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# QUEEN ELIZABETH PARK

## Management Plan

Prepared for

QUEEN ELIZABETH PARK BOARD

by

Department of Lands and Survey  
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New Zealand  
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## ACKNOWLEDGEMENT

This management plan has been adopted by the Queen Elizabeth Park Board to guide it in the future development and administration of the Park.

The Board gratefully acknowledges the preparation of this plan by the Department of Lands and Survey on behalf of the Board, and the work of the planning team of Mr G A Turner, Department of Lands and Survey (convenor); Mr F D Boffa, Boffa Jackman and Associates; and Mr B J Dobbie, Department of Lands and Survey. The Board also acknowledges the contributions and comments from Mr J M Heffernan, Department of Lands and Survey; Mr P G Scott, Wellington Regional Planning Authority; Dr J G Gibb, Water and Soil Division, MOWD; Mr S T Drakeford, Boffa Jackman and Associates; Mr R G Bradley, Miramar Golf Club; Mr I D Galloway, Wellington City Corporation and Mr E J Lynskey, Chairman of the Board's Works Committee.

The Plan provides realistic policies and a management concept for the effective development and proper use of Queen Elizabeth Park as a reserve of regional significance, while at the same time preserving and enhancing its natural qualities.

S K Spry  
Chairman

9 JUN 1988

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## THE MANAGEMENT CONCEPT

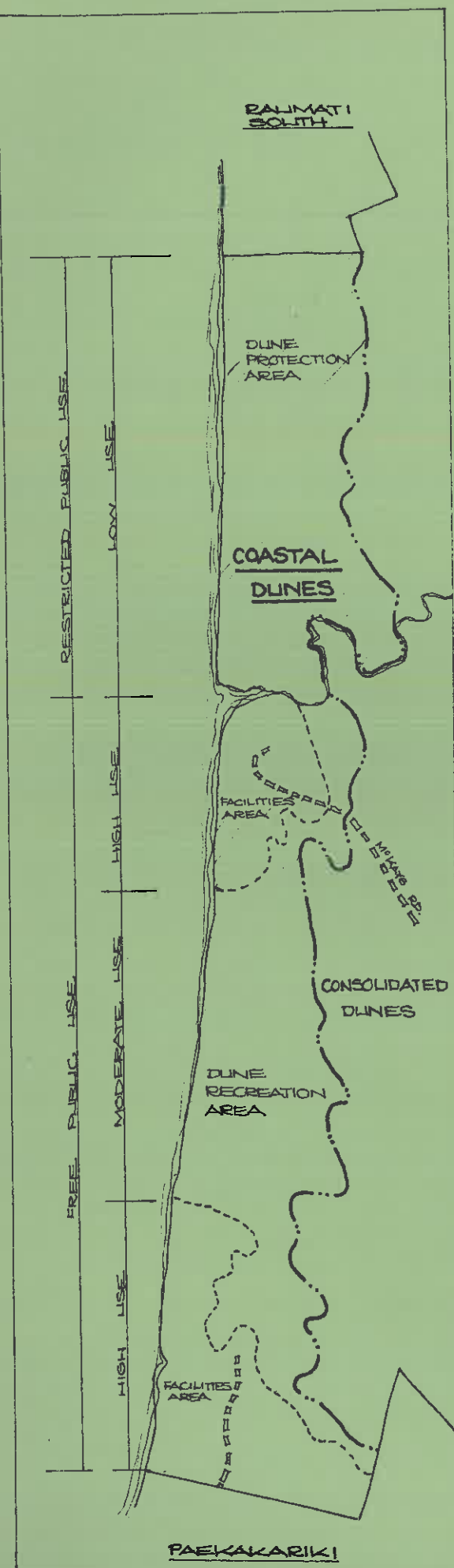
The management concept for the park is based upon resource characteristics, recreational and open space opportunities, and the pattern of existing use, and conforms with the preceding objectives and policies. The concept is sensitive to environmental constraints and it recognises that farming needs to be an integral component of the landscape management of a large area of the park, at least in the short term. In this regard the viable base of the farming operation must be maintained as far as is possible. Development proposals which have not yet been implemented or programmed have been reconsidered in the context of the comprehensive management concept. The Whareroa Sheep Unit has not been considered in the management plan, however it is recognised as playing a continuing role in the future grazing and management of areas of the park. In the longer term it is envisaged that the sheep unit could be utilized for recreation with an education/farming bias.

