NOTICE OF MEETING

COASTAL ESTUARY CATCHMENT PANEL MEETING

A Coastal Estuary Catchment Panel Meeting of Byron Shire Council will be held as follows:

Venue	**Conference Room, Station Street, Mullumbimby**
Date	**Thursday, 10 September 2020**
Time	**11.30am**

Phillip Holloway
Director Infrastructure Services

I2020/1381
Distributed 03/09/20

CONFLICT OF INTERESTS

What is a "Conflict of Interests" - A conflict of interests can be of two types:
Pecuniary - an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person or another person with whom the person is associated.
Non-pecuniary – a private or personal interest that a Council official has that does not amount to a pecuniary interest as defined in the Code of Conduct for Councillors (eg. A friendship, membership of an association, society or trade union or involvement or interest in an activity and may include an interest of a financial nature).
Remoteness – a person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to a matter or if the interest is of a kind specified in the Code of Conduct for Councillors.
Who has a Pecuniary Interest? - a person has a pecuniary interest in a matter if the pecuniary interest is the interest of the person, or another person with whom the person is associated (see below).
Relatives, Partners - a person is taken to have a pecuniary interest in a matter if:

- The person's spouse or de facto partner or a relative of the person has a pecuniary interest in the matter, or
- The person, or a nominee, partners or employer of the person, is a member of a company or other body that has a pecuniary interest in the matter.

N.B. "Relative", in relation to a person means any of the following:
(a) the parent, grandparent, brother, sister, uncle, aunt, nephew, niece, lineal descends or adopted child of the person or of the person's spouse;
(b) the spouse or de facto partners of the person or of a person referred to in paragraph (a)
No Interest in the Matter - however, a person is not taken to have a pecuniary interest in a matter:

- If the person is unaware of the relevant pecuniary interest of the spouse, de facto partner, relative or company or other body, or
- Just because the person is a member of, or is employed by, the Council.
- Just because the person is a member of, or a delegate of the Council to, a company or other body that has a pecuniary interest in the matter provided that the person has no beneficial interest in any shares of the company or body.

Disclosure and participation in meetings

- A Councillor or a member of a Council Committee who has a pecuniary interest in any matter with which the Council is concerned and who is present at a meeting of the Council or Committee at which the matter is being considered must disclose the nature of the interest to the meeting as soon as practicable.
- The Councillor or member must not be present at, or in sight of, the meeting of the Council or Committee:
  (a) at any time during which the matter is being considered or discussed by the Council or Committee, or
  (b) at any time during which the Council or Committee is voting on any question in relation to the matter.

No Knowledge - a person does not breach this Clause if the person did not know and could not reasonably be expected to have known that the matter under consideration at the meeting was a matter in which he or she had a pecuniary interest.
Non-pecuniary Interests - Must be disclosed in meetings.
There are a broad range of options available for managing conflicts & the option chosen will depend on an assessment of the circumstances of the matter, the nature of the interest and the significance of the issue being dealt with. Non-pecuniary conflicts of interests must be dealt with in at least one of the following ways:

- It may be appropriate that no action be taken where the potential for conflict is minimal. However, Councillors should consider providing an explanation of why they consider a conflict does not exist.
- Limit involvement if practical (eg. Participate in discussion but not in decision making or vice-versa). Care needs to be taken when exercising this option.
- Remove the source of the conflict (eg. Relinquishing or divesting the personal interest that creates the conflict)
- Have no involvement by absenting yourself from and not taking part in any debate or voting on the issue as of the provisions in the Code of Conduct (particularly if you have a significant non-pecuniary interest)

RECORDING OF VOTING ON PLANNING MATTERS

Clause 375A of the Local Government Act 1993 – Recording of voting on planning matters
(1) In this section, **planning decision** means a decision made in the exercise of a function of a council under the Environmental Planning and Assessment Act 1979:
  (a) including a decision relating to a development application, an environmental planning instrument, a development control plan or a development contribution plan under that Act, but
  (b) not including the making of an order under that Act.
(2) The general manager is required to keep a register containing, for each planning decision made at a meeting of the council or a council committee, the names of the councillors who supported the decision and the names of any councillors who opposed (or are taken to have opposed) the decision.
(3) For the purpose of maintaining the register, a division is required to be called whenever a motion for a planning decision is put at a meeting of the council or a council committee.
(4) Each decision recorded in the register is to be described in the register or identified in a manner that enables the description to be obtained from another publicly available document, and is to include the information required by the regulations.
(5) This section extends to a meeting that is closed to the public.

BUSINESS OF MEETING

1. APOLOGIES

2. DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY

3. ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

4. STAFF REPORTS

Sustainable Environment and Economy

ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

Report No. 3.1 **Adoption of Minutes from Previous Meeting**
Directorate: Infrastructure Services
Report Author: Dominika Tomanek, Executive Assistant Infrastructure Services
File No: I2020/1362

RECOMMENDATION:

That the minutes of the Coastal Estuary Catchment Panel Meeting held on 12 March 2020 be confirmed.

Attachments:

1 Minutes 12/03/2020 Coastal Estuary Catchment Panel, I2020/377 , page 6⇩

Report

The attachment to this report provides the minutes of the Coastal Estuary Catchment Panel Meeting of 12 March 2020 .

The meeting of 14 May 2020 has been cancelled therefore there were no minutes to report.

Report to Council

The minutes were reported to Council on 23 April 2020 without changes.

Comments

In accordance with the Panel/Staff Recommendations, Council resolved the following:

20-172 Resolved that Council adopt the following Panel Recommendation(s):

1. That Council note that the Coastal Estuary Catchment Panel received several projects updates by staff.

2. That in relation to Belongil Catchment Drainage Board update:

   a) That Council note that due to current lack of clarity and mutual understanding as to the roles and responsibilities of Council and Belongil Catchment Drainage Board, the Plan of Management has not been agreed upon by Council.

   b) That Council meet with DPI and Belongil Catchment Drainage Board to engage in resolution of the POM and hence the MoU.

3. That in relation to Additional Flow Path project, the REF, once determined, be placed on Council's website for community information.

4. That In relation to Belongil Issues Studies, the outcomes of the recent DPI workshop on ICOLLs be reported to Council.

MINUTES OF MEETING

COASTAL ESTUARY CATCHMENT PANEL MEETING

Venue	Conference Room, Station Street, Mullumbimby
Date	Thursday, 12 March 2020
Time	11.30am

BYRON SHIRE COUNCIL
COASTAL ESTUARY CATCHMENT PANEL MEETING MINUTES 12 MARCH 2020

Minutes of the Coastal Estuary Catchment Panel Meeting held on Thursday, 12 March 2020
File No: I2020/377

PRESENT: Cr Richardson, Cr C Coorey, Cr J Hackett

Staff: Phillip Holloway (Director, Infrastructure Services)
Cameron Clark (Manager Utilities)
James Flockton (Flood and Drainage Engineer)
Chloe Dowsett (Coastal & Biodiversity Coordinator)
Dominika Tomanek (Minute Taker)

Community Representatives: Mathew Lambourne, Tim Hochgrebe and Duncan Dey

Cr Coorey (Chair) opened the meeting at 11:40am and acknowledged that the meeting was being held on Bundjalung Country.

APOLOGIES:

Cr M Lyon
Mary Gardner

DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY

Tim Hochgrebe declared a non-pecuniary interest in Report 1. The nature of the interest being that he is a member of the Belongil Catchment Drainage Board.

ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

Panel Recommendation:

That the minutes of the Coastal Estuary Catchment Panel Meeting held on 8 August 2019 be confirmed.

(Dey/Lambourne)

The recommendation was put to the vote and declared carried.

Note: 1. The minutes of the meeting held on 8 August 2019 were noted, and the Panel Recommendations adopted by Council, at the Ordinary Meeting held on [26 September 2019.
2. There was no quorum present therefore the recommendations to Council could not be made on the Coastal Estuary Catchment Panel Meeting held on 25 November 2019.

