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EXTENSION OF PATHWAY AND

REVTMENT AROUND

WITTON BLUFF,

PORT NOARLUNGA, SA

FOR

CITY OF ONKAPARINGA

Project No.97046

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1.0 SCOPE OF REPORT

Witton Bluff is a coastal headland at Port Noarlunga, South of Adelaide.

As an adjunct to previous stabilization works on the bluff, a pathway has been constructed along the top of the rock revetment at the base of the bluff. This pathway extends from Christies Beach in the north, to approximately two-thirds the way around the base of the bluff. The pathway ends at a upstand of erosion resistant rock, approximately 2 metres above the level of the existing pathway.

The City of Onkaparinga has commissioned this report to look at:

- The necessity of extending the rock revetment protection the remaining distance around the bluff to Port Noarlunga.
- The practicality of extending the pathway all the way around the bluff to Port Noarlunga Beach.
- The benefits of the above.
- The approximate costs of the above.

2.0 HISTORY AND GENERAL DESCRIPTION OF SITE

Witton Bluff is a cliff face between Christies Beach to the north and Port Noarlunga Beach to the south, and facing onto the ocean. Refer Figure 2.1 for a location plan. The cliffs rise up to 35m above sea level, and are vertical and unstable in places.

2.1 GEOLOGICAL DESCRIPTION OF THE CLIFFS

The cliffs were described geologically by PPK in a 1983 report on the protection strategy for Witton Bluff. This description is as follows.

Geologically, the bluff is composed of softer and easily erosive Quaternary sedimentary deposits overlying Tertiary deposits, the upper layers of which are harder and more resistant to erosion.

The Quaternary (recent to Pleistocene) (present day to 1 million years old) deposits consist of:

1. Topsoil Dense brown fine sandy SILT to silty fine SAND 0.3 to 0.4m thick.
2. Calcrete (Travertine)
Variable thickness from 0 to 0.5m, absent in parts.
3. Hindmarsh clay
Stiff mottled dark red to yellow brown and pale grey CLAY, with some fine sand. Severe desiccation cracking.
Up to 3m thick.
4. Transitional stiff white calcareous silty CLAY approximately 1m thick.
5. Dark red brown iron cemented silty medium SAND with basal grits and extensive current bedding. Extends over about 10m in thickness.

The Tertiary deposits (1 million to 70 million years old) consist of:

1. Blanche Point Formation
Firm to hard pale gray and dark red CLAY with interbeds of fine to medium sand and grits. Siliceous and calcareous in parts. Desiccation cracks common.
Extends over about 15m thick.
2. Tortachilla Limestone
Strong brown to pale green fossiliferous LIMESTONE.
Extends over about 0.5m in thickness.
3. South Maslin Sands
Medium dense brown fine SAND. Exposed over 2 to 3m.
(after PPK, Witton Bluff Protection Strategy, 1983)

The sediments increase in thickness and dip gently toward the south west.

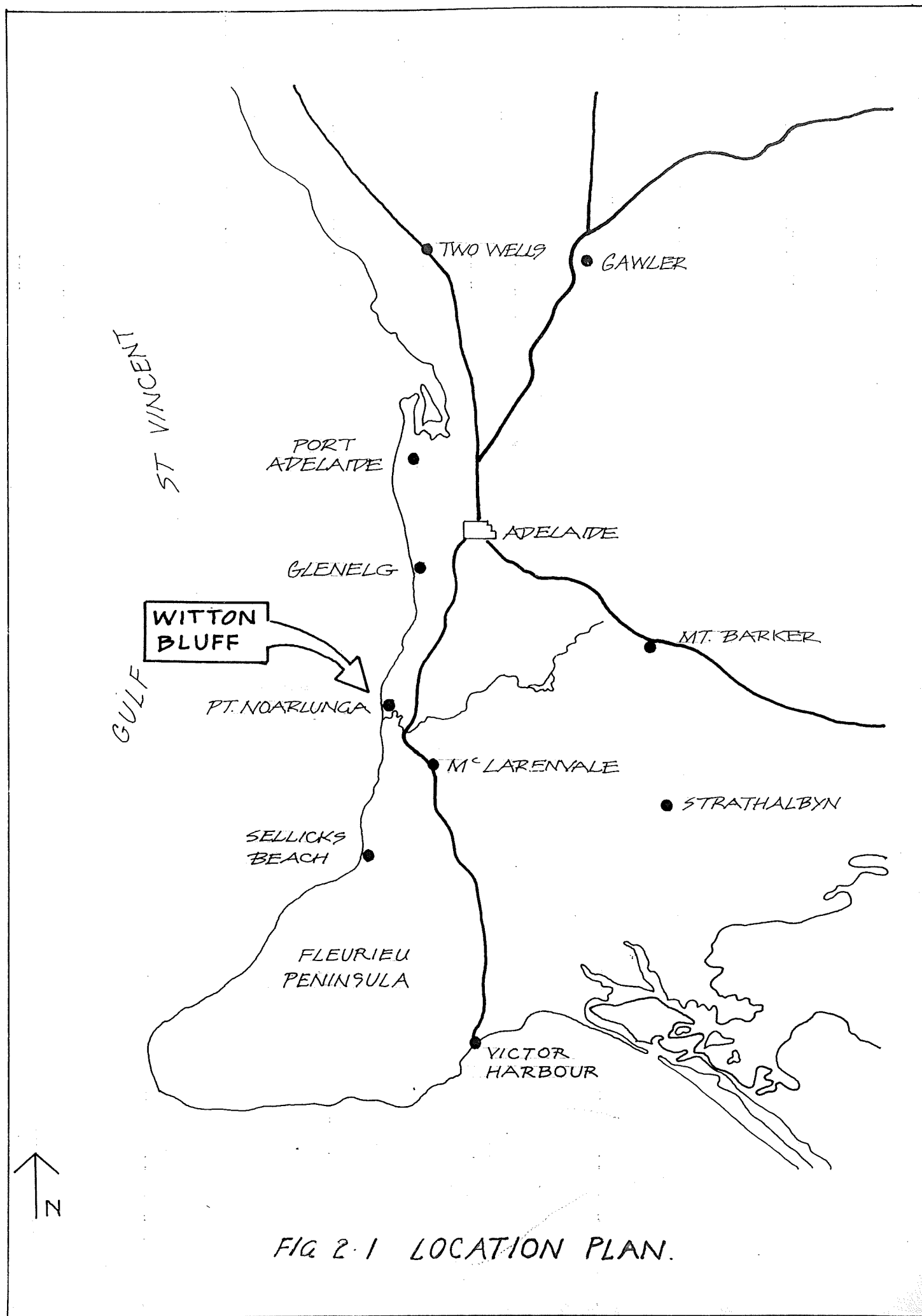


FIG 2-1 LOCATION PLAN.

The Blanche Point formation forms the erosion resistant platform over which the proposed route of the walkway is located. This harder platform provides the protection to the toe of the bluff from wave erosion at the base of the cliff. The formation varies in height from 7.0 AHD at the northern end (which is approximately 2m above the existing walkway to Christies Beach) to 2.7m AHD at the southern end at Pt. Noarlunga Beach. Mean sea level is approximately 0.0m AHD.

The Quaternary deposits along the central and southern parts of the cliffs have two distinctive features. They are a red brown iron cemented sand with a erosion resistant calcrete near the top of the cliffs.

The upper Quaternary deposits below the calcrete layer are quite soft, and are subject to erosion by stormwater runoff from rainfall, animal and persons causing holes and local failures, and undermining by wave attack, which causes collapse of the cliff over.

2.2 HISTORY OF AREA

The cliffs in general show a long history of erosion by the forces of nature and the most westward point of the Bluff show indications of forming sequential sea stack, due to the nature of erosion of the cliff face, together with the direction of wave attack and protection afforded by the off shore reef.

The history of bluff in recent times in regards to development and habitation is summarized as follows:

- The area was settled in approximately 1839. Prior to 1918 there was a large free standing stack off the point of Witton Bluff. This was Table Rock and was a notable landmark of the coast. A storm in 1918 collapsed the stack, which was then completely eroded away by 1924,
- Early photographs of the settlement of the area show that in 1924 very few houses were located on the heights behind the Bluff.
- 1936 photography shows that Witton Road is present, but there is no continuous roadway around the top of the cliffs between Pt. Noarlunga and Christies Beach.
- 1949 aerial photography shows the Esplanade as a dirt road, with the majority of development occurring south of Castleton Street and north of Dale Street.
- By 1959 the Esplanade was sealed with the majority of blocks built upon along the top of the cliffs.
- In 1972-73 cracks appeared in the road pavement of the Esplanade north of Dale Avenue (previously Fenton Avenue) which indicated the precarious state of the cliffs at that location. This initiated the construction of a stabilizing earth bank against the cliffs with a rock protected toe. This embankment extended from Beach Road to Dale Avenue.
- In 1982 Pak Poy & Kneebone Pty Ltd undertook a study on behalf of the City of Noarlunga to look at the stability of the Witton Bluff Cliffs

and designed the rock toe revetment along with backfilling against the cliff face that extended south until almost Anderson Avenue. This is the current extent of the rock revetment and pathway, and joins with the Blanche Point Marle Formation, where it outcrops.

3.0 STABILITY OF SOUTHERN SECTION OF THE BLUFF

3.1 SITE INSPECTION

The area of the proposed pathway from the end of the existing pathway through to Port Noarlunga Beach was inspected in detail.

A running chainage was set up with 0m taken at the northern end of the Blanche Point formation outcrop. This is at the northern end of the proposed pathway. The southern end of the proposed pathway is chainage 370m. Refer Figure 3.1 for a site plan.

At chainage 0m the existing pathway is RL 5.0m AHD. The Blanche Point Formation steps up approximately 2m to RL 7.0m AHD. The flat area of the top of the formation is approximately 5 to 10m wide. The top of the Blanche Point formation slopes down to approximate RL 5.0m at chainage 150m. Along this length the width of the flat area at the top of the formation varies from 5m to about 15m. The sloping face of the bluff is generally set back, and clear of any rock fall danger.

From chainage 150m to 200m, the Blanche Point Formation cuts back into the bluff face, with the flat platform area not present. The bluff in this area is near vertical from the sand to well above the proposed pathway level. The cliff face appears stable and sound, particularly at lower levels, but the weaker formations at the upper levels will cause a rock fall hazard, particularly if any access is given to this area. The proposed pathway will need to be set away from the cliff face to avoid the possibility of rock fall onto the path.

The sand beach in this area (chainage 150 to 200m) has rock evident at a shallow level.

At chainage 200m the Blanche Point formation reappears as a platform at an RL of 3.9m AHD. The platform is generally 10 to 20m wide to chainage 300m, where it is RL 2.7m. The rock platform stops adjacent the boatramp. Between chainage 300 and 370 the walkway must climb over the southern end of the bluff, and match in with the zig zag pathway up to the lookout from the boatramp access area. This present pathway is typically one metre wide, and in poor condition.