Broadly the park management areas recognise the lineal landform characteristics of the park landscape, namely, the narrow beach, the sand dune complex and the flat peatlands. The area north of the Whareroa Stream is seen as being a restricted public use area, due principally to the critical state of the foredune between the Whareroa Stream and Raumati South. In addition the restricted use of the northern park area will serve to ensure the protection and viability of the Whareroa Dairy Unit. From Raumati South access to the park facilities and recreation areas will be encouraged along the beach. Sections of the present access track along the foredune may need to be closed and rerouted and steps taken to revegetate the eroded track area. A pedestrian bridge may be required across the Whareroa Stream in the vicinity of the beach end of McKays Road.

### Coastal Dunes -

Taking a comprehensive view of the coastal dune complex it is proposed that all areas west (seaward) of the trough between the consolidated dunes and the secondary dunes be permanently retired from grazing. The extent of the desirable development at the beach end of McKays Road and at Paekakariki have been defined (see Map). The consolidation of formal picnic areas and facilities within these areas must be carefully planned so that the delicate balance between use and protection is maintained and that the potential for overcrowding is reduced and actively discouraged.





The remaining coastal dune area between these two development areas will serve as a "run off" or "filter" area. It is envisaged that within this area no provision be made for formal picnic facilities and that vehicular access be prohibited at all times. The principal landscape objective would be to retain the natural dune character and vegetation cover as far as is possible.

At the Whareroa Stream/McKays Road area it is important that the area definition follows the contours and that the boundary be defined by the Whareroa Stream to the north, the coastal face of the secondary dune to the west and approximately following the 50 foot contour to the south to a point some 400 metres south of the toilet and changing facilities on the beach. As far as possible vehicular access should be confined to the developed car park areas at and about the end of McKays Road. Parking should not be extended south into the dunes any further than the provision made to date.

At Paekakariki the developed area follows the escarpment above the Wainui Flat and generally follows the 50 foot contour to a point on the coast some 800 metres north of the Paekakariki urban boundary. While vehicular access and some formal picnic areas have been provided outside this area it is considered that no further extension of the road adjacent to the beach be permitted and that in the longer term steps be taken to reduce the extent of vehicular access in this area. Pedestrian access through the area will be maintained in the trough between the fore-dune and the secondary dune and in addition a high level walkway will be maintained along the secondary dune complex. This access way takes advantage of the high points from which spectacular views can be obtained.

#### Consolidated Dunes -

Within the consolidated dunes the management concept recognises the areas previously delineated as landscape identity areas. North of the Whareroa Stream the consolidated dune sequence comes within the Whareroa Dairy Unit, while to the south the three identity areas are broadly defined as two management areas. The larger area extends over all the dunes south of McKays Road and includes the dunes immediately to the north of the road including a finger dune formation. The characteristic feature of this dune area is the dramatic landforms highlighted with remnant stands of manuka and associated wetland areas. Within this large area there



