

GOVERNMENT OF BOTSWANA

G.S. 184

BOREHOLE COMPLETION CERTIFICATE

OFFICIAL BH NO 10228

DISTRICT: GANTSI MAP SHEET: 2320 A4 LAT: 25° 25' 40" LONG: 23° 11' 54"LOCATION: NEOJANENAME AND ADDRESS OF APPLICANT: DEPT OF WATER AFFAIRSSITED BY: W.R.C DRILLED BY: T.H. DRICUNISDATE OF COMMENCEMENT: 15-10-05 DATE OF COMPLETION: 31-10-05

DRILLED DIAMETER			
Diameter mm	From m	To m	
381	0	71	
304	71	191	
254	191	256	

CASING LEFT IN BOREHOLE			
Diameter mm	Type	From m	To m
381	STEEL	0	5
304	"	0	71
254	"	0	191
203	"	0	253.92

SCREEN DETAILS				
Dia mm	Type	Slot size	From m	To m
210	STEEL	2mm	191	250.9

AQUIFER DETAILS			
No	Water struck m	Water level m	Estimated yield m ³ /h
1	199	167.4	23.66
2			
3			

Total depth of borehole: 256m Main aquifer: 199 mStatic water level (SWL) on completion of borehole: 107.4 in m below top of casing

DEPTH (m)		DRILLER <u>G. D. G. 151</u> FORMATION LOG	DEPTH (m)		GEOLOGIST FORMATION LOG
From	To		From	To	
0	2	Dark Brown Sand.	90	100	orange mudstone
2	4	light brown fine to medium sand	100	110	purple mudstone
4	8	White fine to medium grained sand	110	116	dark grey mudstone
8	17	Yellow fine to medium grained sand	116	120	Black mudstone
17	19	Calcrete	120	127	Grey mudstone
19	40	Red Silcrete	127	165	Dolerite
40	43	Pink very fine grained sand	165	169	White fine to medium grained sandstone
43	46	Red dolerite	169	173	Grey mudstone
46	54	Brown silty mudstone	173	186	Carbonaceous mudstone
54	70	White fine to medium sandstone	186	191	coal
70	90	Red fine to medium sandstone	191	199	Grey fine to medium grained sandstone
No. of sludge samples submitted			199	201	Pink fine to medium grained sandstone

REMARKS: Fractures, cavities, changes in penetration rate, caving and drilling difficulties etc:

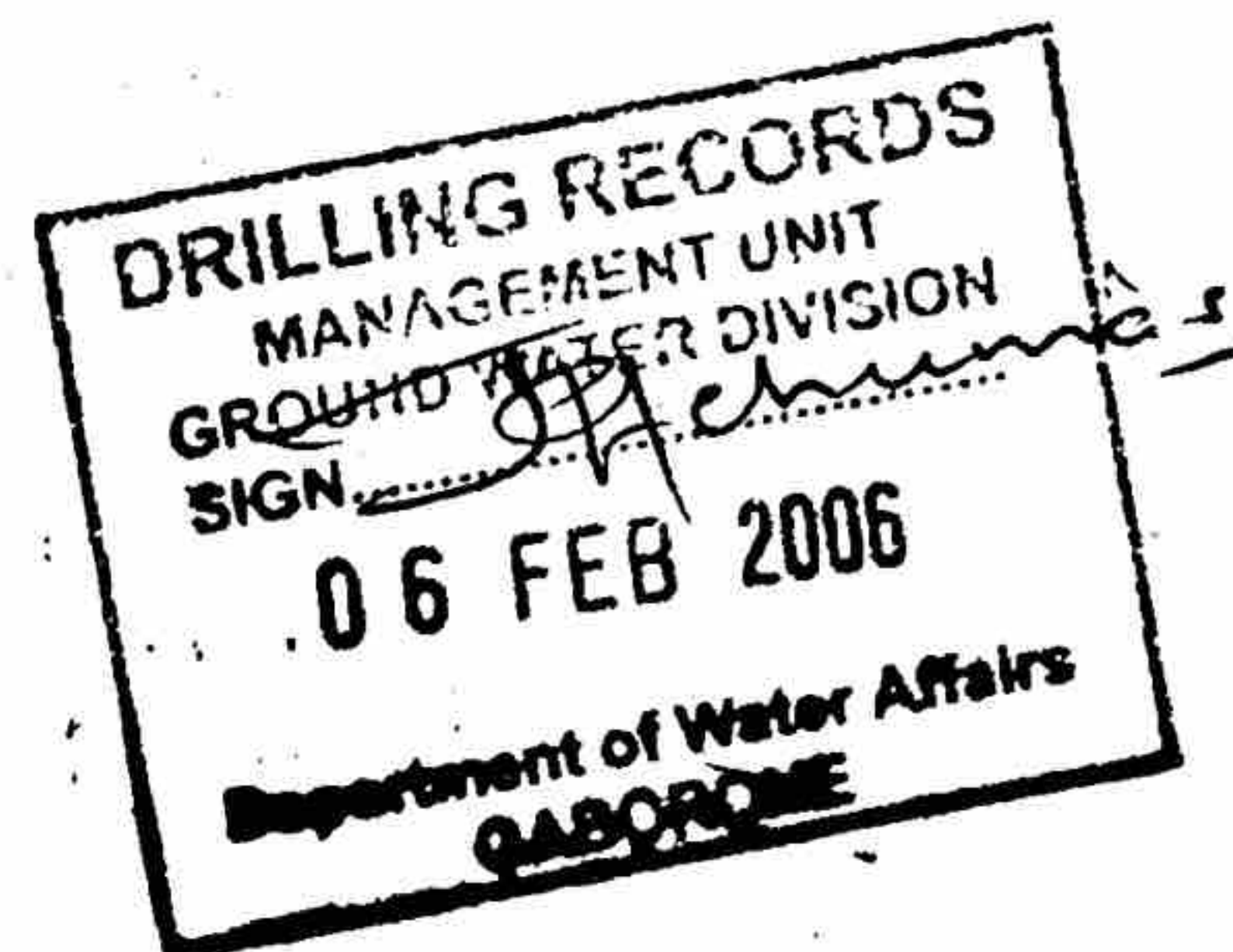
201/220 white fine to coarse grained sandstone
dolerite.

SKETCH MAP OF BOREHOLE SITE

N

W

APPROX SCALE :
Give distances(m/km)to nearest village/land mark/borehole/road



YIELD TEST RECORD (Detailed pumping test to be given on form G.S. 200)

All measurements in (m) below top of casing

Date of test Total time tested h
 Depth of borehole before test m. After test m
 Type of pump/bailer
 Depth of pump-cylinder m
 Diameter of cylinder mm. No. of strokes/min.
 Static water level immediately before test m
 Static water level 8 hours after test m
 Pumping water level m
 Pumping rate m³/h
 Is yield considered permanent yes/no
 Taste, colour, odour of water
 Conductivity of water EC 630 micromhos.
 No. of water samples submitted 2 by WRC.
 Water use

Date : 31-10-05 Signature of driller: [Signature]
 Date : 17-11-05 Signature of borehole inspector

PULA GROUNDWATER DEVELOPERS
(PTY) LTD
P.O. BOX 106
GABORONE Tel/FAX: 371574

Copies : White - Owner of bh. (private bh.)
 Dept. Water Affairs (government bh.)
 Yellow - Dept Geological Survey
 Blue - Dept. Water Affairs
 Pink - Driller

WATER RESOURCES CONSULTANTS (PTY) LTD
EXT. 34 PLOT 20630 SAMEDUPE RD, B/HURST
P.O. BOX 40459
GABORONE, BOTSWANA
TEL 3180619/7 FAX: 3180618

M-Masze

GOVERNMENT OF BOTSWANA

BOREHOLE COMPLETION CERTIFICATE

G.S. 184

OFFICIAL BH NO 10210

DISTRICT GHANZI MAP SHEET 2309326 LAT 23° 32' 6" LONG 020° 28' 14"LOCATION NEOSANGNAME AND ADDRESS OF APPLICANT DEPT. OF WATER AFFAIRSSITED BY WATER RESOURCES CONSULTANTS DRILLED BY NHABE DRILLINGDATE OF COMMENCEMENT 17-10-2005 DATE OF COMPLETION 26-10-2005

MIS 333 80

DRILLED DIAMETER		
Diameter mm	From m	To m
254	0	80
203	80	195
165	195	219
164	219	250

CASING LEFT IN BOREHOLE			
Diameter mm	Type	From m	To m
254	PLAIN STEEL	0	6.13
203	PLAIN STEEL	0	80
165	PLAIN STEEL	0	183
52	PLAIN STEEL	0	195.76

SCREEN DETAILS				
Dia mm	Type	Slot size	From m	To m
6 1/2"	STEEL		183	195
2"	PVC		192.23	244.07

