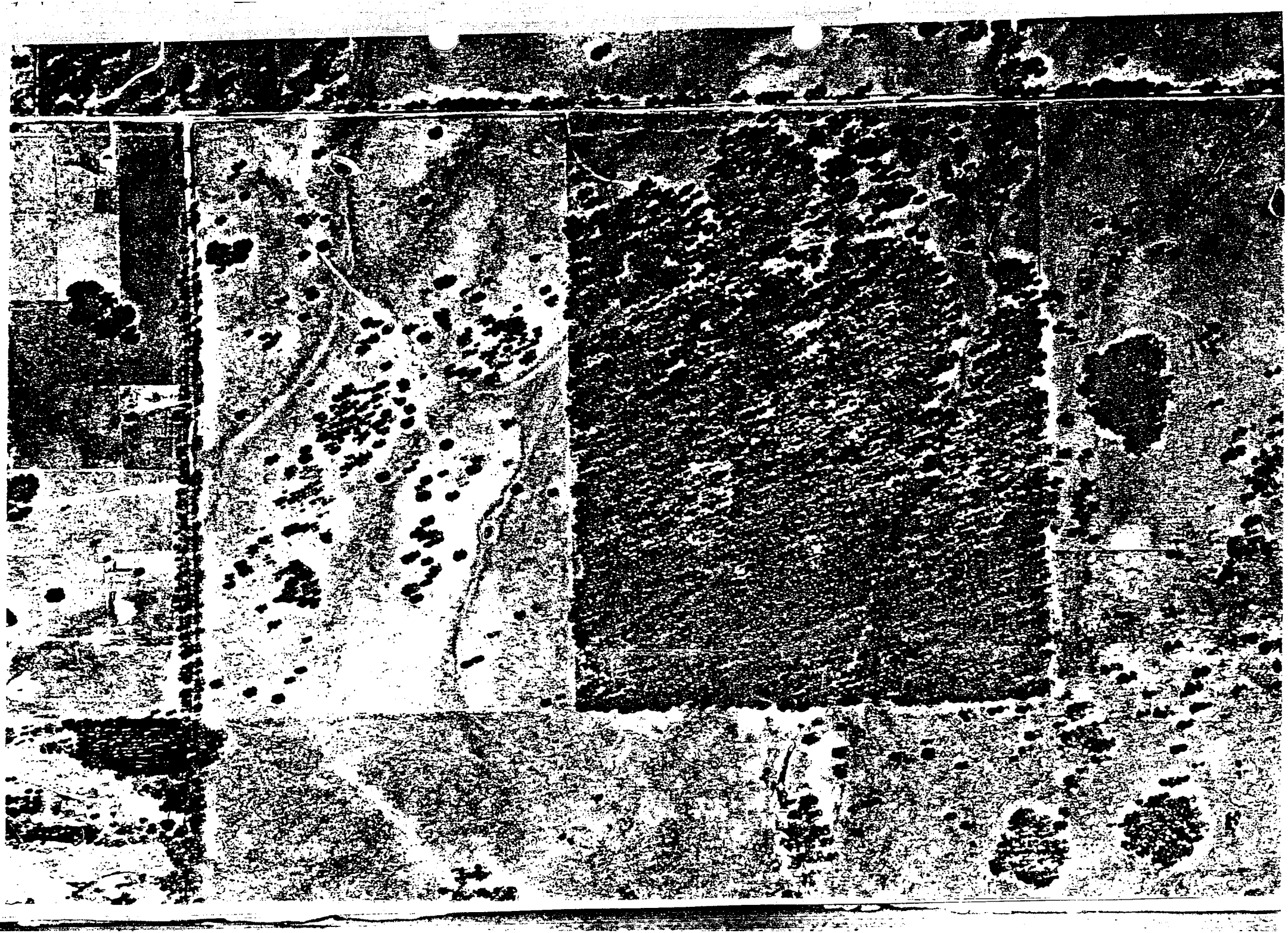
64

PROPOSED RURAL RESIDENTIAL DEVELOPMENT KYNETON VIC.

A PLAN FOR
ENVIRONMENTAL LIVING


KYNETON WATER TRUST AREA
DETTMANS LANE
GOLF COURSE
EDGECOMB
ALDER
HIGHWAY

THE SITE



COPY

VICTORIA.

Entered in the Register Book

Vol. 6472 Fol. 1294251

Certificate of Title,

UNDER THE "TRANSFER OF LAND ACT 1928."

ORIGINAL CERTIFICATE.
Not to be dealt with outside the Titles Office.

John Robert Boxwell Leared and Alfred Jeremy Leared both of Kyneton Butchers are now the proprietors as tenants in common in equal shares - - - - - - - - - - - - - -

~~now the proprietor~~ of an Estate in Fee-simple, subject to the Encumbrances notified hereunder in All that piece of Land, delineated and coloured red on the map in the margin containing One hundred and twenty-six acres Three-roods and Thirty-four perches or thereabouts being part of Crown Portions Thirty-eight and Forty-one Parish of Carlsruhe County of Dalhousie - - - - - - -

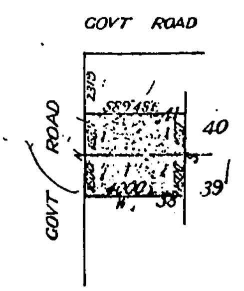
Dated the Fifth day of May One thousand nine hundred and forty-one.

Assistant Registrar of Titles.

