THE RECLAMATION OF QUARRIES AND WORKED OUT GRAVEL PITS

by A.B. Selkirk.

There is a demand by a public, becoming more and more aware of the scars marring our roadsides and reserves that has long called for action by controlling authorities. This is to conceal in some way those bare uninviting areas, Quarries and worked out Gravel Pits.

In some cases the advice of local foresters has been sought as to what are the most suitable trees for quick regeneration of these harsh places and in some cases considerable expense has been incurred in obtaining planting stock alone.

It is a disappointed and frustrated forester who later inspects some of these plantings and finds that either his advice has been ignored or the Shire foreman considers all trees just trees and has sited a Tasmanian blue-gum on a two inch depth of hard clayey gravel.

The purpose of this article is to set out the purpose of re-habilitation, a prescription for planned planting, a means of continued maintenance of such areas and suggestions as to their future uselfulness.

An inspection within the Mundaring and Kalamunda Shires show that some pits date back 70-80 years and some of the oldest are the most interesting as they have been carved out of the laterite by pick and shovel and horse and dray. In some, meandering canyons with mesa type islands have been left. In these there is already developed the foundation for a childrens adventure play ground.

It is also apparent from some of the older pits what will happen if nature is left alone to cover them. The often used phrase that "time and nature will heal the man-made scars" means that they will eventually be covered by dumped watsonia, dual leafed hakea, holly leafed dryandra, contorted mallee and bull banksia thickets plus other wolf-type species which make these areas only less interesting except for the purpose of concealing old car bodies and still more dumps of watsonia bulbs.

As most of these areas are either on Crown Lands, on the verges of, or in State Forest, their rehabilitation should have a flexible purpose; e.g.

a) They should be regenerated to the maximum capacity of the site.
b) They should have maximum access for public recreation.
c) They should eventually be placed under a caretaker arrangement with a local club or committee dedicated to the study of native flora and wildlife with continued contact with local foresters or Shire.

Most of these areas do not offer any encouragement to a tree planter. They are in fact man-made barrens having the only advantage that all competition has been removed. Over the years in my movements within our

wealth of native flora I have always found the natural barrens the most interesting. Here on the poorest shallow soil, often water logged in winter and sun scorched in summer, there exists an unbelievable wealth of shrubbery. It is from these areas that we must select the most showy species to cover the portion of the Gravel pit that will not support a canopy of even mallee form trees.

In the initial preparation of the planting site e. g. the pushing in of overburden and ripping of compacted floors, it should be considered a necessity to leave a central portion graded bare for parking and playing areas.

The planting plan should have three main belts which would merge into each other; e. g.,

1. Forest species with understory.
2. Mallee forms with shrubbery.
3. Heath forms with prostrate plants.

It will be found that the prostrate plants in time will catch and retain wind blown leaves and seeds from the surrounding forest. Self regeneration from seed will then commence and thus increase the rate of Reclamation.

All plants and trees being planted and juvenile stock already on the site should be fertilised with a mixture of 50% Blood and Bone and Potato Manure (E) at a depth of 8" to 12" at a rate of 2 oz to 5 oz per plant depending on the specimen's size and expected growth rate. It is important to do this at time of planting or in mid-winter and at the depth mentioned or the maximum possible depth obtainable, making sure no fertiliser is spilt or scattered on the surface as this will quickly encourage exotic grasses and so increase the fire danger. Fertilising at depth should be followed up at 4 to 5 year intervals. The results will be rewarding.

With the concentration of flowering species it can be expected that bird life will increase on the reclaimed sections. With this in mind, I have included in the suggested planting list one exotic: the humble lucerne tree. It is a fire retardant and in consequence should be planted on the outer perimeter as a widely spaced understory specimen. It is a great source of food for bird life and our small marsupials. Its powers of survival through drought have long been proven as has its persistence to survive in ever recurring cycles of self regeneration.

1 Though most gravel pits are sited on high, well drained land, it does happen in some instances that a water soak is present on the lower section. Here a dam could be constructed to catch run-off. Where ever these conditions prevail, every use should be made to hold this water far into the summer. It is invaluable as a pick-up spot when control burning and of course again the adventure play ground for the young.

A source of supply for the suggested planting list can of course come only from the adjacent forest areas. I have observed over the years that our preparation of pine plantation areas produce a natural nursery for native flora which eventually becomes engulfed and destroyed by the closing pine canopy. If obtained from this source as wildlings no inroads would be being made on the protected areas. Other sources are of course seed which are ever abundant within the district.

Listed below are the main species. This could be added to as time goes by, with the annuals and the trigger plants etc, too numerous to mention, and of course extended beyond the purpose of this article.