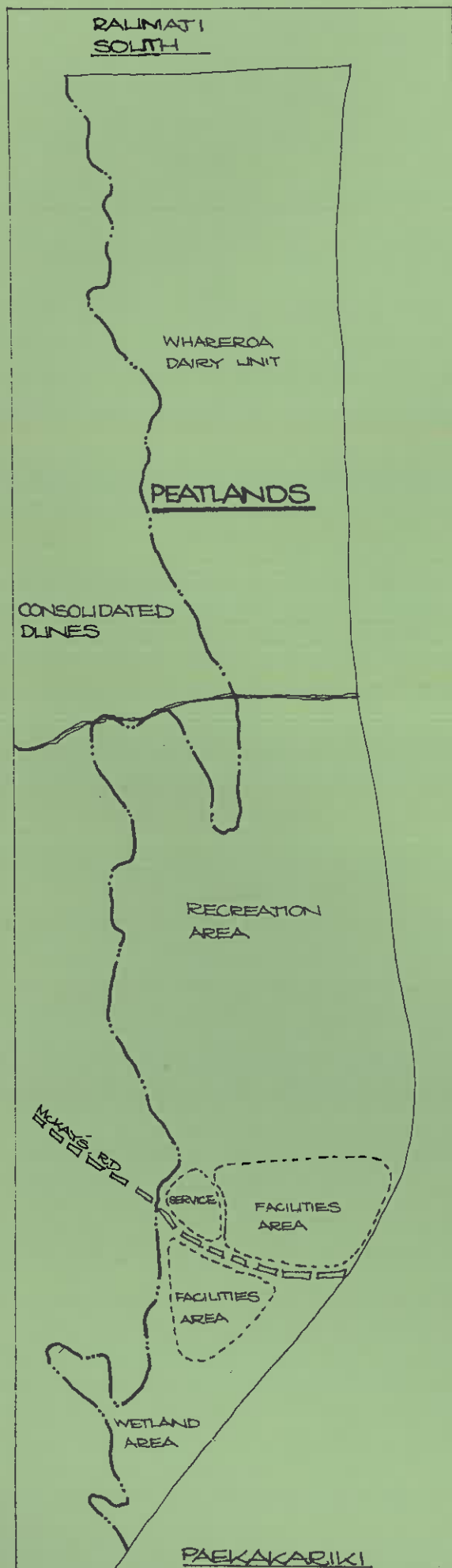
is scope for both informal and unplanned activity as well as some limited provisions for organised activities on a seasonal basis. The following three use areas are identified within this management area -

1. The trough between the coastal dunes and the consolidated dune. This area offers scope for use as a north south connecting route and also could absorb the recreational pressures from the Paekakariki and McKays Road (beach end) development areas. The area could in addition act as a staging point from which access to other areas of the Park is possible.
2. About McKays Road the dune landforms are more gentle. Within this area there is scope for the provision of limited organised activity as well as passive and informal recreational activity. Several golf course proposals incorporating considerable earthworks have previously been suggested within this area. It is now considered that the provision for golf in this area would compromise the natural amenity values and potential of the area.
3. The southern most dune area is the steepest and generally the more isolated. The landforms in this particular segment of the park are strongly defined and it is proposed that the dramatic grass covered dune landscape be retained and managed in its present form. A previous proposal for the establishment of a plantation reserve over part of this area would compromise the scenic amenity the area currently displays.

The consolidated dune area between the Whareroa Stream and McKays Road is the least spectacular of the consolidated dune landscape. An 18 hole Championship Golf Course has been considered within this area and recently consultants to the Park Board further refined the original proposals. Overall golf is considered as a suitable activity within this area, however the constraints are -

- i) That the club house and parking facilities be located off McKays Road
- ii) That McKays Road not appear to run through or past a golf course. In this regard the dune buffer along the south boundary of the course must be maintained as an integral part of the southern dune landscape
- iii) That the golf course development not extend further than half way up the landward side of the secondary dune





- iv) The general location of the golf course development will be south of the Whareroa Stream but the golf course design requires the crossing of the stream in some places.
- v) That the golf course be extended eastwards as far as is necessary to achieve a desirable course layout.
- vi) That access to the club house and parking facilities be as shown on the management concept and that these facilities be developed as complementary and/or multi-use facilities with other organised sport and activity developments.

#### Peatland Flats -

The area north of the Whareroa Stream will continue to be managed as part of the Whareroa Farm. South of the Whareroa Stream a large segment of the area up to McKays Crossing is leased to Wellington City Corporation. The northern sector of this area could be developed for golf course purposes, particularly as the 9-hole course previously suggested south of McKays Road is not appropriate in that location, and land would be exchanged between the Wellington City Corporation and the Board. Provision has been made for an area for formal sport and recreation activity. It is envisaged that this area would be approximately half the size of the area presently leased by Wellington City. Should golf or formal sport not be developed then the area would be retained as is and farmed.