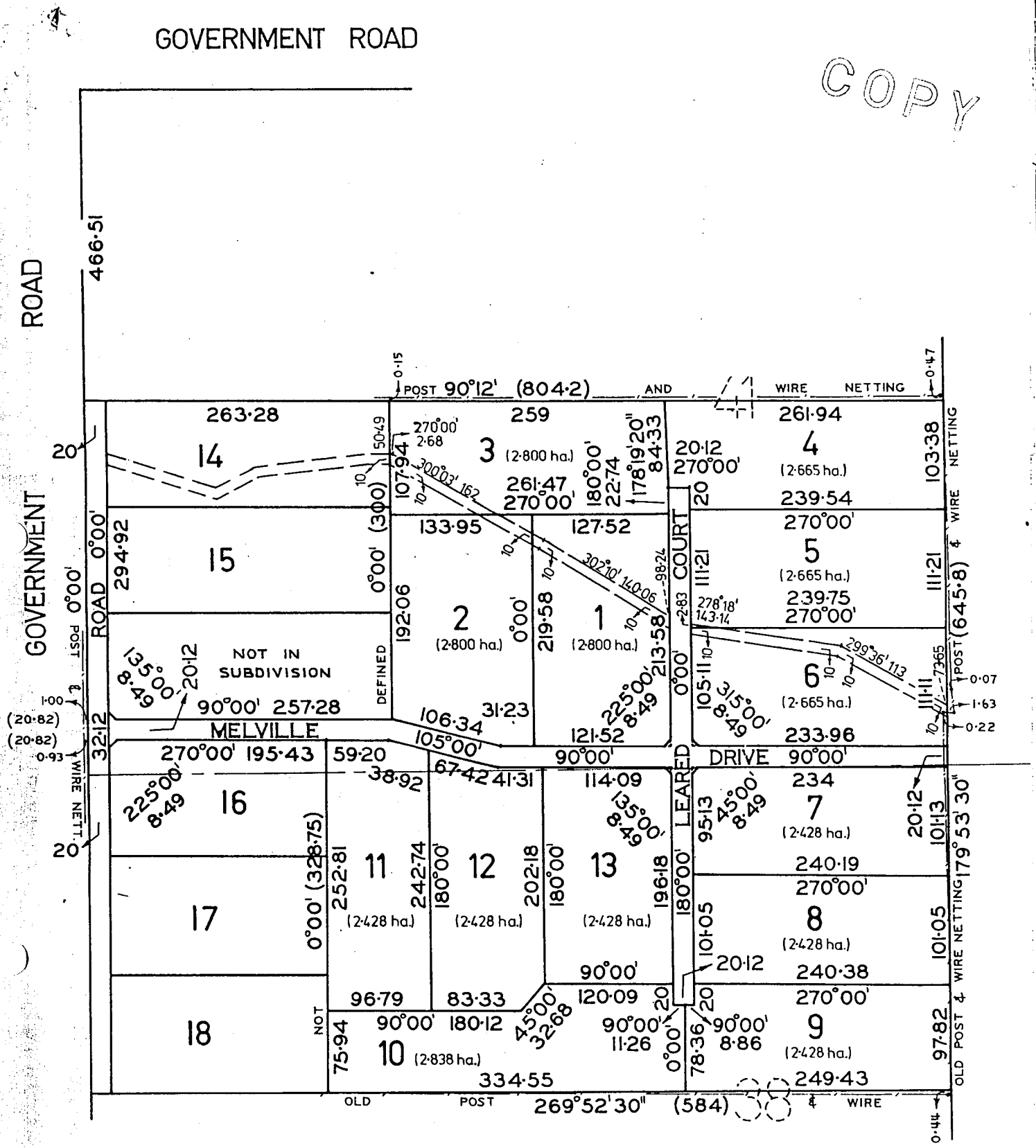
ENCUMBRANCES REFERRED TO.

Enclosure D.P.T.O.

Unregistered dealings, caveats and/or wills – Nil 24.5.76
D. E. Liddicut, Title Searcher
P.O. Box 4839 Melbourne 3001



The Measurements are in links


GOVERNMENT ROAD
COPY
ROAD
GOVERNMENT
466·51
POST 90°12' (804·2) AND WIRE NETTING
263·28
259
261·94
14
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4 (2·665 ha.)
15
2 (2·800 ha.)
1 (2·800 ha.)
5 (2·665 ha.)
6 (2·665 ha.)
NOT IN SUBDIVISION
DEFINED
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COURT
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LEARED
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17
11 (2·428 ha.)
12 (2·428 ha.)
13 (2·428 ha.)
8 (2·428 ha.)
18
NOT
10 (2·838 ha.)
9 (2·428 ha.)
OLD POST 269°52'30" (584) & WIRE
OLD POST & WIRE NETTING
WIRE NETTING
ROAD 0°00'
POST
(645·8)
(300)
(328·75)
334·55
249·43
CURRENT USE

COPY

PLANNING OBJECTIVES

1. THE SITE

(a) DESCRIPTION:

The parcel is all that land being Lots 1 - 13 on Plan of Subdivision No. L.P. 127962 and is derived from Certificate of Title Volume 6472 Folio 251, and Lots1, 2, 4 -6 on Plan of Subdivision No. L.P. 121369.

The site has an area of 48.22 ha or 119.2 acres, is part of Crown Portions 38 and 41, Parish of Carlsruhe, and is situated on Edgecombe Road adjoining the northern boundary of the township of Kyneton. Approximately half of the site is included in the area under the control of the Kyneton Water Trust, a location map being included overleaf.

(b) ANALYSIS:

The land is gently undulating and is covered in a healthy stand of native eucalypts with minimal ground vegetation in shaded areas but with good grazing cover in areas exposed to sunlight.

A spring fed creek runs through the land, the source of the spring being approximately 1000 metres to the east of the property. The creek flows continuously throughout the year and supports a large herd of kangaroos which currently occupy the land. An inspection of an aerial photograph of the area shows that this allotment is the only one that has sufficient natural vegetation to provide shelter for the native fauna indigenous to the land and it is proposed that this scheme will provide a means whereby the existing animal and vegetable life on the site will be preserved.

2. PLANNING OBJECTIVES

(a) THE CONCEPT:

The parcel currently consists of 18 lots on a Registered Plan of Subdivision, the lot sizes varying from 2.20 ha (5.44 acres) to 2.84 ha (7.02 acres), and this proposal seeks to resubdivide the land by means of the Cluster TitlesAct into 45 allotments of 0.8 ha (2 acres) average lot size and 30 acres of private open space and private cluster roads.

The objectives of the scheme are:

(i) To utilise the environmental resources of the area to provide a development that is virtually self sufficient and utilises natural rainfall and stormwater runoff to provide all the water supply requirements that would normally be drawn from the supply available to the Kyneton Water Trust, already very heavily in demand.

(ii) To utilise this natural water to provide a water storage dam that will be stocked with fish, may be used for swimming, and will provide the basis of a reticulated stock and garden water supply, and a totally reticulated fire fighting system complete with hydrants to C.F.A. specifications. Note that the current usage of the land, six to seven acre lots, does not allow for any water reticulation or fire fighting system.

(iii) To provide an integrated continuous system of private open space throughout the development for the use of the lot owners and to provide a habitat for the existing native fauna and allow existing native vegetation to stand.

(iv) To utilise the provisions of the Cluster Titles Act to set up a Body Corporate to control the development and usage of the land once the scheme is completed.

(v) To preserve and protect the existing environment and by suitable controls on the development, administered by the Body Corporate, prevent any detriment to adjoining properties.

(vi) To create an aesthetically pleasing rural residential development with strict controls exercised by the Body Corporate to prevent undesirable or substandard housing being erected and to ensure that all buildings merge with the environment.

(b) STATUTORY PROVISIONS:

The scheme is permissible by virtue of Section 17 (1C) of the Town and Country Planning Act 1961 which states that uses or developments contrary to the stated provisions of an Interim Development Order are not to be commenced without a permit being granted by the responsible authority.

The current I.D.O. in force in the area allows for a minimum 3 acre subdivision in areas under the control of the Kyneton Waterworks Trust and with water available and 6 acre minimum subdivisions in areas where no water is available. This application seeks by supplying its own water to comply with the spirit of the 3 acre minimum provisions and utilises the precedents established by schemes subdivided under the Cluster Titles Act whereby slightly greater densities than normally in force in the area are allowed because of the more efficient land usage possible under that Act.