At the lower end of the existing pathway up to the lookout it joins the top of the boatramp and the boat ramp access road. This is a bitumen roadway of varying width that takes very little traffic. The access to this roadway is at Saltfleet Street.

The new pathway will join this existing bitumen boatramp access roadway.

CHRISTIES BEACH

EXISTING Rock REVENEMENT

WITTON
BLUFF

PROPOSED PATHWAY

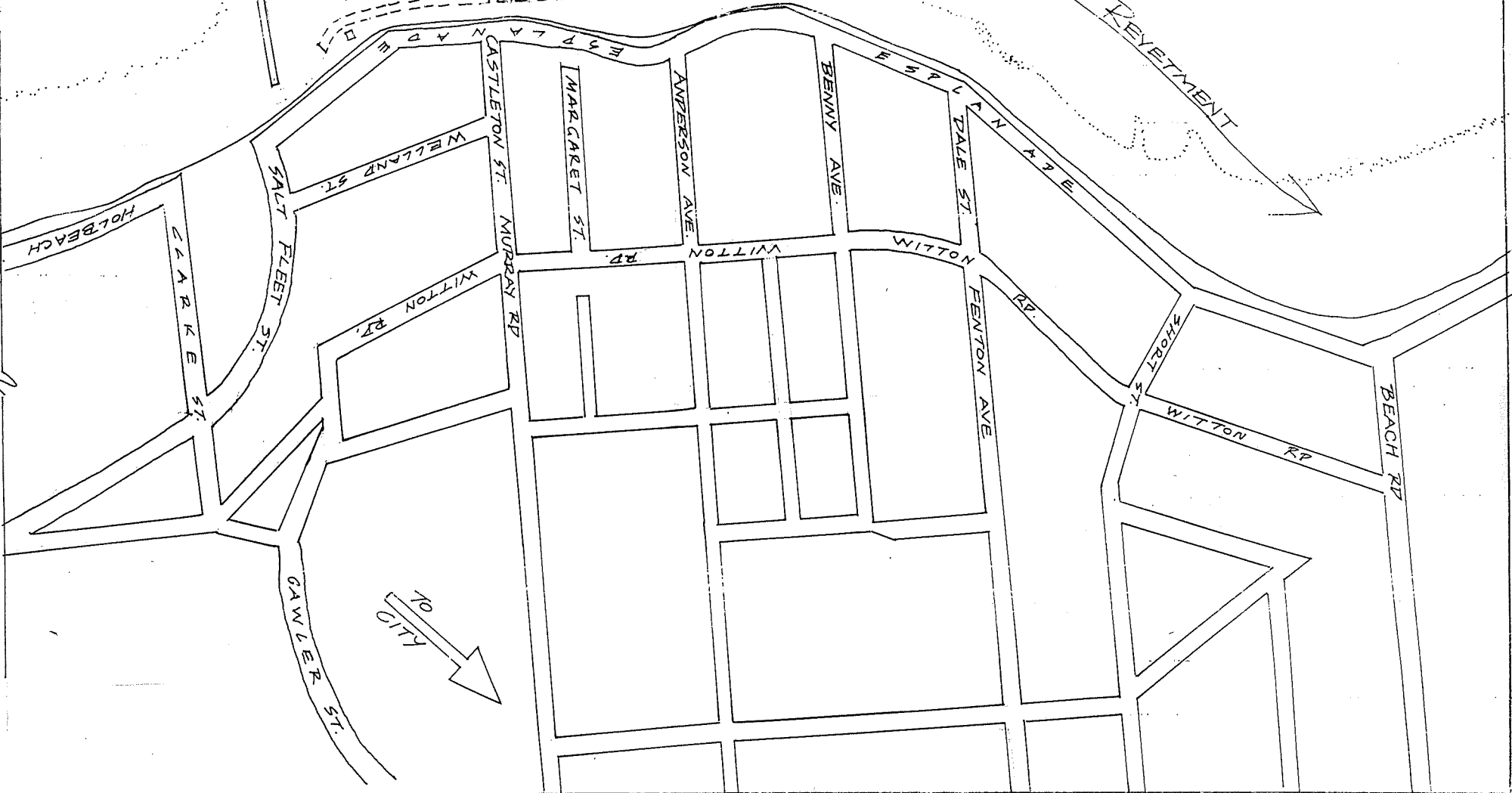


FIG 3.1 WITTON BLUFF PATHWAY SCALE 1:5000

3.2 AERIAL PHOTOGRAPHY

Aerial photography of the site was obtained at the following dates, and approximate scales.

DATE	SURVEY NUMBER	APPROX. SCALE
20.11.1997	5412 Photo 43	1:2500
6.9.1989	4091 Photo 28	1:5000
19.3.1979	2405 Photo 19	1:4000
9.1.1969	1132 Photo 0380	1:3950
3.1.1959	325 Photo 9177	1:4000
9.1.1949	4 Photo 47	1:3960

These photos are shown at figures 3.2. to 3.7.

In addition to the above, a copy of the 20.11.1997 photo was enlarged and scale corrected to 1:500. This was used as a basis for the preliminary layout design of the pathway.

The section of bluff from north of Anderson Avenue to the boatramp (part way between Castleton Avenue and Saltfleet Street) was examined in detail for erosion effects and recession at:

- the cliff top,
- the edge of the erosion resistant rock platform near sea level,

by comparing the relative locations of edge of cliff and platform to other features present in each photo.

3.2.1 GENERAL DESCRIPTION

The 1949 air photo shows scattered development in the area along the Esplanade, particularly between Dale Avenue and Castleton Avenue. The Esplanade along this length is an unsealed roadway. There is no protection works evident at this stage along any section of Witton Bluff. The vegetation on the bluff is very sporadic, with the only area of significance being just south of Anderson Avenue.

The 1959 air photo shows development along the Esplanade almost complete, with only a few blocks vacant. The Esplanade itself is a bitumenised road. Vegetation cover on the Bluff face is more pronounced, but still mainly occurs between Castleton and Anderson Avenue, near the upper sections of the cliff. The sections of the Bluff north of Anderson Avenue are almost vertical, with no rock protection. The caravan park is present and well patronized (January holidays).



Figure 3.2 Aerial Photo 1949 (1:4000)



Figure 3.3 Aerial Photo 1959 (1:4000)



Figure 3.4 Aerial Photo 1969 (1:4000)



Figure 3.5 Aerial Photo 1979 (1:4000)



Figure 3.6 Aerial Photo 1989 (1:5000)



Figure 3.7 Aerial Photo 1997 (1:2500)

The 1969 photo is similar, but the amount of vegetation on the slopes of the Bluff has diminished to what appears to be isolated patches of larger bushes and shrubs.

The 1979 photo shows a rock revetment protection extending from Beach Road to Dale Avenue, the main vegetated area is between Anderson and Castleton Avenue, with a thin strip along the Cliff top south of Castleton Avenue. North of Dale Avenue some areas of the recently stabilized slope are being vegetated. The area south of Benny Street shows the slopes of the bluff as heavily gullied and eroded.

The 1989 photo shows the rock revetment extended to Anderson Avenue, and the slopes over generally covered with light vegetation. The other main areas of vegetation are between Anderson Avenue and Castleton Avenue, and a thin strip at the cliff top south of Castleton Avenue.

The 1997 photo shows the Bluff generally well covered by vegetation north of Benny Street, with the infill section of revetment between Benny Street and Anderson Avenue also supporting vegetation at the lower level (beneath the cliff). The vegetation between Anderson and Castleton Avenue now encompasses approximately fifty percent of the slopes. South of Castleton Avenue the vegetation is still limited to a strip along the cliff top. The formalized viewing points:

- between Dale Avenue and Benny Street,
- just to the south of Benny Street,
- opposite the Caravan Park,

are evident in this photo.

3.2.2 RESULTS OF ANALYSIS

The report Witton Bluff Management Strategy Study Report by Pak-Poy & Kneebone (October, 1982) quoted the cliff recession rates at approximately 5m per 100 years in the bays in the cliffs, but noted that most of this recession may occur in one or more catastrophic or severe storm event, rather than gradually over time.

The analysis of the air photos which cover the period 1949 to 1997 (48 years) in the area of the proposed pathway show that the relative positions of both the top of the cliff and the outer edge of the hard rock platform in each photograph are all within several mm of each other, are all overlapping and do not show a definite trend of recession.

Hence, it is reasonable to assume that the differences shown are due to the tolerance in the assessment method, being due to:

- small scale of base photos, (typically 1 in 1600 scale, enlarged to 1 in 4000),
- photographic distortion,
- inaccuracies caused by different shadow angles on photos,

- lack of clear baseline reference data to allow comparison,
- inaccuracies in comparison method.

The recessions in this section of the cliff and rock platform are less than the accuracies of the assessment method. This accuracy would be in the order of several metres.

Direct comparison of the 1949 and 1997 photos shows the line of the cliff top south of Benny Street to be very similar with the exception of a wide flat area opposite the caravan park entrance, which seems to have reduced noticeably between 1969 and 1989.

The outer edge of the rock platform at the lower level is very similar in shape in both 1997 and 1959 air photos (the 1949 photo does not show the southern section of this platform very clearly). The comparison in shape includes all noticeable indentations. Hence it can be concluded that the rock platform has not eroded noticeably in the periods 1959 to 1997 (38 years).

4.0 PUBLIC CONSULTATION

Extensive public consultation was canvassed on the desirability of extending the existing pathway. This was directed to:

- Local residents by way of a letter box drop of all residences bounded by the Esplanade, Beach Road, Saltfleet Street and Witton Road.
- The local business community, by way of Beach Road Main Street Committee.
- Port Noarlunga Primary School, Christies Beach Primary School and Christies Beach High School.
- Local cycle groups, including:
 - Southern Districts Veteran and Ladies Cycling Club,
 - Noarlunga and South Coast Cycling Club,
 - Adelaide Mountain Bike Club Inc.,
 - South Siders,
 - The Complete Cycle,
 - Get on Your Bike Community Rides.
- Advertisement in local newspaper to all interested parties.

A copy of a typical letter canvassing comment is included at Appendix A. From this, nineteen responses were received. Thirteen responses were from residents, four from businesses, and two others. All these responses are included at Appendix B.

Fifteen of the nineteen responses (78%) were supportive, with three against the proposal, and one offering no opinion. The general opinion received was that it would be a good idea, and would promote tourism and interest in the area. Positive benefits seen were:

- improve the image of area,
- boost recreation and amenity in area,
- allow people walking Pt Noarlunga/Christies Beach a safer and more pleasant route than presently exists along the Esplanade,
- provide an attraction to encourage tourists to the area, thus helping local businesses.