BUSINESS ARISING FROM PREVIOUS MINUTES

There was no business arising from previous minutes.

STAFF REPORTS - INFRASTRUCTURE SERVICES

Report No. 4.1 **Status Report on Specific Projects**
File No: I2020/205

Panel Recommendation:

1. That Council note that the Coastal Estuary Catchment Panel received several projects updates by staff.

2. That in relation to Belongil Catchment Drainage Board update:-

   a) That Council note that due to current lack of clarity and mutual understanding as to the roles and responsibilities of Council and Belongil Catchment Drainage Board, the Plan of Management has not been agreed upon by Council.

   b) That Council meet with DPI and Belongil Catchment Drainage Board to engage in resolution of the POM and hence the MoU.

(Dey/Coorey)

The recommendation was put to the vote and declared carried.

No. 4.1 **Additional Flowpath**
File No: I2020/205

Moved:

That in relation to Additional Flow Path project Council place its REF for the Additional Flow Path on Public Exhibition for 28 days prior to determining the REF. (Dey/Hackett)

The recommendation was put to the vote and declared lost.

AMENDMENT

Panel Recommendation:

That the REF, once determined, be placed on Council's website for community information.
(Coorey/Hochgrebe)

The recommendation was put to the vote and declared carried.

No. 4.1 **Belongil Issues Study**
File No: I2020/205

Panel Recommendation:

That the outcomes of the recent DPI workshop on ICOLLs be reported to Council.
(Coorey/Lambourne)

The recommendation was put to the vote and declared carried.

There being no further business the meeting concluded at 1:41 pm.

STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

Report No. 4.1 **Presentation from Student on Pesticide Occurrence in the Coastal Aquatic System**
Directorate: Sustainable Environment and Economy
Report Author: Dominika Tomanek, Executive Assistant Infrastructure Services
File No: I2020/913

Summary:

This report provides the Panel members with a presentation regarding Pesticide Occurrence in the Coastal Aquatic system.

RECOMMENDATION:

That the Panel note the presentation.

Report
There is no formal report. Attachment to this report is presentation from student Dylan Laicher regarding Pesticide Occurrence in the Coastal Aquatic system.

Financial Implications
NA

Statutory and Policy Compliance Implications
NA

Report No. 4.2 **Coastal Projects Update**
Directorate: Sustainable Environment and Economy
Report Author: Chloe Dowsett, Coastal and Biodiversity Coordinator
File No: I2020/1357

Summary:

This report provides an update on the coastal projects presently within Council's project portfolio, and also the current erosion situation at Clarks Beach.

RECOMMENDATION:

That the Coastal Estuary Catchment Panel note the update provided on the coastal projects presently being delivered by the Coastal, Biodiversity and Sustainability team.

Attachments:

1 Main Beach Shoreline Project - Concept Design Development - Coast Estuary Panel Presentation - 10 September 2020, E2020/69239 , page 17⇩
2 Clarks Beach photos of erosion and sand slug, E2020/69292 , page 42⇩

REPORT

This report provides an update on the coastal projects presently within Council's project portfolio (Operation Plan FY20/21), and also the current erosion situation at Clarks Beach.

PROJECTS

Activity 3.3.1.1: Continue preparing a Coastal Management Program (CMP) in accordance with the staged process for Cape Byron to South Golden Beach

The hazard assessment will update the study completed in 2013 by BMT WBM and look at the applicable coastal hazards for the entire Byron Shire coastline (all LGA).

A grant application is presently being applied for along with the scope of work.

This project is a priority investigation to be completed during Stage 2 of the development of a CMP for Cape Byron to South Golden Beach. It the main recommended outcome of the Forward Plan in the CMP Stage One Scoping Study for Cape Byron to South Golden Beach recently adopted by Council in June 2020.

Activity 3.3.1.2: Continue pre-construction phase of Main Beach Shoreline Project (Jonson Street protection works)

Main Beach Shoreline Project

A PowerPoint presentation has been prepared to give the panel an update on the delivery and status of the project.

Activity 3.3.1.3: Continue Bringing Back the Brunswick River Project

Council, in partnership with North Coast Local Land Services (NCLLS), has applied for $186,844 as stage 2 of *Bringing Back the Bruns* under the Federal Fish Habitat Restoration Program.

The proposed project is staged over 2 years and will protect, enhance and improve the aquatic habitat of 190m of riverbank in the upper estuary of the Brunswick River in Mullumbimby. The site and its remediation are identified in the Brunswick Estuary CZMP and is supported by the Cape Byron Marine Park, NSW Fisheries, the Brunswick River Angling and Deep Sea Fishing Club, OzFish and the landholder. If successful, Council will oversee the project and manage the community engagement. NCLLS will manage the design, permits, materials supply and construction of the bank earthworks. The landholder will revegetate, fence and manage a minimum 16m riparian zone to protect the works and enhance riparian and aquatic habitat.

The outcome of the application is still outstanding.

The 'Bringing Back the Bruns' internal project team continue to pursue and apply for river restoration projects.

Location of proposed project area in Mullumbimby

River bank for rehabilitation

Activity 3.3.1.4: Commence a Coastal Management Program (CMP) in accordance with the staged process for Cape Byron Southern Coastline (including Tallow and Belongil Creek Catchment)

A consultant has just been engaged with the project about to commence.

Rhelm Consulting along with sub-consultants Bluecoast Consulting; Coastal Zone Management and Planning (Angus Gordon) and H20 Consulting Group (Dr David Cummings) were successful in the bid. The project team bring a weather of experience coastal policy and strategy, coast and estuary science and community consultation.

The spatial extent of the Scoping Study will cover from Cape Byron to the southern LGA boundary including both Tallow and Belongil Creek catchments (designated coastal zone).

Clarks Beach Erosion Update

Erosion:
Clarks Beach has been impacted by further erosion of the back beach dune due to the recent king tides (>1.9 m) causing further loss of approx. 1 m of the dune front. Some areas of the dune may slump further to their more natural 'angle of repose', primarily the areas where dune vegetation is not providing any stabilisation.

Causes of the erosion (removal of sand): *this information is based on judgement and technical knowledge about coastal processes and is presently not supported by rigorous scientific or technical assessment of the current erosion issue affecting Clarks and Main Beach.*

- The current erosion trend at The Pass, Clarks Beach and Main Beach has been evident since approximately 2016. It appears (as based on visual assessment) that this erosion trend is a result of a distinct lack of sand in the eastern precinct of Byron Bay.
- It is generally accepted that the net sediment transport direction across the Ballina, Byron and Tweed Shires is south to north. Under predominant S/SE wave conditions, sand may be transported around Cape Byron from the south to the north before being transported generally westwards through Byron Bay (due to wave refraction around the Cape). The

sand may be deposited onto, or will be transported along or past (in the subtidal zone) Wategos Beach, The Pass, Clarks and Main Beaches and beyond.

- During NE or ENE swell regimes sand transport may be significantly reduced around Cape Byron and into Byron Bay. However, sediment transport inside Byron Bay (from Wategos to Belongil Beach and beyond) would still be expected to be in a general westerly direction under the influence of such swell regime.
- In strong northerly or north westerly wind conditions, sand may be transported by 'wind waves' and the associated littoral current in an eastwards direction in Byron Bay.
- When considering observations over the past 2-3 years (or more), it appears that the eastern area of Byron Bay has suffered from a reduction in the supply of sand into the area (from around Cape Byron). This apparent reduction in sand supply around the cape has likely occurred while sand within the Byron Bay embayment has continued to be transported out of the eastern area in a (net) westwards direction. That is, more sand has likely been transported out of the eastern Byron Bay area towards the west, than is coming in to it around the Cape. This is likely to be one of the key contributing causes of the dune erosion evident at Clarks and Main Beach.

