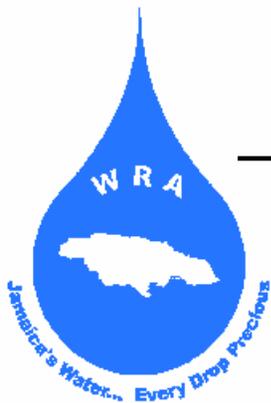


**Geological Society of Jamaica
March 11, 2006**

Flooding at Moneague

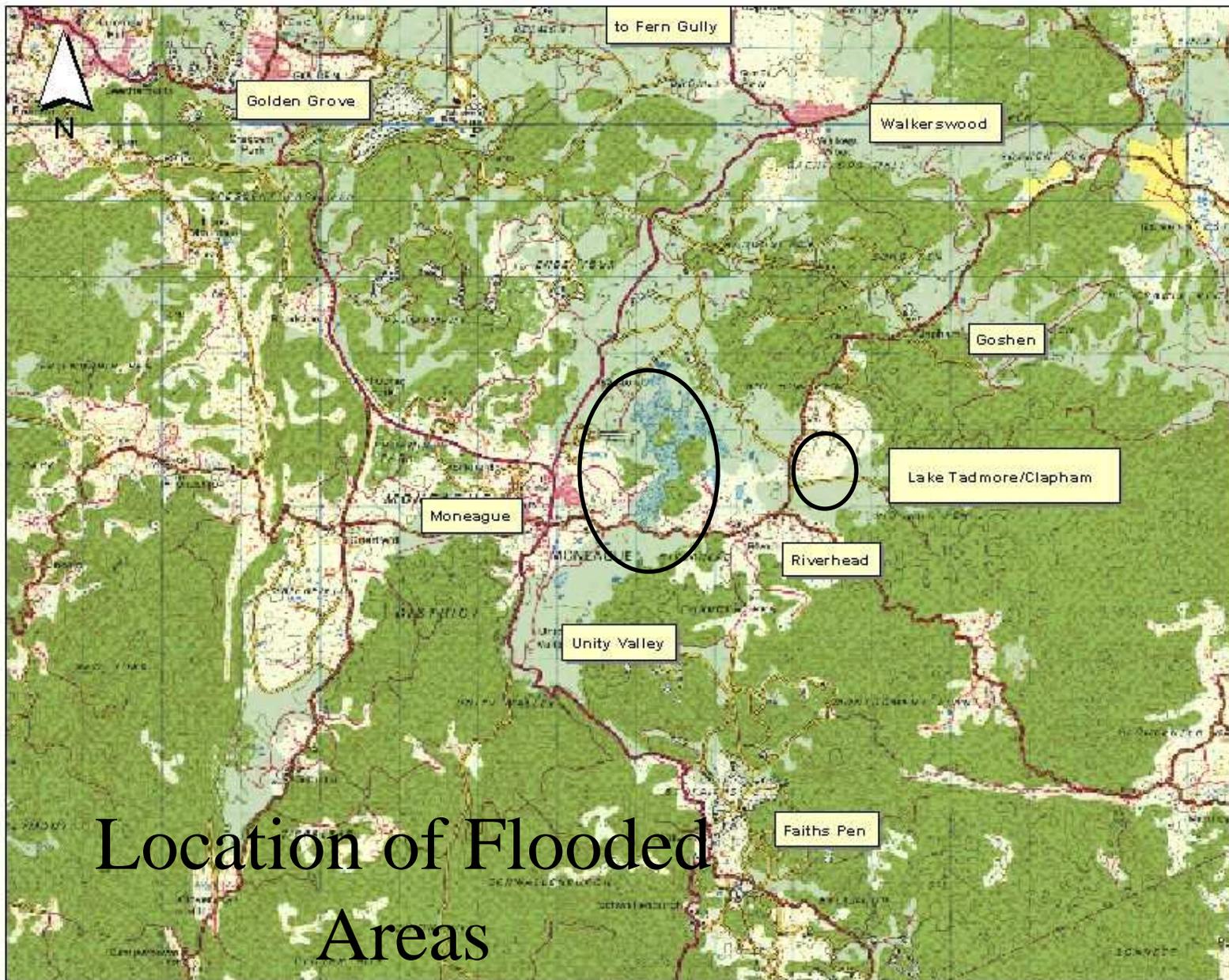
**Basil Fernandez
Managing Director**



Water Resources Authority

Content

- Site Location and Description
- History of Flooding in Moneague
- Factors Abetting Flooding
- Present status and projections
- Recommendations
- Summary



Location of Flooded Areas

0 3 6 Kilometers

History of Flooding

Year of Rise	Annual Rainfall (mm)	Lake Life (years)	Impact
1810			<u>>4 mi² covered</u>
1863			>1 mi ² covered
1874			<1863 Lake
1886	2794		
1916	3,205	3	>0.7 mi ² , 8 houses covered, 2 lives lost
1933	3,582	>3	0.8 mi ² (500 acres), 18 houses covered, 1 life lost
1963			
1970			
1974		>3	
1988			
2002			
2005-	3,398 (in 2005)	Still rising	0.70 mi ² , 12 houses covered 2 lives lost

*12 events
in 195 years*

*16-year
event*

Extracts

1811: The Moneague Lake, which started falling six weeks ago now covers 3 square miles of land. So far it has fallen 2' 3" of its perspective, and is falling approximately 1/2" per day. Because properties have been destroyed by the lake, the Vestry has withdrawn taxes for the properties which have been inundated.

dialect tradition of Dunbar.

1934: Acting Governor, Sir Arthur Jeff, and other senior officials visit the Moneague Lake in St. Ann to assess its potential as a tourist attraction. They find hundreds of acres, roads and 18 houses in the area under water. Motor boats and canoes are being used for transport and recreation, especially at weekends when visitors and Jamaicans from Kingston and other parts of the island visit the site for picnics, swimming and sailing. The Lake started rising on August 15 last year, and a quick search of historical records reveals that the lake appeared in May 1811, and on other occasions.