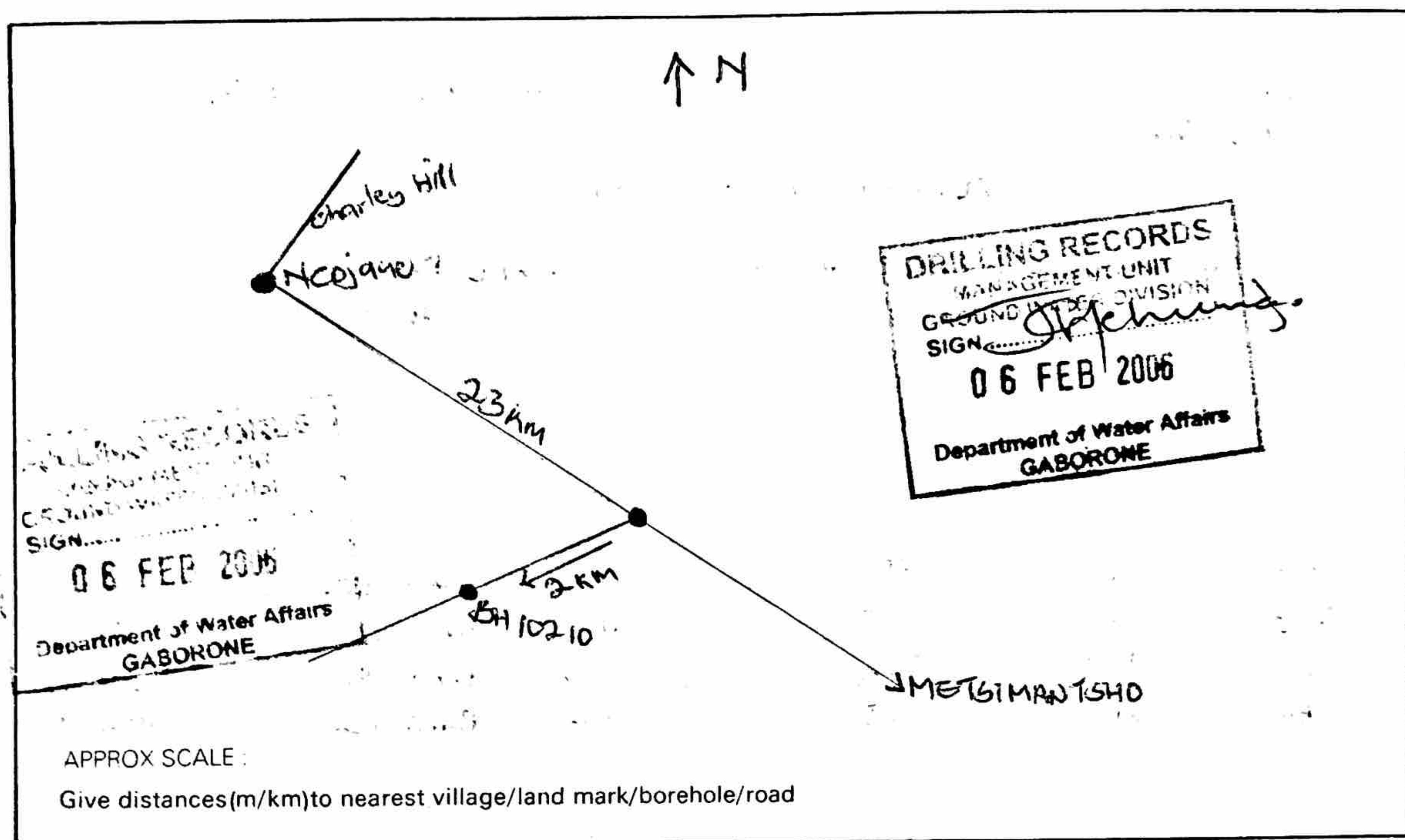
AQUIFER DETAILS			
No	Water struck m	Water level m	Estimated yield m ³ /h
1	195		22
2	218		3
3			

Total depth of borehole 250 m Main aquifer 195 mStatic water level (SWL) on completion of borehole 107.64 in m below top of casing

DEPTH (m)		DRILLER <u>GEOLOGIST</u> FORMATION LOG	DEPTH (m)		GEOLOGIST FORMATION LOG
From	To		From	To	
0	3	Light Brown fine to medium sand	84	92	Brown silty mudstone
3	18	Yellow fine to medium sand	92	115	White fine to medium micaceous sandstone
18	25	Red fine to medium sand	115	139	Dark Brown fine to medium micaceous sandstone
25	29	Orange sand (fine to medium)			
29	36	Grey silcrete	139	144	Grey mudstone
36	46	Light white fine to medium sandstone	144	151	Coal
			151	155	Dolerite
46	51	Orange mudstone	155	185	Grey mudstone
51	54	White fine to medium sandstone	185	194	Grey mudstone interbedded with white sandstone
54	71	Calcrete	194	218	White fine to medium micaceous sandstone
71	84	Green mudstone	218	250	Red fine to medium micaceous sandstone
No. of sludge samples submitted					

REMARKS Fractures, cavities, changes in penetration rate, caving and drilling difficulties etc :

SKETCH MAP OF BOREHOLE SITE



YIELD TEST RECORD (Detailed pumping test to be given on form G.S. 200)

All measurements in (m) below top of casing

Date of test Total time tested h
 Depth of borehole before test m. After test m
 Type of pump/bailer
 Depth of pump-cylinder m
 Diameter of cylinder mm. No. of strokes/min.
 Static water level immediately before test m
 Static water level 8 hours after test m
 Pumping water level m
 Pumping rate m³/h
 Is yield considered permanent yes/no
 Taste, colour, odour of water
 Conductivity of water 630 EC micromhos.
 No. of water samples submitted 2 by WMC
 Water use

Date : 26-10-05 Signature of driller
 Date : 17-11-05 Signature of borehole inspector M-Masile

PULA GROUNDWATER DEVELOPERS
 (PTY) LTD
 P.O. BOX 106
 GABORONE Tel/Fax 371074

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 Pink - Driller

WATER RESOURCES CONSULTANTS (PTY) LTD
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 GABORONE, BOTSWANA
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GOVERNMENT OF BOTSWANA

G.S. 184

BOREHOLE COMPLETION CERTIFICATE

OFFICIAL BH NO 10221

DISTRICT GHAZI MAP SHEET..... LAT S 23° 15' 7.65" LONG E 20° 40' 0.17"LOCATION NCOJANENAME AND ADDRESS OF APPLICANT DEPT. OF WATER AFFAIRSSITED BY WATER RESOURCES CONSULTANTS DRILLED BY PULA GROUNDWATER DEVELOPERSDATE OF COMMENCEMENT 27/06/05 DATE OF COMPLETION 30/07/05

DRILLED DIAMETER

Diameter mm	From m	To m
381	0	80
305	80	224
254	224	278
251	278	327

CASING LEFT IN BOREHOLE

Diameter mm	Type	From m	To m
381	PLAIN	+0.5	6.5
305	PLAIN	+0.4	80
254	PLAIN	+0.6	244

SCREEN DETAILS

Dia mm	Type	Slot size	From m	To m

AQUIFER DETAILS

No	Water struck m	Water level m	Estimated yield m ³ /h
1	277		44
2			
3			

Total depth of borehole.....m Main aquifer 277-327.....m

Static water level (SWL) on completion of borehole.....in m below top of casing

DEPTH (m)		DRILLER FORMATION LOG	DEPTH (m)		GEOLOGIST FORMATION LOG
From	To		From	To	
0	3	Orange Fine Grained Sand	180	189	White Fine Grained Sandstone
3	7	Light Brown Fine Grained Sand	189	207	Brown Fine Grained micaceous Sandstone
7	10	Calcrete	207	213	Grey Black Very Fine Grained micaceous Sandstone
10	31	Brown Fine Grained Sandstone			
31	42	Conglomerate	213	224	Brown Fine to medium Grained micaceous Sandstone
42	77	Pink mudstone	224	235	Grey Black Fine medium Grained micaceous Sandstone.
77	81	Pink Very Fine Grained Sandstone			
81	112	Conglomerate	235	276	Black mudstone
112	116	Purple very fine Grained Sandstone	276	277	White medium to coarse Grained Sandstone
116	122	Red mudstone	277	278	Black mudstone
122	180	Grey dolomite	278	327	White medium to coarse grained Sandstone
No. of sludge samples submitted.....					

REMARKS Fractures, cavities, changes in penetration rate, caving and drilling difficulties etc :.....