Causes of accretion (return of sand):

- Though difficult to predict the future state of the beach profile at Clarks and Main Beach, and in recognition of the cyclical nature (erosion/accretion) of beach behaviour in NSW, the beach profile will begin to accrete when a significant slug of sand re-enters the compartment from the east. It is difficult to predict when this may happen and by how much, as it is subject to many factors.
- There appears to be a slug of sand currently moving through The Pass. It is expected that this sand slug will continue to move into the broader compartment and attach to infill at Clarks Beach. If this current sand slug is backed up by continuing transport from the south around Cape Byron it will assist in beach building over the spring months. However, it is likely that the dune erosion may continue ahead of the sand slug until such time as the slug attaches to the beach and moves westwards along Clarks Beach.
- With the sand slug moving slowly during the last weeks of August further erosion was experienced at Clarks due to higher water levels (king tides) interacting with the toe of the dune. Once the beach profile at Clarks and Main Beaches accretes somewhat, the erosion that is currently observed during relatively 'average' wave height and water level conditions is expected to reduce in severity under average conditions. However, it is difficult to predict when this erosion cycle will cease.
- It is important to note that larger wave events coinciding with high water levels may further erode the dune system even under accreted beach profile conditions.
- It is unlikely that the Clarks and Main Beach storm water drain outlets contribute in any significant way to the current erosion trend observed at those beaches. Localised beach erosion around storm water drains is observed from time to time.

Please refer Attachment 2 – photos and images of Clarks Beach

Recent Belongil Entrance Opening Event

Verbal presentation will be given to the panel on the most recent Belongil entrance opening on the 23, 24 and 25 July 2020, by the Flood and Drainage Engineer.

Key points discussed will cover:

- Pre-rainfall/water level monitoring
- Operational methodology
- OHS considerations
- Lessons learnt

STRATEGIC CONSIDERATIONS

Community Strategic Plan and Operational Plan

CSP Objective	L2	CSP Strategy	L3	DP Action	L4	OP Activity
Community Objective 3: We protect and enhance our natural environment	3.3	Partner to protect and enhance the health of the Shire's coastlines, estuaries, waterways and catchments	3.3.1	Implement Coastal Management Program	3.3.1.1	Continue preparing a Coastal Management Program (CMP) in accordance with the staged process for Cape Byron to Sth Golden Beach
Community Objective 3: We protect and enhance our natural environment	3.3	Partner to protect and enhance the health of the Shire's coastlines, estuaries, waterways and catchments	3.3.1	Implement Coastal Management Program	3.3.1.2	Continue pre-construction phase of Main Beach Shoreline Project (Jonson Street protection works)
Community Objective 3: We protect and enhance our natural environment	3.3	Partner to protect and enhance the health of the Shire's coastlines, estuaries, waterways and catchments	3.3.1	Implement Coastal Management Program	3.3.1.3	Continue Bringing Back the Brunswick River Project
Community Objective 3: We protect and enhance our natural environment	3.3	Partner to protect and enhance the health of the Shire's coastlines, estuaries, waterways and catchments	3.3.1	Implement Coastal Management Program	3.3.1.4	Commence a Coastal Management Program (CMP) in accordance with the staged process for Cape Byron Southern Coastline (including Tallow and Belongil Creek Catchment)

Legal/Statutory/Policy Considerations
Coastal Management Act 2016 and associated SEPP and Manual.

Financial Considerations
All items in the Operational Plan have been allocated a budget apart from Activity 3.3.1.3.

Consultation and Engagement
Community Engagement Plans will be developed for OP projects.

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Main Beach Shoreline Project

Concept Design Development - 10 Sep 2020 - Coast and Estuary Panel Meeting

1

Overview

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- Project area
- Project Objectives
- Special Conditions
- Key drivers
- Project scope and delivery
- Development of concept options
- Appraisal of generic options
- Concept design options (7) (plus aternative)
- Next steps – community engagement
- Questions

2

Project area

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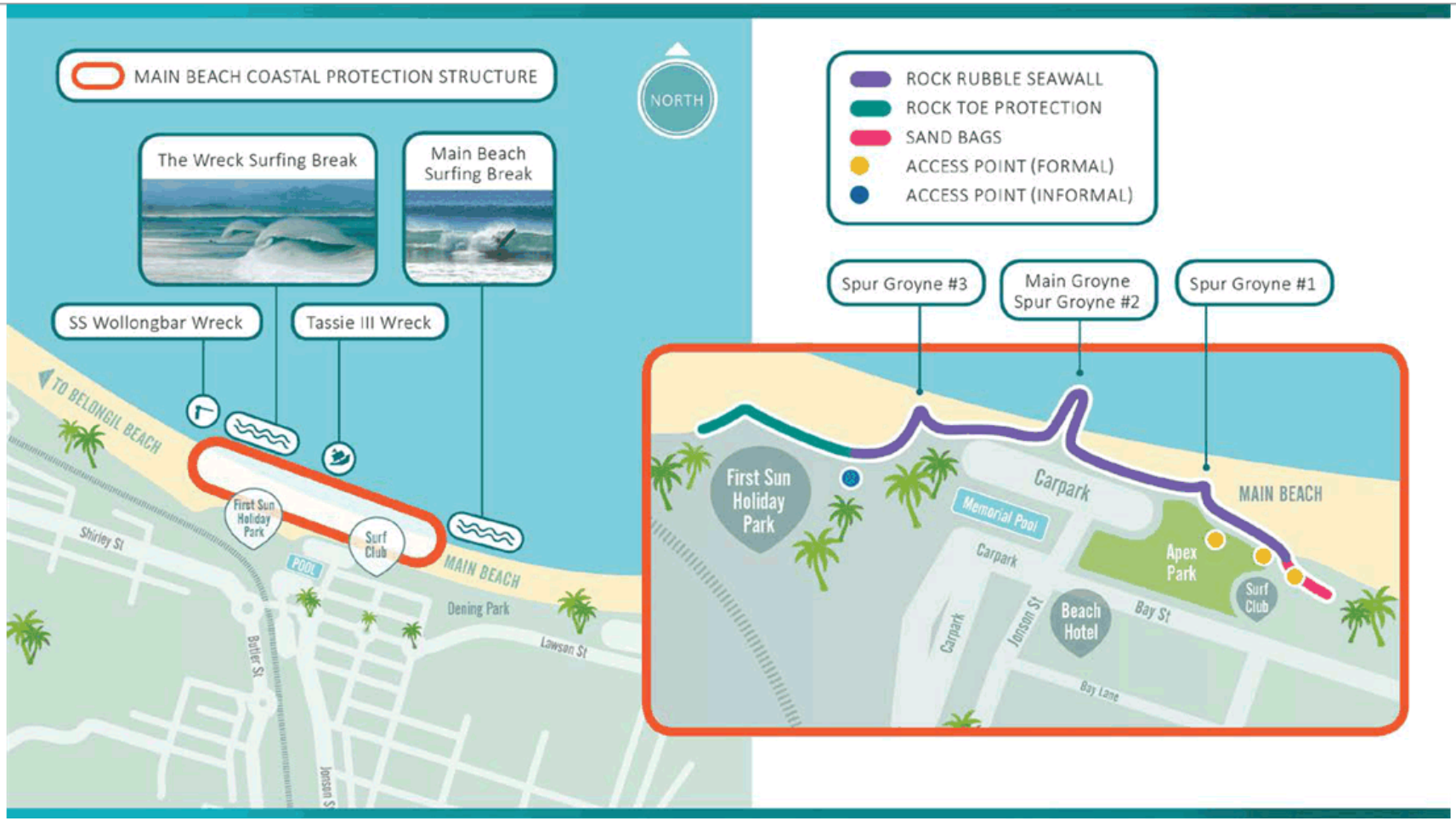

3

Project objectives

1. *To provide adequate protection to the Byron Bay town centre against current and future coastal hazards.*
2. *To mitigate adverse current and future risks from coastal hazards, taking into account the effects of climate change.*
3. *To mitigate impacts on coastal processes (e.g. down-drift effects) through reduction of the project footprint.*
4. *To improve the structural integrity of the structure.*
5. *To improve public safety around the structure.*
6. *To enhance recreational amenity, public access and use of the foreshore around the structure.*

Several of the Project Objectives are similar - several end up with a single outcome (adequate protection/mitigation of coastal hazard/structural integrity).

