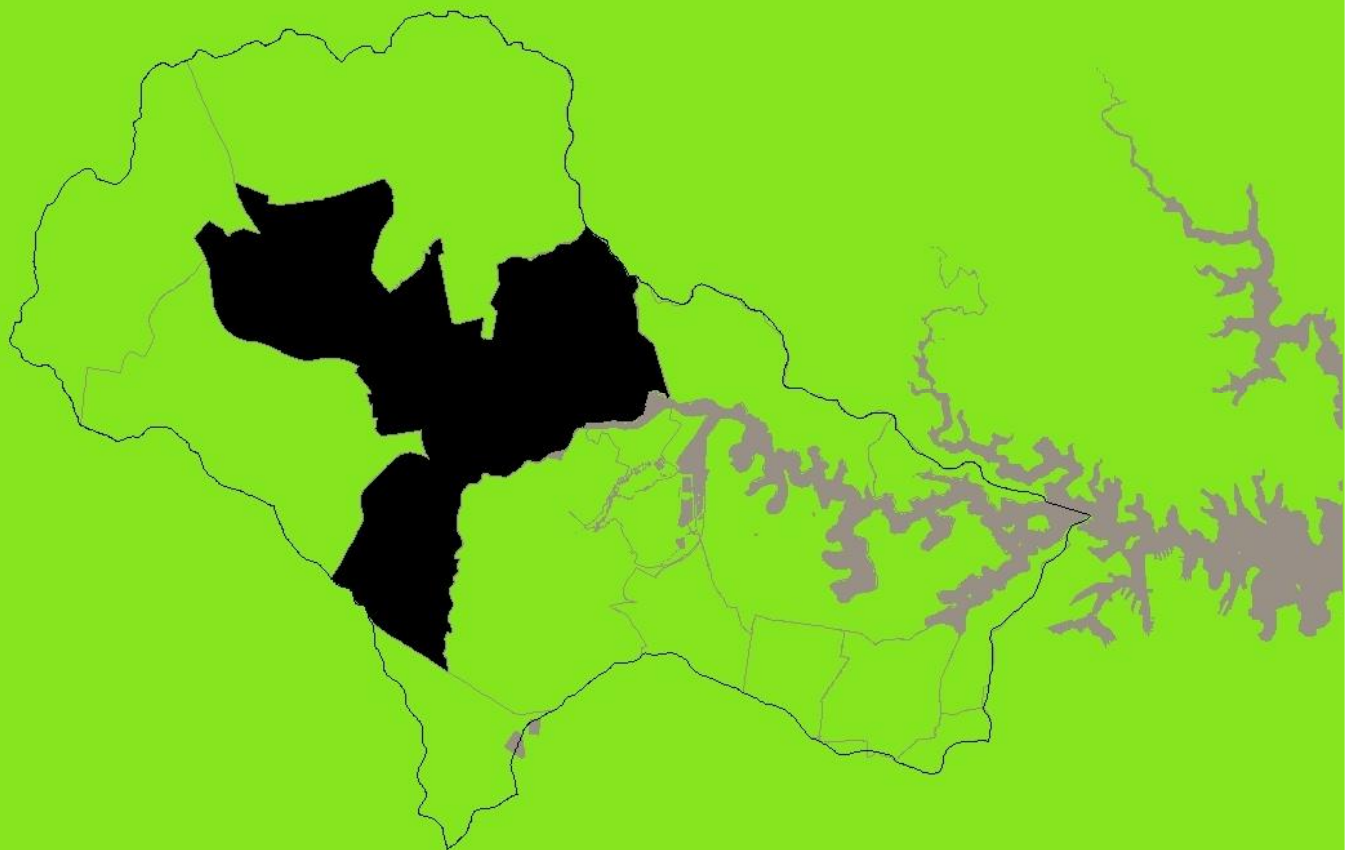


Parramatta LGA



9.10 Parramatta LGA

9.10.1 General Description

The Parramatta LGA is one of the four primary centres in the Greater Sydney Metropolitan Region, with the Parramatta Central Business District located at the upper catchment outlet to the river. The LGA covers an approximate area of 5,681 ha, which contribute to the following major catchment areas:

- Upper catchment to tidal extent of river at Parramatta Weir (2,223 ha);
- Duck River catchment (39% or 1,840 ha);
- Vineyard Creek catchment (381 ha);
- The Ponds-Subiaco Creek system catchment (846 ha); and
- Additional sub-catchment areas along the foreshore, including:
 - River South in Parramatta (24 ha),
 - River North in Parramatta (40 ha), and
 - River North in Rydalmere (327 ha).

9.10.2 Stormwater Management and GPTs

In 2006/07 approximately 135 tonne of sediment, litter and organic matter was removed from Council's stormwater gross pollutant traps. Stormwater devices located on these tributaries within the Parramatta LGA are summarised in Table 9-58.

Table 9-58. Parramatta LGA Stormwater Devices

Name	Location	Suburb	Catchment
Rocla	Blackwattle Court (adj. #16)	Constitution Hill	Upper River
Rocla	Centenary Ave (adj. #46)	Constitution Hill	Upper River
Rocla	Grey Gum Cres (adj. #20)	Constitution Hill	Upper River
Rocla	Pepper Cress Pl (adj. #2)	Constitution Hill	Upper River
CDS Unit	Midson Rd (David Scott Reserve)	Epping	River North
Enviropod	Betty Cuthbert Ave (carpark pits)	Ermington	Ponds - Subiaco
Trash rack	Cowells Lane (adj. to Nursery)	Ermington	Ponds - Subiaco
Ecosol	Betty Cuthbert Ave	Ermington	Ponds - Subiaco
CDS Unit	Morton St (Council Depot)	Granville	Duck Creek
Humeceptor	Enid Ave (Granville Carpark)	Granville	Duck Creek
basket	Harris St (under M4)	Granville	Duck Creek
Ecosol inserts	Guildford Road	Guildford	Duck Creek
Ecosol	Wigram St	Harris Park	Clay Cliff Creek
Ski-Jump	Illawong Drive (Lake Parramatta)	North Parramatta	Upper River
Rocla	Briens Rd	Northmead	Upper River
Ecosol inserts	Church St (Mall & Southside)	Parramatta	River South
CDS Unit	Phillip St (David Frater Reserve)	Parramatta	River South
CDS Unit	Phillip St (David Frater Reserve)	Parramatta	River South
CDS Unit	Morton St (Council Depot carpark)	Parramatta	River North

Name	Location	Suburb	Catchment
CDS Unit	Wentworth Ave	Pendle Hill	Upper River
Ecosol	Shirley St	Rosehill	Duck Creek
CDS Unit	John St (Ferry wharf Carpark)	Rydalmere	River North
Trash rack	Randolph Street	South Granville	Duck River
Nets x 2	Blaxcell St (opp. Churchill St)	South Granville	Duck River
Net	Wellington Rd	South Granville	Duck River
Nets x 2	Mons St	South Granville	Duck River
Net	Dixmude St	South Granville	Duck River
Ecosol	Evans Rd (Telopea Shopping Centre)	Telopea	Ponds - Subiaco
Trash rack	Burrabogee Rd	Toongabbie	Upper River
Ecosol	Ancona Avenue	Toongabbie	Upper River
CDS Unit	Park Ave (Parramatta Park)	Westmead	Upper River
Trash rack	Wilmott Ave (Lions Park)	Winston Hills	Upper River

Fifty stormwater outlets were identified which discharge directly into the estuary from the Parramatta LGA. A number of outlets should be investigated to determine whether gross pollutant control or other stormwater management incentive may be warranted. Outlets include, but are not limited to, those draining directly to the river from foreshore land that is not associated with major tributaries or canals (e.g. River_South_091, River_South_094, River_North_095, and River_North_106).

The location of gross pollutant traps and stormwater outlets are illustrated on Figures 9.9(a) to 9.9(f).

9.10.3 Seawalls

The Parramatta LGA contains approximately 5.0 km of seawalls (within the study area) of which 25 sections of seawall were assessed (Table 9-59). Management recommendations for high priority seawall sections are summarised in Table 9-60 and assessment details are appended to this section (Appendix 9).