I, WATER RESOURCES CONSULTANTS

as a duly qualified and registered person

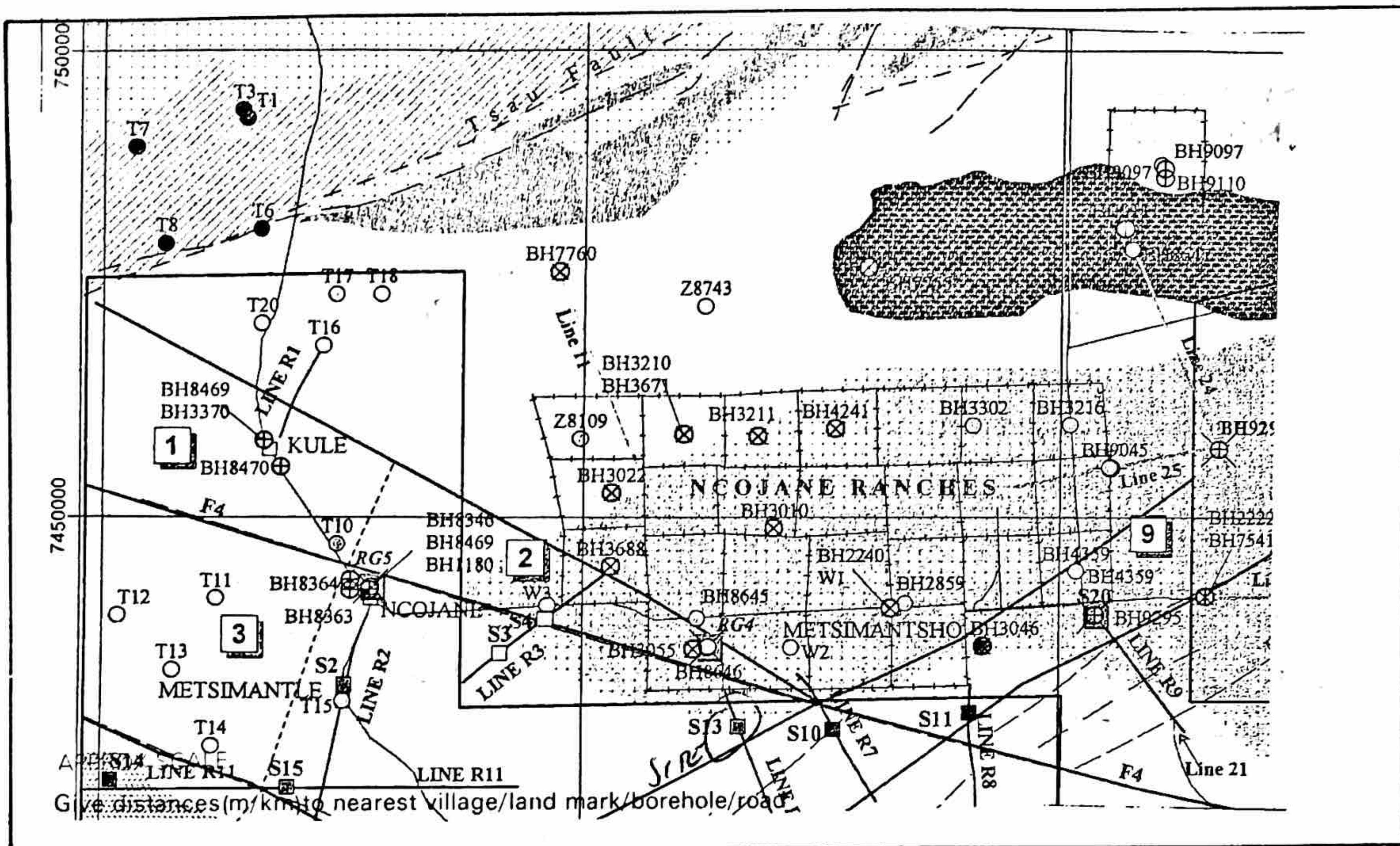
do hereby certify that

the above information is true

and correct

to the best of my knowledge

SKETCH MAP OF BOREHOLE SITE



YIELD TEST RECORD (Detailed pumping test to be given on form G.S. 200)

All measurements in (m) below top of casing

Date of test Total time tested h

Depth of borehole before test m. After test m

Type of pump/bailer

Depth of pump-cylinder m

Diameter of cylinder mm. No. of strokes/min.

Static water level immediately before test m

Static water level 8 hours after test m

Pumping water level m

Pumping rate m³/h

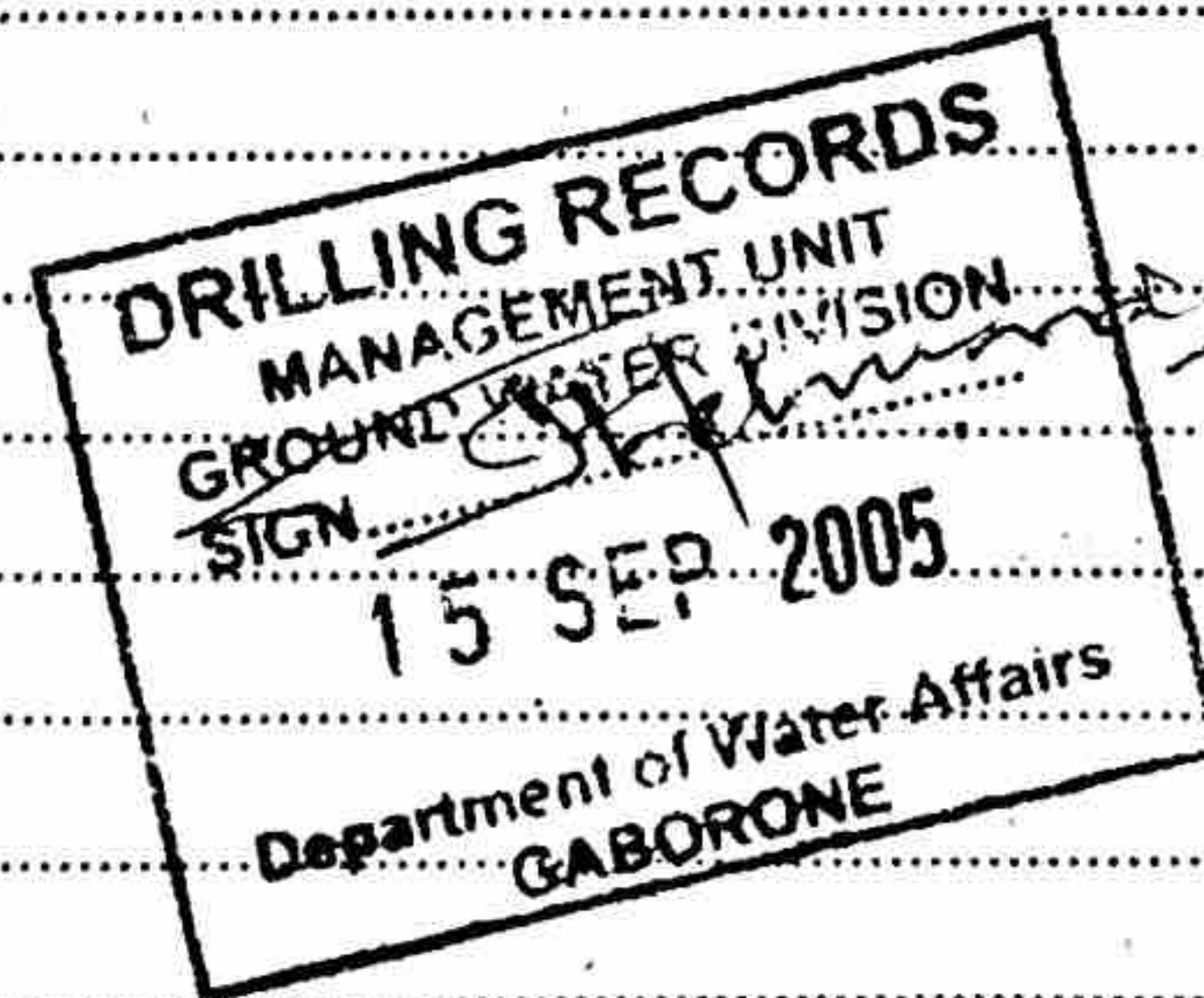
Is yield considered permanent yes/no

Taste, colour, odour of water

Conductivity of water micromhos.

No. of water samples submitted by

Water use DOMESTIC



Date: 18/09/05 Signature of driller: [Signature]

Date: 18-08-05 Signature of borehole inspector: M-Mashe

PULA GROUNDWATER DEVELOPERS (PTY) LTD
P.O. BOX 106
GABORONE Tel/FAX: 371574

Copies
White - Owner of bh. (private bh.)
Dept Water Affairs (government bh.)
Yellow - Dept Geological Survey
Blue - Dept. Water Affairs
Pink - Driller

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GOVERNMENT OF BOTSWANA

G.S. 184

BOREHOLE COMPLETION CERTIFICATE

OFFICIAL BH NO 10217

DISTRICT KGALAGADI MAP SHEET LAT E 020°38'1.77" LONG S 23°32'53.2"LOCATION UKWI VIINAME AND ADDRESS OF APPLICANT DEPARTMENT OF WATER AFFAIRSSITED BY WUC DRILLED BY T.H. DRILLING PVT LTDDATE OF COMMENCEMENT 21-11-05 DATE OF COMPLETION 11-12-05

DRILLED DIAMETER

Diameter mm	From m	To m
254mm	0m	164m
203mm	164m	285m
165mm	285m	349m
159mm	349m	400m

CASING LEFT IN BOREHOLE

Diameter mm	From m	To m
254	PLAIN STEEL 0m	4.29
203	PLAIN STEEL 0m	164m
169	PLAIN STEEL 11.18	285m
60mm	PVC 2" PLAIN 11.18	377.327

SCREEN DETAILS

Dia mm	Type	Slot size	From m	To m
60mm	PVC	1mm	371.642	371.487
	IMPROVED			

AQUIFER DETAILS

No	Water struck m	Water level m	Estimated yield m ³ /h
1	338	97	4.4 m ³ /h
2	371	97	10.50 m ³ /h
3			

