

5 May 2025

The Director: Civil Engineering Services
Overstrand Municipality
P.O. Box 20
HERMANUS
7200

Attention: Mr Dennis Hendriks

Dear Sir,

PROPOSED DEVELOPMENT OF ERVEN 597, 598, 599 & 1197, STANFORD: CAPACITY ANALYSIS OF THE BULK WATER & SEWER SERVICES

The request by Mr Richard Kotzé of WRAP Town Planning & Project Management for GLS Consulting (Pty) Ltd to investigate and comment on the bulk water supply and sewer discharge of the proposed development of 84 residential properties on Erven 597, 598, 599 & 1197, Stanford, refers.

This document should inter alia be read in conjunction with the Water Master Plan (performed for the Overstrand Municipality) dated June 2021 and the Sewer Master Plan dated June 2021.

Future development areas SF1 & SF3, which include the proposed development area, were conceptually taken into consideration for the June 2021 master plans for the water and sewer networks.

1. WATER DISTRIBUTION SYSTEM

1.1 Distribution zone

The master plan indicated that the proposed development should be accommodated within the existing Stanford reservoir water distribution zone. The proposed connection to the existing Stanford water system is to the existing 160 mm Ø pipe along the R326 Main Road, as shown in Figure 1 attached.

The proposed development is situated inside the water priority area.

1.2 Water demand

The original water analysis for the master plan was performed with a total annual average daily demand (AADD) for development on erven 597, 598, 599 & 1197 (future development areas SF1 & SF3 in the June 2021 water master plan) of 203,9 kL/d.

For this re-analysis of the master plan, the total AADD and fire flow for the proposed development were calculated as follows:

- 84 Single residential erven @ 1,0 kL/d/unit ⁽¹⁾ = 84,0 kL/d

⁽¹⁾ As per Table J.2 from Section J – Water Supply of “The Neighbourhood Planning and Design Guide” (so called “Red book”).

- Fire flow criteria (Low risk) = 15 L/s @ 7 m

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The total potential AADD for the existing stands (fully occupied) as well as the proposed additional development on Erven 597, 598, 599 & 1197 in the Stanford reservoir water distribution zone was calculated as follows:

• Stanford reservoir supply zone fully occupied	=	1 866,0 kL/d
• Proposed additional development	=	<u>84,0 kL/d</u>
Total	=	1 950,0 kL/d

1.3 *Present situation*

1.3.1 *Reticulation network*

The existing Stanford reservoir water reticulation network has insufficient spare capacity available to provide the required water pressure and fire flow criteria for the development as set out in the Overstrand Water Master Plan.

It is proposed in the Water Master Plan for Stanford that the existing 110 mm Ø supply pipe in Kleine Street is reinforced to improve network conveyance and fire flow capacity to the Stanford North area.

The following master plan item is proposed in order to improve network conveyance to the proposed development and to improve the capacity of the existing system to supply fire flow:

Network upgrade:

- OSW1.3: 485 m x 200 mm Ø replace existing 110 mm Ø pipe R 1 089 000 *

The existing Birkenhead Brewery on Erf 596 to the north of the proposed development is supplied with bulk water through a 50 mm diameter pipe which runs over erven 598 & 599, as indicated on Figure 1 attached (the route of this pipeline should however be confirmed on site). This pipeline can supply a maximum fire flow of 2,9 L/s to the existing Birkenhead Brewery.

It is proposed that this 50 mm Ø pipe is decommissioned and that the Birkenhead Brewery is supplied through a new 160 mm Ø pipe from the R326 Main Road, as shown on Figure 1. This will enable the existing system to provide fire flow of roughly 30,0 L/s @ 10 m water head to the Birkenhead Brewery (after the implementation of master plan item OSW1.3).

Alternatively, if the Birkenhead Brewery cannot be supplied with bulk water through the proposed Birkenhead development on erven 597, 598, 599 & 1197, the existing supply pipe to the Birkenhead Brewery should be relocated and provision should be made for a pipeline servitude (in favour of Overstrand Municipality) to accommodate the pipeline.

(* Including P & G, Contingencies and Fees, but excluding VAT - Year 2024/25 Rand Value. This is a rough estimate, which does not include major unforeseen costs).

The route of the proposed pipeline is schematically shown on Figure 1, but has to be finalised subsequent to a detailed pipeline route investigation.

