



NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2011

GEOGRAPHY: PAPER II
MARKING GUIDELINES

Time: 1½ hours

100 marks

These marking guidelines were used as the basis for the official IEB marking session. They were prepared for use by examiners and sub-examiners, all of whom were required to attend a rigorous standardisation meeting to ensure that the guidelines were consistently and fairly interpreted and applied in the marking of candidates' scripts.

At standardisation meetings, decisions are taken regarding the allocation of marks in the interests of fairness to all candidates in the context of an entirely summative assessment.

The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines, and different interpretations of the application thereof. Hence, the specific mark allocations have been omitted.

Glossary of words

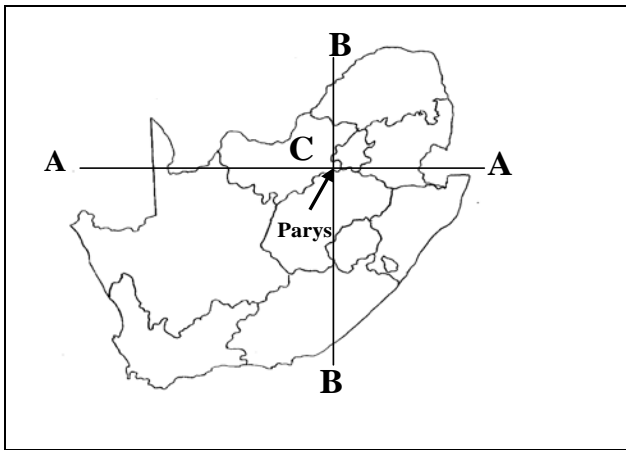
WORD	MEANING
Calculate	To work out the value of something using a mathematical method
Compare	To point out or show differences and similarities between two or more features/aspects
Contrast	To point out or show differences between two or more features/aspects
Describe	To say what something is like
Discuss	To write about something in detail
Explain	To describe something so that it can be understood
Identify	To give the essential characteristics of something
Indicate	To point out/show; to state briefly
Provide	To put forward or give
State	To present information or details plainly, directly and simply, without discussion
Suggest	To put forward ideas, a plan or reasons

Translation of words

English to Afrikaans

Borderpost	Grenspos
Bridge	Brug
Camping grounds	Kampeerterrein
Caravan park	Woonwapark
Cattle enclosure	Kraal
Crown	Kroon
Drift or river crossing	Drif
Drive-in theatre	Inryteater
Farm	Plaas
Furrow	Kanaal
Gorge	Kloof
Hill	Koppie
Island	Eiland
Kudu	Koedoe
Lowlands	Laagte
Marsh or wetland	Vlei
Mountain	Berg
Protea (sugarbush)	Suikerbos
Rest	Rus
Ridge(s)	Rant(e), rif (riwwe)
River	Rivier
Road	Pad
Sewage works	Rioolwerke
Shooting range	Skietbaan
Spring or fountain	Fontein
Stream or river	Spruit
Watergap or Poort	Poort

Location map: Location of Parys in South Africa



Parys, the jewel of the Vaal River, is a fast developing country town in the Vredefort Dome area, the oldest and largest meteorite impact site in the world. It has become one of the most exclusive areas for property investments, with two 18-hole golf estates.

Research shows that 9 000 – 12 000 vehicles pass through Parys on a busy day. Geographically, Parys is one of the most centrally situated towns in South Africa, with 75% of the country's population living within a 200 km radius.

[Adapted from: <parys.co.za>]

1. Atlas use, map reading and map projections

1.1 Refer to the location map above, as well as the topographical map extract to answer the following questions. Tick the correct box.