Thus it is held that 2 acre allotments with thirty acres of private open space and an integrated pedestrian system is a preferred usage of the land than either three acre lots or six acre lots with no open space provisions and, in the current usage, no reticulated water or fire fighting system, no communal areas for construction of tennis courts or other facilities, no water storage for recreational purposes or for usage during prolonged drought, and once the six acre lots are fenced, no areas that would provide an opportunity for continued habitation by native wildlife.

The provisions of the Cluster Titles Act 1974 cover all the usages sought by this application and a copy of the relevant section of the Town and Country Planning Act is included herein.

Power of Board to enter into agreements with councils for preparation of schemes. No. 6396 s. 13.

15. The Board may with the consent of the Minister enter into agreements with the council of any municipality or the councils of any two or more municipalities to prepare and submit for approval a planning scheme at the expense of the municipality or the municipalities for any area of land within the municipal district or districts of the municipality or municipalities (as the case may be).

Special powers of the Board. S. 16 repealed by No. 7676 s. 10 (2) (b) and a new s. 16 re-inserted by No. 7975 s. 2 (1).

16. (1) Where pursuant to this Act the Board is preparing or has prepared a planning scheme, then, notwithstanding that the Board is not the responsible authority for the enforcement and carrying out of the scheme, the Board may prior to notice of approval of the scheme being published in the *Government Gazette* exercise any of the powers and perform any of the functions or duties in respect of the enforcement and carrying out of the scheme that the responsible authority for such enforcement and carrying out is entitled to exercise or perform prior to the approval of the scheme.

(2) When in a case referred to in sub-section (1) the Board exercises any such power or performs any such function or duty that the responsible authority is entitled so to exercise or perform, the Board shall in respect of that power function or duty act as and be deemed to be the responsible authority.

Interim Development Orders.

Making and effect of interim development orders. S. 17 amended by Nos. 6975 s. 28, 7065 s. 2. Ss. (1) substituted by No. 7676 s. 11 (a).

17. (1) After a date determined and notified by the responsible authority in the manner prescribed as being the date of the commencement of the preparation of a planning scheme, and before the approval of the scheme, the responsible authority may with the approval of the Governor in Council (given after consideration by the Minister of a report by the Board thereon) make an interim development order regulating restricting restraining or prohibiting the use or development of any land within any area to which the scheme relates to the extent to which it would be lawful for the scheme to do so and the order shall subject to this section have effect accordingly.

Power to grant permits to use or develop land. Ss. (1A) inserted by No. 7676 s. 11 (a).

(1A) The responsible authority may in accordance with this Act during the operation of an interim development order grant permits allowing any use or development of any land within the area to which the order relates.

Ss. (1B) inserted by No. 7676 s. 11 (a).

(1B) A permit shall not be granted under sub-section (1A) with respect to any use or development expressly prohibited by the order unless the Minister after considering a report from the Board approves or the responsible authority is the Board of Works.

Use or development contrary to order not to be commenced without permit. Ss. (1C) inserted by No. 7676 s. 11 (a).

(1C) No use or development of any land shall be commenced after the coming into operation of an interim development order or any amendment or modification thereof unless the use or development is permitted by the order or (as the case may be) the order as amended or modified or a permit therefor has been granted by the responsible authority.

THE DEVELOPMENT

(a) SERVICES:

(i) Water Supply:-

This is to be provided by a comprehensive system utilising the natural water supply available and is discussed further in the Engineering Report.

(ii) Effluent Disposal:-

The average lot size is two acres and the lot density is three lots per 8 acres of site area and it is intended that all effluent from on site septic tanks be disposed of within the curtilage of each allotment. Note that the current M.M.B.W. and State Rivers minimum area for on site absorption is one acre.

(iii) Electricity and Telecom Facilities:-

These are available and will be installed as road construction progresses and as building development demands.

(b) ROADS:

The major east-west road through the property, Melville Drive, is to be set aside as a Public Road, will become a public highway when constructions is completed, and is included at the Council's request to open the land to the east for future development if required, although the eastern end of the road is not intended to be constructed at this stage. This road will enable council and other service vehicles to enter the development if required for such pruposes as garbage collection, mail and milk delivery, maintenance and fire fighting.

The Cluster Courts running off Melville Drive are private access roads, are maintained by the Body Corporate, and are normally constructed to a standard only sufficient to cater for the number of lots being served from each road. It is envisaged that these roads would be gravel and will wind through the existing trees and generally not intrude upon the environment to the extent of fully constructed public roads.

(c) OPEN SPACE - COMMON PROPERTY:

Approximately 25% (30 acres) of the total site area is to be set aside as Private Open Space and will incorporate the following foatures:-

(i) The Open Space system will act as a unifying link tying the development together and providing pedestrian access to all parts of the common property and providing an excellent jogging track for those so inclined.

(ii) The Common Property will include the storage dam and this can be used for recreational purposes such as fishing, swimming and sunbaking on the sand beach created for this purpose.

(iii) Recreational areas including a childrens playground, tennis courts and a picnic area with mowed lawns adjacent to the storage reservoir are to be included in the scheme of development.

(iv) A large portion of the Open Space, approximately 25 acres, is to be left in its natural state and by limiting the access and intrusion into this area it is intended that the roos will become accustomed to human habitation and remain in loco, but this matter is covered more fully in a later section.

(d) THE BODY CORPORATE:

The Body Corporate is created by virtue of the Cluster Titles Act and is a legally constituted body charged with the administration and maintenance of the Common Property, the enforcement of any by-laws or regulations, the payment of any rates and levies, and is empowered to collect funds from lot owners on a pro-rata basis of lot liability.

Note that Council are not responsible for maintenance of roads or services in a Cluster Subdivision and it is intended that when fully operational the Body Corporate will appoint a live-in manager who will be responsible for duties such as mowing lawns, maintenance of common property, organising garbage collection, monitoring the level and cleanliness of the storage reservoir and liasing with council and other authorities when required. This position could be filled by a gentleman or lady in semi-retirement and would include a small retainer and live in accommodation as remuneration.

The Body Corporate is identical in composition and responsibilities to Body Corporates set up in Strata Subdivisions and these bodies have been functioning successfully in that situation in residential developments since 1967.


