Hydro Grand

6 October 2016

"to be or not to be"

John Elder

Hydro Grand
"to be or not to be"

submission: resource consent
21/22 November 2016

John Elder
Prof. Emer. geophysics Manchester
Rate payer, property ID 76860

Contents

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Opening

This submission has a main part
plus an appendix of related points.

I am John Elder a Timaruvian:
born in the Jean Todd ward;
and started my formal education at the Main School & the TBHS.

I have lived and worked in many places, in NZ and abroad.
Yes, there are many nice places to live,
but for me Timaru is hard to beat.
We used to call it the 'Riviera of the South'.

I am well aware of, and concerned about, the major problems with the proposed complex
as stated by NZTA, Heritage NZ and several others.
Let me very briefly mention some of those concerns before I make my own case.

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Too much is to be squeezed onto the site.

The most obvious effect is what then to do with all those cars:
with the overflow to be scattered in the town nearby – never mind the current usage;
access from SH1, and an extra set of traffic lights on Sefton street,
making 3 sets in a short distance – about 100m .
A workable solution to the difficult problem of access and parking is conspicuously absent.

The proposed buildings are boring "mod-boxs".

There will be disturbances & restrictions to the existing businesses on the Bay Hill
during construction and indefinitely afterwards

And as yet not mentioned, there will be the inevitable costs which will fall on us ratepayers.

*

So now, let me make my case.
Let's consider 2 aspects of the Bay-hill application: Heritage & Safety.

Heritage Aspect 1

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The Hydro Grand has been neglected for several years.
Already much of the interior of the building is dilapidated.
Plainly something needs to be done. But that is the question! What do we do!?

We have a wonderful opportunity to build on the Bay Hill:
something outstanding;
something we can all be proud of;
something which enhances and merges beautifully with its setting;
something which retains part of our past;
something which will still be here in another 100 years. .

Yet: what have we got in the Resource Consent document !?
We are presented with several options, actually 4:
modernize the existing building; - rejected
& 3 versions of a completely new set of buildings on a cleared site.

And there is complete omission of any possible scheme which combines, in part or in whole,
the refurbishment of the Hydro Grand with other buildings on the site;
or, in a positive manner, an overall design which carries the style of the original Hydro Grand.
In the request, there is seriously inadequate consideration
of the consequences of the Heritage Status of the Hydro Grand.

*

Anyone, no matter how technically qualified, who has read and understood
the 277 pages including 73 diagrams of the request document deserves a medal.

It is a house of cards.

All those pages are propped up and held together
with a solitary linchpin, one small item, the figure -1.75%.
This is the stated operating loss for a modernised Hydro Grand;
the only ground given for destroying the Hydro Grand.

All the rest of the document is nothing more than a smoke-screen
which hides the simple reality:
there, on the hill, is a 'gold mine';
so the Hydro must go.

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Fake precision

A feature of the document is its numerical precision.
As an example let's consider the cost of a reconstructed Hydro $15,278,000.
[*planz, Appendix 5, Commercial business assessment.*
for the Hydro to NBS 100%. (ex gst & escal)]
The cost = $15,278,000 = M$ 15.278 = k$ 15278
Consider the figure 15278

The figure is not **15277**
it is **15278**
nor is it **15279**

The figure is presented
as accurate to **15278 ± 0.5**

an accuracy of **±0.003272679...%.**

I hear you say: "John, don't be silly"
Not me. The silly one is the drafter of the document.

This fake precision gives the innocent reader the good feeling of thoroughness and care.

The various figures used to prop up the developer's argument
are stated as obtained from using a "financial feasibility model".
OK, but all the key profit and loss results used in the document do not need such a model.
They can easily be calculated on the back of an envelope, aided if you like with a pocket calculator.

Mm, no doubt, for the innocent reader, the model is a powerful computer programme
the results of which are quite true.

But the results are only as good as the input data!

The cost of construction is a very dodgy item.
The cost to completion is very rarely spot on budget.
Typically we expect to get within 10% of budget.
Sometimes we come in well under budget. All too often we bust the budget by 20% or more.

And there is also the uncertainty in possible income and loan interest rates.