1.1.1 The line of latitude marked A on the location map above is ...

26° 54' E	<input type="checkbox"/>
27° 27' E	<input type="checkbox"/>
26° 54' S	<input type="checkbox"/>
27° 27' S	<input type="checkbox"/>

(1)

1.1.2 The line of longitude marked B on the location map above is ...

27° 27' E	<input type="checkbox"/>
26° 54' S	<input type="checkbox"/>
26° 27' S	<input type="checkbox"/>
27° 54' E	<input type="checkbox"/>

(1)

1.1.3 The central meridian of the Gauss Conform Projection used for the topographical map extract 2627 CD Parys is ...

27° S	<input type="checkbox"/>
18° E	<input type="checkbox"/>
27° E	<input type="checkbox"/>
26° E	<input type="checkbox"/>

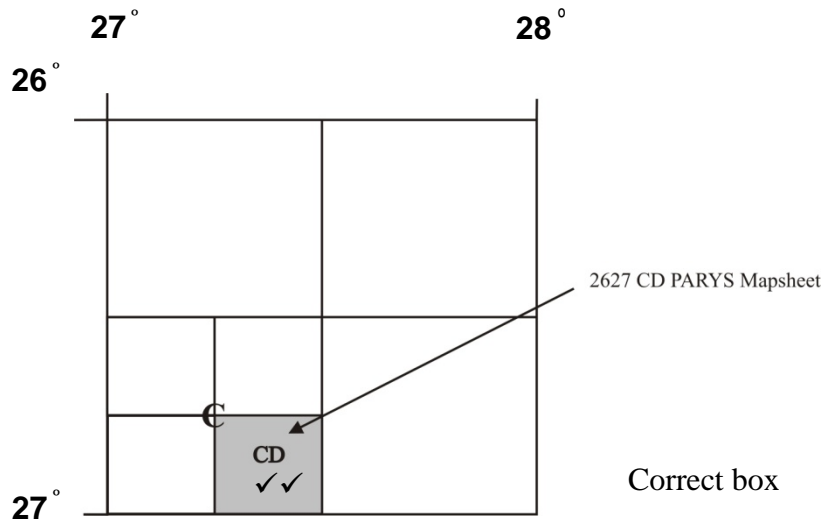
(1)

1.1.4 The province labelled C on the location map above is ...

Gauteng	<input type="checkbox"/>
Free State	<input type="checkbox"/>
North-West	<input type="checkbox"/>
Northern Cape	<input type="checkbox"/>

(1)

1.1.5 On the grid below, **indicate** the exact reference location of the 2627 CD Parys topographical map by drawing a square in the appropriate place below.



(2)


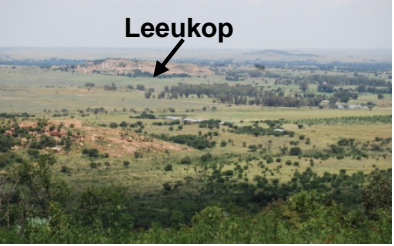



1.1.6 A number of physical features (A to E) have been labelled on the topographical map extract. **Identify** each labelled feature by circling the correct underlined word(s) listed below.

- A (Block C6) stream braiding/alluvial fan
- B (Blocks C11 – B12) gorge/ridge
- C (Block D7) concave slope/convex slope
- D (Block C7) river valley/spur
- E (Blocks F4 and F5) The stream pattern is dendritic or radial. (5)

Technical error on map [11]

1.2 **Map orientation**

Study Photographs 1 to 4 on the following page. Refer to the topographical map extract. The block reference (e.g. E13) is given for each photograph. Once you have located the feature, read the statement and respond by **stating** TRUE or FALSE. **Provide** a reason for each answer, using map evidence.

	Photograph	Block reference on topographical map	Statement	TRUE or FALSE (T or F)	Provide a reason for your answer
1		E 13	This low-level bridge is the only link to Golf Island from Parys.	T (1)	<u>Golf Island is linked to Parys by the road which goes</u> <u>over the low level bridge. There is no other visible</u> <u>link.</u> (2)
2		E 10	This rocky outcrop called Leeukop has been quarried for its granite.	T (1)	<u>There is a quarry indicated on the map</u>  <u>(2)</u>
3		E 2	Venterskroon offers a variety of high-order functions and services.	F (1)	<u>According to the map there is a shop, post office and</u> <u>church at Venterskroon. These are low order functions</u> <u>& services. It is too small to offer high order services.</u> <u>Local-service centre</u> (2)
4		E 12	This shop located along the R500 just north of the Vaal River, is in the Free State.	F (1)	<u>This shop is located in the North-West Province.</u> <u>Parys is in the Free State. Not in the Free State North</u> <u>of the Vaal</u> (2)