COPY
Dam
Capacity 8.5 million gallons
Area 1.81 ha (4.5 Acres).
Top
Top
Edge of High Water R.L. 50.20
Sand Beach
Toe of Levee Bank
Stormwater Run-off Diversion
Stormwater Inlet Structure
Normal Flow Diversion Channel
Weir R.L. 50.20
Playground and Picnic Area
Tennis Court
N.I.S.
MELVILLE
DRIVE
ROAD
PRIVATE
OPEN
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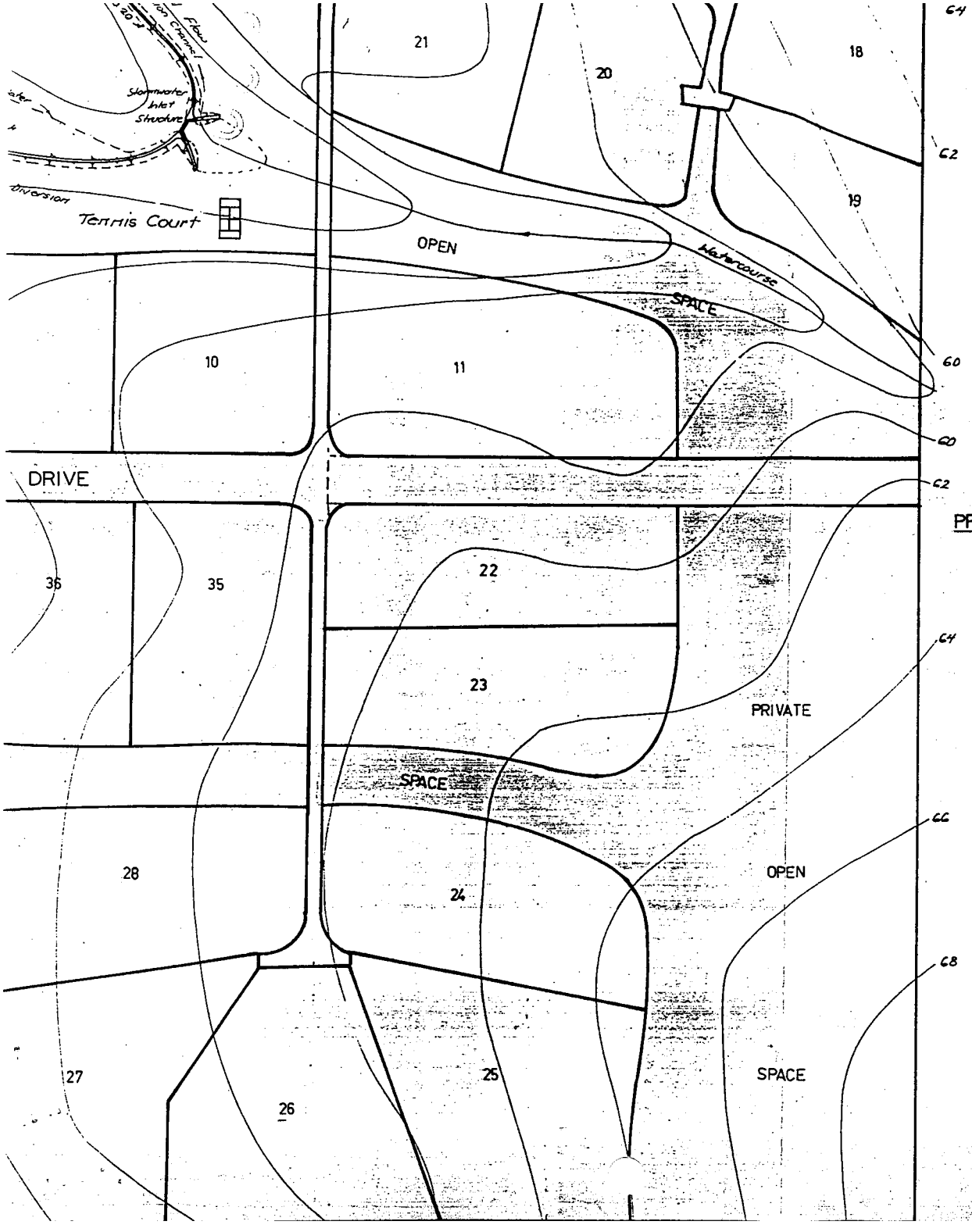

SITE ANALYSIS

SITE AREA	48·22 ha	(119·2 AC.)
PRIVATE OPEN SPACE & ROADS	12·14 ha	(30 AC.)
NUMBER OF LOTS	45	
AVERAGE LOT SIZE	0·80 ha	(2 AC.)
HOUSING DENSITY	1 PER 1·07 ha 3 PER 8 AC. (APPROX.)	

REF. 77169/3

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ENGINEERING REPORT

4. ENGINEERING REPORT

Discussions have been held with relevant State Authorities concerning the viability of the scheme and their comments are included.

State Rivers & Water Supply Commission:

Mr. Brian Kiley, regional officer for the Kyneton area, indicated that the S.R. W.S.C. would have no objections to the scheme provided -

(i) it could be demonstrated that the proposed water supply system was adequate;
(ii) the proposed dam, if above 20 feet high or containing over 20 acre feet of water, was designed by a professional person suitably experienced in that field;
(iii) there was no problem caused by septic tank run-off or flooding.

The S.R.W.S.C. would normally consult the local council on this matter or insist on minimum allotment sizes of one acre to ensure on site absorption.

Environment Protection Authority:

Mr. John Mellors of the Planning and Research Department of the E.P.A. indicated that the S.R.W.S.C. are licensing agents for the E.P.A. and provided the subdivision satisfied the requirements of that body the E.P.A. would not become involved further unless in a consulting basis for the State Rivers.

Fisheries and Wildlife Division:

Mr. Peter Rogan of the Heidelberg Office indicated that it would be feasible and desirable to stock the storage dam with fish and that the presence of some run-off water from grazing land would be beneficial to the fish life. Generally a balance can be struck between the nutrient supply and the fish population and this ensures that, provided there is not an excess of bacteria on nutrient, clean water is maintained. A copy of the booklet "Fish in Farm Dams" by the Fisheries and Wildlife Division is included.

Country Fire Authority:

Mr. John Pierce of the Cresswick branch, Regional Headquarters of the C.F.A. for the Kyneton area, indicated that the provision of normal mains reticulated water would be adequate for fire fighting purposes provided fire plugs were provided at strategic points throughout the development. The C.F.A. themselves carry pressure boosters on the fire vehicles to increase mains pressure if necessary but note that a provision for this facility is included in the report by Garlick and Stewart, attached hereto. C.F.A. vehicles also have the capability of drawing directly from the water storage reservoir by pump if required.

WATER SUPPLY REPORT

Attached hereto is a copy of a report prepared by Garlick and Stewart, Consulting Civil Engineers and Surveyors, on the feasibility of the scheme and it would appear from this report that the proposals put forward meet all the necessary requirements to ensure an adequate water supply to the development. The proposed storage reservoir has a capacity of 8.5 million gallons and, assuming an average consumption of 300 gallons per household per day, there is sufficient storage for almost two years usage and in even the severest of drought conditions water supply should not be a problem. Household drinking and bathroom water is to be supplied by means of roof rainwater storage tanks and these will be installed as houses are constructed. A covenant on the Titles, administered by the Body Corporate, will enforce this requirement and it is proposed that tanks of 8,000 gallon capacity would provide more than adequate storage for normal household usage in the Kyneton rainfall area.

GARLICK & STEWART
CIVIL ENGINEERS & SURVEYORS
TELEPHONES: 62-6724, 62-1445
JRP/VD

Goode House,
395 Collins Street,
Melbourne, 3000

2nd November, 1978.

