

22 June 2025

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

**Attention: Mr Dennis Hendriks**

Dear Sir,

**PROPOSED DEVELOPMENT ON ERVEN 1469, 1470, 1471, 1473 & 1479, KLEINBAAI:  
CAPACITY ANALYSIS OF THE BULK WATER AND SEWER SERVICES**

The request by Mr Richard Kotzé of WRAP Town Planning & Project Management for GLS Consulting (Pty) Ltd (GS) to investigate and comment on the bulk water supply and sewer discharge of the proposed development (residential development on erven 1469, 1470, 1471, 1473 & 1479, Kleinbaai), 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 area GG17, which includes the proposed development area, was conceptually taken into consideration for the master planning of the water and sewer networks.

**1. WATER DISTRIBUTION SYSTEM**

*1.1 Distribution zone*

The master plan indicated that the proposed development should be accommodated in the existing Kleinbaai reservoir distribution zone. The connection to the existing system should be done on the existing 160 mm diameter pipeline in Bosbok Street, 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 1469, 1470, 1471, 1473 & 1479 in Kleinbaai (portion of future development area GG17 in the June 2021 water master plan) of 171,0 kL/d.

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For this re-analysis, the AADD and fire flows for the proposed development were calculated as follows:

• 80 Single residential erven @ 1,0 kL/d/unit <sup>(1)</sup>	=	80,0 kL/d
• 43 Group housing units @ 0,6 L/d/unit <sup>(1)</sup>	=	<u>25,8 kL/d</u>
Total	=	105,8 kL/d

<sup>(1)</sup> 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 @ 10 m
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### 1.3 Present situation

#### 1.3.1 Network conveyance

The existing Kleinbaai reservoir water network has sufficient capacity to accommodate the proposed development on erven 1469, 1470, 1471, 1473 & 1479 to comply with the pressure and fire flow criteria as set out in the water master plan.

It is, however, proposed in the water master plan for Kleinbaai that a new “ring main” (master plan items OGW3.2 & OGW3.3) is implemented for Kleinbaai to accommodate the proposed future development areas on erven 1201, 1222 to 1229 and 1478 (to the west of the proposed development and to the south of Dyer Street), as well as the proposed development on erven 1469, 1470, 1471, 1473 & 1479.

It is therefore proposed that link services item OGW3.3 is constructed along the entire eastern and northern boundary of the proposed development to form the first section of the proposed “ring main” for Kleinbaai:

#### Link services:

- OGW3.3: 730 m x 160 mm Ø New supply pipe R 1 248 000 \*

(\* 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 Figures 1 & 2, but has to be finalised subsequent to a detailed pipeline route investigation.

#### 1.3.2 Bulk supply system

The Kleinbaai reservoirs are supplied with bulk water from the Franskraal Water Treatment Plant (WTP) in Franskraal.

The existing bulk supply to the Kleinbaai reservoirs has sufficient spare capacity to accommodate the proposed development.

#### 1.3.3 Reservoir storage capacity

The criteria for the 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.

According to the water master plan there is spare capacity in the Kleinbaai reservoir distribution zone for developments with total AADD's up to 173 kL/d. Any additional water demand in the Kleinbaai reservoir zone will result in insufficient storage capacity in the zone.

All the existing erven in Kleinbaai are, however, currently not fully occupied and a portion of the existing Kleinbaai reservoir storage volume should therefore be reserved for development of the existing vacant stands in Kleinbaai.

The water demand of the existing vacant stands in the Kleinbaai reservoir zone is calculated at 422 kL/d. There is thus insufficient spare capacity in the Kleinbaai reservoirs to accommodate development of the existing vacant stands in the Kleinbaai reservoir zone as well as the proposed development.

#### 1.4 *Implementation of the master plan*

The following master plan item will be required to provide additional reservoir storage capacity for the larger Kleinbaai area in order to accommodate the proposed development together with other future development areas:

##### Bulk supply

- OGW.B11 : New 3,5 ML Kleinbaai reservoir R 18 274 000 \*

(\* 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).