1938: The first issue of the *Jamaica Labour Weekly*, a single sheet newspaper printed on both sides, is published as an organ for the Jamaica Workers and



*Flooding
Factors?*

Catchment

Sinkholes

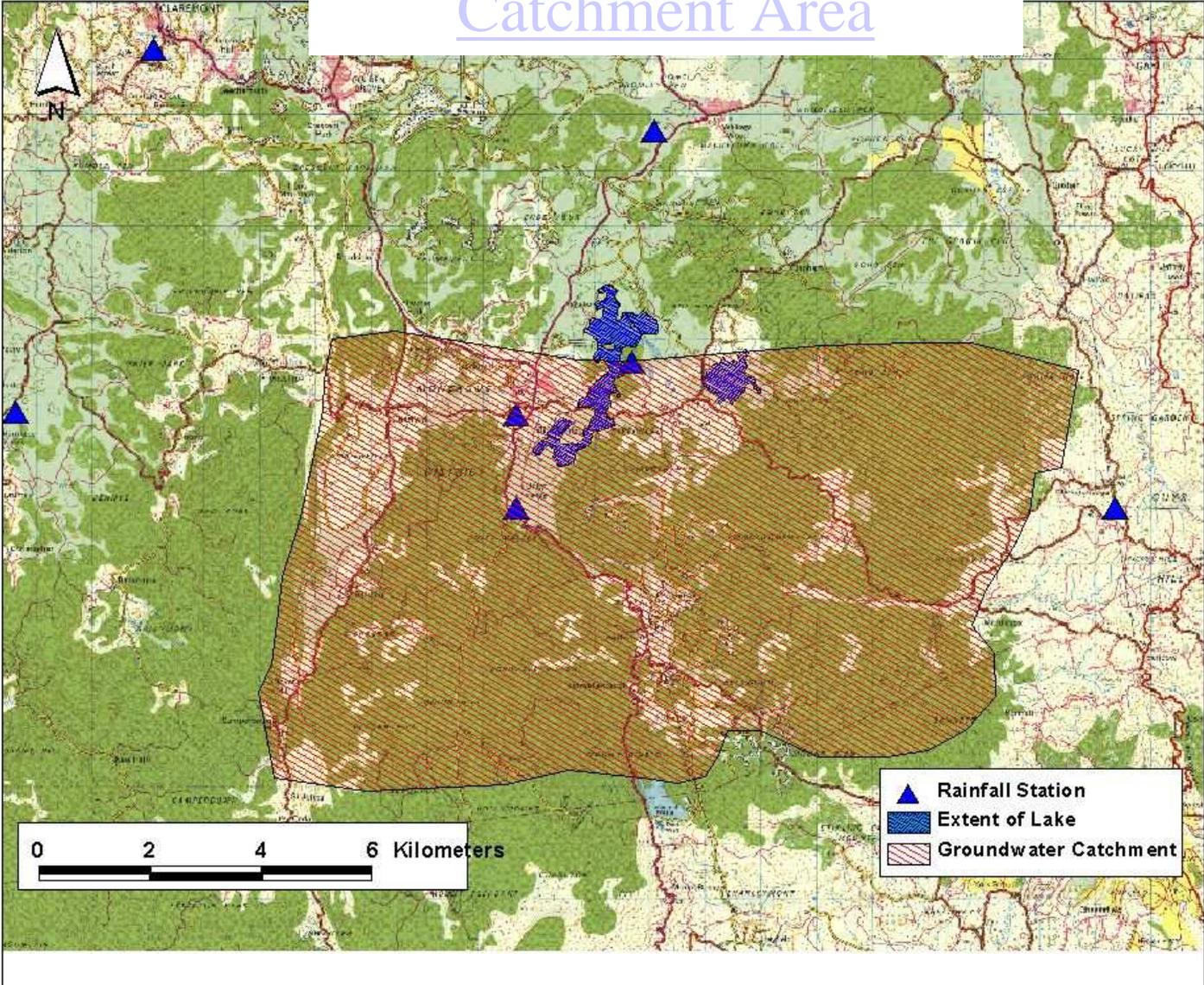
Geology

Rainfall

Antecedent Conditions

Groundwater Levels

Catchment Area









Sinkhole map

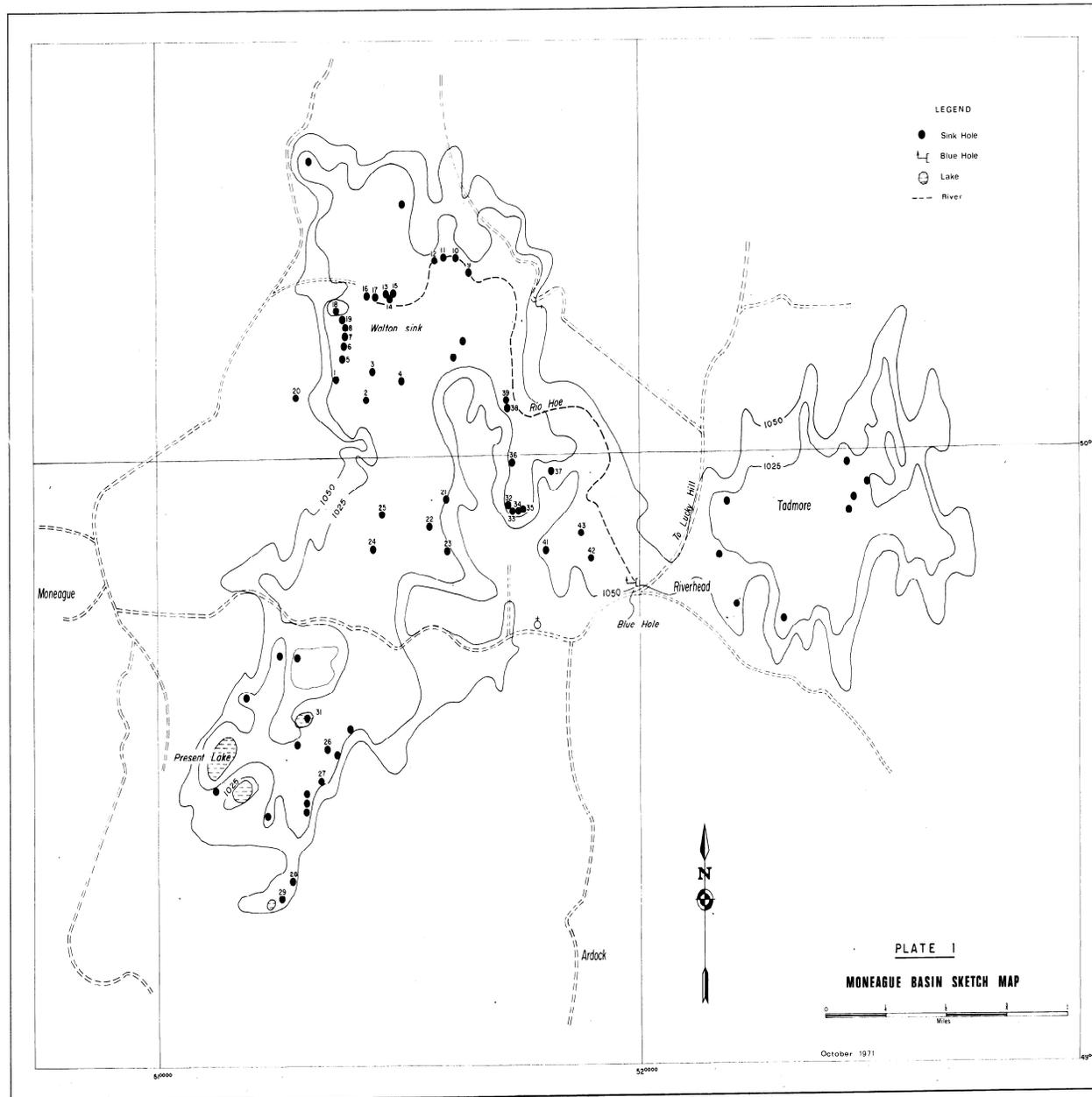
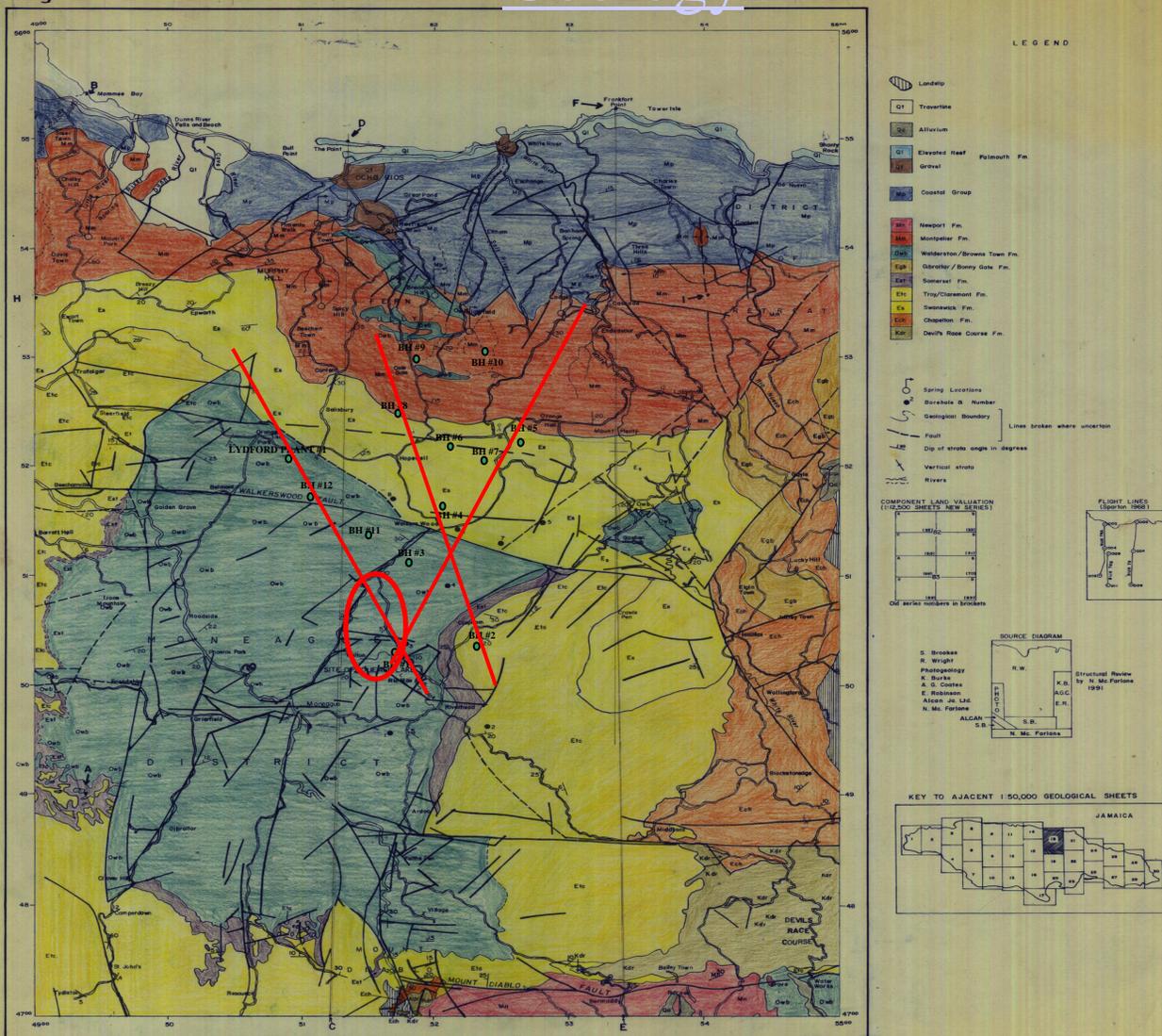


