

METELERKAMP & RITSON

Water Fee'
Re: Shya. Lo. Npado

ATTORNEYS, NOTARIES PUBLIC AND CONVEYANCERS—PROKUREURS, NOTARISSE EN TRANSPORTBESORGER

TELEX/TELEKS 30275
TELEGRAMS/
TELEGRAMME METLAW

I.B.M. BUILDING/GEBOU
109 PAUL KRUGER ST/STRAAT 109
PRETORIA
0002

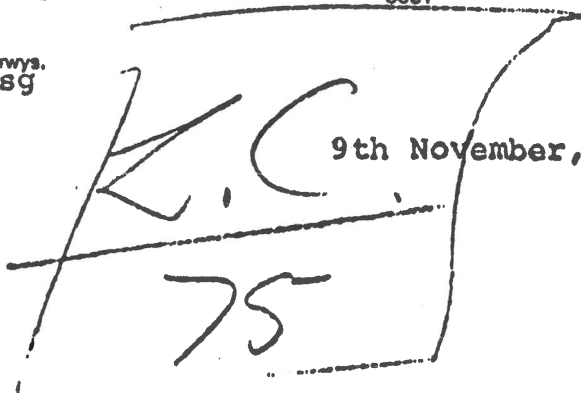
TEL 3-3651
P.O. BOX/POSBUS 776
PRETORIA
0001

Your ref./U verwys.

Our ref./Qns verwys.
Mr Gill/sg
General

9th November, 1981

Attorney Bekker van Rensburg,
P O Box 253,
BARBERTON
1300



Dear Sir,

re : DEEDS OFFICE SEARCH : SERVITUDE ifo LOUWSCREEK IRRIGATION BOARD : FARM DUURSTED 361 J.U.

We thank you for your telex dated 5th November, 1981 and refer to our subsequent telephone conversation.

We confirm that the above Board is the registered holder of a servitude of water storage and abuttment over Portion 1 of the above farm, extending onto Lot 196 "Kaapsche Block" by virtue of Deed of Servitude No. 5736/1938 S. registered on 22nd June 1938.

The Portion of Portion 1 which the servitude occupies is known as "Portion S.1" and it measures 37,9649 Hectares. The Servitude provides further that the owner of the land is required to grant to the Board an extra 5 morgen, adjoining the dam, for recreational purposes. The aforesaid Portion 1 is held by the South African Bantu Trust, and Lot 196 is unalienated State land.

We enclose herewith a rough sketch for your assistance, together with our statement of account and request you to contact us should you require further information.

Yours faithfully,

METELERKAMP & RITSON

Per :

IN THE WATER COURT OF THE WATER COURT DISTRICT NO. 19
(BARBERTON).

In the matter of the application of the LOUWS CREEK IRRIGATION BOARD in the District of Barberton for permission to divert and use in perpetuity water of the Shiya-lo-Ngubu Stream, a public stream, for irrigation upon non-riparian land without the catchment of the said stream.

Heard before -

JOHANNES GERHARDUS VERSTOLCK VAN SOELEN, K.C.,
Water Court Judge, President.

DAVID FRANCOIS MARAIS, B.Sc.(Eng.), Engineer Assessor.

JOHAN NICOLAAS KOHLER, Lay Assessor.

J U D G M E N T.

The Applicant, the Louws Creek Irrigation Board, applies in terms of Section 23 of Act 3 of 1912 for leave to divert and permanently use on non-riparian land in another catchment area so much of the water of the Shiya-lo-Ngubu river as cannot be utilized within the catchment of this river. The Applicant Board has control of the use of water for irrigation on the farms Esperado, Esperado Annex, Maude's Rest, Louws Creek, Louieville, and Lilydale, which are included in the Louws Creek Irrigation District. The farms are not riparian to the Shiya-lo-Ngubu River, and are not within its catchment area. This surplus water is required and can be beneficially used for irrigation on the farms in the above mentioned Irrigation District.

