CIVIL SERVICES REPORT

FOR

PORTION 76 OF THE FARM UITZICHT No 216

ROADS, STORMWATER, WATER AND SEWER

APRIL 2019

TK1419

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INDEX

Item **Description**

Annexure

1. INTRODUCTION

This report has been prepared by Tuiniqua Consulting Engineers at their Knysna office, who have been appointed by the Developer, Mr Andre Peach, as the Civil Consultants for this project. The purpose of this report is to provide the necessary information on the proposed civil services within this Development and the connections to the bulk infrastructure in the area.

2. LOCATION

The property to be developed is situated on Portion 76 of the Farm Uitzicht No 216. The property is approximately 21 hectares in extent and is undeveloped at this stage. A road reserve runs along the northern boundary, which is not constructed yet. Portion 39 of the Farm Uitzicht No 216 borders on the western side of the property, while Portion 75 of the Farm Uitzicht No 216 is situated on the eastern side of the property.

3. TOPOGRAPHY AND ACCESS

The site slopes towards the ocean and varies in height from 91m to 4m on the southern side over a distance of 640m. Access to the site will need to be provided from the existing road reserve which is connected to the Brenton on Sea access road.

4. SUPPLY AUTHORITY

The supply authority for the area is Knysna Municipality, and therefore their Technical Services Department was consulted on all matters relating to the civil services. A service agreement regarding water, sewerage, storm water management and access will be entered into with the Municipality. If any increase in civil services demand is required, augmentation fees and capital contributions in this regard will be calculated and payable in accordance with Council's policy. Discussions with the municipality however indicated water and sewage bulk services are not available and therefor this development should be self-sustainable.

5. BULK SERVICES

5.1 WATER RETICULATION

i. Domestic

In terms of relevant accepted guidelines, the developer will be held responsible for the construction and/or upgrading of bulk services required to service the development. There is no existing bulk water network to service the proposed development. The developer will need to make provision for supply of all potable water.

The development will not be permanent occupied but will be utilized for holiday accommodation. The assumption is made that the units will be occupied for 200 days of the year. The facilities will cater for a maximum of twelve people. Provision need to be made for the following demand; 200l per day/occupant for a total of 200 days = 480kl.

A large percentage of the water demand will be provided for by collecting rainwater. The total roof areas will be 842m^2 and with an average rainfall for the Knysna area of 500mm per year will supply 421kl. The rainwater will only supply in the order of 87% of the demand. Borehole/s will be drilled to make up for the shortfall.

Should the boreholes be equipped with power from on site generators the boreholes can be considered as on-site storage capacity.

The main building will make provision for 110kl rainwater/borehole storage.

ii. Fire

This development is categorized as Low-risk – Group 2: Residential areas (res. zone 1) where the gross floor area of the dwelling house, including outbuildings, is generally likely to vary between 100m^2 and 200m^2; according to "Guidelines for Human Settlement Planning and Design".

The pool with a capacity of 160kl will be the main storage capacity for fire extinguishing purposes. Should the boreholes be equipped with power from onsite generators the boreholes can be considered as on-site storage capacity.

5.2 SEWER RETICULATION

Currently there aren't any municipal bulk sewer services available in this area. The Technical Department of Knysna Municipality has been consulted and it was agreed that septic tanks with soakaways may be utilized to manage the effluent.

5.3 ROADS

There is an existing road network servicing this area, all roads leading to the road reserve are tarred and of good quality. The dirt track along the road reserve will need to be upgraded.

5.4 STORM WATER

No formal storm water system exists in the immediate vicinity of the development.

6. INTERNAL SERVICES

6.1 OUTLINE SCHEME

The design of the services for the development will be based on the principles contained in the Guidelines for Human Settlement Planning and Design published but the Department of Housing and to the Council's requirements for engineering services.

The services will be installed according to SANS 1200 and materials will comply with ISO standards. Internal services will be located in a services duct that will be constructed mainly in the centre of existing paved routes where possible, to cause minimum disruption of root systems of indigenous vegetation.

6.2 WATER RETICULATION

The required demand is 2.4kl/day, assuming occupation will be 200 days of the year. As stated above there is no bulk municipal network available for this development. The development will make provision for 110kl storage for rainwater. Borehole/s will be drilled as an additional water supply. Furthermore, water may be purchased from Knysna Municipality, supplied by water tanker.

We recommend that a water filtration system be installed, to ensure that water is potable at all times. We furthermore propose to install a second reticulation system, for all the toilets. This will reduce the quantity of water that need to be filtered.