Table 9-59. Seawalls assessed within the Parramatta LGA

Asset Name	Location	Condition	Length (m)	Existing habitat
PAR_S01	George Kendall Reserve, Ermington	Good	992.2	Mangroves and saltmarsh patches
PAR_S02	Broadoak Waters Development, Ermington	Poor	720.4	Rock rubble, planted saltmarsh
PAR_S03	Silverwater Bridge, North Abutment	Good	27.7	Rock rubble
PAR_S04	Silverwater Bridge, North Abutment	Failed	22.8	Rock rubble, sand
PAR_S05	Silverwater Bridge, North Abutment	Good	21.7	Rock rubble, sand
PAR_S06	West of Silverwater Bridge North Abutment	Poor	1200.0	Mangroves
PAR_S07	West of Thackeray St Footbridge, Rydalmere	Failed	40.0	Rock rubble

Asset Name	Location	Condition	Length (m)	Existing habitat
PAR_S08	Park Road, Rydalmere	Good	32.8	None obvious
PAR_S09	Beneath Rydalmere Rail Bridge	Failed	87.6	Rocks, occasional mangroves
PAR_S10	Western extent of Parramatta River, North Bank	Failed	115.1	Rock
PAR_S11	Western extent of Parramatta River, North Bank	Poor	10.1	Rock
PAR_S12	Charles St Weir, tidal extent of Parramatta River	Good	77.1	Weir - falling water
PAR_S13	Western extent of Parramatta River, South Bank	Poor	16.2	Rock
PAR_S14	Parramatta Ferry Wharf	Good	111.6	Isolated occurrence of mangrove
PAR_S15	West of Macarthur St Bridge, South Bank	Good	57.8	None obvious
PAR_S16	East of Macarthur St Bridge, South Bank	Poor	202.9	None obvious
PAR_S17	East of Macarthur St Bridge, South Bank	Failed	79.3	Extensive cavities, sessile invertebrates present
PAR_S18	East of Macarthur St Bridge, South Bank	Good	200.4	Rock rubble, scattered mangroves
PAR_S19	West of James Ruse Drive Bridge, South Bank	Good	17.5	Scattered mangroves
PAR_S20	Beneath Rydalmere Rail Bridge, South Bank	Poor	60.6	Rock rubble
PAR_S21	East of Rydalmere Rail Bridge, South Bank	Poor	283.3	Mangroves
PAR_S22	East of Rydalmere Rail Bridge, South Bank	Failed	194.2	Intermittent mangroves
PAR_S23	East of Rydalmere Rail Bridge, South Bank	Good	90.4	Rock rubble
PAR_S24	West of Thackeray St Footbridge, South Bank	Poor	178.2	Rock rubble, intermittent mangroves
PAR_S25	West of Duck River Confluence	Poor	114.7	None obvious
			4,954.5	

Table 9-60. High priority seawalls assessed within the Parramatta LGA

Asset name	Length (m)	Cost range for traditional engineered seawall replacement ³¹		Habitat Creation Option ³²
		(\$3,000/lineal m)	(\$5,000/lineal m)	
PAR_S16	202.9	\$608,790.02	\$1,014,650.04	Seawall surface treatment, sub-tidal cave habitat
PAR_S17	79.3	\$237,789.71	\$396,316.19	Seawall surface treatment, sub-tidal cave habitat
PAR_S06	1200.0	\$3,600,074.35	\$6,000,123.92	Mangrove establishment, riparian establishment
PAR_S09	87.6	\$262,907.92	\$438,179.86	Artificial reef habitat
PAR_S07	40.0	\$120,007.05	\$200,011.74	Artificial reef habitat
PAR_S04	22.8	\$68,376.58	\$113,960.97	Artificial reef habitat
PAR_S22	194.2	\$582,588.48	\$970,980.79	Mangrove establishment, riparian establishment

9.10.4 Foreshore Erosion

The Parramatta LGA contains approximately 9.0 km of foreshore exhibiting erosion of which 18 distinct sections of foreshore were assessed (Table 9-61). Assessment details for high priority foreshore erosion areas are appended to this section (Appendix 9) and summarised in Table 9-62. Management options for remediating erosion in Parramatta LGA are limited due to ongoing impacts from large vessel wash. These options are discussed in Section 5.6 of this study.

Table 9-61. Foreshore erosion in the Parramatta LGA

Asset Name	Location	Length (m)	Condition
PAR_NS01	West of West Ryde Wharf	23.2	Poor
PAR_NS02	George Kendall Reserve, Ermington	1,059.20	Failed
PAR_NS03	Eric Primrose Reserve, Ermington	339.4	Failed
PAR_NS04	West of Thackeray St Footbridge	32.1	Failed
PAR_NS05	Thackeray St Footbridge to Rydalmere Rail Bridge	2,042.70	Failed
PAR_NS06	Rydalmere Rail Bridge to James Ruse Drive	260.9	Failed

³¹ The cost to install a new seawall or coastal revetment is dependent on a number of factors, including:

- The ground conditions at the site
- Materials required, material availability and whether existing materials can be reused
- Site access
- The required structure profile including slope, crest height and foundation depth
- Hydrodynamic conditions

In light of this variability, an indicative cost of \$3,000-\$5,000 per linear metre of seawall has been adopted for seawalls requiring replacement.

³² Refer section 4.8.1 for explanation of treatments

Asset Name	Location	Length (m)	Condition
PAR_NS07	Beneath James Ruse Drive	36.4	Failed
PAR_NS08	James Ruse Dr to west of Macarthur St	1,222.80	Failed
PAR_NS09	West of Macarthur St Bridge, South Bank	109.2	Poor
PAR_NS10	West of Macarthur St Bridge, South Bank	70.3	Poor
PAR_NS11	East of James Ruse Drive Bridge, South Bank	166.5	Poor
PAR_NS12	East of James Ruse Drive Bridge, South Bank	282.7	Failed
PAR_NS13	Beneath James Ruse Drive, South Bank	30.6	Failed
PAR_NS14	East of James Ruse Drive Bridge, South Bank	280.2	Failed
PAR_NS15	Southeast of Rydalmere Rail Bridge, South Bank	176.9	Failed
PAR_NS16	West of Thackeray St Footbridge, South Bank	667.4	Failed
PAR_NS17	Thackeray St Bridge to Duck River Confluence	1,129.10	Failed
PAR_NS18	Duck River to Parramatta River Confluence	651.9	Failed
		8,581.6	

Table 9-62. High priority foreshore areas within the Parramatta LGA

Priority	Asset Name	Erosion description
High	PAR_NS08	Erosion with undermining and loss of fine material from mangrove pneumatophores due to exposure to vessel wash. A number of mangroves have collapsed into the water.
High	PAR_NS12	Loss of fine material from pneumatophores. A section without mangroves has collapsed with a large, >2m, erosion scarp present. Private industrial buildings are located along the foreshore within close proximity of the erosion scarp and may be threatened if erosion is allowed to continue.
High	PAR_NS15	Muddy shoreline vegetated with mangroves. An old steel fence is present for a short section in the middle of the foreshore. Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash. The steel fence has failed and the surrounding earthen bank is severely eroded.
Med-High	PAR_NS14	Muddy shoreline vegetated with mangroves. Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash.
Med-High	PAR_NS17	Muddy shoreline vegetated with mangroves. The bank beyond the mangroves consists of anthropogenic fill material. Private industrial properties occupy the land beyond the foreshore. Two abandoned timber pile wharf facilities and a large concrete stack are located along the shoreline. Observed undermining and loss of fine material from pneumatophores due to exposure to vessel wash. The abandoned timber pile wharves and concrete stack have been undermined.