The Shiya-lo-Ngubu, a public stream, rises on the farm Twello No. 21, on the western slopes of the Makonjwa Mountains, a high mountain range running roughly from

region between Barberton and Swaziland. The average elevation of this range exceeds 4,000 feet with several peaks in the southern portions thereof above the 5,000 feet level. The river runs from the farm Twello across the farm Zeist No. 20 in a north-easterly direction for a distance of about 3 miles along the western slopes of the Makonjwa Mountains on to the farm Duurstede. In this section the bed of the river is fairly level. On the farm Duurstede it turns sharply to the right, and continues its flow at right angles in a south-easterly direction through a deep narrow gorge in the Makonjwa Mountains. About 2½ miles after entering the gorge the river crosses the Swaziland border, and joins the Lomati River about 1½ miles further on some thousands of feet below. There is only one farm riparian to the Shiya-lo-Ngubu in Swaziland. It is clear from the evidence and the inspection-in-loco that there is no irrigable ground on the farm Duurstede or the riparian farm in Swaziland; and that these farms are only suitable for grazing and tree planting.

Mr. Lingnau, an engineer in the Irrigation Department, carried out the investigations and survey of the proposed scheme. He took gaugings of the flow of this river at a spot slightly upstream from the proposed point of diversion; he measured on 23rd May, 1935, ten (10) cusecs, on 4th June, 1936, eight (8) cusecs; and on 21st August, 1937, twelve (12) cusecs. The only other reading which is available was taken by the Circle Engineer of the Northern Transvaal Circle in October 1935; the figure was then estimated at 4 cusecs. This low figure was probably due to the severe drought which prevailed during 1935; and no rain having fallen since May of that year.

(which was put in Exhibit 5) Mr. Lingnan says:- "the Makonjwa Mountain Range is the best watered area in the Barberton District. The moisture laden south-east and east winds, which prevail from December to April pass over the relatively low-lying country to the east of the mountain range without losing any appreciable amount of moisture until the higher altitudes of the Makonjwa Mountains are encountered. The Lomati River and its main tributaries rise in this area and therefore benefit by the increased precipitation. The Shiya-lo-Xgubu has its source almost in the centre of the area which is thus favoured." A rainfall map has been compiled for the area of the Makonjwa Mountains and surrounding country based on all the available records up to the year 1935. Unfortunately the records of many rainfall recording stations cover short periods only. Six stations only in the area included in the map have records for periods exceeding 23 years. All the available records have been correlated and adjusted to the approximate equivalent of a 30 years' period and by this means the rainfall values have become mutually comparable. The period chosen for this purpose is 1906-1935. From the computed rainfall map he found that the average rainfall over the catchment area of this river is 55 inches. The average rainfall from 1916 to 1937 i.e. over a period of 21 years at Kasgluban about 10 miles to the north east of Durstede is 55.89 inches. The catchment area of the river down to the gorge through the Makonjwa Mountains is 14.5 square miles: the total precipitation over this area is therefore 42,500 acre feet per annum. No records of the run-off of this river are available. The only records of its flow are those given above. Taking into account similar drainage areas such as the Broadwater...

1400 m

1600 mm

3,124 km²

2240 m

that the run-off may be taken at 20% of the total precipitation; and that 55% of this figure may be expected as the minimum annual run-off. On this basis the mean annual run-

off is 20% of 42,500, that is $10,48 \times 10^6$ (8,500 acre feet) and the

minimum annual run-off is 55% of 8,500, that is $5,708 \times 10^6$ (4,630 acre

feet. He estimated the low flow of the Shiya-lo-Ngubu at

4 cusecs. This figure he based on the only available

estimate given above. This low flow of 4 cusecs amounts

to $2,596$ (2,386 acre feet per year, which, if the minimum annual

run-off is 4,630 acre feet, leaves 1,730 acre feet as run-

off in excess of the low flow. The required storage

capacity he takes as 1,470 acre feet above the outlet.

He arrives at the conclusion that the total water supply

available from the Shiya-lo-Ngubu River, for augmenting

the existing water supply of Louws Creek, will be (1) a

perennial flow of 4 cusecs. No great transmission losses

will occur as there is always some water in Louws Creek;

and (2) water derived from the storage of 1,740 acre feet,

from which evaporation and seepage losses must be deducted.

In order to store and divert this additional supply of

water it will be necessary to construct (1) an arch dam on

the farm Dourstede in the gorge through which the Shiya-lo-

Ngubu flows at a point shown on the Plan S.T.C. 1641/35.

