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## Executive Summary

### Draft Basic Assessment Report: Proposed Rehabilitation of the N10 Section 4 between Cradock and Knutsford

#### 1 Introduction

The proposed Project consists of the rehabilitation of the N10 Section 4 (N10/S4) between Cradock and Knutsford, in the Inxuba Yethemba Local Municipality in the Eastern Cape to provide a 20 year design life and to bring it up to National Roads Standards.

In terms of the National Environmental Management Act 107 of 1998 (NEMA), as amended, and the Environmental Impact Assessment (EIA) Regulations, 2010, a Basic Assessment (BA) must be undertaken for the proposed rehabilitation proposed by the South African National Roads Agency SOC Ltd (SANRAL).

SRK Consulting has been appointed by SANRAL as the independent consultants to assess the environmental impacts in terms of NEMA, and the EIA Regulations, 2010, for the proposed rehabilitation of the N10/S4.

#### 2 Purpose and Structure of the Basic Assessment Report

The NEMA EIA Regulations were promulgated to put into practice the environmental management principles espoused in the Act. The Basic Assessment Report (BAR) provides the competent authority, in this case the Department of Environmental Affairs (DEA) with all relevant information about the proposed activity, as well as an assessment of the potential environmental and social impacts to inform the decision as to whether the activity should be approved and, if so, under what conditions.

The BAR comprises three sections, two of which – Sections 2 and 3 – are mandatory in terms of the requirements for a Basic Assessment. The remaining section is intended to provide additional contextual information in support of the application and to make the report more readable to the public.

The report contains the following sections:

##### Section 1: Summary Report

Section 1 provides an introduction to the Project, provides descriptions of the approach to the Basic Assessment (BA) process and the proposed activity and the concept alternatives considered. It also details the public consultation process undertaken during the BA process, the key findings and recommendations and the way forward. In effect this section provides a summary of key elements of the BA.

##### Section 2 DEA Basic Assessment Application Forms

Section 2 of the report contains the completed BA application form, the specialist declaration forms as well as the Environmental Assessment Practitioner application form, as prescribed by the Department of Environmental Affairs (DEA). The BA application is submitted as the formal application for environmental authorisation under the NEMA EIA regulations.

##### Section 3 DEA Draft BAR Form

Section 3 contains the completed Draft BAR form, as prescribed by DEA, submitted in support of the application for environmental authorisation of the activity under the NEMA EIA regulations. Section 3 also contains the Appendices as required by the BAR.

#### 3 Approach to the Basic Assessment

The EIA Regulations contained in Government Notice R 544 of August 2010 list activities which require that a Basic Assessment process be followed prior to their commencement. The proponent must therefore obtain authorisation for the proposed activity from the designated competent authority. As this project includes work on a

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National Road, this relevant authority would be DEA (National Department).

The proposed activities fall within the ambit of various activities listed in Government Notice R 544. For this reason, not all the relevant activities will be listed here. The main activity related to the proposed construction activities, listed under the NEMA EIA Regulations (GNR 544) as requiring a Basic Assessment, is the following:

- 47) *The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre;*
- i) where the existing reserve is wider than 13.5 m; or*
  - ii) where no reserve exists, where the existing road is wider than 8 metres -*
- excluding widening or lengthening occurring inside urban areas.*

The first step in the BA process is the submission of an Application Form for the proposed activity to the competent authority. The Application Form was submitted to DEA on 22 March 2012. The reference number assigned to the project by DEA is 14/12/16/3/3/1/522.

The second step entails the assessment of the activity and the production of a BAR (see Section 3 of Draft BAR) and Draft Environmental Management Programme for public comment. Issues and concerns raised by the public in response to a Background Information Document (BID) informed the Draft BAR. Concerns raised on the Draft BAR will inform the Final BAR which, together with the prescribed Comments and Responses Report, will be submitted to DEA for a decision.

A typical BA process is depicted in figure S-1.

#### 4 Prescribed Requirements for the Basic Assessment

The BAR provides information about the proposed activity, a description of the affected environment (including ecological, land use and socio-economic aspects), the public consultation process undertaken, and a basic assessment of the potential impacts of the activity on the receiving environment (including social impacts).