James A. Harris & Associates Pty. Ltd.,
882 Whitehorse Road,
BOX HILL. 3128

Dear Sir,

Proposed Rural Residential Subdivision

As instructed we have examined a proposal for the provision of water supply facilities to a proposed rural residential subdivision off Abbatoirs Road, approx. 2.7 kilometres north of Kyneton.

There are 45 proposed allotments having an average area of approx 0.77 hectares, and the proposal submitted for a "non-domestic uses" water supply comprises a storage reservoir on a watercourse within the subdivision, pumping equipment and associated rising main to convey water to a 100,000 gallon storage tank at the highest point on the property, and a system of reticulation mains.

In our opinion the proposal outlined is satisfactory in principle and the various aspects of the work are referred to in more detail as follows :-

1. STORAGE RESERVOIR

The catchment area of the watercourse which discharges into the proposed storage is 270 acres. The average annual rainfall at Kyneton is 29 inches and in a drought year a rainfall figure of 20 inches and overall run-off co-efficient of 15 per cent could be reasonably assumed. On this basis the yield of the catchment would be 65 acre-feet Viz. 17.5 million gallons, which would be adequate for the storage capacity proposed by you of 8.5 million gallons.

Test shafts, up to 2.5 metres deep have been excavated in the storage area, two along the watercourse and two on each side of it. In all cases clay or sandy clay was disclosed to a depth of 1.9 metres, and these materials would be satisfactory for embankment construction and should provide watertightness in the floor of the basin. In one shaft near the centre of the watercourse and the downstream embankment, water bearing gravel and sand was encountered at a depth of 1.9 metres, but it is considered unlikely that this could be a problem due to the nature and extent of the clay material overlying it.

The volume of excavation and filling required to construct embankments, generally as detailed on your drawing, to give a storage capacity of 8.5 million gallons is approx. 10,500 cubic metres (14,000 cubic yards).

Assuming that the work is carried out under favourable weather conditions, a construction cost of not more than $18,000 could be reasonably anticipated.

...2

2. PUMPING EQUIPMENT, RISING MAIN & STORAGE TANK

Based on 45 consumers with a peak consumption of 1000 gallons per day, the maximum daily demand would be 45,000 gallons. The storage capacity proposed of 100,000 gallons is therefore equivalent to more than two days maximum demand, and this is considered both necessary and adequate, to provide for possible breakdown in pumping equipment or rising main.

Assuming a pumping period of 20 hours during a day of peak demand, the required pump discharge rate would be 37.5 gallons per minute, and we consider 50 gallons per minute, could be adopted for the installation. The electric motor associated with the pump would be 3 H.P. and the rising main from pump to storage tank 100mm (4 inch) diameter.

The storage tank of 100,000 could be constructed in reinforced concrete, 50 feet (15 metres) diameter and 8 feet (2.5 metres) water depth.

3. RETICULATION

To serve all the allotments in the subdivision the total length of reticulation mains required is 2160 lineal metres of which a minimum of 800 lineal metres should be not less than 100mm diameter. Some economy could be achieved by constructing branch mains in 50mm dia. uPVC pipes, the maximum length involved being 1360 lineal metres.

A layout plan of the reticulation showing the proposed mains accompanies this letter.

In general the pressures in the subdivision are below the commonly accepted minimum of 15 - 20 metres. The proposed storage tank has a mean water level of approx. R.L. 67 metres, whilst the natural surface level varies in the subdivision from R.L. 66 to about R.L. 44 metres, and hence the static pressure varies between 1 metre and 23 metres, which would result in inadequate working pressures throughout the subdivision. Alternative means for achieving acceptable pressures are as follows :-

(i) Provide booster pump on outlet side of 100,000 gallon storage tank and operate pump by time switch control.

(ii) Each property owner be required to provide ground storage tank and small pressure pump in property at nearest point to water main.

The first alternative is favoured, and a pumpset with duty of not less than 60 gallons per minute against a total head of 20 metres is favoured, and this would result in satisfactory conditions throughout the subdivision whilst the pump was operating. Assuming an average of 10 hours pumping per day, the corresponding pumping cost would be in the order of $1.20 per day based on current tariff rates.

4. ESTIMATE OF COST

A preliminary estimate for the cost of the works referred to in this letter is set out as follows :-