23 marks

2. **Map skills and calculations: The Vredefort Dome World Heritage Site**

Drainage and Relief Analysis

Refer to the Fact File on the Vredefort Dome World Heritage Site, as well as the orthophoto and topographical map extracts. Parys is located within the Vredefort Dome.

Fact File – Vredefort Dome World Heritage Site

The Vredefort Dome consists of at least three rings of overturned quartzite ridges extending outwards from the central impact area just south west of Parys.

Deep gorges or kloofs appear between the ridges where streams flow and eventually join the Vaal River. The World Heritage Site is privately owned by 450 landowners in the area. About 65% of these landowners are weekend farmers.

[<christo@kopjeskraal.co.za>]

2.1 2.1.1 Circle the correct underlined word.

Aasvoëlkop (blocks D3 and E3) is a tor (hogsback). (1)

2.1.2 Using map evidence, **provide** ONE reason for your answer.

Has a very steep dip and scarp slope (contour patterns). Gradient > 45°

The dip slope facing northwards is slightly steeper.

A tor is a collection of granite boulders. No rocky outcrops

Tilting rock, inclined strata; elongated ridge (2)

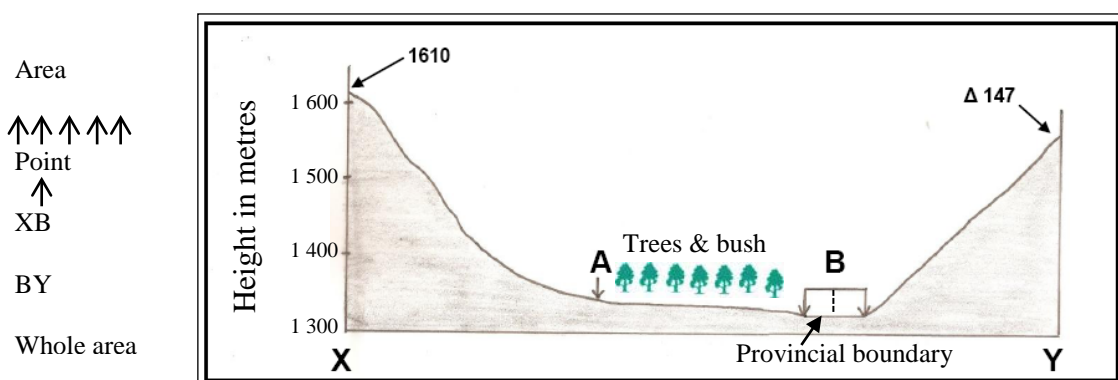
2.2 The Vaal River in this area is a superimposed drainage pattern. This drainage pattern ... (Tick the correct option.)

A	forms in areas that have been folded and uplifted.	
B	develops when the river is older than the features it flows over.	
C	develops when the river is younger than the features it flows over.	
D	forms when one river captures another river's headwaters.	

(2)

2.3 Refer to the orthophoto map extract.

2.3.1 A sketch cross-section is drawn from spot height 1610 (X) to trigonometrical beacon 147 (Y).



Identify the features labelled A and B on the sketch cross-section. Cross reference using the orthophoto map extract.

A (infrastructure): Secondary Road (main)

B (geomorphological): Vaal River (2)

2.3.2 Mark in the position of and label the following features on the sketch cross-section (page 6):

- Conservation land-use (natural trees and bush). Accept both sides of the road
- Provincial boundary (4)

2.4 Refer to block D2 on the topographical map extract as well as the orthophoto map extract. **NB:** Use the orthophoto map extract for your calculations in Question 2.4.1 and 2.4.2.