Of the people supporting the project, some highlighted particular usages and restrictions other than those expressed in the broad guidelines. These are:

- walkway use only with possible wheelchair access, (no bicycles, bladders etc.),
- access for emergency vehicles.

Other facilities or additions suggested to the project were:

- rest and shade areas along the pathway,
- enlarged toilet block at the Beach Road end,
- alter traffic arrangements along Esplanade over Witton Bluff,
- decking at end of Beach Road over the stormwater outfall (which is being looked at by Council as a separate matter),
- additional tree planting in area,

- steps from pathway to top of cliff,
- sculptures along the pathway,
- landscaping on Witton Bluff slopes.

The three negative responses included as their reasons the following:

- to prevent the usage of the area by others than locals,
- it will destroy this section of the beach,
- high maintenance cost of walkway.

Hence, overall, the public response to the proposed project is very positive and the benefits seen to the area are:

- the creation of an attraction to bring tourists into the area, helping local business,
- the formation of an important pedestrian/bicycle link between Pt. Noarlunga and Christies Beach, an alternative to the Esplanade over the Bluff, which is seen as unsafe,
- a pleasant extension to an existing pathway used by locals along the foreshore.

4.1 CONSULTATION WITH GOVERNMENT AGENCIES

The project was discussed with Coast Protection Branch and Environmental Protection Agency of Department for Environment, Heritage and Aboriginal Affairs. The EPA did not have any relevant comments. The proposal was discussed with Mr. S. Penny of the Coast Protection Branch and he could not foresee any problems with the project as described in regard to the coastal management issues of the site.

Provision of funding by grants through Government Agencies was investigated. Bike South of Transport SA are able to offer a grant of the same value as money provided by Council if the pathway incorporates a bicycle track.

5.0 PATHWAY REQUIREMENTS

5.1 LOCATION

The pathway is to extend along the rock platform and is to connect to the existing pathway along the rock revetment in the north and to the boatramp access roadway at Pt. Noarlunga Beach in the south.

5.2 PREDICTED USERS OF PATHWAY

The following groups of people are considered likely users of the pathway:

- Pedestrians:
 - children,
 - people pushing prams and strollers,
 - family groups,
 - dog walkers,
 - joggers and recreational walkers.
- Cyclists:
 - children,
 - families,
 - adults,
 - individuals and groups.
- Users with disabilities:
 - pedestrians,
 - manual wheelchair users,
 - electric wheelchairs and scooter users.
- Small wheeled vehicles users:
 - in line skaters,
 - skate boarders,
 - roller skaters.
- Other users:
 - fishermen.

(from Austroads Part 14).

From the above list, it is debatable whether the pathway is designed to be used by cyclists, but it should be noted that even if it is sign posted prohibiting usage by cyclists and bladders, it is likely that some usage of this type will occur. If an accident occurs by a cyclist or other, and the facility is not designed for their use, Council may be liable. Hence, it is recommended that the pathway be designed for all users, even if a decision is made at a later date to restrict the usage to pedestrians.

From a point of view of Council and government groups trying to encourage cycling and provide facilities where possible, it is preferable to design the facility to include cycling.

It is expected that the pathway will greatly increase traffic along this section of the cliffs, as at the moment it is used by only a small number of people. A

hundred fold increase in people could be expected, and hence it is important that these people be restricted from access to the fragile cliff face.

5.3 DESIGN CRITERIA

The required design criteria for the pathway may be divided into the following areas:

1. The level of the pathway should be above water and wave level, but not necessarily above wave splash in a storm situation.
2. To be designed in accordance with industry standards, including:
 - Austroads "Guide to Traffic Engineering"
 - Part 13 - Pedestrians
 - Part 14 - Bicycles.
 - AS1428 "Design for Access and Mobility"
 - AS1170 Loading Codes
 - Relevant SAA structural design codes.

In addition to the above, the following areas also need to be considered:

1. The pathway is required to blend in with the character of the area as much as possible. The possible choices for the construction of the pathway are:
 - brick paved over rock platform,
 - rock graded smooth over rock platform,
 - rubble over rock platform,
 - treated timber walkway suspended over rock platform,
 - a combination of the above.

(It is not considered suitable to allow constant traffic on the existing rock of the platform, as it is too soft, and will wear quickly).
2. To allow effective drainage from stormwater runoff and wave splash water from behind the path.
3. To prevent access by people to the cliff face in order to prevent erosion of the slope. This is more critical here than at the existing pathway further north where the cliff face is steeper, and not as attractive to children and climbers.
4. To prevent people falling from the edge of the rock platform.

In order to satisfy the above, and provide a minimal perceived impact on the environment of the area, the best choice of pathway type is a suspended timber walkway with handrails on both sides.

This has the advantages of:

- allowing water to free drain under it, without changing any existing characteristics such as concentrating water at pipe outlets, allowing ponding upstream, or creating stagnate pools of water.
- a handrail will prevent people accidentally falling off to the rock platform.

- a handrail on the bluff side will also make access to and climbing on the cliff face much harder. Users will be contained to a man made pathway and not allowed to roam over and damage the fragile cliff.

5.3.1 LEVEL OF PATHWAY

The level of the existing walkway along the revetment to the north is approximately RL 5.0m AHD. In comparison, the mean sea level for the site is 0.0m AHD, top of deck level on the Pt. Noarlunga jetty adjacent the site is 4.1m AHD.

The mean high water springs (MHWS) tide at Outer Harbour is:	0.87m AHD
Allow wave set up	0.3m
Allow for storm surge	0.3m
Allow for climate sea rise	<u>0.3m</u>
Maximum still water level at site	<u>1.77m AHD</u>

Current beach sand level at site is 0.5m AHD. Assume erosion to RL 0.0 AHD.

- => Maximum still water depth, prior to wave break 1.8m
- => Maximum wave height at breaking = 1.4m
- => Maximum top of wave level = 1.8 + 1.4/2 = 2.5m AHD.

Allow some free board over wave height. It should be noted that the jetty deck has tops of waves lapping under it in a severe storm but this is in a location which has deeper water and hence larger waves.

Set minimum design pathway level at 4.0m AHD.

5.3.2 PATHWAY DESIGN CRITERIA

The following pathway characteristics were obtained from the design guidelines documents.

WIDTH	3.0m preferred	(2.5m minimum) for cycle path.
GRADE	maximum 1 in 14 (disable access) preferable 1 in 20 (bicycle)	Note: for flatter grades than 1 in 33 no landings are required.
CURVE RADIUS	5m absolute minimum, preferable 15m.	
LANDINGS	As required by AS1428 "Design for Access and Mobility".	

SUPERELEVATION OF CURVES

not desirable due to pedestrian traffic, but
up to 10% for 10m radius curves for bicycle traffic.

HANDRAIL 1400 high, handrail set in 150mm from posts to prevent handlebars clipping posts. Where the drop off the pathway is more than 1m, there should be balusters to prevent a 125mm diameter sphere passing through.

SURFACE CHARACTERISTICS

Non slip when wet, no grooving to catch wheels, self draining. It is not considered that the existing rock is suitable as it is too soft for extended trafficking and is very uneven.

5.3.3 PATHWAY ALIGNMENT CRITERIA

The pathway should be located as far back on the flat rock platform as possible so:

- it is as far from the waves and spray as possible,
- the rock shelf provides an added buffer to people climbing the handrail and falling further to the sand at the base of the rock platform.

However, it should be far enough forward so that there is no danger of rock and debris falling from the cliff above onto the pathway.

The top section of the Blanche Point formation tends to be at a steeper slope than the almost flat rock platform, and provides a transition from the unstable cliff above (composed of the Quaternary deposits) to the rock platform (composed of the Tertiary Blanche Point Formation). In general, as long as the pathway is on the flat section of the rock platform, it is outside the zone of falling rocks and debris.

The only exception to the above is over the section of bluff where the Blanche Point Formation has collapsed and there is a sheer face on the wall (chainage 150 to 200m). Along this section the path way will need to be set forward of the cliff face, an amount depending on the height and relative stability of the rock face over.

Near the southern end (chainage 320m) the pathway will need to slope upwards and traverse a high point at the end of the rock platform. Coincident with this it will also turn inland, and then slope down to join boatramp access roadway. Over this last section the pathway will be built over the existing walkway up to the lookout. It will be possible to branch this existing walkway off the new pathway, so that this access track remains. However, both Coast Protection and Council see the removal of this existing lookout as desirable.

It is not proposed to incorporate a track or set of steps from the top of the bluff to the new pathway at this point in time (with the exception of the existing walkway at the southern end near the lookout).

5.4 PATHWAY FEATURES

The pathway should be a minimum maintenance structure, and provide limited provide limited potential for vandalism.

It is considered that a timber walkway structure of CCA treated pine set above the rock platform will have the following features:

- allow minimal vandalism as there are limited flat surfaces, and timber post structures such as this are common,
- will be minimal maintenance due to
 - concrete footings,
 - treated timber requiring no maintenance,
 - stainless steel bolts and connectors in lieu of galvanized steel which would have a very limited life,
- allow free draining under, and allow access for cleaning under.

Council has indicated that it would be desirable for:

- the demolition of the existing lookout at the southern end of the bluff, as this area is degrading, and access to the lookout and cliff top is uncontrolled,
- the erection of a new lookout (nominally 3m x 3m) at the high point of the pathway at chainage 310m off the new pathway,
- the erection of rest area/lookout off the main pathway at chainage 120m. It is proposed that this area be semi circular to match the proposed deck structure at the end of Beach Road,

These items will be included in the costings as separate additions.

If the lighting is included along the new pathway, it will need to be included along the full length of the pathway, which is approximately 1050m. If posts are spaced at 50m intervals, this will require 22 posts. However, it is debatable if the area would be considered safe at night even if the lighting was installed (due to the areas of darkness around the lit pathway and the solitary nature of the site). Hence it is recommended that the pathway be for daylight use only and lighting not be installed.

6.0 REVETMENT REQUIREMENTS

The revetment is required to provide a foundation for the pathway, and to provide protection to the base of the bluff to prevent erosion.

It has been shown above that there is very little retreat of the base of the bluff where the Blanche Point Formation outcrops. This naturally occurring rock provides adequate protection for the base of the cliff. Hence there is little necessity for the revetment as a protection requirement.

The section of walkway from 150m to 200m is over a length where the bluff face is vertical, and the Blanche Point Formation is set back behind the desired line of the pathway. It is an option along this section to build a rock revetment on which to position the pathway.

If a revetment is built over this section its characteristics may be similar to the revetment used further north (i.e. set at RL 5.0m AHD, and rock armored).

It is also possible to build a revetment along this 50m length at a lower level, and have the walkway raised. This would save costs on the revetment.

