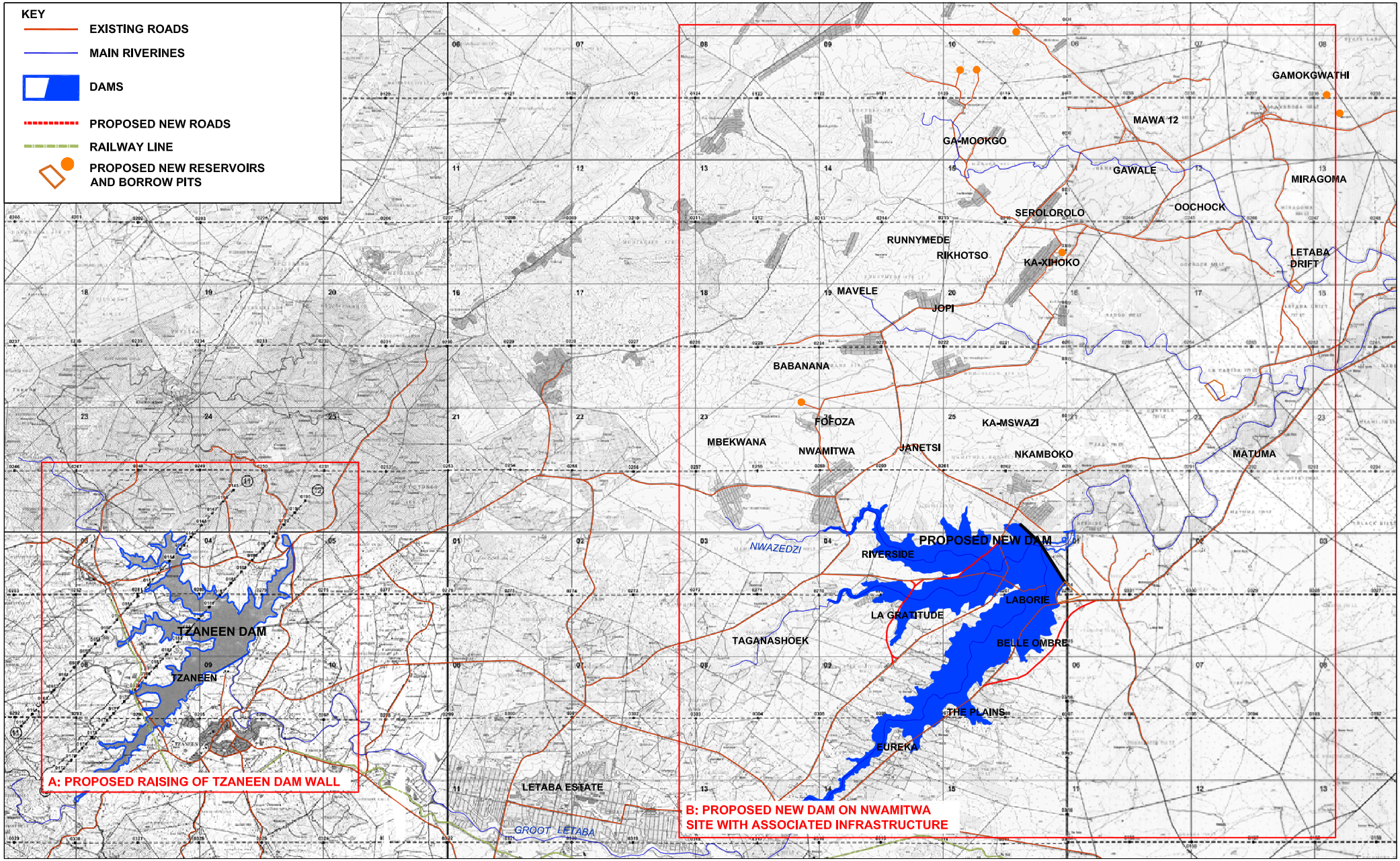

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GROOT LETABA WATER DEVELOPMENT PROJECT

A1

Tzaneen / Nwamitwa: Area of Study

PREPARED FOR:

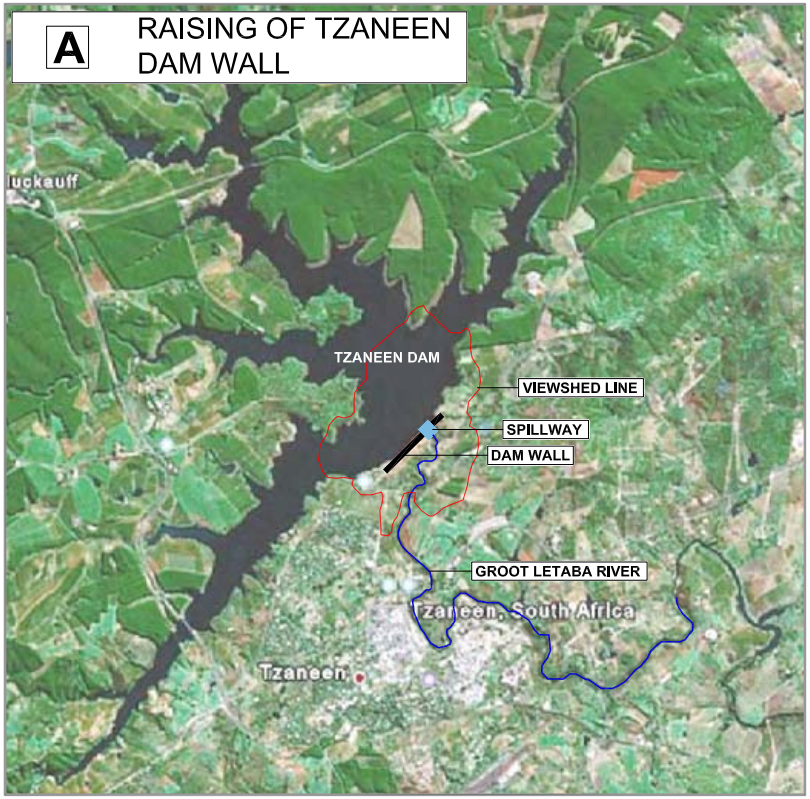
water & forestry
Department: Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

DATE: FEBRUARY 2008

DRWG NO.:

Groot Letaba River
Visual Impact Assessment
Specialist Study

NOT TO SCALE



TZANEEN DAM AS VIEWED FROM SATELLITE

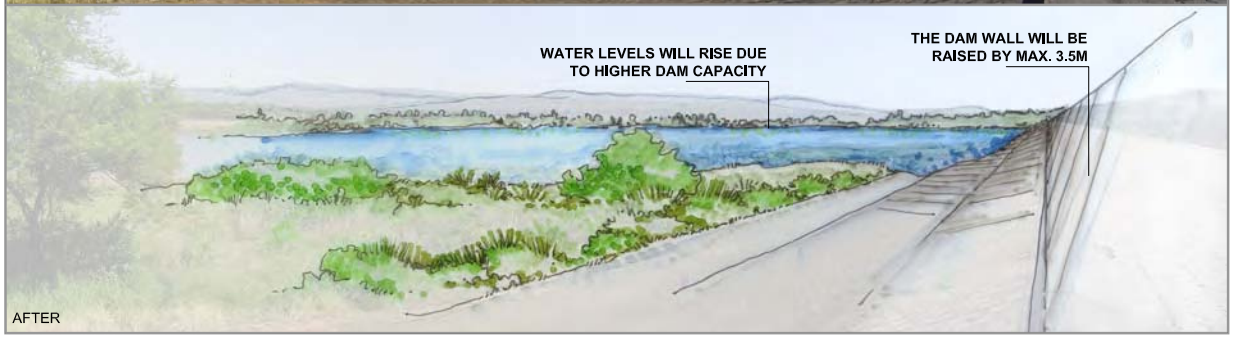
TZANEEN DAM WALL

EXISTING WALL SPILLWAY

VIEW OF EXISTING DAM SPILLWAY FROM BELOW

ARTIST'S IMPRESSION OF RAISED DAM WALL

VISUAL AMENITY IMPACTS		DURING / POST CONSTRUCTION	PREDICTED IMPACT	RECEPTOR SENSITIVITY	SIGNIFICANCE
A	TECHNICAL / ADMINISTRATIVE BUILDINGS OF GOV. WATER WORKS	DURING	ADVERSE	MODERATE	MOD ADVERSE
		POST	NEUTRAL	MODERATE	NEUTRAL
B	SURROUNDING RESIDENTIAL AND RECREATIONAL / TOURISM	DURING	ADVERSE	MODERATE	MOD ADVERSE
		POST	NEUTRAL	MODERATE	NEUTRAL



VIEW FROM THE TOP OF THE DAM WALL

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GROOT LETABA WATER DEVELOPMENT PROJECT

A2

Tzaneen Dam: Raising Dam Wall

PREPARED FOR:

water & forestry
Department: Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

DATE: FEBRUARY 2008

DRWG NO.:

Groot Letaba River
Visual Impact Assessment
Specialist Study

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PHOTO OF ROSS RIVER DAM SPILLWAY BEFORE INSTALLATION OF FUSEGATES

PHOTO OFROSS RIVER DAM SPILLWAY DURING INSTALLATION OF FUSEGATES

ARTIST'S RENDERING OF ROSS RIVER DAM FUSEGATES

UPGRADE OF ROSS RIVER DAM, AUSTRALIA

The key components of the Upgrade to Ross River Dam included:

- Lowering and reshaping the existing spillway and installing dam gates to help control downstream flow and water storage level
- Constructing sand filters and supporting earthfill to the 8 kilometre long embankment
- Providing additional rockwork to the dam embankment to protect it from wave erosion

Upgrade Summary Works

Excavation total = 500,00 m3
Filter material placed = 168,000 m3
Embankment fill placed = 1,200,000 m3
Drainage pipe laid = 9000 m
Concrete total = 6,500 m3

REFERENCE: www.nqwater.com.au

Changes to the spillway included:

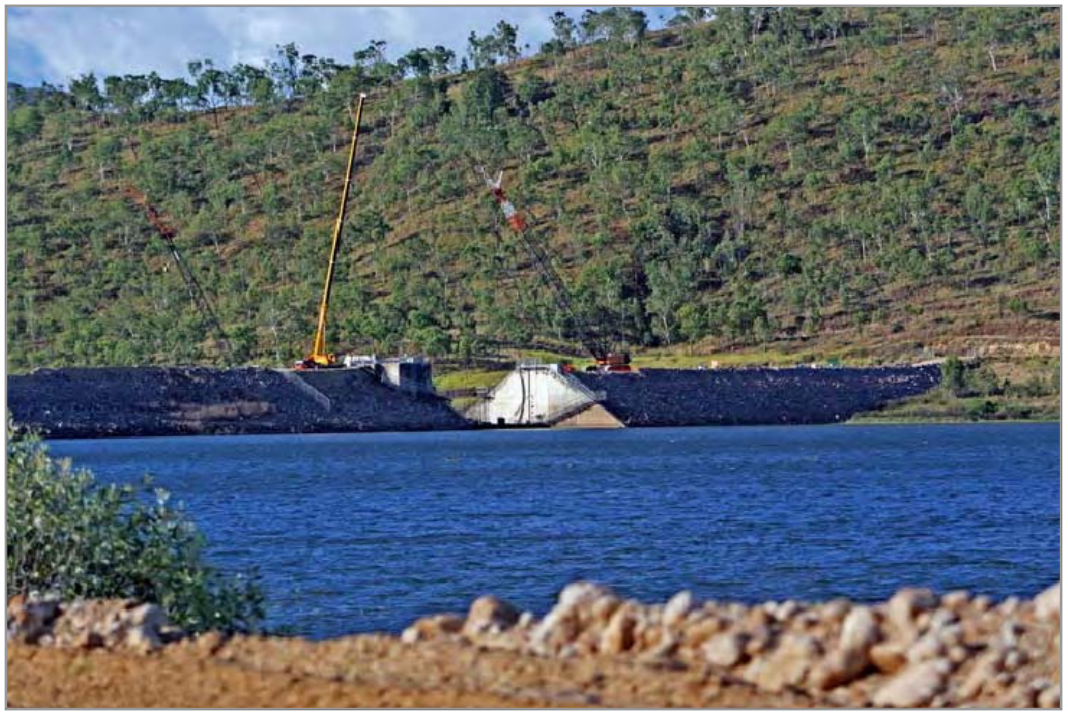
- Concrete strengthening of spillway walls and downstream basin
- New spillway crest shape
- Bridge across spillway
- 3 radial arm gates
- Control building
- Mechanical & electrical systems

VISUAL EXAMPLES OF PROPOSED SPILLWAYS FOR TZANEEN DAM

LABYRINTH SPILLWAY

SIDE-CHANNEL SPILLWAY

FUSEGATES



VIEW FROM ROSS RIVER DAM DURING INSTALLATION OF FUSEGATES

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GROOT LETABA WATER DEVELOPMENT PROJECT

A3

Tzaneen Dam: Raising Dam Wall (Case Study)

PREPARED FOR:

water & forestry
Department: Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

DATE: FEBRUARY 2008

DRWG NO.:

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Visual Impact Assessment
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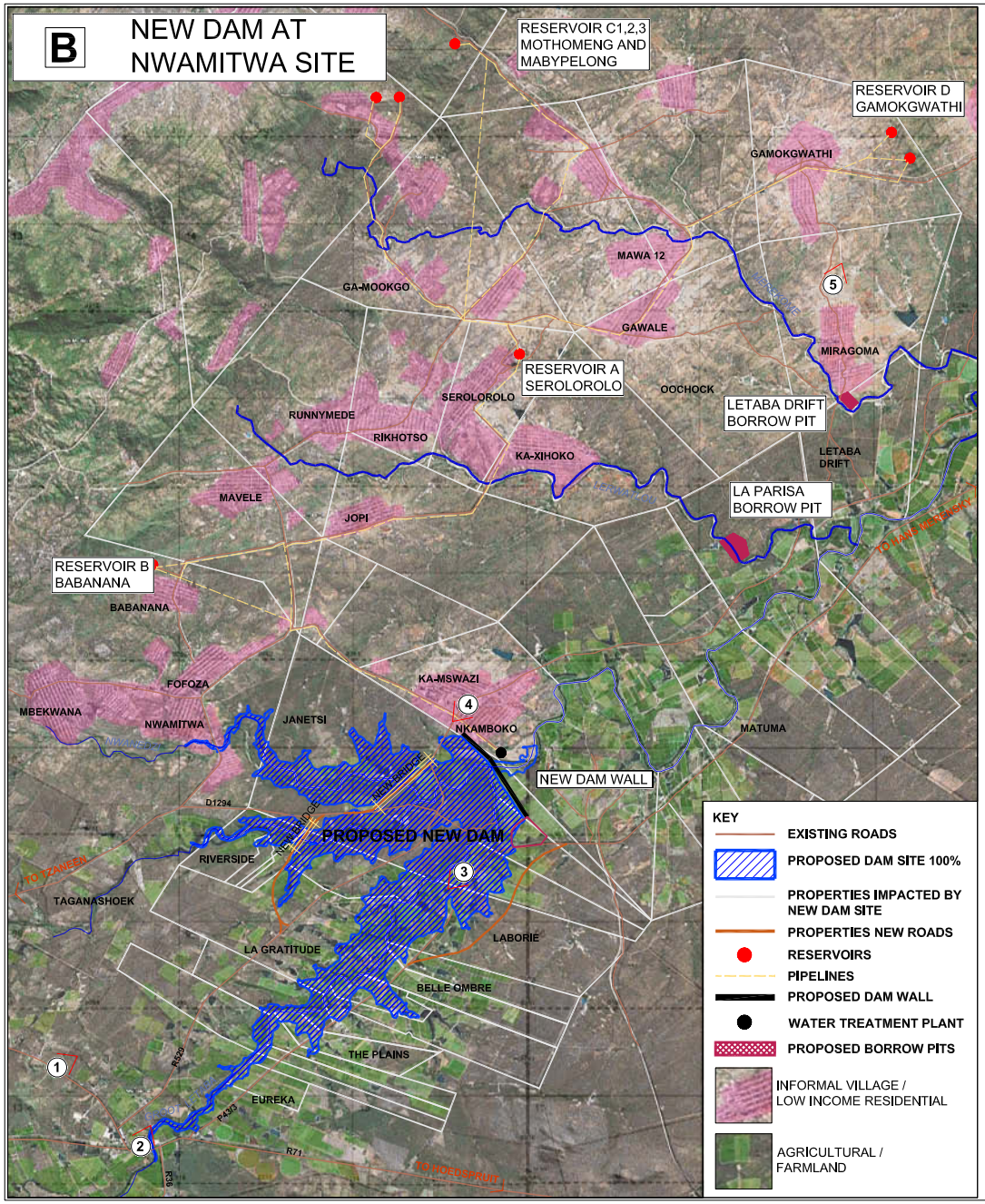

VISUAL CHARACTER-TYPES

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GROOT LETABA WATER DEVELOPMENT PROJECT

A4

Proposed New Dam at Nwamitwa and Associated Infrastructure

PREPARED FOR:

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Department: Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

DATE: FEBRUARY 2008

DRWG NO.:

Groot Letaba River
Visual Impact Assessment
Specialist Study

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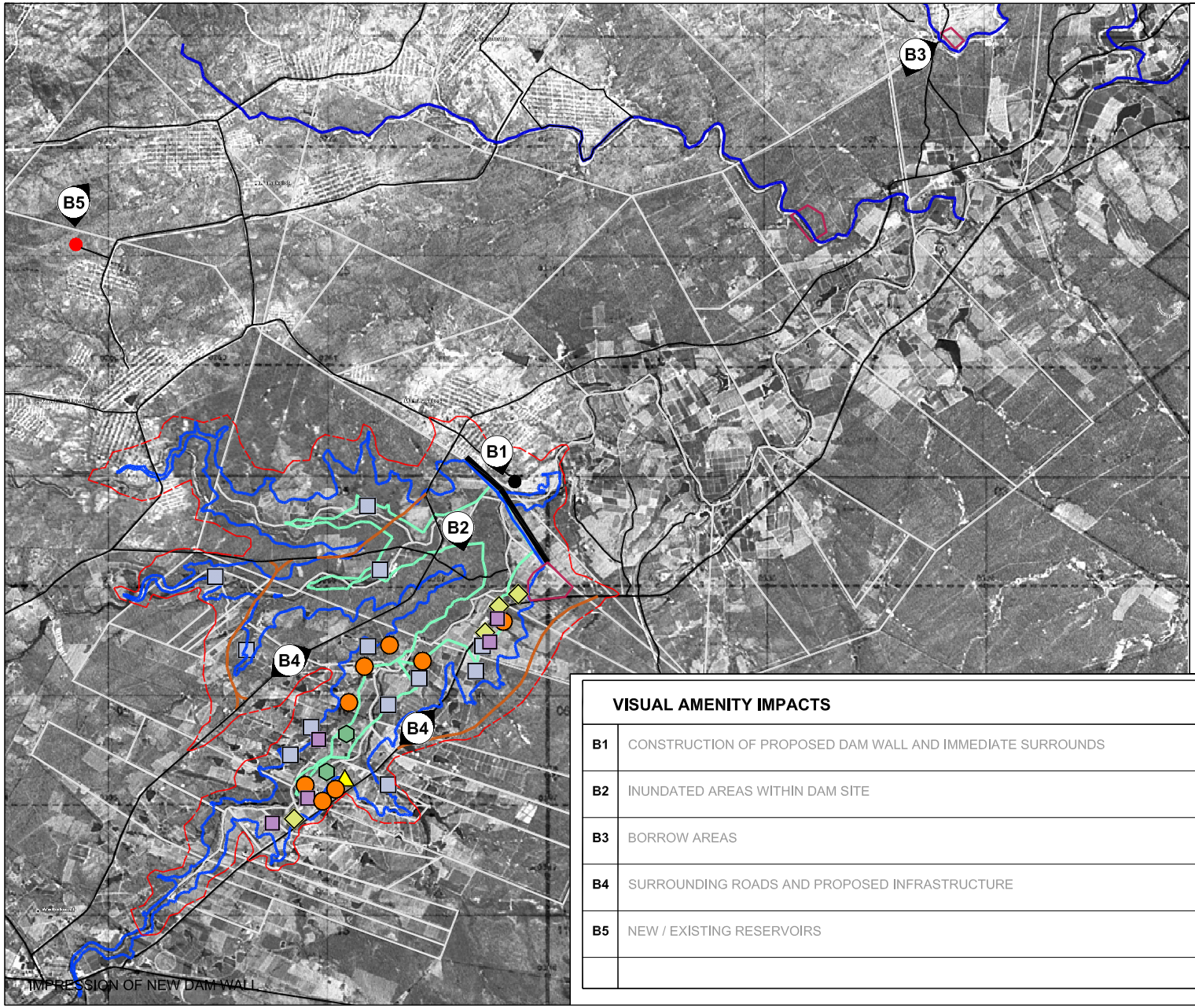

