



6.13 Tanilba Bay

Tanilba Bay is subject to coastal inundation. In a present day 20-year ARI event or greater, there is inundation risk to private properties and roads including parts of **Peace Parade**. In a 100 year ARI event, parts of **President Poincare Parade**, **President Wilson Walk**, and **Swan Street** are at risk.

Public open spaces at risk include **Caswell Reserve**, **Tanilba Bay Boardwalk**, **Peace Park**, **Foster Park**, **Tanilba Park**, **Swan Park**, **Sunrise Park**, **Meridian Park**, and **Sunset Park**.

Table 6-11 lists the response action plan for Tanilba Bay, while an overview map of the area is provided in **Figure 6-17**.

Table 6-11 Coastal Emergency Actions for Tanilba Bay.

Action	Responsibility
Phase 1 – Prevention	
See Section 6.1 - Overarching Prevention (Phase 1) Actions	Council
Phase 2 – Preparation	
See Section 6.2 - Overarching Preparatory (Phase 2) Actions	Council
Phase 3 – Response	
Implement the communication protocol in conjunction with the combat agency (NSW SES) to advise landholders, residents, public authorities and other organisations that a coastal emergency is likely or is occurring and that actions in this CZEAS are to be implemented.	Council and NSW SES
Alert residents if risk level is high and if any emergency management actions are being implemented.	NSW SES
Erect temporary signage of dangers and/or closure to the beach (including accessways) and affected foreshore reserves.	Council
Increase surveillance of coastal hazards at this location.	Council
Close affected Council managed roads subject to coastal inundation. <ul style="list-style-type: none"> Peace Parade President Poincare Parade President Wilson Walk Swan Street 	Council
Close affected Council managed reserves. <ul style="list-style-type: none"> Caswell Reserve Tanilba Bay Boardwalk Peace Park Foster Park Tanilba Park Swan Park Sunrise Park Meridian Park Sunset Park 	Council
Liaise with other agencies, including TfNSW, Crown Land and NPWS if debris from coastal hazards creates a safety hazard in adjoining areas.	Council



Action	Responsibility
Phase 4 – Recovery	
Inspect the beach, public assets and properties after damaging storm events and carry out works to ensure the area is safe, including general clean up and clearing of any exposed debris, before taking down signage or reopening the area.	Council
Repair Peace Parade if necessary.	Council
Beach scraping may be undertaken if required to restore public beach access following significant storm erosion and to assist beach recovery in accordance with the methodology in Section 6.4.1 . The location and scale of beach scraping activities will depend on the damage caused by the event and will need to be determined at the time of the event. A general area for recovery beach scraping is provided in Figure 6-18 (Tanilba Bay Beach).	Council
Maintain temporary safety fencing and associated warning signage, as necessary.	Council
Erect permanent warning signs if necessary.	Council
Restore access to beaches and reserves.	Council
Issue clean-up orders under the LG Act.	Council
Assess the structural integrity of unprotected assets affected by or damaged during the coastal emergency event. Geotechnical, structural and/or coastal engineering investigations may be required to understand residual risk following a coastal emergency event.	Council
Undertake works to re-establish or enhance the natural protective features of the coast, such as dune shaping and revegetation.	Council
Issue orders under the LG Act and/or EP&A Act when properties are deemed structurally unsafe or pose a risk to the public.	Council
Critically review this CZEAS, communications protocol/plan and operational procedures to ensure they achieved their performance objectives. Amend if shortcomings or improvements are identified.	Council

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Figure 6-17 Tanilba Bay CZEAS Overview

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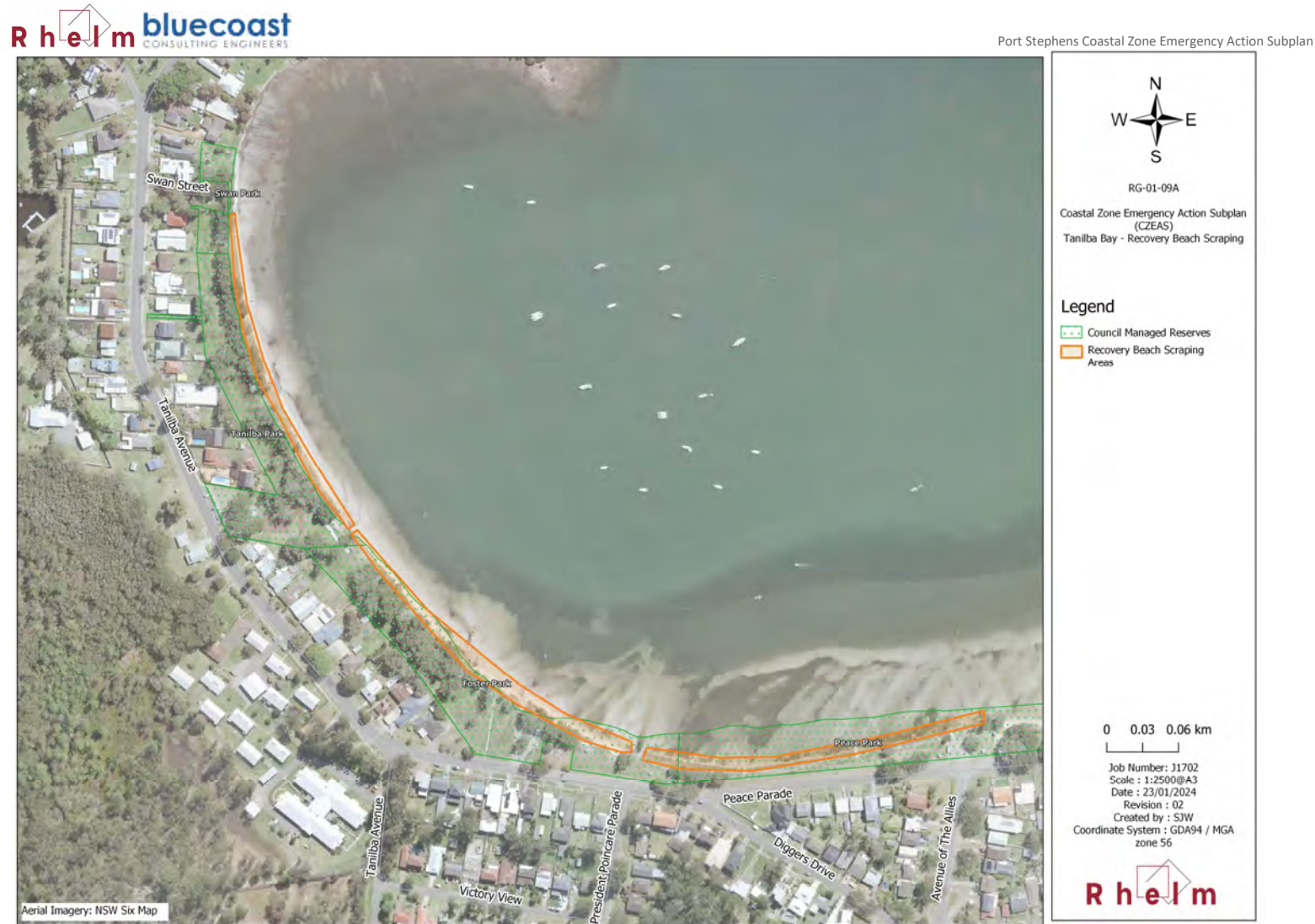


Figure 6-18 Tanilba Bay - Recovery Beach Scraping



6.14 Swan Bay

Swan Bay is subject to coastal inundation. In a present day 20-year ARI event or greater, there is inundation risk to private properties and roads including **Waterfront Road**, **Davis Road** and **Swan Bay Road**. Swan Bay Road provides the only access to the area.

Table 6-12 lists the response action plan for Swan Bay, while an overview map of the area is provided in **Figure 6-19**.

Table 6-12 Coastal Emergency Actions for Swan Bay

Action	Responsibility
Phase 1 – Prevention	
See Section 6.1 - Overarching Prevention (Phase 1) Actions	Council
Phase 2 – Preparation	
See Section 6.2 - Overarching Preparatory (Phase 2) Actions	Council
Phase 3 – Response	
Implement the communication protocol in conjunction with the combat agency (NSW SES) to advise landholders, residents, public authorities and other organisations that a coastal emergency is likely or is occurring and that actions in this CZEAS are to be implemented.	Council and NSW SES
Alert residents if risk level is high and if any emergency management actions are being implemented.	NSW SES
Increase surveillance of coastal hazards at this location.	Council
Close affected Council managed roads subject to coastal inundation. <ul style="list-style-type: none"> • Waterfront Road • Davis Road • Swan Bay Road 	Council
Liaise with other agencies, including TfNSW, Crown Land and NPWS if debris from coastal hazards creates a safety hazard in adjoining areas.	Council
Phase 4 – Recovery	
Inspect public assets and properties after damaging storm events and carry out works to ensure the area is safe, including general clean up and clearing of any exposed debris, before taking down signage or reopening the area.	Council
Repair damaged roads if necessary.	Council
Maintain temporary safety fencing and associated warning signage, as necessary.	Council
Erect permanent warning signs if necessary.	Council
Issue clean-up orders under the LG Act.	Council
Assess the structural integrity of unprotected assets affected by or damaged during the coastal emergency event. Geotechnical, structural and/or coastal engineering investigations may be required to understand residual risk following a coastal emergency event.	Council
Undertake works to re-establish or enhance the natural protective features of the coast, such as dune shaping and revegetation.	Council
Issue orders under the LG Act and/or EP&A Act when properties are deemed structurally unsafe or pose a risk to the public.	Council



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Action	Responsibility
Critically review this CZEAS, communications protocol/plan and operational procedures to ensure they achieved their performance objectives. Amend if shortcomings or improvements are identified.	Council

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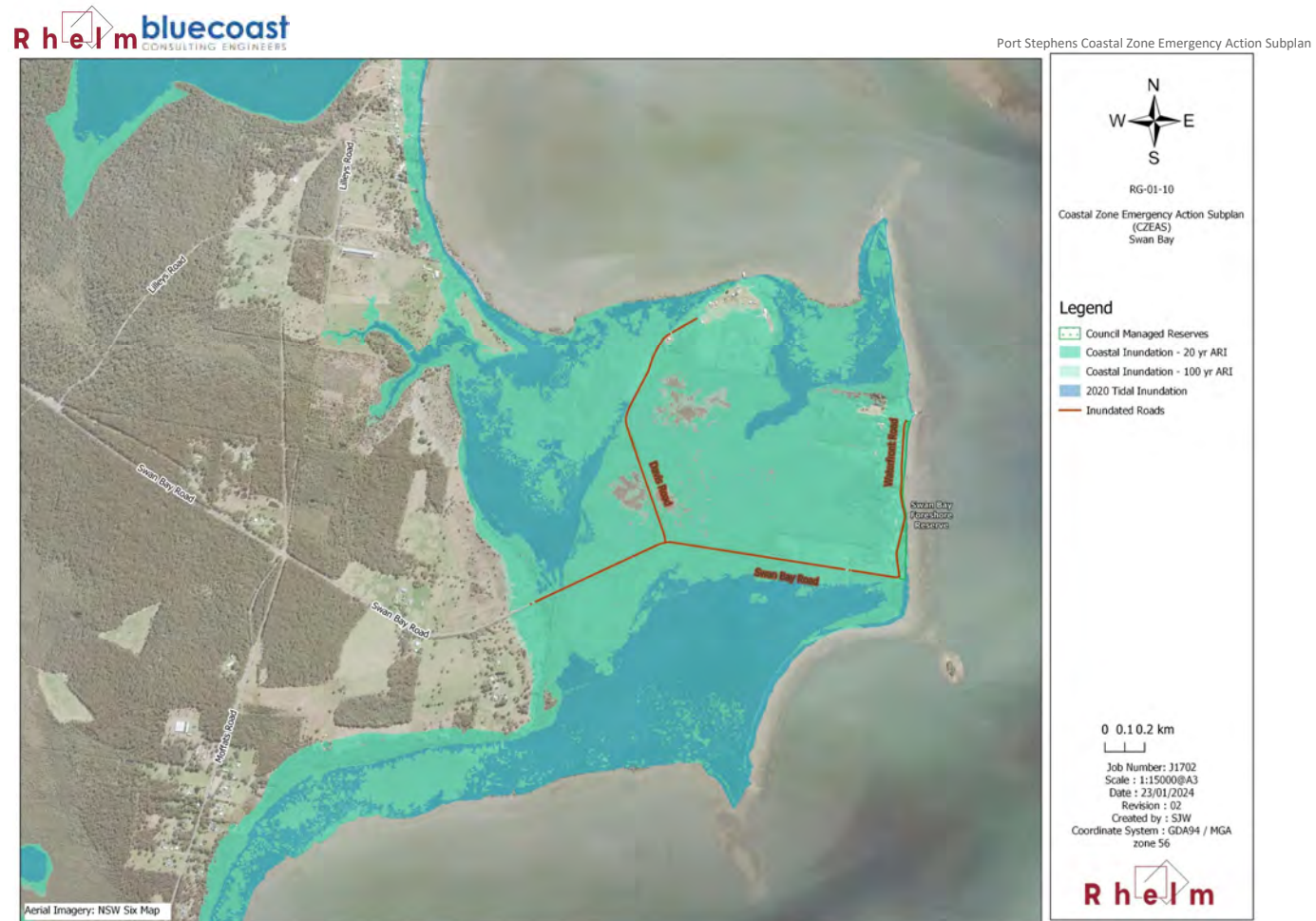


Figure 6-19 Swan Bay CZEAS Overview



Port Stephens Coastal Zone Emergency Action Subplan

6.15 Karuah

Karuah is subject to coastal inundation. In a present day 20-year ARI event or greater, there is inundation risk to private properties.

Public open spaces at risk include **Longworth Park** and **Memorial Park**. Council assets at risk include **Longworth Park amenities block**.

Table 6-13 lists the response action plan for Karuah, while an overview map of the area is provided in **Figure 6-20**.