Fig. 2 GEOLOGY OF WHITE RIVER BASIN

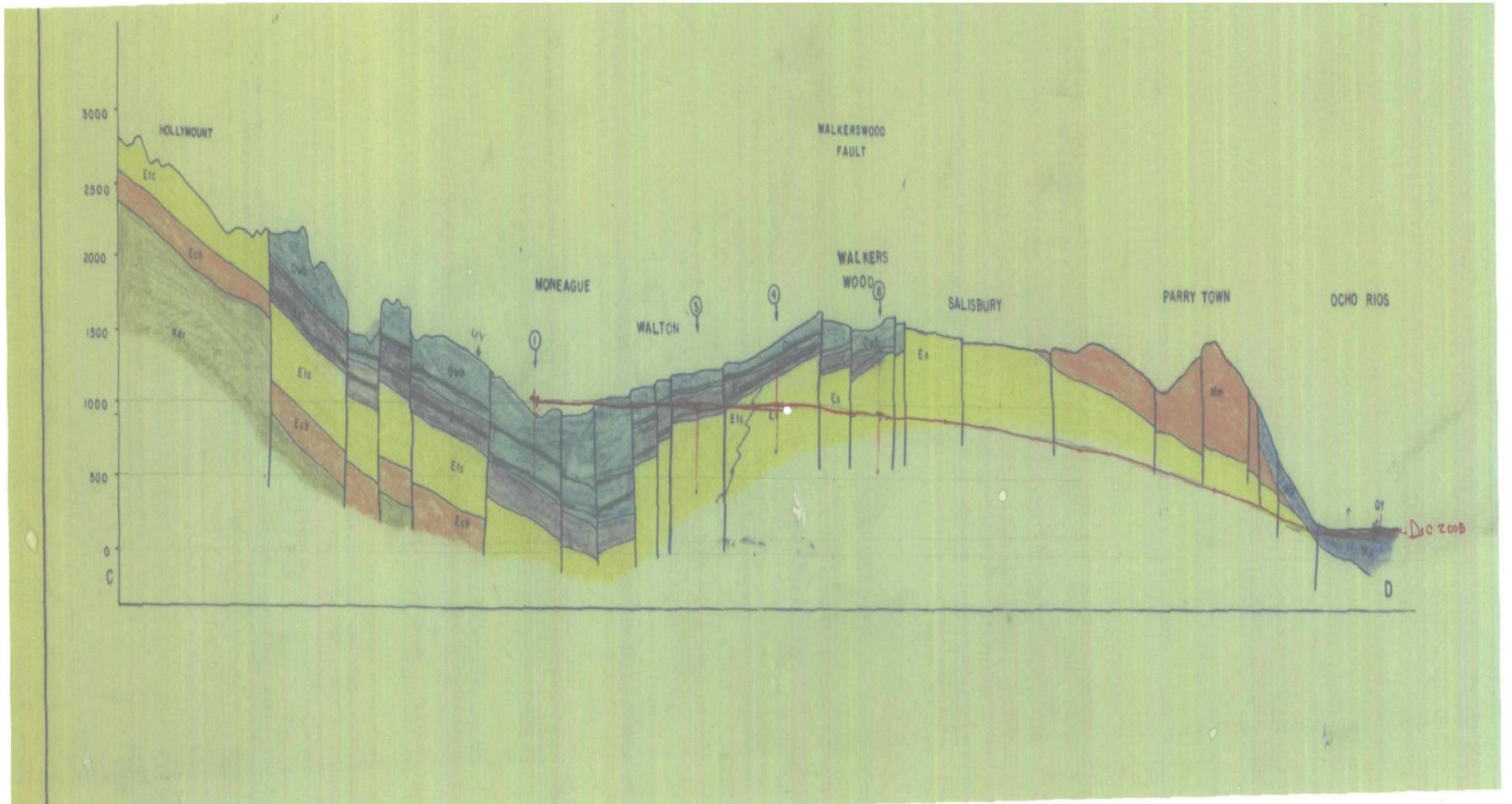
Geology



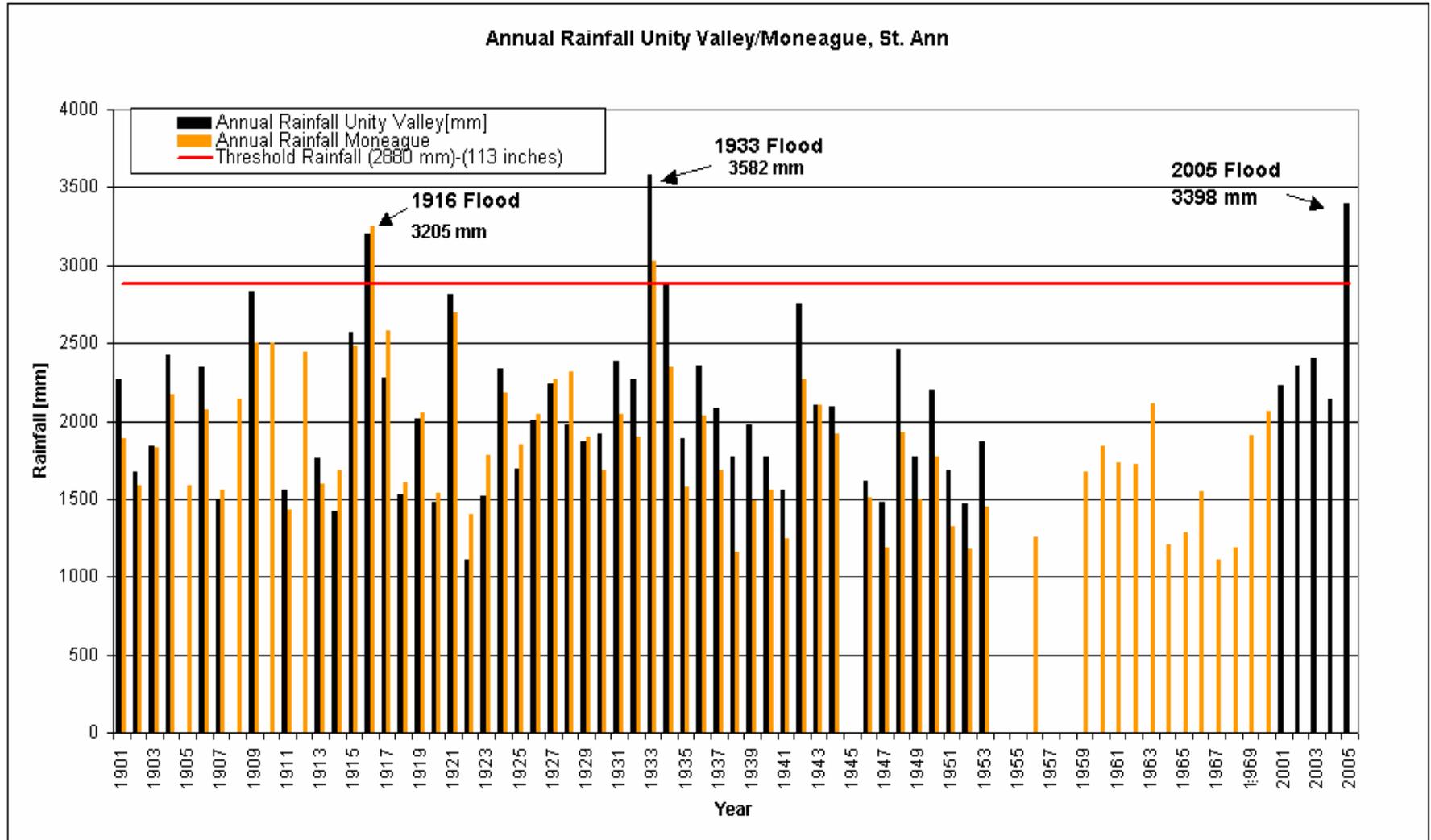
Geologic Factors

- Volcanics – runoff from – which is recharge to the Limestone Formation
- Basin underlain by White Limestone Formation
- Features; faults, fractures and sinkholes
- Water ponded by low permeable formation to the north.