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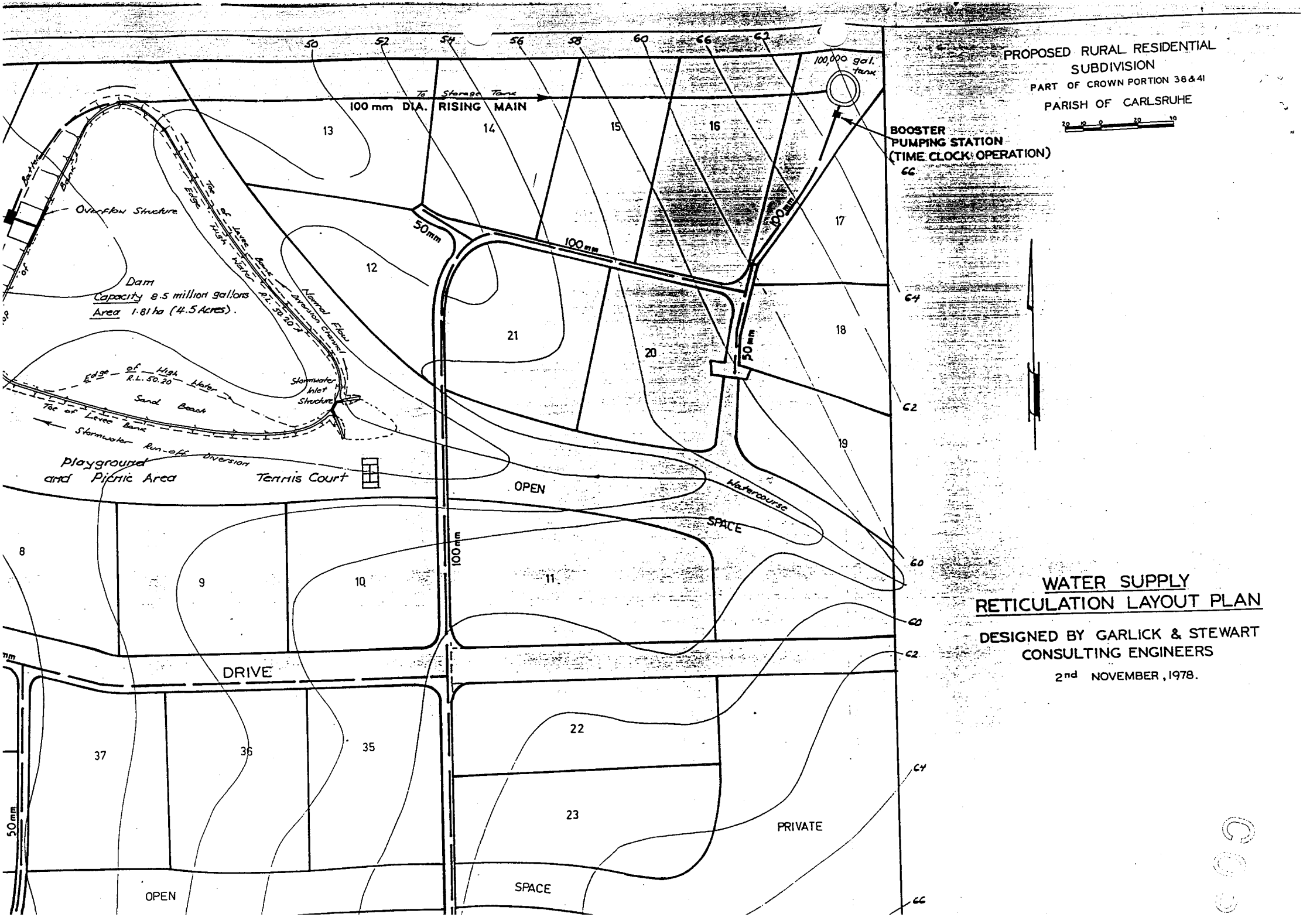
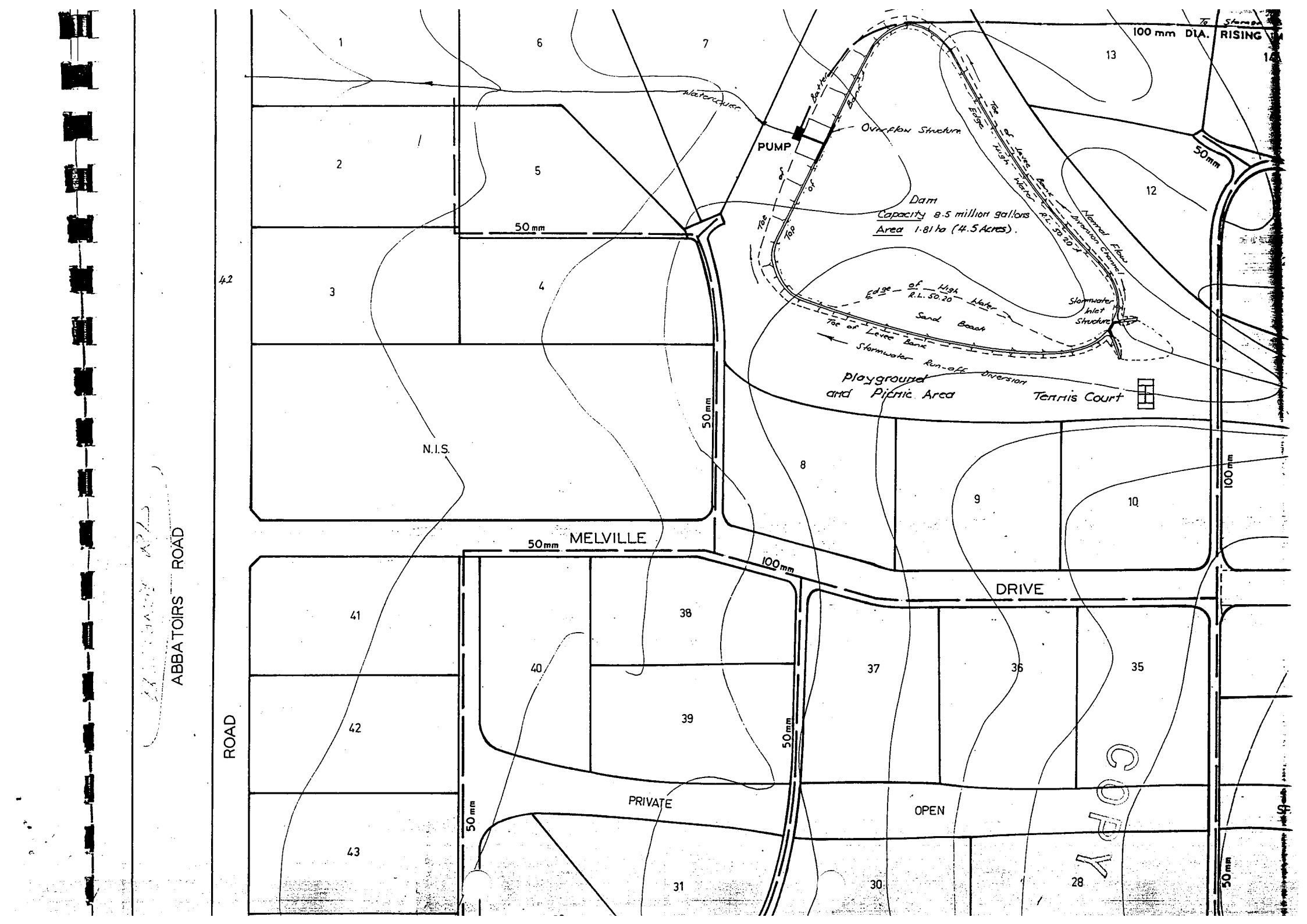
1.	Construction of storage reservoir including provision of broken stone beaching on downstream embankment and outlet pipework.	$22,000
2.	Supply of pumping equipment and associated housing at reservoir storage including provision of electrical supply.	$ 7,000
3.	Supply of materials and construction of 100mm dia. rising main to 100,000 gallon storage tank - 450 lin.metres.	$ 4,500
4.	Construction of 100,000 gallon storage tank and associated pipework.	$12,500
5.	Supply of booster pumping equipment and associated housing, pipework and electrical supply on outlet side of 100,000 gallon tank.	$ 6,000
6.	Supply of materials and construction of 100mm dia. -(2160 lin.metres.) mains.	$21,600
		$73,600
	Allowance for Engineering and overhead charges and contingencies - 20 per cent, say	$14,400
		$88,000
	Number of Allotments	45 No.
	Average Cost per Allotment	$1,950
	Reduction in Item 6 for use of 50mm dia. reticulation pipes in lieu of 100mm dia. pipes.	$ 9,000
	Nett Capital Cost	$79,000
	Average cost per allotment	$ 1,750

Yours faithfully,

Gilbert D. Stewart


PROPOSED RURAL RESIDENTIAL SUBDIVISION
PART OF CROWN PORTION 38 & 41
PARISH OF CARLSRUHE
BOOSTER PUMPING STATION (TIME CLOCK OPERATION)
100,000 gal. tank
To Storage Tank
100 mm DIA. RISING MAIN
Overflow Structure
Dam
Capacity 8.5 million gallons
Area 1.81 ha (4.5 Acres).
Edge of High Water R.L. 50.20
Sand Beach
Toe of Levee Bank
Stormwater Inlet Structure
Stormwater Run-off Diversion
Normal Flow Diversion Channel
Playground and Picnic Area
Tennis Court
OPEN SPACE
Watercourse
DRIVE
PRIVATE
50mm
100mm
WATER SUPPLY
RETICULATION LAYOUT PLAN
DESIGNED BY GARLICK & STEWART
CONSULTING ENGINEERS
2nd NOVEMBER, 1978.