On either side of McKays Road a facilities development area is proposed. Essentially this is in conformity with previous Board thinking which has been the development of a proposed Colonial Village, children's play facilities, a tram museum and the like. There has been a proposal to modify the entry road at this point - it is suggested that future consideration of this be seen as part of a comprehensive design proposal for the facilities development area. South of the facilities development area provision has been made for a wetland area which is to be retained and managed in association with the raupo swamp east of the railway line.

#### Access and Parking -

In the development of the management concept an important planning objective has been to develop a unified proposal and one in which the park is seen and experienced as the one park facility offering a wide range of recreational opportunity and facilities. Presently there are two road accessways into the park. In addition there is a tramway from McKays Crossing running out towards the beach



adjacent to McKays Road. As noted previously it is Board Policy to ensure that no road connection be developed between McKays Beach and the recreation area at Paekakariki. As pressure for development increases at the two beach areas and in order to maintain the coastal dune landscape character and experience, the trough between the secondary dune and the consolidated dune is considered to be a potentially important collection and distribution area.

In the future, access other than pedestrian access may be necessary between the two beach development areas and the facilities and sport and recreation areas at McKays Crossing and therefore the trough should be reserved for a possible future access link through the park.

Access to the golf course club house and parking is proposed via a new road off McKays Road immediately west of the service area. This road would also serve the sport and recreation facilities area. The realignment and/or re-organisation of access and roading at McKays Crossing would be subject to further detailed planning and design studies.

The proposed motorway alignment is shown on the management concept. Should this motorway eventuate, then appropriate provision must be made for vehicular and pedestrian underpasses. No buildings or permanent features are to be placed within the corridor alignment.

In the longer term, recreational activities which tend to generate noise and/or require safety separation may be able to be accommodated in the triangular area bordered by the State Highway and Poplar Avenue and cut off from the rest of the park by the proposed motorway.