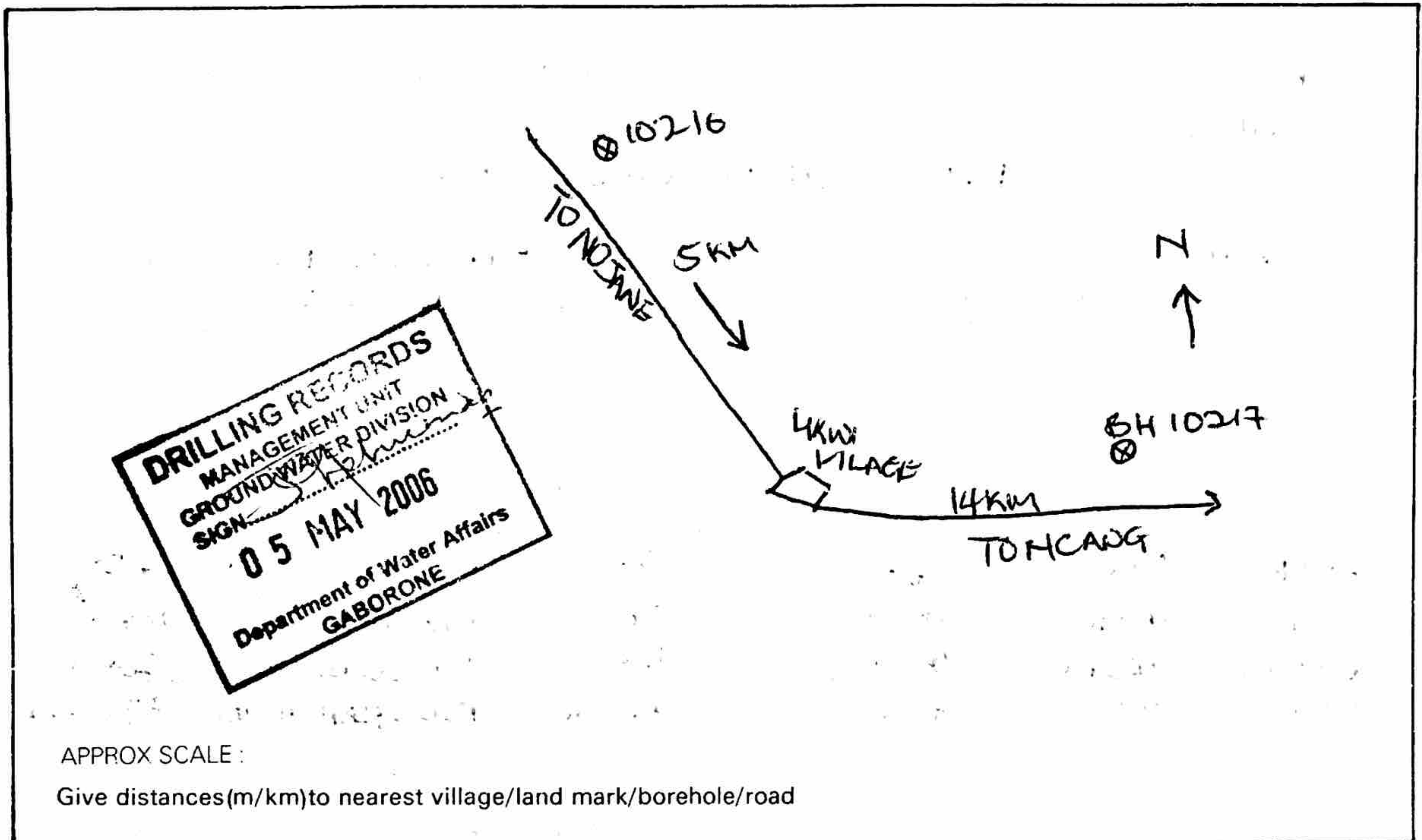
Total depth of borehole 400 MTR m Main aquifer 371m mStatic water level (SWL) on completion of borehole 94.02 MTR in m below top of casing

DEPTH (m)		DRILLER FORMATION LOG	DEPTH (m)		GEOLOGIST FORMATION LOG
From	To		From	To	
0	11	SAND, WHITISH BROWN FINE CALCAREOUS	78	80	DOLERITE LIGHT BROWN, RUSTY AND WEATHERED
11	55	SANDSTONE, PINK, FINE AND SILICIFIED	80	154	DOLERITE, GREY
55	57	SANDSTONE, PINKISH GREEN SILICIFIED, WITH CHIPS OF BROWNISH WEATHERED DOLERITE	154	156	MUDSTONE, GREY, SHALE WITH GREY SILTSTONE, PURPLE MUDSTONE INTERCALATED WITH GREY DOLERITE
57	71	DOLERITE, LIGHT BROWN, RUSTY AND WEATHERED	156	161	MUDSTONE, GREY, SHALE Interbedded with grey siltstone and purple mudstone
71	78	DOLERITE GREY	161	164	Mudstone, Black, Pyritic, Interbedded with grey Mudstone Purple Mudstone.
No. of sludge samples submitted <u>131</u>					

REMARKS Fractures, cavities, changes in penetration rate, caving and drilling difficulties etc :

THERE WAS DRILLING DIFFICULTIES DUE TO BACK PRESSURE HOW EVER
MANAGED TO SUCCED WITH THE 6 1/4 TRICOR-BIT AFTER BLOCKING THE
TOP AQUIFER WITH 6 1/2 STEEL CASINGS.

SKETCH MAP OF BOREHOLE SITE



YIELD TEST RECORD (Detailed pumping test to be given on form G.S. 200)

All measurements in (m) below top of casing

Date of test Total time tested h

Depth of borehole before test m. After test m

Type of pump/bailer m

Depth of pump-cylinder m

Diameter of cylinder mm. No. of strokes/min.

Static water level immediately before test m

Static water level 8 hours after test m

Pumping water level m

Pumping rate m³/h

Is yield considered permanent yes/no

Taste, colour, odour of water

Conductivity of water E.C. = 13.5 mS micromhos.

No. of water samples submitted 2 SAMPLE BOTTLES by TH DRILLING

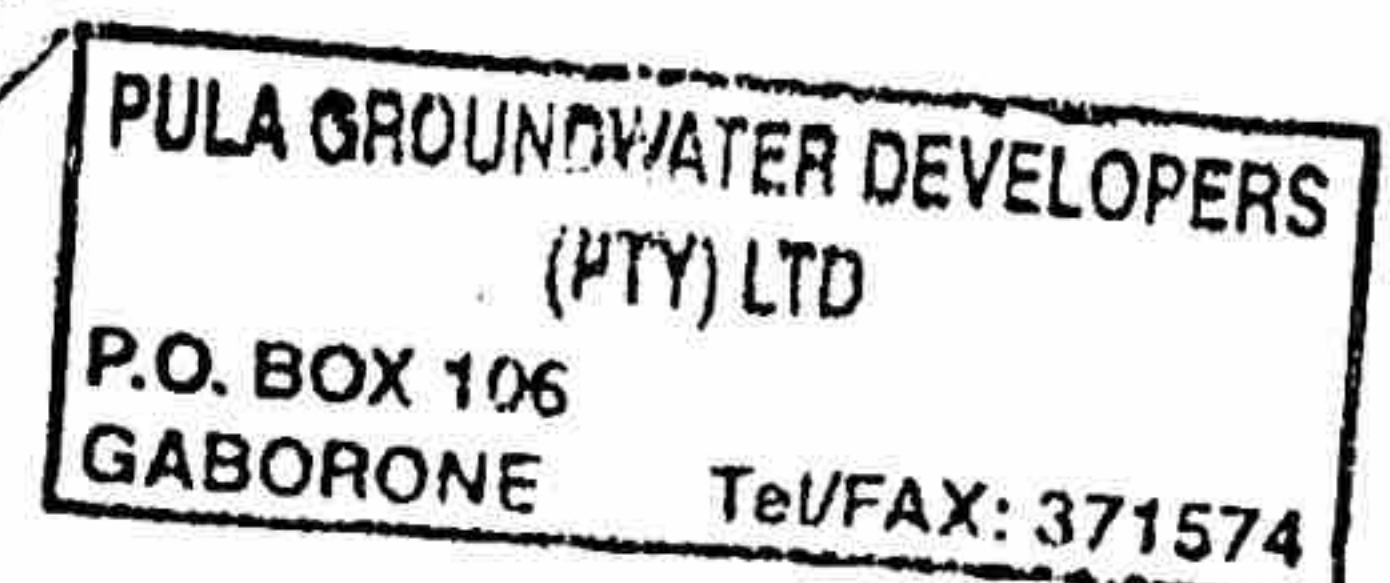
Water use SALT NOT FOR DRINKING. MONITORING SALINE AQUIFER.

Date : 4/12/05

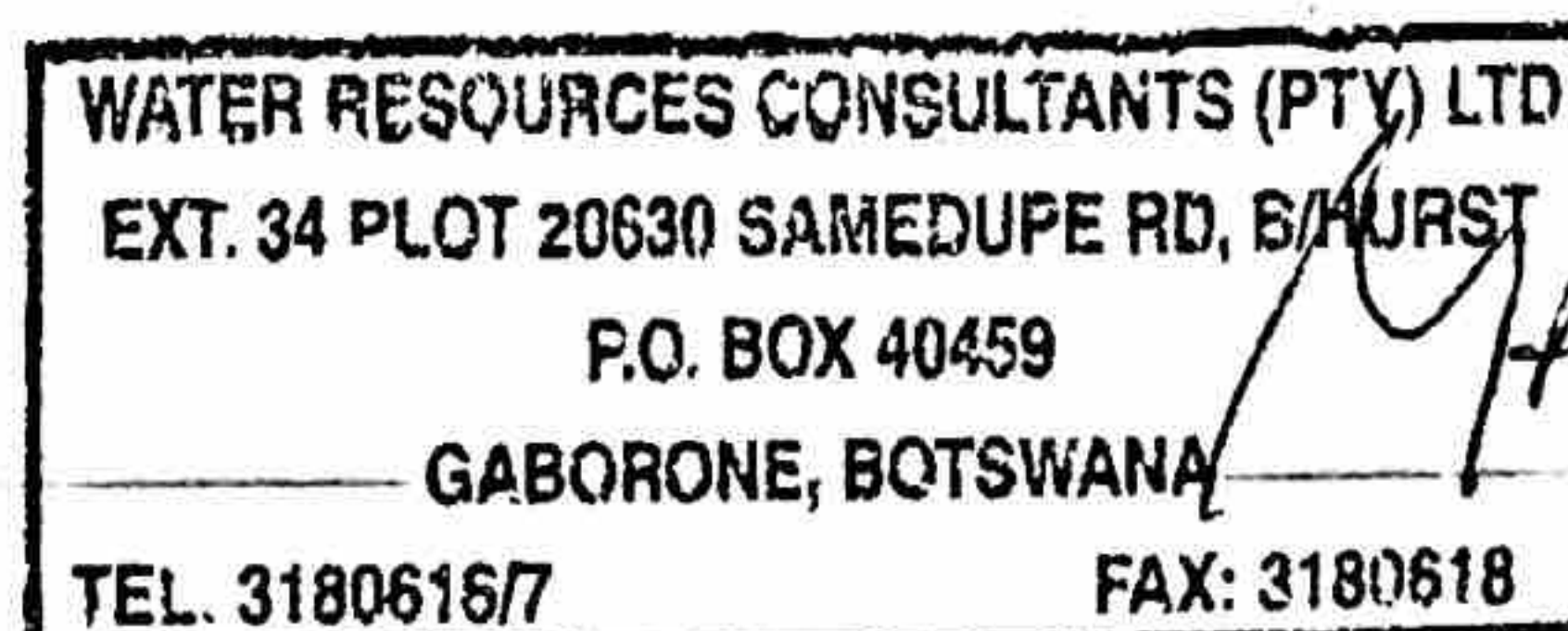
Signature of driller [signature]

