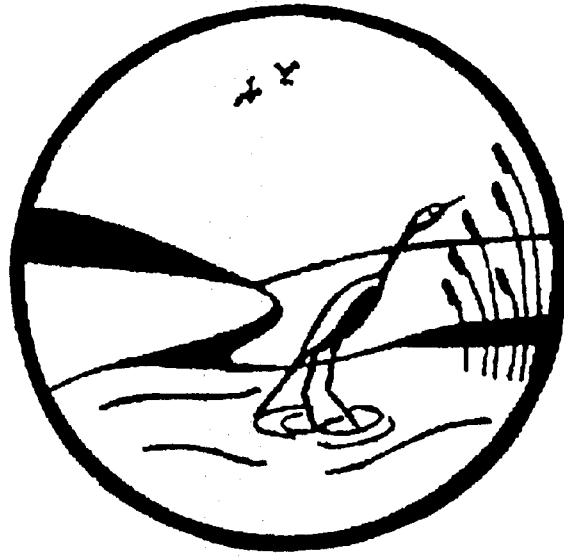
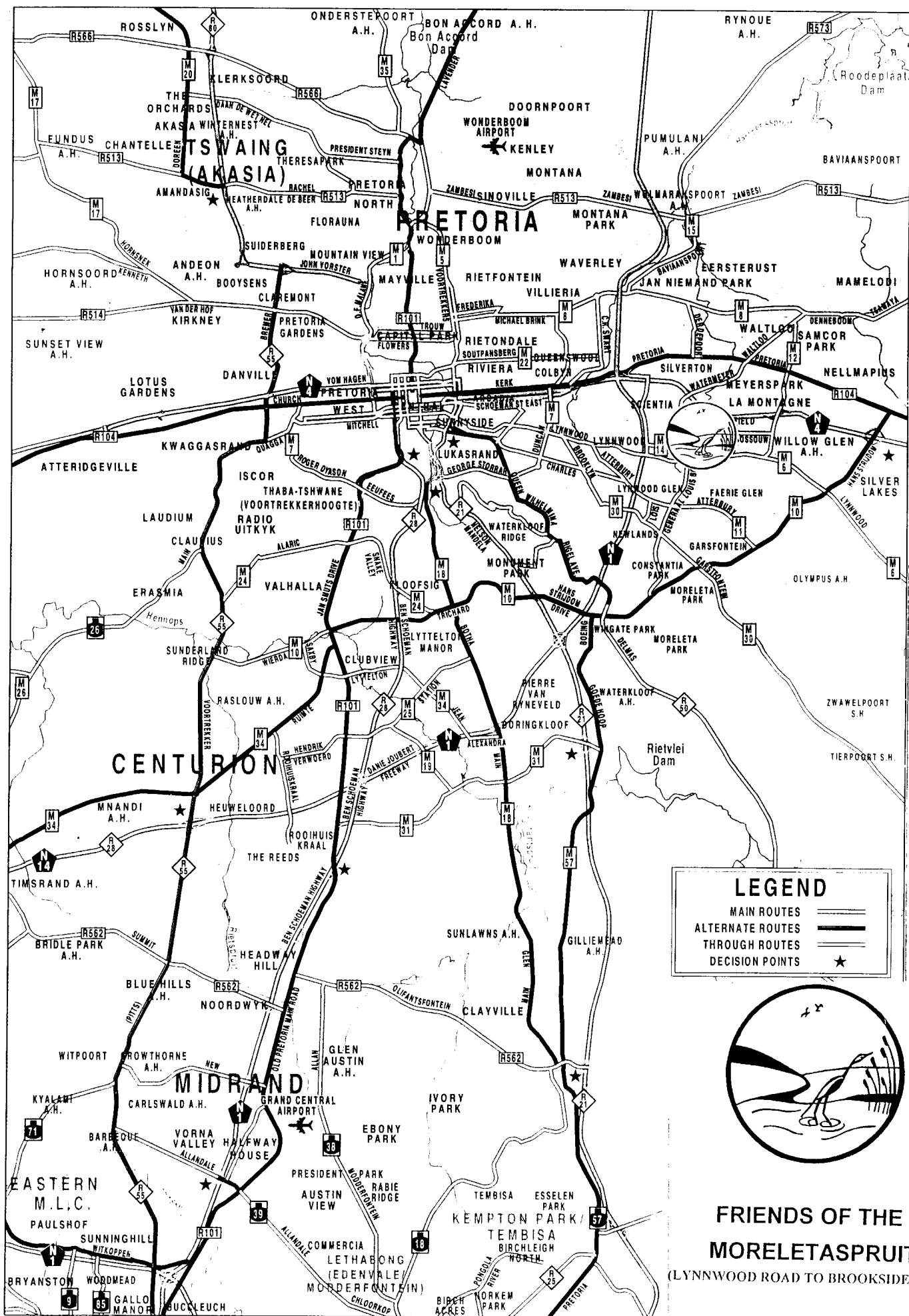


FRIENDS OF MORELETASPRUIT
(Lynnwood Road to Brookside Road)



Development and Management Plan
for the
Lynnwood Road – Brookside Road Section of the Moreletaspruit
For the years 2004 to 2008