Table 6-13 Coastal Emergency Actions for Karuah

Action	Responsibility
Phase 1 – Prevention	
See Section 6.1 - Overarching Prevention (Phase 1) Actions	Council
Phase 2 – Preparation	
See Section 6.2 - Overarching Preparatory (Phase 2) Actions	Council
Phase 3 – Response	
Implement the communication protocol in conjunction with the combat agency (NSW SES) to advise landholders, residents, public authorities and other organisations that a coastal emergency is likely or is occurring and that actions in this CZEAS are to be implemented.	Council and NSW SES
Alert residents if risk level is high and if any emergency management actions are being implemented.	NSW SES
Erect temporary signage of dangers and/or closure to the beach (including accessways) and affected foreshore reserves.	Council
Increase surveillance of coastal hazards at this location.	Council
Close affected Council managed reserves. <ul style="list-style-type: none"> Longworth Park Memorial Park 	Council
Liaise with other agencies, including TfNSW, Crown Land and NPWS if debris from coastal hazards creates a safety hazard in adjoining areas.	Council
Phase 4 – Recovery	
Inspect the beach, public assets and properties after damaging storm events and carry out works to ensure the area is safe, including general clean up and clearing of any exposed debris, before taking down signage or reopening the area.	Council
Maintain temporary safety fencing and associated warning signage, as necessary.	Council
Erect permanent warning signs if necessary.	Council
Monitor the condition, performance and impact of any coastal protection works or emergency coastal protection works.	Council
Restore access to beaches and reserves.	Council
Issue clean-up orders under the LG Act.	Council
Assess the structural integrity of unprotected assets affected by or damaged during the coastal emergency event. Geotechnical, structural and/or coastal engineering investigations may be required to understand residual risk following a coastal emergency event.	Council



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Action	Responsibility
Undertake works to re-establish or enhance the natural protective features of the coast, such as dune shaping and revegetation.	Council
Issue orders under the LGA Act and/or EP&A Act when properties are deemed structurally unsafe or pose a risk to the public.	Council
Critically review this CZEAS, communications protocol/plan and operational procedures to ensure they achieved their performance objectives. Amend if shortcomings or improvements are identified.	Council

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Figure 6-20 Karuah CZEAS Overview



6.16 Salt Ash

Salt Ash is subject to coastal inundation. In a present day 20-year ARI event or greater, there is inundation risk to private properties and roads including **Lemon Tree Passage Road** and **Marsh Road**, both of which are key access roads and act as the sole access to a number of properties. Other roads at risk include **David Drive**, **Janet Parade**, **Nelson Bay Road**, **Oakfield Road**, **Rookes Road**, and **Valerie Road**.

Public open space at risk includes **Lee Thompson Park Reserve**. Council assets at risk include the **Salt Ash Community Hall** and the **Salt Ash Rural Fire Service Station**, which are both listed as evacuation centres.

Table 6-14 lists the response action plan for Salt Ash, while an overview map of the area is provided in **Figure 6-21**.

Table 6-14 Coastal Emergency Actions for Salt Ash

Action	Responsibility
Phase 1 – Prevention	
See Section 6.1 - Overarching Prevention (Phase 1) Actions	Council
Phase 2 – Preparation	
See Section 6.2 - Overarching Preparatory (Phase 2) Actions	Council
Phase 3 – Response	
Implement the communication protocol in conjunction with the combat agency (NSW SES) to advise landholders, residents, public authorities and other organisations that a coastal emergency is likely or is occurring and that actions in this CZEAS are to be implemented.	Council and NSW SES
Alert residents if risk level is high and if any emergency management actions are being implemented.	NSW SES
Erect temporary signage of dangers and/or closure to the beach (including accessways) and affected foreshore reserves.	Council
Increase surveillance of coastal hazards at this location.	Council
Close affected Council managed roads subject to coastal inundation. <ul style="list-style-type: none"> • Lemon Tree Passage Road • Marsh Road • David Drive • Janet Parade • Nelson Bay Road • Oakfield Road • Rookes Road • Valerie Road 	Council
Close affected Council managed reserves. <ul style="list-style-type: none"> • Lee Thompson Park Reserve 	Council
Liaise with other agencies, including TfNSW, Crown Land and NPWS if debris from coastal hazards creates a safety hazard in adjoining areas.	Council



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Action	Responsibility
Phase 4 – Recovery	
Inspect public assets and properties after damaging storm events and carry out works to ensure the area is safe, including general clean up and clearing of any exposed debris, before taking down signage or reopening the area.	Council
Repair damaged roads if necessary.	Council
Maintain temporary safety fencing and associated warning signage, as necessary.	Council
Erect permanent warning signs if necessary.	Council
Monitor the condition, performance and impact of any coastal protection works or emergency coastal protection works.	Council
Issue clean-up orders under the LG Act.	Council
Assess the structural integrity of unprotected assets affected by or damaged during the coastal emergency event. Geotechnical, structural and/or coastal engineering investigations may be required to understand residual risk following a coastal emergency event.	Council
Undertake works to re-establish or enhance natural protective features, such as revegetation.	Council
Issue orders under the LG Act and/or EP&A Act when properties are deemed structurally unsafe or pose a risk to the public.	Council
Critically review this CZEAS, communications protocol/plan and operational procedures to ensure they achieved their performance objectives. Amend if shortcomings or improvements are identified.	Council

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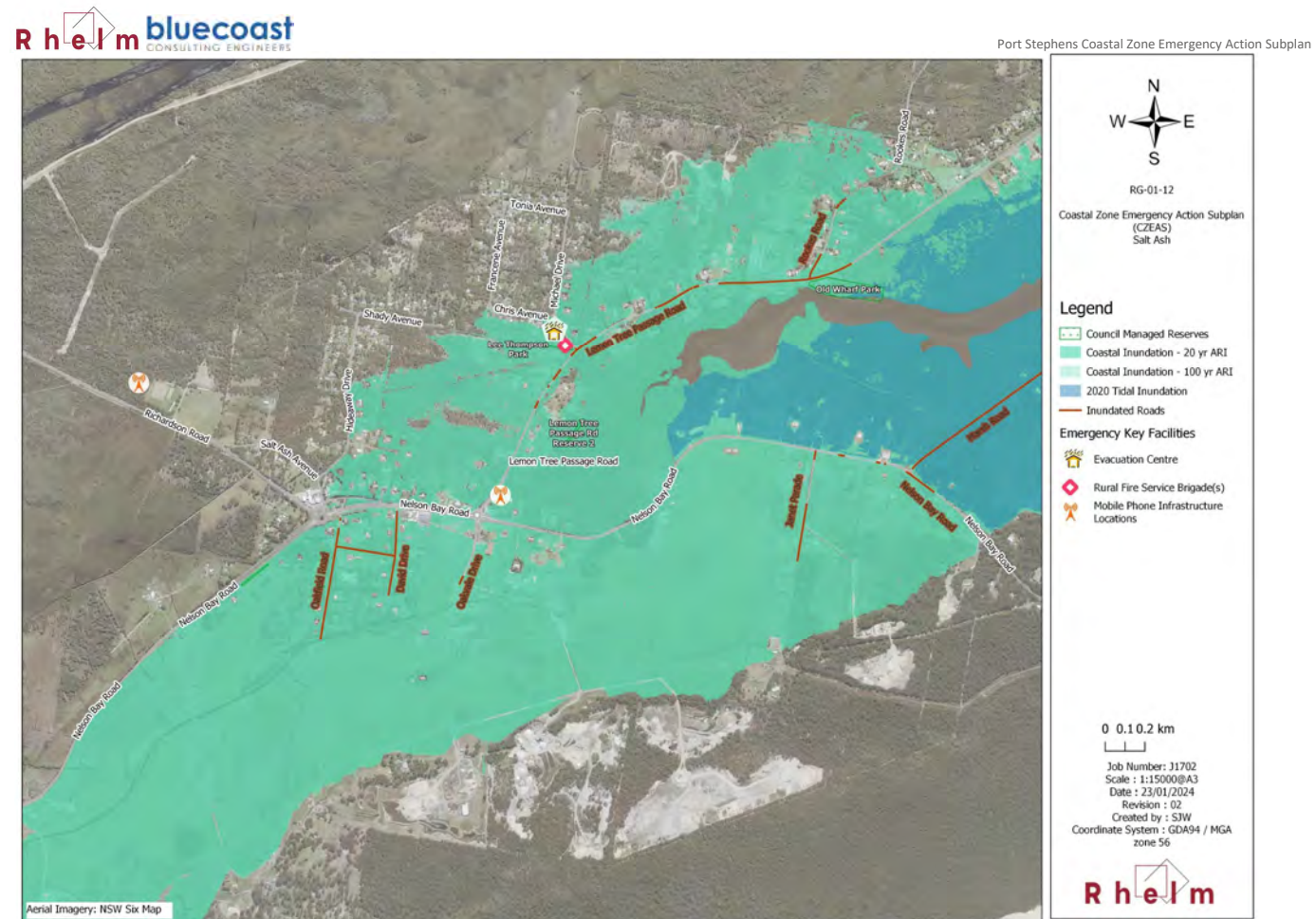


Figure 6-21 Salt Ash CZEAS Overview



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6.17 Bobs Farm

Bobs Farm is subject to coastal inundation. In a present day 20-year ARI event or greater, there is inundation risk to private properties and roads including **Marsh Road**, **Fenninghams Island Road** and **Cromarty Lane**, which serve as the only access roads to the properties along them. Other roads at risk include **Nelson Bay Road**, and Nelson Bay Road, and **Upton Lane**.

Public open space at risk includes **Fenninghams Island Road Reserve**. Council assets at risk include **Bobs Farm Public Hall**, which also is listed as an evacuation centre.

Table 6-15 lists the response action plan for Bobs Farm, while an overview map of the area is provided in **Figure 6-22**.

Table 6-15 Coastal Emergency Actions for Bobs Farm

Action	Responsibility
Phase 1 – Prevention	
See Section 6.1 - Overarching Prevention (Phase 1) Actions	Council
Phase 2 – Preparation	
See Section 6.2 - Overarching Preparatory (Phase 2) Actions	Council
Phase 3 – Response	
Implement the communication protocol in conjunction with the combat agency (NSW SES) to advise landholders, residents, public authorities and other organisations that a coastal emergency is likely or is occurring and that actions in this CZEAS are to be implemented.	Council and NSW SES
Alert residents if risk level is high and if any emergency management actions are being implemented.	NSW SES
Erect temporary signage of dangers and/or closure to the beach (including accessways) and affected foreshore reserves.	Council
Increase surveillance of coastal hazards at this location.	Council
Close affected Council managed roads subject to coastal inundation. <ul style="list-style-type: none"> Marsh Road Fenninghams Island Road Cromarty Lane Nelson Bay Road Upton Lane 	Council
Close affected Council managed reserves. <ul style="list-style-type: none"> Fenninghams Island Road Reserve 	Council
Implement the emergency action strategy for the Bobs Farm Public Hall , developed as part of action CH083 in the CMP.	Council
Liaise with other agencies, including TfNSW, Crown Land and NPWS if debris from coastal hazards creates a safety hazard in adjoining areas.	Council
Phase 4 – Recovery	
Inspect public assets and properties after damaging storm events and carry out works to ensure the area is safe, including general clean up and clearing of any exposed debris, before taking down signage or reopening the area.	Council



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Action	Responsibility
Repair damaged roads if necessary.	Council
Maintain temporary safety fencing and associated warning signage, as necessary.	Council
Erect permanent warning signs if necessary.	Council
Issue clean-up orders under the LG Act.	Council
Assess the structural integrity of unprotected assets affected by or damaged during the coastal emergency event. Geotechnical, structural and/or coastal engineering investigations may be required to understand residual risk following a coastal emergency event.	Council
Issue orders under the LG Act and/or the EP&A Act when properties are deemed structurally unsafe or pose a risk to the public.	Council
Critically review this CZEAS, communications protocol/plan and operational procedures to ensure they achieved their performance objectives. Amend if shortcomings or improvements are identified.	Council

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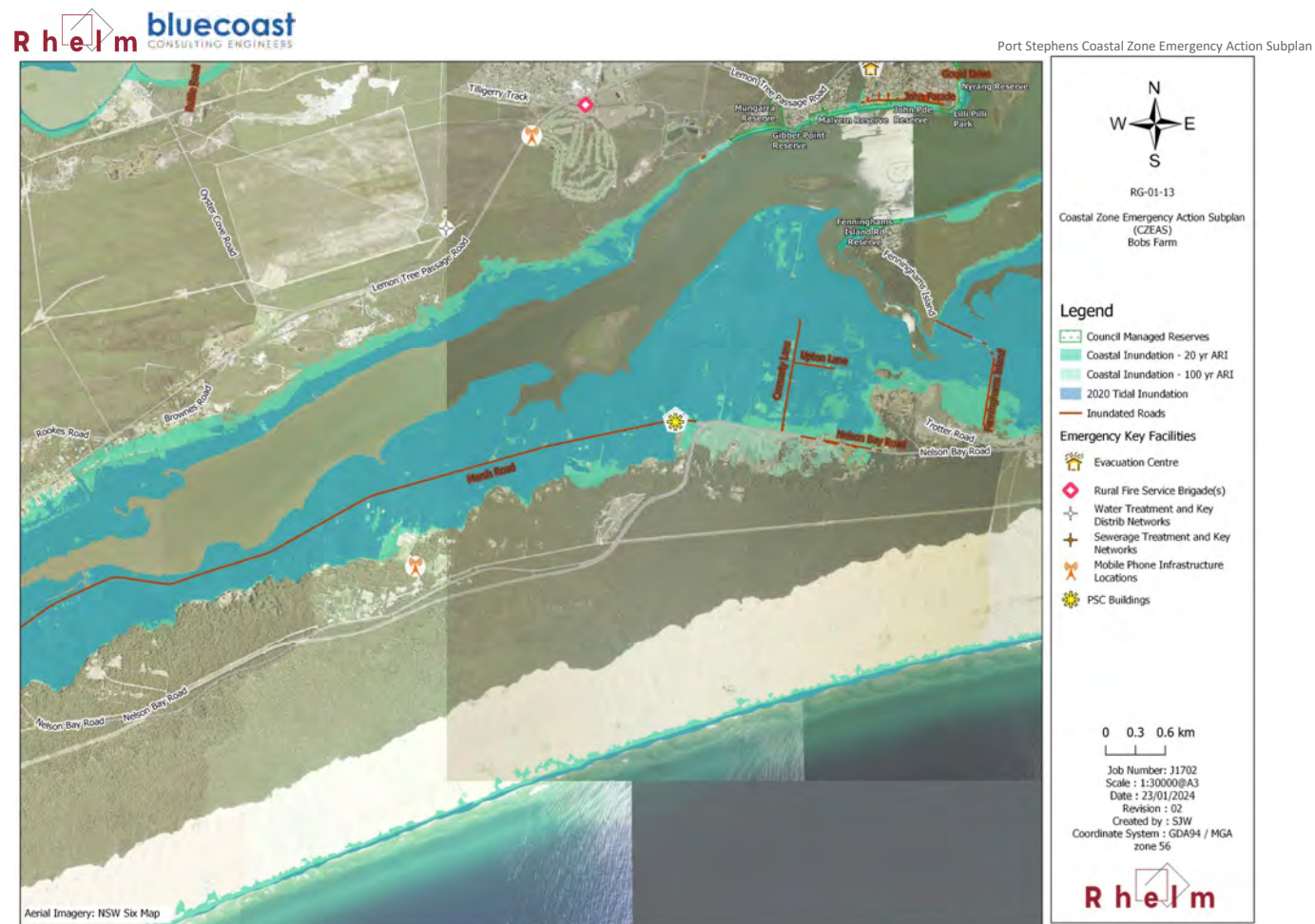


Figure 6-22 Bobs Farm CZEAS Overview



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6.18 Fullerton Cove

Fullerton Cove is subject to coastal inundation. In a present day 20-year ARI event or greater, there is inundation risk to private properties and roads including **Lorikeet Circuit**, **Sugar Glider Way**, **Fullerton Cove Road** and **Nelson Bay Road**.