4

Special conditions

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Special conditions

This project is being partly funded by the NSW Government through the Coastal and Estuary Grants Program.
Two special conditions apply to Council's funding agreement.

The Jonson Street Protection Works upgrade options assessment should include an assessment of all potentially feasible options, including those that seek to reduce any impacts of the structure on coastal processes, public amenity and safety.

Upgrade options should include consideration of, but may not be limited to:

- *Reducing the plan footprint of the structure*
- *Realignment of the structure further landward*

5

Key drivers

Important to understand the **key drivers** for the project to remain 'on-track'.

To upgrade the structure to a more conventional engineering standard **= adequate protection & structural integrity**

- To upgrade the structure to make it adaptable to Climate Change projections **= mitigation of future coastal hazards**

What needs to be achieved and why it needs to be achieved**….coastal protection, mitigation of hazards and structural integrity.**

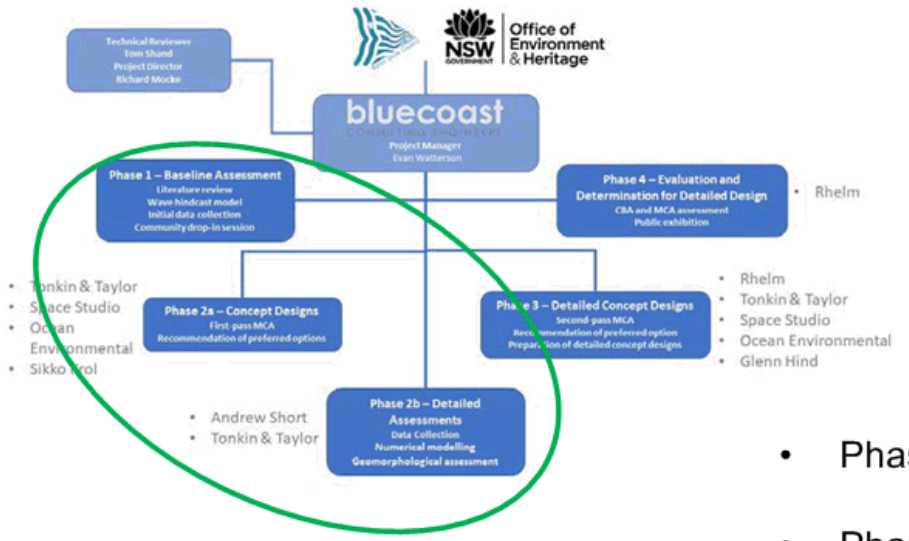
The structure is degraded and not to an engineering standard.

At same time Council have the opportunity to improve the amenity of the Jonson St precinct and look at options that seek agreeance with Masterplan.

Other objectives such as improving recreational amenity are great bonuses if they can be achieved.

6

Project scope and delivery



- Phase 1 – Baseline Understanding ✓
- Phase 2 – Development of Concept Design Options
- Phase 3 – Detailed Assessments of Modification Options
- Phase 4 – Evaluation and Determination of Preferred Option

7

Development of concept options

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Key factors to be considered

Community/cultural values – such as community use of assets (Memorial Pool, SLSC and carpark) adjacent the JSPW, priorities of the Byron Masterplan (sensitive integration of the foreshore and works with recreation), nature and pedestrian movement, Indigenous values, tourism, and surfing amenity.

Public recreational amenity and public safety – such as pedestrian safety around rock walls (slippage), alongshore access, swimming areas and beach amenity.

Visual amenity and aspect – such as the visual impact of the works on the area in the presence of the works, including the view from land adjacent the JSPW towards the sea, the ranges to the west, and Cape Byron to the east.

Economic factors – construction costs, maintenance costs, and indirect costs such as loss of carpark revenue (for re-alignment options), indirect cost of disruption to the community during construction works, or indirect costs associated with changes to the recreational space.

Ecological impacts on marine and terrestrial habitats – such as loss or gain of intertidal areas, loss or gain of vegetation and degradation of materials into the marine environment.

Coastal processes, beach profile and planform – predicted impacts to shoreline alignment, beach profile, sediment transport, and wave breaking patterns.

Climate change and sea level rise – resilience of the structure under projected climate change impacts including sea level rise, storm intensity increase, etc. The ability to adapt the structure to withstand predicted future physical forces.

8

KPIs

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Success factors and project objectives presented as key performance indicators.

KPIs to be refined throughout the project

Result area	Critical design success factor	KPI	Priority
Coastal protection	Provide adequate protection to the Byron Bay town centre over the project life.	Withstand 100-year ARI wave conditions.	High
		Rate of wave overtopping.	High
	Adaptability to withstand future physical forces under a changing climate.	Estimated future adaption costs.	Medium
Shoreline impact	Minimise downdrift impacts.	No reduction of pre-project littoral drift supply rates to downdrift areas.	High
Safety	Improve public safety of the structure.	Minimise hazards (voids in rocks can attract vermin and snakes).	Low
		Minimise safety risk such as trips, slips and rock fall.	High

Appraisal of generic options

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- Wide range of options available for the consideration

- Some are suitable and are not

- Any option or design element that did not meet the mandatory project requirements was not considered further.

The project area is a high value beach and foreshore public space. When this is combined with the poor condition of the existing coastal protection structure, it is understood that non-works options such as 'do nothing' or complete removal of the structure are not acceptable to Council, DPIE of the local community.

Options assessment provides a comprehensive appraisal on the suitability and examples of many different options:

- Seawalls (vertical, stepped, sloping)
- Shore normal structures (groynes, jetty or pier, artificial headland)
- Offshore structures (emergent, partially emergent or submerged)
- Beach nourishment (sand by-pass, sand back-pass or mass nourishment)

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Concept design options

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Seven discrete design options have been developed that are considered appropriate for further consideration. Each design option involves a combination of the **key design elements**:

1. **Alignment**
1. **Structure or material type;** and
2. **Configuration of groynes.**

The **relative construction costs** for the key design elements are summarised as:

- **Alignment:** Maintaining the current alignment will be the cheapest cost alignment, followed by the 10m landward alignment. The up to 30m landward alignment and the seaward alignment (i.e. artificial headland) will be the more expensive options.
- **Material / structure types**: the linearly metre cost of the stepped concrete seawall is around 1.5 times the cost of a rock revetment.
- **Groynes**: Removal of groynes is likely to have marginally lower cost than repairing them. The additional costs associated with excavation of the groynes would be offset by re-use of the material deemed suitable in the reconstruction and extension of the main structure.

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COUNCIL MEETING 27 AUGUST 2020

Resolved: **Res 20-436**

1. That Council endorses the top seven concept options outlined in Attachment 1 (E2020/40490) for key stakeholder and broader community engagement.

2. That Bluecoast undertake an assessment of a further alternative concept (Option 8) which:

- better supports beach recovery and resilience after storm events
- increases and improves social, cultural and recreational spaces at Main Beach
- enhances the protection of current built infrastructure and the town centre
- considers constructing the recreational areas above the original beach seaward of a buried seawall which is aligned with the natural beach.

and that is in accordance with the Project Objectives and provide feedback in the form of a Memo to Councillors, prior to community engagement, on the feasibility of Option 8

3. Depending on the outcome of Item # 2 above (Option 8) it may be added to the top seven concept options to progress to the next stage.