Results based on such figures are, at best, a rough-&-ready guide.

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Here is an example, for a refurbished Hydro Grand, similar to that in the request document
See the table below.

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For example:
cost = 14M$, income = 600k$ gives a return of 7.1% (profit)
cost = 16M$, income = 600k$ gives a return of -6.3% (loss)

All the parameters of cost & income are quite possible
and give a wide range of return from loss of -26.5% to profit of 34.6%.

The single value of -1.75% given in the document
is not at all a representative value.
Indeed, on its own, it is merely a self serving choice.

And this choice is the only ground
given by the developer for destroying the Hydro Grand

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% return:
as a function of cost in M$,
for annual income 500, 600,700k$
(*Fuller details are given in the Appendix.*)

cost	.....income k$.....		
M$	500	600	700
12.5	**0**		
13	**-3.8**	**15.4**	**34.6**
14	**-10.7**	**7.1**	**25.0**
15	**-16.7**	**0**	**16.7**
16	**-21.9**	**-6.3**	**9.4**
17	**-26.5**	**-11.8**	**2.9**
17.5			**0**

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Later on, please note page 17 (Appendix: Comparison ... section 6.)
for another aspect of the -1.75%

.....

Oh, and there is more!
The developer expects to get 2 for the price of 1.

We read:
[1 *p10 planz Quality Assessment Statement*]
... *the cost of retention of the existing building ... to meet the standards of a modern hotel, cannot achieve a commercial return on that investment.*

The spurious assessment based on the single figure -1.75%
is solely for a stand alone refurbished Hydro Grand.

To then use that spurious assessment to justify ignoring any other use of the Hydro Grand
- a refurbished Hydro Grand in whole or in part, together with other buildings -
is a two-handed throwing out of the baby with the bath water.
[It is an extreme variant of the "Straw man"or "Aunt Sally" argument / fallacy.]

Safety Aspect 2

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We are surrounded by natural processes which we cannot control.
Occasionally there are quite unexpected events.
However, all too often, there are events, the bad effects of which, occur because:
we have been in a hurry or sloppy or careless or rely on "She'll be right".
[*See Appendix: Structural failure*
Manchester subsidence, Christchurch earthquake, Tacoma Narrows bridge,
Clyde dam, Opuha dam, Cave Creek platform.]

The site needs a detailed and thorough geo-technical survey of the entire site,
including the adjacent surrounding area, at least well down into the basalt layer.

Well now ... what have we got here, in this proposal:
tests for asbestos and DDT, a solitary test bore – and that's it.
This is totally inadequate !
It is not enough to note: the only substantial problem with the Hydro Grand was the roof blown of by the wind of 1975. The current proposal is for heavier loading, more buildings and much taller buildings and a major piece of excavation of clay.

Aspects, in my opinion-experience, which are a worry
and can only be fully answered/assessed after the geo-tech survey.

Clay layer
There will be substantial disturbance to the site+surrounding clay layer during excavation.
(This would need to be done with great care.)

Clay + water leakage
Undisturbed dry clay is not usually a problem.
If the clay becomes wet – by a natural event or leakage from local water pipes or drains -
it seriously looses its strength.
This is a possible problem during excavation and permanently.

Foundations & Footings
The most important and demanding feature of any building is its foundation and its footings.
Are reinforced concrete slabs sufficient with piles into the basalt?
Do the footings need seismic dampers?

Resonance
It is not sufficient merely to strengthen a building itself to protect it from earthquakes.
A building sits on ground which behaves like a jelly during an earthquake or a wind.

The plan is for tall buildings on a site which can be windy. Usually this is not a big problem.
But in a gusty turbulent wind some of the modes of vibration
of the ground + building or group of buildings may be stimulated.
Like a lot of little pushes of a child's swing to get a big swing.
Such a resonance can damage or even destroy a building.This may be quite unlikely
but a small-scale physical-model experimental-study would be prudent.
Could any proposed set of buildings on the ground of the Hydro site
survive undamaged by a wind like that in 1975 ??

The purpose of a geo-tech survey is in effect to see
if the site + buildings can be given a "Warrant of fitness".