Table 6-16 lists the response action plan for Fullerton Cove, while an overview map of the area is provided in **Figure 6-23**.

Table 6-16 Coastal Emergency Actions for Fullerton Cove

Action	Responsibility
Phase 1 – Prevention	
See Section 6.1 - Overarching Prevention (Phase 1) Actions	Council
Phase 2 – Preparation	
See Section 6.2 - Overarching Preparatory (Phase 2) Actions	Council
Phase 3 – Response	
Implement the communication protocol in conjunction with the combat agency (NSW SES) to advise landholders, residents, public authorities and other organisations that a coastal emergency is likely or is occurring and that actions in this CZEAS are to be implemented.	Council and NSW SES
Alert residents if risk level is high and if any emergency management actions are being implemented.	NSW SES
Increase surveillance of coastal hazards at this location.	Council
Close affected Council managed roads subject to coastal inundation. <ul style="list-style-type: none"> • Lorikeet Circuit • Sugar Glider Way • Fullerton Cove Road • Nelson Bay Road 	Council
Liaise with other agencies, including TfNSW, Crown Land and NPWS if debris from coastal hazards creates a safety hazard in adjoining areas.	Council
Phase 4 – Recovery	
Inspect public assets and properties after damaging storm events and carry out works to ensure the area is safe, including general clean up and clearing of any exposed debris, before taking down signage or reopening the area.	Council
Repair damaged roads if necessary.	Council
Maintain temporary safety fencing and associated warning signage, as necessary.	Council
Erect permanent warning signs if necessary.	Council
Issue clean-up orders under the LG Act.	Council
Assess the structural integrity of unprotected assets affected by or damaged during the coastal emergency event. Geotechnical, structural and/or coastal engineering investigations may be required to understand residual risk following a coastal emergency event.	Council
Issue orders under the LG Act and/or the EP&A Act when properties are deemed structurally unsafe or pose a risk to the public.	Council



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Action	Responsibility
Critically review this CZEAS, communications protocol/plan and operational procedures to ensure they achieved their performance objectives. Amend if shortcomings or improvements are identified.	Council

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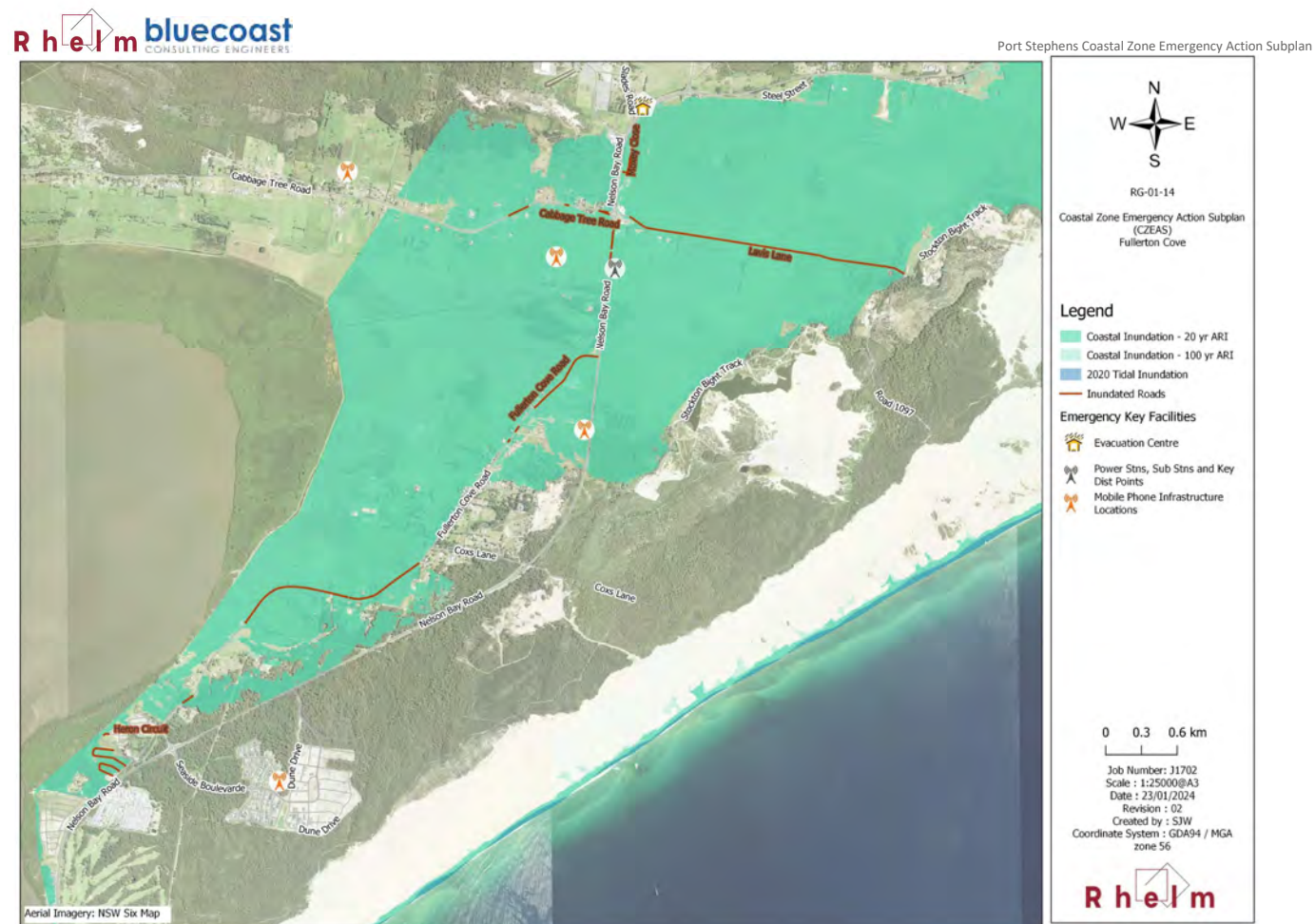


Figure 6-23 Fullerton Cove CZEAS Overview



6.19 Boat Harbour

Boat Harbour is subject to coastal inundation. In a present day 20-year ARI event or greater, public open spaces at risk include **Boat Harbour North Headland Reserve** and **Iluka Reserve**.

Although Boat Harbour Beach is subject to beach erosion, the present erosion hazard mapping does not indicate any risk to built assets. Hence, no emergency coastal protection works are considered necessary.

Table 6-17 lists the response action plan for Boat Harbour, while an overview map of the area is provided in **Figure 6-24**.

Table 6-17 Coastal Emergency Actions for Boat Harbour

Action	Responsibility
Phase 1 – Prevention	
See Section 6.1 - Overarching Prevention (Phase 1) Actions	Council
Phase 2 – Preparation	
See Section 6.2 - Overarching Preparatory (Phase 2) Actions	Council
Phase 3 – Response	
Implement the communication protocol in conjunction with the combat agency (NSW SES) to advise landholders, residents, public authorities and other organisations that a coastal emergency is likely or is occurring and that actions in this CZEAS are to be implemented.	Council and NSW SES
Alert residents if risk level is high and if any emergency management actions are being implemented.	NSW SES
Erect temporary signage of dangers and/or closure to the beach (including accessways) and affected foreshore reserves.	Council
Increase surveillance of coastal hazards at this location.	Council
Close affected Council managed reserves. <ul style="list-style-type: none"> Boat Harbour North Headland Reserve Iluka Reserve 	Council
Liaise with other agencies, including TfNSW, Crown Land and NPWS if debris from coastal hazards creates a safety hazard in adjoining areas.	Council
Phase 4 – Recovery	
Inspect the beach, public assets and properties after damaging storm events and carry out works to ensure the area is safe, including general clean up and clearing of any exposed debris, before taking down signage or reopening the area.	Council
Beach scraping may be undertaken if required to restore public beach access following significant storm erosion and to assist beach recovery in accordance with the methodology in Section 6.4.1 . The location and scale of beach scraping activities will depend on the damage caused by the event and will need to be determined at the time of the event. A general area for recovery beach scraping is provided in Figure 6-24 .	Council
Maintain temporary safety fencing and associated warning signage, as necessary.	Council
Erect permanent warning signs if necessary.	Council
Restore access to beaches, reserves and headlands.	Council
Issue clean-up orders under the LG Act.	Council



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Action	Responsibility
Assess the structural integrity of unprotected assets affected by or damaged during the coastal emergency event. Geotechnical, structural and/or coastal engineering investigations may be required to understand residual risk following a coastal emergency event.	Council
Undertake works to re-establish or enhance the natural protective features of the coast, such as dune shaping and revegetation.	Council
Issue orders under the LG Act and/or the EP&A Act when properties are deemed structurally unsafe or pose a risk to the public.	Council
Critically review this CZEAS, communications protocol/plan and operational procedures to ensure they achieved their performance objectives. Amend if shortcomings or improvements are identified.	Council

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Figure 6-24 Boat Harbour CZEAS Overview



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6.20 Anna Bay

Anna Bay is subject to coastal inundation. In a present day 20 Year ARI event or greater, there is inundation risk to private properties and roads including **Nelson Bay Road, Port Stephens Drive and Road 493**. In a 100 year ARI event, **Harris Road** is also at risk.

Public open space at risk includes **Birubi Beach Reserve**.

Although Stockton Beach is subject to beach erosion, the present erosion hazard mapping does not indicate any risk to built assets. Hence, no emergency coastal protection works are considered necessary.

Table 6-18 lists the response action plan for Anna Bay, while an overview map of the area is provided in **Figure 6-25**.

Table 6-18 Coastal Emergency Actions for Anna Bay

Action	Responsibility
Phase 1 – Prevention	
See Section 6.1 - Overarching Prevention (Phase 1) Actions	Council
Phase 2 – Preparation	
See Section 6.2 - Overarching Preparatory (Phase 2) Actions	Council
Phase 3 – Response	
Implement the communication protocol in conjunction with the combat agency (NSW SES) to advise landholders, residents, public authorities and other organisations that a coastal emergency is likely or is occurring and that actions in this CZEAS are to be implemented.	Council and NSW SES
Alert residents if risk level is high and if any emergency management actions are being implemented.	NSW SES
Erect temporary signage of dangers and/or closure to the beach (including accessways) and affected foreshore reserves.	Council
Increase surveillance of coastal hazards at this location.	Council
Close affected Council managed roads subject to coastal inundation. <ul style="list-style-type: none"> Nelson Bay Road Port Stephens Drive Road 493 Harris Road 	Council
Close affected Council managed reserves. <ul style="list-style-type: none"> Birubi Beach Reserve 	Council
Liaise with other agencies, including TfNSW, Crown Land and NPWS if debris from coastal hazards creates a safety hazard in adjoining areas.	Council
Phase 4 – Recovery	
Inspect the beach, public assets and properties after damaging storm events and carry out works to ensure the area is safe, including general clean up and clearing of any exposed debris, before taking down signage or reopening the area.	Council
Beach scraping may be undertaken if required to restore public beach access following significant storm erosion and to assist beach recovery in accordance with the methodology in Section 6.4.1 . The location and scale of beach scraping activities will depend on the damage caused by the event and will need to	Council



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Action	Responsibility
be determined at the time of the event. A general area for recovery beach scraping is provided in Figure 6-26 (Birubi Beach).	
Maintain temporary safety fencing and associated warning signage, as necessary.	Council
Erect permanent warning signs if necessary.	Council
Restore access to beaches, reserves and headlands.	Council
Issue clean-up orders under the LG Act.	Council
Assess the structural integrity of unprotected assets affected by or damaged during the coastal emergency event. Geotechnical, structural and/or coastal engineering investigations may be required to understand residual risk following a coastal emergency event.	Council
Undertake works to re-establish or enhance the natural protective features of the coast, such as dune shaping and revegetation.	Council
Issue orders under the LG Act and/or the EP&A Act when properties are deemed structurally unsafe or pose a risk to the public.	Council
Critically review this CZEAS, communications protocol/plan and operational procedures to ensure they achieved their performance objectives. Amend if shortcomings or improvements are identified.	Council