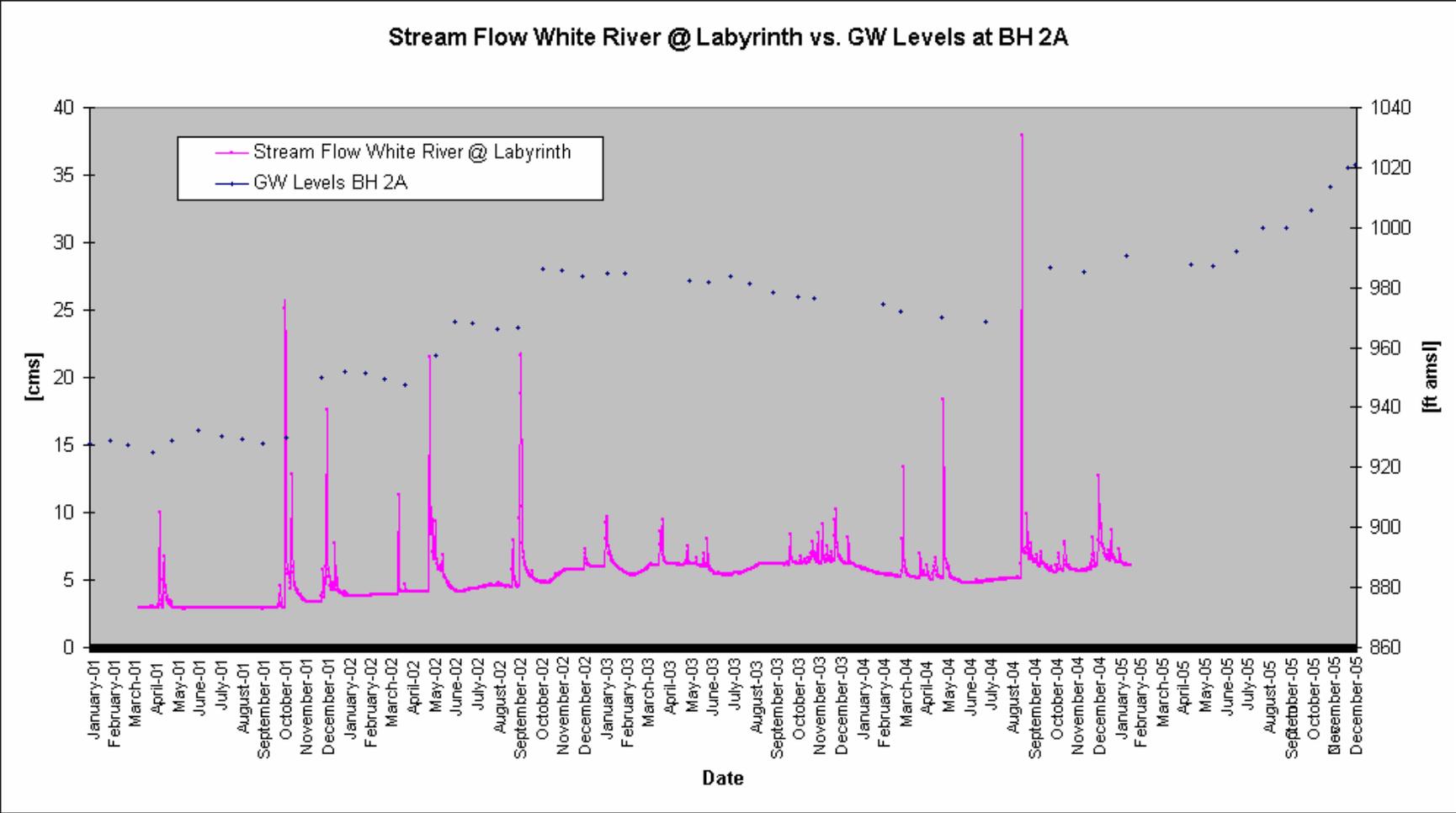
Compiled by : N. Mc. Farlane
 B. Fern
 Drawn by : C. Coffy
 B. D. Lew
 AUGUST