The annual Crater Cruise mountain bike race takes place in this area. Participants may use a quad bike, 4 × 4 or mountain bike route. Part of the course is an exciting downhill single track section from spot height 1610 (point X) to Netreg (point N) at the foot of the hill.

2.4.1 **Calculate** the approximate bearing a participant will take when racing from point X to point N.

Bearing 180 – 190° max range (2)

2.4.2 **Calculate** the gradient of the single track (assuming it follows a straight line) from spot height 1613 (point X) to Netreg (point N).

(a) Difference in height: Range 230 – 260 250 m (1)

(b) Distance between the two points: Range 700 – 800 700 m (1)

(c) Gradient of single track: **1:** 2.8 – 1: 3.5 (2)

Calculations: a. $1\ 160 - 1\ 360 = 250\ \text{m}$
 b. $7\ \text{cm} \times 100\ \text{m} = 700\ \text{m}$

Method 1 if outside range – but must be correct method

$$G \frac{VF}{HD} = \frac{1}{HD} \frac{1}{700} = 1:2.8$$

$$\frac{1}{250}$$

2.5 Land-use map

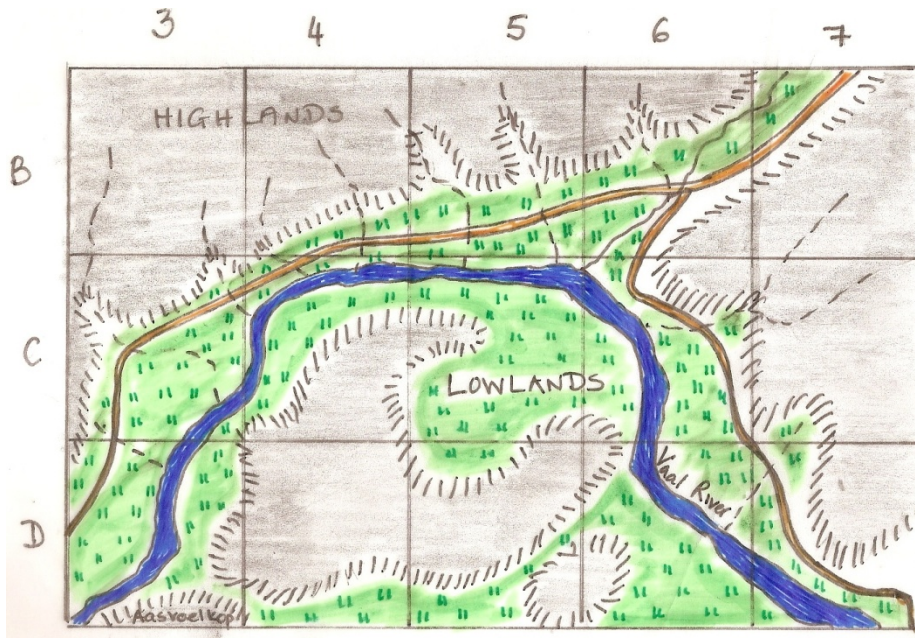
Refer to the topographical map extract. Focus on the blocked area B 3 – 7, C 3 – 7, and D 3 – 7.

2.5.1 In the grid below, draw a land-use map of the area marked. Complete the map by sketching in the following features:

- hills and ridges (highlands)
- valleys (lowlands)
- agricultural land (fields)
- Vaal River
- secondary roads – both roads

(10)

Provide labels on your map and use the key below.



Key:	
	hills and ridges (highlands)
	valleys (lowlands)
	agricultural land (fields)
	Vaal River
	secondary roads

Marking Guidelines:

- Spatial orientation is important.
- Area distribution is also important.

Mark each feature according to key and bear in mind:

- (1) does the area covered look more or less the same as in map given? OR
- (2) does the line follow more or less the same as given? / labelled/ keyed.

5 Features = 2 marks each if spatially correct.

2.5.2 **Explain** how the relief has influenced the land-use and development of roads in the area shown in the sketch map on page 8 (2.5 a.)

