Erica Road Preliminary Design

Stormwater Management Report

Final

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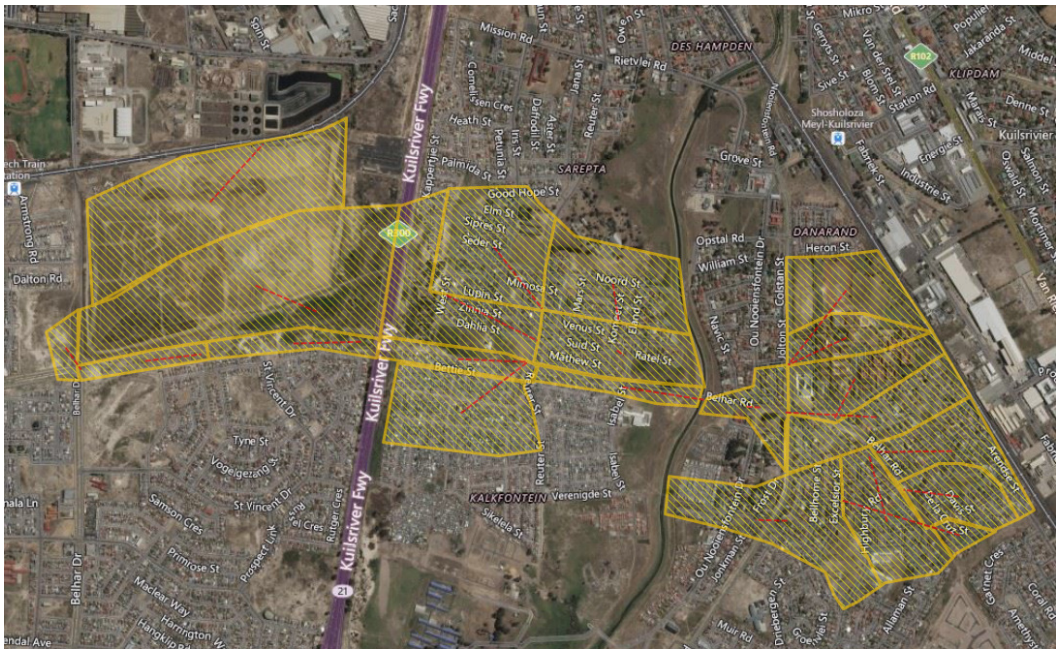
1. Study Area

The study area is shown in the figure below. The extent of this study includes the catchment areas of Erica Road, which is also called Belhar Road in the figure below. The study area extends from Belhar Drive in the west, crosses the R300 freeway (also called the Kuils River Freeway) and the Kuils River and extends to Saxdown Road in the east.

The catchment areas draining towards the road consist mainly of alluvial sandy soils with a high rate of infiltration.



2. Modelling of the Erica Road Catchment System

The PCSWMM stormwater modelling software was used to determine the stormwater attenuation requirements based on the available stormwater systems in the vicinity of this development.

2.1 Modeling Parameters

The following hydrological data was used in the model and the system was modelled for the 100 year storm events.

Storm type: SCS Type 1

Rainfall data was obtained from the City of Cape Town Rainfall Grid for the position 33 deg 56 mins; 18 deg 40 mins. The following table shows the 24 hr rainfall used in the PCSWMM model:

Rec period (yrs)	1440 min (mm)
2	45.9
5	61.6
10	73.0
20	85.0
50	101.7
100	115.3
200	130.0