Figure 6-25 Anna Bay CZEAS Overview

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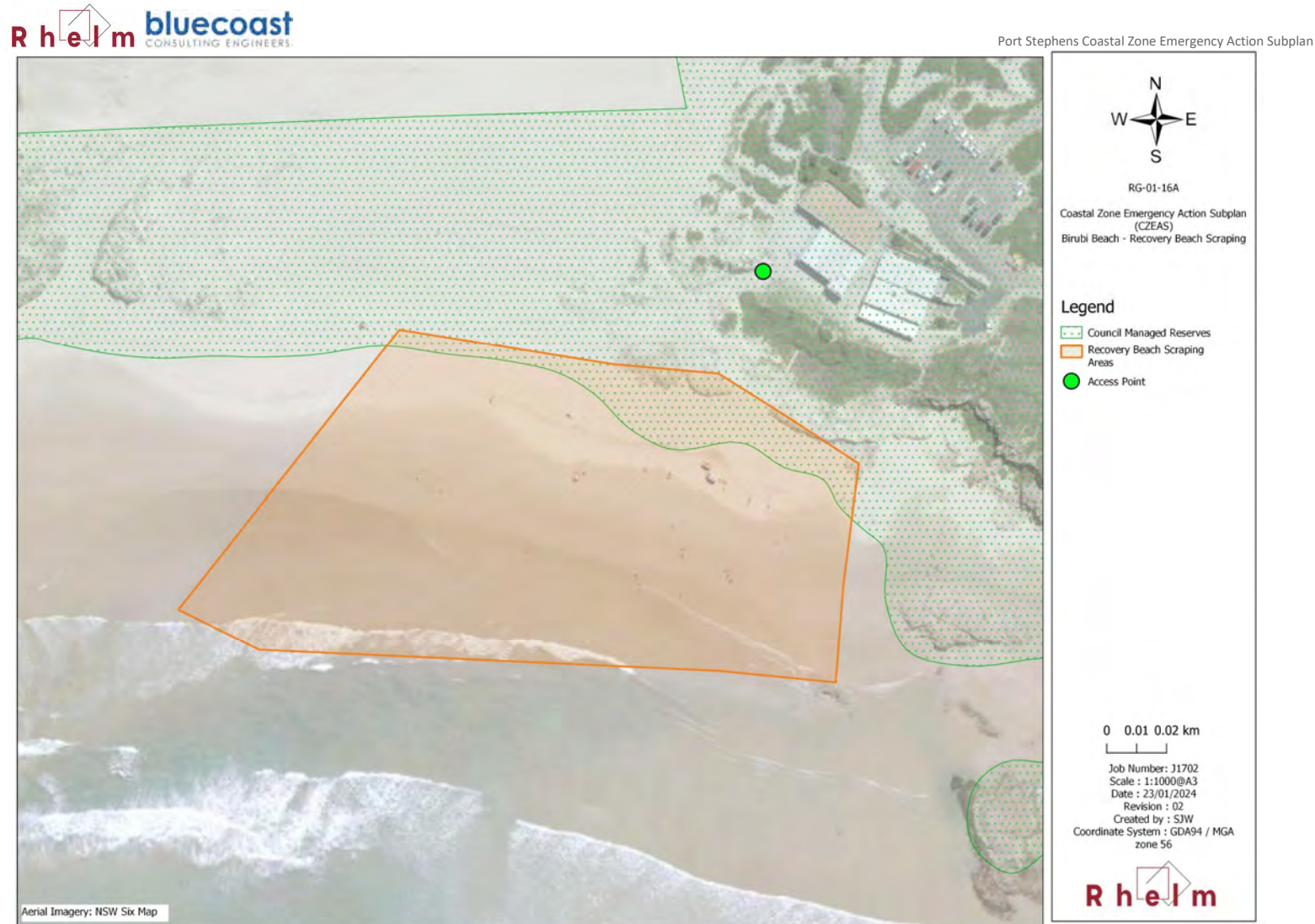


Figure 6-26 Birubi Beach - Recovery Beach Scraping



6.21 Fingal Bay

Fingal Bay is subject to coastal inundation. In a present day 20 Year ARI event or greater, public open space at risk from coastal inundation includes **Fingal Bay Foreshore Reserve**.

Although Fingal Beach is subject to beach erosion, the present erosion hazard mapping does not indicate any risk to built assets. Hence, no emergency coastal protection works are considered necessary.

Table 6-19 lists the response action plan for Fingal Beach, while an overview map of the area is provided in **Figure 6-27**.

Table 6-19 Coastal Emergency Actions for Fingal Beach

Action	Responsibility
Phase 1 – Prevention	
See Section 6.1 - Overarching Prevention (Phase 1) Actions	Council
Phase 2 – Preparation	
See Section 6.2 - Overarching Preparatory (Phase 2) Actions	Council
Phase 3 – Response	
Implement the communication protocol in conjunction with the combat agency (NSW SES) to advise landholders, residents, public authorities and other organisations that a coastal emergency is likely or is occurring and that actions in this CZEAS are to be implemented.	Council and NSW SES
Alert residents if risk level is high and if any emergency management actions are being implemented.	NSW SES
Erect temporary signage of dangers and/or closure to the beach (including accessways) and affected foreshore reserves.	Council and SLSC
Increase surveillance of coastal hazards at this location.	Council
Close affected Council managed reserves. <ul style="list-style-type: none"> Fingal Bay Foreshore Reserve 	Council
Implement the Fingal Bay SLSC emergency action strategy, developed as part of action CH083 in the CMP.	SLSC
Liaise with other agencies, including TfNSW, Crown Land and NPWS if debris from coastal hazards creates a safety hazard in adjoining areas.	Council
Phase 4 – Recovery	
Inspect the beach, public assets and properties after damaging storm events and carry out works to ensure the area is safe, including general clean up and clearing of any exposed debris, before taking down signage or reopening the area.	Council
Beach scraping may be undertaken if required to restore public beach access following significant storm erosion and to assist beach recovery in accordance with the methodology in Section 6.4.1 . The location and scale of beach scraping activities will depend on the damage caused by the event and will need to be determined at the time of the event. A general area for recovery beach scraping is provided in Figure 6-27 .	Council
Maintain temporary safety fencing and associated warning signage, as necessary.	Council
Erect permanent warning signs if necessary.	Council
Restore access to beaches, reserves and headlands.	Council
Issue clean-up orders under the LG Act.	Council



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Action	Responsibility
Assess the structural integrity of unprotected assets affected by or damaged during the coastal emergency event. Geotechnical, structural and/or coastal engineering investigations may be required to understand residual risk following a coastal emergency event.	Council
Undertake works to re-establish or enhance the natural protective features of the coast, such as dune shaping and revegetation.	Council
Issue orders under the LG Act and/or the EP&A Act when properties are deemed structurally unsafe or pose a risk to the public.	Council
Critically review this CZEAS, communications protocol/plan and operational procedures to ensure they achieved their performance objectives. Amend if shortcomings or improvements are identified.	Council

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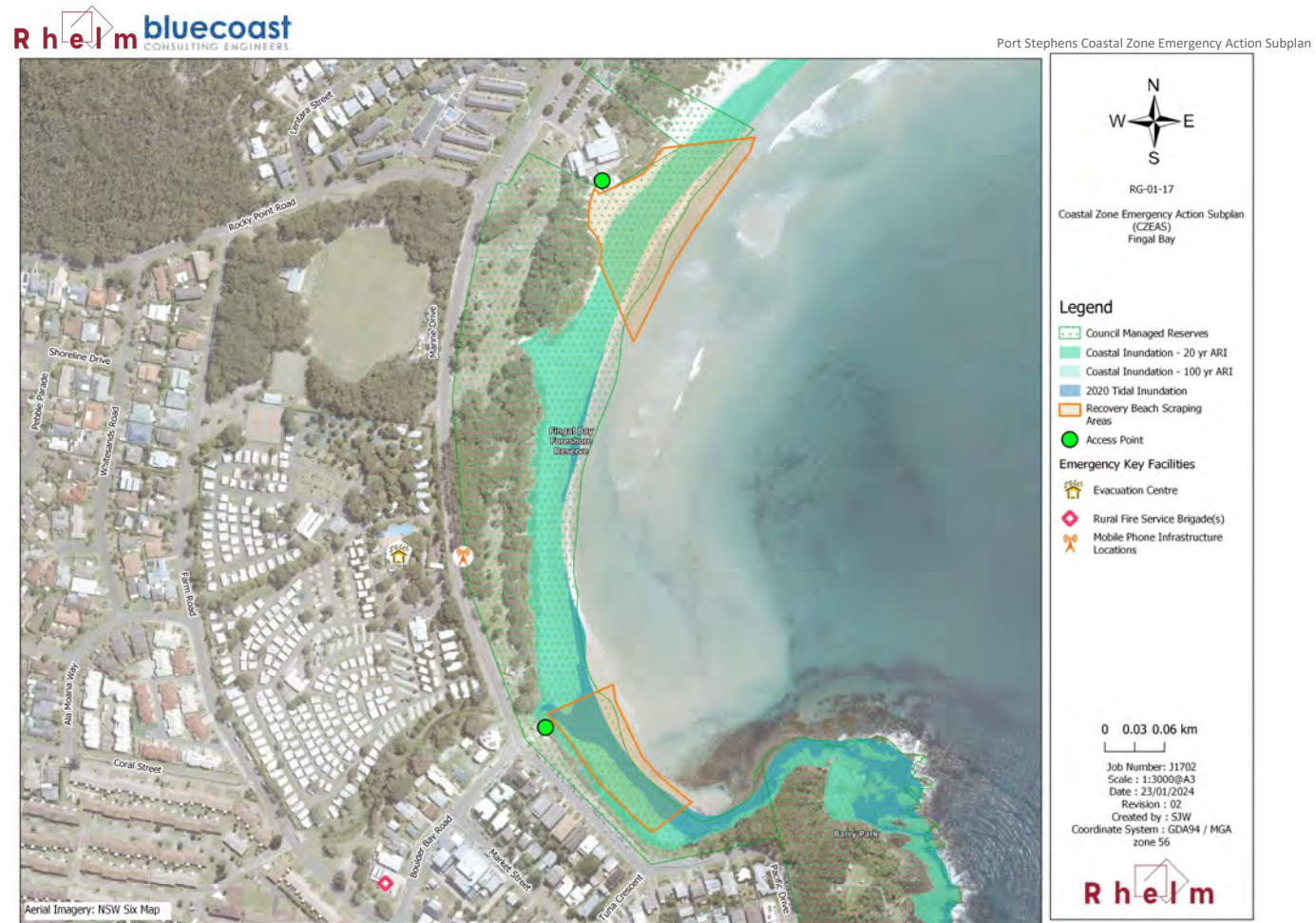


Figure 6-27 Fingal Bay CZEAS Overview



Port Stephens Coastal Zone Emergency Action Subplan

6.22 One Mile

One Mile Beach is subject to coastal inundation. In a 20 year ARI event or greater, public open space at risk includes **One Mile Beach Reserve**.

Although One Mile Beach is subject to beach erosion, the present erosion hazard mapping does not indicate any risk to built assets. Hence, no emergency coastal protection works are considered necessary.

Table 6-20 lists the response action plan for One Mile Beach while an overview map of the area is provided in **Figure 6-28**.

Table 6-20 Coastal Emergency Actions for One Mile Beach

Action	Responsibility
Phase 1 – Prevention	
See Section 6.1 - Overarching Prevention (Phase 1) Actions	Council
Phase 2 – Preparation	
See Section 6.2 - Overarching Preparatory (Phase 2) Actions	Council
Phase 3 – Response	
Implement the communication protocol in conjunction with the combat agency (NSW SES) to advise landholders, residents, public authorities and other organisations that a coastal emergency is likely or is occurring and that actions in this CZEAS are to be implemented.	Council and NSW SES
Alert residents if risk level is high and if any emergency management actions are being implemented.	NSW SES
Erect temporary signage of dangers and/or closure to the beach (including accessways) and affected foreshore reserves.	Council and SLSC
Increase surveillance of coastal hazards at this location.	Council
Close affected Council managed reserves. <ul style="list-style-type: none"> One Mile Beach Reserve 	Council
Implement the One Mile Beach SLSC emergency action strategy, developed as part of action CH083 in the CMP.	SLSC
Liaise with other agencies, including TfNSW, Crown Land and NPWS if debris from coastal hazards creates a safety hazard in adjoining areas.	Council
Phase 4 – Recovery	
Inspect the beach, public assets and properties after damaging storm events and carry out works to ensure the area is safe, including general clean up and clearing of any exposed debris, before taking down signage or reopening the area.	Council
Beach scraping may be undertaken if required to restore public beach access following significant storm erosion and to assist beach recovery in accordance with the methodology in Section 6.4.1 . The location and scale of beach scraping activities will depend on the damage caused by the event and will need to be determined at the time of the event. A general area for recovery beach scraping is provided in Figure 6-28 .	Council
Maintain temporary safety fencing and associated warning signage, as necessary.	Council
Erect permanent warning signs if necessary.	Council
Restore access to beaches and headlands.	Council



Action	Responsibility
Issue clean-up orders under the LG Act.	Council
Assess the structural integrity of unprotected assets affected by or damaged during the coastal emergency event. Geotechnical, structural and/or coastal engineering investigations may be required to understand residual risk following a coastal emergency event.	Council
Undertake works to re-establish or enhance the natural protective features of the coast, such as dune shaping and revegetation.	Council
Issue orders under the LG Act and/or the EP&A Act when properties are deemed structurally unsafe or pose a risk to the public.	Council
Critically review this CZEAS, communications protocol/plan and operational procedures to ensure they achieved their performance objectives. Amend if shortcomings or improvements are identified.	Council

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Port Stephens Coastal Zone Emergency Action Subplan