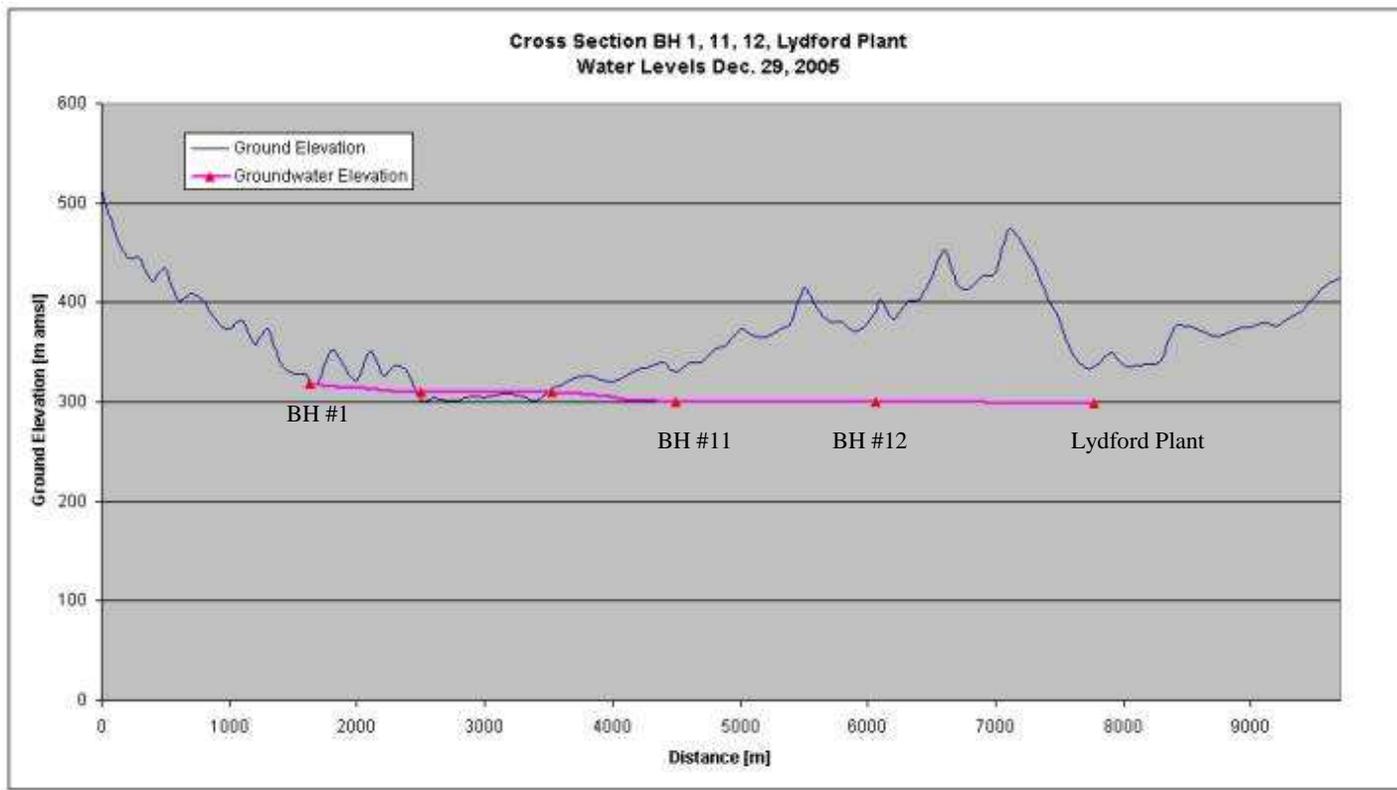
Rainfall



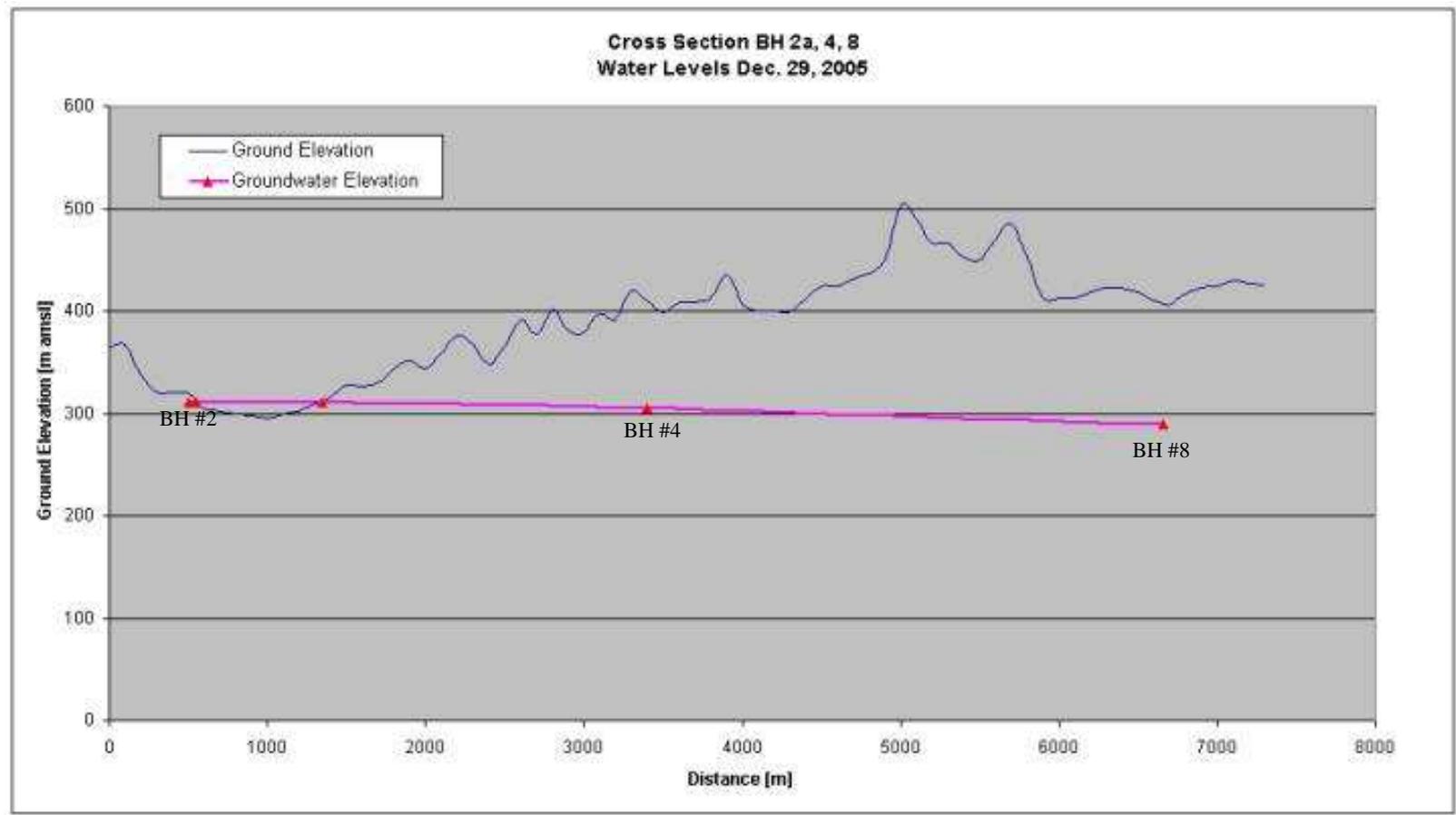
Antecedent Conditions



X-sec BH 1,11,12, Lydford Plant

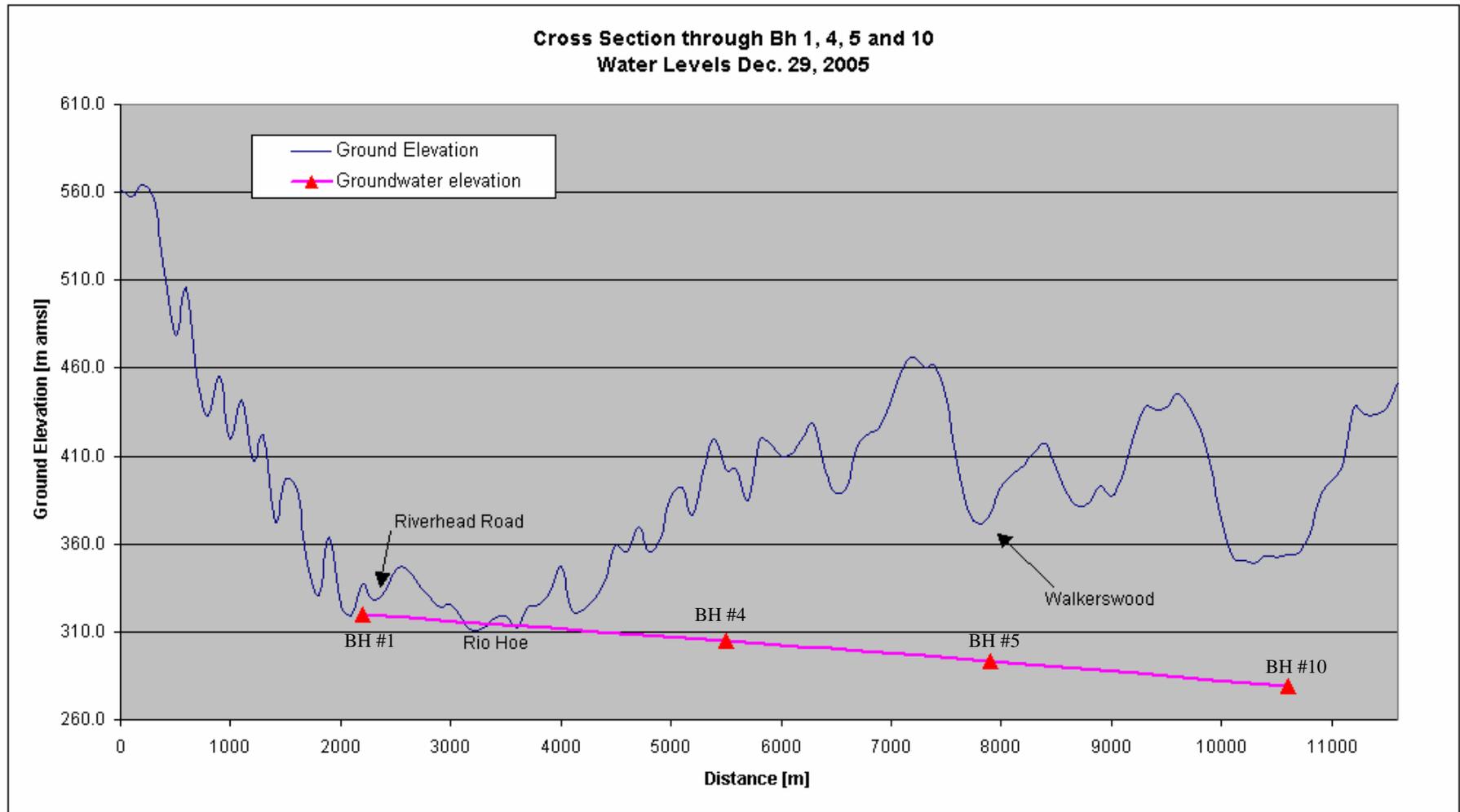


X-Section BH 2,4,8

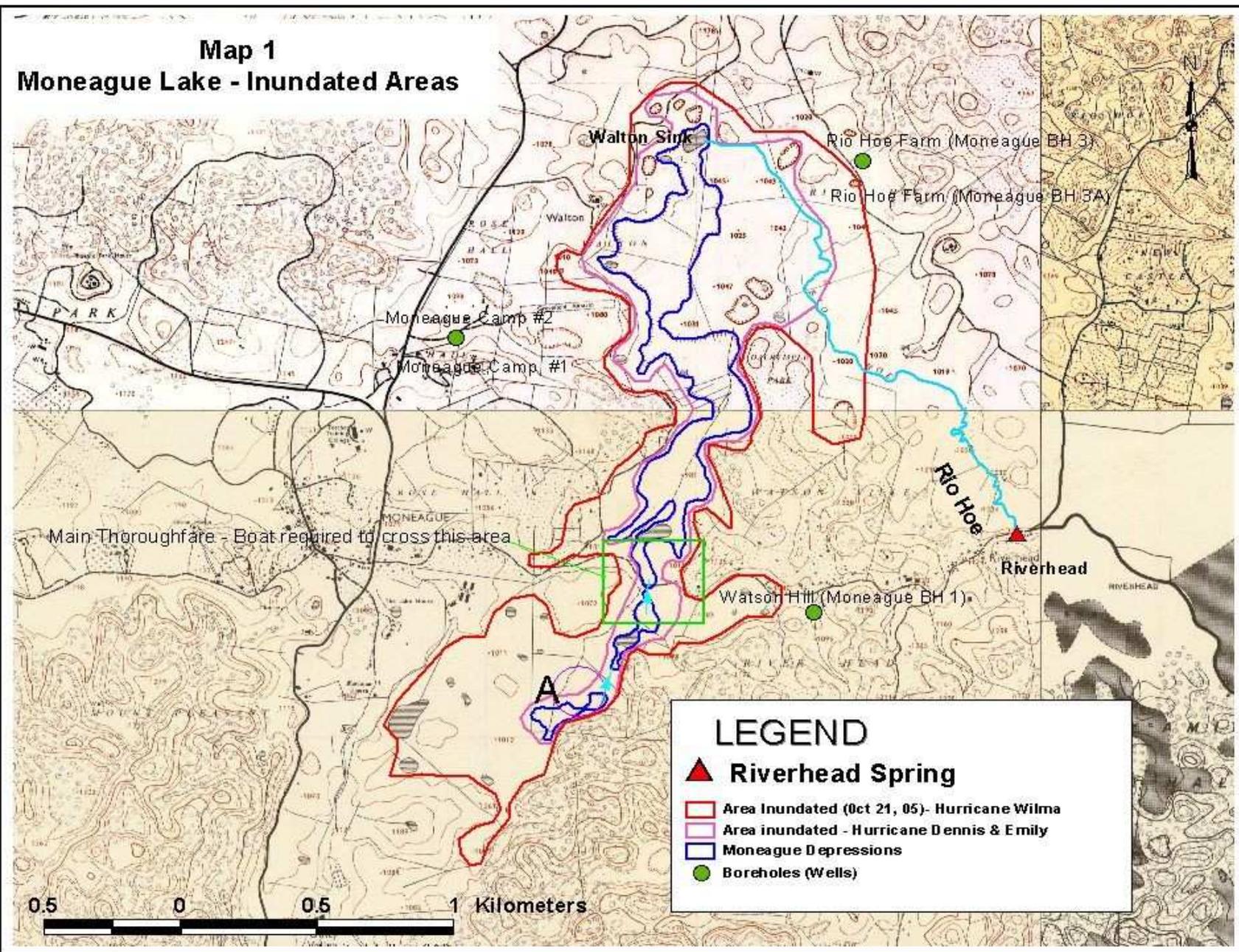


BH - Bore Hole

X Sec BH 1,4,5,10



Map 1 Moneague Lake - Inundated Areas



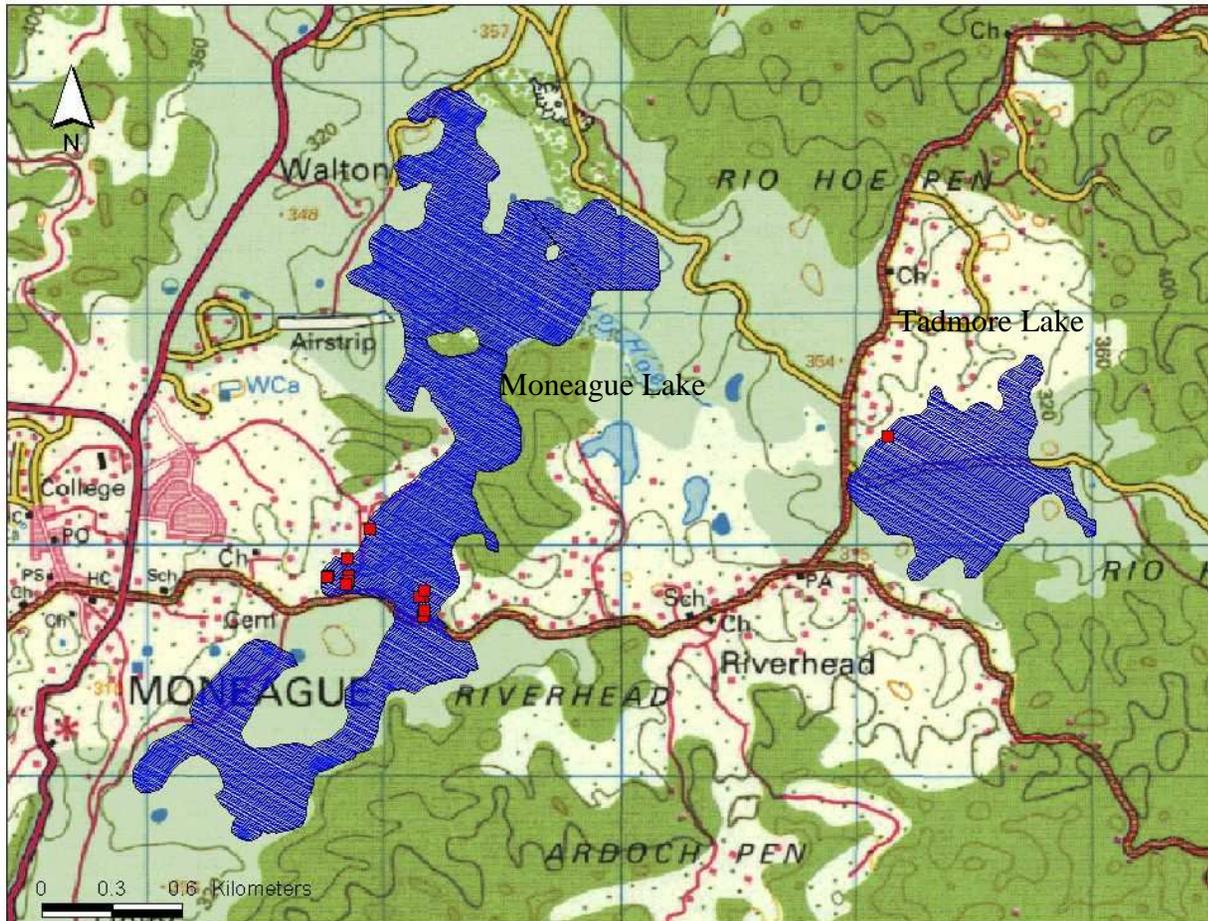
Present Flooding

Moneague Lake

- Area covered 1,680,859 m² (415 acres)
- Max depth – 12.5 m (41ft)
- Storage – 20 Mm³
- 12 house inundated
- Road flooded - limited access to communities
- Riverhead road depth – 7.5 m
- Rate of rise .01 ft /day
- Rate of decline-0.01 ft/day

Tadmore (Clapham) Lake

- Area covered 491468 sq. m (121 acres)
- 2 houses inundated
- Goshen road threatened
- Road in Village inundated
- Mining Pits open-risk to life