KEY

- EXISTING ROADS
- PROPOSED NEW ROADS
- PROPOSED DAM SITE 100%
- PROPOSED DAM SITE 50%
- PROPERTIES IMPACTED BY NEW DAM SITE
- RESERVOIRS
- PIPELINES
- PROPOSED DAM WALL
- WATER TREATMENT PLANT
- PROPOSED BORROW PITS

LANDUSES IMPACTED WITHIN PROPOSED NEW DAM SITE

- AERODROME
- HOUSES
- DAMS
- COMPOUND
- PACKING
- STORES

VIEWSHED LINE

VISUAL AMENITY IMPACTS		DURING / POST CONSTRUCTION	PREDICTED IMPACT	RECEPTOR SENSITIVITY	SIGNIFICANCE
B1	CONSTRUCTION OF PROPOSED DAM WALL AND IMMEDIATE SURROUNDS	DURING	ADVERSE	HIGH	SIGNIFICANT
		POST	ADVERSE	HIGH	MODERATE
B2	INUNDATED AREAS WITHIN DAM SITE	DURING	ADVERSE	HIGH	MODERATE
		POST	BENEFICIAL	HIGH	SLIGHT
B3	BORROW AREAS	DURING	ADVERSE	HIGH	MODERATE
		POST			
B4	SURROUNDING ROADS AND PROPOSED INFRASTRUCTURE	DURING	ADVERSE	MEDIUM	SLIGHT
		POST	NEUTRAL	LOW	NEUTRAL
B5	NEW / EXISTING RESERVOIRS	DURING	ADVERSE	MEDIUM	SLIGHT
		POST	ADVERSE	LOW	SLIGHT

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GROOT LETABA WATER DEVELOPMENT PROJECT

A5

Proposed Dam at Nwamitwa site: Land Use and Viewshed Identification

PREPARED FOR:

water & forestry
Department: Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

DATE: FEBRUARY 2008

DRWG NO.:

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Visual Impact Assessment
Specialist Study

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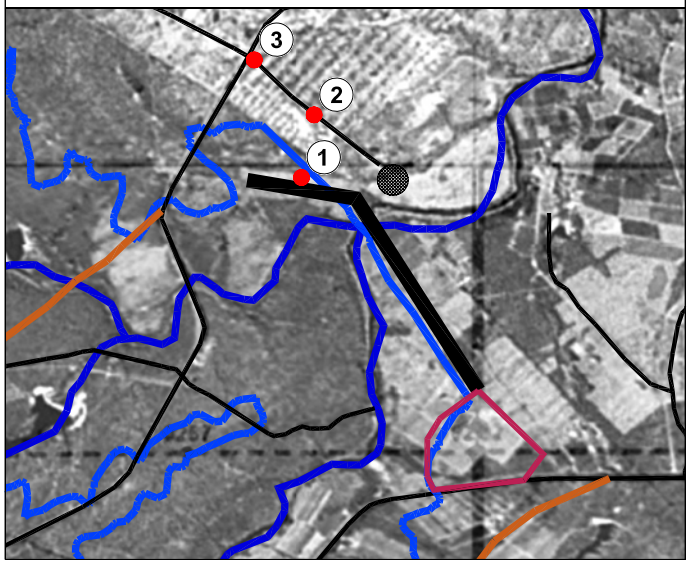
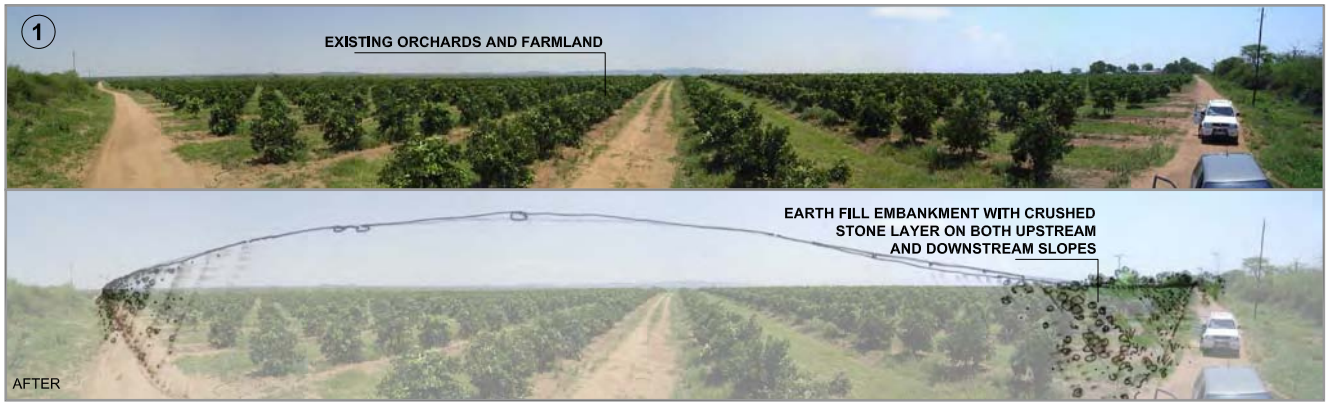
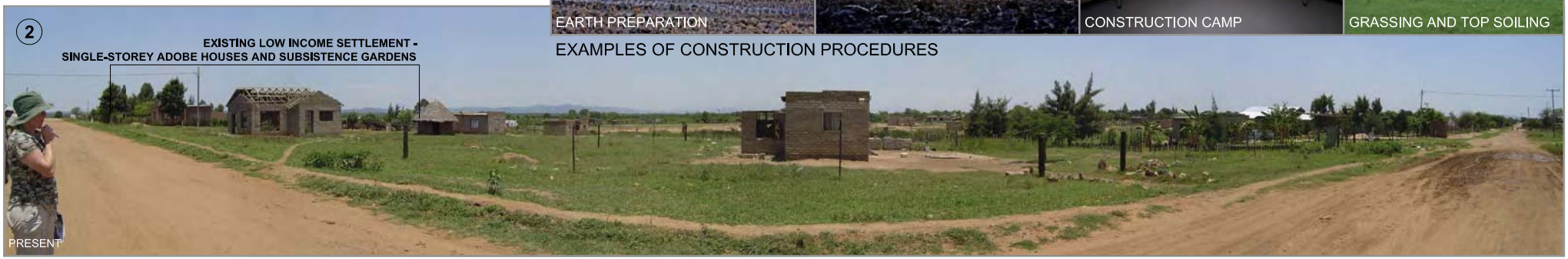
B1: CONSTRUCTION OF DAM WALL