SUGGESTED SPECIES FOR PLANTING ON PROPOSED RECLAMATION AREAS AND DENUDED ROAD-SIDES

Forest Types	Common Name
Eucalyptus microcorys	Tallow wood
" astringens	Brown Mallet
" accedens	Powderbark Wandoo
" calophylla (Var Rossa)	Pink Flowered Marri
On wet areas	
Eucalyptus rudis	Flooded Gum
" camaldulensis	River Gum
Mallee Types and Short Understory Trees	
Eucalyptus caesia	Pink Flowered Mallee
" macrocarpa	Mottlecah
" ficifolia	Red Flowering Gum
Hakea laurina	Pincushion Flower
Banksia grandis	Bull Banksia
Persoonia longifolia	Long Leafed Persoonia
" elliptica	Wild Olive
Shrubbery and Short Understory Shrubs	
Calothamnus quadrifidus	One-sided Bottle Brush
Acacia drummondii	Drummondii Wattle
" " (Var Major)	" "
Isopogen roseus	Rose cone Bush
" formosus	Graceful Rose Cone Bush
Petrophila biloba	Granite petrophila
Hovea chorizemifolia	Holly leafed hoves

Hovea pungens	Granite Hovea
Pimelea suaveolens	Scented Banjine
" spectabilis	Bunjong
" rosea	Pink and White Banjine
Sollya fusiformis	Australian Blue Bell
Hupocalymma robustum	Pink Myrtle
Dampiera linearis	Blue dampiera
Scaevola striata	Royal Robe
Hibbertia montana	Mountain Primrose
" hypericoides	Buttercup

Shrubbery and Short Understory Shrubs

Leschenaultia biloba	Blue Leschenaultia
Anigosanthus manglessii	Red & Green Kangaroo Paw
Grevillea wilsonii	Wilson's grevillea
" drummondii	Drummond's grevilles

Heath-like Plants Requiring Open Areas

Hakea ruscifolia	Lamb's Tail Hakea
Beaufortia elegans	Elegant Beaufortia
Grevillea bipinnatifida	Granite grevillea
Verticordia insignis	Pink Morrison
" picta	Pink Feather Flower
" huegelii	Red & Yellow Feather Flower
" multiflora	Yellow Flowered Feather Flower
Melaleuca scabra	Rough Honey Myrtle
" radula	Graceful Honey Myrtle
" lateritia (Wet Spots)	Red Flowered ti-tree
Banksia sphacrocarpa	Round fruited Banksia
Calythris angulata	Yellow calythrix
" fraseri	Pink Summer calythrix
" glutinosa	Glutinus Calythrix
Darwinia citridora	Lemon scented Darwinia
Leucopogon insularis	Nil
" strictus	Nil
" oppositifolius	Nil
Andersonia caerulea	Nil
Loudonia aurea	Common Pop Flower
Agrostoerinum scabrum	Blue Grass Lilly
Astroloma microcalyx	Native Cranberry
" microdonta	
Lambertia multiflora	Many Flowered Honey-Suckle
Thysanotus multiflorus	Fringed Lilly

Prostrate Type Plants

Kennedya prostrate	Running Postman
Trichinium manglessii	Rose Tipped Mulla-Mulla
Hemiandro pungens	Snake Bush