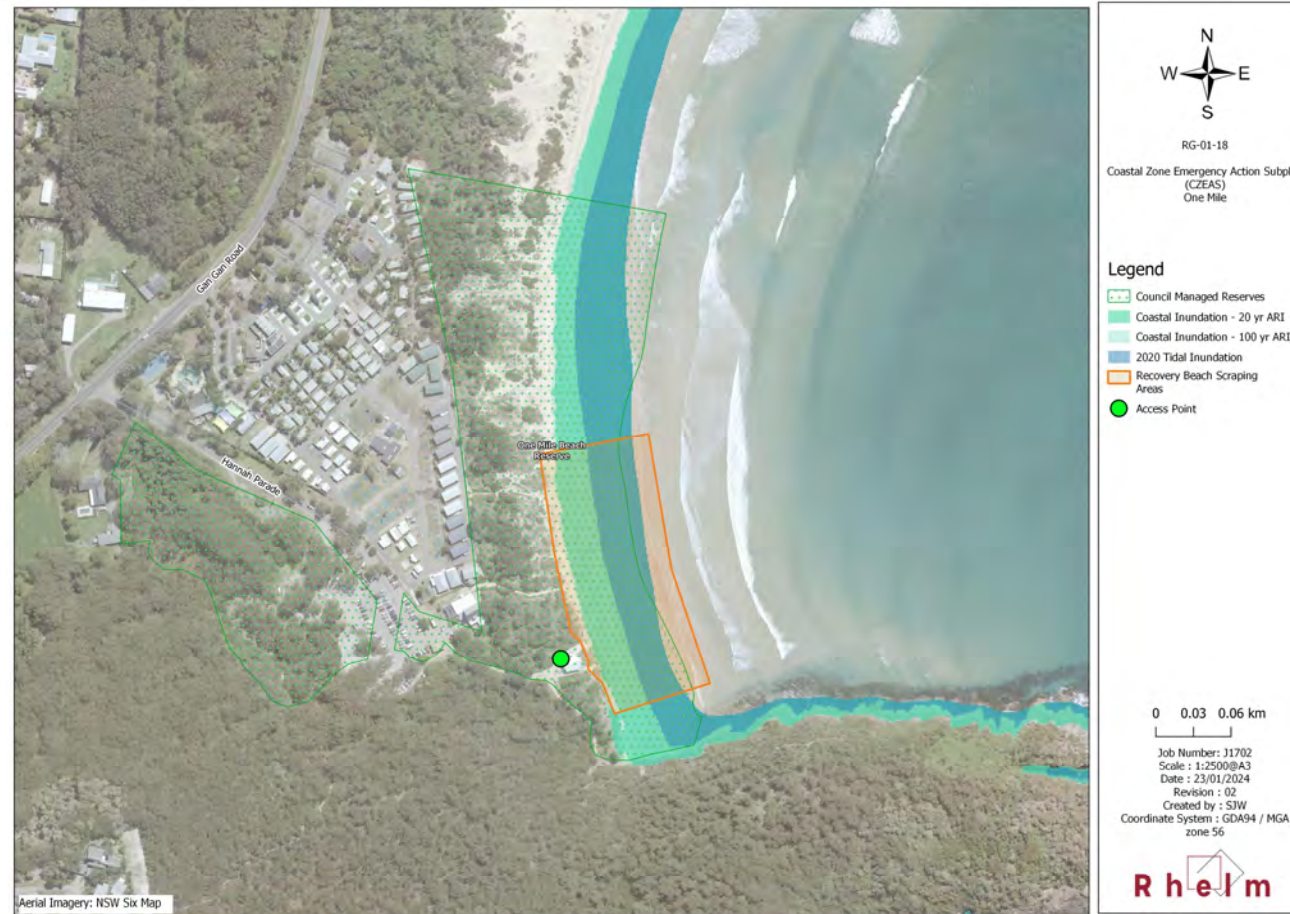


Figure 6-28 One Mile CZEAS Overview



6.23 Aboriginal Cultural Sites

The Port Stephens coastal zone has significant Aboriginal cultural heritage sites. This includes extensive coastal middens, scarred trees, burial sites, ceremonial sites and archaeology, as well other cultural aspects and values that are of importance to the Worimi and broader Indigenous community. Beach erosion can adversely impact these sites, which are located throughout the Port Stephens coastal zone. Should these sites be exposed during a coastal erosion event, there may be a number of actions to ensure that these sites are suitably managed appropriately in accordance with the Worimi's wishes, where safe to do so.

It is noted that, while there are a number of known sites, the high potential for cultural heritage sites throughout the coastal zone means that there may be previously unidentified sites that are at risk from beach erosion. The subject area where this section of the CZEAS applies is indicated in **Figure 6-29 to Figure 6-33** and includes Council owned land or Crown land for which Council is the Trust Manager; noting, however, that the only Council controlled land to which this CZEAS would apply is that located along the open coast or estuarine shoreline that may from time to time be impacted by coastal erosion).

Therefore, the emergency response action plan for Aboriginal cultural heritage sites in **Table 6-21** applies to both known and previously unidentified cultural heritage sites on the subject land.

Table 6-21 Coastal Emergency Actions for Aboriginal Cultural Heritage Sites

Action	Responsibility
Phase 1 – Prevention	
See Section 6.1 - Overarching Prevention (Phase 1) Actions	Council
Work in partnership with the Aboriginal community, LALCs, DCCEEW, NPWS and Heritage NSW to understand and provide advice to the community, landholders and the NSW SES about the potential for a coastal emergency event and the types of responses that are permitted and not permitted.	Council, DCCEEW, LALCs
Phase 2 – Preparation	
See Section 6.2 - Overarching Preparatory (Phase 2) Actions	Council
Where feasible, identify the most appropriate emergency coastal protection works including access and location. These specific locations proposed for emergency coastal protection works should be identified and appropriate emergency coastal works, thresholds and triggers for action should be developed in consultation with the Aboriginal community, LALCs, DCCEEW, Heritage NSW and affected landholder(s). The appropriate emergency coastal protection work is considered to be site protection using sandbags or beach nourishment.	Council
Prepare an environment impact assessment for emergency coastal protection works and gain necessary approvals from state agencies.	Council
Phase 3 – Response	
Implement the communication protocol in conjunction with the combat agency (NSW SES) to discuss actions with the Aboriginal Community, LALCs, Heritage NSW, DCCEEW, NPWS, landholders, residents, public authorities and other organisations that a coastal emergency is likely or is occurring and that actions in this CZEAS are to be implemented.	Council and NSW SES
If any emergency management actions are being implemented, alert Aboriginal community, LALCs, Heritage NSW, DCCEEW, NPWS, landholders, residents, public authorities.	Council
Erect temporary signage of dangers or closure to the beach.	Council
Alert land managers about access requirements.	Council



Increase surveillance of coastal hazards at this location.	Council and Traditional Owners
Place appropriate equipment on stand-by.	Council
<p>Protection works should be undertaken in safe conditions, if the following triggers are reached:</p> <ul style="list-style-type: none"> Exposure of Aboriginal cultural site occurs and Aboriginal community and/or NSW Government agencies have discussed, and emergency protection works are required. <p>The emergency protection structure will be temporary and constructed as a stack of sandbags placed along the toe of the escarpment. Emergency protection would prioritise sections of the shoreline and assets most exposed at the time.</p> <p>Upon identifying the need for emergency coastal protection works, a suitably qualified coastal engineer, along with the appropriate Aboriginal community representative, likely a Traditional Owner, should be consulted to determine the details of the design.</p> <p>Plant and equipment for undertaking the works should avoid disturbance to surrounding areas, in particular damage to Aboriginal cultural assets and existing dune and cliff vegetation.</p>	Council and Traditional Owners
Phase 4 – Recovery	
Inspect the beach and cultural sites after damaging storm events and carry out works to ensure the area is safe, including general clean up and clearing of any exposed debris, before taking down signage or reopening the area.	Council and Traditional Owners
Beach scraping may be undertaken if required to restore public beach access following significant storm erosion and to assist beach recovery in accordance with the methodology in Section 6.4.1 . The location and scale of beach scraping activities will depend on the damage caused by the event and will need to be determined at the time of the event and with consultation with Traditional Owners and a coastal engineer.	Council
Erect permanent warning signs if necessary.	Council
Remove any sandbags within 90 days.	Council
Monitor the condition, performance and impact of any coastal protection works or emergency coastal protection works.	Council
Restore access to beaches and headlands.	Council
Maintain temporary safety fencing and associated warning signage, as necessary.	Council
Replenish any emergency materials and supplies for future emergency events.	Council
Critically review this CZEAS, communications protocol/plan and operational procedures to ensure they achieved their performance objectives. Amend if shortcomings or improvements are identified.	Council

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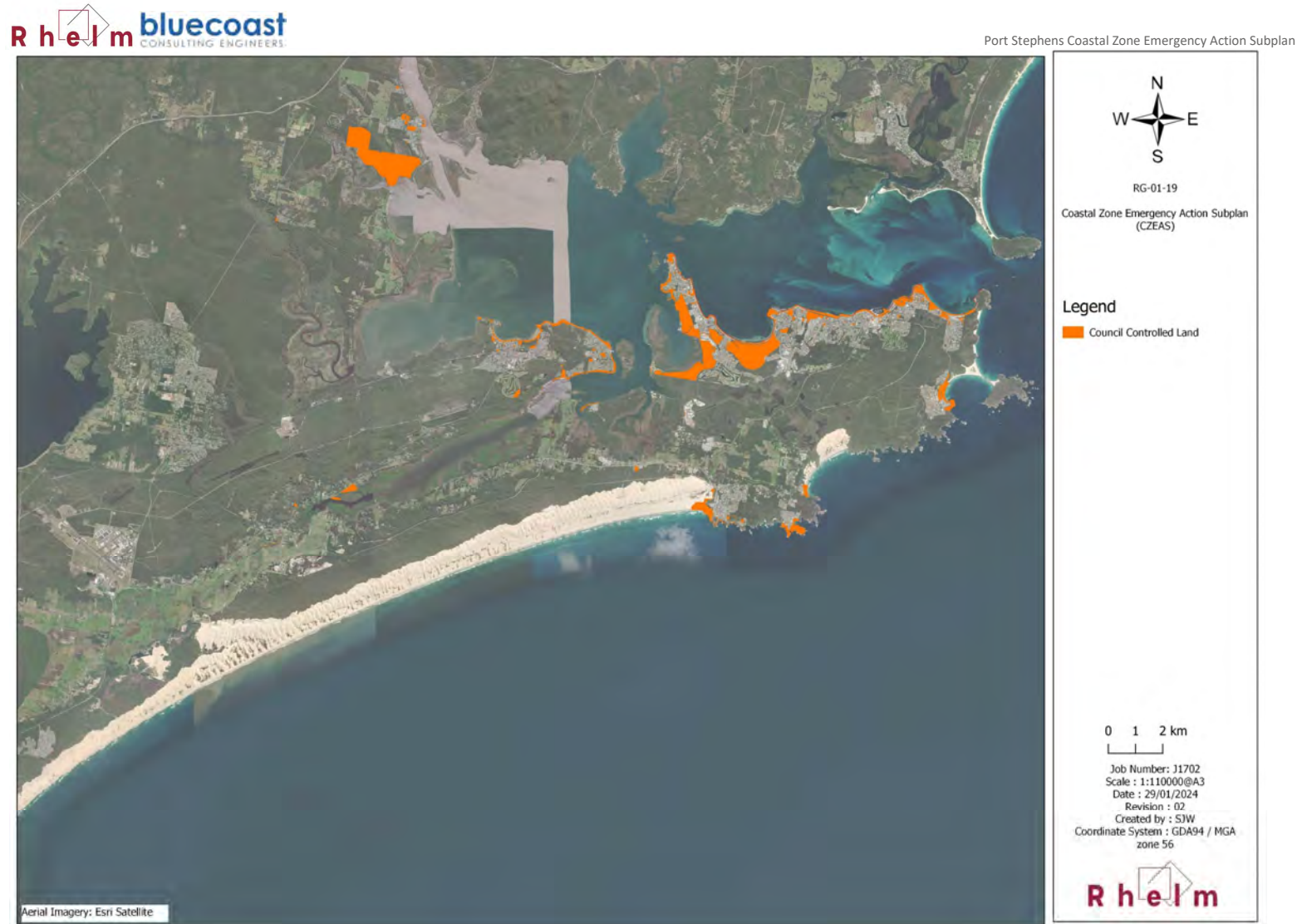


Figure 6-29 Council Managed Land with Known or Potential Aboriginal Cultural Heritage Sites (LGA Overview)

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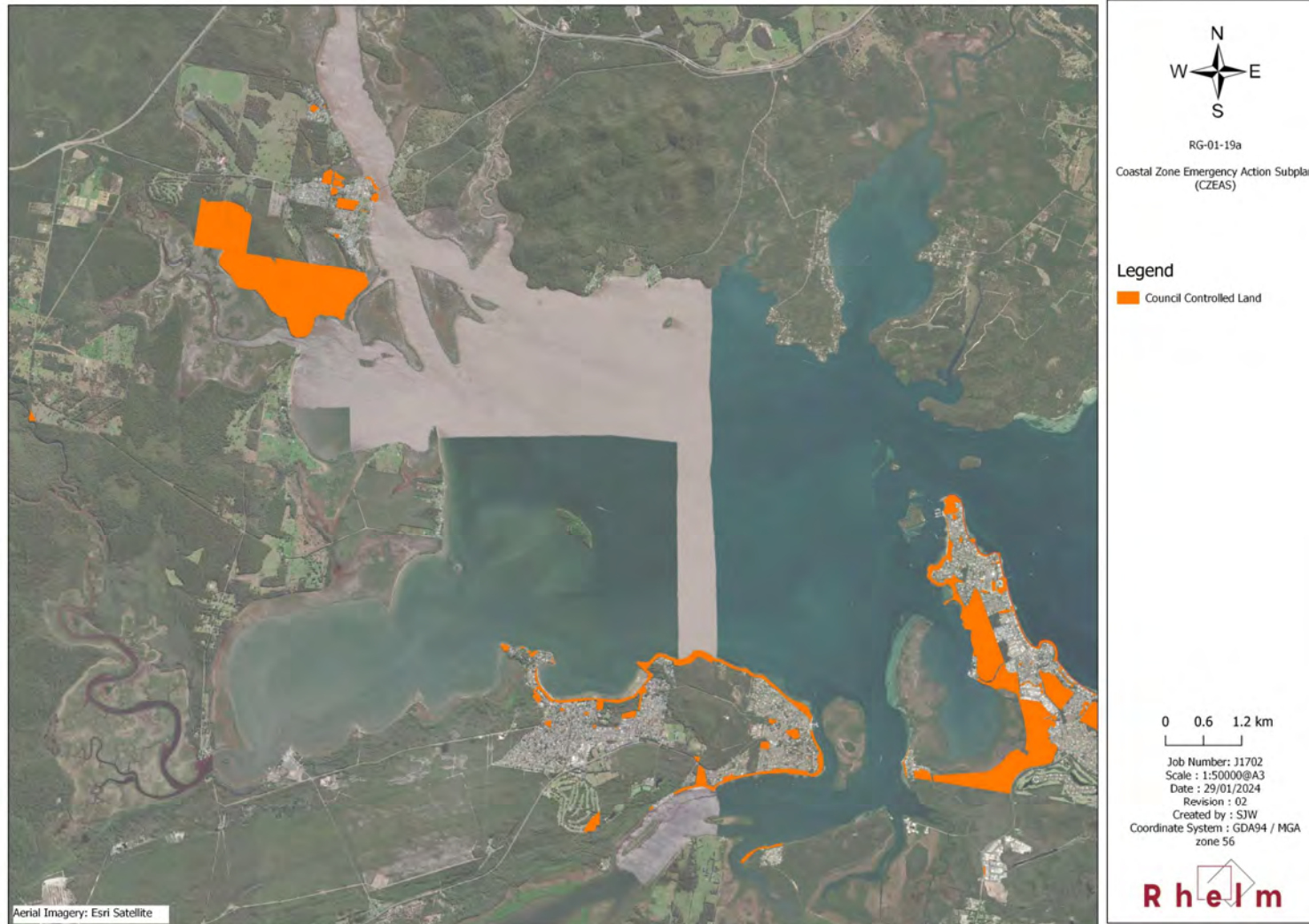