Compiled November 2003

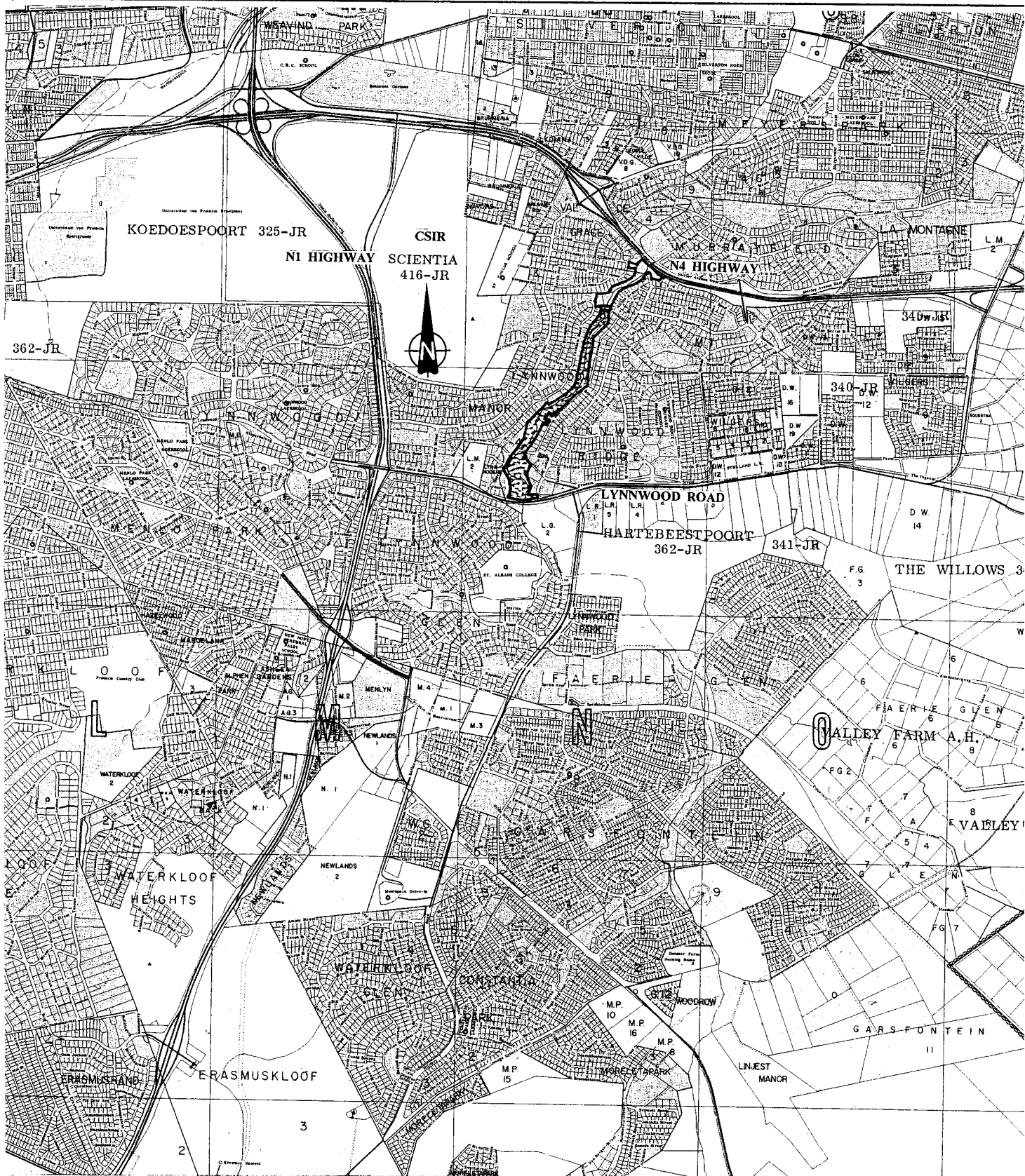


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LOCALITY PLAN

PRETORIA-EAST URBAN CONTEXT :
CITY OF TSHWANE METROPOLITAN MUNICIPALITY



VRIENDE VAN MORELETASPRUIT
(LYNNWOODWEG TOT BROOKSIDEWEG)



FRIENDS OF MORELETASPRUIT
(LYNNWOOD ROAD TO BROOKSIDE ROAD)

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STATEMENT OF INTENT

Mission of the Friends of Moreletaspruit (Lynnwood Road to Brookside Road)

"To encourage participation in caring for the Moreletaspruit and in particular, the section between Lynnwood Road and the N4 Freeway in order to promote the conservation and sustainable utilisation of the area by the public and landowners of the area."

The proposals set forth in this five-year development and management plan represent the views of the committee of the Friends of Moreletaspruit. These have been developed over the past three years of actively debating and inspecting the spruit's potential, taking account of inputs received from both the public and experts. Residents adjacent to the spruit are restless that nothing seems to be done about the spruit. They ask:

"Is it a green lung or a retreat for vagrants and burglars?"

The greater picture cannot be achieved until the first brush stroke of paint is applied – "nothing happens until something happens".

The "something" is in the form of an ecological survey being undertaken courtesy of the Department of Nature Conservation of the Pretoria Technikon. This will form the canvass on which the final development and management plan will be applied.

As the ecological survey progresses and more accurate information becomes available, so will the five year plan be adapted to highlight those special features of the environment that are identified. In this respect the 5-year plan will be updated annually taking account of all inputs and thus provide a five-year rolling plan.

We recognise that the task we have set ourselves will only be achieved through dedication and by involving the community and businesses in the surrounding area together with support from national and international organisations and corporations.