Our Kiwi attitude "She'll be right" is fine.
We are an adaptable people and can usually cope with things in our stride.
But it can be a formula for a fiasco.

The developers have not done their homework.
It would be very foolish to grant this application
to build the proposed complex project
without a prior Warrant of Fitness.
Yes, it would cost a lot but for a 42M$ project
the cost would be a drop in the ocean.
And foolishness can be very costly.

*

Let me make my point with a story.

The GP visit

George has not been feeling well. A typical bloke.
But pestered by the wife he reluctantly goes to his GP.
He is questioned about his medical history and his current life style.
He is pushed & pulled, given various tests including an ecg.
The GP gives his diagnosis: "You are in excellent condition. But you are dehydrated.
Each day you will drink at least 6 glasses of water or fruit juice or milk."
George says: "How about beer?"
The GP says: "OK but only a glass a day with your main meal."
Within a day George felt a lot better and after a week was his old self.
Did he resent having to pay the GP $30 just to be told to drink a lot.
Of course not. He was relieved – it was money well spent.

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Geotechnical Engineering
recommended by Russel Finlay
Milward Finlay Lobb, Timaru

Tonkin & Taylor
03-363-2440
Ask for Anna
(Discussion by phone 21 September 2016)

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Recapitulation

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The developer's argument

The developer wants to destroy the Hydro,
clear the site and build something-completely-new.
He assumes that can be justified in two simple combined steps:
first, show that a renovation of the Hydro is not commercially viable;
second, produce a viable plan for the something-completely-new.

Well, the developer has shot himself in both feet!
Both steps, individually and separately, are invalid.

* **Step 1**
The figures for the cost and income for a renovated Hydro are specious,
having been purposely chosen for a hypothetical worst case scenario.
The assertion "not commercially viable" is a fake.

* **Step 2**
Usually a consent approval will be given with some stated requirements by the TDC
in addition to the works proposed in the consent application.
And often during construction other things may be required.

The proposed project is quite a different case.
The TDC needs to know at the outset whether or not:
the development of the site will have any major unsuspected problems;
and, of prime importance, can the site safely support the buildings
against natural and man-made disturbances
and also thereby protect the occupants.

The proposed elaborate scheme has 2 fundamental defects.
* There is no geo-technical investigation of the site and its immediate surroundings.
* There is no workable solution to the problem of access and on-site parking.
(But if I may somewhat *ad lib*, please also note page 19 PS the parking lot.)

Until a thorough geo-technology survey of the site is completed and assessed
and the traffic problem is resolved
there cannot be any viable plan at all.

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The proposal is nothing more than " A pie in the sky".

Neither of these two steps are valid.
On both accounts: there is no valid justification to destroy the Hydro Grand.

The proposal is grossly inadequate and should be denied.

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Let me finish by briefly making a suggestion – along the following lines.

What could we have on the Bay hill?

We can certainly do very much better than
what is proposed in this resource consent application.

A new proposal

The developer to be encouraged to submit a brand new proposal (not just a revised version)
with these features.

A completed geo-tech investigation of the site + proposed buildings;
together with a related small-scale physical-model experimental-study.

An uncrowded site

A workable solution to the difficult problem of access & cars:
ample on-site parking for residents, workers & visitors;
perhaps access from the Bay Hill street as well as from Sefton street.

Architecture:
building height to be no more than ground floor + 3 others;
some noticeable features which incorporate
all or part of the Hydro Grand or strongly echo its style.

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And give serious thought to an architects'-competition for an outline design.
For the chosen design: there could be a money prize
and the opportunity to produce the final plans.

New design: a starter example
If we look for a development of the site
retaining the Hydro Grand in whole or in part or in style
let's consider how we might begin.

The following illustrations are possible frontages made from a photograph (6 October 2016):

as is	(1)
as is, extended west about 30%	(2)
as is, extended west about 30%, with an extra story	(3)

This example is just one of all the many possible designs
to suggest what might be worth considering.