Figure 6-30 Council Managed Land with Known or Potential Aboriginal Cultural Heritage Sites (Inner Port)

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Figure 6-31 Council Managed Land with Known or Potential Aboriginal Cultural Heritage Sites (Outer Port)

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Figure 6-32 Council Managed Land with Known or Potential Aboriginal Cultural Heritage Sites (Salt Ash)

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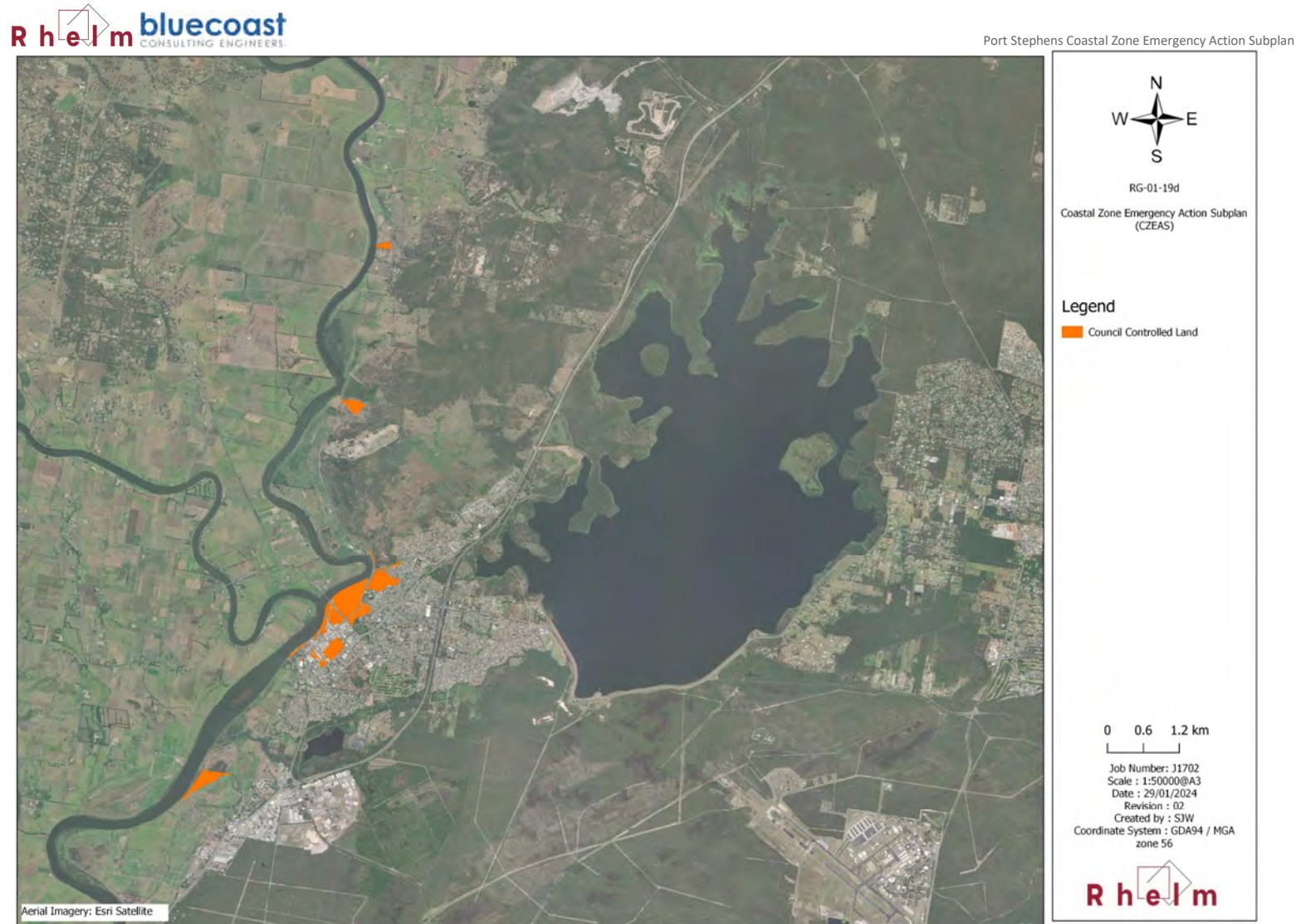


Figure 6-33 Council Managed Land with Known or Potential Aboriginal Cultural Heritage Sites (Inland Areas)



7 References

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Appendix D

E012 – Sand Management Action
Details





Management Action E012 – Sand Management Action

Birubi Point Activities (Figure D-1)

1. Removal of accreted sand from the car park, usually four times a year. The cost of removal of accreted sand under Items 1 and 2 is estimated at around \$5,000 each time.
2. Removal of accreted sand from around the SLSC, usually four times a year.
3. Management of sand accreted in drainage channel and beach scraping around the boat ramp. The works are usually undertaken twice a year (at an estimated cost of \$3,000 each time) after a big swell or coastal storm event where debris and sand accumulate in the playground and at the boat ramp. Clearing of the stormwater outlet/channel is undertaken to ensure Robinson Reserve can drain freely. Sand is pushed onto the adjacent beach.



Figure D-1 – Birubi Point Sand Management Activities

D1

Boat Harbour Activity (Figure D-2)

1. Stormwater causes beach erosion at the toe of the boat ramp. Beach scraping is undertaken to address this issue around twice each year at a cost of around \$3,000 each time.



Figure D-2 – Boat Harbour Sand Management Activity

D2

One Mile Beach Activities (Figure D-3)

1. Beach scraping to address erosion at the base of stairs/accessways at a cost of around \$3,000 each time.
2. Beach scraping to reprofile where sand erodes at the location where the SLSC brings their equipment (e.g., ATVs) down to the beach. This is estimated to cost around \$30,000 and be undertaken twice a year.
3. Removal of accreted sand from around the SLSC, usually twice a year at a cost of around \$3,000.



Figure D-3 – One Mile Beach Sand Management Activities

D3



Fingal Bay Beach Activities (Figure D-4)

1. Beach scraping is undertaken six times a year to address erosion at the base of each of the seven beach accessways at a cost of around \$3,000 each time.
2. Beach scraping to reprofile where erosion occurs near the stormwater outlet near Boulder Bay Road, impacting access via the boat ramp at a cost of around \$3,000 each time. Undertaken concurrent with beach scraping at the accessways.
3. Beach scraping near the SLSC where sand accumulates near the roller doors and makes access difficult. Undertaken roughly twice a year at an estimated cost of \$3,000.

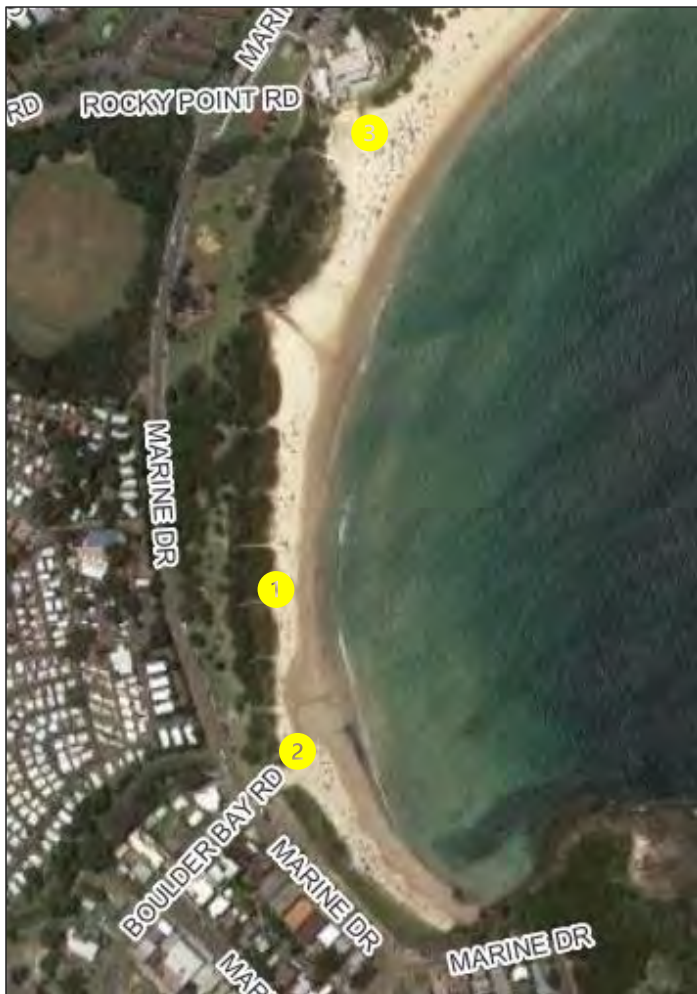


Figure D-4 – Fingal Bay Sand Management Activities

D4



Little Beach (Figure D-5)

1. Dredging of sand from below MHWL around the boat ramp, as provided for under Action RA045. Typical volumes of 80-100 m³ are dredged, and the sand is placed downdrift of the boat ramp, or if it is not required in this location, placed on Nelson Bay Beach adjacent to the splash park where erosion occurs.



Figure D-5 – Little Beach Dredging / Sand Source

Nelson Bay Activities (Figure D-6)

1. Placement location for sand dredged from the Little Beach boat ramp or Nelson Bay Marina under Action RA045.



Figure D-6 – Nelson Bay Sand Management Activities

D5



Lemon Tree Passage Activity (Figure D-7)

1. Sand accrues in the park next to the swimming enclosure and on the shared user path. The accumulation of sand can clog the irrigation system. This activity involves the removal of accumulated sand and is undertaken roughly every five years at a cost of around \$5,000 each time.



Figure D-7 – Lemon Tree Passage, Sand Accretion

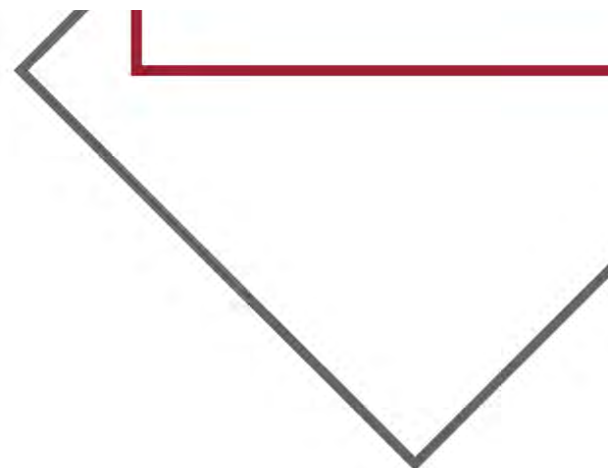
Tanilba Bay Sailing Club Activity (Figure D-8)

1. Minor nourishment (around 3 m³) is undertaken near the Sailing Club every two years to address erosion and improve access. The sand is sourced from a commercial provider and placed at the site at a cost of around \$100 each time.



Figure D-8 – Tanilba, Minor Nourishment

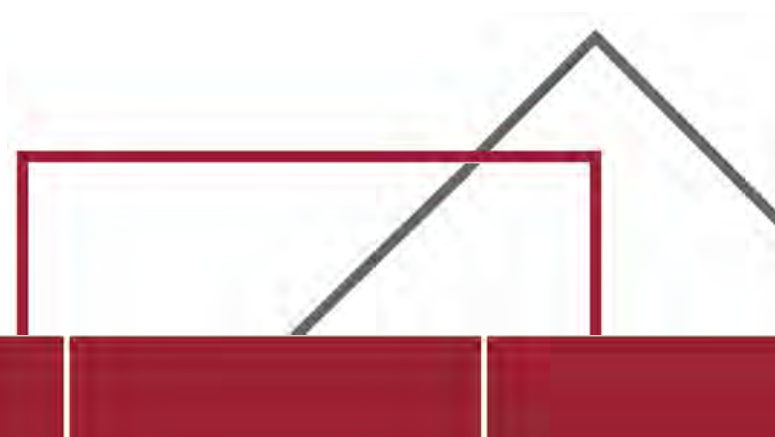
D6

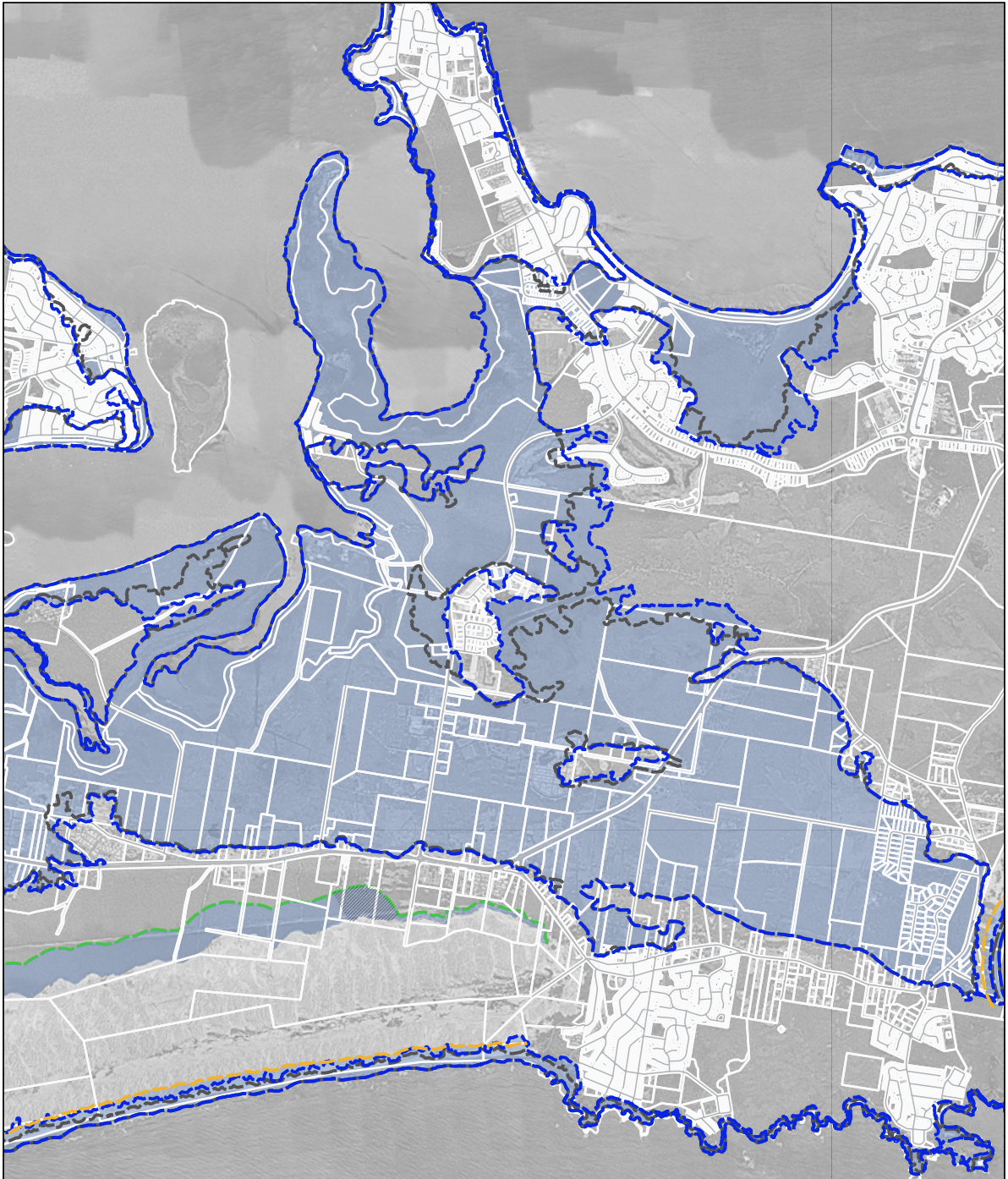


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Appendix E

Port Stephens Coastal Risk Planning
Maps





Coastal Risk Planning Map - Anna Bay-One Mile

0 500 1000 m



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Coastal Risk Planning Map

2120 Extreme coastal erosion (BMT, 2021)

2120 Tidal inundation (95th percentile) (BMT, 2021)

2120 1%AEP Coastal inundation (95th percentile) (BMT, 2021)