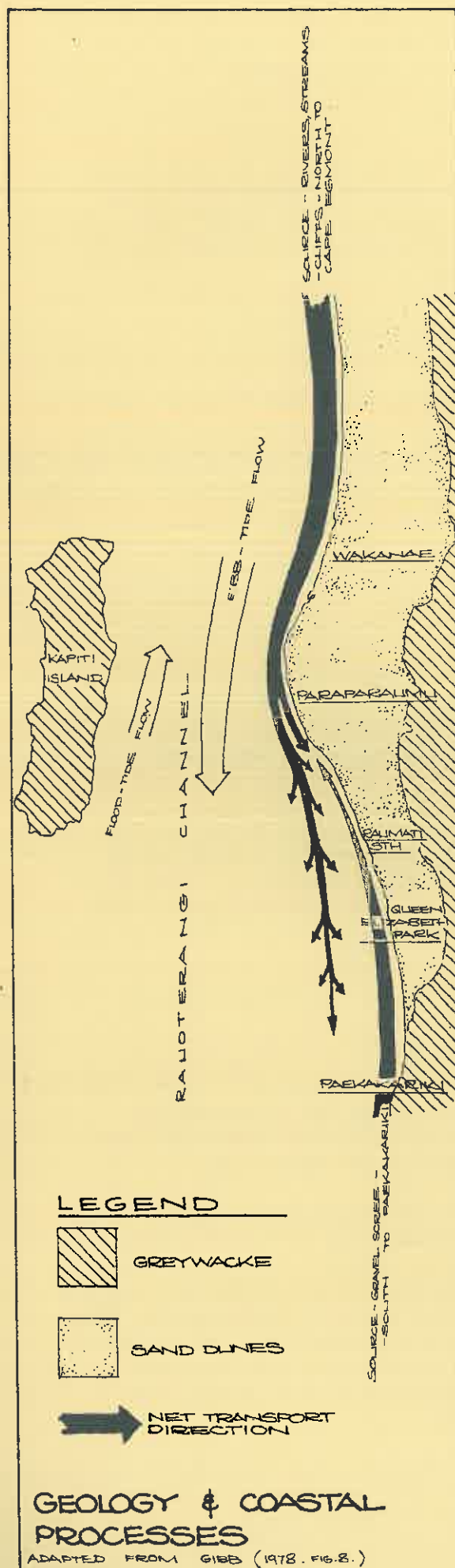
#### Pedestrian Access -

Generally there is free public access throughout the park south of the Whareroa Stream. However, due to the sensitive nature of the coastal dunes and the opportunities available from a planned walking system, the major pedestrian access routes are shown on the accompanying plan.

#### Administration

Administration of the park is in terms of the requirements of the Reserves Act 1977. Future administration will follow the approved management plan for the park.





It has been found (Fleming, C.A. 1972) that four groups of dune formations are probably present in the Park, each of which represents periods when there was an abundant supply of sand for dune-building. The oldest dune group, Foxton Dunesand (1,800 - 6,500 years old), lies interspersed with peat on the eastern lowlands of the park. The next oldest dune groups, Taupo Dunesand (1,000 - 1,800 years old) and Motuiti Dunesand (150 - 1,000 years old) lie in broad bands parallel to the coastline, while the youngest dune group, Waitarere (0 - 150 years old), occupies a thin strip of land immediately inland from the beach.

#### COASTAL EROSION

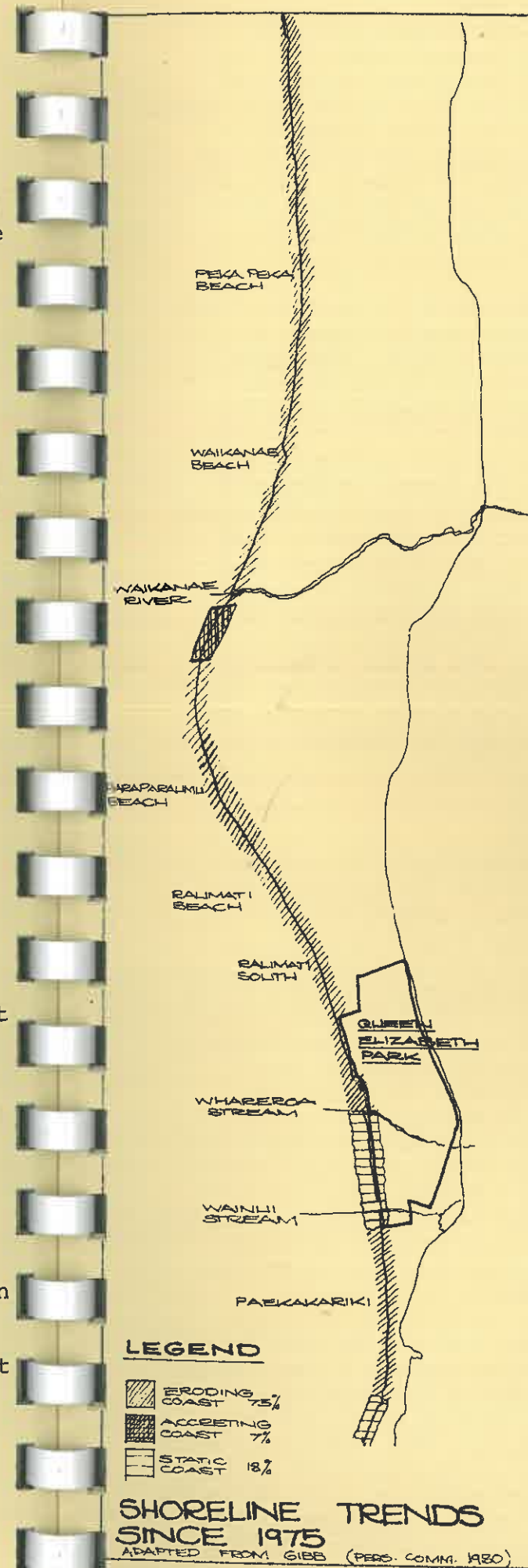
Over the past century there has been a net accretion for the coastline between Paraparaumu and Peka Peka, whereas net erosion has occurred at Raumati and Paekakariki. Accretion has been greatest at Paraparaumu at the apex of the cusped foreland.