Priority	Asset Name	Erosion description
Med-High	PAR_NS05	Muddy shoreline vegetated with mangroves. Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash. A number of mangroves have collapsed into the water.
Med-High	PAR_NS02	Muddy shoreline vegetated with mangroves. A seawall is present behind the mangroves (PAR_S01). Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash. A number of mangroves have collapsed into the water.
Med-High	PAR_NS04	Muddy shoreline vegetated with mangroves and weeds. Rubble is present at the water line. The foreshore is exposed to vessel wash. Erosion observed at the water line with a large, approximately 300-500mm, erosion scarp present exposing muddy fill due to vessel wash. A number of trees along the shoreline have collapsed.
Med-High	PAR_NS06	Muddy shoreline vegetated with mangroves and weeds. Rubble and rocky outcrops are present at the water line. The foreshore is exposed to vessel wash. Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash. A number of mangroves have collapsed into the water.
Med-High	PAR_NS07	Muddy shoreline with no vegetation. Sandstone boulders are present at the toe of bank. Large vertical timber fenders are in place in front of the bank to protect the bridge supports. A large erosion scarp, approximately 500mm, is present along the entire foreshore. Sandstone blocks at the toe appear to be placed in an attempt to mitigate erosion.
Med-High	PAR_NS13	Muddy shoreline with no vegetation. Large vertical timber fenders are in place in front of the bank to protect the bridge supports. A large erosion scarp of approximately 1m is present along the entire foreshore.
Med-High	PAR_NS16	Muddy shoreline vegetated with mangroves. The bank beyond the mangroves consists of anthropogenic fill material. Private industrial properties occupy the land beyond this foreshore. Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash. A section of bank with no mangroves, adjacent to seawall PAR_S23 has also failed.
Med-High	PAR_NS18	Muddy shoreline vegetated with mangroves. The Shell Oil Refinery is located on the land beyond the foreshore. Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash. The condition of the shoreline improves upstream of the confluence in the Duck River.
Med-High	PAR_NS03	Muddy shoreline vegetated with mangroves. A seawall is present behind the mangroves (PAR_S06). Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash. A number of mangroves have collapsed into the water.
Med-High	PAR_NS01	Muddy/rocky shoreline vegetated with mangroves. Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash. Some trees are collapsing into water.

9.10.5 Estuarine Vegetation

The Parramatta LGA contains the second largest area of mangroves within the study area, which is located primarily along Duck River, Duck Creek and along the northern foreshore of the Parramatta

River. Mangroves in the LGA are threatened by limited landward migration (i.e. approximately 19.0 ha) and smaller areas subject to erosion (i.e. approximately 1 ha (refer *Section 9.9.4: Foreshore Erosion*)).

Saltmarsh within the LGA is located along the foreshore of Parramatta River and Duck River upslope of mangroves, and therefore is at risk from mangrove encroachment and limited potential for landward. Most of the saltmarsh in the LGA provides habitat for the vulnerable *Wilsonia backhousei*.

Swamp-oak floodplain forest is limited to upstream of the Silverwater Bridge, primarily along the southern shoreline of the Parramatta River, on the foreshores of Duck River, and Vineyard Creek. Vineyard Creek also supports small areas of coastal sandstone gully forest. Both Swamp-oak floodplain forest and coastal sandstone gully forest within the LGA have limited potential for landward migration (Table 9-63).

All estuarine vegetation within the Duck River has limited migration potential due to the proximity of industrial areas located in Rosehill, a large proportion of which contains the Shell Refinery.

Table 9-63. Estuarine vegetation in the Parramatta LGA

Community	Landward Migration		Total (ha)
	Limited	Potential	
Mangrove	36.1	3.7	39.8
Saltmarsh	0.5	0.4	0.9
Swamp-oak floodplain forest	5.2	0.3	5.5
Coastal sandstone gully forest	1.5	0.0	1.5

Table 9-64. Mangroves in the Parramatta LGA

Location	Landward migration potential	Area (m ²)	Area (ha)
A'Becketts Creek	Limited	88.4	<0.01
Duck Creek	Limited	11,038.7	1.10
Duck River - subcatchment	Limited	100,434.9	10.04
Ponds Subiaco	Limited	13,177.0	1.32
Clay Cliff Creek	Limited	2,785.4	0.28
Duck River - subcatchment	Limited	10,111.5	1.01
River - Duck	Limited	48,687.8	4.87
River - Parramatta south	Limited	6,376.4	0.64
River - Rydalmere	Limited	145,820.0	14.58
Vineyard Creek	Limited	22,677.4	2.27
	Sub-total Limited	361,197.6	36.12
River - Parramatta south	Potential	30,560.3	3.05
River - Rydalmere	Potential	6,041.0	0.60
Vineyard Creek	Potential	20.5	<0.01
	Sub-total Potential	36,620.8	3.66
	Total	397,818.4	39.78

Table 9-65. Saltmarsh in the Parramatta LGA

Location	Landward migration potential	Area (m ²)	Area (ha)
Duck River	Limited	3,929.0	0.39
River South Parramatta	Limited	12.9	<0.01
River South Parramatta	Limited	44.7	<0.01
Vineyard Creek	Limited	20.3	<0.01
River South Rydalmere	Limited	1,359.3	0.03
	Sub-total Limited	5,366.2	0.54
Duck River	Potential	9.8	<0.01
River North Parramatta	Potential	1,268.8	0.13
River North Rydalmere	Potential	2,247.7	0.22
	Sub-total Potential	3,526.3	0.35
	Total	8,892.5	0.89

Table 9-66. Swamp-oak floodplain forest in the Parramatta LGA

Location	Landward migration potential	Area (m ²)	Area (ha)
Duck Creek	Limited	516.8	0.05
Duck River	Limited	13,632.1	1.36
River South Parramatta	Limited	36,983.6	3.70
Vineyard Creek	Limited	844.9	0.08
	Sub-total Limited	51,977.4	5.19
River North Parramatta	Potential	536.3	0.05
River North Rydalmere	Potential	834.0	0.08
Vineyard Creek	Potential	1,297.7	0.13
	Sub-total Potential	2,668.0	0.27
	Total	54,645.4	5.46

9.10.6 Management Recommendations

Stormwater:

The Parramatta LGA covers a vast area which contains a range of catchments that drain to the study area, much of which is impacted upon by land use and stormwater management higher in the catchment and within other LGAs. Specific to the Parramatta LGA, and on the basis of existing data, the following suburbs within the LGA should be considered for future stormwater management incentives and/or funding projects:

- Ermington;
- Rydalmere;
- Camellia; and
- Harris Park

Investigations relating to the efficacy of existing GPTs and their maintenance requirements should be undertaken across the LGA and detailed analysis of data and SoE reporting conducted (refer Section 3.9).

Seawalls and erosion:

As per recommendations in preceding Sections: 9.9.2 and 9.9.3, and including:

- The incorporation of potential for intertidal habitat and landward migration within future designs and planning of seawall replacement (noting that most seawalls along the river channel within the Parramatta LGA have limited space and may only be able to consider habitat for aquatic fauna).

Estuarine vegetation:

Limited opportunity for landward migration of estuarine vegetation (within the LGA) constrains opportunities to conserve existing communities over the longer term. This is particularly evident in Duck River, Duck Creek and most locations along the foreshore of Parramatta River (where mangroves and saltmarsh are bounded by seawalls and/or developed residential and industrial land).

Future planning and management of open space areas that are contiguous with existing estuarine vegetation communities should pay due consideration to providing opportunities for landward migration. Foreshore reserves which are likely to provide future habitat areas within the LGA include: George Kendall Riverside Reserve (Ermington), Eric Primrose Reserve (Rydalmere), and Baludarri Wetland located at the junction of Broughton and Pemberton Streets (Parramatta).

The potential of these reserves to provide future habitat areas will be reliant on the relative prioritisation of recreational (public open space) requirements and environmental objectives. However, the eventual replacement of hard surfaced pathways with raised boardwalks is an example of a potential longer term management option for consideration.

In the shorter and more immediate term the maintenance and protection or enhancement of existing estuarine vegetation, should remain a high priority to ensure that communities remain viable and more resilient to potential changes over time.

Specific management recommendations include the following:

- Target control of salt tolerant introduced species and encroaching native species (e.g. mangroves and *Casuarina glauca*),
- Educational programs, fencing, or other form of physical edging between mowing sites and saltmarsh, and the capture of lawn clippings or other preventative measures to reduce lawn clippings entering saltmarsh,
- Fencing; track closure, relocation, or replacement (i.e. with raised boardwalks); and education signage should be considered to mitigate access impacts, and
- Careful removal of existing isolated saltmarsh species in non-viable habitat areas and nursery advancement of plant materials for rehabilitation projects.