EARTH FILL EMBANKMENT DAM WALL WITH CRUSHED STONE PROTECTION ON DOWNSTREAM SLOPE

EXAMPLES OF CONSTRUCTION PROCEDURES



EXISTING VILLAGES TO EXPERIENCE LITTLE VISUAL CHANGE AFTER DAM CONSTRUCTION

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GROOT LETABA WATER DEVELOPMENT PROJECT | **A6**

Proposed New Dam at Nwamitwa and Associated Infrastructure

PREPARED FOR:

water & forestry
Department: Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

DATE: FEBRUARY 2008

DRWG NO.:

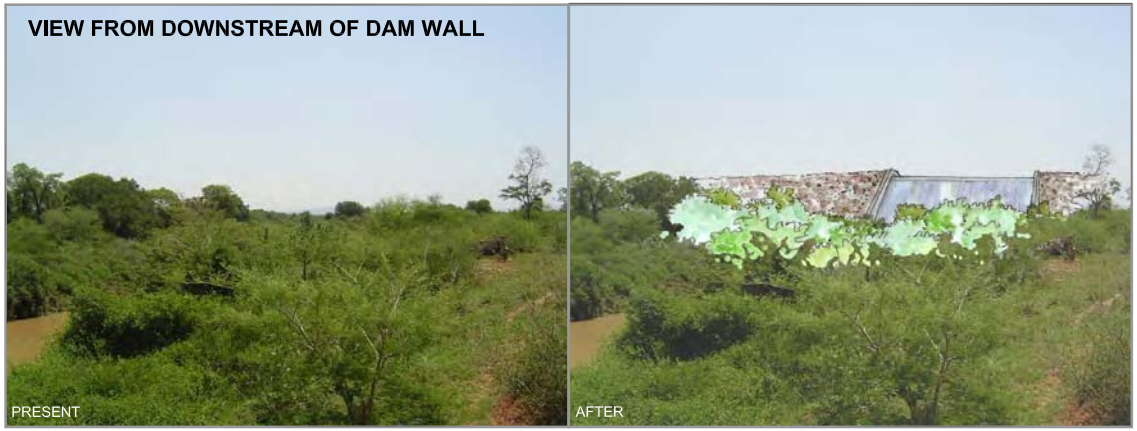
Groot Letaba River
Visual Impact Assessment
Specialist Study

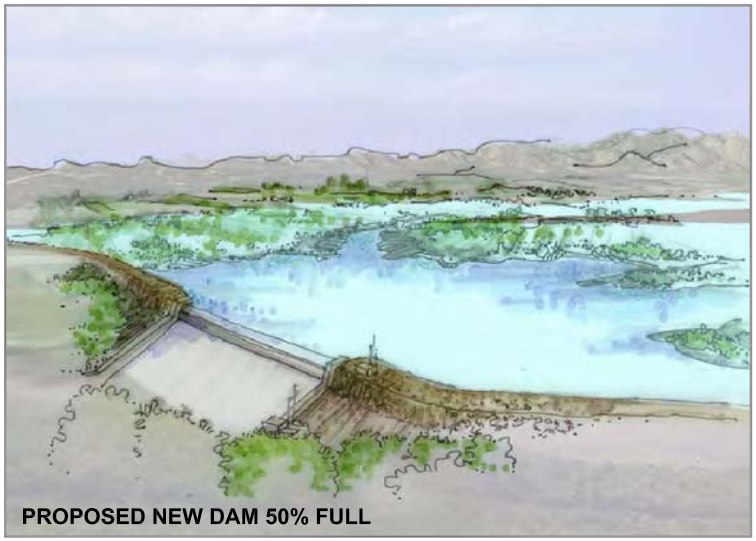
NOT TO SCALE

B1 cont. : CONSTRUCTION OF DAM WALL

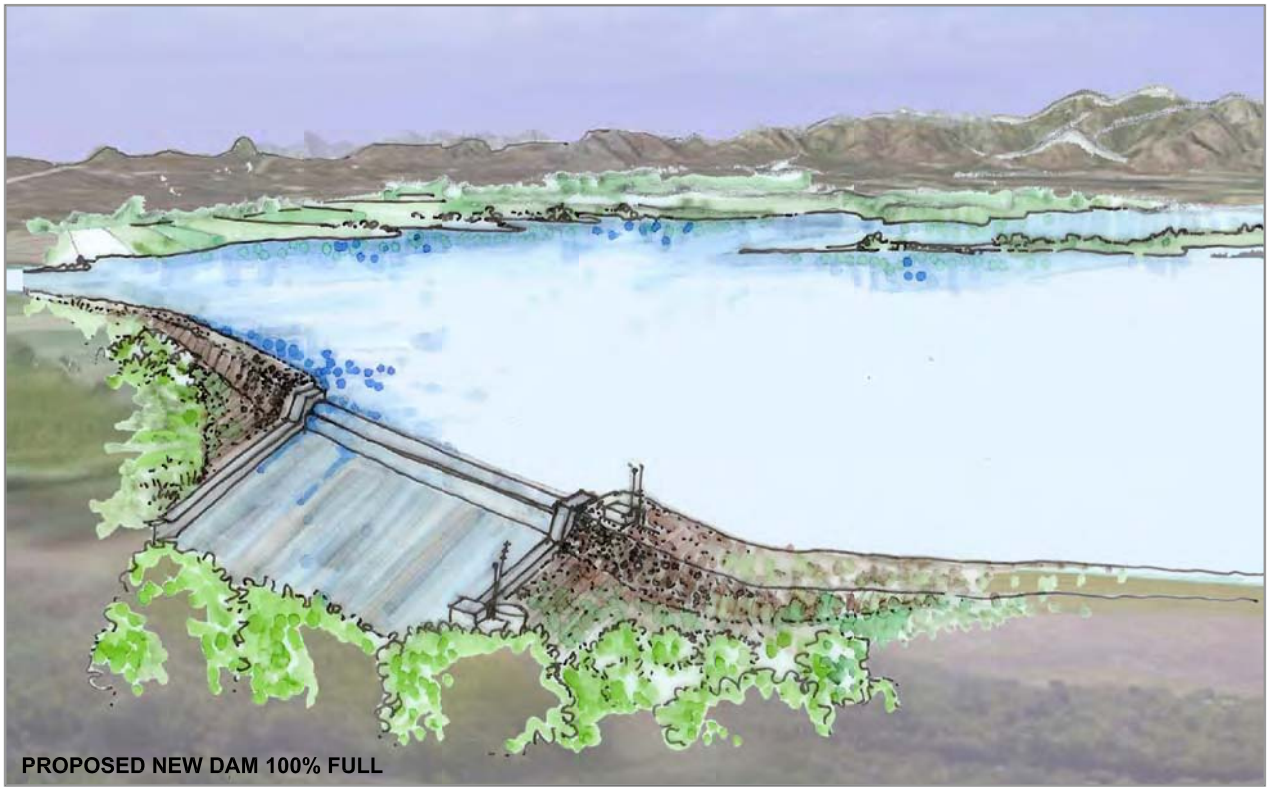
VISUAL EXAMPLES OF WIERS AND PUMP STATIONS