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2

3

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Appendix

John Elder

General impression

Costs & returns
- A financial model
- Comparison of costings

Structural failure

PS: The parking lot

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John Elder:

born & bred in New Zealand, is an ex-academic geophysicist.
He is best known for his studies of the dynamic role of the interior heat of the Earth,
especially for the convection of water in geothermal systems,
notably at Wairakei, Matsukawa & Larderello.
He has worked professionally mostly in England, at Cambridge & Manchester
and also in Australia, California, Canada, Greenland, Hawaii, Iraq, Italy, Japan,
New Zealand, Spain, Switzerland, Turkey. He is still active.

Much of this was hands-on site investigations mostly with measurements of:

- gravity;
- magnetics, especially with the vertical gradient of the magnetic field;
- temperature at depth using existing and new bores & surface heat flow;
- seismics using local natural ground vibration and explosion seismology.

A very important part of my early life here was the CBA.
My father Jack Elder was a member from 1930 – and a president ;
my brother Maurice a volunteer at the carnival for 67 years without a break – and a president;
and as a teenager I too was a volunteer.
As I expect you know: the original CBA was set up by a local group of business men;
the same group had the Hydro Grand built.

I have a very early connection with Timaru.
My great grandfather, also called John Elder, was born in 1834 in Inverness.
From 1868-1874 he leased a section in Timaru, near the corner of George Street and the Great North Road (now Stafford street). There he ran a business as a blacksmith & wheelwright.
And later moved with his business to Temuka.

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General impression

There are 58 pages of diagrams – ignoring: those for Traffic & Asbestos; and the photos.
Some pages have several diagrams (giving 73 individual diagrams).
And how many diagrams are there for any incorporating scheme !? NONE !
Considering the detailed descriptions of the 4 options
this demonstrates the complete disregard by the developer of any incorporating scheme.

One cannot escape the impression:
from the beginning,
the developer is determined to demolish the Hydro Grand
and ignore/dismiss any plan involving the Hydro Grand in whole or part
or with completely new buildings in the the Hydro Grand style.

And we have the crocodile tears. The need to destroy the Hydro Grand is here & there softened with the pious words 'reluctant' or 'unfortunately'.
Who are they kidding. What do they regret – if anything?

Much of the document is nothing more than a smoke screen, of extreme voluminous detail to bemuse the reader, to avoid the need for a much wider range of possible options. It is an example of showing some 'trees but not the wood' – in the manner of so called 'creative accounting'.

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Costs & returns

A financial model

Here is a programme in lieu of a "financial feasability model":
written in BASIC
with parameters: gross cost, yearly income, yearly rate
set up to make a table for: cost 12000-18000k$; income 500-700k$

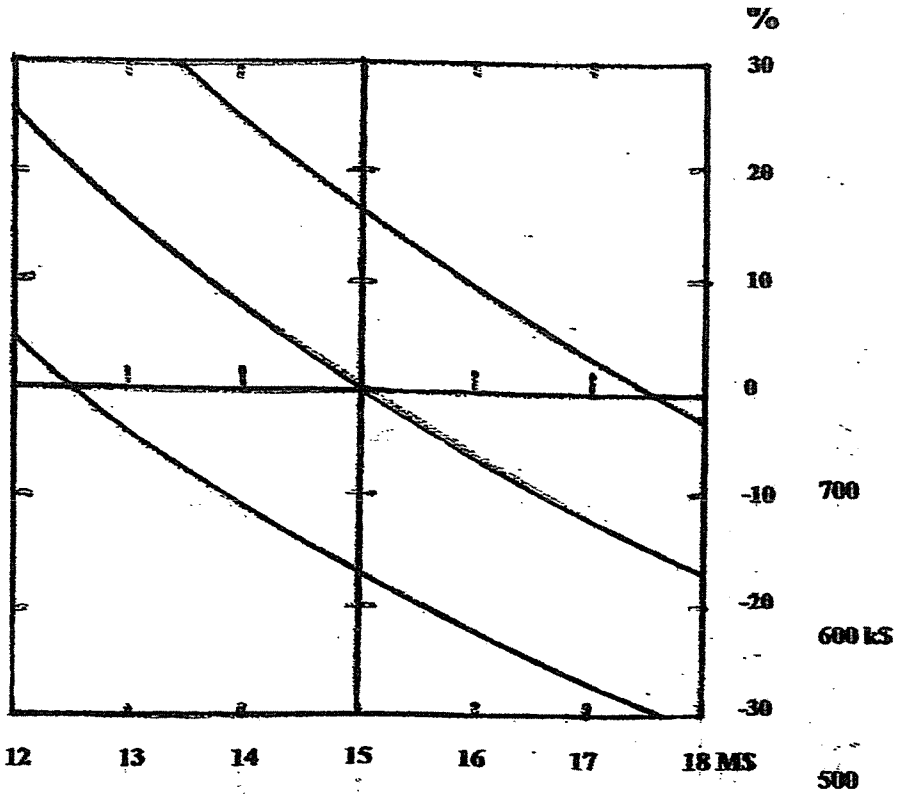
```
cost = 11000          : k$
income = 400          : k$
cr = 0.04             : yearly rate of 4%

FOR m=0 TO 2          :repeat for income = (500, 600, 700) k$
income = income + 100

  FOR n = 0 TO 6      :repeat for cost= (12000, 13000, ..., 18000) k$
  cost = cost + 1000
  w = cr*cost         :annual financial cost
  s =  income – w     :net income
  t = 100*s/w         :net income %
  PRINT cost, t
  NEXT n

NEXT m

END
```