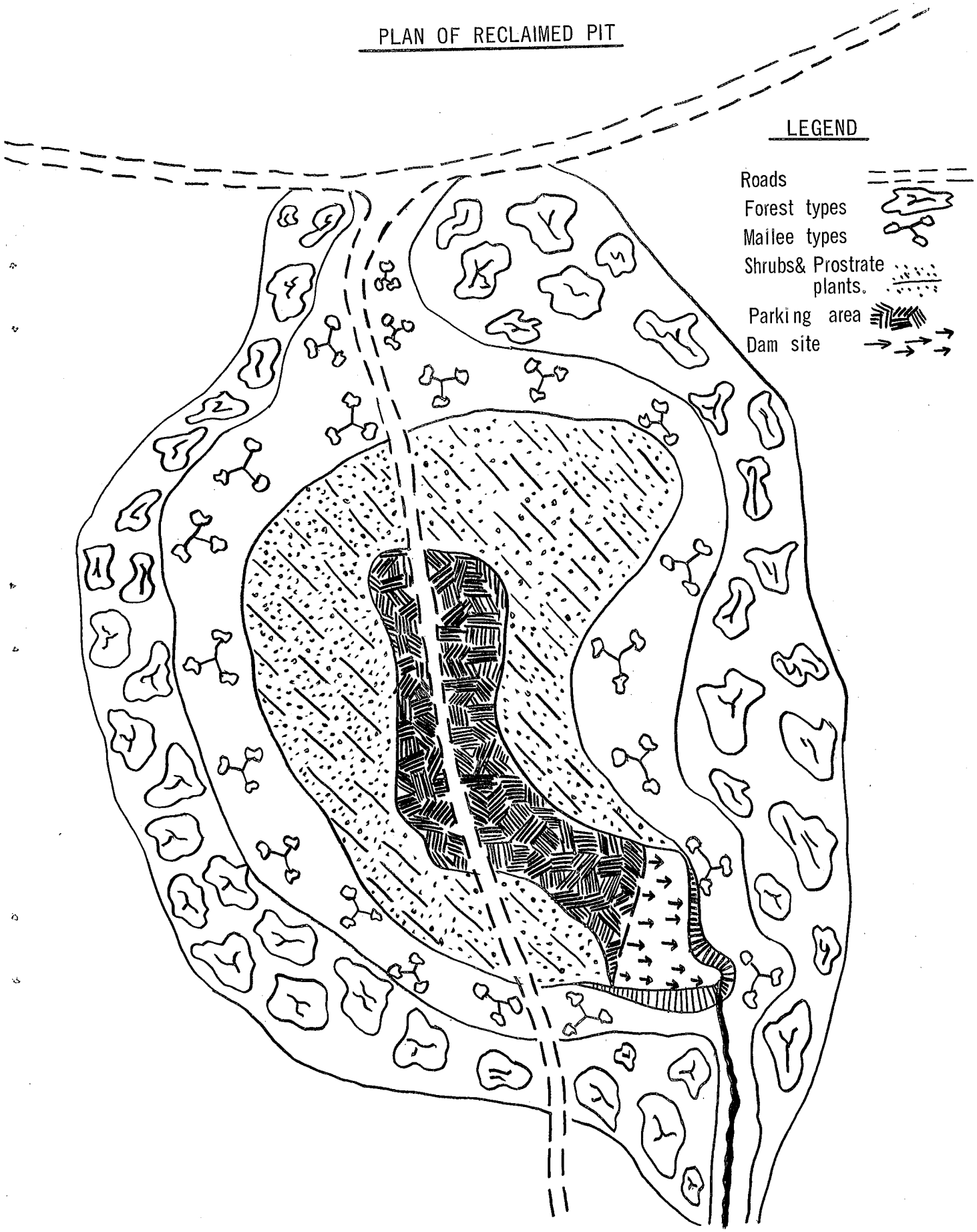
Creeper or Trailing Type Plants

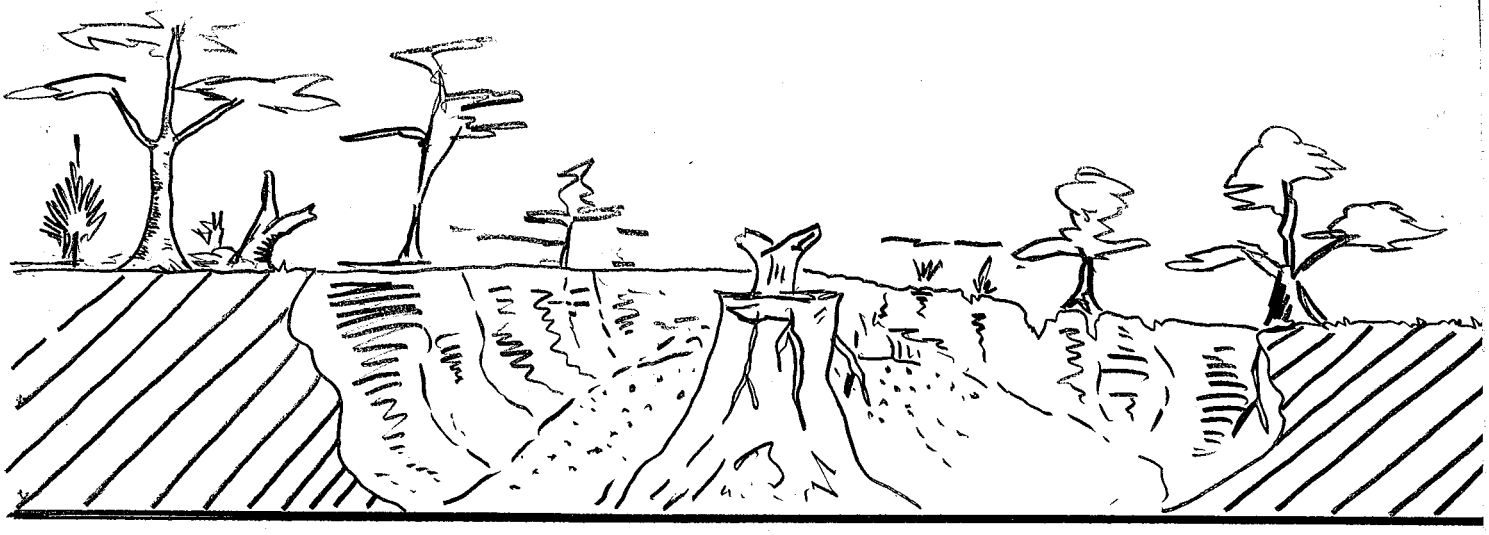
Kennedya coccinea	Coral vine
Pronaya elegans	Elegant pronaya
Billardiara floribunda	White Flowered Billardiara
Clemates pubesens	White Clemates