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1 INTRODUCTION

1.1 Background

The Moreletaspruit forms a natural "green lung" through the eastern suburbs of Pretoria. The section, which is the subject of this report, is located some 9 kilometers downstream of the source of the spruit and traverses the suburbs of Lynnwood Glen, Lynnwood Ridge and Lynnwood Manor - see locality plan.

With urbanisation pressures increasing on all open spaces, the adage "use it or lose it" is apposite. In fulfilling our mission, The Friends of Moreletaspruit have adopted a Development and Management Plan that, while conserving the environment, will improve the user-friendly nature of the spruit for the enjoyment of the public. The spruit should form the link between an urban environment and a natural wilderness.

The "user-friendly" aspect rests on two legs - Comfort and Safety. The area needs to be comfortable and easy to walk and the area also needs to be safe. Neither of these aspects should detract too much from the natural environment but should rather enhance the area. Only the true naturalist or hiker will venture into an area where the paths are not easy and comfortable to walk. The broader public avoid those areas where unfriendly acts are likely to occur. The more the area is avoided, the more it becomes a haven for muggers to attack the occasional brave hiker and also becomes a retreat for burglars. Conversely, the more the area is legitimately used the less attractive it becomes to muggers and burglars. Solving this conundrum will be part achieving our mission.

A starting point is therefore to carry out an ecological survey that will identify and map the spruit area in terms of flora, fauna, bird life, insect, amphibious and aquatic life.

1.2 History of the Area

The earliest recorded history of the area begins with the permanent white settlement of the area in 1862. In that year, Hendrik Willem Struben acquired a large estate named The Willows on the eastern side of Pretoria. He was a highly progressive farmer who farmed with half-breed Devons, experimented with Ostriches and planted large blue gum plantations.

From 1878, he was the Justice of the Peace for Pretoria. He also organized wagon transport over long distances. He took a great interest in mining and invested a lot of his money in an attempt to discover the main gold reef on the Witwatersrand. In 1887, he became the first president of the Chamber of Mines.

The Willows stayed in the Struben family. It appears to be the same land that later became two farms named Hartbeespoort 304 and Hartbeespoort 308. The names were derived from the Poort with the same name that lies between the Silvertonrant and Mundtsrant.

The farm Hartbeespoort 304 later became the suburbs of Lynnwood, Lynnwood Glen, Lynnwood Manor, Lynnwood Ridge, Menlo Park and Faerie Glen. Lynnwood was proclaimed in December 1952 by FEB Struben. Lynnwood Manor and Lynnwood Glen were established by the executors of the estate of FEB Struben. The name "Lynnwood" was the name of the homestead on the farm. This is derived from the Welsh word "Llwcoed" meaning wood grove.

1.3 Lynnwood Road

The early beginnings of Lynnwood Road (lying to the East of the University of Pretoria), was first called Struben Road because it led to Frank Struben's residence, "Lynnwood Manor" on the farm : The Willows. It was described as a small path. It presumably became Lynnwood Road after the proclamation of the suburb by the same name in the early 1950's.

A bridge was built over the Moreletaspruit in 1965, before further development to the East commenced. In 1986, a 6,43-hectare area to the East of the Glenfair (Alkantrant) shopping centre in Lynnwood Manor was proclaimed a new municipal area by Sanlam, mainly for the development of flats and townhouses. The higher residential density necessitated widening Lynnwood Road, hitherto only a narrow road leading to the East. This was commenced in 1988 and completed up to Rubida Street. A new bridge was built over the Moreleta to cope with the increased volume of water running off the fast-expanding residential areas.

SOURCES

- Dictionary of South African Biography
- Pretoria historical dictionary
- Pretoriana, Organ of the Association Old Pretoria
- Die Transvaler.

2 STATUS QUO

2.1 Ecological Survey

The Nature Conservation Department of the Pretoria Technikon has offered to carry out an ecological survey using their students. The process would be part of their practical training for degrees in ecology and game ranch management. The survey will be a continuing process with each batch of new students updating the survey annually.

At the time of preparing this Development and Management Plan, the first survey is still in progress. On completion, aspects of this plan will be updated and modified where necessary, to capture unique aspects that are identified. All grass, shrub and tree types (whether alien, endemic or indigenous) will be identified. The types and presence of mammals, birds and insects will be recorded. Water samples will be taken to analyse the amphibious and aquatic life. The water sampling location and results will be lodged with the University of Cape Town as part of the national data base.

The updating of the survey on an annual basis will provide a valuable record of the changes occurring in the spruit environment.

2.2 Environmental Evaluation and Recommended Strategies.

It may be felt that the creation of the plan herein contained is a case of putting the cart before the horse. Normally this would follow the ecological survey. However, over the past few years, the Friends have observed, inspected, debated, and consulted experts that has led to the formulation of an overall concept for the area.

The ecological survey will therefore fine-tune and enhance the Development and Management Plan. The proposed development outlined herein takes account of the need to make the environment more user-friendly. As stated earlier, it is the link between the urban environment and the wilderness environment. Some compromise is therefore necessary to achieve this.

3 DEVELOPMENT AND MANAGEMENT

3.1 Fencing and Restrictions

The spruit is accessible and open to the public at the upstream and downstream ends at Lynnwood Road and at Brookside Drive. Except for a 1 kilometer section along Bouvardia Road, private properties mostly form a boundary along the length of the spruit.