- The roads follow the low lying areas and the valleys in this area – this is the easiest and most cost efficient.
- The agricultural lands are found in the flatter easier to cultivate lowlands, along river valley following the Vaal River as it cuts through the landscape (along the flood plains). Fertile soils/ easy for irrigation
- The hilly ridges are not cultivated at all – too steep and rocky.

Any 2 points. Must show relationship/ explanation must answer

question fully.

(4)

31 marks

3. **Settlement analysis**

Refer to the topographical map extract, as well as the orthophoto map extract.

3.1 **Rural settlement**

Study the 1:50 000 topographic map extract to answer the following questions.

3.1.1 Study blocks F9, 10 and 11. Many of the farms consist of long, narrow strips extending from the Vaal River banks. **Suggest ONE** reason for this unusual farm layout.

Access to water – So that all the farmer's share riparian rights

For access to the Vaal River for water and recreation. (2)

3.1.2 The Vaal River is a permanent river, but most of its tributaries are non-perennial. **Suggest ONE** reason for this.

Very dry winters – Summer rainfall area, thus flow may be seasonal

Average rainfall ± 500 mm per annum, thus low

Originated in well-watered area, almost exotic (2)

3.1.3 Circle the correct underlined words. Using map evidence, **provide ONE** reason for your answer.

Eldorado (E8) uses ground water/river water for irrigation. (1)

Reason: There is a canal (furrow) in the area which suggest water is led to lands from Vaal River.

No evidence of wind pumps/Eldorado along river – water front (2)

3.1.4 Tick the correct option.

The rural settlement pattern in block E 12 resembles a ... pattern:

star shaped	
circular	
cobweb	
linear	

(2)

3.1.5 The Parys area is a popular getaway destination for many city dwellers, who opt for a peaceful, agricultural weekend. Study Photographs 5 and 6 which show a smallholding for sale. The smallholding (marked F) is located in block E9.

Photograph 5 Smallholding for sale (F)

Photograph 6 Buildings and dam on the smallholding for sale (F)



Describe TWO site and TWO situational factors which make this smallholding attractive to a potential investor. Use map evidence and your knowledge of rural settlements.

Attractive site factors:

- 1 Flat land for farming implies fertile soil
- 2 Fertile soils – on Vaal River floodplain
- 3 Close to water – river, vaal, perennial streams. Link of quarry to building materials (4)

Attractive situation factors:

- 1 Close to the secondary road which leads to Parys
- 2 Close to Vredefort Dome World Heritage Site
- 3 Close to Johannesburg and the 'big' city life
- Close to Vaal River for recreation purposes (4)

3.2 Urban Settlement

3.2.1 Parys is classified as a central place. Using map evidence, **suggest ONE reason for this classification.**

- Roads converge on Parys – R59, R500, R53
- Central point in a fertile farming area
- Meeting place for farmers
- Providing goods and services to surrounding farming area. (2)

3.2.2 Using map evidence, **describe** TWO features which suggest Parys was originally laid out as a typical apartheid town.

- Very distinctive buffer zone between Parys and Tumahole – railway lane; two separate areas/ tree line/furrow
- Tumahole built on the outskirts, adjacent to industrial land
- Tumahole very high density; fewer services; compared to Parys with many services (4)

3.2.3 **Compare and contrast** the built-up areas of Parys and Tumahole in the south-east corner of the topographical map extract. Complete the following table.