Several appendices to the BAR are required as supporting documentation. These include:

- Site plans such as a locality plan (Appendix A) and photographs (Appendix B);
- Facility illustrations (Appendix C);
- Any specialist reports that were undertaken during the BA process (i.e. Archaeology and Palaeontology reports under Appendix D);
- A Comments and Responses Report resulting from the public consultation process (Appendix E); and
- A Draft Environmental Management Programme (Appendix F).

This information is contained in Section 3 of the DBAR.

#### 5 Site Location and Surroundings

The proposed rehabilitation of the N10/S4 is between Cradock and Knutsford. The project commences at km 1.6 of the road, in the Cradock Industrial Area and extends to km 29 at Farm Heffortuin 66 (at the Knutsford T-junction). The activities will take place within the existing road reserve (approximately 32 m). The locality plan of the proposed project is included as Figure S-2.

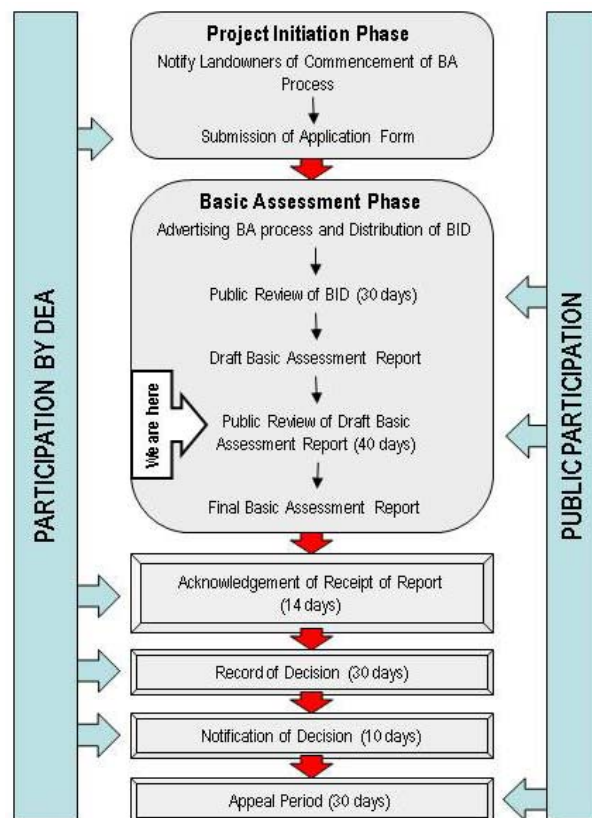


Figure S-1: Typical Basic Assessment Process

### 6 The Proposed Development

The existing N10 consists of a surfaced carriageway about 7.4 m wide flanked by surfaced shoulders each 2.2 m wide making the road prism width about 11.8 m. The road reserve is generally about 32 m wide.

The existing in-situ base of the road prism will be re-worked and stabilized and a new 150 mm thick base layer will be added followed by a Cape Seal surfacing premix. The existing base layer and surfacing will be crushed and new material added to provide a rehabilitated cement stabilised sub-base layer. The base layers will be added over the sub-base layer using crushed stone material imported from a commercial source, probably at Cradock.

In addition to the road rehabilitation, the following is proposed:

- Geometric improvements to two intersections (i.e. the turnoff to Correctional services located approximately 2 km outside of Cradock, as well as the R61 turnoff to Graaff-Reinet, located approximately 5 km outside of Cradock);
- Lengthening of an existing climbing lane located just outside of Cradock by approximately 1.4 km (between km 1.8 and km 3.2) on the left hand side of the road when travelling from Cradock towards Graaff-Reinet. An existing picnic spot will be removed as the existing road will be widened by approximately 4 m which will extend into the area where the picnic spot is located. The establishment of this climbing lane will also require cutting back of approximately 1 m of a road cutting;
- Establishment of an agricultural underpass (with associated fill embankment, drainage infrastructure and temporary deviation) at km 24.36, requiring elevation of the road by approximately 2 m. For this, a substantial volume of sub-base material, and therefore two borrow pits will be required. An Application will be

submitted to the Department of Mineral Resources for the development of these borrow pits;

- The tie in of the agricultural temporary deviation road at km 24.6 will be designed in such a way that a formal access onto the N10 will be left in place to serve the farmer in recognition of road safety;
- Extension of some culverts at selected points;
- Establishment of guardrails at selected points;
- Establishment of lined side drains adjacent to the road at selected points; and
- Establishment of edge restraints at all farm accesses.