The graphs

See the following page

For a refurbished Hydro Grand:
the 3 graphs show the net income percentage as a function of the cost,
for incomes of (500, 600, 700) k$.
The cost-debt servicing is taken as 4%

The horizontal axis is for cost in M$ - marked 12(1)18 M$.
The vertical axis is for income % - marked -30(10)30 %
The lines slope upward to the left (profit) downward to the right (loss)



Hydro Grand reconstruction:

% return
as a function of cost in M$
for annual income 500, 600, 700 k$
at finance rate = 0.04/year

Comparison of the methods of costings c:\site\model
for the old Hydro Grand, & the new hotel
(*See planz Appendix 5: Commercial Business Assesment*
Hydro Grand - Commercial Case pages 3,5)
The costs were obtained (= made) using "the financial feasibilty model".

(1)
For the new hotel, firstly they searched for financial options with high costs and low revenue - all of which gave a poor financial outcome. Well that is no surprise!
Then they looked for models which give a good return.

They quote: for cost 7.5M$, revenue 700k$PA, rate 7.25%
a "Return on equity (year 4)" = 12.5%
[We are not told explicitly the equity.]
We are given a single (= only) result.

(2)
For the refurbished old hotel, they have looked for models which give a poor return.
Whether or not they searched for a model which gave a profit is not stated!

To repeat: they quote: for cost 15.3M$, revenue 600k$PA, rate 3.62%
a "Return on investment (year 3)" = -1.75%
Again we are given a single (= only) result.

(3)
In both cases (1 & 2), there is no mention of the range of the parameters which were explored.
A back and forth iterative method is AOK, we all use it, one way or another.
What is naughty (=biased/deceitful) is showing one result as if it were the only one possible.

(4)
A puzzle.
Of course, for a substantial refurbishment we expect to pay more than for a new building.
But for renovating the Hydro Grand the estimated cost is much more than that for the new hotel !?
Or is it that the costs have been wilfully:
"underestimated" for the new hotel and "overestimated" for the old hotel..

(5)
The new hotel estimate is based on the
"Building Works" = 7.5M$ and not on the "Total Estimate Costs" = 9.3M$
The refurbished Hydro is based on the
"Total Estimate Costs" = 15.3M$ and not on the "Building Works" = 11.8M$
This notable difference of accounting is not explained.

(6)
| And if the refurbished Hydro were evaluated in the same way as for the new hotel:
| the interest cost (at the same rate of 3.62%) on 11.8M$ rather than 15.3M$,
| would be lower, with income 600k$PA giving
| a very good return of 40.5% (profit) rather than -1.75% (loss) !!!
| The lynch-pin of -1.75% is quite "unreliable".