Features of the built-up areas	Parys	Tumahole
Dominant street pattern	GRID rectangular	Modern planned. Planned irregular
Building density	medium Low building density. Large street blocks.	High building density. Very small street blocks.
Examples of recreational facilities	lots/more Drive-in theatre, golf course, Recs, a number of caravan parks. Show grounds	fewer Very few – 2 recs. Fields not parks

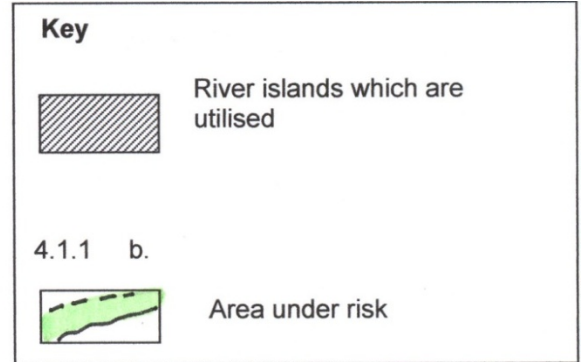
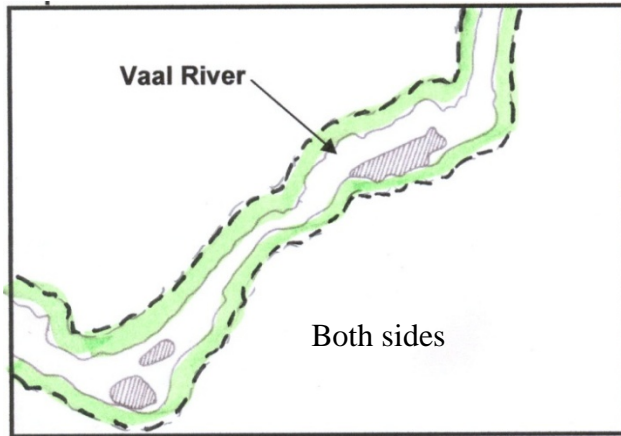
(6)

29 marks

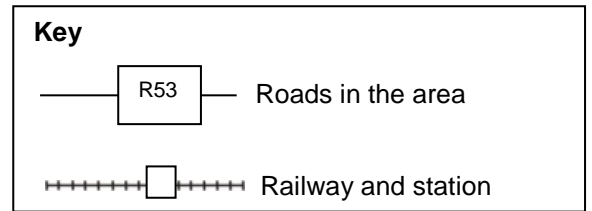
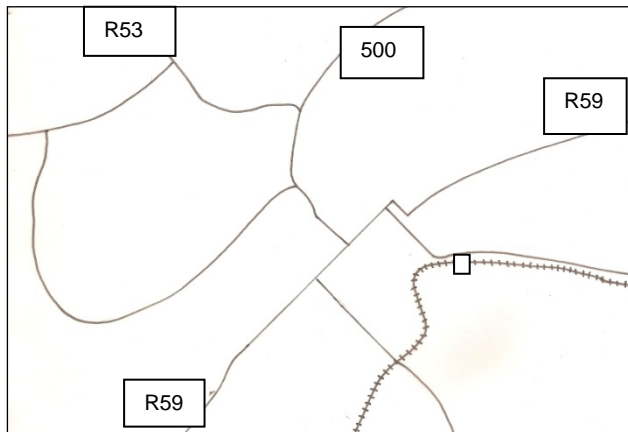
4. **Fieldwork and Research**

4.1 Study Maps 1 to 3 below which show three different data layers for the immediate area around Parys. These layers or themes of information are an important concept used in Geographic Information Systems (GIS).

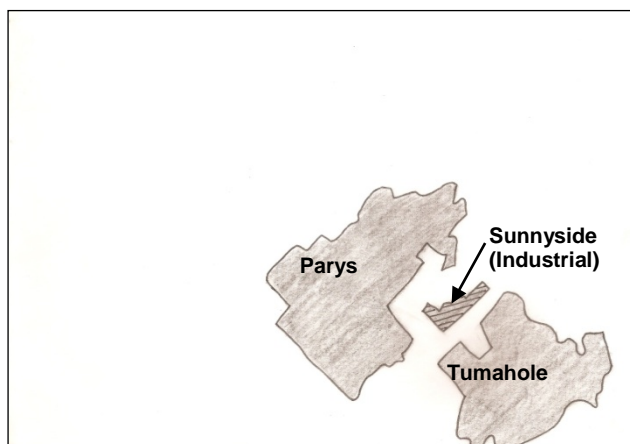
Map 1 The Vaal River



Map 2 Infrastructure in the area



Map 3 Built-up areas



4.1.1 Buffering is a GIS tool used by the Parys Municipality to determine the amount of flooding that could occur, should the sluice gates of the nearby Vaal Dam be opened.