Date : 11/01/2006

Signature of borehole inspector



- Copies .
- White - Owner of bh. (private bh.)
 - Dept. Water Affairs (government bh.)
 - Yellow - Dept. Geological Survey
 - Blue - Dept. Water Affairs
 - Pink - Driller



[signature] VE

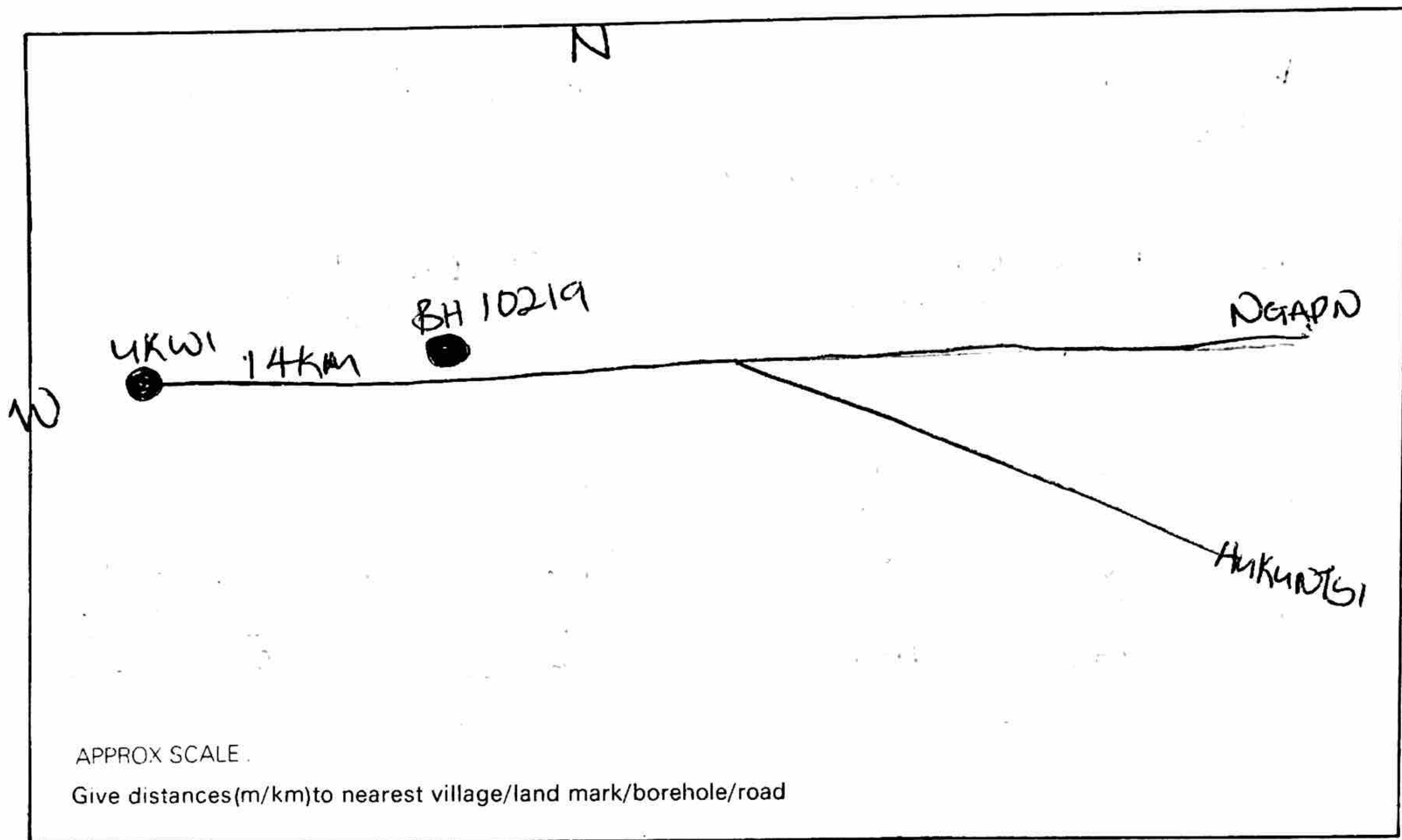
BOREHOLE COMPLETION CERTIFICATE

G.S. 184

DATE OF COMMENCEMENT: 26-01-2006 DATE OF COMPLETION 17-02-2006

REMARKS: Fractures, cavities, changes in penetration rate, caving and drilling difficulties etc :.....

SKETCH MAP OF BOREHOLE SITE



YIELD TEST RECORD (Detailed pumping test to be given on form G.S. 200)

All measurements in (m) below top of casing

Date of test Total time tested h
 Depth of borehole before test m. After test m
 Type of pump/bailer
 Depth of pump-cylinder m
 Diameter of cylinder mm. No. of strokes/min.
 Static water level immediately before test m
 Static water level 8 hours after test m
 Pumping water level m
 Pumping rate m³/h
 Is yield considered permanent yes/no YES
 Taste, colour, odour of water
 Conductivity of water 1472 micromhos.
 No. of water samples submitted 3 by WATER RESOURCES
 Water use DOMESTIC

Date : 17/2/2006 Signature of driller [Signature]

Date : 15-03-06 Signature of borehole inspector M. Masie

Copies : White - Owner of bh. (private bh.)
 Dept. Water Affairs (government bh.)
 Yellow - Dept. Geological Survey
 Blue - Dept. Water Affairs
 Pink - Driller



GOVERNMENT OF BOTSWANA

G.S. 184

BOREHOLE COMPLETION CERTIFICATE

DATE 28-04-1999

DISTRICT MAP SHEET 22° 44' 00" 20° 05' 32"