Several factors operating within two different time scales are responsible for erosion on the Kapiti Coast. One category is of the order of centuries and the other of years.

The cusped foreland in the wave shadow of Kapiti Island traps the longshore drift, thus starving a portion of the southern coast of the natural supply of sand. Most of the sand, however, is deflected southward offshore by the cusped foreland, forming an offshore bank. As a consequence, the beach between Raumati and Paekakariki is being starved of the natural supply of longshore drift material from the north.

Most of the time, the prevailing longshore drift is northwards at Paekakariki, however south of Paekakariki, gravel supplies to the beach from the greywacke hills have been terminated. At the turn of the century this supply was reduced with the construction of the Manawatu Railway and was completely stopped in the 1930's with the construction of State Highway No 1 along the coast between Pukerua Bay and Paekakariki.

The foredune between Raumati South and the Whareroa Stream is suffering from severe erosion by the sea. The foredune is only 8-10 metres wide in places and is likely to be breached at these places if this erosion continues. Current research shows that this erosion will continue and it will only be a matter of a very few years before the entire foredune is destroyed. A wide beach is critical for protecting the foredune from attack by the sea. When the beach is narrowed it is a natural process for seas to erode sand 'stored' in the foredune and re-establish an equilibrium beach profile. The permanent loss of the natural



beach by coastal 'protection' means that the full force of storm waves will be greatest along the 'protected' coast. This was amplified during the 11-13 September 1976 storm surge when up to 15 metres of foredune were eroded at Raumati compared with a negligible erosion at Queen Elizabeth Park, 2 km south.

There has been no net erosion of the shoreline between the Whareroa and Wainui Streams over the past 100 years. This stretch of coast remains delicately balanced between erosion and accretion, possibly because it is the meeting point of the two opposing longshore currents and it is consequently neither gaining nor losing material. In the longer term and as coastal erosion north and south of this local area continues, it is possible that the delicate balance can be upset.

Data on coastal erosion has been taken from Water and Soil Technical Publication No IV. "The Problem of Coastal Erosion Along the Golden Coast" Western Wellington, New Zealand. by Jeremy G Gibb, Wellington 1978. Further information and detail can be obtained from this publication. Data has also been used from unpublished information made available by Dr J G Gibb.