No widening or reconstruction of bridges is proposed.

## 6.1 Public Consultation Process

A public participation process aimed at allowing the public to be involved in the environmental decision making process was carried out, and is described in Appendix E of the BAR. The public participation process completed to date includes the following:

- Newspaper advert (Die Burger on 2<sup>nd</sup> April 2012 and The Cradock Courant on the 4<sup>th</sup> of April 2012);
- Circulation of the Background Information Document (from the 4<sup>th</sup> of April);
- On site posters; and
- Public comment period on the BID.

To date, a few environmental concerns have been raised by Interested and Affected Parties and are included in Appendix E of the draft BAR. The Draft BAR is available for public viewing at the Cradock Public Library for a comment period of 40 days (26 June 2012 – 5 August 2012). Comments received will be included in the Final BAR.

## 6.2 Assessment of Potential Environmental Impacts

A number of potential impacts resulting from the proposed development were identified by the project team and specialists. The project alternatives, and most of the identified impacts, were assessed in-house by the Environmental Assessment Practitioner. Archaeological and palaeontological impacts were assessed by external specialists, the reports of which are included in Appendix D of the draft BAR.

Potential impacts were assessed using SRK's impact assessment methodology. The **significance** of an impact is defined and assessed as a combination of the consequence of the impact occurring (based on its extent, intensity and duration) and the probability that the impact will occur.

For potentially significant impacts, the significance of the anticipated impact was rated both with and without recommended mitigation measures. These are presented in Table 1 (refer to section D of the BAR form for further detail on the impacts assessed) which summarises:

- The impacts that were assessed;
- Their significance following the implementation of mitigation measures; and
- The key mitigation measures on which the significance rating is based.

The impact significance rating should be considered by the competent authority in their decision-making process based on the definitions of ratings ascribed below.

- **Insignificant:** the potential impact is negligible and will not have an influence on the decision regarding the proposed activity.
- **Very Low:** the potential impact is very small and should not have any meaningful influence on the decision regarding the proposed activity.
- **Low:** the potential impact may not have any meaningful influence on the decision regarding the proposed activity.
- **Medium:** the potential impact should influence the decision regarding the proposed activity.
- **High:** the potential impact will affect a decision regarding the proposed activity.
- **Very High:** the proposed activity should only be approved under special circumstances.

## 6.3 Evaluation

Key relevant observations with regard to the overall **impact significance ratings**, assuming mitigation measures are effectively implemented, are (refer to Table 1 for relevant mitigation measures):

- **Air quality impacts:** The potential air quality impacts (dust and vehicle emissions) on road users and nearby residents as a result of vegetation clearing for the two intersections and laying of the road pavement sub base layers during construction are considered to be *low (-ve)*, as the impact is only temporary in nature. With mitigation, the significance of these impacts could be reduced to *very low*. The proposed road rehabilitation will not result in additional traffic on the N10 during operation and will not lead to higher overall dust and CO<sub>2</sub> levels in the surroundings areas. The impact of dust and CO<sub>2</sub> emissions on road users during operation was rated to be *insignificant*.
- **Noise impacts:** A *low (-ve)* noise impact is predicted during construction as no blasting is proposed. The noise impact will furthermore be of a temporary nature and will be limited to normal working hours. With mitigation, these impacts could be reduced to *very low*. Since the proposed road rehabilitation will not result in a significant amount of additional traffic on the N10, ambient noise levels in the surroundings areas will remain relatively the same. The impact of noise on road users and nearby residents during the operation phase was rated to be *insignificant*.
- **Sedimentation in nearby rivers:** Clearing of topsoil and vegetation cover during construction may increase soil erosion and sediment in surface stormwater run-off, resulting in sedimentation and elevated turbidity in nearby river channels during floods as well as filling in any remaining pools downstream. The impact of sedimentation in nearby rivers was rated *low (-ve)*, but could be reduced to *insignificant* if mitigation measures are implemented. Unless stormwater drains and culverts collecting runoff in areas adjacent to the rivers are well-designed and adequately maintained during operation, erosion may occur which could result in sediment-laden run-off entering nearby rivers. This impact was rated as *low* and could be reduced to *insignificant* if stormwater designs are properly implemented.
- **Ecological impacts of the road rehabilitation:** With adequate mitigation, the *very low(-ve)* significance rating for the potential loss of habitat due to the removal of vegetation in the road reserve for the widening of the pavement for the intersections, climbing land and agricultural underpass

temporary deviation, is predicted to be *insignificant* for the construction phase;