LOCATION

NAME AND ADDRESS OF APPLICANT

P O BOX 14, CHARLES HILL

SITED BY

DATE OF COMMENCEMENT

P. M. GROUNDWATER DEVELOPERS

DATE OF COMPLETION

DRILLED DIAMETER

Diameter mm	From m	To m
254	0	24
203	24	33
165	33	300

CASING LEFT IN BOREHOLE

Diameter mm	Type	From m	To m
PLAIN	0	24	
PLAIN	0	33.5	

SCREEN DETAILS

Dia mm	Type	Slot size	From m	To m

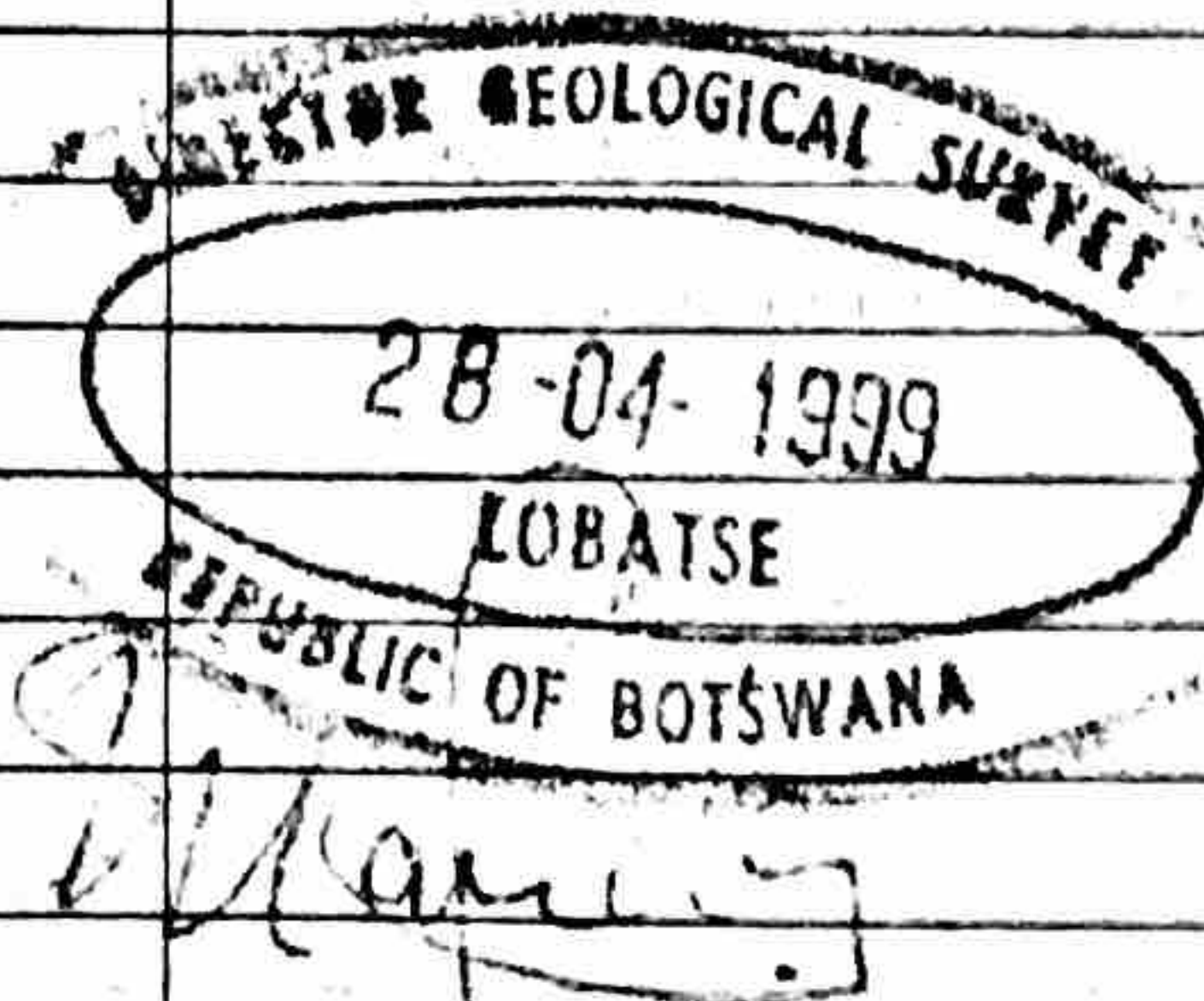
AQUIFER DETAILS

No	Water struck m	Water level m	Estimated yield m ³ /h
1		see PAGE	
2			
3			

Total depth of borehole 300 m Main aquifer 266 m

Static water level (SWL) on completion of borehole in m below top of casing

DEPTH (m)		DRILLER FORMATION LOG	DEPTH (m)		GEOLOGIST FORMATION LOG
From	To		From	To	
0	2	KALAHARI SAND			
2	7	CALCRETE			
7	23	KALAHARI SAND			
23	28	SILCRETE			
28	31	WEATHERED SANDSTONE			
31	47	SANDSTONE			
47	300	QUARTZITE			
No. of sludge samples submitted					



REMARKS: Fractures, cavities, changes in penetration rate, caving and drilling difficulties etc :

BOEHRLE COMPLETION CENTER, 111

3212

YIELD TEST RECORD (Detailed pumping test to be given on form G.S. 200)

Date of test Total time tested h

Depth of borehole before test m. After test m

Type of pump/bailer ~~Hand held 50 gallon pump no 1200~~

Depth of pump-cylinder.....m

Diameter of cylinder mm. No. of strokes/min.

Static water level immediately before test m

Static water level 8 hours after test

Pumping water level,.....m

Pumping rate m/h

Is yield considered permanent yes/no

Taste, colour, odour of water

Conductivity of water micromhos.

No. of water samples submitted by

Water use

Date : 15/05/2017 Signature of driller :

Date: 12-04-99 Signature of borehole inspector

- Copies : White - Owner of bh. (private bh.)
 Dept. Water Affairs (government bh.)
 Yellow - Dept. Geological Survey
 Blue - Dept. Water Affairs
 Pink - Driller

28834

DISTRICT: GHANZI. MAP SHEET: 23° 09' 42" 20' 31' 12"LOCATION: NCOTANE AREA.NAME AND ADDRESS OF APPLICANT: XOOTE SYNDICATESITED BY: SELF.DRILLED BY: UNITED DRILLERS (Pty) Ltd.DATE OF COMMENCEMENT: 20/2/99.DATE OF COMPLETION: 2/3/99.

DRILLED DIAMETER

Diameter mm	From m	To m
375	0	2
304.	2	27
205	27	145
165	145	216.

CASING LEFT IN BOREHOLE

Diameter mm	Type	From m	To m
304	Steel	0	2
205	Steel	0	27
165	Steel	0	145

SCREEN DETAILS

Dia mm	Type	Slot size	From m	To m

AQUIFER DETAILS

No	Water struck m	Water level m	Estimated yield m ³ /h
1	196	104	12,1
2			
3			

Total depth of borehole: 216 mMain aquifer: 196 mStatic water level (SWL) on completion of borehole: 104 m

in m below top of casing

DEPTH (m)		DRILLER FORMATION LOG	DEPTH (m)		GEOLOGIST FORMATION LOG
From	To		From	To	
0	2	Loose Sand			
2	9	Calcrete			
9	30	Red Mudstone			
30	41	Red sand			
41	54	Sandstone			
54	96	Sand			
96	132	Mudstone			
132	183	Black Schale			
183	216	Blue Freest			
No. of sludge samples submitted: <u>75</u>					

REMARKS: Fractures, cavities, changes in penetration rate, caving and drilling difficulties etc.

When good drilling. Good water fracture at 196 meters.

SKETCH MAP OF BOREHOLE SITE

BOREHOLE COMPLETION CERTIFICATE

18585

14.

DATE OF COMPLETION: 1/12/2014

NAME OF DRILLER: NCO 1716

50 km. Borehole

HUKUNTSI

From m	To m	Type	Diameter mm

APPROX SCALE: 1:1000

Give distances (m/km) to nearest village/land mark/borehole/road

From m	To m	Type	Diameter mm

YIELD TEST RECORD (Detailed pumping test to be given on form G.S. 200)

All measurements in (m) below top of casing

Date of test: 1/12/2014 Total time tested: 2 h

Depth of borehole before test: 10 m After test: 10 m

Type of pump/bailer: 2/5

Depth of pump-cylinder: 2.5 m

Diameter of cylinder: 100 mm No. of strokes/min: 10

Static water level immediately before test: 10 m

Static water level 8 hours after test: 10 m

Pumping water level: 10 m

Pumping rate: 10 m³/h

Is yield considered permanent yes/no: yes

Taste, colour, odour of water: clear

Conductivity of water: 100 micromhos

No. of water samples submitted: 1 by: (Driller)

Water use: 10 m³/h

Date: 1/12/2014 Signature of driller: (Signature)

Date: 1/12/2014 Signature of borehole inspector: (Signature)

- Copies:
- White - Owner of bh. (private bh.)
 - Yellow - Dept. Water Affairs (government bh.)
 - Blue - Dept. Geological Survey
 - Pink - Driller



GEOLOGICAL SURVEY DEPARTMENT

BOREHOLE COMPLETION CERTIFICATE

No. _____

BOREHOLE NO. To be filled in by Driller

OFFICIAL NO. 2383 To be filled in by Headquarters

Tribal Territory or District Nofane Place or nearest well known locality

GOVERNMENT }
TRIBAL } ~~Delete~~ classifications which do not apply
PRIVATE } If private enter name of applicant here

Net dept

Date of commencement of Work 23/3/71 Date of Completion 10/11/71

DEPTH FROM	TO	COLOUR & NATURE OF STRATA
	160	Sandstone white grey
	170	Red clay
	220	Clay + quartz
	370	Sandstone
	470	Dolomite
	490	Sandstone + micaceous
	540	grey sandstone
	570	Grey clay
	699	black grey shale
	728	White sandstone
	732	White clay
	751	White sandstone

DIAMETER & DEPTH OF BOREHOLE

8 inches from surface to 695 feet.
6 inches from 695 feet to 751 feet.
Total depth from surface 751 feet.

TEST DETAILS

By pump 1500 Baller

Inside diameter of cylinder 3 3/4

Length of stroke 14" No. of strokes per min. 36

Depth to which cylinder was inserted 674

Commencement of test hour

Completion of test hour

Total time testing 9 hours

WATER

Depth from surface at which water was struck 699 + 732 feet.

Static water rest level from surface before test 310 feet.

Drawdown over test 674 feet.

Static water rest level from surface after test 310 feet.

Estimated yield per hour 1.5 CC

Is yield considered permanent Yes

Apparent quality of water Fresh

Purpose for which water will be used Net

No. of water samples submitted 2

No. of sludge samples submitted 71

OIL

STORES CONSUMED

Lub. Gals.	Fuel gals.	Coal bags	Water gals.	Grease lbs.	Waste lbs.	Shot lbs.

CASING LEFT IN BOREHOLE ON COMPLETION

Diameter 6 Length 677 Class Plain
5 86 perf.

Foreman, Drill No. Date

I certify that the above particulars are correct and that the Borehole has been completed in accordance with the laws of the Bechuanaland Government relating to drilling.

Date

Driller

9

GEOLOGICAL SURVEY DEPARTMENT

BOREHOLE COMPLETION CERTIFICATE

No.

BOREHOLE NO..... To be filled in by Driller

OFFICIAL NO. 2222 To be filled in by Headquarters
150 miles west of Phuduhudu
Place or nearest well known locality.....