4. That Council receives a report during the community engagement on the assessment of Option 8, detailing the submissions received and staff response to these submissions, and extend the exhibition period accordingly. (Hackett/Lyon)

Options

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Seven discrete design options are listed as:

Option 1 – rock revetment and stepped concrete seawall **Option 2** – berm rock revetment and pathway

Option 3 – detached groyne

Option 4 – artificial headland with sand bypassing

Option 5 – protective structure moved landward by 10m

Option 6 – protective structure moved landward by up to 30m

Option 7 – existing structure upgraded to contemporary standards

Option 8 (alternative) - *as per 27 August 2020 Council meeting presently being assessed*

Alignment option/ Asset	Current alignment retained	Landward alignment (10m)	Landward alignment (up to 30m)	Seaward alignment (25m) – artificial headland
Car park	100% of paved area. All 95 car parks. Footpath width 2.5m.	88% of paved area. 55 car parks. Footpath width 3m (relocated).	31% of paved area. 10 car parks. Footpath width 3m (relocated).	100% of paved area. All 95 car parks. Footpath width 2.5m.
Apex Park	100% of grassed area. Showers retained.	82% of grassed area. Showers retained.	80% of grassed area. Showers retained.	124% of grassed area (increase). Showers retained.
Buildings (Fishheads)	Fully retained.	Fully retained.	Fully removed or relocated.	Fully retained.
Memorial Swimming pool	Fully retained.	Fully retained.	Pool footprint is fully retained. Partial removal of the pool complex.	Fully retained.
First Sun Holiday Park	Fully retained.	Fully retained.	Fully retained.	Fully retained.

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Assets

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Design option	Alignment	Material / structure type	Groynes
Option 1	Current alignment retained	Predominately rock revetment with inclusion of stepped concrete seawall	All spur groynes removed
Option 2	Current alignment retained	Predominately rock revetment with inclusion of shared path on lower level (berm)	All spur groynes removed
Option 3	Current alignment retained	Predominately rock revetment	Spur groynes removed, keep modified (detached) centre groyne
Option 4	Seaward alignment (25m) within footprint of main (centre) groyne	Predominately rock revetment with inclusion of artificial headland	Spur groynes removed, replace main (centre) groyne with artificial headland
Option 5	Landward alignment (10m)	Not specified (one of above)	All spur groynes removed
Option 6	Landward alignment (up to 30m)	Not specified (one of above)	All spur groynes removed
Option 7	Current alignment	Rock revetment	All spur groynes removed

Alignment

Plus Option 8 (alternative) presently being assessed.

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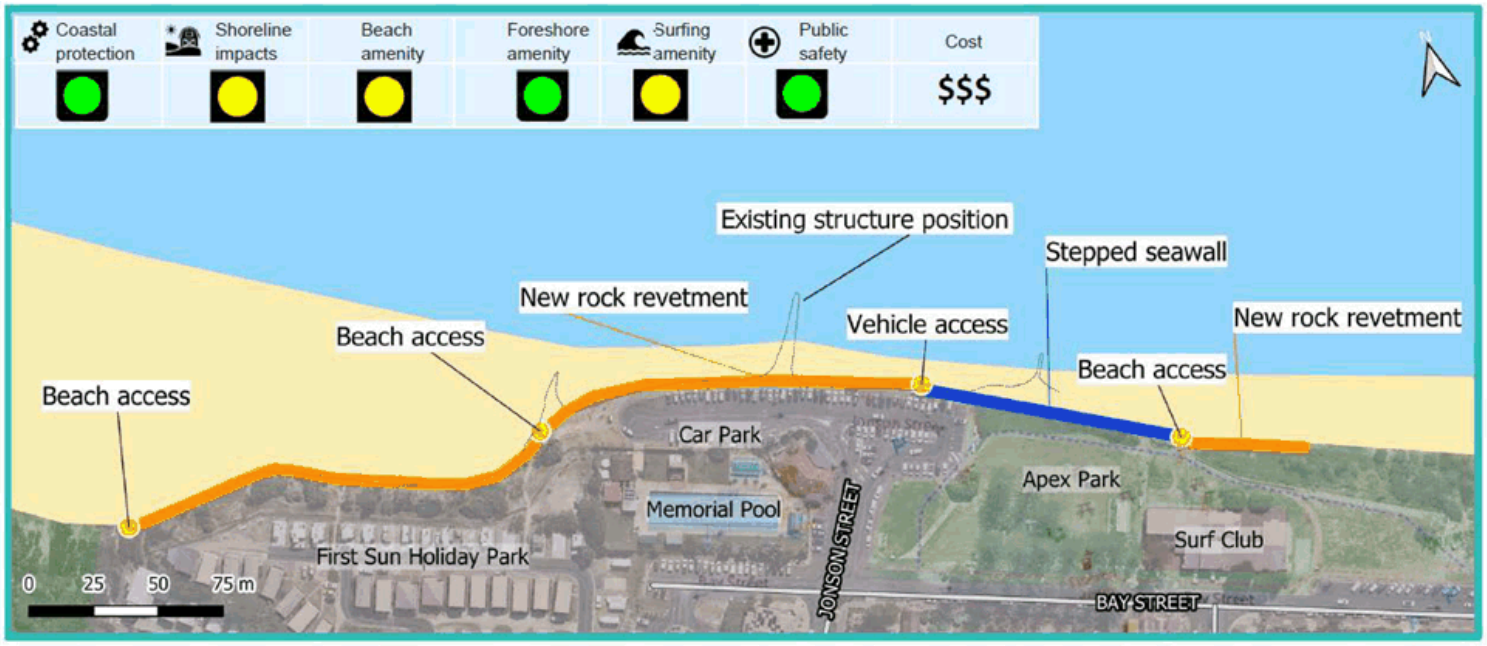

Modification Option 1 - Rock revetment and stepped concrete seawall

Reconstruct rock revetment to contemporary engineering standards in front car park and First Sun Holiday Park.

Formal beach access and removal of existing spur groynes.

Construction of stepped concrete seawall in front of Apex Park. Steps and formal beach access for disabled and vehicles (e.g. lifeguards).