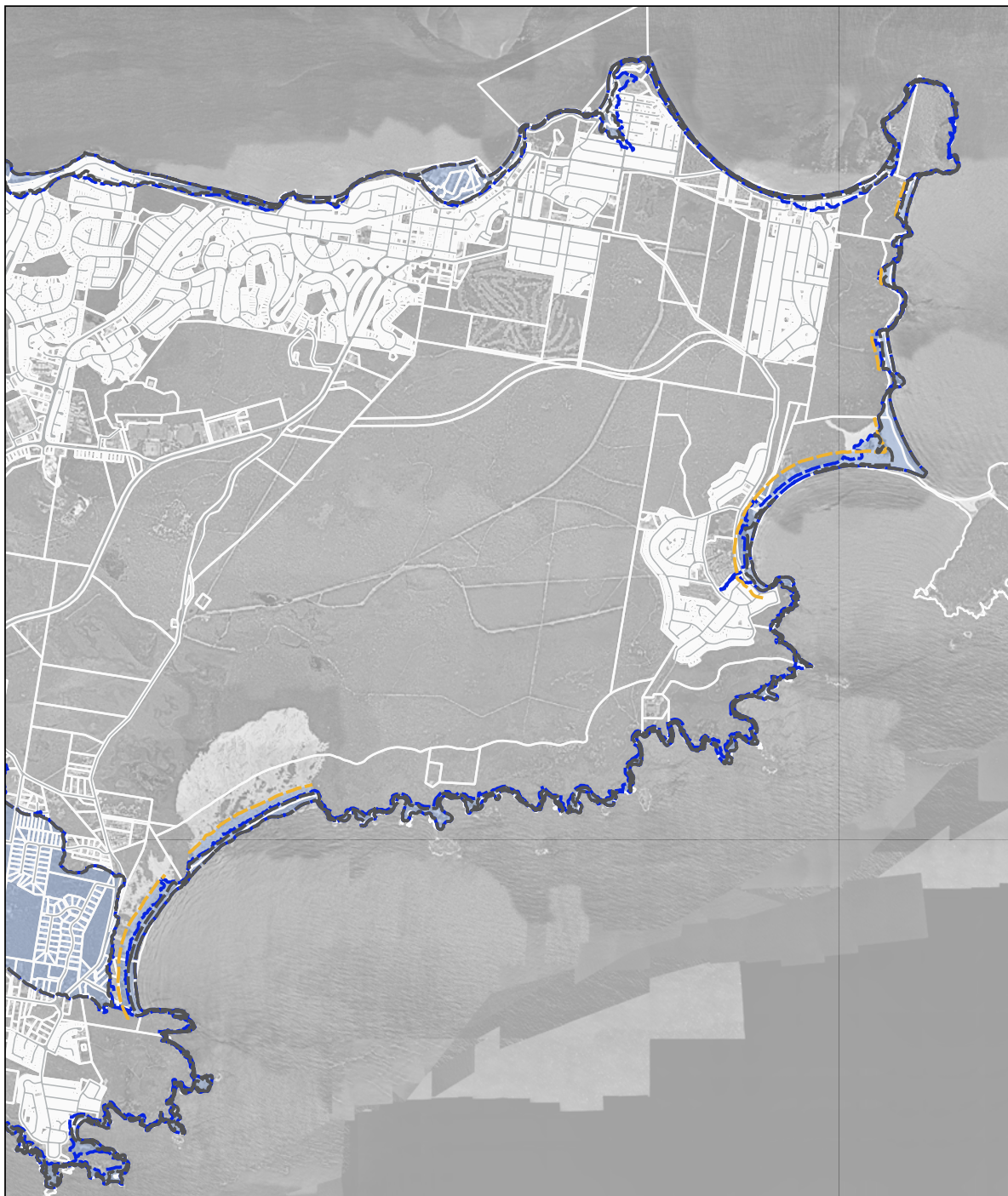
2070 Upper limit dune transgression (BMT, 2021)

Cadastral (white line)

Manual adjustment to BMT (2021) mapping

Horiz. datum: GDA2020 MGA56

* Coastal erosion calculated for open coast only



Coastal Hazard Planning Overlay - Open Coast

0 700 1400 m

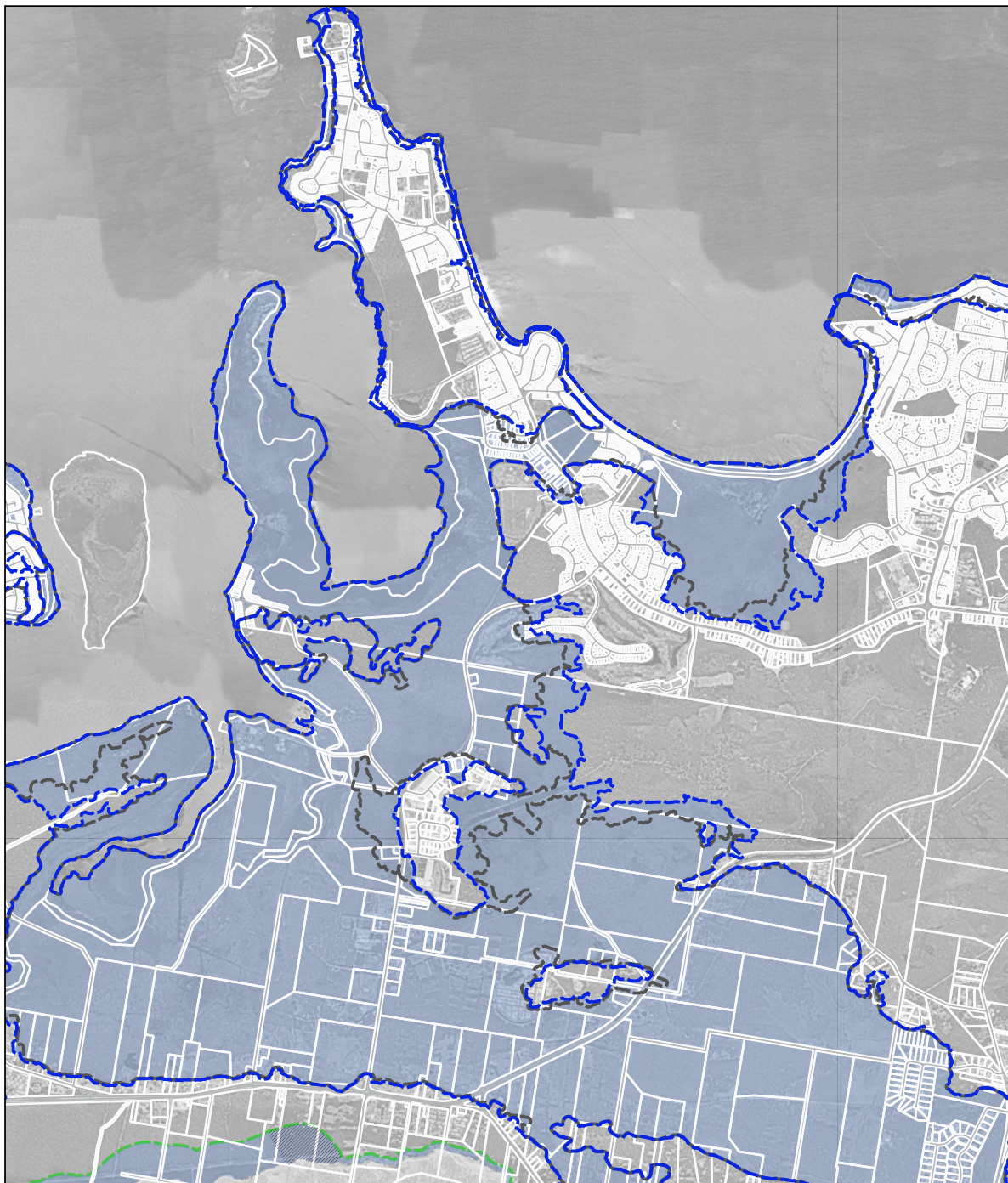


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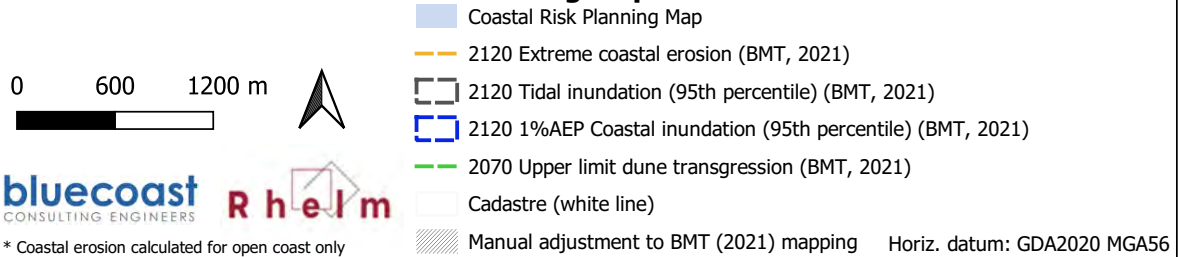
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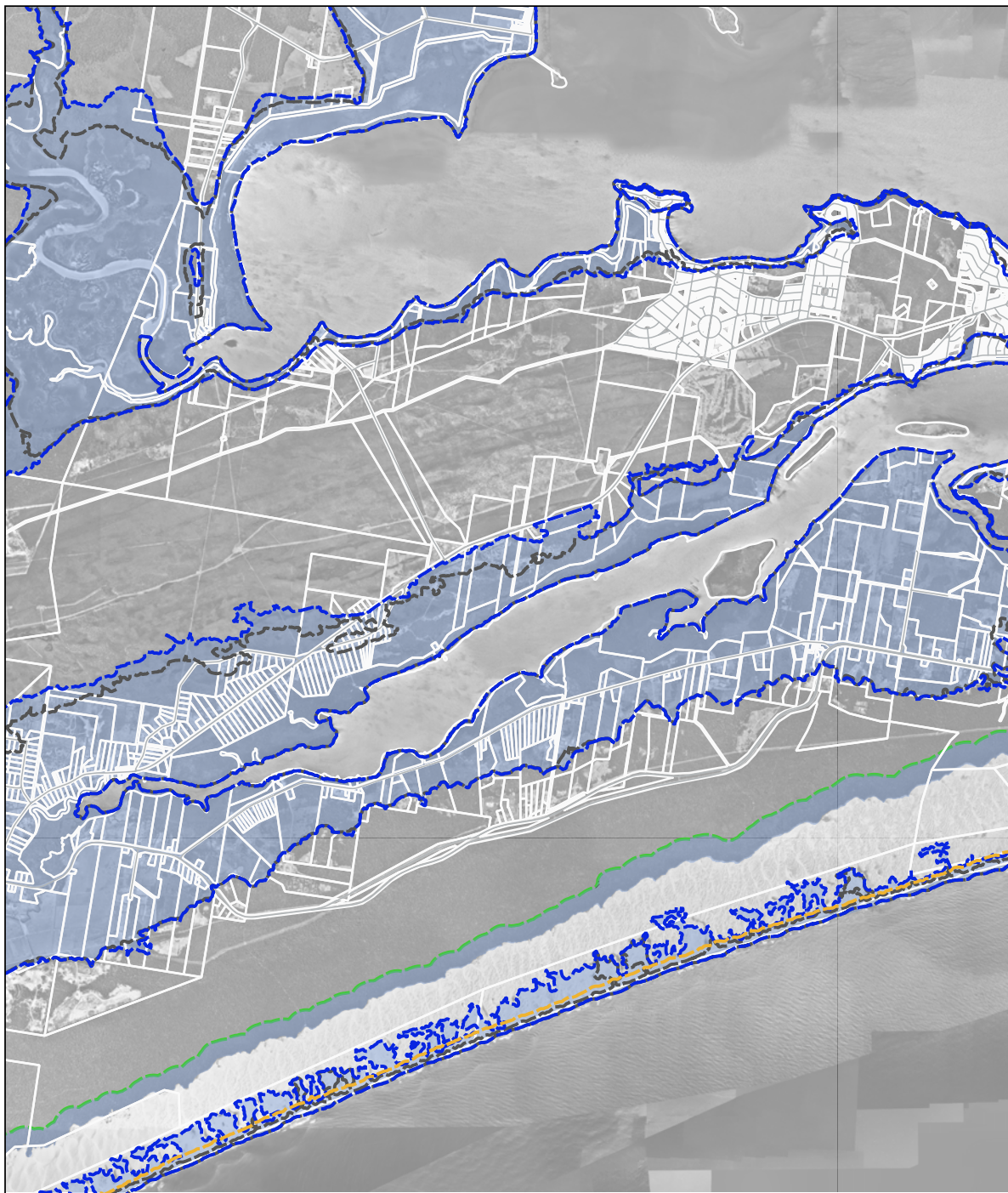
- Coastal Risk Planning Map
- 2120 Extreme coastal erosion (BMT, 2021)
- 2120 Tidal inundation (95th percentile) (BMT, 2021)
- 2120 1%AEP Coastal inundation (95th percentile) (BMT, 2021)
- 2070 Upper limit dune transgression (BMT, 2021)
- Cadastre (white line)

