

ESTCOURT STRUCTURES



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Introduction

The Department of Transport (DoT) has appointed Nankhoo Consulting Engineers (NCE) as a consultant for the Estcourt Area. We work hand in hand with the Department to assess, design and implement new projects in the Estcourt Area. These projects play a major role in ensuring the safety of all road users and the communities that utilize these crossings and roads on a daily basis.

NCE have embarked on many projects in and around Estcourt, from bridges and culverts to new road construction and road upgrades.

This article highlights some of the structural projects that are being undertaken by the Nankhoo Consulting Engineers team.



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The Construction of the Bloukrans River Bridge no. 3915 (Majola) on Local Road 2135

The existing structure over the Bloukrans River on L2135 is an unvented concrete drift which is incapable of accommodating the high flow rates experienced at this site. The structure is overtopped when heavy rainfall is experienced on site and hence the river cannot be crossed. The Nankhoo team visited the site in order to assess the current situation and develop a plan of action to replace the drift with a new structure. Due to the flow rates and wide flow area of the Bloukrans River, the most feasible design was a low-level bridge. A cast insitu low-level bridge would be able to accommodate the 10 year flood event and safely transport vehicles and pedestrians over the river.



EXISTING DRIFT STRUCTURE ON L2135



Construction of the Bloukrans River Bridge no. 3897 on L3119 (Madondo)

The existing structure crossing the Bloukrans River on L3119 has been severely damaged and inaccessible due to the approach being eroded. During flooding events the structure loses its primary function thereby resulting in vehicles and pedestrians trying to cross the river at a high risk of injury.

Nankhoo Consulting Engineers are in the process of designing a low-level bridge that will ensure the safety of the road users and the surrounding communities.



SITE OF PROPOSED NEW BRIDGE CONSTRUCTION



EXISTING DAMAGED DRIFT



Construction of a Low Level Bridge on Local Road 311 (L311)

INSPECTION OF FAILED STRUCTURE ON L311



EROSION OF EXISTING DRIFT STRUCTURE

An unvented drift structure was constructed on L311 to allow travel over a tributary to the Gongolo River. The structure was severely damaged due to a flood event in April 2019. Events of this magnitude will test the limits of a structure and pose a high threat to any vehicle or pedestrian who attempts to cross the river. Lives have been lost due to people trying to cross a structure that could not accommodate the nature of the river. Bridge construction not only provides a means to cross a river from point A to B, but provides safety to the people who use them, allowing the users peace of mind when doing so. The projects that are designed by Nankhoo Consulting Engineers are done with the main focus of ensuring safety to the people whilst providing a cost effective and quality design that we can be proud of.

The construction that brings the designs to life focus not only on providing safe access but on creating jobs for locals. The training that is done during construction teaches people skills that can be used to develop themselves and provide for their families. Not only do local residents benefit from the training but emerging contractors are also exposed to the training and experience from the main contractors and are allowed to share in the work and rewards of these projects.

Other Sites

MAIN ROAD 280 (P280) KM5.0

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Downstream from Pipe Culvert



Upstream of Pipe Culverts



Existing Pipe Culverts on P280

The pipe culvert structure at this location has been inefficient in containing larger flow rates as these pipes get block by debris that get washed downstream. Due to this factor and the characteristics of the site the best option would be to replace this structure with a reinforced concrete bridge. A bridge will allow debris from the upstream to pass through without blocking the river flow and hindering the effectiveness of the structure.

Other Sites

MAIN ROAD 280 (P280) KM21.1



The Idumane River that flows through the existing structure has caused blockage of the pipes thereby reducing the effectiveness of the crossing. Due to this, the crossing will overtop during high flood events. The river is wide and would be able to sweep the area during a high flood event. Therefore, Nankhoo Consulting Engineers has proposed a bridge be constructed at this location to mitigate against floods that would otherwise overwhelm the existing structure and put people in danger of possibly losing their lives.



Blocked pipe culverts on the upstream side



Approach to existing pipe culverts

Nankhoo Consulting Engineers strive to provide the most cost-effective solutions without compromising on the safety of the people. It is our job to aid and assist where we can, to provide solutions to make the lives of the people easier and safer.