Vehicle and disabled beach access

Beach access at revetment

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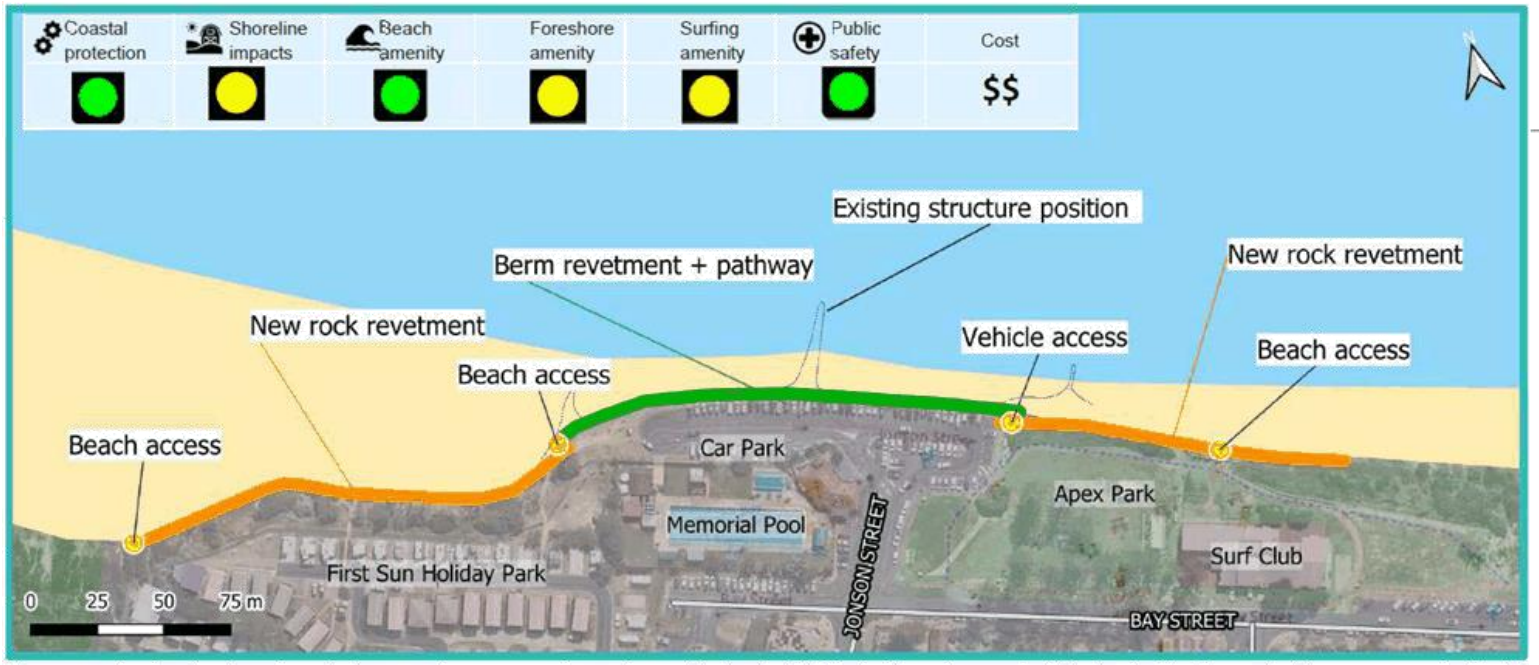

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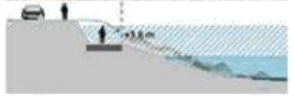
Modification Option 2 - Berm rock revetment and pathway

Construction of berm rock revetment with surfaced pathway in front of car park at existing structure alignment. Pathway at level closer to water edge and will be closed during storms. Steps and formal beach access for disabled and vehicles (e.g. lifeguards).



Reconstruct rock revetment to contemporary engineering standards in front of First Sun Holiday Park, Apex Park and Surf Club.

Formal beach access and removal of existing spur groynes.

Vehicle and disabled beach access

Beach access at revetment

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Modification Option 3 - Detached groyne

Connect beach in front of revetment and increase sand bypassing on upper beach through construction of a shore-detached groyne. Maintain seaward footprint of existing groyne.

Reconstruct physical protection structures to contemporary engineering standards in front the entire stretch between First Sun Holiday Park and the Surf Club.
Formal beach access (including disabled and vehicle ramp) and remove two smaller spur groynes.

Vehicle and disabled beach access

Beach access at revetment

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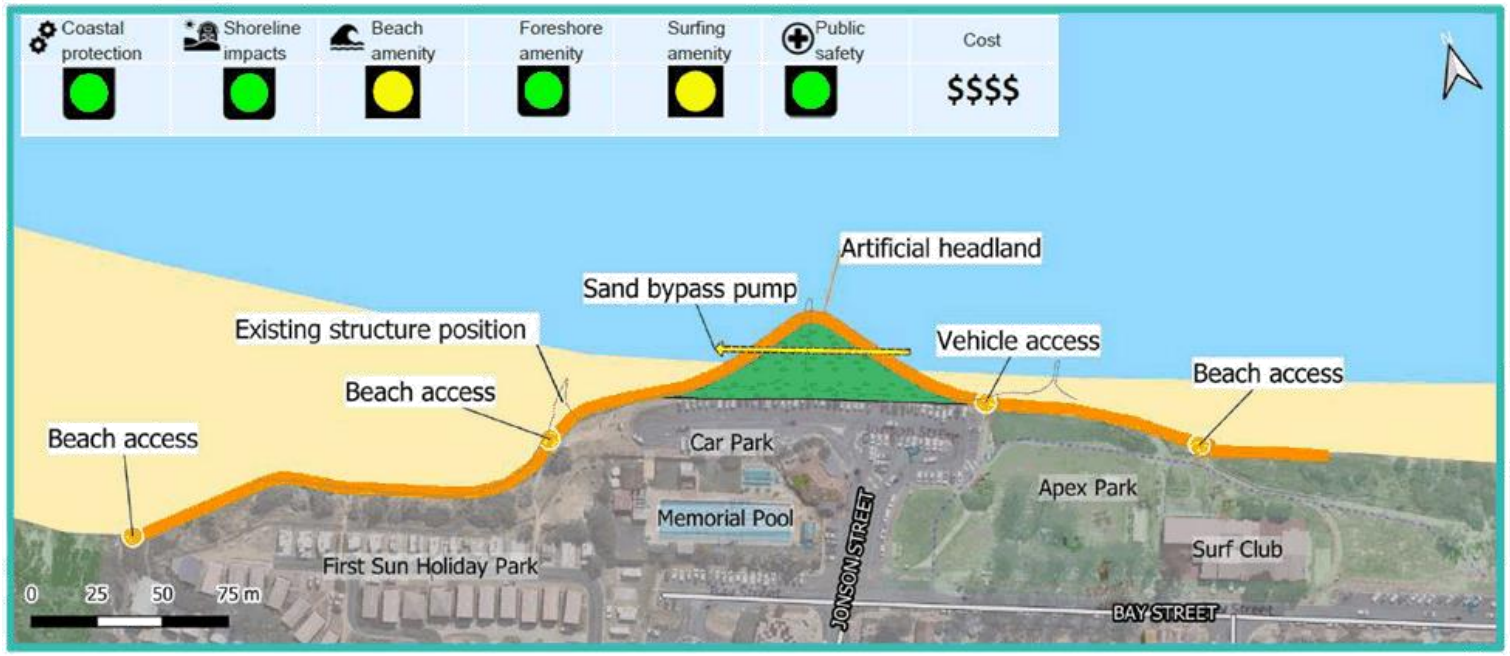

Modification Option 4 - Artificial headland with sand bypassing

Replace centre groyne with artificial headland and reconstruct rock revetment to contemporary engineering standards in front the entire stretch between First Sun Holiday Park and the Surf Club. Formal beach access for disabled and vehicles (e.g. lifeguards) and removal of existing spur groynes.

Increase sand bypassing around the structure from east to west via small-scale pumping system. Sand pumping infrastructure built-in to structure.