Specific management of estuarine vegetation is recommended for the following sites:

Archer Park – Fig. 9.9(a)

- Investigate potential for impacts from stormwater runoff on saltmarsh and mangroves (River_North_091 and River_North_92); and
- Weed control (including *Juncus acutus*), ongoing monitoring for regrowth and seed germination of *J.acutus*

George Kendall Riverside Park – Fig. 9.9(a) – Fig. 9.9(b)

- Stormwater management and weed control at stormwater outlets between Archer Park and George Kendall Riverside Park (River_North_093-095);
- Reserve upslope land for migration of mangroves and colonisation of saltmarsh vegetation in the future (*photo top right*);
- Weed control (including *Juncus acutus*), ongoing monitoring for regrowth and seed germination of *J.acutus*;
- Potential to salinise non-salt tolerant introduced species (*photos bottom left and right*).

**Duck River – Fig.9.9(c)**

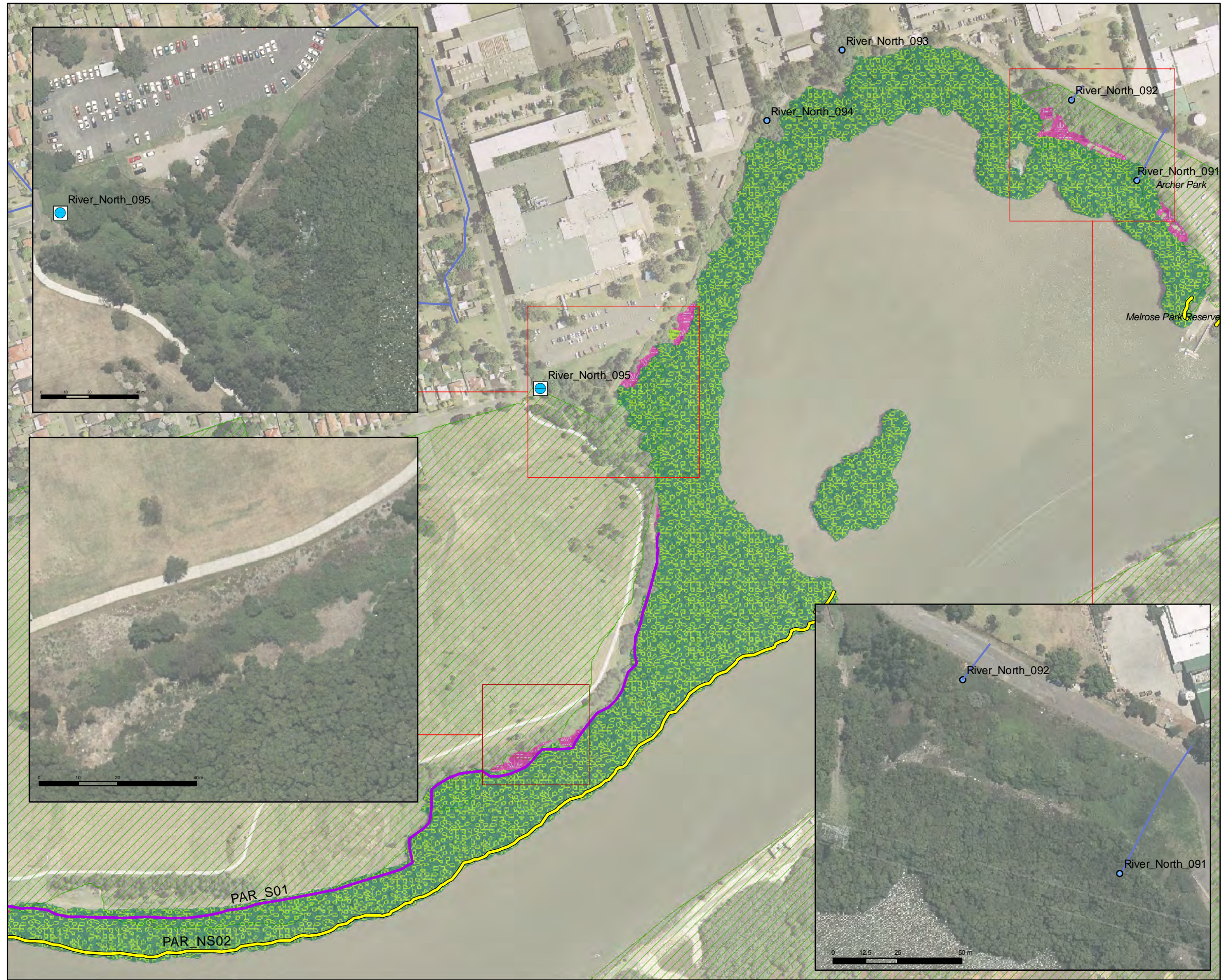
- Liaise with Shell Refinery to monitor remnant patches of saltmarsh along Duck River to determine viability and potential need for translocation.

Eric Primrose Reserve – Fig. 9.9(b) – Fig. 9.9(d)

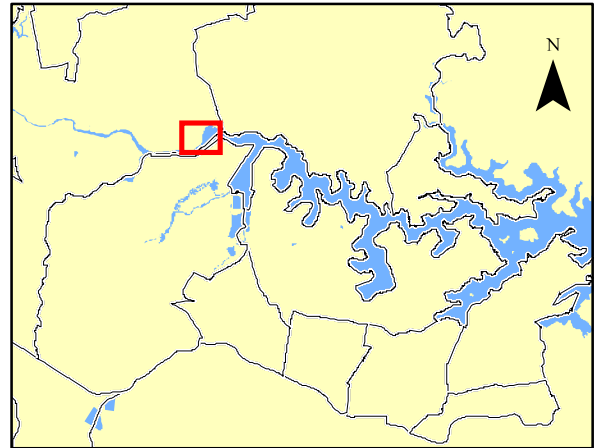
- Reserve upslope land for migration of mangroves and colonisation of saltmarsh vegetation in the future.

Baludarri Wetland – Fig. 9.9(f)

- Potential area for saltmarsh expansion upslope, both over time in response to sea level rise and also through active rehabilitation;
- Foreshore verge (minimum 20m width) from Baludarri Wetland west to and including Rangihou Reserve could be reserved for intertidal vegetation expansion (passively or actively).



SITE LOCATION



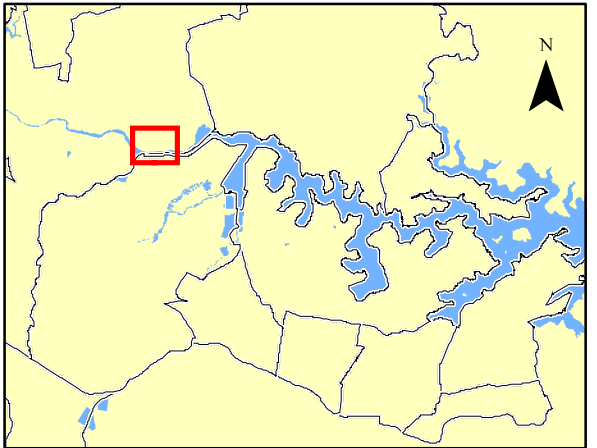
Seawall condition

- Good
- Poor
- Failed
- Natural foreshore erosion
- Stormwater drainage
- Stormwater outlets
- Potential GPT site
- Existing GPT
- Estuarine mangrove
- Estuarine saltmarsh (EEC)
- Phragmites reedland
- Brackish wetland
- Swamp-oak floodplain forest (EEC)
- Turpentine-ironbark forest (EEC)
- Coastal sandstone communities

Source:
Vegetation base mapping: SMCMA (2007)
Other: refer study section 8.0 (2010)
Coordinate System: GDA94 MGA Zone 56



SITE LOCATION



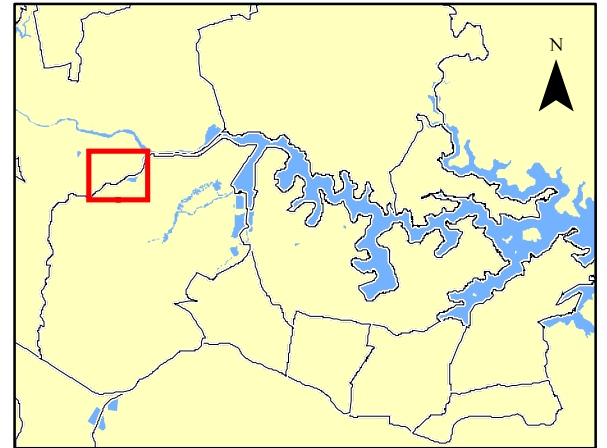
Seawall condition

- Good
- Poor
- Failed
- Natural foreshore erosion
- Stormwater drainage
- Stormwater outlets
- Potential GPT site
- Existing GPT
- Estuarine mangrove
- Estuarine saltmarsh (EEC)
- Phragmites reedland
- Brackish wetland
- Swamp-oak floodplain forest (EEC)
- Turpentine-ironbark forest (EEC)
- Coastal sandstone communities