- Lives severely affected
- High social cost









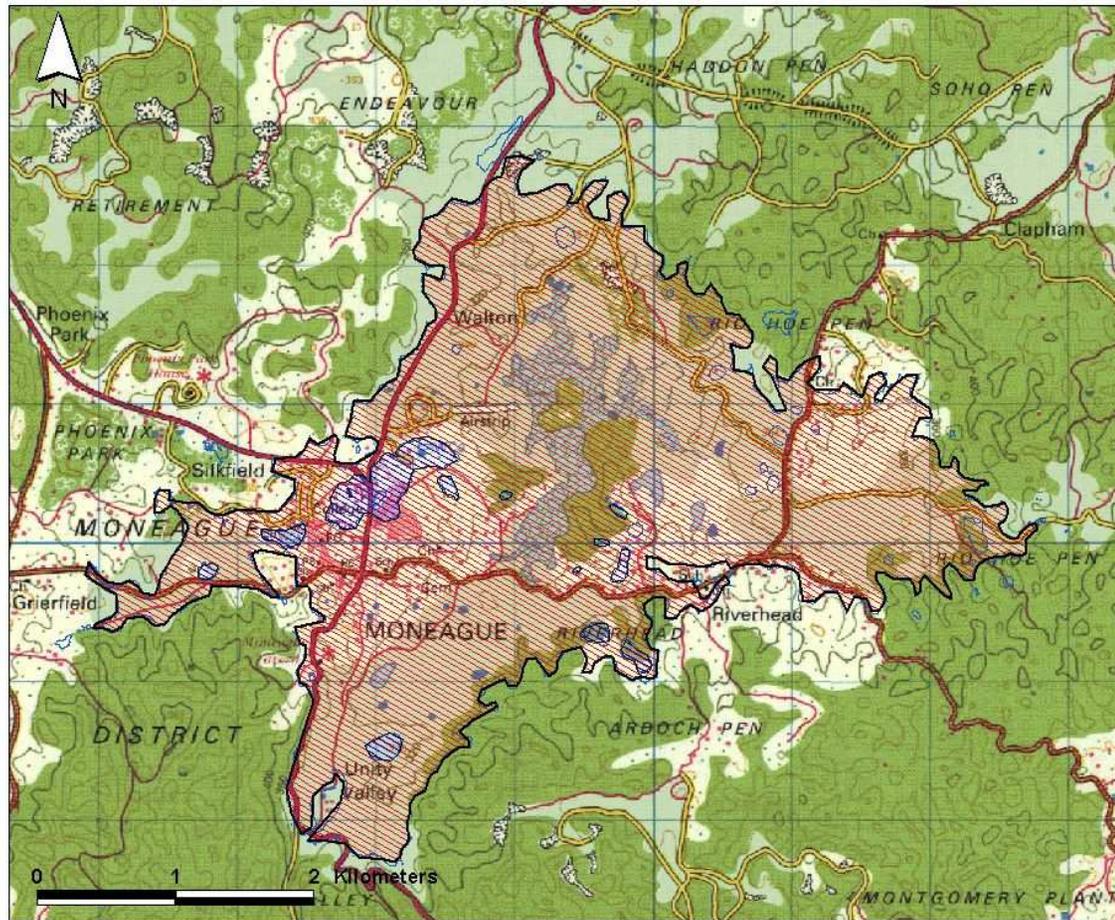








Moneague Lake approx. 3000 acres



Recommendations

- Investigate the feasibility of dyking or raising the level of the threatened Riverhead to Goshen Road and implement the appropriate action.
- Regular monitoring of the water quality and dissemination information to the community with the collaboration of the Ministry of Health
- Assess the suitability of the lake for recreational enterprises and provide support for safe implementation.
- Demarcate based on 1933 flood levels, the zones for appropriate landuse. (Restrict the flood zones to agriculture)
- Relocate houses from within the flood zones
- Clean sinkholes once water has withdrawn and keep them open to assist with drainage.
- Record data, implement monitoring programme and use information to give early warning of future flooding

The citizens of Moneague venerate the lakes because it stands almost unparalleled in our island where forces of nature have destroyed our cultivations, submerged our homes and at the same time counter-balanced their evil by giving us the opportunity to construct our bamboo rafts and other crafts to earn a daily bread on the bosom of the lakes. It gives pleasure to see how the visitors smile as they stand on its shores day after day. There is a sad feature also which is that reports say outsiders are contemplating to bring boats here to compete or take away the little pittance that the rafts and boats belonging to those whose fields and lands are submerged are earning.

LUCIUS A. RICHARDS.
Moneague, January 15, 1924.