ABBATOIRS ROAD
ROAD
MELVILLE
DRIVE
100 mm DIA. RISING
PUMP
Overflow Structure
Batter
Batter
Top of Levee Bank
Edge of High Water R.L. 50.20
Dam
Capacity 8.5 million gallons
Area 1.81 ha (4.5 Acres).
Normal Flow
Diversion Channel
Stormwater Inlet Structure
Sand Beach
Toe of Levee Bank
Stormwater Run-off Diversion
Playground and Picnic Area
Tennis Court
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ENVIRONMENTAL CONTROLS

5. ENVIRONMENTAL CONTROLS

The subdivision seeks both to employ the resources available to it by harnessing and storing water that would normally run-off and be lost during storms and to protect the environment by placing controls over land usage that will prevent pollution or detriment to neighbouring or downstream properties.

The environment controls to be exercised in this development are:-

(i) By a system of valves to control the inflow to the storage reservoir and to divert the normal summer flow around the side of the reservoir into the existing watercourse. By this arrangement the bacteria rich low water summer flow may be diverted from the reservoir and the inlet valve opened only after a prolonged rainfall when the stormwater flow has diluted the available bacteria to acceptable levels. This will depend upon the food requirements of the fish life to be introduced into the reservoir and controlled bacteria inflow in limited quantities is needed to ensure the survival of acquatic life forms. The booklet provided by the Fisheries and Wildlife Division and comprising part of this report states the ambient temperatures and nutrient requirements needed to maintain fish life and keep the water free of harmful bacteria. The establishment of the Body Corporate creates an ideal controlling body to oversee and maintain the bacteria levels and fish life in the reservoir and this would be difficult in the context of a conventional land subdivision where all responsibility for maintenance lies with the local council. The operation of the reservoir by-pass valves diverting the summer flow around the dam will ensure that downstream properties are not disadvantaged and indeed the water storage will tend to act as a retarding basin controlling downstream flooding during sudden storms. Due to the low housing density of one house per 2.67 acres and the gently undulating nature of the terrain on-site absorption of effluent will present no problems.

(ii) Existing trees are to be preserved where possible and covenants placed on Titles restricting tree removal from the two acre allotments. The majority of the private open space will be left in its natural state and it is hoped that, as the development of the site will be a gradual process, the roos can be persuaded to remain on site. It is proposed that drinking troughs or holes connected to the reticulated water supply be provided to supply year round drinking water for the roos and other animals. The successful integration of kangaroos into man made developments can be observed at golf courses on the Mornington Peninsula, at the Healesville Sanctuary and at many holiday sites throughout Australia.

Published by the
Fisheries and Wildlife
Division, Victoria
Australia

Fisheries and Wildlife Information Publication, Victoria Number 5

Fish in Farm Dams

FISH IN FARM DAMS

Farm dams on many properties in Victoria have been successfully stocked with various species of fish purchased from registered commercial fish farms in this and other States. The aim in most cases has been to provide angling and food for the table.

Requests are constantly being made by property owners for information and assistance in stocking their dams, and this Information Publication has been prepared in response to those requests.

The Victorian Fisheries Act 1968 requires that all persons wishing to stock waters with fish must have the written permission of the Director, Fisheries and Wildlife Division, Victoria.

Applications to stock private waters with native fish purchased from New South Wales will not be accepted by that State unless the application has first been endorsed by the Director, Fisheries and Wildlife Division, Victoria.

The Snobs Creek Freshwater Fisheries Research Station and Hatchery does not supply fish for stocking of farm dams. That Hatchery was established by the Fisheries and Wildlife Division to produce trout for the stocking of public angling waters.

The procedure for obtaining fish is really very simple. The most difficult part is deciding if your dam is suitable for stocking, then determining the type of fish and number that can be stocked.

Fish prices vary from fish farm to fish farm and the prices shown on page 6 are therefore intended to serve as a guide only. We suggest that you contact the registered fish farm from which you wish to purchase your fish for specific details on availability, price and delivery.

After reading this publication, you should be able to proceed with your application. However, if there is any aspect on which you may have doubts, please contact:

Freshwater Fisheries Section
Fisheries and Wildlife Division
Arthur Rylah Institute for Environmental Research
123 Brown Street
Heidelberg, Vic. 3084

Telephone: 459.2900

WATER USE

Most dams are established to conserve water for stock or irrigation use. Stock can still use the dam, but it is essential that their access should be restricted to certain points to prevent hoof damage totally destroying the food source at the waters edge. Damage by stock can also result in excessive muddying of the water, reduced food production, and can possibly cause distress to fish.

Drawing water for irrigation is not a problem provided that some form of screen is placed around the suction area to prevent fish entering and blocking the lines, being sucked through, escaping with gravity irrigation, and being destroyed where pumps are used. Sufficient room should be left between the outlet and the screen to ensure that accumulated debris does not affect suction.

STOCKING

Before a dam is stocked, it should be allowed at least three months to settle and to allow the establishment of a food supply. There is no hard and fast rule as to how many of which species of trout a dam in a certain location will support. The number of fish placed in the dam for the first stocking should be related to surface area and not depth of water or total volume. It is the surface area which has greatest relationship to the ability of the dam to produce natural food for the fish.

We recommend that your first stocking be at the rate of 375 yearling trout per hectare (150 per acre) and consist of equal numbers of both brown and rainbow trout. Stocking on this basis will allow you to gain experience for the future re-stocking of your dam for within 12-15 months it will be evident which of the two species has done the better. If the growth rate is satisfactory, it may be possible to increase the number of fish in later stockings.

For dams having an irregular shape a simple method of calculating the number of fish is to pace out the shoreline. For every 100 metres allow 35-50 yearling fish.

Both the above recommendations relate to yearling fish. If you wish to stock with smaller (fry) or larger (advanced yearling or two-year-old) trout the number of fish should be varied. To calculate the recommended number of fish for the first stocking the chart on page 4 will be of assistance.

PROTECTION

Some of the possible effects of stock and irrigation useage of the water has been outlined. Shallow dams or those with clear water may encourage birds such as cormorants to feed on the fish. If there are weeds or aquatic plants, the fish can seek shelter. If not, then fish can be protected by placing lengths of earthenware pipe, old motor tyres, rolls of plastic mesh or other materials (but not metal of any form) which will provide both shade and protection on the bottom of the dam

BOOSTER FEEDING

As mentioned before, it is unlikely that a properly stocked dam will require booster feeding. If the condition of the fish taken from the dam indicates that the food supply is inadequate, the number of fish can be reduced by angling or, in time, natural mortality. When the dam needs re-stocking, fewer fish should be placed in the water.

TROUT

Brown trout *Salmo trutta* and rainbow trout *S. gairdneri* are by far the most popular fish for stocking farm dams in Victoria. Given average conditions, yearling fish of 7-10 centimetres (3-4 inches) will usually grow to 20-25 cm (8-10 in) and 400-450 grams (14-16 ounces) within twelve months of stocking.

While some running water is an advantage, trout will do quite well in a dam that receives only rainfall run-off. Except in rare circumstances, it is unlikely that they will spawn successfully, thus you will have to replace by further stockings fish that are caught or die. Natural mortality during the first year is variable, but up to 25% of the fish could be lost in this way.