Source:
Vegetation base mapping: SMCMA (2007)
Other: refer study section 8.0 (2010)
Coordinate System: GDA94 MGA Zone 56



SITE LOCATION



Seawall condition

- Good
- Poor
- Failed
- Natural foreshore erosion
- Stormwater drainage
- Stormwater outlets
- Potential GPT site
- Existing GPT
- Estuarine mangrove
- Estuarine saltmarsh (EEC)
- Phragmites reedland
- Brackish wetland
- Swamp-oak floodplain forest (EEC)
- Turpentine-ironbark forest (EEC)
- Coastal sandstone communities

Source:

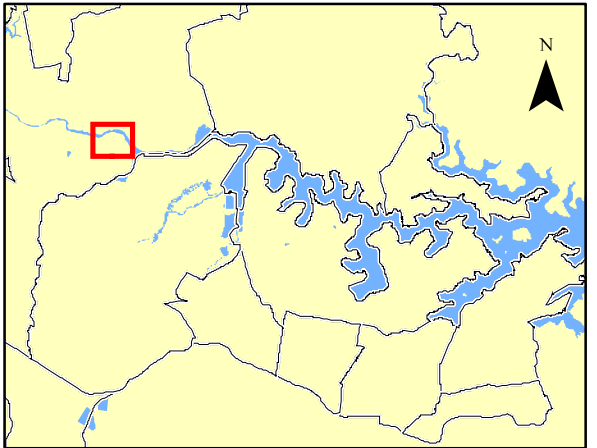
Vegetation base mapping: SMCMA (2007)

Other: refer study section 8.0 (2010)

Coordinate System: GDA94 MGA Zone 56



SITE LOCATION



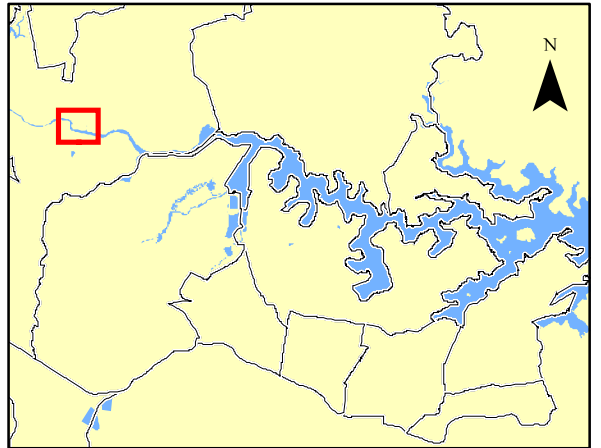
Seawall condition

- Good
- Poor
- Failed
- Natural foreshore erosion
- Stormwater drainage
- Stormwater outlets
- Potential GPT site
- Existing GPT
- Estuarine mangrove
- Estuarine saltmarsh (EEC)
- Phragmites reedland
- Brackish wetland
- Swamp-oak floodplain forest (EEC)
- Turpentine-ironbark forest (EEC)
- Coastal sandstone communities

Source:
Vegetation base mapping: SMCMA (2007)
Other: refer study section 8.0 (2010)
Coordinate System: GDA94 MGA Zone 56



SITE LOCATION



Seawall condition

- Good
- Poor
- Failed
- Natural foreshore erosion
- Stormwater drainage
- Stormwater outlets
- Potential GPT site
- Existing GPT
- Estuarine mangrove
- Estuarine saltmarsh (EEC)
- Phragmites reedland
- Brackish wetland
- Swamp-oak floodplain forest (EEC)
- Turpentine-ironbark forest (EEC)
- Coastal sandstone communities

Source:
Vegetation base mapping: SMCMA (2007)
Other: refer study section 8.0 (2010)
Coordinate System: GDA94 MGA Zone 56



SITE LOCATION



Seawall condition

- Good
- Poor
- Failed
- Natural foreshore erosion
- Stormwater drainage
- Stormwater outlets
- Potential GPT site
- Existing GPT
- Estuarine mangrove
- Estuarine saltmarsh (EEC)
- Phragmites reedland
- Brackish wetland
- Swamp-oak floodplain forest (EEC)
- Turpentine-ironbark forest (EEC)
- Coastal sandstone communities

Source:
Vegetation base mapping: SMCMA (2007)
Other: refer study section 8.0 (2010)
Coordinate System: GDA94 MGA Zone 56

Appendix 9: Field Assessment Sheets for Priority Sites

SITES IN ORDER OF PRIORITY

All assessment sites are detailed within the project GIS database.

ABBREVIATIONS

Level: metres AHD (m)

Co-ords (MGA): Coordinates Map Grid of Australia

E: easting

N: northing

Condition:

Excellent	<ul style="list-style-type: none"> • No defects observed • Structure is functioning as intended
Good	<ul style="list-style-type: none"> • Minor defects observed • Generally good condition • Structure is functioning as intended
Poor	<ul style="list-style-type: none"> • Major defects observed • Structure is at risk of failure without remedial action • Reduced functionality
Failed	<ul style="list-style-type: none"> • Major defects observed • Structure is no longer functioning as intended • Structure has collapsed

Seawall Inspection Record - PAR_S16

Date	<u>21/08/09</u>	Locality	<u>East of Macarthur Street Bridge, River South</u>	Level	<u>0.21m</u>	LGA	<u></u>
Time	<u>14:32</u>			People	<u>Low</u>	Parramatta	<u></u>



Co-Ords (MGA)

Start

E 316035

N 6256534

End

E 316221

N 6256462

Seawall Details (Slope, Material, Const. Method, Type):

Grouted in places, small/medium sized sandstone block seawall. Concrete slabs are located at the toe at discrete locations as are intermittent mangrove stands. A footpath and public reserve are present beyond the crest which was 2-3m above water level. The foreshore is exposed to vessel wash.

Condition Assessment (Slope, Crest, Toe, Backfill):

Localised wall failures at the toe and crest were observed. In general, grout is absent from blocks which are slumping. Some section of the wall have been repaired with grout installed between sandstone blocks.

Excellent

Good

Poor

Failed

X

Assets

The structure supports the adjacent public reserve. No barrier is in place to define the wall edge.

Comments:

The structure adjoins the southern abutment of the Macarthur Street Bridge which is constructed from sandstone blocks that are weathering and missing grout in places.

Photos of structure are PAR_S16-01 to PAR_S16-12.

Photo 1

View of western extent of structure adjacent to the Macarthur Street Bridge Southern Abutment.



Photo 2

Block failure at the toe.



Seawall Inspection Record

- PAR_S17

Date	21/08/09	Locality	East of Macarthur St Bridge, River South	Level	0.21m	LGA	Parramatta
Time	7:40			Tide	Low		



Co-Ords (MGA)

Start

E 316289

N 6256446

End

E 316369

N 6256444

Seawall Details (Slope, Material, Const. Method, Type):

Small/medium sized sandstone block seawall. An informal footpath and public reserve are present beyond the crest which was approx.

2.5m above the water level at time of inspection. The foreshore is exposed to vessel wash. A number of storm water outlets are located along the structure.

Condition Assessment (Slope, Crest, Toe, Backfill):

Localised wall failures at the toe and crest were observed. The blocks are also slumping and weathered.