Vehicle and disabled beach access

Beach access at revetment

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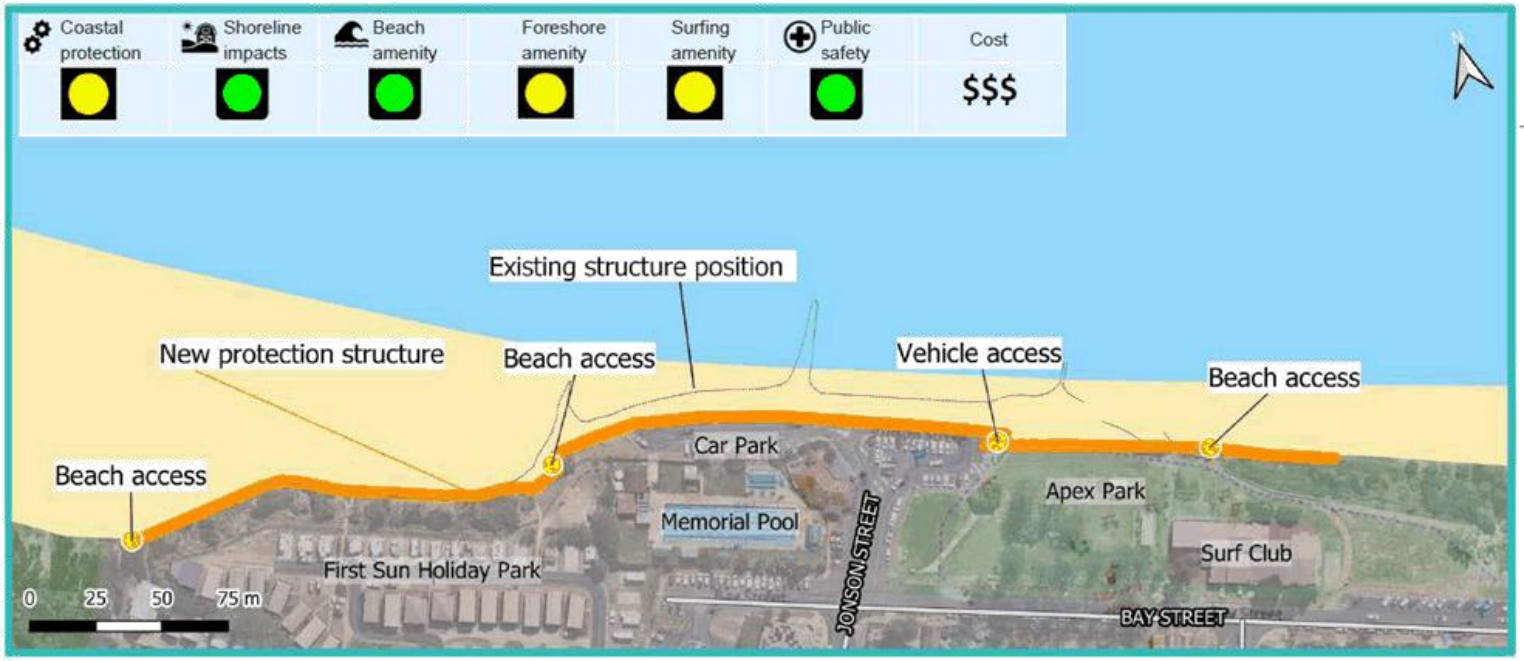

Modification Option 5 - Protective structure moved landward by 10m

source: BSC

Move structure position landward to allow sand bypassing and provide a useable beach in front of the structure more frequently.

Maintain reduced buffer area in front of Memorial Pool for car park (single row + pathway)/ reserve space.

Build physical protection structures to contemporary engineering standards in front the entire stretch between First Sun Holiday Park and the Surf Club.
Formal beach access for disabled and vehicles (e.g. lifeguards) and removal of existing spur groynes.

source: WP, 2014

Vehicle and disabled beach access

source: BSC

Beach access at structure

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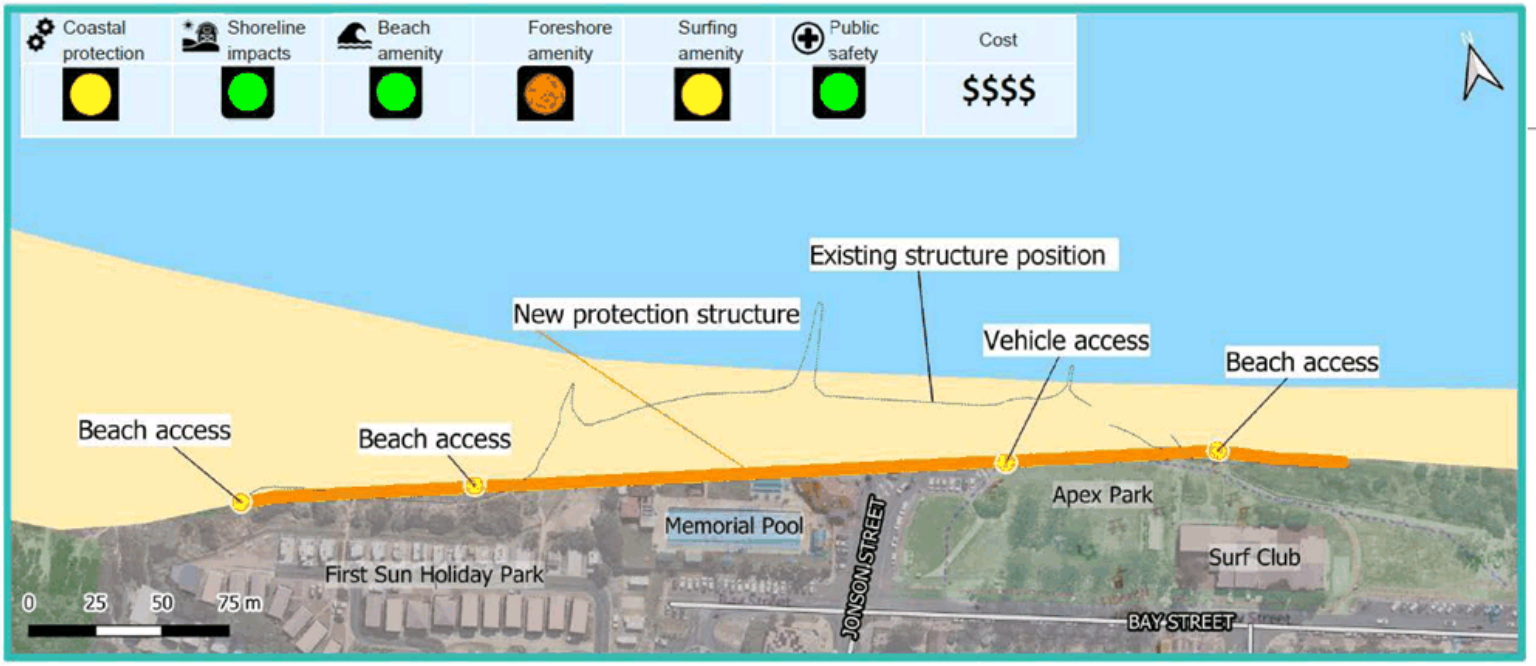

Modification Option 6 - Protective structure moved landward by up to 30m

source: BSC

Move structure position landward to a natural beach planform downdrift from the Surf Club. Allow natural sand bypassing and provide a useable beach in front of the structure.
Remove car park, Council buildings and part of the reserve space.

Build physical protection structures to contemporary engineering standards in front the entire stretch between First Sun Holiday Park and the Surf Club.
Formal beach access for disabled and vehicles (e.g. lifeguards) and removal of existing spur groynes.