Minimum standards:

- Rainwater will be collected from roofs and stored in a storage facility at the main block. A distribution network will be installed to service the four dwelling units next to the main block.
- The borehole water will be tested to ensure it is safe for potable use.
- If required spikes will be installed to assist with the watering of gardens.

6.3 SEWER RETICULATION

The development will utilize septic tanks and soakaways, due to the fact that there is no municipal sewerage network available. Care will be taken when positioning the soakaways in regard to the position of the borehole/s.

Vehicle access to the septic tanks need to be provided, to allow suction of the tank, if and when required.

6.4 INTERNAL ROADS

The development will have one vehicular access on the northern boundary, from the road reserve. All roads inside the property will be private roads consisting of 2.5m strip, reinforced concrete roads. Passing lanes will be provided at suitable intervals. The design methodology will be to have the smallest disturbance footprint possible.

6.5 INTERNAL STORM WATER

The storm water will not be accumulated or concentrated at any point but will be allowed to drain naturally over the sandy surface. Care will be taken when designing the access road to ensure that storm water is properly addressed, according to SUDS principles.

6.6 WASTE MANAGEMENT

Disposal of all waste shall be undertaken by the development to the relevant and appropriate waste sites and recycling centres. The development shall, upon

completion, have a waste management facility. Any green waste as a result of the development will be chipped on-site and/or disposed of at an approved site.

ANNEXURE A

Locality Plan


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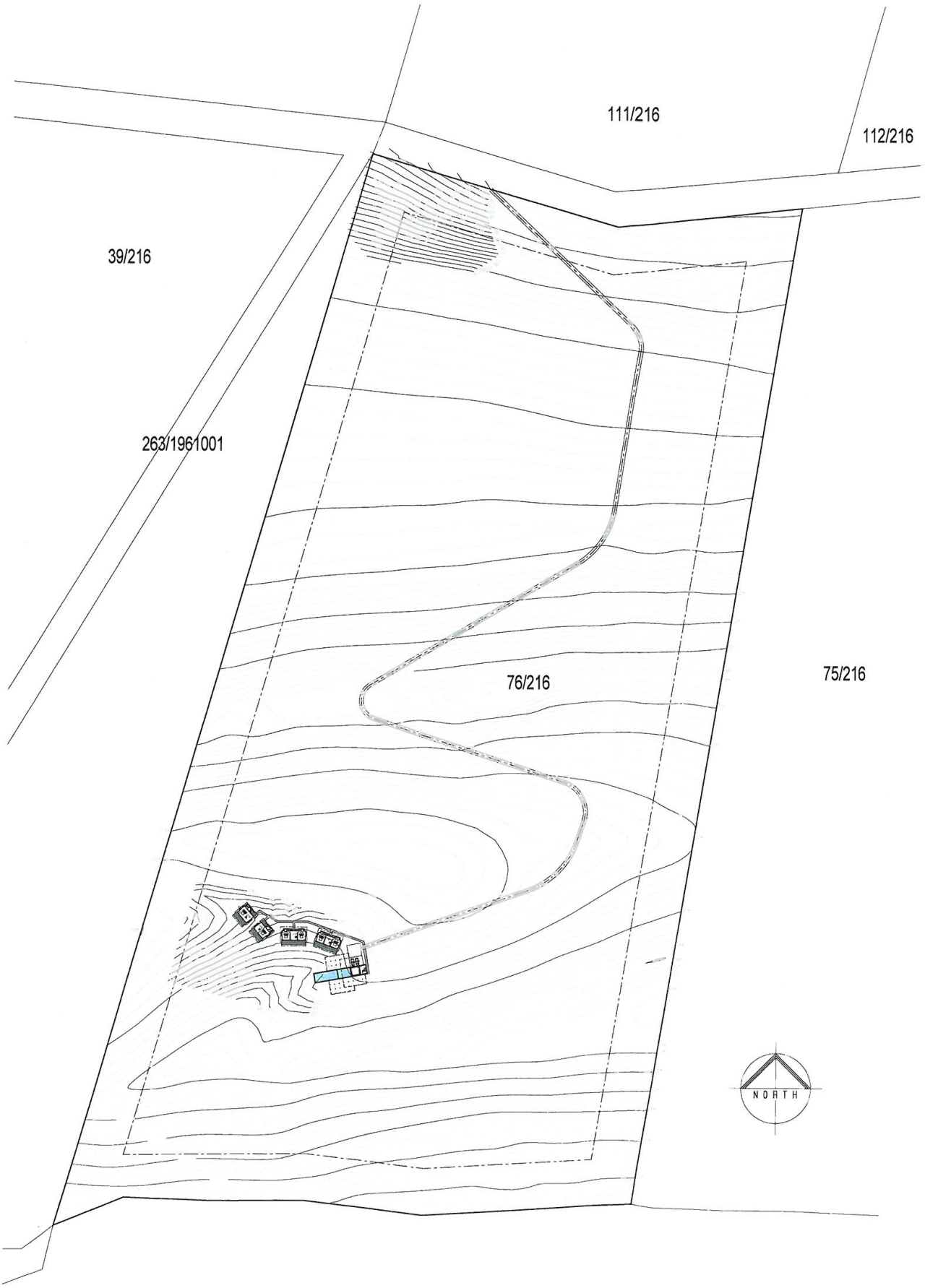
Kanonkop
N
2
QUAY WEST STUDIO A
Belvidere Estate
PTN 76 OF UITZICHT 216
Brenton-on-Sea
Google Earth
Image © 2019 DigitalGlobe
© 2018 Google
Image © 2019 CNES / Airbus
© 2018 AfriGIS (Pty) Ltd.