Excellent

Good

Poor

Failed

X

Assets

Supports adjacent public reserve

Comments:

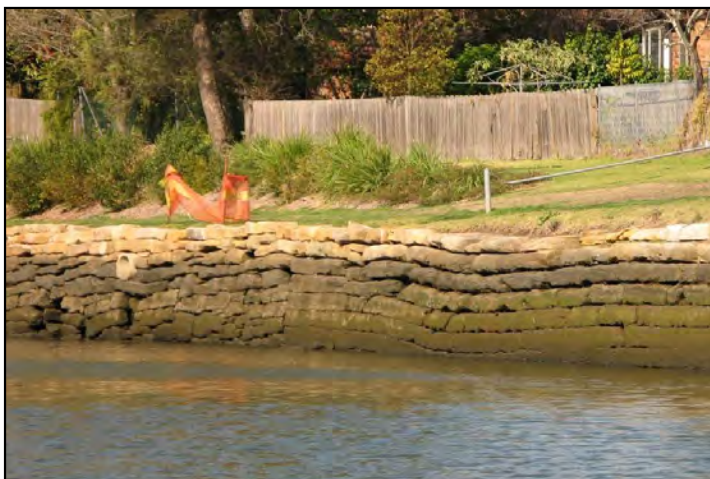
Photos of structure are PAR_S17-01 to PAR_S17-06.

Photo 1

View of structure showing extent of block slumping.

Photo 2

Block failure at the toe.



Seawall Inspection Record

- PAR_S06

Date	31/08/09	Locality	West of Silverwater Bridge, River North	Level	0.84m	LGA	Parramatta
Time	12:46			Tide	Low-Mid		



Co-Ords (MGA)

Start

E 319635
N 6255704

End

E 318715
N 6256360

Seawall Details (Slope, Material, Const. Method, Type):

Grouted, medium sized sandstone blocks revetment with a single row of vertical sandstone blocks at the crest. The eastern extent of the revetment is heavily vegetated with mangroves (PAR_NS03). The western extent is intermittently vegetated with mangroves. A public footpath is present beyond the structure crest. The revetment also incorporates the Rydalmere vessel Wharf and a number of storm water outlets.

Condition Assessment (Slope, Crest, Toe, Backfill):

The revetment is failing at discrete locations which correspond to the absence of mangroves exposing the structure to vessel wash. In general, the structure is ungrouted, slumping and the sandstone blocks are weathered. Mangroves that are present in front of the revetment have been undermined leading to failure.

Excellent
Good
Poor
Failed

X

Assets

The revetment supports the Rydalmere Ferry Wharf structure and there is a loss of grout from the blocks at this location. No other structures are supported by the revetment.

Comments:

Photos of structure are PAR_S06-01 to PAR_S06-23.

Photo 1

Block failure of revetment.



Photo 2

Collapsed mangrove in front of revetment.



Seawall Inspection Record - PAR_S09

Date	21/08/09	Locality	Rydalmere Rail Bridge, River North	Level	0.21m	LGA	Parramatta
Time	15:19			Tide	Low-Mid		



Co-Ords (MGA)

Start

E 317324
N 6256667

End

E 317247
N 6256692

Seawall Details (Slope, Material, Const. Method, Type):

Large sandstone boulder revetment beneath and adjacent to the Rydalmere rail bridge within the University of Western Sydney Parramatta Campus. A large storm water outlet is located at the western extent of the foreshore which is constructed from gabions baskets that slope to the water line. An informal walkway is present along the crest.

Condition Assessment (Slope, Crest, Toe, Backfill):

The revetment has not been constructed to typical engineering standards with no underlayers evident. The structure crest level is inadequate with an erosion scarp present beyond due to vessel wash exposure. A number of the gabion baskets that form the storm water outlet structure at the western extent have failed with all material lost.

Excellent
Good
Poor
Failed

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>

Assets

The storm water outlet structure may fail if no maintenance is undertaken. The informal public footpath would be inundated during periods of elevated water levels and would be overtopped by vessel wash.

Comments:

Gabion basket storm water outlet (317255, 6256683). Photos of structure are PAR_S09-01 to PAR_S09-10.

Photo 1

Eastern extent of structure with erosion scarp beyond crest shown.



Photo 2

Western extent of structure with gabion basket storm water outlet shown.



Seawall Inspection Record - PAR_S07

Date 21/08/09 Locality West of Thackeray Street Bridge, River North Level 0.64m LGA Parramatta
Time 15:35 People Low-Mid



Co-Ords (MGA)
Start
E 318715
N 6256360
End
E 318679
N 6256349

Seawall Details (Slope, Material, Const. Method, Type):
Ad-hoc rubble revetment with a vertical brick wall on the crest associated with a private industrial property. The structure is exposed to vessel wash.

Condition Assessment (Slope, Crest, Toe, Backfill):
The revetment has not been constructed to typical engineering detail. The brick wall at the back of the structure has collapsed with bricks strewn across the revetment slope.

Excellent ☐
Good ☐
Poor ☐
Failed ☒

Assets
The revetment supports the yard of the private industrial property located beyond the structure crest.

Comments:
Photos of structure are PAR_S07-01 to PAR_S07-04.

Photo 1
View of ad-hoc rubble revetment.

Photo 2
Failure of brick wall at back of revetment.



Seawall Inspection Record - PAR_S04

Date	<u>20/08/09</u>	Locality	<u>Silverwater Bridge, River North</u>	Level	<u>0.67m</u>	LGA	<u>Parramatta</u>
Time	<u>15:23</u>			Tide	<u>Low-Mid</u>		



Co-Ords (MGA)

Start

E 319676

N 6255695

End

E 319653

N 6255695

Seawall Details (Slope, Material, Const. Method, Type):

Small sandstone block seawall with a concrete slab crest beneath the northern abutment of Silverwater Bridge. Rubble/sand is present in front of the structure toe and a public footpath is present beyond the crest.

Condition Assessment (Slope, Crest, Toe, Backfill):

The structure has failed with a large section of sandstone blocks missing. The concrete crest has collapsed onto the sandy bank below. Gabions baskets are present to the east (PAR_S03) and west (PAR_S05) and have probably been installed to replace other section of failed wall.

Excellent

Good

Poor

Failed

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>

Assets

The public footpath does not run along the structure crest but the public access is available to the failed section of wall.

Comments:

Photos of structure are PAR_S04-01 to PAR_S04-08.

Photo 1

View of small sandstone block seawall beneath Silverwater Bridge.

Photo 2

Failed section of wall.



Seawall Inspection Record - PAR_S22

Date 21/08/09 Locality East of Rydalmere Rail Bridge, River South Level 0.54 LGA Parramatta
Time 13:44 Tide Low-Mid



Co-Ords (MGA)
Start
E 317504
N 6256279
End
E 317694
N 6256238

Seawall Details (Slope, Material, Const. Method, Type):
Medium sized sandstone blocks seawall. The western extent of the structure has been replaced with a new, grouted brick seawall.
Intermittent mangrove stands are present at the toe. A private industrial property is located beyond the structure crest.

Condition Assessment (Slope, Crest, Toe, Backfill):
The majority of the wall has failed due to undermining. The new section of wall at the western extent has also failed. Mangroves that are in front of the wall have been undermined and have collapsed into the water.
Excellent ☐
Good ☐
Poor ☐
Failed ☒

Assets
The structure supports the adjacent industrial area however there are no issues relating to this at present.
No public access is available

Comments:
Photos of structure are PAR_S22-01 to PAR_S22-07.

Photo 1
Failure of new section of brick seawall at north western extent.

Photo 2
Typical section of wall showing sandstone block wall failure and collapse of mangrove.



Natural Shoreline Inspection Record

- PAR_NS08

Date	<u>21/08/09</u>	Locality	<u>James Ruse Dr to west of Macarthur St</u>	Level	<u>0.21m</u>	LGA	<u>Parramatta</u>
Time	<u>14:59</u>			Tide	<u>Low</u>		



Co-Ords (MGA)

Start	WP
E	<u>316955</u>
N	<u>6256713</u>
End	
E	<u>315964</u>
N	<u>6256629</u>

Details (Vegetation, Slope, Toe):

Muddy shoreline vegetated with mangroves. Some sections of the foreshore have had A-Jacks armour units installed to protect the bank from vessel wash. A public footpath and cycleway is located beyond the bank.

Condition Assessment:

Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash.
A number of mangroves have collapsed into the water. The A-Jacks units are in good condition with no displacement observed.

Excellent
Good
Poor
Failed

X

Assets:

Although no issues at present, if erosion continues the footpath and parklands beyond the bank may be threatened in the future.

