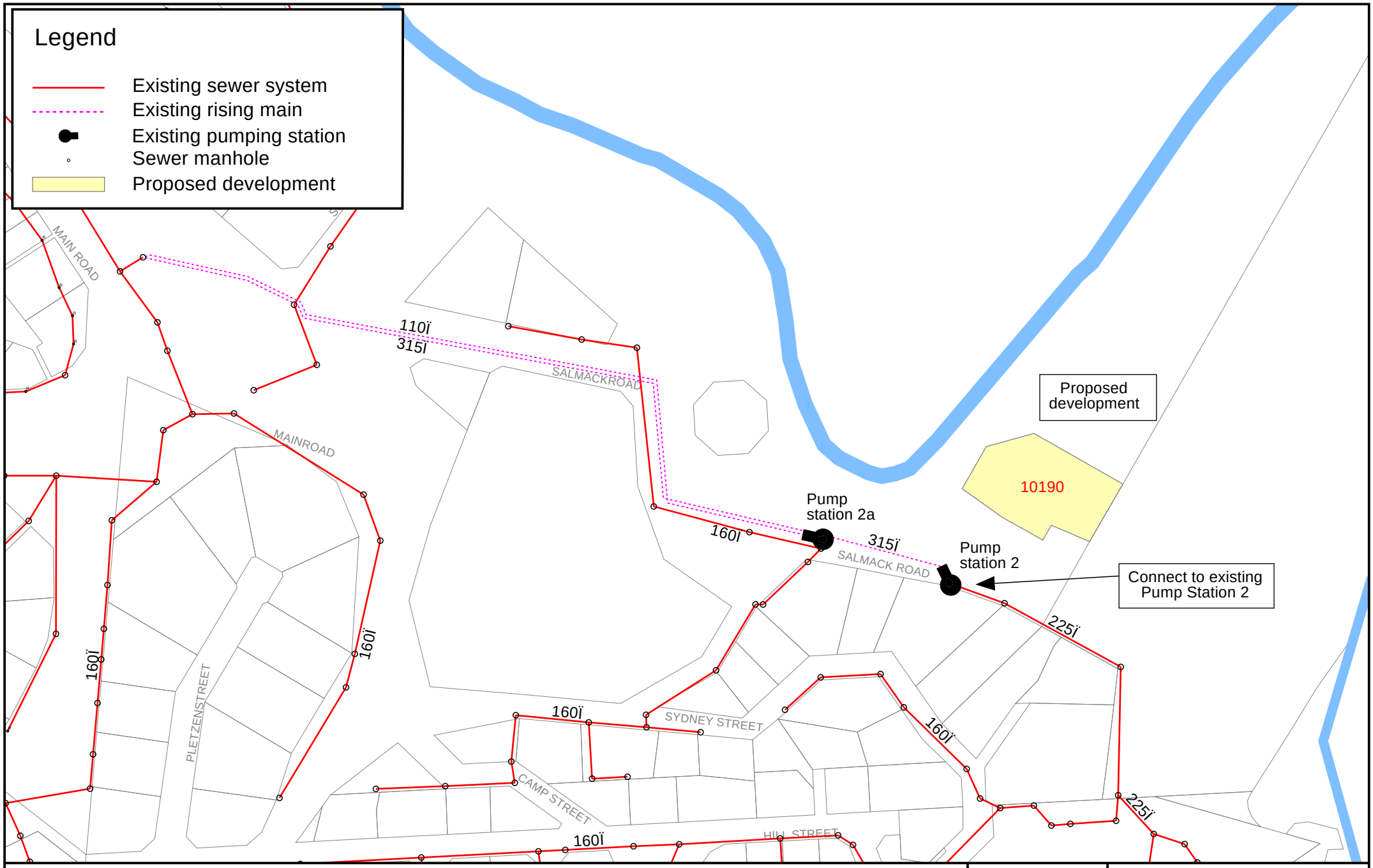
Figure 2 (Draft)

Proposed Development
Erf 10190 - Plettenberg Bay
Water Analysis Results



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Erf 10190 - Plettenberg Bay

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Figure 3 (Draft)
Proposed Development
Erf 10190 - Plettenberg Bay
Existing Sewer Reticulation