1.3.2 *Bulk supply*

The existing bulk supply system from the Stanford boreholes to the Stanford reservoirs has sufficient capacity in order to accommodate the proposed development within the Stanford water system.

1.3.3 *Reservoir capacity*

The criteria for total reservoir volume used in the Overstrand Water Master Plan is 48 hours of the AADD (of the reservoir supply zone) for gravity and pumped supply to the reservoir.

2.2 Sewer flow

The original sewer analysis for the master plan was performed with a total peak day dry weather flow (PDDWF) for development on erven 597, 598, 599 & 1197 (future development areas SF1 & SF3 in the June 2021 sewer master plan) of 187,3 kL/d.

For this re-analysis, the PDDWF of the proposed development was calculated as 58,8 kL/d.

2.3 Present situation

The existing sewer reticulation system from the proposed connection point in Quick Street to the Stanford Main PS has sufficient capacity to accommodate the proposed development.

The existing gravity system downstream of the Stanford Main PS gravitating towards the Stanford WWTP has, however, insufficient spare capacity to accommodate the proposed development within the existing sewer system and should be upgraded according to the sewer master plan.

The following link services item will also be required to connect the internal sewer network of the proposed development to the existing Stanford sewer network:

Link services:

- Item 2: 105 m x 160 mm Ø new outfall sewer (including crossing of R43 Main Road) R 840 000 *

(* Including P & G, Contingencies and Fees, but excluding VAT - Year 2024/25 Rand Value. This is a rough estimate, which does not include major unforeseen costs).

The route of the proposed pipeline is schematically shown on Figure 2, but has to be finalised subsequent to a detailed pipeline route investigation.

2.4 Implementation of the master plan

The following master plan item will be required to reinforce the existing sewer network of the Stanford WWTP Gravity drainage area in order to accommodate the proposed development together with other future development areas.

Network upgrade:

- OSS2.3 : 260 m x 450 mm Ø replace existing 2x 250 mm Ø outfall sewers R 1 707 000 *

(* Including P & G, Contingencies and Fees, but excluding VAT - Year 2024/25 Rand Value. This is a rough estimate, which does not include major unforeseen costs).

The route of the proposed pipeline is schematically shown on Figure 2, but has to be finalised subsequent to a detailed pipeline route investigation.

2.5 Minimum items required

The minimum items required to accommodate the proposed development in the existing sewer system are link services item 2 to connect to the existing sewer system and master plan item OSS2.3 to reinforce the existing Stanford sewer system downstream of the Stanford PS.

3. CONCLUSION

The developer of erven 597, 598, 599 & 1197 in Stanford may be liable for the payment of a Development Contribution (as calculated by the Overstrand Municipality) for bulk water and sewer infrastructure as per Council Policy.

There is insufficient capacity in the existing water reticulation system to accommodate the proposed development.

The minimum items required to accommodate the proposed development in the existing Stanford water system are master plan item OSW.B1 to augment reservoir storage capacity for Stanford and master plan item OSW1.3 to improve network conveyance to the proposed development and to improve the capacity of the existing system to supply fire flow.

The existing Birkenhead Brewery on Erf 596 to the north of the proposed development is supplied with bulk water through a 50 mm diameter pipe which runs over erven 598 & 599, as indicated on Figure 1 attached (the route of this pipeline should however be confirmed on site). It is proposed that this 50 mm Ø pipe is decommissioned and that the Birkenhead Brewery is supplied through a new 160 mm Ø pipe from the R326 Main Road. This will enable the existing system to provide fire flow of roughly 30,0 L/s @ 10 m water head to the Birkenhead Brewery (after the implementation of master plan item OSW1.3).

Alternatively, if the Birkenhead Brewery cannot be supplied with bulk water through the proposed Birkenhead development on erven 597, 598, 599 & 1197, the existing supply pipe to the Birkenhead Brewery should be relocated and provision should be made for a pipeline servitude (in favour of Overstrand Municipality) to accommodate the pipeline

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

The minimum items required to accommodate the proposed development in the existing sewer system are link services item 2 to connect to the existing sewer system and master plan item OSS2.3 to reinforce the existing Stanford sewer system downstream of the Stanford.

We trust you find this of value.