#### 1.5 *Minimum items required*

The minimum requirement to accommodate the proposed development in the existing water system is master plan item OGW.B11 to provide sufficient reservoir storage capacity.

It is, however, recommended that the first section of the proposed “ring main” (link services item OGW3.3; refer to section 1.3.1) is constructed along the entire eastern and northern boundary of the proposed development.

## 2. SEWER NETWORK

### 2.1 Drainage area

Kleinbaai is currently not serviced by a formal sewer reticulation system, except for 3 small areas in Kleinbaai which gravitate to conservancy tanks. It is proposed that the internal sewer system for the proposed development area gravitates towards one of these drainage areas located to the south of the development, i.e. the "Kleinbaai Conservancy Tank no. K3" drainage area.

Sewage from the conservancy tanks is pumped out and transported to the Gansbaai Wastewater Treatment Plant (WWTP) via municipal sewage trucks.

Provision is, however, made in the planning of the sewer master plan to service Kleinbaai with a full waterborne sanitation system. As part of the sewer master plan for Kleinbaai, a new bulk sewer pumping station (PS) is proposed for the larger area at the intersection of Lord Roberts, Dyer and Van Dyk Streets, that discharges directly at the Gansbaai WWTP via a new 355 mm diameter rising main. New infrastructure is proposed in the sewer master plan to decommission the existing conservancy tanks and re-direct sewage flows from the conservancy tanks to the proposed bulk PS for the larger drainage area.

It is proposed that the sewage from the proposed development is ultimately connected to this proposed bulk sewer PS. In the interim (before the bulk PS, accompanying rising main and bulk infrastructure from conservancy tank no. K3 to the bulk PS are constructed), it is proposed that the development is accommodated within the drainage area of Conservancy Tanks no. K3.

The proposed development is situated inside the sewer priority area.

### 2.2 Sewer flow

The original sewer analysis for the master plan was performed with a total peak day dry weather flow (PDDWF) for the proposed development area (portion of future development area GG17 in the June 2021 sewer master plan) of 110,1 kL/d.

For this re-analysis, the PDDWF for the proposed development was calculated as 66,1 kL/d.

### 2.3 Present situation

There is sufficient capacity in the sewer reticulation system if the Conservancy Tank no. K3 drainage area to accommodate the proposed development.

The following link services item will, however, be required to connect the internal reticulation network of the proposed development to the existing sewer system.

#### Link services:

- Item 1: 110 m x 160 mm Ø New outfall sewer R 432 000 \*

(\* 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 3, but has to be finalised subsequent to a detailed pipeline route investigation.

Note: No detailed information regarding the topography of the development area was available to determine if it will be possible for the total development area to gravitate towards the existing sewer network of the Conservancy Tank no. K3 drainage area. A high level analysis has indicated that the development area will be able to gravitate to the existing Kleinbaai sewer network, but a detailed design

of the internal sewer system for the development area should be performed first to determine this.

#### 2.4 Implementation of the master plan

In the sewer master plan for Kleinbaai a new bulk sewer PS is proposed for the Kleinbaai, Franskraal, Romansbaai and Birkenhead areas at the intersection of Lord Roberts, Dyer and Van Dyk Streets, that discharges directly at the Gansbaai WWTP via a new 355 mm diameter rising main.

It is proposed that sewage from the existing conservancy tanks in Kleinbaai is re-directed to this bulk PS once implemented.

The master plan items required to decommission the existing conservancy tanks in Kleinbaai, re-direct sewage from the conservancy tanks to the proposed bulk PS for the larger area and implement the bulk PS and accompanying rising main for Kleinbaai, are listed below and shown in Figure 4 attached:

##### Bulk sewer infrastructure: (Kleinbaai bulk PS & rising main)

• OGS.B1	: New 140 L/s Kleinbaai Main PS	R	7 745 000 *
• OGS.B2	: 2 240 m x 355 mm Ø new rising main	R	<u>10 918 000 *</u>
	Sub-total	R	18 663 000 *