To make the spruit more user-friendly to the residents on either side, six locked pedestrian gates are to be installed on the length of the spruit :

- Priory Road (East)
- Priory Road (West)
- Midway along Bouvardia Drive
- Beech Road
- Farnham Road
- Ringwood Road

Members of The Friends of Moreletaspruit will receive a key to the gate allowing them to gain access without having to go to either end of the spruit area. We believe this, while maintaining security, will enhance the attractiveness of the spruit and encourage bona fide residents adjacent to the spruit to make use of the environment.

Turnstiles now control access at the upstream and downstream ends. This will limit or make it more difficult for motorbike scramblers to use the spruit as a practice ground which is disruptive to residents along the spruit aside from the negative impact on the birds and mammals living in the spruit. The access off Farnham Road will require investigation of the river crossing, as the banks are too steep to allow a simple causeway crossing.

3.2 Grass

Most of the grasses covering large areas of the spruit are not endemic. Agricultural use, frequent cutting and burning have led to growth of other grasses. Identification of the various grasses and the probable action necessary to re-establish the indigenous grasses will be one outcome of the ecological survey. An area of natural grass has been disturbed as a result of building operations adjacent to erf 408 Lynnwood Ridge on Priory Road. The Developer in consultation with Council representatives will undertake a program to reseed and cultivate endemic grass over this area. This operation will be closely monitored in conjunction with the ecological survey. It is planned to carry out similar rehabilitation of other areas. To prevent runaway fires traversing the full length of the spruit, the Tshwane Conservation Department has burnt firebreaks at strategic points. It has become apparent they will be required at closer intervals. Additional firebreaks will be created before the onset of the dry season in 2004.

3.3 Educational Aspects

The area provides a valuable resource for educationists. It is currently used as an outdoor environment learning experience for children and students. At tertiary level, the Pretoria Technikon is using the spruit for the practical training of ecology and game farm management students.

At primary level, Lynnwood Ridge Primary School takes learners down to the spruit to reinforce the classroom experience. Similarly at senior school level, the spruit is used for practical classes. It is hoped that the children can adopt aspects high-lighted by the ecological survey for "research." In addition to schools from the immediate vicinity, The Friends of Moreletaspruit will invite a school from a disadvantaged area to participate in the learning experience provided by the spruit. Provision is made in our budget for the support that may be necessary to enable the schools to take advantage of this facility. The Friends of Moreletaspruit will be awarding an annual prize to the best nature conservation student at Pretoria Technikon in recognition of their work on the spruit. The prize will take the form of a medal and a cash prize.

3.4 Alien Vegetation

As is occurring throughout South Africa, there is a need to reclaim the natural environment by eradication of alien vegetation and rehabilitation of wetlands. An area surrounded by urban development will have alien vegetation growth-courtesy of the bird life. The Moreletaspruit is no exception in this respect. However, the problem has been further exacerbated by the historical use of the land - it was previously farmed as is evidenced by the lucerne "opslag." The Tshwane Conservation Department have initiated a program of eradicating alien trees and shrubs and will be doing so on an ongoing basis. In support of the Council efforts, the Friends will undertake a series of Alien Eradication Parties involving members, local businesses and other volunteers. As a contra to the removal of alien trees, the Friends have established some 100 trees over the past two years. This programme will be speeded up.

3.5 Footpaths

A network of existing and new footpaths has been identified to enhance the visitor's experience. The precise alignment of new paths is being done in conjunction with the ecological survey and planned development. Routing paths close to particular grass, plant and tree species or animal habitats will enhance the learning experience of the visitor. A 1,2 meter wide, paved footpath is planned with a 1,5 meter wide cleared strip on either side. The total 4,2 meter wide strip will improve visibility. The sense of security will be improved particularly when the grass is tall. The paved strip will permit the use of the footpaths by disabled wheelchàir members of the public and lessen the risk of tripping on uneven ground - particularly for senior citizens.

It is intended to create a section of these footpaths as a community footpath funded from community contributions. Each contributor will be recognised on a plaque along the path with the contributor's name inscribed thereon.

Signboards will be erected at all footpath junctions. These will identify specific features as well as the different paths and distances. An example is given in Appendix 2. In addition, Park-benches will be positioned at intervals along the paths.

3.6 Wetland Rehabilitation

The flood plain immediately downstream of Lynnwood Road has been identified as a Vlei area or old wetland. The canalisation of the spruit due to the bridge has reduced the spread of the water over the wider plain to a single channel. Furthermore, the upstream urbanisation has increased the silt and sand loads during floods that have been deposited on the flood plain. A preliminary survey of the area carried out by a wetland expert, Ihlaphosi Enviro Services and attached as Appendix 1, has identified what will be needed to rehabilitate the Lynnwood Road Floodplain of the Moreletaspruit. After raising the necessary funds, the first phase will be the appointment of Consultants to undertake a study, as part of a broader study of the Moreleta wetlands, and to obtain regulatory approval leading to a design for the rehabilitation of the Lynnwood Road Floodplain of the Moreletaspruit.

3.7 Bird Life

According to residents in the area, a number of bird species not seen for some time have reappeared in the spruit. Whether this is as a result of a controlled grass-cutting program adopted over the past few years is not clear. Suffice it to say that whatever the cause, the Friends are delighted. Even the "non-professional" birder appears to take more interest when the range of bird species increases. Subject to the ecological survey showing that adequate small mammal life exists, an attempt will be made to re-introduce the Spotted Eagle Owl - a previous resident. Of course, residents with properties bordering on the spruit will vouch for an adequate population of rats and mice - unfortunately, anecdotal evidence is insufficient on its own. In a similar manner, it is hoped to re-introduce the Grassland Owl once the wetland has been re-established. The tree-planting program will include trees that provide fruit for the fruit-eating bird species. Bird nests, similar to the ones used in gardens, are to be placed throughout the area along the riverbanks. Not only do these provide nesting for birds but bush babies also use them for nesting.