- **Stormwater and erosion impacts:** Erosion and runoff of stockpiled material for the road rehabilitation and the agricultural underpass embankment could occur if erosion and stormwater control measures are not appropriately implemented. Potential storm water and erosion impacts were rated as *very low (-ve)* and can be reduced to *insignificant* if mitigation measures are implemented. Unless stormwater drains and culverts collecting runoff in areas adjacent to the rivers are well-designed and adequately maintained during operation and rehabilitation sufficiently done, erosion may occur. This impact was rated as *low* and could be reduced to *insignificant* if stormwater designs are properly implemented and rehabilitation of disturbed areas is sufficiently done;
- **Job creation (socio-economic) impact:** The predicted positive socio-economic impact, due to a number of jobs being created (i.e. 90 jobs during construction) is predicted to have a *low* significance rating due to its localised and short-term nature;
- **Palaeontological impacts:** According to the Palaeontological Report, no palaeontological features of significance were observed at the intersections, the climbing lane or the agricultural underpass. The palaeontological impact as a result of construction activities was therefore rated as *insignificant*;
- **Archaeological impacts:** According to the Archaeology Report, no features of archaeological significance were observed at the intersections, the climbing lane or the agricultural underpass. An archaeological stone age occurrence was observed at one point in the road reserve. The archaeological impacts as a result of construction activities associated was therefore rated as *very low* and can be reduced to *insignificant* if the recommended specialist mitigation measures are undertaken;
- **Waste management impacts:** During construction, waste (both construction and domestic) will be generated. Incorrect disposal of construction waste could lead to other visual impacts and loss of natural habitat resulting in a *low (-ve)* negative impact significance. With appropriate mitigation, the significance of this impact could be reduced to *insignificant*;
- **Impacts on services:** Telkom services have been identified within close proximity to the proposed climbing lane extension, the R61 interchange and the agricultural underpass. The potential impact on these services during construction is rated to be of *low* significance and can be reduced to *insignificant* with mitigation;
- **Impacts on traffic flow:** Construction activities on the N10/S4 will likely cause disruption of traffic flow. Stop / Go control will be used to accommodate traffic over the full construction period. It is proposed that three work zones be allowed at any one time and the maximum length of the work zones be limited to 4 km's with a 3 km normal flow in between, to allow traffic to normalize before the next closure. The disruption to traffic flow is rated to have a *medium (-ve)* significance and could be reduced to *low* with mitigation;
- **Impacts on traffic safety / no-go alternative:** General road safety may be compromised during construction as a result of the traffic accommodation measures. The impact that the proposed road rehabilitation may have on traffic safety during construction is rated to be of *low* significance and can be reduced to *insignificant* with appropriate mitigation. General road safety will be improved during operation with the

proposed rehabilitation, to result in a *high* positive impact. With the no-go alternative (no rehabilitation and upgrading), a negative *high* impact on traffic flow and safety is predicted; and

- **Socio-economic impact due to improved road condition / no-go alternative:** The improved road condition would result in easier access through the area, positively affecting the provincial and national economy as this is an important transport route between Cradock and Middelburg as well as port Elizabeth and Johannesburg. Vehicle maintenance costs associated with wear and tear to vehicles would also be reduced because of the improvement of the road surface. The positive socio-economic impact associated with the improvement of the road is *high*. With the no-go alternative (no upgrading), the deteriorating road could result in limited access to the area and increased user costs, which would affect the local and provincial economy and result in a *high* negative impact.