Yours sincerely,

GLS CONSULTING (PTY) LTD
REG. NO.: 2007/003039/07



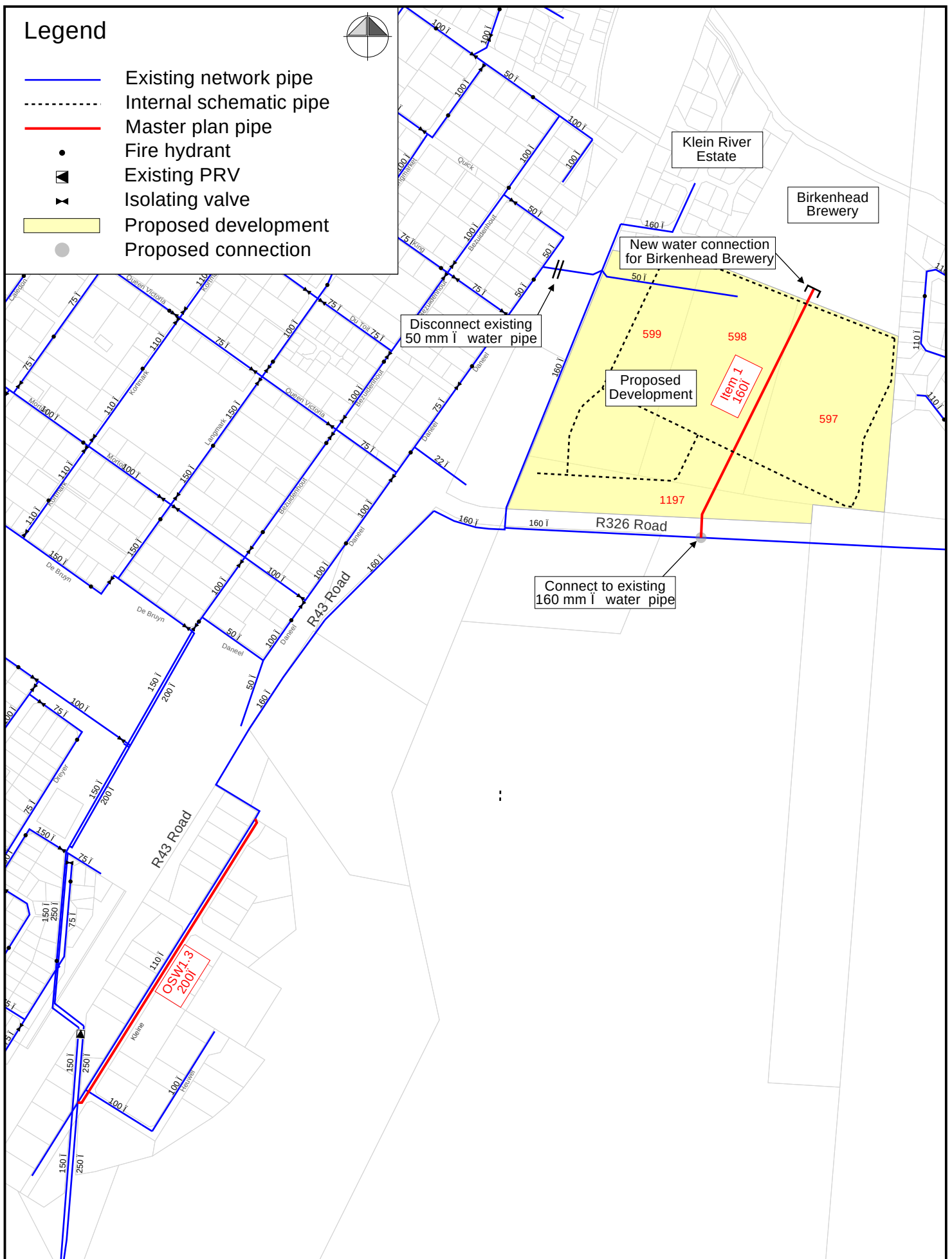
Per: PC DU PLESSIS

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Attention: Mr Richard Kotzé

Legend

- Existing network pipe
- - - Internal schematic pipe
- Master plan pipe
- Fire hydrant
- ▣ Existing PRV
- ⋈ Isolating valve
- Proposed development
- Proposed connection



Legend

- Existing network pipe
- - - Existing rising main
- - - Internal schematic pipe
- Existing pump stations
- Master plan pipe
- Proposed development
- Proposed connection