Structural failure

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Let me tell you a story about events which happened
while I was working in the Manchester University geology department.
It is one reason, of many, why I am ultra conscious about the safety of buildings.
The picture theatre in Wythenshaw (a suburb) was showing a film based on a natural disaster.
The audience certainly got their monies worth.
The film had been running for about half an hour.
There was a very loud noise.
The stage and the rear of the building disappeared down a deep hole.
Amazing – no one was hurt.
* Also about that time, 500m from the CBD, on the main artery from the south,
a part of Oxford Road fell into a street wide hole, 10m deep.
* All that part of England is peppered with excavations,
typically from old mines, filled in after use with uncompacted rubbish.

We do not need to be reminded, in our own backyard, of the quite unexpected disaster of the Christchurch earthquake. The worst effect due to sloppy engineering of a building.

One of the most famous cases was on 7 November 1940:
total collapse of the Tacoma Narrows bridge across Puget Sound , USA
owing to a 60±km/hour wind-driven resonance of the bridge
[*I don't anticipate anything quite so apocalyptic. However, let's be prudent.*].

Another telling example is the long-running fiasco of the Clyde dam.
Our experience of building the dams on the Waikato was ignored.
There the sites and their surroundings had been studied and measured,
mostly with geophysical instrumentation (by Geophysics Division, DSIR).
Where necessary, if too porous or too weak,
deep grouting of the embankments was done to strengthen and make them water tight.
And there has been no troubles.
No such at the Clyde.
1973 preliminary site evaluation; 1976 site chosen by politicians (not geologists);
1977 work started without Water Right or Environment Impact report;
1981 government gives go ahead despite warning of gorge instability;
1982 fault discovered beneath the dam site
1986 disruption from unexpected artesian water
1989 geologists on site to assess the highly permeable loess
1990 stabilisation done; 1992/3 first power, completion.
To copy a famous advertisement "Wot a shambles!".

And closer to home, the Opuha dam: construction started 1995; on 6 February 1997, partially completed, was breached by flood waters after 3 days of heavy rain. In spite of common experience of such rainfall events this was not anticipated and so no designed structure to cope.

On a smaller scale, the Cave Creek collapse of the viewing platform
because of the weight of the people on a badly built and casually inspected structure.

PS The parking lot: *"the sprat to catch a mackerel"*

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See: Timaru Herald, Saturday 22 October 2016

The developer has a "cunning plan".

He acknowledges: for the proposed new complex, the proposed parking is a stumbling block.
He has applied to the TDC to purchase the Bay Hill car park.
He has stated this addition to his Bay Hill property "would take care of the car parking issue".

I am one of the "not many" familiar with the car park. Nevertheless, on the Saturday,
I had a careful and detailed walk around it and the immediate surroundings.

Vehicle access
Entry. From the north on SH1 access is OK – to the Bay Hill roundabout.
From the south: there is no direct access from SH1; entry is down the Bay Hill street.
All access continues from the roundabout,
up the hill, past the car parking there, with finally a left turn into the car park.
Exit. All cars leaving this park must travel up the Bay Hill street.

Pedestrian access
There is no direct access to or from Sefton Street.
All access is via the Bay Hill Street.

**Perhaps this would be better than nothing, though it has 2 blemishes:
awkwardly placed for car access, and a too-long walk to and from the complex;
a problem with the passage of cars on the already tricky drive along Bay Hill street.**

The land value was 235k$ (in 2013).
For the developer this would be a drop in the ocean of 42M$ for the proposed project.
This is the "sprat".

Regardless of all the details, the developer sees this possible purchase as the sweetener to his proposed project. That is the "mackerel".

**The developer, commenting on the possibility of not acquiring the car park,
is quoted as saying it "could cut me off at the knees".
But this addition to the developer's car parking would merely scratch the surface
of the problem to provide a solution to access/parking.
And the car parking, by a long straw, is not the only problem/objection to the proposal.
[Here again we have the "Straw man" argument/ fallacy.]**

See: Timaru Herald, Wednesday 26 October 2016
At its meeting of Tuesday the TDC decided to recommend:
sale of the property, by public auction, subject to it being retained as a car park.

FINAL PAGE