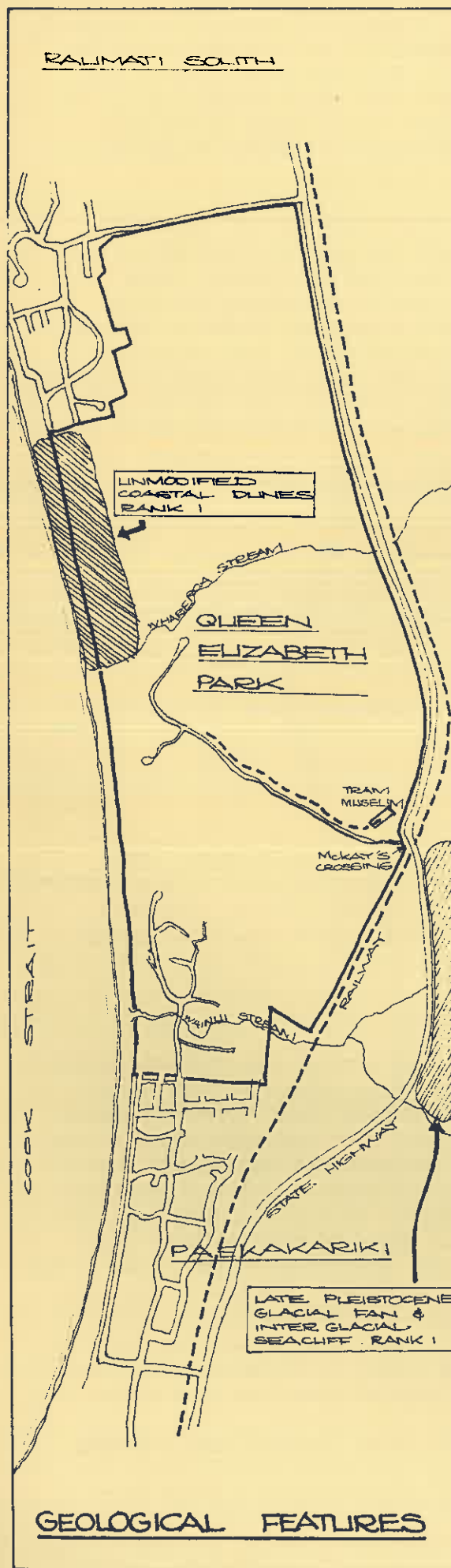
#### DUNE EROSION

A survey of erosion in the coastal dune area of the Park was undertaken in March 1980. This brought the report on dune erosion in A R Petrie's 1972 thesis up to date and largely confirmed Petrie's observations. Other than the coastal erosion along the foreshore north of the Whareroa Stream, the erosion situation appears to have been relatively static in recent years.

Two distinct types of erosion are evident within the coastal dunes of the Park. At the Raumati South end, the 'wandering dune' type is present. Originating from sand that has been blown inland from gaps in the foredune, it aggregates into a freely moving mass of sand capable of engulfing anything in its path. Blow outs in the foredune are in evidence in three places north of the Whareroa Stream and as erosion of the foredune by the sea continues, further breaches of the foredune are inevitable. Without adequate stabilisation, the mobile sand from these blow outs could fill up the trough lying behind the foredune, turning it into an unstable sand plain.

Moving sand is the other type of sand erosion, caused directly by concentration of usage in local areas where people and/or animals have tracked over and weakened the vegetation leaving the sand unprotected and allowing its removal by wind. This erosion is in evidence throughout the coastal dunes between Whareroa Stream and





the park boundary at Paekakariki and also occurs along the track between Raumati South and Whareroa Stream. In general, where the dune vegetation has been left alone, there is no sign of erosion and the dunes appear to be stable. The foredune area is the worst affected, especially along the track that parallels the beach. In many places the track is loose sand, while in two or three places the loose sand has been blown away leaving the track in a depression up to a metre deep.

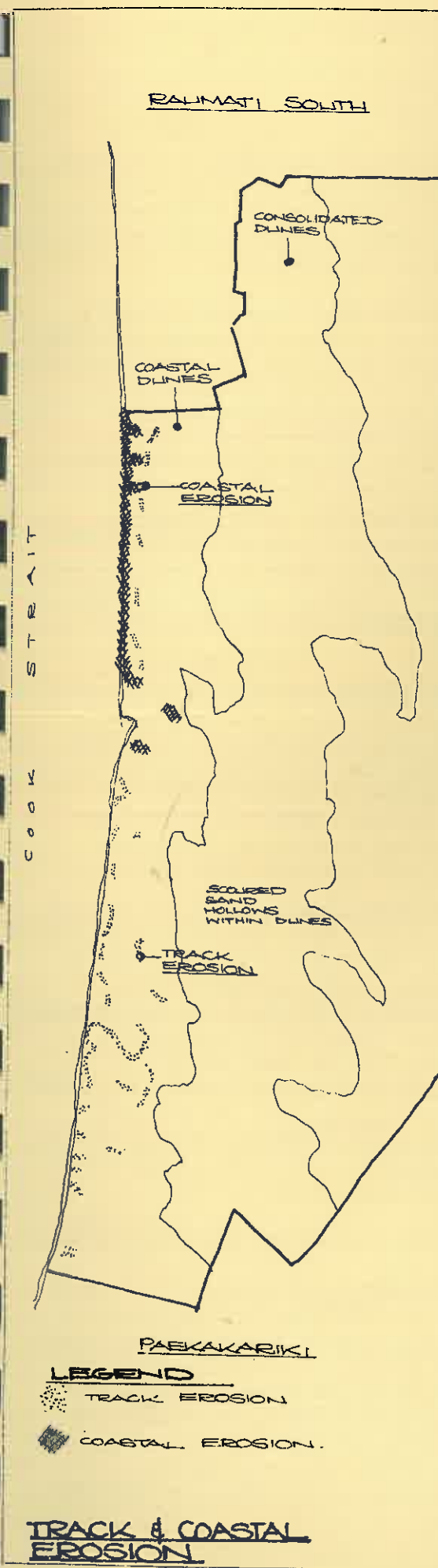
Inland from the foredune is the secondary dune consisting of two long parallel ridges or "wings" joined to form an apex. Patches of loose sand are in evidence on the cleared tracks south of Whareroa Stream.