Comments:

A-jacks armour units at WP x: 316426, y: 6256496) and x: 316580, y: 6256529
Photos of foreshore PAR_NS08-01 to PAR_NS08-23.

Photo 1

Undermining and loss of fine material from pneumatophores.



Photo 2

A-Jacks armour units installed along the shoreline.



Natural Shoreline Inspection Record

- PAR_NS12

Date	<u>21/08/09</u>	Locality	<u>East of James Ruse Drive Bridge, South Bank</u>	Level	<u>0.21m</u>	LGA	<u>Parramatta</u>
Time	<u>14:06</u>			Tide	<u>Low</u>		



Co-Ords (MGA)

Start
E 316724
N 6256526

End
E 316954
N 6256643

Details (Vegetation, Slope, Toe):

Anthropogenic fill bank vegetated with mangroves in front of private industrial land.

Condition Assessment:

Loss of fine material from pneumatophores due to exposure to vessel wash observed. A section without mangroves has collapsed with a large, >2m, erosion scarp present. Fill material has been dumped to the side of the failure in an attempt to impede erosion.

Excellent
Good
Poor
Failed

X

Assets:

Private industrial buildings are located along the foreshore within close proximity of the erosion scarp and may be threatened if erosion is allowed to continue.

Comments:

Large erosion scarp is at x: 316798, y: 6256573. Photos of foreshore PAR_NS12-01 to PAR_NS12-07.

Photo 1

Loss of fine material from pneumatophores.



Photo 2

Collapse of exposed bank in front of private industrial building.



Natural Shoreline Inspection Record

- PAR_NS15

Date	<u>21/08/09</u>	Locality	<u>Southeast of Rydalmere Rail Bridge, South Bank</u>	Level	<u>0.21</u>	LGA	<u>Parramatta</u>
Time	<u>13:52</u>			Tide	<u>Low</u>		



Co-Ords (MGA)

Start
 E 317285
 N 6256576

End
 E 317271
 N 6256406

Details (Vegetation, Slope, Toe):

Muddy shoreline vegetated with mangroves. An old steel fence is present for a short section in the middle of the foreshore.

Condition Assessment:

Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash.
 The steel fence has failed and the surrounding earthen bank is severely eroded.

Excellent
 Good
 Poor
 Failed

X

Assets:

No public access available and no significant structures are supported by this foreshore.

Comments:

Photos of foreshore PAR_NS15-01 to PAR_NS15-06.

Photo 1

Loss of fine material and undermining of pneumatophores.



Photo 2

Failure of fence and bank.



Natural Shoreline Inspection Record

- PAR_NS14

Date	<u>21/08/09</u>	Locality	<u>East of James Ruse Drive Bridge, South Bank</u>	Level	<u>0.12m</u>	LGA	<u>Parramatta</u>
Time	<u>14:00</u>			Tide	<u>Low</u>		



Co-Ords (MGA)

Start
E 316984
N 6256646

End
E 317245
N 6256606

Details (Vegetation, Slope, Toe):

Muddy shoreline vegetated with mangroves.

Condition Assessment:

Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash.

Excellent
Good
Poor
Failed

X

Assets:

No public access available and no structures are supported by this foreshore.

Comments:

Photos of foreshore PAR_NS14-01 to PAR_NS14-05.

Photo 1

Loss of fine material from pneumatophores and collapsed mangrove.



Photo 2

Undermining of pneumatophores.



Natural Shoreline Inspection Record

- PAR_NS17

Date	<u>21/08/09</u>	Locality	<u>Thackeray St Bridge to Duck River Confluence</u>	Level	<u>0.54m</u>	LGA	<u>Parramatta</u>
Time	<u>13:20</u>			People	<u>Low-Mid</u>		



Co-Ords (MGA)

Start	
E	<u>318508</u>
N	<u>6256249</u>
End	
E	<u>319338</u>
N	<u>6255684</u>

Details (Vegetation, Slope, Toe):

Muddy shoreline vegetated with mangroves. The bank beyond the mangroves consists of anthropogenic fill material. Private industrial properties occupy the land beyond the foreshore. Two abandoned timber pile wharf facilities and a large concrete stack are located along the shoreline.

Condition Assessment:

Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash. The abandoned timber pile wharves and concrete stack have been undermined.

Excellent
Good
Poor
Failed

X

Assets:

The bank supports the adjacent industrial area however there are no issues relating to this at present. All structures along the shoreline appear to be abandoned. No public access is available.

Comments:

Abandoned facilities are located at x: 319224, y: 6255831 and x: 318887, y: 6256232.
Photos of foreshore PAR_NS17-01 to PAR_NS17-15.

Photo 1

Loss of fine material and undermining of mangroves.



Photo 2

Abandoned timber pile facility with large erosion scarp behind.



Natural Shoreline Inspection Record

- PAR_NS05

Date	<u>21/08/09</u>	Locality	<u>Thackeray St Footbridge to Rydalmere Rail Bridge</u>	Level	<u>0.64m</u>	LGA	<u>Parramatta</u>
Time	<u>15:21</u>			Tide	<u>Low-Mid</u>		



Co-Ords (MGA)

Start

E 318620

N 6256349

End

E 317324

N 6256667

Details (Vegetation, Slope, Toe):

Muddy shoreline vegetated with mangroves.

Condition Assessment:

Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash.

A number of mangroves have collapsed into the water.

Excellent

Good

Poor

Failed

X

Assets:

No public access is available. Private industrial properties are located beyond the mangroves.

Comments:

Photos of foreshore PAR_NS05-01 to PAR_NS05-15.

Photo 1

Typical view of foreshore, mangroves have collapsed due to undermining.



Photo 2

Undermining of pneumatophores.



Natural Shoreline Inspection Record

- PAR_NS02

Date	<u>20/08/09</u>	Locality	<u>George Kendall Reserve, Ermington</u>	Level	<u>0.24m</u>	LGA	<u>Parramatta</u>
Time	<u>14:16</u>			Tide	<u>Low</u>		



Co-Ords (MGA)

Start
E 321318
N 6256022

End
E 320428
N 6255718

Details (Vegetation, Slope, Toe):

Muddy shoreline vegetated with mangroves. A seawall is present behind the mangroves (PAR_S01).

Condition Assessment:

Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash.
A number of mangroves have collapsed into the water.

Excellent
Good
Poor
Failed

X

Assets:

No public access, no structures along shore.

Comments:

Areas with failed mangroves are located at x: 321292, y: 6255989 and x: 321091, y: 6255841
Photos of foreshore PAR_NS02-01 to PAR_NS02-14.

Photo 1

Typical view of foreshore, mangroves have collapsed due to undermining.



Photo 2

Undermining and loss of fine material from pneumatophores.



Natural Shoreline Inspection Record

- PAR_NS04

Date	<u>21/08/09</u>	Locality	<u>West of Thackeray St Footbridge</u>	Level	<u>0.64</u>	LGA	<u>Parramatta</u>
Time	<u>15:30</u>			Tide	<u>Low-Mid</u>		



Co-Ords (MGA)

Start

E 318651

N 6256345

End

E 318620

N 6256349

Details (Vegetation, Slope, Toe):

Muddy shoreline vegetated with mangroves and weeds. Rubble is present at the water line. The foreshore is exposed to vessel wash.

Condition Assessment:

Erosion observed at the water line with a large, approximately 300-500mm, erosion scarp present exposing muddy fill due to vessel wash. A number of trees along the shoreline have collapsed.

Excellent

Good

Poor

Failed

X

Assets

No public access is available. The slope supports a private industrial property,

Comments:

Photos of foreshore PAR_NS04-01 to PAR_NS04-04.

Photo 1

View of foreshore showing erosion scarp at waterline.



Photo 2

Undermining of slope with erosion scarp shown.



Natural Shoreline Inspection Record

- PAR_NS06

Date	<u>21/08/09</u>	Locality	<u>Rydalmere Rail Bridge to James Ruse Drive</u>	Level	<u>0.21</u>	LGA	<u>Parramatta</u>
Time	<u>15:11</u>			Tide	<u>Low</u>		



Co-Ords (MGA)

Start
E 317247
N 6256692

End
E 316990
N 6256719

Details (Vegetation, Slope, Toe):

Muddy shoreline vegetated with mangroves and weeds. Rubble and rocky outcrops are present at the water line. The foreshore is exposed to vessel wash.