##### Bulk sewer infrastructure: (Decommission conservancy tanks and re-direct to bulk PS)

• OGS14.2	: 266 m x 160 mm Ø new gravity main	R	737 000 *
• OGS14.3	: New 15 L/s Kleinbaai PS 1	R	2 717 000 *
• OGS14.4	: 347 m x 160 mm Ø new rising main	R	581 000 *
• OGS15.2	: 1 155 m x 160 mm Ø new gravity main	R	3 015 000 *
• OGS15.3a	: 131 m x 250 mm Ø new gravity main	R	513 000 *
• OGS15.3b	: 6 m x 355 mm Ø new gravity main	R	94 000 *
• OGS15.4	: 754 m x 200 mm Ø new gravity main	R	2 253 000 *
• OGS15.5	: 154 m x 160 mm Ø new gravity main	R	450 000 *
• OGS15.7	: 321 m x 250 mm Ø new gravity main	R	1 171 000 *
• OGS15.10	: New 40 L/s Kleinbaai PS 2	R	3 786 000 *
• OGS15.11	: 1 418 m x 250 mm Ø new rising main	R	<u>3 432 000 *</u>
	Sub-total	R	18 749 000 *
	Total	R	37 412 000 *

(\* 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).

Take note that the routes of the proposed pipelines and pump station locations are schematically shown on Figure 4, but have to be finalised subsequent to detailed pipeline route and pump station location investigations.

### 3. CONCLUSION

The developer of the proposed development on erven 1469, 1470, 1471, 1473 & 1479, Kleinbaai 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 sufficient capacity in the existing water reticulation network to accommodate the proposed development to comply with the pressure and fire flow criteria as set out in the master plan.

It is, however, proposed in the water master plan for Kleinbaai that a new "ring main" (master plan items OGW3.2 & OGW3.3) is implemented for Kleinbaai to accommodate the proposed future development areas on erven 1201, 1222 to 1229 and 1478 (to the west of the proposed development and to the south of Dyer Street), as well as the proposed development on erven 1469, 1470, 1471, 1473 & 1479.

It is therefore proposed that link services item OGW3.3 is constructed along the entire eastern and northern boundary of the proposed development to form the first section of the proposed "ring main" for Kleinbaai.

The existing Kleinbaai reservoirs have insufficient storage capacity to accommodate the development of existing vacant stands in the Kleinbaai reservoir zone as well as the proposed development. Master plan item OGW.B11 will be required to provide sufficient reservoir storage capacity at the Kleinbaai reservoir site.

Kleinbaai is currently not serviced by a formal sewer reticulation system, except for 3 small areas in Kleinbaai which gravitate to conservancy tanks. It is proposed that the internal sewer system for the proposed development area gravitates towards one of these drainage areas, i.e. the "Kleinbaai Conservancy Tank no. K3" drainage area to the south of the development.

Sewage from the conservancy tanks is pumped out and transported to the Gansbaai Wastewater Treatment Plant (WWTP) via municipal sewage trucks.

There is sufficient capacity in the sewer reticulation system if the Conservancy Tank no. K3 drainage area to accommodate the proposed development. Link services item 1 will however be required to connect the internal sewer reticulation network of the development to the existing sewer system.

In the sewer master plan for Kleinbaai a new bulk sewer PS is proposed for the Kleinbaai, Franskraal, Romansbaai and Birkenhead areas at the intersection of Lord Roberts, Dyer and Van Dyk Streets, that discharges directly at the Gansbaai WWTP via a new 355 mm diameter rising main.

It is proposed that sewage from the existing conservancy tanks in Kleinbaai is re-directed to this bulk PS once implemented.

We trust that you find this of value.