Generally, the dunes covered in pasture appear stable, however, on the steeper sand dunes in particular there is evidence of wind scouring which results in patches of "sand hollows". Farm management practises should be directed towards minimizing such instances of erosion. In summary, the erosion problem in the dunes would appear to be under control, however, the isolated examples of more severe erosion illustrate the instability of the dunes, and their susceptibility to erosion once the soil and vegetative cover has been damaged or broken.

#### GEOLOGICAL FEATURES

North of Queen Elizabeth Park, the original dune formations have been largely modified or destroyed by farming, roading and urban development. However, a small area of relatively unmodified coastal dunes remain between the Whareroa Stream and Raumati South, in the northwestern corner of the park. The proposed Wellington Regional Planning Scheme identifies these unmodified coastal dunes as a geological feature of the "first rank". The ranking indicates the level of management necessary to adequately protect the scientific or educational value of the particular feature. For this area, Rank 1 defines a feature to be fully protected under reserve status and implies that recreation, scientific study or other human use should not be permitted to threaten the natural character.

Near McKays Crossing, a gravel fan that developed during the last glacial period (70,000 - 10,000 years ago) was cliffed by the rising post-glacial sea level. This cliff is visible adjacent to State Highway No 1 just to the south of McKays Crossing. Although outside the park boundary, this interglacial sea cliff is visible from the park and forms a striking backdrop to the lower profile terrain and dunes of the park. It is also a geological feature of Rank 1 in the regional scheme and deserves the protection that this suggests.



The basic objective of the Regional Scheme (in this respect) is:-

*"To protect and conserve geological features throughout the region which are of scientific, educational or landscape significance".*

#### SOILS

Soils of this area reflect the particular microclimatic conditions and range from extreme dryness and high summer temperatures on the sunny faces of the dunes, to excessive wetness and lower temperatures in the peat swamps.

Three dune soil types are evident and are associated with the three distinct dune-building periods. Each of the soil types show increasing soil profile development with increasing age.

The youngest soil set is Waitarere sand, a soil formed on the unconsolidated dunes bordering the coast. The sand is still unweathered and the only profile features that have developed are a browning of the top 3 cm caused by decaying organic matter. Waitarere sand is highly susceptible to wind erosion if the plant cover is depleted.

Foxton dark grey sand represents the next stage in soil development on the dunes. This is a rather shallow soil of up to 15 cm in depth. Drainage is rapid and although pastures can be established, they are poor and dry off early. The shallow soil is easily broken to expose the underlying loose sand to potential wind erosion.

The oldest soil is the Foxton black sand formed on the more consolidated dunes. The topsoil is very distinct and may be up to 30 cm deep. Reasonable pastures can be maintained for cattle grazing, however, due to the free draining nature of the soil, they have a tendency to dry out over the summer months.

Where drainage is poor, and where anaerobic (oxygen-less) conditions prevail for most of the year, partly decomposed organic materials have accumulated as peat. The deepest, sedge peat (peat formed from flax and raupo) is found near the Whareroa Stream inland from the dunes, while a thick forest peat layer is deposited on the western side of Poplar Avenue, Raumati South.