Tribal Territory or District Ghanzi Dist

GOVERNMENT }
TRIBAL } ~~Delete~~ classifications which do not apply
PRIVATE } If private enter name of applicant here

Date of commencement of Work 25/3/69 Date of Completion 9/7/69

DEPTH FROM	TO	COLOUR & NATURE OF STRATA
(3.24)	10	Soil
(6.08)	20	Calcrete
(11.76m)	65	Red S/s stone
(113.88m)	372	S/s stone
(144.912m)	378	Red clay
(127.63m)	420	Red S/s stone
(134.176m)	444	Yellow Clay
(147.44m)	485	Kalahari Moll
(164.16m)	540	grey shale
(182.88)	595	black "
(183.92)	605	Dec dolerite
(223.74)	736	"
(237.94m)	760	White S/s stone
(237.12m)	780	Black shale
(240.16m)	790	white S/s stone

DIAMETER & DEPTH OF BOREHOLE

..... 8 inches from surface to 604 ^{184'} feet.
..... 6 inches from 604 feet to 790 feet.
Total depth from surface 790 240.16 ¹

TEST DETAILS

By pump 4" Baller
Inside diameter of cylinder 3 3/4"
Length of stroke 22 No. of strokes per min. 34
Depth to which cylinder was inserted 630
Commencement of test hour
Completion of test hour
Total time testing 9 hours 237.7

WATER

..... 605, 736, 755, 780
Depth from surface at which water was struck feet.
Static water rest level from surface before test 418 feet.
Drawdown over test nil feet.
Static water rest level from surface after test 418 feet.
Estimated yield per hour 315 3000+
Is yield considered permanent Yes
Apparent quality of water very fresh
Purpose for which water will be used vet
No. of water samples submitted 3
No. of sludge samples submitted 80

OIL

STORES CONSUMED

Lub. Gals.	Fuel gals.	Coal bags	Water gals.	Grease lbs.	Waste lbs.	Shot lbs.

CASING LEFT IN BOREHOLE ON COMPLETION

Diameter 6" Length 605 Class

Cavity
30" Cavity at 740'

Foreman..... Drill No..... Date

I certify that the above particulars are correct and that the Borehole has been completed in accordance with the laws of the Bechuanaland Government relating to drilling.

Date

Driller

GOVERNMENT OF BOTSWANA

BOREHOLE COMPLETION CERTIFICATE

OFFICIAL BH NO. 5029

G.S. 184

DISTRICT: Kgatleng MAP SHEET: LAT: LONG:LOCATION: CumobokNAME AND ADDRESS OF APPLICANT: Water DeptSITED BY: Water Dept DRILLED BY: G. M. M. M. M.DATE OF COMMENCEMENT: 03/08/86 DATE OF COMPLETION: 05/04/86

DRILLED DIAMETER

Diameter mm	From m	To m
305	0	32
254	32	69
165	114	150

CASING LEFT IN BOREHOLE

Diameter mm	Type	From m	To m
254	P/Casing	0	69

SCREEN DETAILS

Dia mm	Type	Slot size	From m	To m

AQUIFER DETAILS

No	Water struck m	Water level m	Estimated yield ³ m/h
1	71		
2	120	40	1.44
3	140	2608-11-3214	

Total depth of borehole 150 m Main aquifer 140 mStatic water level (SWL) on completion of borehole 28 in m below top of casing

DEPTH (m)		DRILLER FORMATION LOG	DEPTH (m)		GEOLOGIST FORMATION LOG
From	To		From	To	
0	49	Gravel/S/Stone		28	
49	140	Shale/Claystone		201	
140	150	Gravel/S/Stone		251	
				261	
				271	
				281	
				291	
				301	
				311	
				321	
				331	
				341	
				351	
				361	
				371	
				381	
				391	
				401	
				411	
				421	
				431	
				441	
				451	
				461	
				471	
				481	
				491	
				501	
No. of sludge samples submitted <u>50</u>					

REMARKS: Fractures, cavities, changes in penetration rate, caving and drilling difficulties etc.
There were no drilling difficulties encountered during the drilling of this borehole.

SKETCH MAP OF BOREHOLE SITE

South Africa West Africa Broadhurst

Gumbok
Nossop River

61km

Swart Pan

To

Ncojane Village
Ncojane Villa
154km

B/H 5229

APPROX SCALE

Give distances (m/km) to nearest village/land mark/borehole/road

YIELD TEST RECORD - (Detailed pumping test to be given on form G.S. 200)

All measurements in (m) below top of casing

Date of test 26-04-86 Total time tested 24 h

Depth of borehole before test: 150 m. After test: 150 m.

Type of pump/bailer Piston Pump

Depth of pump-cylinder 140 m

Diameter of cylinder 2.7 mm. No. of strokes/min. 32

Static water level immediately before test 83 m

Static water level 8 hours after test 105 m

Pumping water level 136 m

Pumping rate 2 m/h

Is yield considered permanent yes/no yes

Taste, colour, odour of water: Very Salt

Conductivity of water 2500 micromhos.

No. of water samples submitted 1550 by

Water use for water animals

Date: 27-04-86 Signature of driller: G. H. Shongwa

Date: 10/2/87 Kenner Signature of borehole inspector

Copies : White - Owner of bh. (private bh.)
Dept. Water Affairs (government bh.)
Yellow - Dept. Geological Survey
Blue - Dept. Water Affairs
Pink - Driller

GOVERNMENT OF BOTSWANA

G.S. 184

BOREHOLE COMPLETION RECORD

OFFICIAL BH NO. 6340

DISTRICT: Kgalagadi MAP SHEET 2320D LAT 23°41'59.6" LONG 20°51'7.7"
 LOCATION Masetlheng
 PROJECT Petro-Canada / Botswana Government
 NAME AND ADDRESS OF APPLICANT Petro-Canada International
Box # 2844 Calgary - Alberta Canada
 SITED BY Petro-Canada DRILLED BY SDS-Drilling LTD.
 DATE OF COMMENCEMENT April 5/89 DATE OF COMPLETION April 16/89

DRILLED DIAMETER

Diameter mm	From m	To m
7 1/2"	0	82
5 1/2"	82	340

CASING LEFT IN BOREHOLE

Diameter mm	Type	From m	To m
6"	Steel	0	82

SCREEN DETAILS

Dia mm	Type	Slot size	From m	To m

AQUIFER DETAILS

No	Water struck m	Water level m	Estimated yield 3 m/h
1	196		4 Liters/Minute
2			
3			

Total depth of borehole 340 m Main aquifer 196 m

Static water level (SWL) on completion of borehole 90.50 in m below top of casing

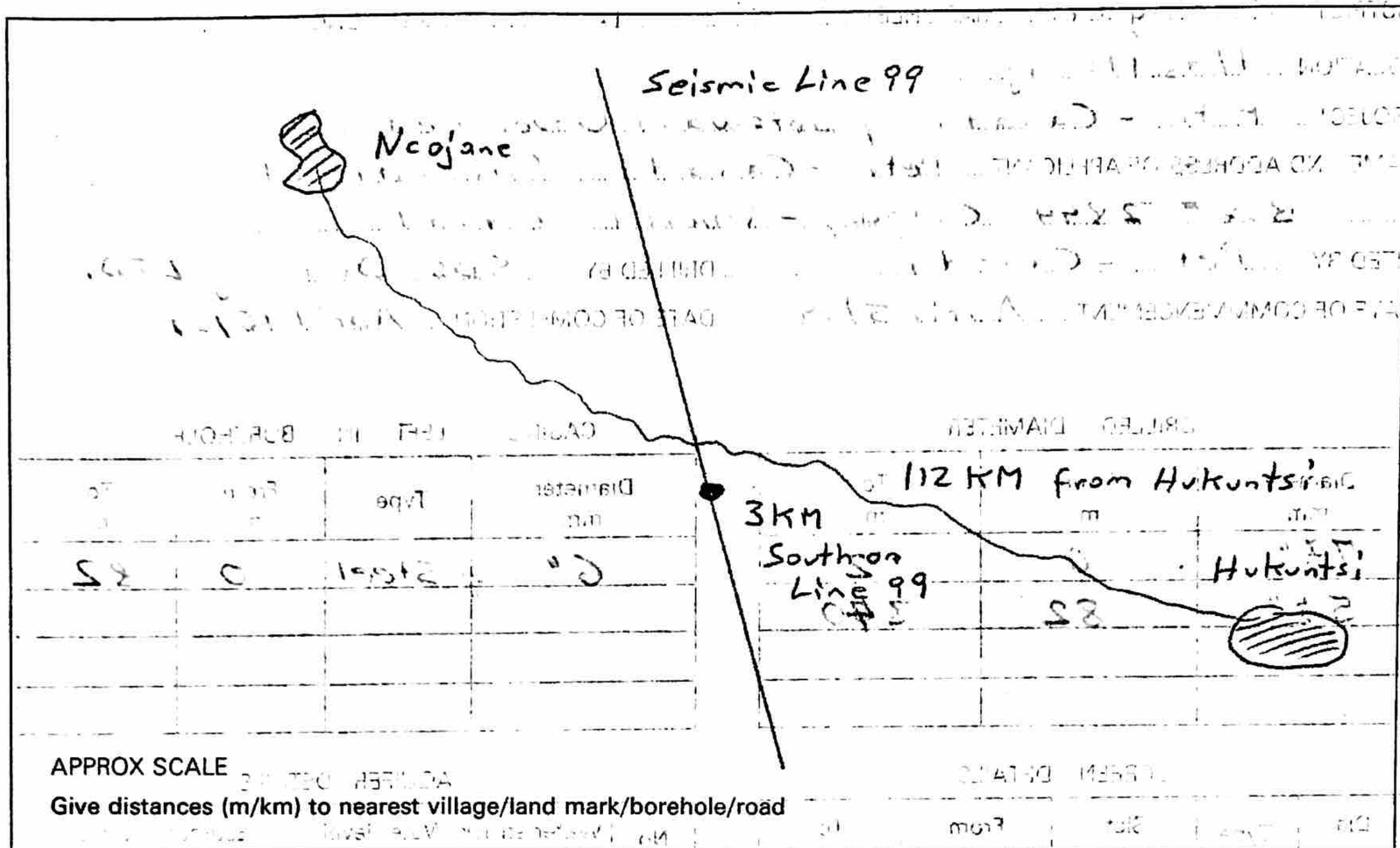
DEPTH (m)		DRIILER FORMATION LOG	DEPTH (m)		GEOLOGIST FORMATION LOG
From	To		From	To	
0	6	Sand			
6	24	Silcrete Unconsolidated Sand			
24	51	Pebbly Siltstone			
51	138	Mudstone			
138	207	Carbonaceous Mudstone			
207	234	Black Shale			
234	340	Dolerite			
No. of sludge samples submitted <u>114</u>					

REMARKS: Fractures, cavities, changes in penetration rate, caving and drilling difficulties etc:

Dry Hole, very hard Dolerite

SKETCH MAP OF BOREHOLE SITE

G.S. 183A



YIELD TEST RECORD (Detailed pumping test to be given on form G.S. 183A and 183B)

All measurements in (m) below top of casing

Date of test..... Total time tested..... h

Depth of borehole before test..... m. After test..... m

Type of pump/bailer.....