Exotic Types

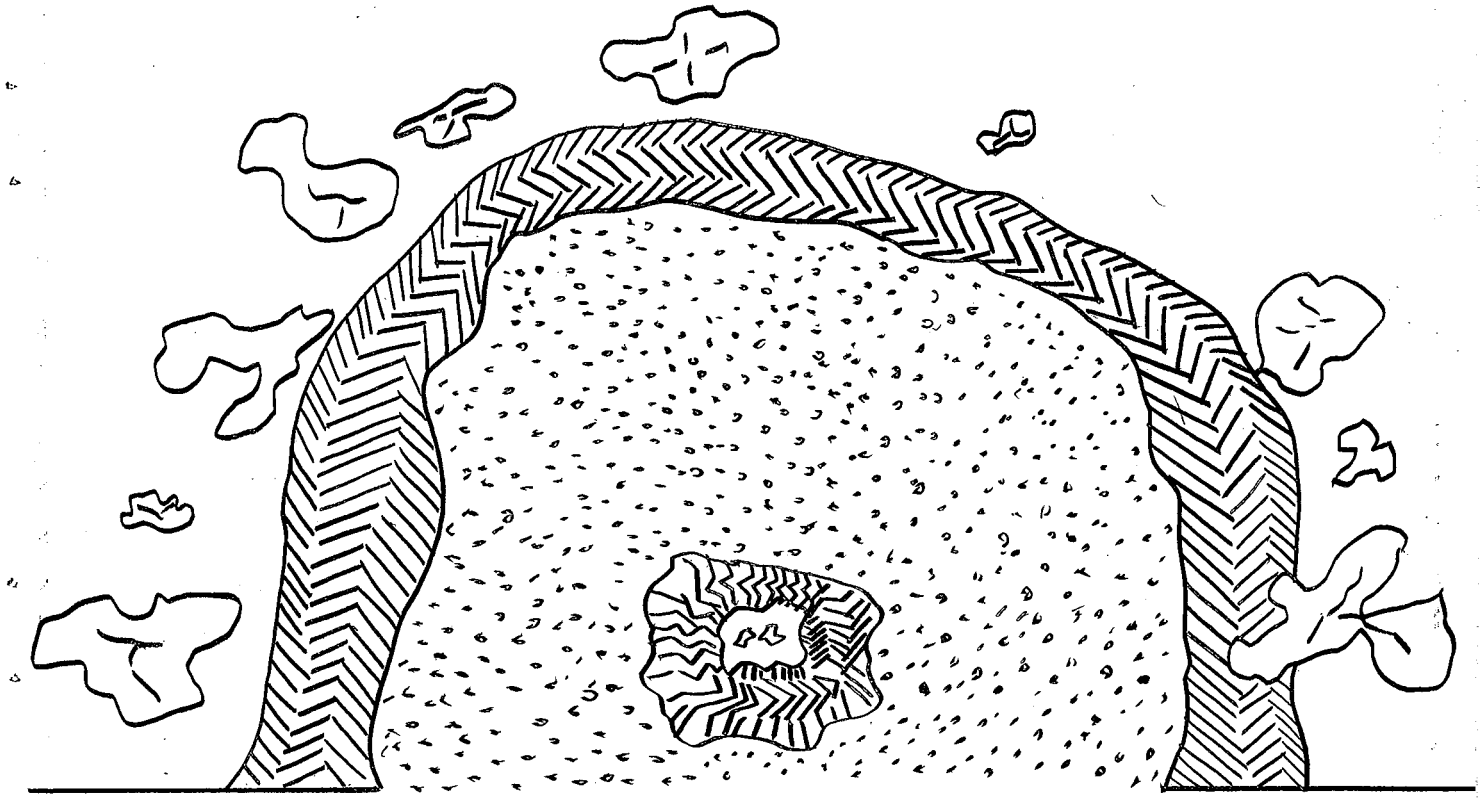
Cytisus proliferus (Understory)	Lucerne Tree
Papyrus ? (Water Growth)	Egyptian Papyrus

PLAN OF RECLAIMED PIT





PROFILE SECTION OF MESA TYPE PIT



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