source: WP, 2014

Vehicle and disabled beach access

source: BSC

Beach access at structure

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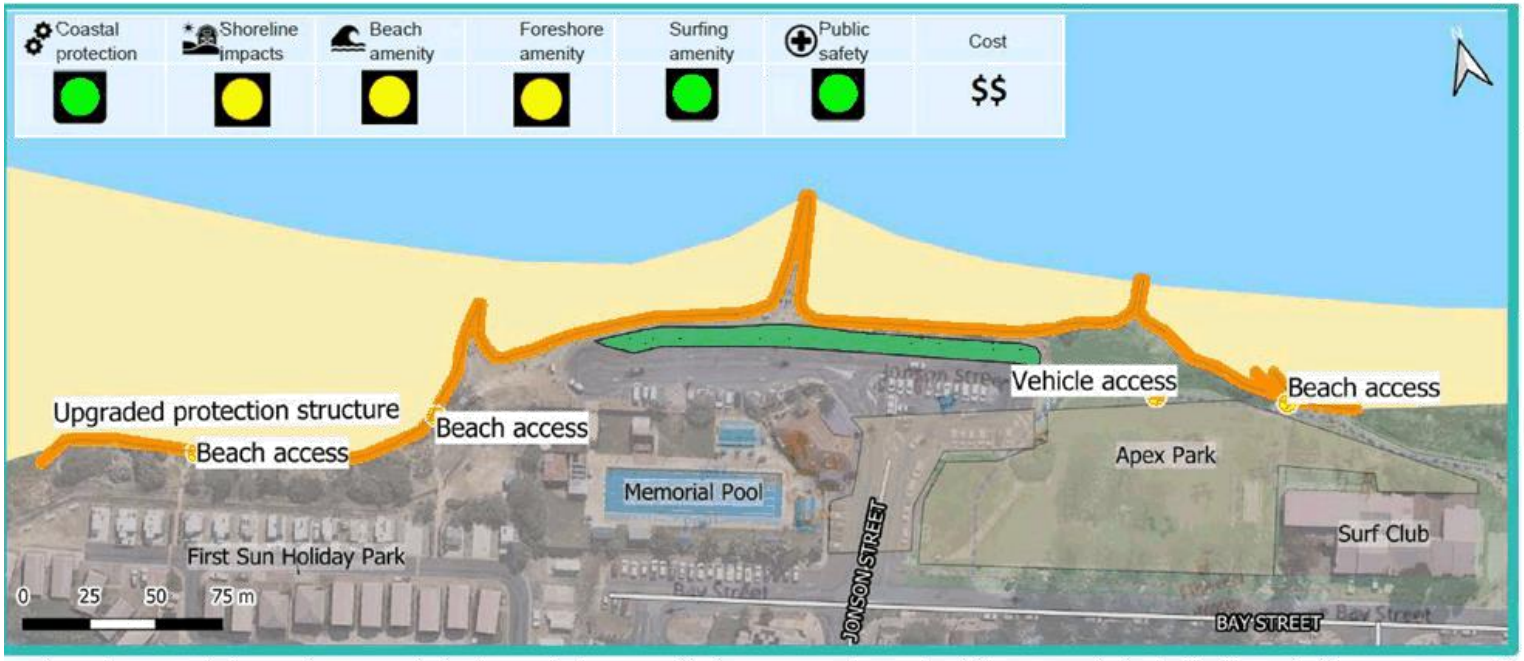

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Modification Option 7 - Existing structure upgraded to contemporary standards

Increase buffer area in front of Memorial Pool by removing first row of carpark and convert to open space park area or widened pathway/viewing platform.

Retain cul de sac turning circle and landward car spaces

Build physical protection structures to contemporary engineering standards in front the entire stretch between First Sun Holiday Park and the Surf Club.

Formal beach access for disabled and vehicles (e.g. lifeguards)

Vehicle and disabled beach access

Beach access at structure

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Alternative option 8:

- Different to Option 5 & 6 as these options remove all hard areas seaward of realigned seawall to allow a natural beach area
- Vertical buried terminal seawall on a landward alignment (similar to natural scarp in 1920s)

- Removal of all rocks and material seaward of the seawall

- Built area above the sand - try to enable dune to fluctuate naturally

- Pylon/pier recreational structure seaward of terminal seawall (boardwalk area with ability to park cars, beach accesses)

- Recreational structure footprint covering similar area as present hard areas (like for like).
various entrances to the beach.

Community engagement

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Next Steps

1. Council endorsed at the 27 August 2020 meeting, Concept Design Development – Report
2. Council endorsed going to broader community engagement on the 7 options and Option 8 (if feasible from assessment). Memo being developed for Councillors presently - Bluecoast undertaking assessment of Option 8
3. Community engagement to gain an appreciation of the community's and stakeholder's expectations and objectives as to how the foreshore is managed and to get feedback on the seven top concept options.

Activities proposed are:

Online survey and web landing page

Phone call interviews with key stakeholders and interest community members

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Questions

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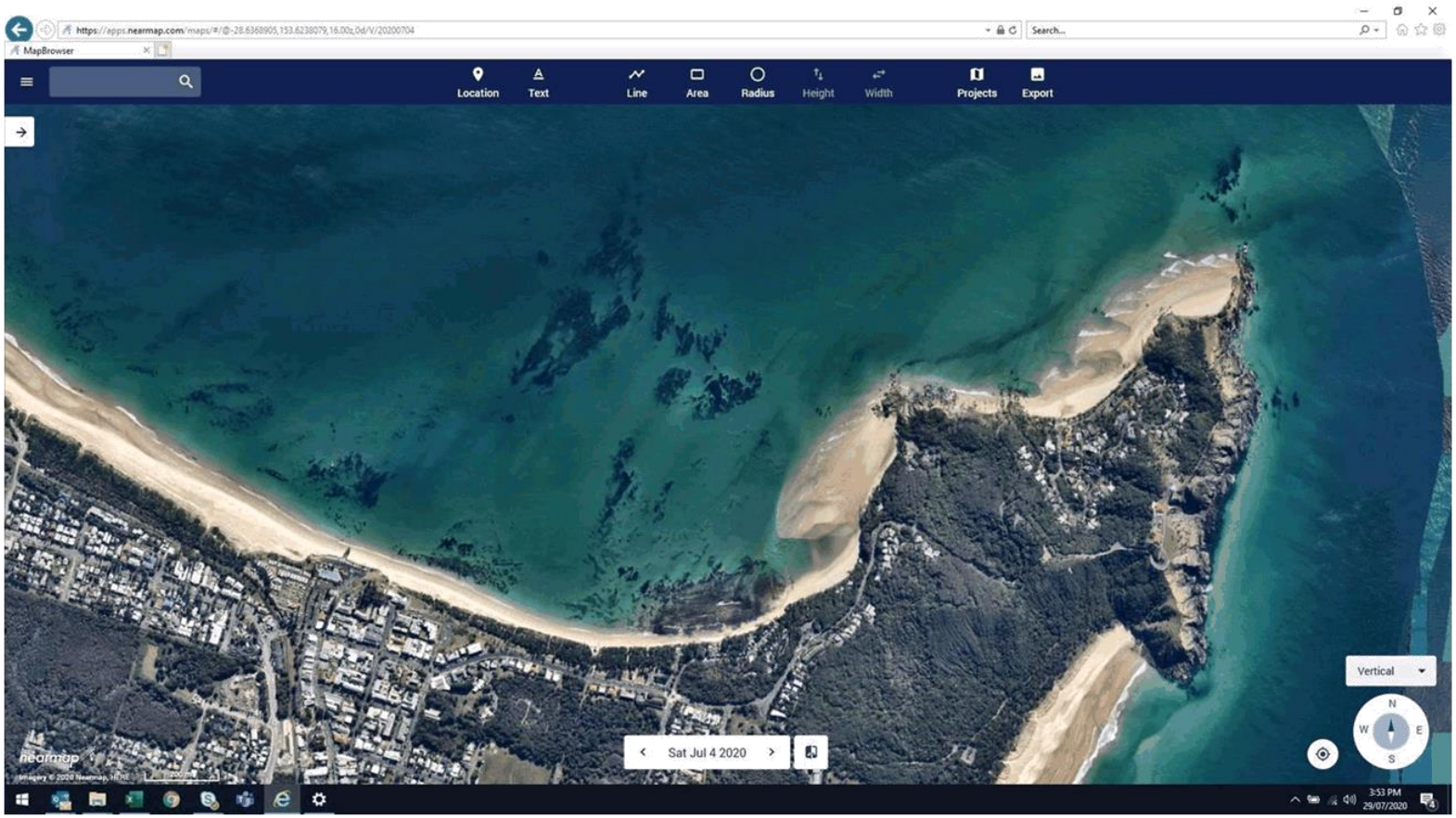

The image above was taken on 4 July 2020 and shows the position of the sand slug at that time.

The image above was taken at the beginning of August (date unknown) 2020 and shows the position of the sand slug at that time.

26/08/2020 Some Photos on an incoming tide

Photo 1: Council making safe beach access way - Kayak location.

Photo 2: Clarkes Café access way – closed and unable to be repaired at the moment.

Photo 3: Clarkes Beach Café and erosion escarpment with recent slumping. Cobbles and old sand bags at base of dune toe providing some stability.

Photo 4: Reflections emergency sandbags looking east towards The Pass. There is little beach to walk on at high tide at the moment.