ANNEXURE B

Layout Plan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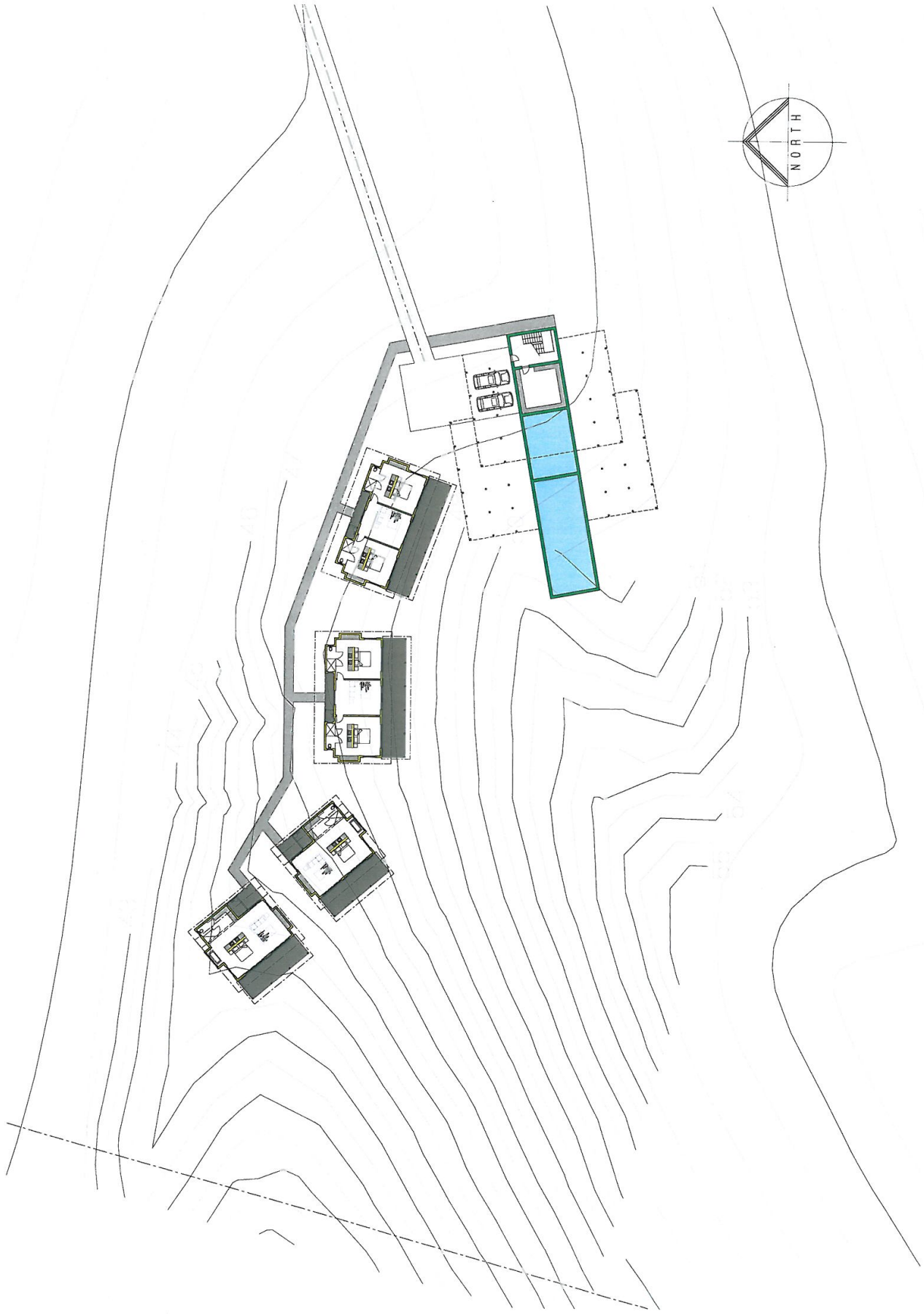
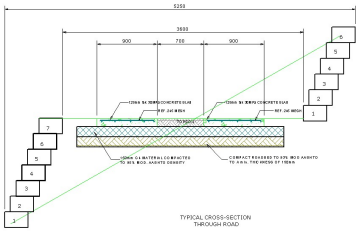