The option to build a rock revetment to 5.0m AHD all the way from chainage 150m to the end at chainage 350m was considered briefly, but was considered:

- to detract unnecessarily from the existing natural conditions,
- to be unwarranted on the basis of cliff face erosion,
- to be very costly.

and hence it was discounted.

7.0 OPTION 1 - PATHWAY AND REVETMENT

Figure 7.1 shows the general layout of option 1, which consists of the following:

- 50m board walk ramp from existing revetment to the north to on top of the Blanch Point formation (chainage -50 to 0m) (nominal 1 in 20 grade). Alternatively, this may be an earth ramp.
- Over the section chainage 0 to 150m the boardwalk is set low over existing rock platform and follows natural grade down to south (nominally 1 in 16 grade). This section has the boardwalk set approximately 300mm above the existing rock surface, which will allow cleaning under the pathway. A look out rest area is positioned along this section.
- Rock infill with armour on the sea face to the section of bluff from chainage 150 to 200m. The board walk continues over this section at just above ground level. The rock revetment slopes from RL 5.0m at the northern end to RL 4.0m at the southern end, so as to match in with Blanche Point Formation levels. The boardwalk and handrails are continuous over this section:
 - to keep people on the board walk and off the cliff face,
 - to maintain a uniform appearance.

It may be possible in this section to create a landing/seating area off the pathway as a rest spot. This area may be on the rock infill in front of the boardwalk. The rock revetment will not present a danger of people falling from it. (This has not been included on Figure 7.1).

- Boardwalk at RL 4.0m AHD (varies from just above rock platform to 1m above rock platform) along chainage 200 to 260m. This section is generally less than 1m above the rock platform, so it will have a standard handrail.
- The board walk climbs to a high point at chainage 320m, where it curves around and slopes down to join the existing boatramp access roadway at chainage 370m. Over this section from 260 to 370m, a more elaborate balustrade/handrail is required that will prevent a 125mm sphere passing through it, as the boardwalk is generally more than 1m above ground level. A new lookout is included as an option at the high point.

The boardwalk itself has a useable width of 3m, and posts set into the rock at approximate 5m intervals. Where the boardwalk is more than 1m above ground, crossbracing between the posts is required. All fittings such as bolts, nuts and washers are to be stainless steel. Refer figure 7.2 for a typical cross section of the boardwalk.

The rock revetment between chainage 150 and 200m slopes from RL5 to RL4m AHD, and consist of:

- berm filling,
- core filling 80mm to 400mm diameter rock,

- secondary armour 1.5 to 2.0t rock,
- toe stones 4t rock.

Refer figure 7.3 for a typical cross-section of the revetment.

The construction method for this option is bring the construction materials from the north via the existing revetment, and place then by tipper and excavator, working south.

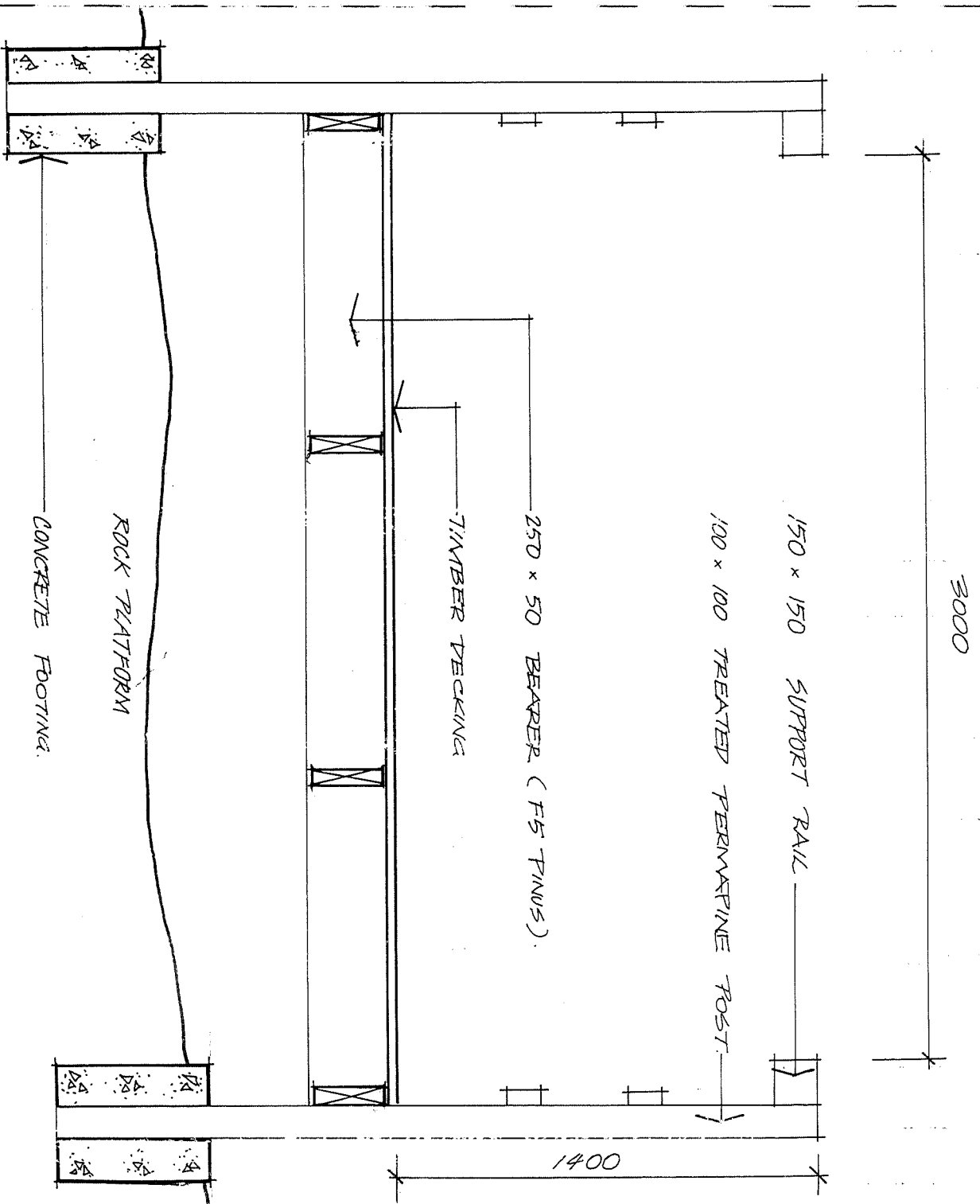
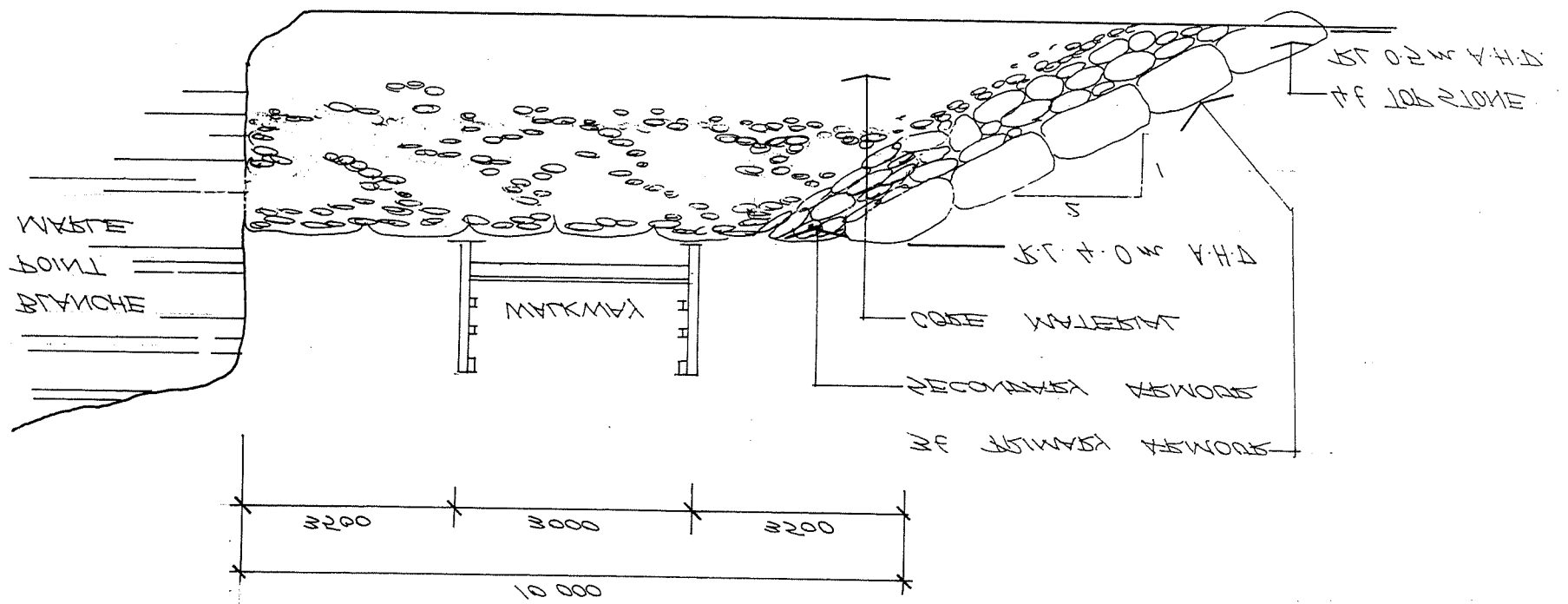


FIGURE 7.2 TYPICAL BOARDWALK CROSS - SECTION
SCALE : 1 : 20.