Annexure B to the Application; the wall of the dam to be

72.75 feet above the bed of the river; and, (2) a tunnel

through the high ground forming the watershed between the

two catchment areas, the inlet to the tunnel to be about

2,200 feet upstream from the wall of the dam; and the

length of the tunnel to be 1,626 feet, having approaches

on each side totalling 400 feet. The storage capacity of

this dam above the outlet level of the tunnel will be 1,740

acre feet, and a certain amount of water will remain in

(10,48)

$11,797 \times 10^6 m^3$

$7,377 \times 10^6 m^3$

acre-foot = $1,233 \times 10^3 m^3$

(22.17m)

405.65

$2,15 \times 10^6 m^3$

447.10

the basin below the outlet level. At high flood level 70 acres will be submerged on the farm Duurstede No. 13 and 24½ acres on the farm Minwaard No. 196.

70 acres = 28,328 lva
2 p. 1/2
9,8148 lva

The Court is not asked to deal with the question of servitudes or compensation. The Applicant has entered into a Notarial Agreement with the owner of the farm Duurstede No. 13 with the consent of the mortgagee, whereby the necessary servitudes of abutment and storage have been obtained, subject to the Court granting leave to the Applicant to store and divert water from the Shiya-lo-Ngubu River. The Mining Commissioner of Harberton has intimated to the Applicant that the Department of Mines has no objection to the grant of a special water right to the Applicant on the proclaimed farm Minwaard the property of the Union Government. The Applicant undertakes in the above mentioned Notarial Agreement at its own expense to have a diagram completed by a Government Land Surveyor showing the area in respect of which the servitudes of abutment and storage on the farm Duurstede will be operative. A diagram will also have to be made by a Government Land Surveyor showing the area on the farm Minwaard in respect of which the servitudes of storage and aqueduct will be necessary. In paragraph 6 of the Notarial Agreement the Applicant undertakes to insert in the wall of the proposed dam a pipe of 3 inches internal diameter provided with an efficient valve for opening and closing at a level below the level of the outlet tunnel, and to pass through this pipe a sufficient stream of water to supplement and maintain the water supply in the stream below the dam wall; but not to exceed 50,000 gallons per day of twenty four hours. Apart from this small flow which is to be allowed to pass, there

are, according to the evidence of Mr. Lingnan, considerable accretions to the stream below the site of the proposed dam; and, in his opinion a good deal of seepage from the dam may be expected.

In all the circumstances the Court is of opinion that the Application should be granted.

THE ORDER OF THE COURT IS AS FOLLOWS:-

1. Leave is granted to the Applicant in perpetuity to divert and distribute the normal flow of the Shiya-lo-Ngubu River for secondary use on the farms falling within the Louws Creek Irrigation District. This flow to be diverted into a tunnel, as shown on Plan N.T.C. 1641/36 marked Annexure B to the Application, for conveyance to the Louws Creek catchment area and use as aforesaid.
2. Leave is granted to the Applicant in perpetuity to store, divert and distribute the flood water of the Shiya-lo-Ngubu River for secondary use on the aforesaid farms. The Applicant to store the said flood water in a dam to be constructed in a gorge on the farm Duurstede No. 18 through which this river flows at a point shown on the Plan N.T.C. 1641/36 marked Annexure B to the Application. The storage capacity of this dam above the outlet level of the aforesaid tunnel as shown on the said Plan to be one thousand seven hundred and forty (1,740) acre feet at full supply level.
$$1 \text{ acre-ft} = (1.2335 \text{ m}^3)$$
$$\therefore 1740 \text{ acre-ft} = 4,330 \times 10^3$$
3. The Applicant to insert and affix in the wall of the aforesaid dam a pipe of 3 inches internal diameter

257,304 m³/day
(2,631 cfs)

a level below the level of the outlet tunnel and to pass through this pipe a flow of water not exceeding fifty thousand (50,000) gallons per day of twenty four (24) hours to supplement and maintain the flow in the river below the said dam.

4. Applicant to pay the costs on the higher scale; the inspection-in-locos to be allowed as for an appearance in Court.

(sgd.) J. G. V. VAN SOELEN.
PRESIDENT.

(sgd.) D. F. MARAIS,
ENGINEER ASSESSOR.

(sgd.) J. N. KOHLER.
LAY ASSESSOR.

PRETORIA,
21st September, 1937.