Depth of pump-cylinder..... m

Diameter of cylinder..... mm No. of strokes/min.....

Static water level immediately before test..... m

Static water level 8 hours after test..... m

Pumping water level..... m

Pumping rate..... m³/h

Is yield considered permanent yes/no.....

Taste, colour, odour of water.....

Conductivity of water..... micromhos

No. of water samples submitted..... by.....

Water use.....

Date..... April 16/89..... Signature of driller: *E. M. M. M.*

Date..... April 16/89..... Signature of borehole inspector or borehole owner: *E. M. M. M.*

Copies: White - Owner of bh. (private bh.)
Dept. Water Affairs (government bh.)
Yellow - Dept. Geological Survey
Blue - Dept. Water Affairs
Pink - Driller

O.D. DRILLING

P.O. BOX 30125
TLOKWENG
TEL: 312681

GOVERNMENT OF BOTSWANA

BOREHOLE COMPLETION CERTIFICATE

G.S. 184

OFFICIAL BH NO 8216

DISTRICT KGALAGADI MAP SHEET 2420 B3 LAT 24° 22' 00" S LONG 20° 39' 11" E
LOCATION NORTHERN BORDER OF GEMSBOK PARK
NAME AND ADDRESS OF APPLICANT DEPARTMENT OF WATER AFFAIRS
P/O BOX 1029 GABORONE
SITED BY GEOFLUX DRILLED BY O.D. DRILLING
DATE OF COMMENCEMENT 22/10/96 DATE OF COMPLETION 25/10/96

DRILLED DIAMETER

Diameter mm	From m	To m
304	0	36
254	36	81
204	81	137

CASING LEFT IN BOREHOLE

Diameter mm	Type	From m	To m
304	PLAIN	0	6
254	PLAIN	6,64	36
204	PLAIN	36,39	81
165	PLAIN	81,01	137

SCREEN DETAILS

Dia mm	Type	Slot size	From m	To m

AQUIFER DETAILS

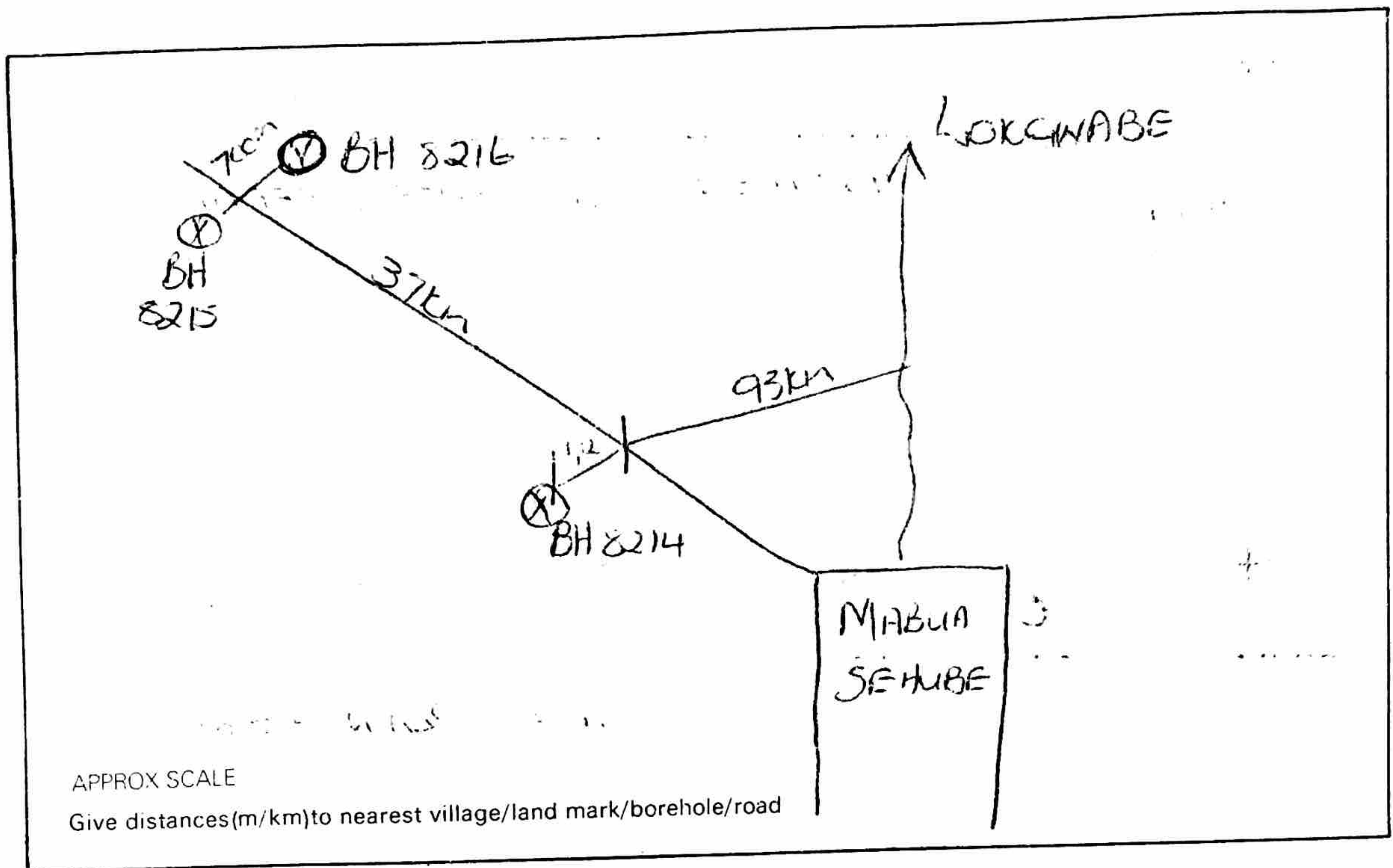
No	Water struck m	Water level m	Estimated yield m ³ /h
1	136	64	15,9 m ³ /h
2	137	64	22,5 m ³ /h
3			

Total depth of borehole 137 m Main aquifer 136 mStatic water level (SWL) on completion of borehole 64,31 m in m below top of casing

DEPTH (m)		DRILLER FORMATION LOG	DEPTH (m)		GEOLOGIST FORMATION LOG
From	To		From	To	
0	12	LIGHT BROWN SANDS	0	52	beige clayey and calcareous sand
12	50	L/BROWN - WHITE SAND			
50	69	WHITE SANDSTONE	52	75	Light pink friable SANDSTONE
69	74	RED SANDSTONE	75	80	Dull yellow-green weathered DOLOMITE
74	93	DOLOMITES			
93	136	BLUE DOLOMITES	80	93	Green-grey weathered DOLOMITE
136	137	WEATHERED DOLOMITES WITH WHITE CRYSTALS	93	135	Green-grey fresh DOLOMITE
			135	136	Dull green-grey weathered DOLOMITE
			136	137	Weathered and fractured DOLOMITE with white CALCITE crystals
No. of sludge samples submitted <u>46</u>					

REMARKS: Fractures, cavities, changes in penetration rate, caving and drilling difficulties etc :
.....
.....
.....
.....
.....

SKETCH MAP OF BOREHOLE SITE



YIELD TEST RECORD (Detailed pumping test to be given on form G.S. 200)

All measurements in (m) below top of casing

Date of test 25/10/96 Total time tested h
 Depth of borehole before test 137 m. After test 137 m
 Type of pump/bailer DRILL RODS
 Depth of pump-cylinder 137m m
 Diameter of cylinder mm. No. of strokes/min.
 Static water level immediately before test m
 Static water level 8 hours after test m
 Pumping water level m
 Pumping rate m/h
 Is yield considered permanent yes/no YES
 Taste, colour, odour of water FRESH / COLOURLESS / ODORLESS
 Conductivity of water 2650, 4-1635 mg/L micromhos.
 No. of water samples submitted 2 by O.D. DRILLING
 Water use

O.D. DRILLING
 P.O. BOX 30125
 TLOKWENG
 TEL: 312681

Date: 29/10/96 Signature of driller: [Signature]

Date: 04/11/96 Signature of borehole inspector: [Signature]

Copies: White - Owner of bh (private bh.)
 Yellow - Dept. Water Affairs (government bh.)
 Blue - Dept. Geological Survey
 Pink - Dept. Water Affairs
 Pink - Driller

GEOFLUX (PTY) LTD
 P.O. BOX 854
 GABORONE TEL. 375 105