SCALE 1:10

FIGURE 1.2 LIGHT REVELMENT CROSS-SECTION



COST ESTIMATE - OPTION 1 - PATHWAY AND REVETMENT

PRELIMINARIES	allow 7%	Sub total	<u>\$30,000.00</u>
BOARDWALK	(to be treated pine)		
Post	allow 4 sets per 16m => 216 No. posts 100 x 100mm x 2.5m long @ \$8.50/m.	\$	4,590.00
Footings	- into rock/rubble 300 diameter x 300 deep, concrete filled 216 No. x \$100 each	\$	21,600.00
Cross heads	108 No. 250 x 50 3.5m @ \$9.50/m	\$	3,590.00
Stringers	420m x 4 o. x 250 x 50 @ \$9.50/m	\$	15,960.00
Floor boards	3.3m x 1615 No. x 240 x 45 @ \$11.90/m	\$	19,220.00
Handrail Posts	1.6m x 162 No. x 100 x 100 @ \$8.50/m	\$	2,200.00
Top Rail	420m x 2 No. x 150 x 150 @ \$26.90/m	\$	22,600.00
Mid Rail	310m x 4 No. 100 x 50 @ \$380/m	\$	4,710.00
Baluster	110m x 10 No. x 100 x 50 @ \$3.50m	\$	4,180.00
Bracing	nominal - allow	\$	1,950.00
Stainless steel	fitments - allow	\$	10,000.00
Labour	- allow	\$	<u>10,000.00</u>
	Sub total	\$	<u>99,000.00</u>

ROCK REVETMENT

Core material supply and compact			
20m x 80m/2 x 4m 45/m ³		\$	144,000.00
Secondary armour supply and place			
3m x 90m x 5m x 1.5tonne stone @ \$60/m ³		\$	81,000.00
Primary armour supply and place			
2m x 90m x 5m x 3 tonnes stone @ \$60/m ³		\$	54,000.00
Toe stones supply and place			
100 No. x 4t rock @ \$30/t.		\$	<u>12,000.00</u>
	Sub total	\$	<u>219,000.00</u>
	TOTAL	\$	<u>420,000.00</u>

Additional Costs for Lighting (along new section of pathway only):

Allow \$2000 per pole x 22 poles	\$ 44,000.00
Cable 1050m @ \$50/m	<u>\$ 52,500.00</u>
	<u>\$ 96,500.00</u>

Additional costs for local widening at two lookout points:

Allow 2 widenings @ \$3000 each	\$ 6,000.00
2 seats for each of 2 lookouts @ \$1000 each	<u>\$ 4,000.00</u>
	<u>\$ 10,000.00</u>

These price estimates should be viewed as budget costing only, as the actual price will depend on several factors such as actual sizes and materials selected in design, contractor margin, site conditions etc.

8.0 OPTION 2 - PATHWAY WITHOUT REVETMENT

Figure 8.1 shows the general layout of option 2 which is similar to option 1, but with the following modifications:

- The section from chainage 150 to 200m is not filled and protected with rock armour, but left as naturally occurring.
- The pathway over this section is a similar boardwalk, but supported on timber piles which are founded in the rock below existing sand level. These piles are treated hardwood timber, Koppers logs or steel tubes, and are socketed into the rock.

This bridged section would consist of spans between pairs of piles of approximately 7.5m, the piles extending down typically below water level into the sand/rock.

It should be noted that the effect of waves reflecting off the cliff and meeting with the incoming waves would send water spray upwards. The height of this spray would be determined by the depth of water, the size of the waves and how close they are to breaking. This effect is known as "clapotis", and is easily seen at any location where waves can reflect off a vertical wall before breaking. As the pathway would be out over this area in the centre of its span, it would be subjected to water spray in times of storm activity, and people on the pathway may get wet. There is no danger of anyone being washed off the pathway. To reduce the chance of users getting wet it is suggested that this section of the pathway be set at RL 5.0m AHD.

Also, from the bridge a pedestrian would only be 5m (or less) from a wave breaking against the cliff face.

COST ESTIMATES - OPTION 2

PRELIMINARIES 7%	\$ 8,000.00
BOARDWALK - as for option 1	\$ 99,000.00
- bridge section allow additional	\$ 5,000.00
- piles 12 No. x \$1000. each	<u>\$ 12,000.00</u>
Total	<u>\$ 124,000.00</u>

Additional cost for lighting along new section of pathway only

allow \$2000 per pole x 22 No. poles	\$ 44,000.00
cabling 1050m @ \$50/m	<u>\$ 52,500.00</u>
	<u>\$ 96,500.00</u>

Additional costs for local widening at two lookout points

Allow 2 widenings @ \$3000 each	\$ 6,000.00
2 seats for each of 2 lookouts @ \$1000 each	<u>\$ 4,000.00</u>
	<u>\$ 10,000.00</u>

These price estimates should be viewed as budget costing only, as the actual price will depend on several factors such as actual sizes and materials selected in design, contractor margin, site conditions etc.

9.0 BIBLIOGRAPHY

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Part 14 - Bicycles.

AS 1428 "Design for Access and Mobility".

APPENDIX A
TYPICAL LETTER REQUESTING
COMMENTS ON PROJECT

Terry Magryn & Associates

Consultant Civil, Structural and Coastal Engineering

11th August, 1998

The Principal,
Christies Beach High School,
175 Beach Road,
CHRISTIES BEACH SA 5165

Dear Sir/Madam,

Re: Witton Bluff Access Walkway.

We are undertaking a study on behalf of City of Onkaparinga Council to look at the feasibility of extending the existing walkway around the base of Witton Bluff from Christies Beach all the way to Port Noarlunga Beach (the walkway currently goes only part the way).

As part of this study we are seeking comments from organizations and groups on their needs and on such matters as:

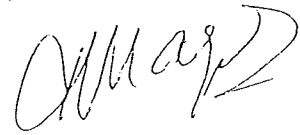
- The necessity of a walkway.
- Possible uses of the walkway, i.e. pedestrians, wheelchairs, bicycles etc.
- Type of construction.
- The necessity of lighting, seating, lookouts etc.
- Other facilities.

Any comments that you may have in regards to these or other issues from the viewpoint of the school community would be very welcome. Please direct your replies, to reach us by Friday the 21st August 1998 to:

Ms. Janice Blair
City of Onkaparinga.
P.O. Box 1,
Noarlunga Centre S.A. 5168

or Fax No. 8382 8744
or Email janbla@onkaparinga.sa.gov.au

Yours faithfully,


Terry Magryn.
Project No.97046

APPENDIX B
PUBLIC RESPONSES TO CONSULTATION

THE NO.	Corresp. No.	Folio

Brian Hanson
67 Esplanade
Christies Beach
SA 5165
PH. 8384 7645
Wk 8237 2131

Ms Janice Blair
The City Onkaparinga
PO Box 1
Noarlunga Centre SA 5168

Dear Mr. Terry Magryn

WITTON BLUFF ACCESS WALKWAY

In response to your letter 11 August 1998. I am happy to offer you a positive response.
I also attach a copy of a letter sent to Ray Goldie on 10 August 1998.

- **The necessity of a walkway.**

I see a properly constructed walkway would be an asset to the area.
It would encourage "out of area" visitors to stay a little longer at the beach.
It would alleviate climbing up/down the limestone shelf at the end of existing pathway, or alternatively at low tide climb rock up/down at beach.
It is important to properly connect the access from the end of gravel path to Noarlunga beach.

- **Possible uses of walkway.**

General resident use.
People walking dogs on leash (signs-on leash at all times pick up doggy doos).
Dog should not be barred, but rather owners encouraged to be responsible.
Cyclist use, as Esplanade roadway is 5.8metre wide at its narrowest and is hazardous to cyclists. A walkway of adequate width would enable cyclists to travel in safety enjoying the environment.
An even surface (no steps) and adequate width would enable wheelchair access permissible (push wheelchairs and electric driven).

- **Types of construction.**

I have open views but, I would think that construction would be a mixture of stout/sound wooden walkways at least 2.4m wide or even 3m wide, the existing gravel track could be upgraded to 3m brick paved, However, I would see that the whole of the track would need raising by 2m.

- **The necessity of lighting, seating, lookouts etc.**

Lighting would be an asset and security for evening walkers,
Seating with picnic areas would be an asset for all, who wish to linger longer,
Lookouts yes and several they could double as picnic areas,
Seating should compliment the picnic/lookout areas,
Signs should be displayed at reef stating its fragility and of fisheries regulations,

• Other facilities.

Already Council is mooted food outlets alfresco dining at the end of Beach road, I would think this would be a commercial decision I have no objection to planned and viable options.

The other main facility would be to properly landscape the face of Witton Bluff as I would tend to think that when the rock seawall was built, they ran out of funds to complete landscaping and retention of cliff face satisfactorily.

Consider pedestrian safety crossing points at Beach road and Esplanade.

Linkage with caravan park?

I see this initiative as supporting the article printed in the Advertiser on Saturday 8/7/98. Two years ago I drafted letter to Noarlunga City councilors, but never sent it, as I got such a negative response (see attached).

It's pleasing that Onkaparinga council has forethought and vision. The Idea of a boardwalk is sensible and council should pursue with vigour. I would like to think that the condition of the whole of the Witton bluff cliff face could be re-addressed. Since its completion some years ago erosion is taken its toll (visual by the amount of dirt being washed down on to the pathway). *Below are extracts from a letter sent to Ray Goldie.*

The walking path from Beach road to dead end towards Noarlunga could be improved considerably with;

- *Additional rocks being placed on Western face (seaside).*
- *The level of path could be brought up to an even level to the toilets at Beach road end).*
- *Rocks could be from the new Express way construction (when it starts) or*
- *Old railway sleepers with a mixture of rock could be placed to retain eastern face of bluff.*
- *Eastern face could then be backfill-filled and planted out accordingly.*
- *The track could be paved wide enough for pedestrians and cyclists and people walking dogs.*
- *Seating and paved areas could be installed for people using walking track.*
- *A connecting boardwalk of adequate width could be built from end of a new pathway across the top of the ground formations all the way to Noarlunga.*

I encourage Council to create a better Christies Beach. I am prepared to volunteer some time to assist in furthering Esplanade, Witton Bluff protection, and recreational and walking trail development.

I would like to make a point about dogs as we regularly use the gravel walkway to exercise our dog and would certainly not wish to be excluded from using any new walkway.

Yours sincerely



Brian Hanson

Monday, August 17, 1998

Brian Hanson
67 Esplanade
Christies Beach
SA 5165
pH. 8384 7645
Wk 8237 2131

The City Onkaparinga
PO Box 48
Ramsey Place
Centre
SA 5168

Copy only

Dear Mr. Ray Goldie

**DEVELOPING CHRISTIES BEACH A TOURISM OPTION
"A BOARDWALK TO NOARLUNGA, PAVED FOOTPATH ON THE
WEST OF THE ESPLANADE ROADWAY FROM THE TOP OF WITTON
BLUFF TO BEACH ROAD"**

I read the article in the Saturday 8/7 Advertiser with interest. You have given some hope that the Onkaparinga Council has vision

Two years ago I drafted the attached letter to Noarlunga city councilors, but never sent it. In May 1996 after drafting the letter I telephoned Noarlunga council offices to obtain councilors addresses, I also spoke with City engineer (I think a Mr. Deane). I took this opportunity to discuss my walkway thoughts with him. The City engineer did not believe that such an idea had any merit nor would meet council approval. He said there were insurmountable engineering issues and a walkway on the top of the bluff would be safety hazard and a liability "risk" to council. With such a negative response I did not send the letter. A few weeks later, apparently as a deterrent to walkers timber barriers were installed between Beach road and the top of bluff (people still walk the narrow strip behind car safety barrier and cliff edge).

It's pleasing that some people have forethought and vision. The Idea of a boardwalk is sensible and council should pursue with vigour. I would like to think that the whole of the Witton bluff cliff face could be re-addressed. Since its completion some years ago erosion is taken its toll and is visual by the amount of dirt being washed down on to the pathway.