③ VIEW FROM DOWNSTREAM OF DAM WALL





PROPOSED NEW DAM 50% FULL



PROPOSED NEW DAM 100% FULL

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GROOT LETABA WATER DEVELOPMENT PROJECT

A7

Proposed New Dam at Nwamitwa and Associated Infrastructure

PREPARED FOR:

water & forestry
Department: Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

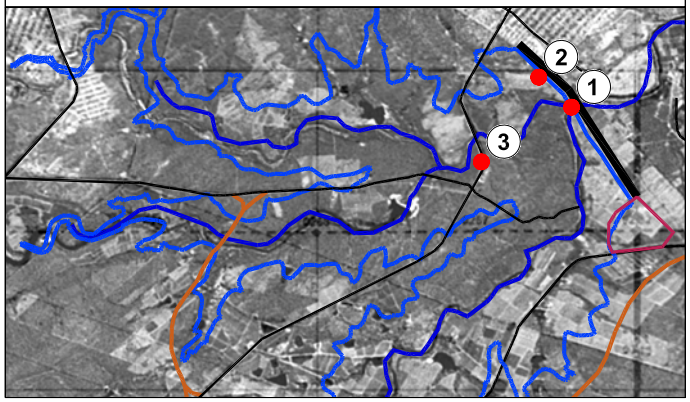
DATE: FEBRUARY 2008

DRWG NO.:

Groot Letaba River
Visual Impact Assessment
Specialist Study

NOT TO SCALE

B2: INUNDATED AREAS WITHIN DAM SITE



VIEW TO THE CONFLUENCE OF THE GROOT LETABA AND NWANEDZI RIVERS

SOUTH-WESTERN VIEW WITH PROPOSED WALL BEHIND

THIS PORTION OF THE R529 WOULD BE INUNDATED AT FULL CAPACITY

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GROOT LETABA WATER DEVELOPMENT PROJECT | **A8**

Proposed New Dam at Nwamitwa and Associated Infrastructure

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Department: Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

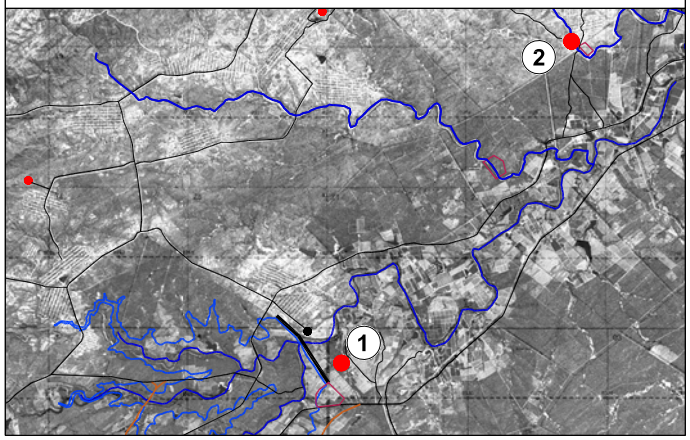
DATE: FEBRUARY 2008

DRWG NO.:

Groot Letaba River
Visual Impact Assessment
Specialist Study

NOT TO SCALE

B3: BORROW PITS

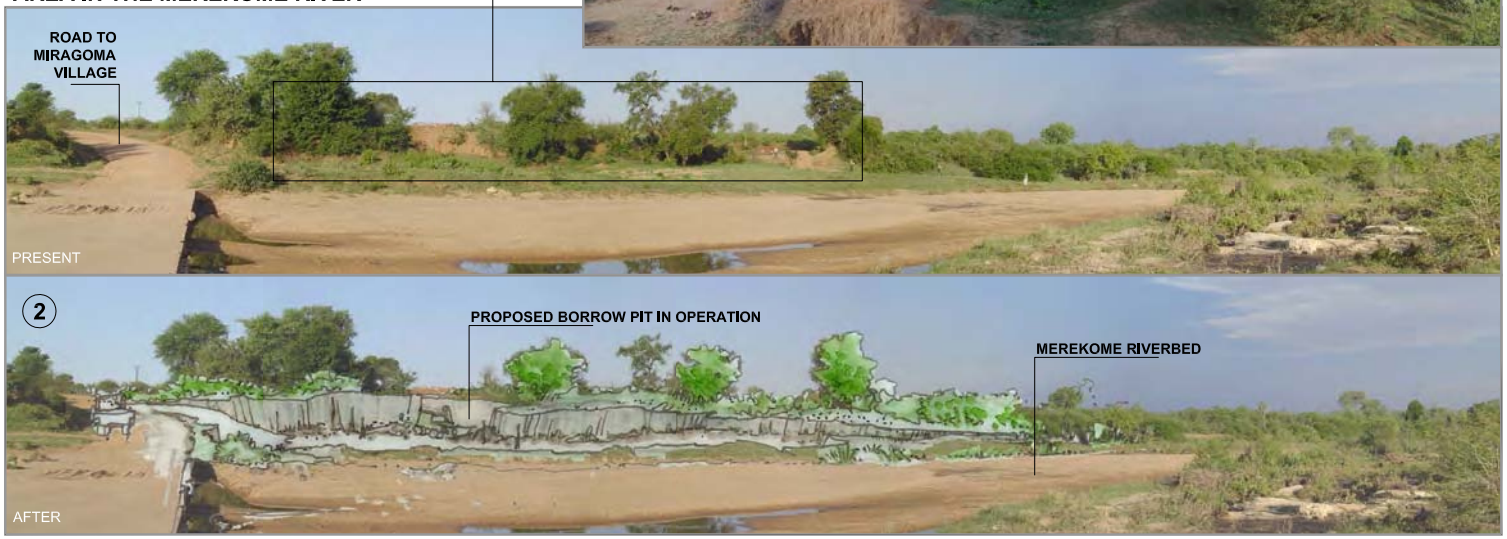


PROPOSED BORROW PIT / CONSTRUCTION SITE ON LABORIE FARM

EXISTING VELD RESERVE ON LABORIE FARM

AN EXISTING BRICK-MAKING QUARRY IS IN OPERATION ON THE MEREKOME SITE - EARTH IS EXTRACTED, MOULDED AND BAKED ON SITE

POTENTIAL BORROW AREA IN THE MEREKOME RIVER



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GROOT LETABA WATER DEVELOPMENT PROJECT | **A9**