Condition Assessment:

Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash.
A number of mangroves have collapsed into the water.

Excellent
Good
Poor
Failed

X

Assets

No public access is available. The grounds of the University of Western Sydney Parramatta Campus are located beyond the bank.

Comments:

Photos of foreshore PAR_NS06-01 to PAR_NS06-07.

Photo 1

Typical view of foreshore, mangroves and other vegetation are collapsing into the water



Photo 2

Undermining of pneumatophores.



Natural Shoreline Inspection Record

- PAR_NS07

Date	<u>21/08/09</u>	Locality	<u>Beneath James Ruse Drive</u>	Level	<u>0.21m</u>	LGA	<u>Parramatta</u>
Time	<u>15:09</u>			Tide	<u>Low</u>		



Co-Ords (MGA)

Start
E 316990
N 6256719

End
E 316955
N 6256713

Details (Vegetation, Slope, Toe):

Muddy shoreline with no vegetation. Sandstone boulders are present at the toe of bank. Large vertical timber fenders are in place in front of the bank to protect the bridge supports.

Condition Assessment:

A large erosion scarp, approximately 500mm, is present along the entire foreshore. Sandstone blocks at the toe appear to be placed in an attempt to mitigate erosion.

Excellent
Good
Poor
Failed

X

Assets:

No public access is available and no structures are supported by the foreshore.

Comments:

Photos of foreshore PAR_NS07-01 to PAR_NS07-04.

Photo 1

Erosion scarp east of James Ruse Drive with timber fenders shown.



Photo 2

Erosion scarp behind timber fenders directly under James Ruse Drive.



Natural Shoreline Inspection Record

- PAR_NS13

Date	<u>21/08/09</u>	Locality	<u>Beneath James Ruse Drive, South Bank</u>	Level	<u>0.21m</u>	LGA	<u>Parramatta</u>
Time	<u>14:04</u>			Tide	<u>Low</u>		



Co-Ords (MGA)

Start
E 316954
N 6256643

End
E 316984
N 6256646

Details (Vegetation, Slope, Toe):

Muddy shoreline with no vegetation. Large vertical timber fenders are in place in front of the bank to protect the bridge supports.

Condition Assessment:

A large erosion scarp of approximately 1m is present along the entire foreshore.

Excellent
Good
Poor
Failed

X

Assets:

No formal public access is available, however, a number of homeless people are using the bank as a temporary shelter. No structures are supported by the foreshore.

Comments:

Photos of foreshore PAR_NS13-01 to PAR_NS13-08.

Photo 1

Earthen bank beneath James Ruse Drive.

Photo 2

The large erosion scarp at the foreshore.



Natural Shoreline Inspection Record

- PAR_NS16

Date	<u>21/08/09</u>	Locality	<u>West of Thackeray St Footbridge, South Bank</u>	Level	<u>0.54m</u>	LGA	<u>Parramatta</u>
Time	<u>13:35</u>			People	<u>Low-Mid</u>		



Co-Ords (MGA)

Start

E 317772
N 6256223

End

E 318382
N 6256134

Details (Vegetation, Slope, Toe):

Muddy shoreline vegetated with mangroves. The bank beyond the mangroves consists of anthropogenic fill material. Private industrial properties occupy the land beyond this foreshore.

Condition Assessment:

Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash.
A section of bank with no mangroves, adjacent to seawall PAR_S23 has also failed.

Excellent

Good

Poor

Failed

X

Assets:

No public access available and no significant structures are supported by this foreshore.

Comments:

Photos of foreshore PAR_NS16-01 to PAR_NS16-11.

Photo 1

Failure of bank adjacent to seawall PAR_S23.

Photo 2

Loss of fine material and undermining of mangroves.



Natural Shoreline Inspection Record

- PAR_NS18

Date	<u>21/08/09</u>	Locality	<u>Duck River to Parramatta River Confluence</u>	Level	<u>0.54m</u>	LGA	<u>Parramatta</u>
Time	<u>12:56</u>			Tide	<u>Low-Mid</u>		



Co-Ords (MGA)

Start
 E 319385
 N 6255605

End
 E 319157
 N 6255091

Details (Vegetation, Slope, Toe):

Muddy shoreline vegetated with mangroves. The Shell Oil Refinery is located on the land beyond the foreshore.

Condition Assessment:

Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash. The condition of the shoreline improves upstream of the confluence in the Duck River.

Excellent
 Good
 Poor
 Failed

X

Assets:

The bank supports the adjacent industrial area however there are no issues relating to this at present.
 No public access is available.

Comments:

Photos of foreshore PAR_NS18-01 to PAR_NS18-16.

Photo 1

Loss of fine material and undermining of mangroves at confluence.



Photo 2

Loss of fine material from pneumatophores upstream of confluence in the Duck River.



Natural Shoreline Inspection Record

- PAR_NS03

AECOM

Date	<u>31/08/09</u>	Locality	<u>Eric Primrose Reserve, Ermington</u>	Level	<u>0.84m</u>	LGA	<u>Parramatta</u>
Time	<u>12:46</u>			Tide	<u>Low-Mid</u>		



Co-Ords (MGA)

Start
E 319620
N 6255707

End
E 319336
N 6255861

Details (Vegetation, Slope, Toe):

Muddy shoreline vegetated with mangroves. A seawall is present behind the mangroves (PAR_S06).

Condition Assessment:

Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash.
A number of mangroves have collapsed into the water.

Excellent
Good
Poor
Failed

X

Assets:

A public footpath runs along the crest of the adjacent seawall however there is no formal access to the mangroves along the foreshore.

Comments:

Photos of foreshore PAR_NS03-01 to PAR_NS03-15.

Photo 1

Typical view of foreshore, mangroves have collapsed due to undermining.



Photo 2

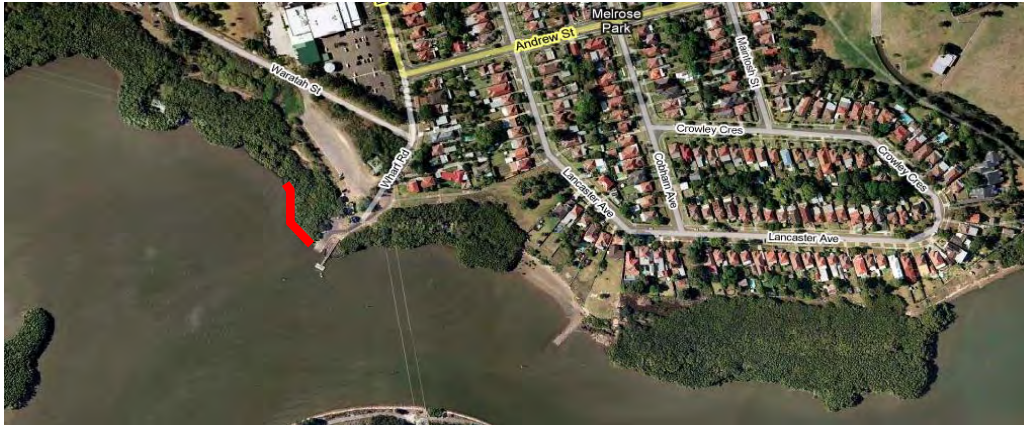
Vessel wash at foreshore.



Natural Shoreline Inspection Record

- PAR_NS01

Date	<u>20/08/09</u>	Locality	<u>West of West Ryde Wharf</u>	Level	<u>0.24</u>	LGA	<u>Parramatta</u>
Time	<u>14:03</u>			Tide	<u>Low</u>		



Co-Ords (MGA)

Start
E 321641
N 6256271

End
E 321626
N 6256300

Details (Vegetation, Slope, Toe):

Muddy/rocky shoreline vegetated with mangroves.

Condition Assessment:

Erosion observed with undermining and loss of fine material from pneumatophores due to exposure to vessel wash.
Some trees are collapsing into water.

Excellent
Good
Poor
Failed

X

Assets:

No public access, no structures along shore.

Comments:

Photos of foreshore PAR_NS01-01 and PAR_NS01-02.

Photo 1

Typical view of foreshore.

Photo 2

Loss of fine material from pneumatophores.