Yours sincerely,

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



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Per: PC DU PLESSIS

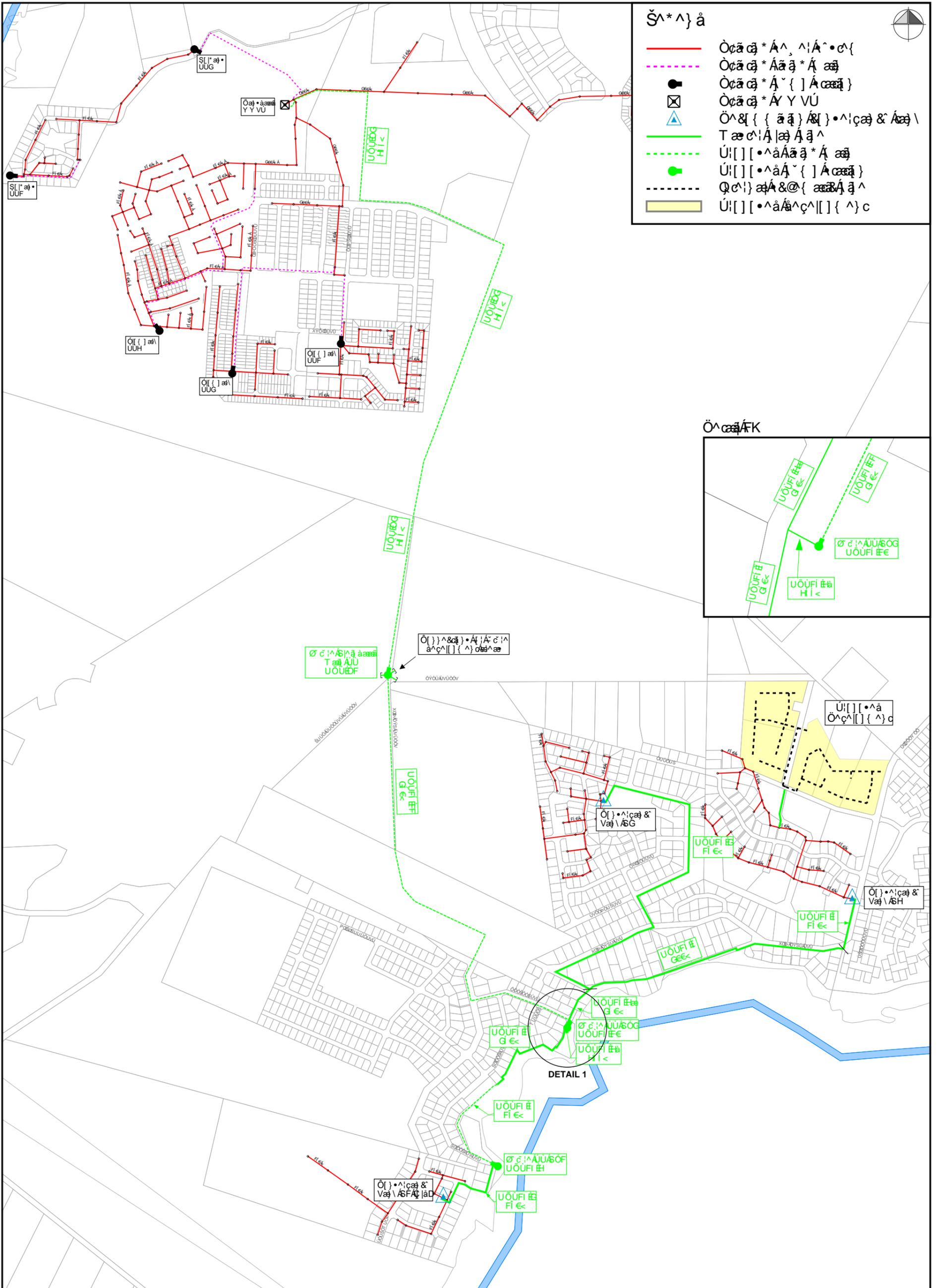
cc. WRAP Project Office Town Planning & Project Management  
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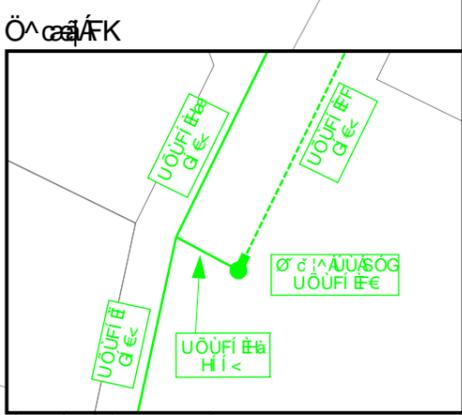






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