(a) **Explain** the meaning of the term buffering.

This is when you draw a boundary around a feature to

demarcate it. Area of flooding. Contextual accept (2)

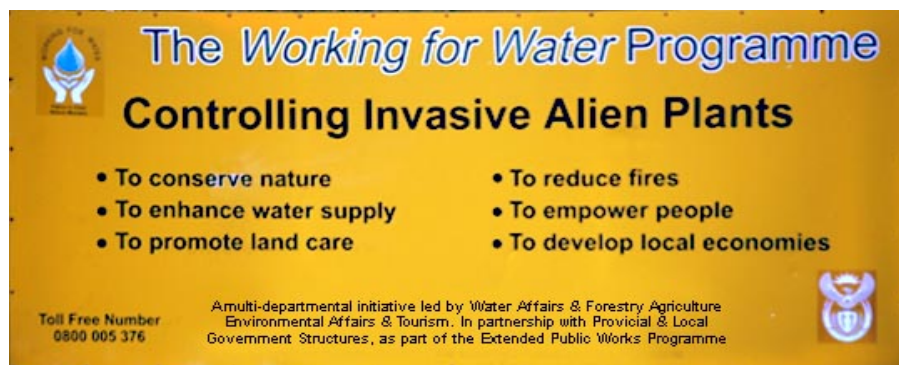
(b) Draw a 0.3 cm buffer strip (or line) on either side of the Vaal River in Map 1 (page 13). Shade and label this area: Area under risk. Complete the key. (3)

4.1.2 **Discuss** why the Municipality of Parys finds the information contained in Maps 1, 2 and 3 (page 13) useful for flood management.

- Roads must also be outside of buffer strip
- The buffer strip indicates the area under risk for flooding. If you lay the infrastructure over this area some roads will be flooded, and impassable.
- Zoned as no build area.
- The built up area of Parys – particularly along the Vaal River – could be under water. Appropriate warnings and evacuation measures must be given.
- To construct a new bridge – wider than buffer strip.
Roads buildings (4)

4.1.3 Refer to Maps 1, 2 and 3 (page 13) and Photograph 7.

Photograph 7: Working for Water



As the management of the Vredefort Dome World Heritage Site is in the hands of 450 farmers in the area, the *Working for Water* programme is an important management strategy for this catchment area of the Vaal River. Write a letter to this conservation body highlighting the importance of both The Parys Municipality and the farmers in the area adopting the *Working for Water* programme to sustainably manage the water resources along the Vaal River. Use page 15 for your letter.

Letter to the Vredefort Dome World Heritage Site Conservation Body

Re: The importance of the Parys Municipality and the Vredefort Dome Farmers adopting the *Working for Water* programme to sustainably manage water resources along the Vaal River.

- Preserve the riparian vegetation along the Vaal River – promotes healthy river banks
(not trampled and eroded).
- Remove alien vegetation which affects riverine vegetation and processes./ river flow
- Ensure a 50 m buffer zone on either side of Vaal River is maintained to prevent flood
disaster.
- Make sure picnic sites are well maintained and kept clean. Good fire warnings systems
must be in place.
- Make sure irrigation projects are well planned and maintained./ Limited water removed
- Water pollution control. / pesticides, fertilisers – prevents eutrophication
- Control use of river water/ limit quantities i.e for irrigation
- Consult with local communities.

Any 4 points which support sustainable management of water resources along the Vaal River.

Address the how/why

- Preserving habitat of indigenous plants/ animals
- Restrictions on any building in the area e.g. walls, etc.

Must explain – write in detail for 2 marks.

Listing of 4 points from photograph 7 – only 4 marks

(8)

17 marks

Total: 100 marks