The walking path from Beach road to dead end towards Noarlunga could be improved considerably with;

- Additional rocks being placed on Western face (seaside).
- The level of path could be brought up to an even level to the toilets at Beach road end).
- Rocks could be from the new Express way construction (when it starts) or

- Old railway sleepers with a mixture of rock could be placed to retain Eastern face of bluff.
- Eastern face could then be backfill-filled and planted out accordingly.
- The track could be paved wide enough for pedestrians and cyclists and people walking dogs.
- Seating and paved areas could be installed for people using walking track.
- A connecting boardwalk of adequate width could be built from end of a new pathway across the top of the ground formations all the way to Noarlunga.

It is also pleasing to see a further stage of the Esplanade paving and under-grounding of power lines has almost been completed. I look forward to the final stage of this work ie the section from Beach road to Dale avenue being carried out. It must be 10 years since Council said ETSA had plans to underground all Esplanade power lines.

I encourage Council in its endeavours to create a better Christies Beach. I am prepared to volunteer some time to assist in furthering Esplanade, Witton Bluff protection, and recreational and walking trail development.

Yours sincerely

Brian Hanson
Monday, August 10, 1998

3-2-98

P.O. Box 605
McLure Lake
5171

Mr. Terry Macquay & Associates,
98 Patridge Street,
Guelph, Ontario.

Dear Terry,

I support a better Blue Green Walkway
in Prince, and would strongly suggest
a finer walking surface for pedestrians
and more wheelchair. I think seating
would be necessary, and maybe
lighting with solar capacity if at all
possible. I believe that would enhance
rather than detract from this area,
I would not look for No. 1000's
of similar Beach as one. A similar protect
as successfully sensitive areas so it
wouldn't take a balance view for this
time we took protect. I would

SOUTHERN DISTRICTS VETERAN & LADIES CYCLING CLUB INC.

7th October, 1998

Mr. T. Magryn
Terry Magryn & Associates
88 Partridge Street
GLENELG SA 5045

Dear Mr. Magryn,

Re: Witton Bluff Access Pathway

As our Club membership is involved in competitive road racing, the provision of a pathway extending the full length between Christies Beach and Port Noarlunga would not affect our activities.

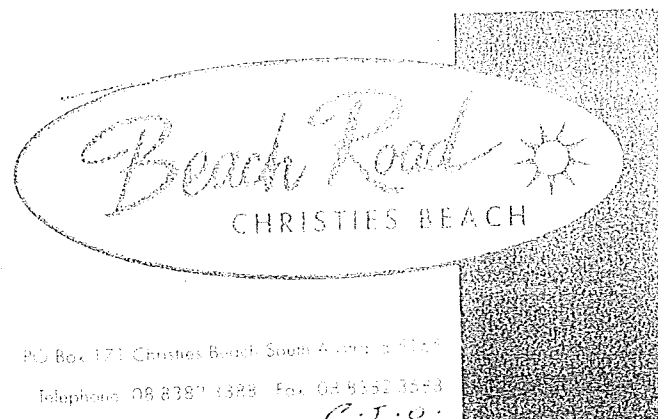
However, as a number of our members are also recreational cyclists the provision of a safe, scenic alternate route with a sealed surface would be appreciated. The main problem with such pathways for cyclists is usually broken glass, therefore necessitating regular maintenance.

Thank you for the opportunity to comment.

Yours faithfully,



K. Dowell.
Secretary



36 GUTHRIE ROAD,
CHRISTIES BEACH,
5165.

24-8-98

PH: 83824538

0417878235

DEAR TERRY,

IN REPLY TO YOUR LETTER TO
MR. GOLDIE.

ENLARGE TOILET BLOCK AT THE
END OF BEACH ROAD. ADD SOME SHOWER-
CHANGE ROOMS. TO ENCOURAGE PEOPLE TO
COME FROM ELIZABETH-SANSBURY-GAWLER
BY TRAIN TO SPEND A DAY AT THE BEACH.
MAKE ESPLANADE ROAD ONE WAY TRAFFIC
FROM BEACH ROAD ROUND-ABOUT TO PT.
NOARLUNGA. TRAFFIC FROM PT. NOARLUNGA
TO COME DOWN WITTON ROAD. I CAN SEE
NO FEASIBLE WAY TO BE ABLE TO PUT A PATH
DIRECTLY ALONG THE CLIFFS AS THEY ARE NOT
STABLE ENOUGH. THIS WOULD THEN GIVE THE
OPPORTUNITY OF A WALK-WAY & CYCLE TRACK
FROM PT. NOARLUNGA ALL THE ^{WAY} ALONG CHRISTIES
BEACH WITH THE EXISTING BRICK PATH NOW
IN CHRISTIES BEACH. ALSO A DECKING AT THE
END OF BEACH ROAD OVER THE STORM WATER
PIPES. THIS WILL CONNECT EVERYTHING UP AS A
WHOLE. THE PIPES ARE THEN COVERED WHICH

2
GIVES THE BEACH A MUCH TIDIER LOOK AS
NEAR AS HAVING A MARVELOUS PACE TO VIEW
THE SEA. I THINK THERE NEEDS TO BE SOME
COVER OVER SOME OF THE EXISTING SEATING,
ESPECIALLY FOR THE SUMMER. ALSO NORFOLK
ISLAND PINES PLANTED FROM PENANGULUA
& ANY AREAS THAT ARE MISSING AT CHRISTIES
BEACH. THIS WOULD BE THE FINISHING TOUCH
TO THE WHOLE ESPRANADE.

Regards,

Janette Jones.

12/8/98

To whom IT MAY CONCERN

RE WITTON BLUFF ACCESS UTILITY.

My name is Jonathan Brabben and I live in 84 The Esplanade, on top of Witton Bluff.

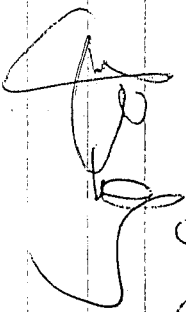
As a resident of this ~~off~~ ^{of} the area I think a wallowing all the way would be detrimental to ~~our~~ ^a private little beach.

In winter the upland little beach provides good exercise for dogs and good unenclosed walks around the rocks.

In summer in the mad rush of getting to the beach, we have our own little cove where the residents can relax and not share the bay with thousands of invading inlanders.

I would like to see the pathway end where it does at the breakerwater beginning so those walking their dogs or on a stroll can still turn back and leave the beach for the roosting pigeons and a few locals.

Thankyou for forwarding your plans to us



James B. Blair
Western Bluff Assoc. Walking

14 August 1998

In response to your letter of 11 Aug 98 on the topic
of offer the following comments.

1) The proposal to extend the existing "walkingway"
(call the Christmas Boardwalk) to Port Washington
for only 100 \$ is superb.

2) Although the existing facility was built in place
for quite a different season, I had hoped
all the time that it would have been extended
to Port Washington and disappointed that
it wasn't.

3) The idea now being floated to not only
extend that facility but to make it into
a Promenade which the imagination, a
generously existing idea to provide a
distinctive, unique feature for both the local
and our (summer) visitors (commonly called
'boardwalks').

4) Such a Promenade should / must be made as
attractive, accessible, and enjoyable as possible.
e.g. lighting would not only have a
"lighting" appeal but would also make

He promised much more attractive
for evening/night stays in the
summer etc etc.

5) Provision should/must continue to allow
for emergency vehicles - over the years
they have had numerous occasions to access
the site (Christie Road) facility.

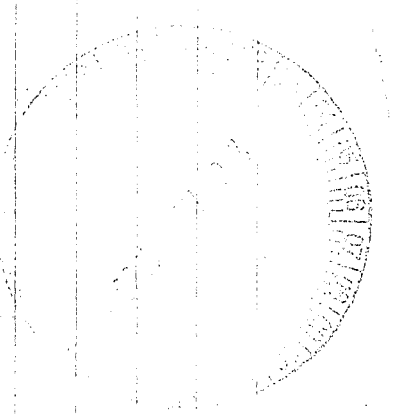
6) In summary, by all means it should
be done, but done well; in stages over
several years if annual cash-flow is to
be a sticking point.

Respectfully,

Richard A. Price
60 Eggleston
Christie Road 5165
(8382-1595)

NB.

You used the word "necessity" (of a nature).
Doubt if there is a need for it, that it
is necessary. But desirable, by golly yes!
That it would be well used, not double
all; just the opposite - would be well used
for pleasure/enjoyment.



12, Coeburg Rd.
Chenault's Road

S 17 5165

26/3/98

Willam Street Area Highway

Dear Mr. Blair

The proposed widening is an excellent development providing it is not overlaid with a surface of concrete and bitumen and providing the city hall is considered adequate, but why it why must cyclists be considered.

The duty of Conkaraunga seems to be that in encouraging cyclists and making tracks throughout this area and my wife and I as active but elderly walkers, object to the 'silent death' system of incorporating bicycle riders.

Yours sincerely

[Signature]

Track B. HALE

Referred to				
Action:	.....	.....	.....	.....
Comments	.....	.....	.....	.....
Attn/Reply	.....	.....	.....	.....
Agenda	.....	.....	.....	.....
Info	.....	.....	.....	.....
For.....	.....	.....	.....	.....
Council Meeting	.....	.....	.....	.....

21 ARCHERFIELD AVE.

CHRISTIES BEACH 5165

26.8.98

Dear Mr Magryn

I would like to comment on the proposed walkway around Witten Bluff from Christies to Port Nourlunga.

I think it's a marvellous idea to extend the present walk, which is already very popular with locals & visitors. The

plendid vistas of coloured cliffs & ever changing seascapes are magnificent &

the whole walk along by the sea & on return over the cliff top road with its viewing areas could be promoted as a "must see" tourist attraction for the area.

Personally, I feel it should be kept as a walkway only. It would be

extremely nice if it was paved similar to the Esplanade - this could be promoted for wheelchair access. If the cost of paving is prohibitive, the present surface is acceptable & adequate.

I don't feel lighting is needed - it is a day time walking area only.

A couple of seats would be nice along the way to sit & enjoy the view. If funds permit maybe benches & tables for picnics (as at top of cliff).

I hope this all comes to pass, even in its most simple form of just a walkway.


Yours sincerely

Josie Nixon

Local Rd Committee Member &

Dear Mr Magryn,

I've just been made aware of the feasibility study to which you have been commissioned, and am writing to encourage the proposal.

For some time, my husband & I have thought how great it would be for Christies Beach / Pt. Norwington if the lovely walkway at the foot of Witten Bluff continued around. Just a single arrangement of steps up & down, joined by a boardwalk would suffice. We often see younger people scrambling up, but for us, it is impossible and a  construction would be such an added pleasure.

I do hope it happens!