## 6.4 Findings

1. The South African National Roads Agency SOC Limited (SANRAL) has identified a need to rehabilitate the N10 Section 4 (N10/S4) between Cradock and Knutsford.
2. Potential positive impacts as a result of the proposed activity include improved traffic flow and safety, socio-economic benefits associated with the improved condition of the road, and temporary employment opportunities.
3. Potential negative impacts as a result of the proposed activity include possible disturbance to traffic flow, amongst other less significant impacts, can be prevented or managed by implementing the specified mitigation measures.
4. The no-go option is associated with negative impacts on the socio-economic situation, traffic flow and safety and is not considered viable. Therefore, it is environmentally preferred that the N10/S4 is rehabilitated as proposed.
5. Most potential impacts were rated to be insignificant after mitigation.
6. No major environmental or social impacts have been identified that should prevent the project from obtaining environmental authorisation.

## 6.5 Way Forward (IAPs)

The Draft BAR is not a final report and will be amended based on comments received from IAPs. The public participation process has given IAPs the opportunity to assist with identification of issues and potential impacts and provides an additional opportunity to gauge 'public acceptance' of the proposed project. The Draft BAR has been released to IAPs and stakeholders for a 40-day review period as per the requirements of the 2010 NEMA EIA Regulations and is available for public viewing at the Cradock Public Library. This Summary Report is being circulated to all IAPs registered on SRK's database. Should any issues be raised, these will be addressed in the Final Basic Assessment Report.

Interested and Affected Parties are invited to raise comments and / or further issues regarding the Draft BAR and submit their comments in writing to SRK Consulting by **5 August 2012** to:

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Once IAPs have commented on the information presented in the Draft BAR, the Final BAR, accompanied by a Comments and Responses Report, will be submitted to DEA for a decision. The public is therefore urged to submit comments, as these will affect the Final BAR and the decision taken by DEA.

**Table 1: Summary of the potential impacts and key mitigation measures for the proposed rehabilitation of the N10/4**

Potential impact		Key mitigation measures	Significance with mitigation
Air quality during construction	- VE	Dust suppression techniques, such as wetting or covering potential dust sources should be implemented to minimise the dust impact.	VERY LOW
Air quality during operation	- VE	No recommended mitigation measures	INSIGNIFICANT
Noise during construction	- VE	Construction activities should be kept to normal working hours (i.e. 6:00 to 18:00, Monday to Saturday) according to the Noise Control Regulations in terms of the Environmental Conservation Act (Act 73 of 1989).	VERY LOW
Noise during operation	- VE	No recommended mitigation measures	INSIGNIFICANT
Social & Economic (Job creation) during construction	+ VE	As there is a very high unemployment rate in the area, local contractors and labour should be considered for the construction phase. Local labour will be used through facilitation by a Community Liaison Officer.	LOW
Social & Economic (as a result of improved road) during operation	+ VE	No recommended mitigation measures	HIGH
Archaeology during construction	- VE	The Stone Age occurrence located in the road reserve at S 32 01'12.9"; E 25 29'45.3 must be visually clearly demarcated.	INSIGNIFICANT
Palaeontology during construction	- VE	The ECO must be notified to look out for fossil and bones during construction.	INSIGNIFICANT
Ecology impact of the road rehabilitation during construction	- VE	Aloes at the Correctional Services intersection that will be affected must be relocated to a location as agreed to by the relevant owner.	INSIGNIFICANT
Stormwater & Erosion during construction	- VE	Guardrails and concrete side drains shall be provided whenever fills are higher than three metres.	INSIGNIFICANT
Stormwater & Erosion during operation	- VE	Implementation of the well-designed stormwater control measures should prevent the potential impacts described.	INSIGNIFICANT
Sedimentation of nearby rivers during construction	- VE	Sediment-laden run-off from cleared areas should be prevented from entering the river.	INSIGNIFICANT
Sedimentation of nearby rivers during operation	- VE	Implementation of the well-designed stormwater control measures should prevent the potential impacts described.	INSIGNIFICANT
Existing services during construction	- VE	If any incidents happen that result in the disconnection of services, immediate action should be taken to notify the relevant parastatal / owner and to ensure a quick repair / reconnection.	INSIGNIFICANT
Waste management during construction	- VE	Standard waste management practices should be implemented.	INSIGNIFICANT
Traffic flow during construction	- VE	Traffic light control (Stop / Go control) shall be used to accommodate traffic for the full construction period; and Signs should be erected indicating the expected stopping time (10 minutes) and the maximum speed limit in the work areas (60 km/hr).	LOW
Traffic safety during construction	- VE	Motorists travelling in both directions must be warned of the construction works on the road; and Fences damaged due to construction activities should be replaced/ repaired immediately.	INSIGNIFICANT
Traffic flow during operation	+ VE	None	HIGH
Traffic safety during operation	+ VE	None	HIGH
No-go alternative Traffic flow and safety	- VE	N/A	HIGH
No-go alternative Socio-economic	- VE	N/A	HIGH