3.8 Bird Hides

It is planned to provide two bird hides in the Moreleta wetland) – (between Lynnwood Road and Priory Roads) one on the Western bank and the other at the river channel on the Eastern bank of the floodplain.

- **The Western Bird Hide** : This will be built first as it can be constructed on an earth embankment jutting out into wetland floodplain as part of the wetland development. Access will be gained via the "Wetland walk" along the Western bank of the floodplain. The embankment access will be approximately 2 meters above the 1 in 50 year flood level and will be ideal for afternoon/evening watching. It is intended that this hide should be accessible to Friends Group members only.
- **The Eastern Bird Hide** : This hide is planned for the general public and will be designed to permit wheelchair access. It will require the construction of a wooden bridge spanning across the spruit. It is intended that the wetland design should create good viewing close to each hide.

3.9 Operations and Maintenance

The experience of the World Bank in funding projects has been that without adequate operational and maintenance capacity, the capital investment rapidly deteriorates. Any proposed development therefore needs to include an examination of lifecycle costs and the capacity of the local authority to meet these costs. A full examination is beyond the scope of this report but certain aspects are identified on which the Conservation Department of the Tshwane Metropolitan Council have been engaged.

In this respect, the appointment of a contract employee dedicated to the Moreletaspruit has been agreed upon. The appointment is subject to satisfactory arrangements being made for storage of implements and ablution facilities. Discussions are taking place with one of the Businesses bordering the spruit in this regard.

3.10 Construction Work

All development will be undertaken to maximise labour-intensive practices and the use of small/micro enterprises. Expertise is available within the membership of the Friends to achieve these objectives.

4. DEVELOPMENT PROGRAM AND COSTS

4.1 Program

The program is sensitive to the rate of accumulation of funds. However, unless some time targets are set to achieve objectives, nothing will be achieved. The attached schedule of costs gives an idea of the rate of development planned. The order of development can now be changed to suit requirements.

4.2 Costs

All costs are current (September 2003) and take no account of inflation. In some instances the costs are indicative only and will be refined in due course i.e., wetland rehabilitation costs can only be accurately calculated once the study and design are complete.

Friends of Moreletaspruit (Lynnwood Road to Brookside Road) Five Year Development and Management Plan Budget : 2004 - 2008

Item No	Item Description	Budget					Total
		2004	2005	2006	2007	2008	
		R	R	R	R	R	R
1	Alien Vegetation Eradication	500	500	500	500	500	2500
2	Fencing and Gates	1000	200	200	200	200	1800
3	Tree Tagging	1500		1500			3000
4	Information and Signboards	3000	3000		3000		9000
5	Footpaths	1200	1000				2200
			42000	50000	50000	68000	210000
6	Wetland Rehabilitation Design	30000	30000				60000
	Construction		100000	100000			200000
7	Bird Hides			20000	60000		80000
8	Tree Planting	500	500	500	500	500	2500
9	Park Benches	3000	1500	1500			6000
10	Car Park					35000	35000
11	Grass Cutting						
12	Bird Acquisition					50000	50000
13	Educational Support	3000	3000	3000	3000	3000	15000
14	Maintenance Facility						
15	Maintenance Staff						
	TOTAL	43700	181700	177200	117200	157200	677000



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APPENDIX 1

**Moreleta Wetland Rehabilitation Project :
Preliminary Investigation**

MORELETA WETLAND REHABILITATION PROJECT : **PRELIMINARY INVESTIGATION**

1. BACKGROUND.

- 1.1 The Moreleta wetlands in the Moreletaspruit are located in the Greater Tshwane Metropolitan area. It originates in the suburbs of Moreleta Park and portions of the farm Garsfontein and Tweefontein. It continues to flow through various highly developed urban areas, such as Garsfontein, Faerie Glen, Lynnwood, Silverton, Jan Niemand Park and Eersterus. It also runs through the industrial areas of Waltloo, Silvertondale and Koedoespoort before joining the Hartbeespruit in the Derdepoort Park area, from where the Hartbeespruit runs into Roodeplaat Dam.
- 1.2 The wetlands in the upper catchments of the Moreleta Spruit mostly comprise permanent and seasonal grass/sedge meadows with the majority of the system containing riparian zones and narrow floodplains, with minor occurrences of palustrine wetlands. These wetlands are important as they act as natural flood controls and filters in a densely populated area. These and other wetland functions are of particular importance upstream of the Roodeplaat Dam due to urban-related pollution in the system.
- 1.3 The Moreleta forms an important green corridor in a urbanized environment and it also has an important function in terms of natural flood attenuation.

2. PROBLEM STATEMENT.

- 2.1 The Moreleta wetlands in general are mainly impacted on by :
 - development in floodplains,
 - destruction of the riparian zone (loss of indigenous riparian tree species),
 - incision of stream channels (mainly as a result of changes in the flow regimes and flooding characteristics of the Moreleta and it's tributaries),
 - alien invasive infestation.
- 2.2 The Moreleta floodplain and riparian zone are degraded to such an extent that it is not functioning to it's full capacity especially in terms of :
 - flow regulation (including flood attenuation and base-flow maintenance),
 - erosion control and riverbank stabilization,
 - filtering, (sediment, nutrient and toxicant removal and/or retention), and
 - biodiversity.
- 2.3 A 200 meter wide floodplain and associated riparian zone occurs immediately downstream of the Lynnwood Road crossing in Lynnwood Glen, and has been identified by the Friends of Moreleta spruit for the purpose of enhancing wetland functions.