Proposed New Dam at Nwamitwa and Associated Infrastructure

PREPARED FOR:

water & forestry
Department: Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

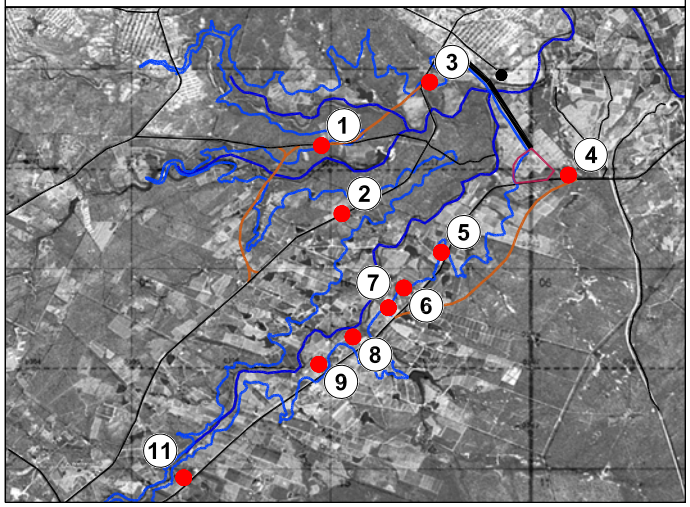
DATE: FEBRUARY 2008

DRWG NO.:

Groot Letaba River
Visual Impact Assessment
Specialist Study

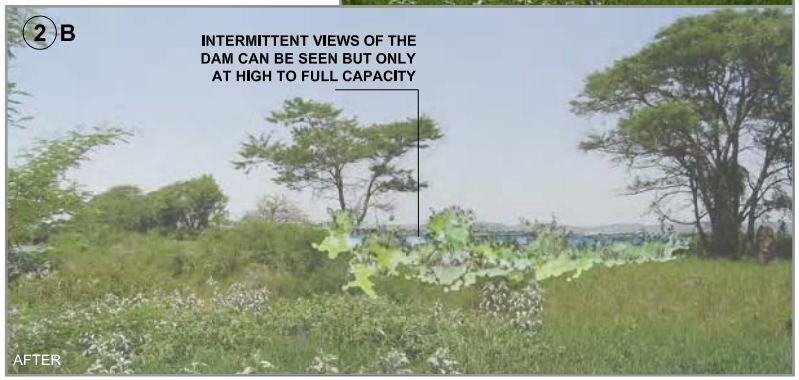
NOT TO SCALE

B4: SURROUNDING ROADS AND INFRASTRUCTURE



VIEW ALONG R529 - PORTION OF ROAD TO BE INUNDATED

PROPOSED NEW ROAD DIVERSION WITH BRIDGE ON R529



VIEW FROM R529 TOWARDS SOUTH

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GROOT LETABA WATER DEVELOPMENT PROJECT

A10

Proposed New Dam at Nwamitwa and Associated Infrastructure

PREPARED FOR:

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Department:
Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

DATE: FEBRUARY 2008

DRWG NO.:

Groot Letaba River
Visual Impact Assessment
Specialist Study

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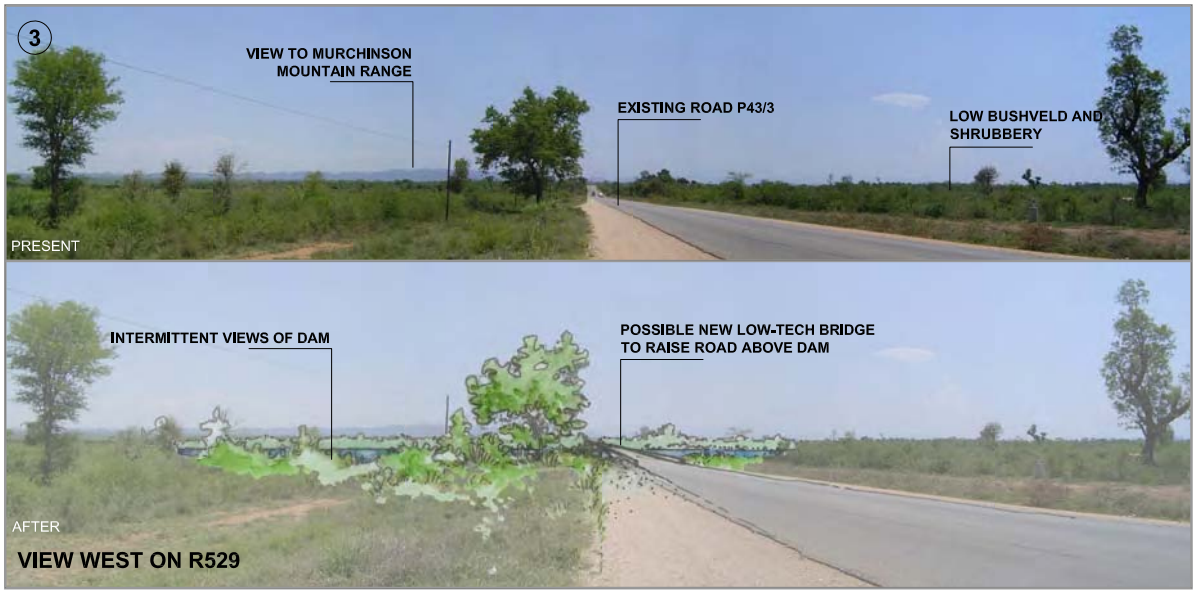
B4 cont. : SURROUNDING ROADS AND INFRASTRUCTURE



VIEW WEST ON R529

NEW ROAD ON P43/3 AS ROAD DIVERSION

ROAD P43/3 TO BE PARTIALLY INUNDATED

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GROOT LETABA WATER DEVELOPMENT PROJECT | **A11**

Proposed New Dam at Nwamitwa and Associated Infrastructure

PREPARED FOR:

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Department: Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

DATE: FEBRUARY 2008

DRWG NO.:

Groot Letaba River
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Specialist Study

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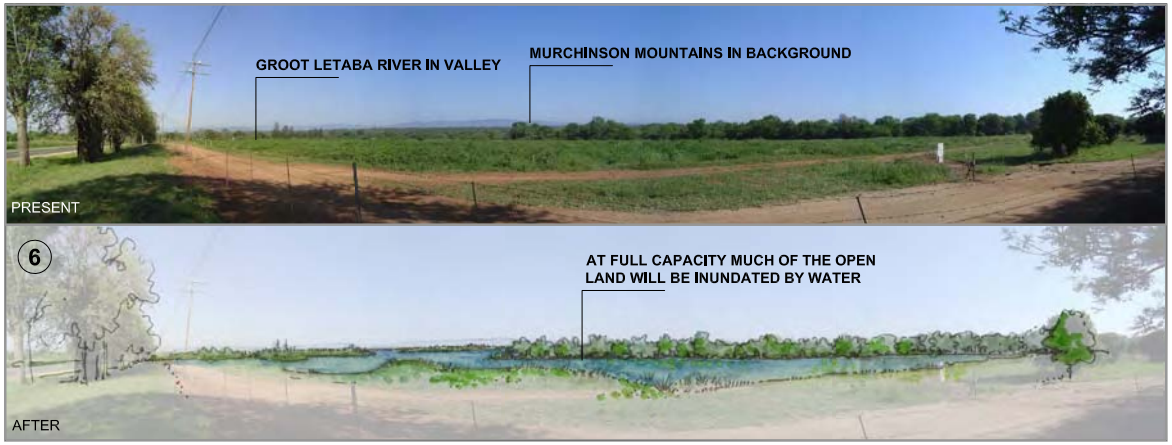
B4 cont. : SURROUNDING ROADS AND INFRASTRUCTURE