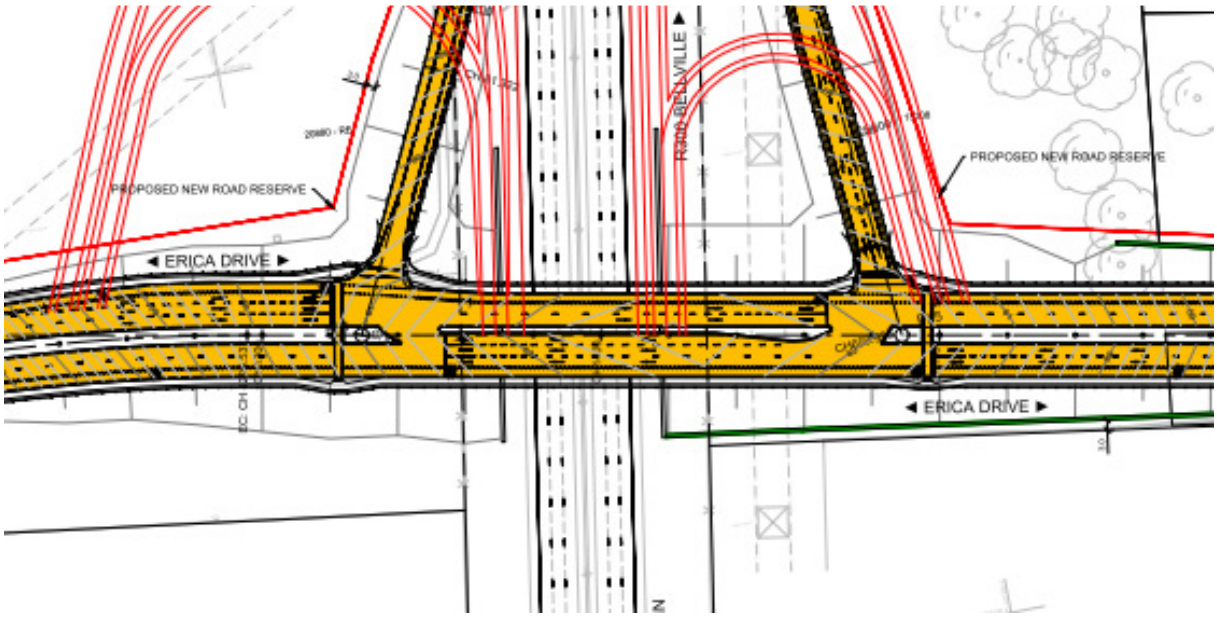
2.2 Modelling the Existing Stormwater System

Rough estimates were made of the volumes of the existing detention ponds and these were introduced into the model.

2.3 Proposed SUDS Applications

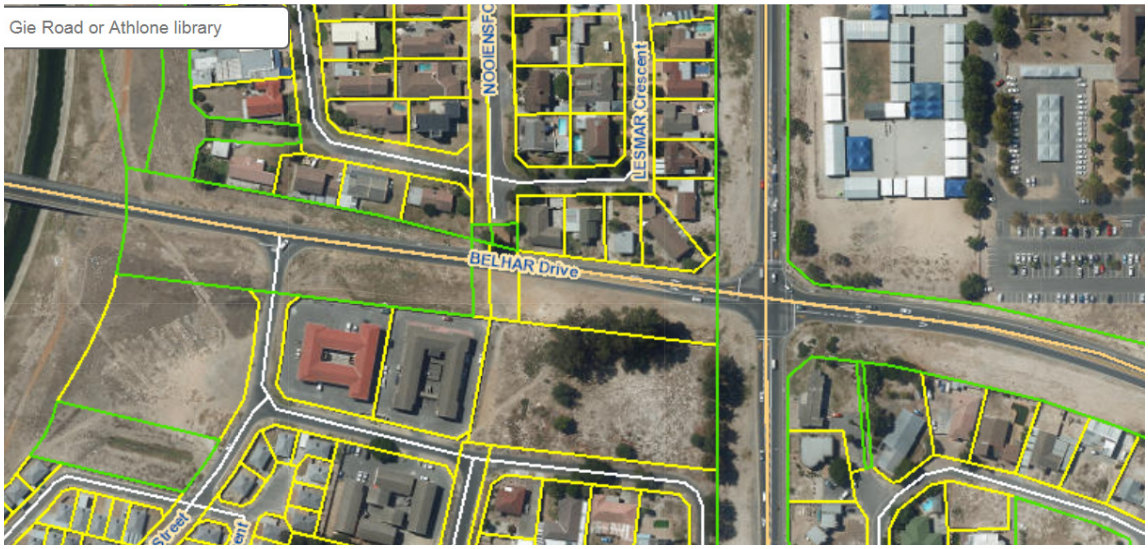
Certain areas were identified as possible opportunities for the implementation of the SUDS requirements of the city as well as for wetland compensation. These include:

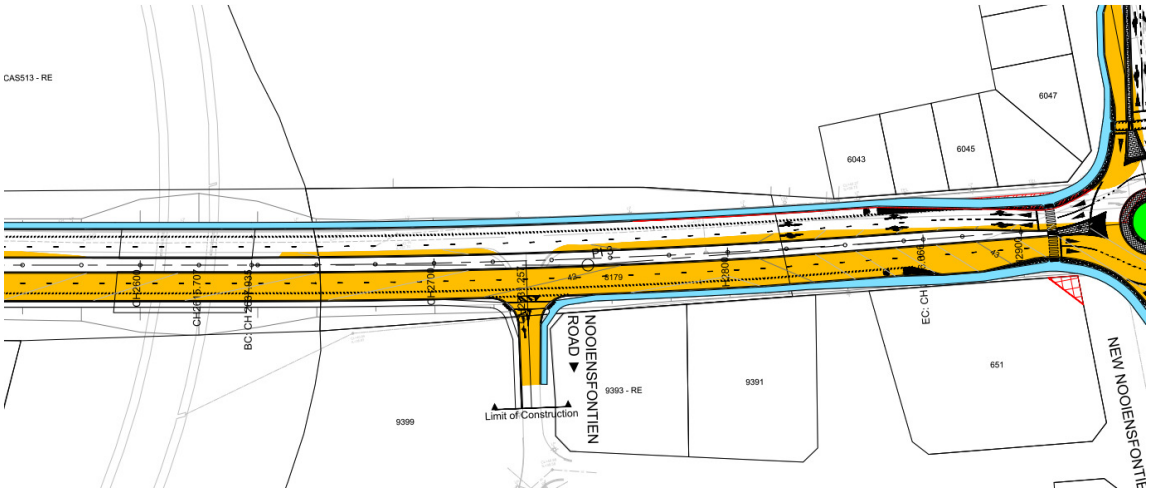
1. Possible ponds / bioretention ponds within the clover leaf intersections



2. Possible ponds/swales/wetlands between Dassie Street and Erica Road

3. Possible swales and bioretention ponds on the eastern side of the Kuils River.





The dueling of the road east of the Kuils River will provide very little opportunity for wetlands / bio-retention ponds.

2.4 Modelling Recurrence Periods

The 5 yr, 10 yr, 20 yr and 50 yr recurrence periods were modelled and the results are shown on drawing TT1224/SW1.

Due to the fact that the stormwater system crosses the R300 freeway and that it forms a major cut-off stormwater system, it is proposed that the pipes are sized for the 50 yr flows and therefore drawing TT1224/SW1 proposes preliminary pipe sizes based on the 50 yr flows. It is assumed that the rest of the 100 yr flows will be accommodated in the road cross section.

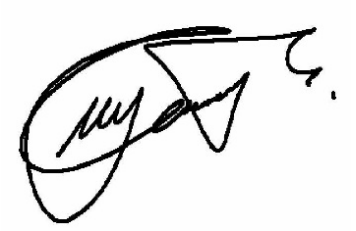
3. Stormwater Management Plan

The stormwater masterplan drawing no TT1224/SW1 is enclosed. This drawing shows the following:

1. The proposed bioretention / attenuation ponds
2. Preliminary pipe sizes
3. Proposed wetland compensation areas

4. Limit of Liability

The liability of Ingerop (Pty) Ltd for any use of the information in this report for any purpose, is limited to the value of the fees paid.



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