3. **GOALS.**

The goals of this rehabilitation project will be :

- To rehabilitate the Lynnwood Road floodplain of the Moreleta Spruit by arresting erosion and - draining in order for the floodplain to function at higher capacity.
- To be able to contribute to the conservation of natural resources and biodiversity.
- To facilitate poverty-relief and socio-economic development of previously disadvantaged communities, where possible.

4. **REHABILITATION PLAN.**

4.1 It is suggested that various actions be implemented to restore the wetland function. A progressive catchment plan needs to be developed and implemented to restore wetland functions. It is proposed that the identified section (the Lynnwood Road Floodplain) of the Moreleta Spruit be used as a case study in the broader catchments setting.

4.2 The following actions are recommended (but must be verified / based on a long term management plan to take urban development trends into consideration) to enhance the following wetland functions (see attached map) :

4.2.1 **Flow regulation (including flood attenuation and base-flow maintenance)**

- Build small structures (based on run-off characteristics (present and future) and on channel incision and slope) in the eroded stream channel to enhance the over-topping of the stream onto the surrounding floodplain.
- Create off-channel storage along the contour on the floodplain portion.
- Re-establish natural wetland vegetation resistant to flood damage and with energy-dissipating capability (tall emergent species, such as Phragmites Australis).
- Utilise the existing weir upstream of the road crossing to supply low flow into the rehabilitated site via a pipe/furrow system.

4.2.2 **Erosion control and riverbank stabilization**

- The recommended structures as well as tall emergent vegetation will control erosion in the stream, (both bank erosion and channel incision).

4.2.3 **Filtering (sediment, nutrient and toxicant removal and/or retention)**

- Regular over-topping onto the floodplain, erosion control structures in the stream and off-storage basins, combined with the establishment of tall emergent vegetation beds will result in lower energy levels and an increase in the flow-through time of the water in the system. This will enhance the filtering capacity of the system in terms of sediment, nutrient and toxicant removal and/or retention.
- A maintenance plan to maintain structures and clear storage ponds if so required, needs to be budgeted for.

4.2.4 Biodiversity

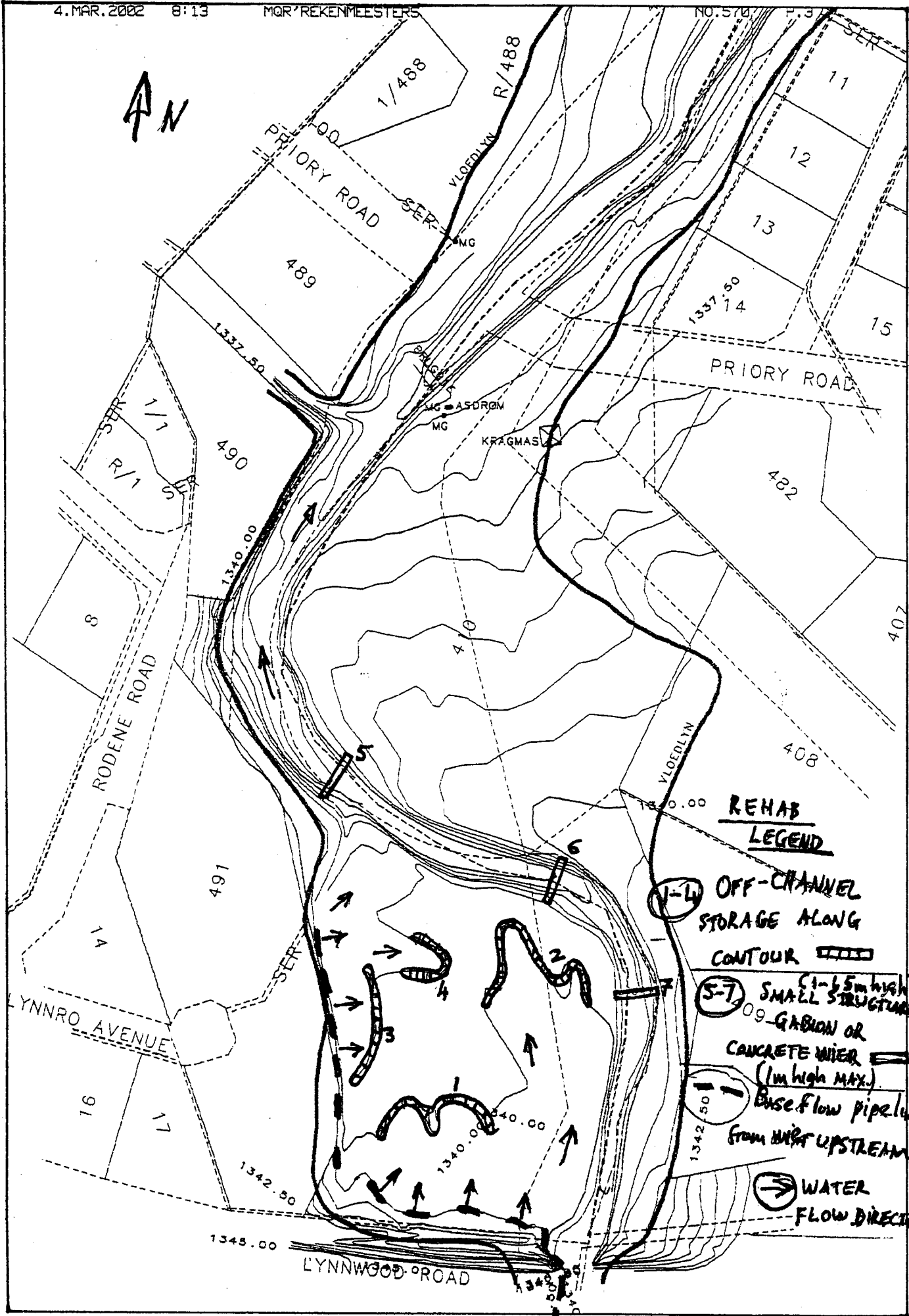
- Create alternative wetland habitats (and enhance existing ones) by giving specific attention to the designing of erosion control structures and storage ponds, as well as the types of species earmarked for re-establishment. For example, fish ladders might be required with the structures and storage ponds should have a shallow beach to accommodate waders.