Horiz. datum: GDA2020 MGA56



Coastal Risk Planning Map - Soldiers Point





Coastal Risk Planning Map - Tilligerry Creek

0 800 1600 m



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* Coastal erosion calculated for open coast only

- Coastal Risk Planning Map
- 2120 Extreme coastal erosion (BMT, 2021)
- 2120 Tidal inundation (95th percentile) (BMT, 2021)
- 2120 1%AEP Coastal inundation (95th percentile) (BMT, 2021)
- 2070 Upper limit dune transgression (BMT, 2021)
- Cadastre (white line)

Horiz. datum: GDA2020 MGA56



Coastal Risk Planning Map - Inner Harbour

0 900 1800 m



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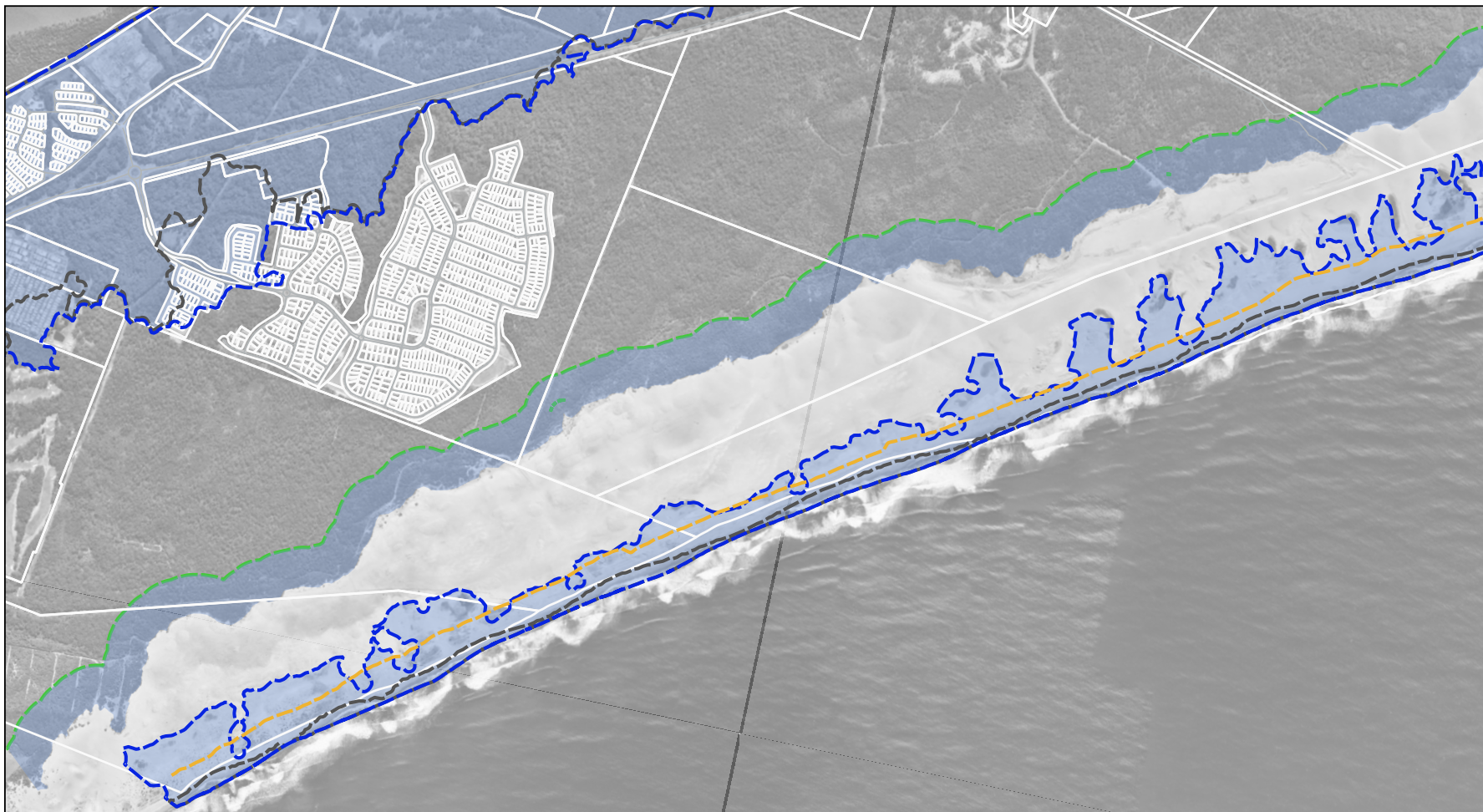
R h e l m

* Coastal erosion calculated for open coast only

- Coastal Risk Planning Map
- 2120 Extreme coastal erosion (BMT, 2021)
- 2120 Tidal inundation (95th percentile) (BMT, 2021)
- 2120 1%AEP Coastal inundation (95th percentile) (BMT, 2021)
- 2070 Upper limit dune transgression (BMT, 2021)
- Cadastre (white line)

Horiz. datum: GDA2020 MGA56

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Coastal Risk Planning Map - Stockton Bight (far south)

0 400 800 m

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Coastal Risk Planning Map

2120 Extreme coastal erosion (BMT, 2021)

2120 Tidal inundation (95th percentile) (BMT, 2021)

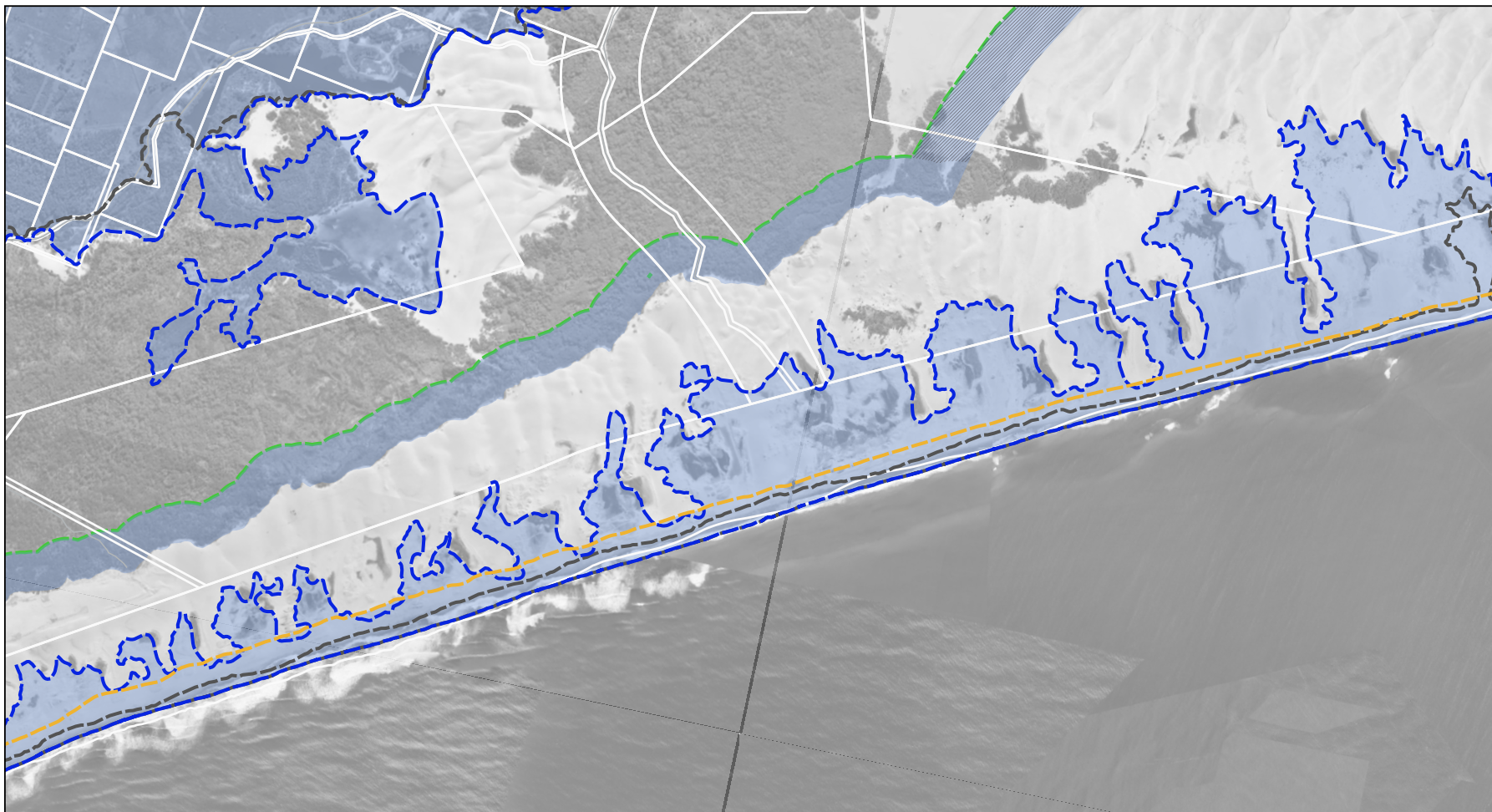
2120 1%AEP Coastal inundation (95th percentile) (BMT, 2021)

2070 Upper limit dune transgression (BMT, 2021)

Cadastre (white line)

Manual adjustment to BMT (2021) mapping

Horiz. datum: GDA2020 MGA56



Coastal Risk Planning Map - Stockton Bight (south)

0 400 800 m

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Coastal Risk Planning Map

2120 Extreme coastal erosion (BMT, 2021)

2120 Tidal inundation (95th percentile) (BMT, 2021)

2120 1%AEP Coastal inundation (95th percentile) (BMT, 2021)

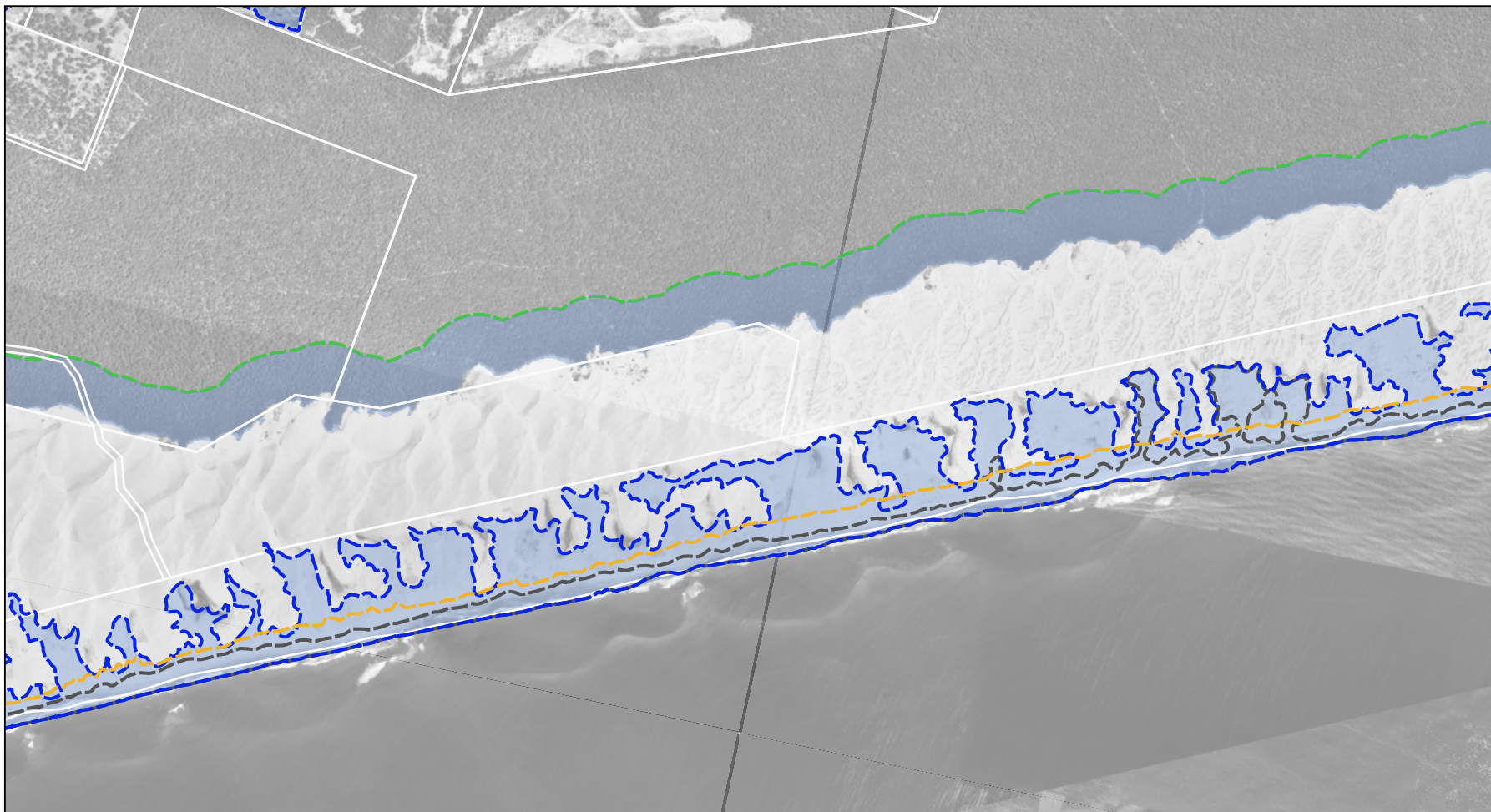
2070 Upper limit dune transgression (BMT, 2021)

Cadastre (white line)

Manual adjustment to BMT (2021) mapping

Horiz. datum: GDA2020 MGA56

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Coastal Risk Planning Map - Stockton Bight (central)

0 300 600 m



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Coastal Risk Planning Map

2120 Extreme coastal erosion (BMT, 2021)

2120 Tidal inundation (95th percentile) (BMT, 2021)

2120 1%AEP Coastal inundation (95th percentile) (BMT, 2021)

2070 Upper limit dune transgression (BMT, 2021)

Cadastre (white line)

Manual adjustment to BMT (2021) mapping

Horiz. datum: GDA2020 MGA56