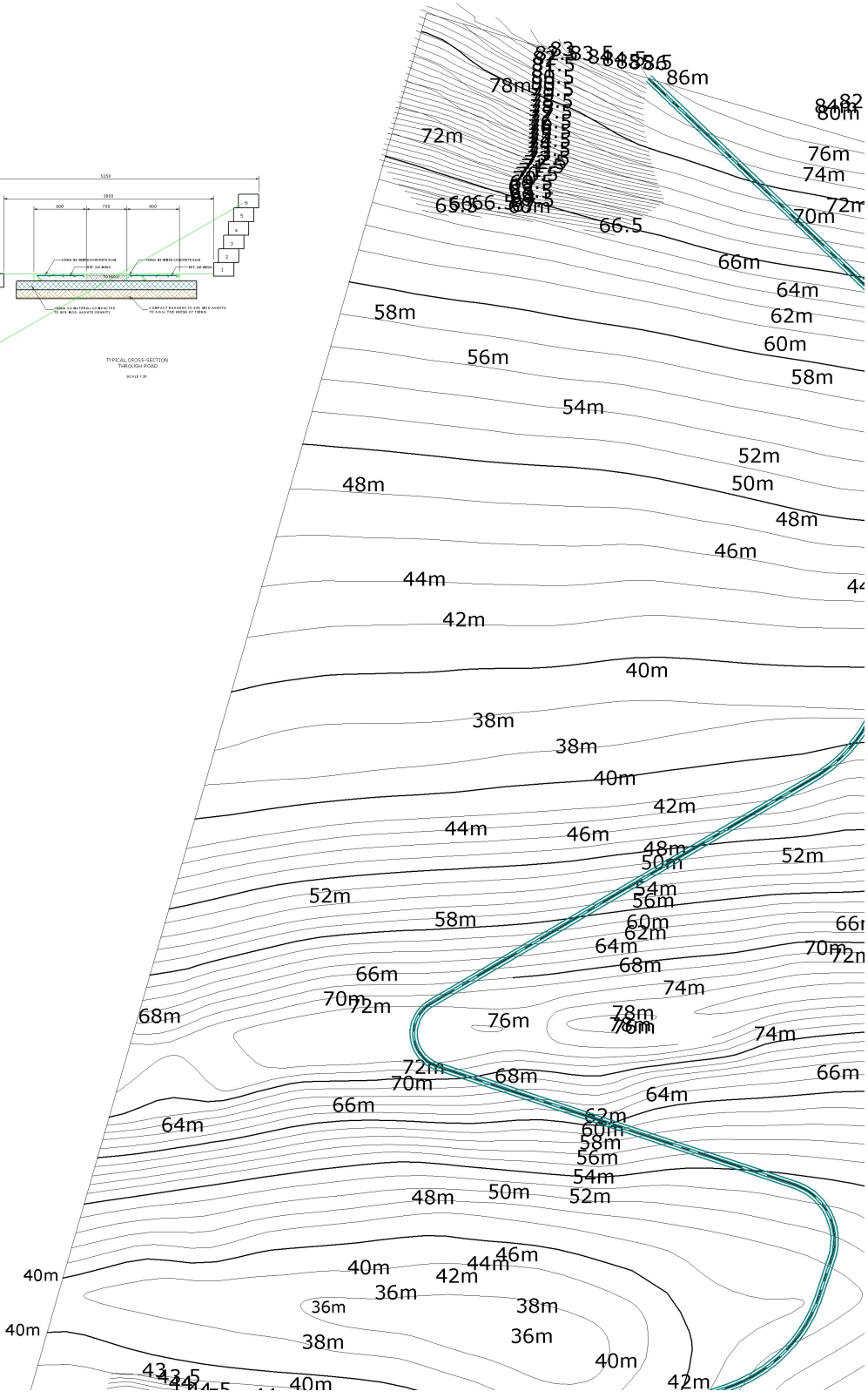
NORTH


NORTH

ANNEXURE C

Proposed Road Layout Drawing


TYPICAL CROSS-SECTION
THROUGH ROAD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