5. RECOMMENDATIONS:

Over and above the proposals contained in paragraph 4 above, it is further recommended that intensive labour practices be utilized along the lines of Working For Water and Land Care Programmes to alleviate poverty and build capacity in disadvantaged communities. Recreation and educational facilities and activities could also be designed around the rehabilitation and long term management plans to involve the immediate and surrounding communities on various levels. Opportunities for emerging entrepreneurs and contractors could also be created in the long term management plan for the Moreleta Spruit and it's catchments.

Compiled by : Piet Louis Grundling
Ihlaphosi Enviro Services CC

AN



REHAB LEGEND

- ①-④ OFF-CHANNEL STORAGE ALONG CONTOUR
- ⑤-⑦ (1-6.5m high) SMALL STRUCTURED GABION OR CONCRETE WEIR (1m high MAX.)
- ⑧ (1m high MAX.) BASE FLOW PIPELINE FROM HWT UPSTREAM
- ➔ WATER FLOW DIRECTION

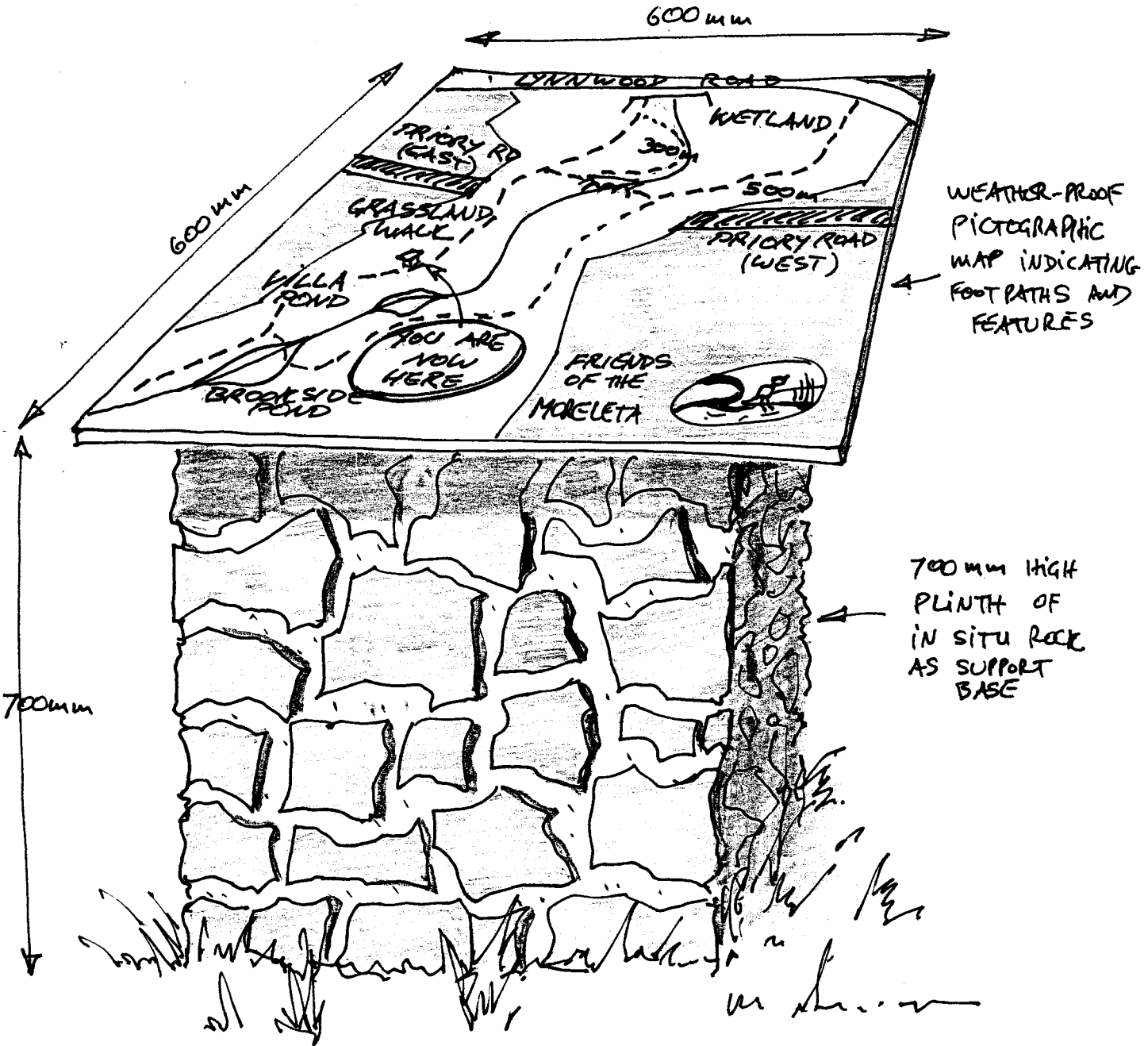
APPENDIX 2

Diagrams, sketches and plans attached

- 2.1. Footpath sign posts / directional signage**
- 2.2. Footpath Construction sketch**
- 2.3. Orientation Plan (1:5 000) with
3 footpath layout plans (1: 2 000)**

PROPOSED DIRECTIONAL ROUTE SIGNAGE

POSITIONED AT STRATEGIC LOCALITIES
ALONG FOOT PATHS

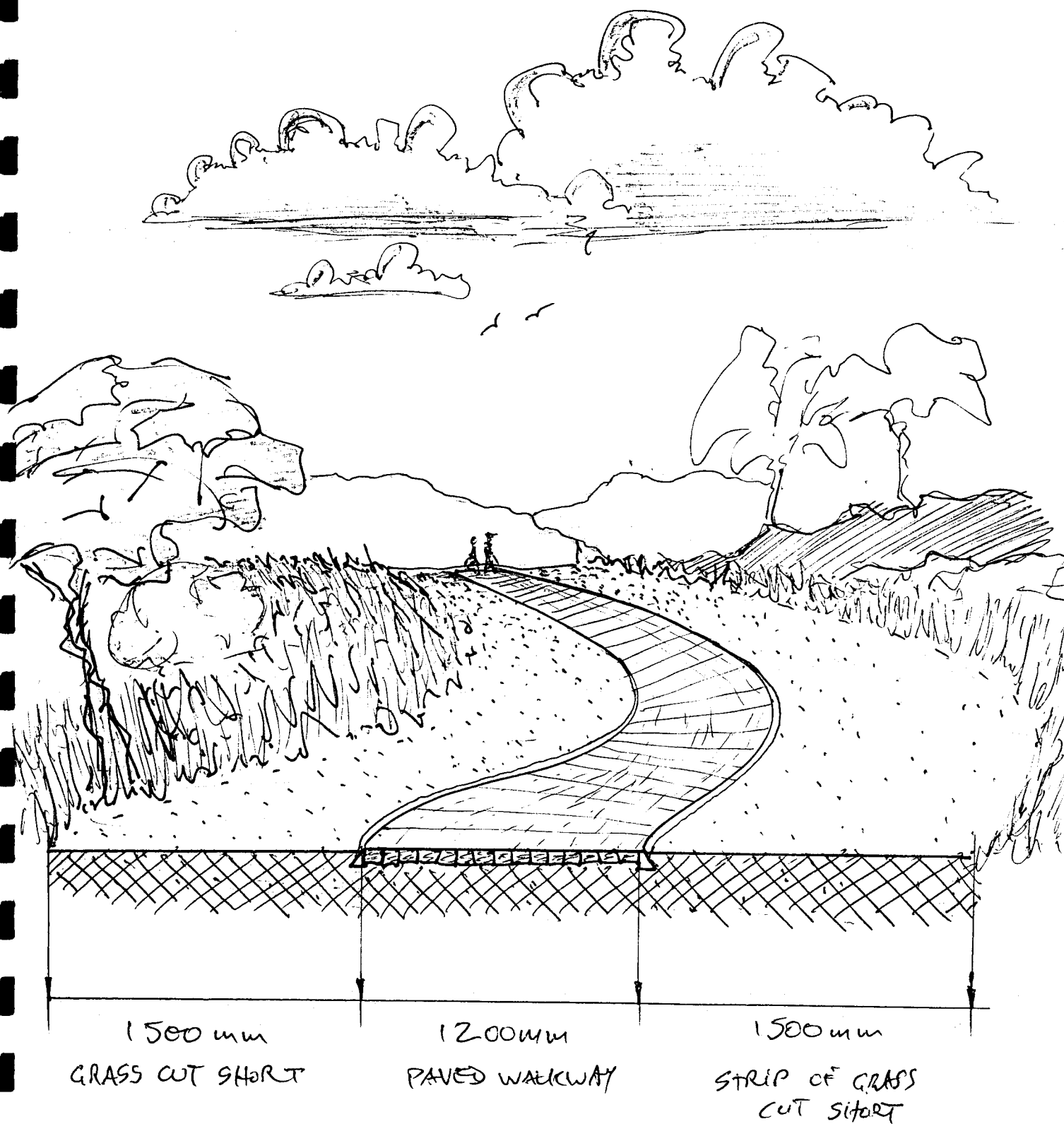


VRIENDE VAN MORELETASPRUIT
(LYNNWOODWEG TOT BROOKSIDEWEG)



FRIENDS OF MORELETASPRUIT
(LYNNWOOD ROAD TO BROOKSIDE ROAD)

PROPOSED FOOTPATHS ALONG MORELETASPRUIT



VRIENDE VAN MORELETASPRUIT
(LYNNWOODWEG TOT BROOKSIDEWEG)



FRIENDS OF MORELETASPRUIT
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