Yours sincerely M. Turley

PTC

Wouldn't it fit in wonderfully with future plans for Beach Rd!

You may not get many letters about it because most people would not be made aware of the study. But that doesn't mean it would not be hugely popular.

M89 Turley

6 Torr St

Christies Beach 5165



14 Jetty Road Brighton 5048
Telephone: 08 8377 1196
Fax: 08 8377 2418

COMMUNITY ACCESS SERVICES
OF SA INC - BRIGHTON TEAM

Facsimile Transmission

TO Ms. Janice Blair	FROM Ms. Colleen Hogan
POSITION	POSITION Acting Team Leader
ORGANISATION City of Onkaparinga	
TO FAX NO. 83828744	FROM FAX NO. (08) 8377 2418
DATE 24/08/98	NO OF PAGES (INC THIS ONE) 1

MESSAGE:

Hi Janice,
Community Access Service is an organisation which supports people with severe and multiple disabilities. There are often many limitations for these people to access outdoor areas and activities, especially of the type which is being considered along Witton Bluff.
If this walkway could be extended and the surface area made more accessible it would be Greatly appreciated and enjoyed by many of our consumers.
Goodluck with your efforts

Yours faithfully

Colleen Hogan
Acting Team Leader

P.S. Sorry this is late.

File No	Corresp No	Folio

66 Esplanade
Christies Beach, SA 5165

17 August, 1998

Ms Janice Blair
City of Onkaparinga
P O Box 1
Noralunga Centre SA 5168

Dear Ms Blair

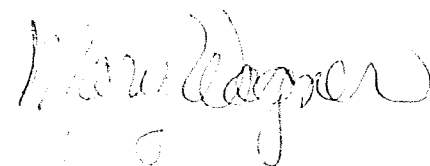
As a resident along the Esplanade, I am keen to see any improvements made to this area. I believe there is a necessity of a walkway along the Bluff for safety reasons if for no other reason. The number of accidents from cars on the Esplanade demonstrates the near death situations pedestrians experience walking along the pavement.

Along with the walkway is it possible to consider some way of improving the safety for pedestrians who walk along the Esplanade? Whether humps on the road or reducing the speed limit would help, I do not know, but it seems that we must try to do something to prevent a really unsafe situation from existing. The Police are aware of the dangers but cannot patrol the street continuously and I am sure you will find the number of traffic accidents along the Esplanade is far too great to let the status quo continue.

I hope, Janice, you will be able to forward my comments on to the appropriate sources, if you are unable to include changes to the Esplanade in your plan.

I welcome you or others from the Council to walk along the Esplanade on any weekend or weekday afternoon to experience the frightening situation that exists. Any assistance you can give to my plea would be most appreciated.

Regards,



Mary Wagner

Referred to
Action
Completed
Attch
Agree
Info
For
Control

Subject: Whitton Bluff access walkway

Date: Wed, 12 Aug 1998 22:57:52 +0930

From: "Dr Douglas Treharne" <docdog@dove.net.au>

To: <tmagryn@cobweb.com.au>

CC: <janbla@onkaparinga.sa.gov.au>

Dear Terry Magryn and Janice Blair,

I respond to your circular letter of the 11th of August with great interest.

I would seriously question the necessity of a walkway extension as through access is available to the adventurous now and on occasions during low tide.

I have been a resident on Whitton Bluff since 1974 and have been able therefore to observe on a daily basis from the cliff top and regularly throughout the years along the cliff face.

Since deep sewerage was made available to residents, the effect of the accelerated erosion rate of the cliff face due to water seepage from septic tanks was nullified and that coupled with the extensive works carried out in the late seventies in shoring up the cliff has set back the course of nature for a hundred years, so to speak.

The existing walkway and rock wall breakwater has subsided noticeably over the years but is generally holding together quite well considering the constant exposure to the elements which can be very severe during winter gales.

Cliff erosion still takes place albeit at a markedly reduced rate in comparison to the seventies and will continue to do so. Evidence of this is particularly obvious in winter due to water runoff from the cliff and wave action during storms.

It is entirely appropriate therefore that Council continue to maintain a cautionary reminder to pedestrians who venture along the path.

I can speak from personal experience of this following an incident with my son who was fossicking for fossils at the base of the cliff when a large boulder dislodged, hitting him but fortunately with no serious injury sustained.

Any proposal to turn the cliff path into a "promenade" would seem totally impractical to me and incur high maintenance costs irrespective of any capital works undertaken.

In the late seventies I wrote to Council suggesting that road traffic be divided by a one way proposal to be shared between the Esplanade and Whitton Roads.

I do not recall ever receiving a reply.

I have been told that speed humps on the Esplanade between Port Noarlunga and Beach Road are impractical because of the gradient and that "one way street decisions were a matter for the Highways Department".

I put to you that a more feasible approach to developing a broader access for people to appreciate the beauty of Whitton Bluff would be to restrict vehicular access along the Esplanade between Beach Road and Port Noarlunga.

This could be achieved by implementing one way traffic with the banning of commercial through traffic including buses.

Better still and particularly from my point of view and that, I suggest, of the other residents along the Esplanade, would be to allow residential vehicle access only by closing off the Esplanade to the South and North, from Dale Ave and

making that street a "no through road" terminating at the cliff. Landscaping, seating and lookout facilities ie to expand on existing could be provided.

A further suggestion could be on the cliff side, to allow for a large well constructed continuous footpath from Beach Road through to Port Noarlunga including broad two way pedestrian with wheelchair access and on the residential side, vehicle parking.

A bicycle lane would be of low priority because of the gradient, becoming a question I suggest in addressing practical utilisation of the available width between property boundaries and the cliff limit.

At the same time that road works are being carried out, power and lighting should be upgraded with underground power facilities.

Indeed the Esplanade itself could become the "promenade". As a resident who would be affected by all of this I would consider that the benefits of such a proposal would outweigh the disadvantages.

I have long held the opinion that I have been privileged to enjoy my "million dollar view" and I would suggest that in longer term planning, Whitton Bluff Esplanade should be made to have a far greater population density for many more families to enjoy the view and see when "the surf is up".

With the greatest respect to those who are attempting to hype up the potential of the Beach Road commercial strip, no great success will ever be achieved unless the population density is significantly increased within a walking distance of say two Km.

I would like to inform you that my role in business is that of "general scientific consultant".

Whilst I am probably more well known in the area as proprietor of the Beach Road Veterinary Hospital, and to a lesser extent as the original developer of the Farmhouse Restaurant and "Petstop", my activities have broadened into areas of new and highly innovative technology which would be of great usefulness in town planning applications particularly in water and waste handling systems.

Obviously these aspects are of major concern to any policy change in land use and public works undertaking.

I can make myself available to inform interested parties on what is available if you wish.

Yours faithfully,

Douglas Treharne

From: "Max Smith" <Smith@afm1.law.flinders.edu.au>
To: NCC.NCC_OFFICE(Janbla)
Date: Mon, Aug 17, 1998 11:20 am
Subject: Witton Bluff Access Walkway

Morning Janice,

Just thought I'd give you a quick email in support of any walkway proposal.

The full version ie enabling bikes and wheelchairs (besides pedestrians) with lighting, seats etc would become a focal point for the area, linking Beach Road to the jetty. Such a scheme would be enhanced by a suitable tree planting program and maybe even the odd sculpture or two. This is something that would make the area much more attractive and user friendly to a wide range of people and thus attract more people to the foreshore. It would also divert people away from the esplanade over Witton Bluff which is becoming dangerous for pedestrians, joggers and bike-riders alike.

If a more modest program is planned due to financial restrictions, then at the very least a stairway up the mudrock at the end of the present walkway is needed (at present I have to lift my German Shepard up to this level when I go for walks on the Bluff!) and a sounder track across the edges needs to be constructed (in one spot there is only about 12 inches of track separating the edge and the cliff face). This would still mean the bluff is not available to joggers, bicycles, and wheelchairs (incidentally, I have encountered the latter going out to the end of the present walkway and returning on a number of occasions).

For any further comments please feel free to contact me.
Work 8201-3897 or Home 8382-3772.

Mr Max Smith BCom/BA(Asian Studies)
Lecturer (International Business)
School of Commerce
Flinders University
E-mail Smith@afm1.law.flinders.edu.au
Tel. (08) 8201-3897
Fax (08) 8201 2644

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For further details on the School of Commerce
why not look at our Website at <http://www.law.flinders.edu.au>

From: The Hub Preschool <aberfohb.adm@nexus.edu.au>
To: "'janbla@onkaparinga.sa.gov.au'" <janbla@onkaparin...
Date: Wed, Aug 19, 1998 4:45 pm
Subject: Witton Bluff acess walkway

I do not agree with the feasibliity study to extend the existing walkway around the base of Witton Bluff.This will destroy that section of the beach.

Julie Harris (local Resident)

From: "Tony" <tonye@box.net.au>
To: NCC.NCC_OFFICE(Janbla)
Date: Wed, Aug 12, 1998 2:14 pm
Subject: Witton Bluff Walkway

Dear Janice, My wife and I are pensioners that live in Witton Road. We walk our dog under the Bluff at least twice a week. Almost every time I wish it went right thru to Port Noarlunga and in fact in summer if the tide is right we often scramble down the rocks to get there.

We think it would be an excellent idea to extend the walk. It should be confined to pedestrians, wheelchairs and bicycles only.

A substantial boardwalk would suffice beyond the existing path. Timber would be open to vandalism but the cost of any other construction might prove too much. The provision of benches and perhaps some tables in the middle similar to those of the look-outs on top of the Bluff would be ideal with of course litter and doggie bins. Lighting would also be nice if the cost was not prohibative.

We congratulate whoever has broght the subject up. I think you will find that it has been on a lot of peoples mind for ages.

Sincerely, Josie and Tony English.

SA 5168

B.W.Paice
6 Benny Ave
PT NOARLUNGA SA 5165

I think the extended walkway between Pt Noarlunga Beach and Christies beach would turn the Onkaparinga city into a forward looking city.

Lighting, seating and lookouts are needed on the walkway. The name 'Witton Bluff Access Walkway' is a bit of a joke though. Where is the access to the walkway from Witton Bluff. The only way down the cliff is on a goat track.

Please if you build the walkway, which I think is a fantastic idea, please put in steps from the top of Witton Bluff. This would enable the many rate payers that live on the upper area of Pt Noarlunga to access the walkway with out risking life and limb down the cliff face.

Regards

Be Nave

B.W.Paice

[illegible]

HERITAGE RESEARCH & WALKS
P.O.Box 239, Port Noarlunga S.A. 5167
Phone (08) 8384 7918

Friday, August 28, 1998

Terry Magryn
Terry Magryn & Associates
88 Partridge Street
GLENELG SA 5045

Dear Terry

Re: Witton Bluff Access Walkway - Southern Times 26/8/98

Witton Bluff was included in the 1979 Lester Firth & Murton Noarlunga Heritage Study commissioned by the City of Noarlunga. The reference number is PN 62.