Generally, the requirements for trout are:-

WATER

The dam should be at least 2 metres (6-7 feet) deep at its lowest summer level, and this depth should extend over at least one-third of the bottom area of the dam. Trout can survive in water temperatures up to 29°C (80°F), but for optimum growth a maximum water temperature of 18°C (65°F) is preferable. Trees or shrubs shading the surface area are an advantage during summer months. It is advisable to place screens at the inlet and overflow areas to prevent fish escaping when water is running.

FOOD

Most established dams can usually provide an adequate supply of natural aquatic food. Grasses, trees and shrubs in the immediate vicinity of the dam can also assist by providing a habitat for insects. Stocking at a planned rate makes it most unlikely that booster feeding with artificial foods will be necessary. Natural food supplies may be increased by addition of fertiliser, and several possible procedures are outlined as follows:

1. Apply a mixture of 50% nitrate of soda or sulphate of ammonia, 40% superphosphate, 8% muriate of potash, 2% limestone, at the rate of 110 kilograms per hectare (100 pounds per acre), at fortnightly intervals to a maximum of five applications or until visibility in the water is reduced to 30 cm (12 in). This mixture builds up the amount of plankton in the water and therefore serves the whole food chain.

2. Organic manure, cow or sheep, can be applied at the rate of 1 - 1.5 kg per ten square metres of surface area (900-1200 pounds per acre).

It is preferable to fertilise in spring or summer and, with the first stocking, about three weeks before the fish are released into the dam. Over-fertilisation can lead to problems of excessive weed or algal growth. Fertiliser should be applied in small amounts at fortnightly intervals to the total amounts shown in 1 and 2 above and stopped if excessive weed or algal growth occurs.

NOTE: *Do not use fertilisers containing insecticides or lindane superphosphate.*

ENGLISH PERCH (REDFIN)

English perch *Perca fluviatilis*, or redfin, as this species is more commonly known, are at home in the conditions required for trout. In fact, they have a greater tolerance to higher water temperature and lower oxygen content of the water.

Perhaps the biggest problem in stocking your dam with this species is its ability to breed in most water conditions. This can lead to a situation where your dam holds a large population of small, stunted fish which have insufficient food to grow larger. Angling success will not decline, but the fish may well be too small for eating.

Research by the Freshwater Fisheries Section of the Fisheries and Wildlife Division has shown that redfin and trout can live together provided the food supply is adequate and suitable to maintain both species without conflict. Large redfin will eat small trout and vice-versa, and stocking small trout into a dam populated with large redfin is not recommended.

The stocking rate for yearling trout should be applied to redfin when first stocking your dam.

Some areas of the State are better suited to this fish, particularly the warmer waters of the north-west, and the shallower dams found in other areas north of the Great Dividing Range.

Stocking with redfin is <u>not</u> permitted in the following areas of the State.

South Gippsland - In the area bounded roughly by Koo-Wee-Rup, Gembrook, Neerim, Mirboo East, Rosedale, Seaspray.

East Gippsland - In the area bounded roughly by Seacombe, Heyfield, Mount Skene, then a line following the south side of the Great Dividing Range to the border with New South Wales.

Should you have any doubt as to the exact location of your dam in relation to these closed areas, it would be advisable to contact the Freshwater Fisheries Section prior to submitting your application. The address and telephone number are shown on page 1.

The procedure for obtaining redfin is the same as for trout (full details on page 8), with the exception that there is only one commercial fish farm currently supplying this species of fish. Stock may not always be available and prior contact with the farm regarding availability is recommended.

NATIVE FISH

There is growing interest in stocking farm dams with native fish. Species presently available for this purpose are Murray cod *Maccullochella peeli*, golden perch *Plectroplites ambiguus*, silver perch *Bidyanus bidyanus*, and catfish *Tandanus tandanus*. Although native fish cannot currently be obtained from registered commercial fish farms in Victoria, there are two sources in New South Wales.

The natural habitat of these native fish is the Murray-Darling River system and as all river basins north of the Great Dividing Range flow into this system there should be no survival problems when stocking dams in the orthern areas of Victoria. These fish are well suited to warm, slow-flowing or still water, and natural food supply in these conditions should be quite adequate.

The New South Wales Department of Fisheries requires that any application from Victoria for these fish must be endorsed by the Director of Fisheries and Wildlife, Victoria, before the order can be accepted. Each application to stock a dam with these species will be considered on its individual merit.

Native fish stocks may not be available all year round, and we recommend that you contact the fish farms listed for details of availability, recommended stocking rate, price, means of delivery or collection of your order, and an application form.

NOTE: The application form contained in this publication is only for ordering fish from registered fish farms in Victoria.

FISH PRICES

ENGLISH PERCH (REDFIN):		currently about $12.00 per hundred
NATIVE FISH:		currently about $35.00 per hundred
TROUT:	FRY:	(September - November) 2½ - 4 cm (1 - 1½ in) $9.00 - $11.00 per hundred
	FINGERLING	(December - April) 5 - 7½ cm (2 - 3 in) $13.00 - $17.00 per hundred
	YEARLING, ADVANCED YEARLING	(May onwards) $19.00 - 35.00 per hundred
	TWO-YEAR-OLD	(when available) $42.00 - $75.00 per hundred

NOTE: All prices are approximate and are intended as a guide only. The costs of packaging, and delivery where applicable, are not included.

SUMMARY

6. SUMMARY

This proposal provides an opportunity to create a totally integrated environmental subdivision close to a major developing provincial centre and conforms to the trend in modern day design to conserve and protect the natural resources available to the developer or householder without detriment to the rest of the community. It enables a natural way of life to develop where man and nature may co-exist and allows an ecological balance to be set up between man and his environment.

Briefly, the advantages of this scheme over a conventional three or six acre development as is the current usage of the land may be seen as:-

(i) A properly designed, self-sufficient and more harmonious development is created with a better way of life for its future inhabitants.

(ii) The utilisation of natural water resources provides an opportunity for a reticulated water supply for lawns, gardens and, if desired, small home vegetable plots whilst providing an extremely attractive recreational area for the use of the residents.

(iii) No demands are placed on the existing water supply available to the Kyneton Water Trust.

(iv) The provision of a reticulated fire fighting system provides for a much safer environment, not only for future residents of this development, but for owners of adjoining land which may be burned out should a fire break out in one of the six acre lots without water supply into which the land is currently subdivided.

(v) The opportunity is created to provide a haven with year round water supply for the indigenous animal life.

(vi) Council are not involved in costly maintenance problems due to the operation of the Body Corporate which relieves it of this responsibility.

(vii) The scheme is viable, attractive and unique and provides an opportunity not only for the Shire of Kyneton but for the State of Victoria to utilise the possibilities of creating a better life style by utilising and preserving the natural resources of the land.

JAMES A. HARRIS AND ASSOCIATES PTY LTD.

3rd November 1978.