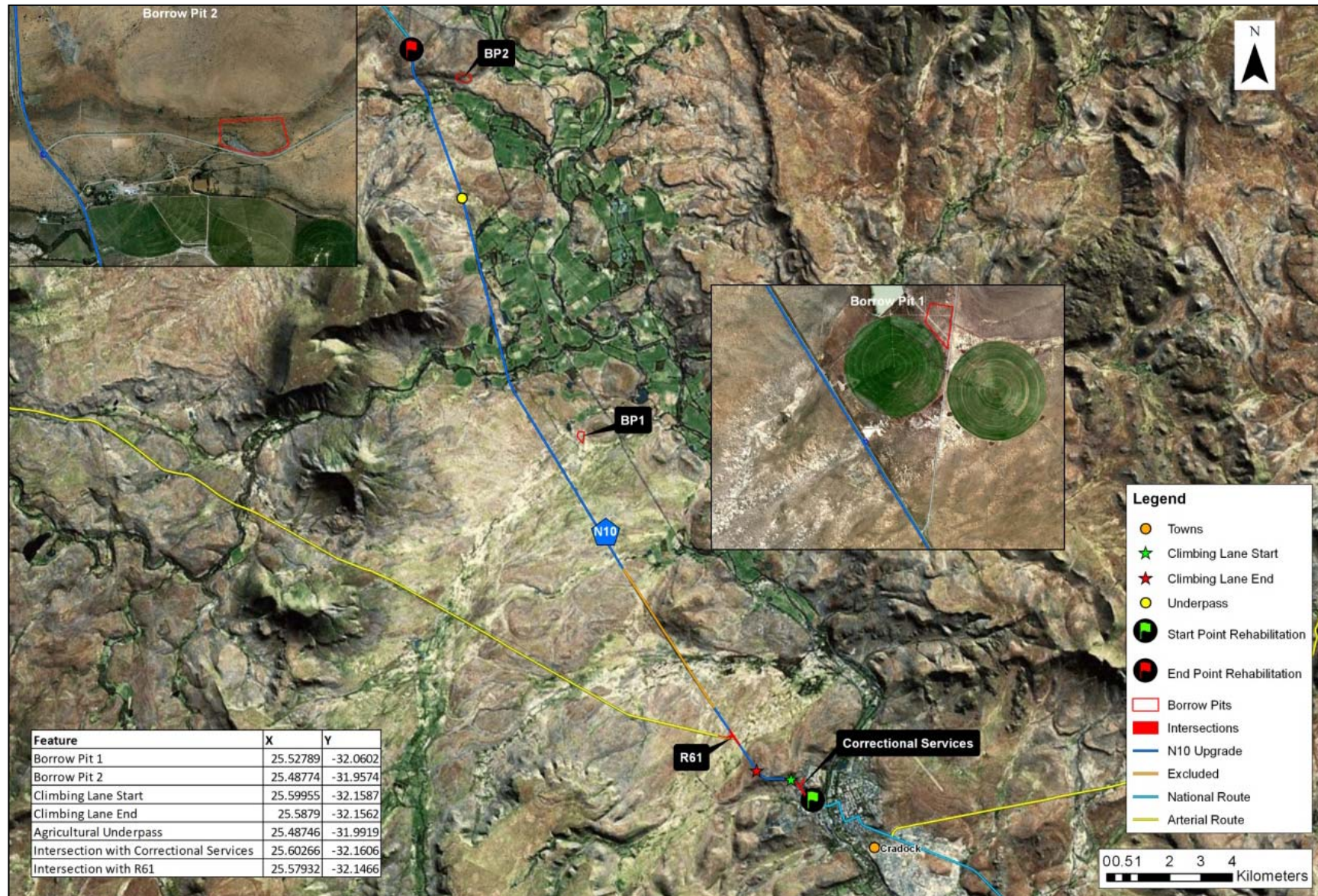


Figure S-2: Locality Plan for the proposed project