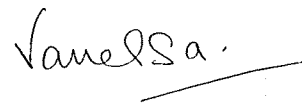
Noarlunga Council commissioned me to compile an extensive inventory of local heritage places within the City of Noarlunga which was completed in 1997. Witton Bluff was also included in this inventory using the 1979 reference number PN 62.

The Collett Barker memorial cairn, on Witton Bluff is also mentioned in the studies using the reference number PN 60.

Both studies are held in the planning office at the Onkaparinga Council office in Ramsay Place.

I hope this information has been made available to you for your study. Please don't hesitate to contact me for further information.

Regards



Vanessa Catterall

COPY

Linda Smith

8 Dale Ave

Christies Beach

S.A 5165

No. 10174. 14067 65

Wilton Bluff Access Walkway

is a great idea, its a lovely walk now and would be even better if extended. We have climbed the rest of the way to Port Noarlunga, but its not safe walking around the cliffs. Also walking along the esplanade can be dangerous, with the speed of some traffic, lighting & seats would be an extra bonus. A few access steps would be great from the Esplanade, to the walk way.

Yours Faithfully
Linda Smith

PREPARED BY	CMINE
DATE	
CHECKED BY	
DATE	
APPROVED BY	
DATE	
FILED	
FOR	
COMPLAINTS	

25th August 1998

Mr Terry Magryn & Associates
88 Partridge Street
GLENELG SA 5045

RE: The Witten Bluff Access Walkway.

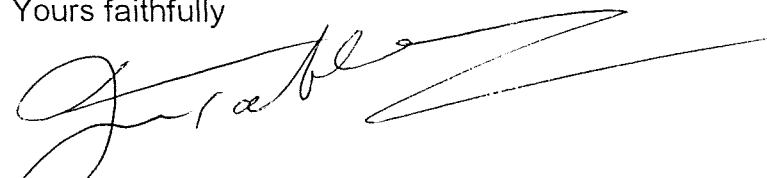
Dear Sir

I personally find this idea very exciting. It would be of great benefit to the public to have a walkway along the Foreshore from Christies Beach to Port Noarlunga.

The preservation of the peace and serenity of the area would be upheld by a pedestrian walkway Lit, with some rest and shade areas along the way.

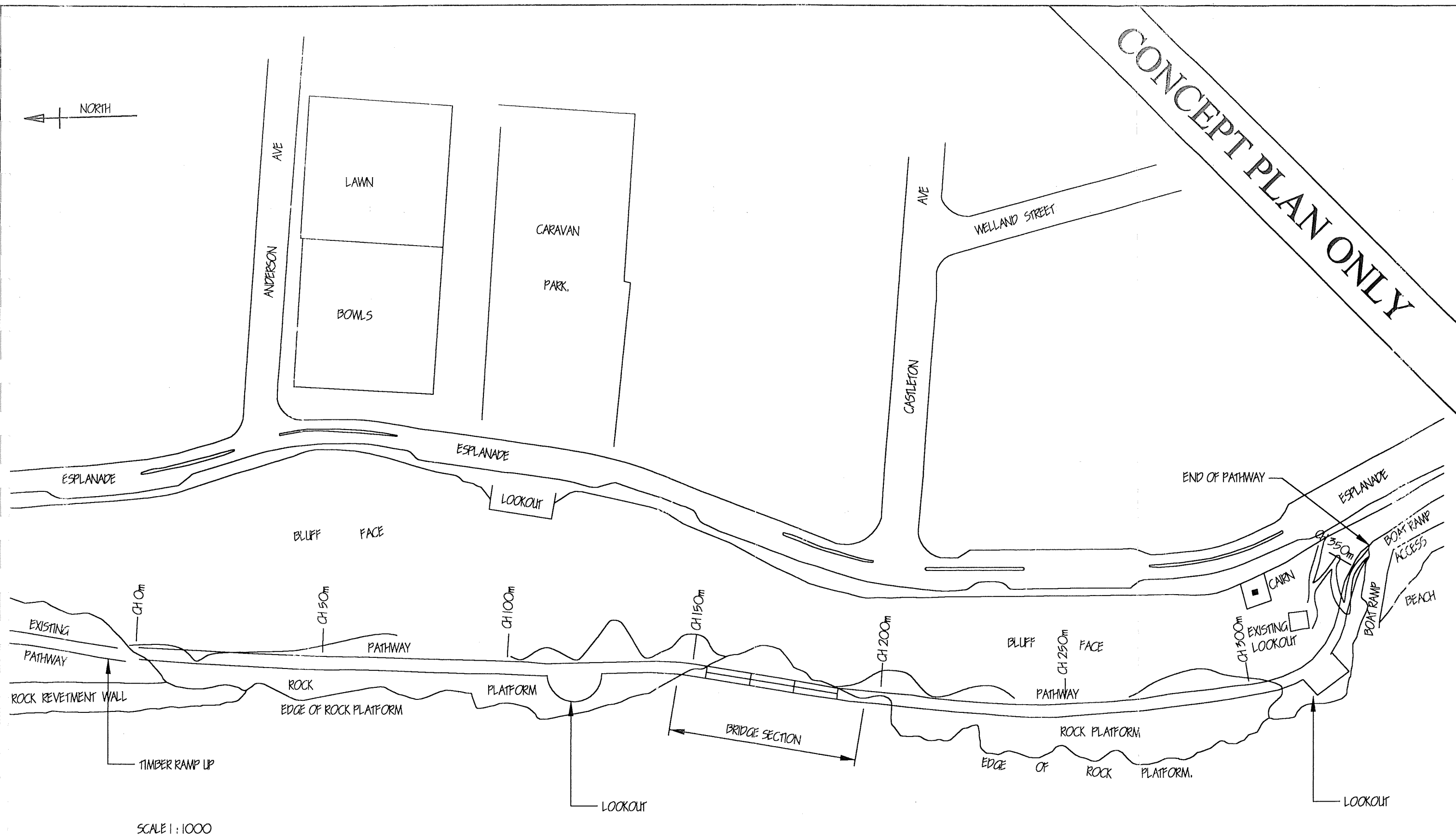
If you have ever been to Noosa in Queensland you would have ample ideas of how to construct and complete this project. As I am sure this will be a great attraction to the area. This project is essential in improving the image and enjoyment for Visitors and Residents alike.

Yours faithfully



John Tabbernal

stop talking about it, do it
JT



T.M. DRAWING No. 97046-81 REV A

FIGURE 8.1.- OPTION 2
PATHWAY WITHOUT REVETMENT

Terry Magryn & Associates

Consultant Civil, Structural and Coastal Engineering

Phone & Fax: (08) 8295 8677

Mobile: 015 713 712

88 Partridge Street, GLENELG SOUTH 5045

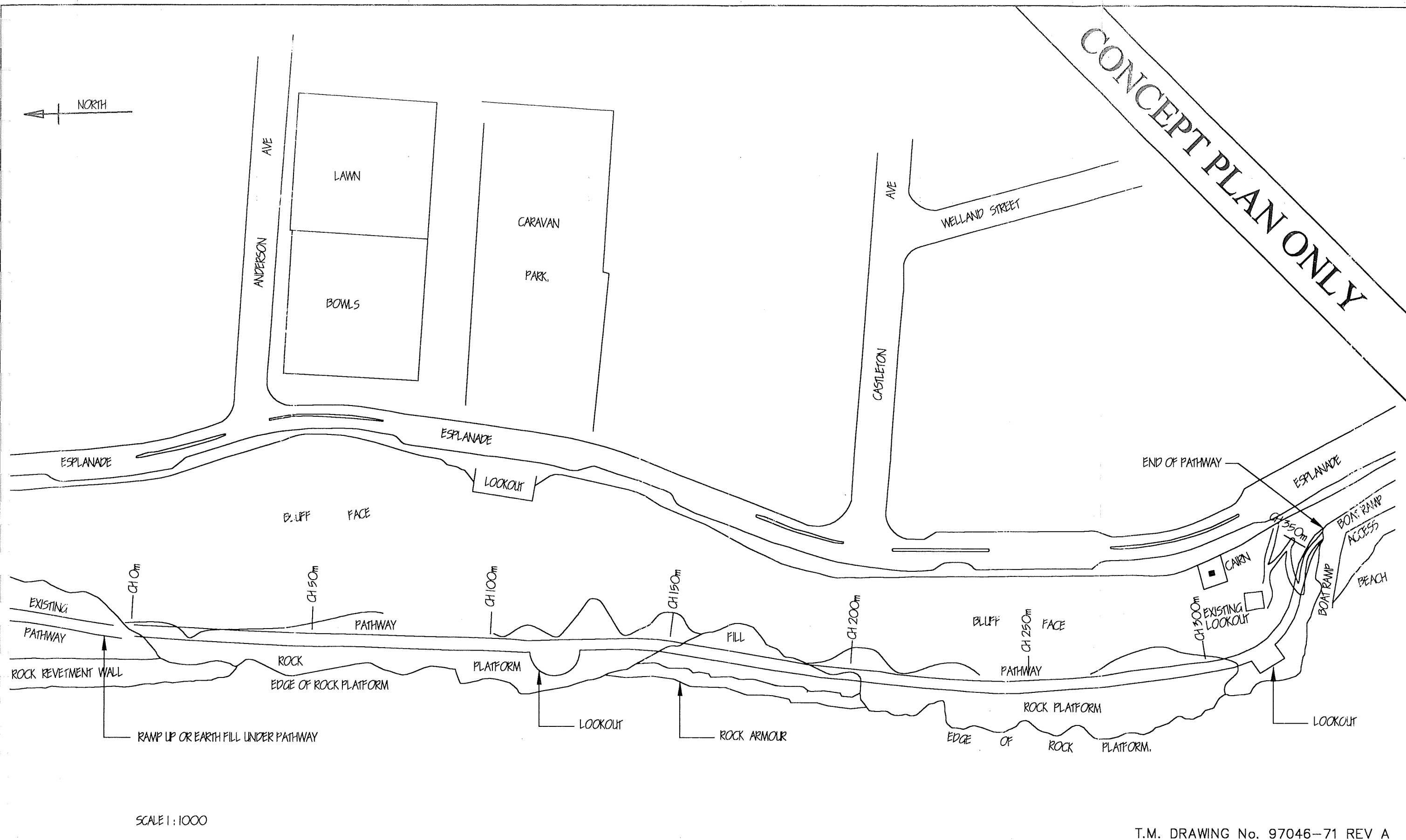


FIGURE 7.1 - OPTION 1
PATHWAY AND REVETMENT

Terry Magryn & Associates

Consultant Civil, Structural and Coastal Engineering

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