VIEW NORTH OVER NAGUDE FARM

NEW DIVERSION IN THE P43/3

VIEW NORTH FROM P43/3 ROAD

VISUAL CHARCATER OF P43/3 CREATING COLONIAL-TYPE VISUAL LANGUAGE

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GROOT LETABA WATER DEVELOPMENT PROJECT | **A12**

Proposed New Dam at Nwamitwa and Associated Infrastructure

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water & forestry
Department: Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

DATE: FEBRUARY 2008

DRWG NO.:

Groot Letaba River
Visual Impact Assessment
Specialist Study

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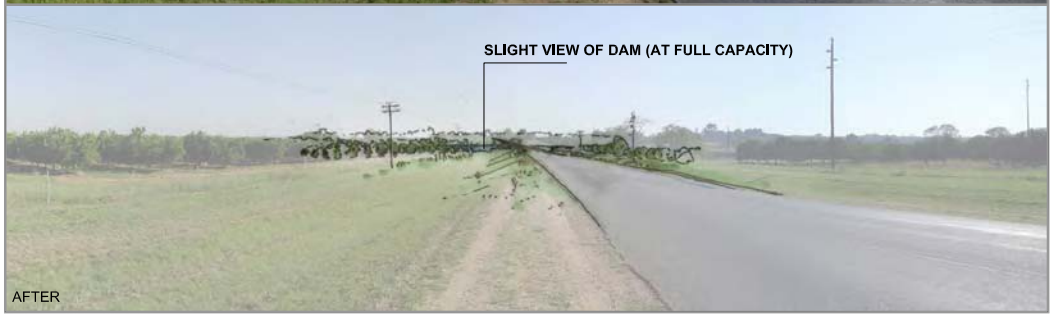
B4 cont. : SURROUNDING ROADS AND INFRASTRUCTURE



EASTERLY VIEW OVER BELLA OMBRE FARM FROM P43/3

VIEW TOWARDS R71 / R36 INTERSECTION

EASTERLY VIEW ALONG P43/3

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GROOT LETABA WATER DEVELOPMENT PROJECT | **A13**

Proposed New Dam at Nwamitwa and Associated Infrastructure

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DRWG NO.:

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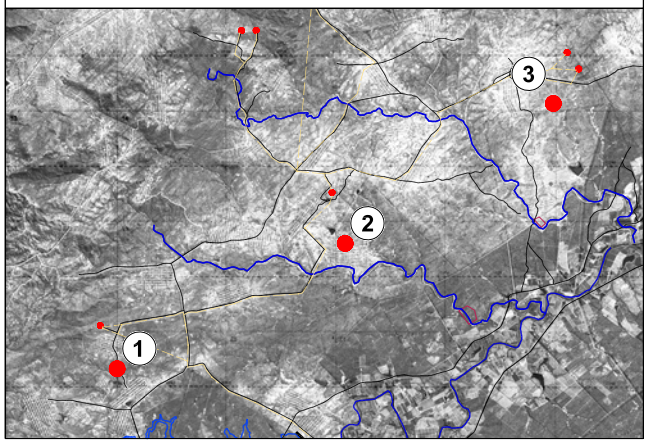
B5: NEW / EXISTING RESERVOIRS



CONSTRUCTION OF NEW RESERVOIR WITH GREATER CAPACITY AT BABANANA

VIEWS AT SEROLOROLO RESERVOIR

CONSTRUCTION OF RESERVOIR C1

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GROOT LETABA WATER DEVELOPMENT PROJECT

A14

Proposed New Dam at Nwamitwa and Associated Infrastructure

PREPARED FOR:

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Department:
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REPUBLIC OF SOUTH AFRICA

DATE: FEBRUARY 2008

DRWG NO.:

Groot Letaba River
Visual Impact Assessment
Specialist Study

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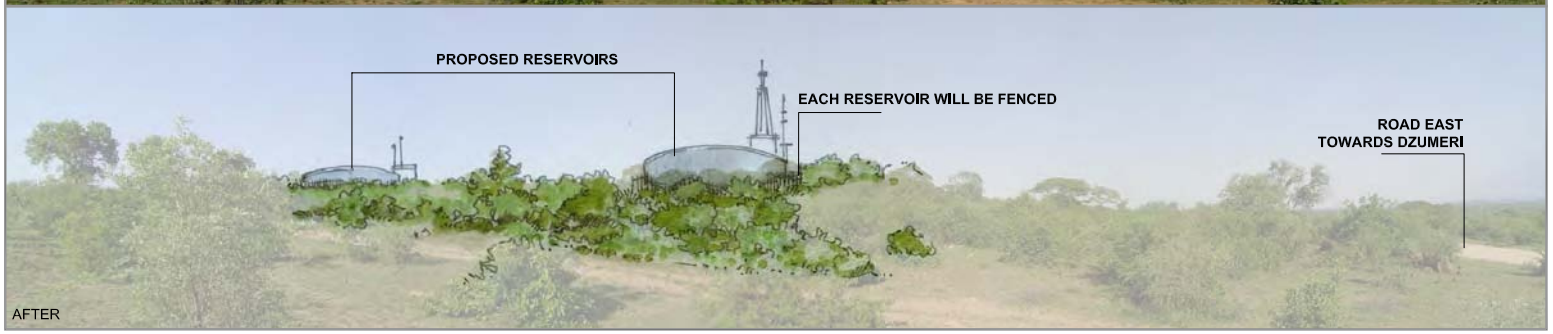
B5 cont. : NEW / EXISTING RESERVOIRS

VIEW FROM MIRAGOMA TOWARDS PROPOSED GAMOGWATHI RESERVOIRS



PROPOSED RESERVOIRS AT GAMOGWATHI

VISUAL CHARACTER OF VILLAGES

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GROOT LETABA WATER DEVELOPMENT PROJECT | **A15**

Proposed New Dam at Nwamitwa and Associated Infrastructure

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Department: Water Affairs and Forestry
REPUBLIC OF SOUTH AFRICA

DATE: FEBRUARY 2008

DRWG NO.:

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