

King Park Sports Complex Masterplan

OCTOBER 2020

Port Stephens Council



LEGEND

- Site
- Raymond Terrace CBD
- Public open space
- Reserve
- School
- B Bus stop
- Bus routes
- Bicycle routes (Shared path & alternative routes)
- Walking radius

Development opportunities (Raymond Terrace key actions)

- 1 King Street heritage precinct
- 2 Multi-transport hub
- 3 Passive open space/ Urban plaza

Proposed Kings Hill development

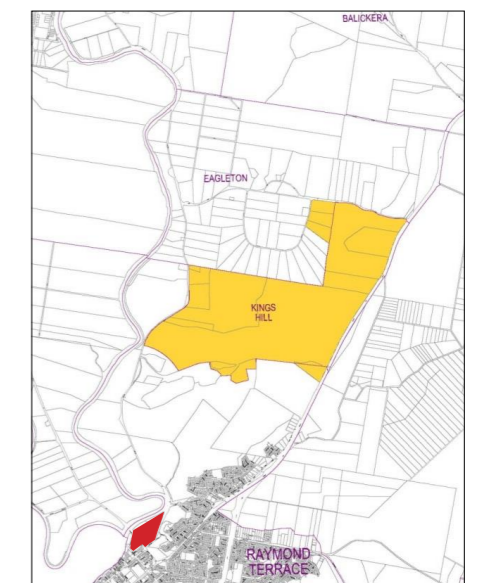


Image from Google Earth (Feb 2019)

Context Plan

For Information

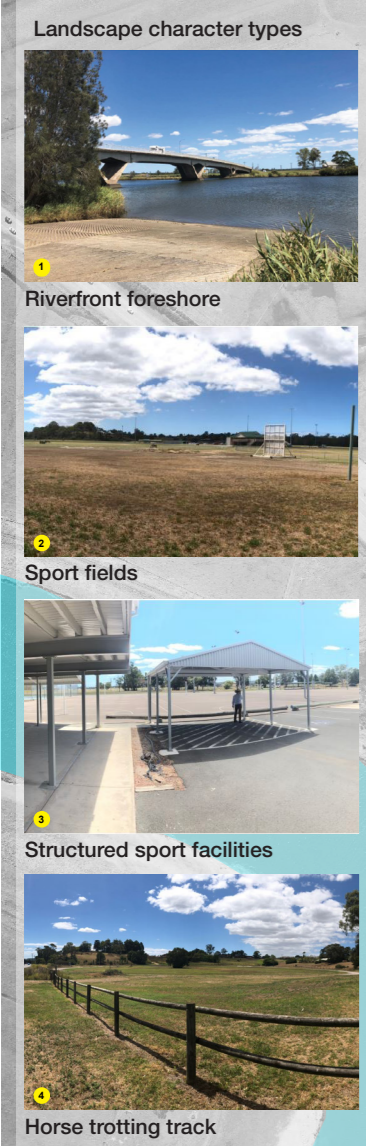
KING PARK SPORTS COMPLEX MASTERPLAN

Job No: 22-20017
 Original Size: A3
 Drawing No: 22-20017-SK010

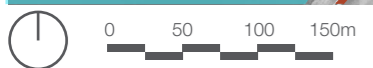
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- ### LEGEND
- Site
 - River views
 - Car access
 - Existing paths
 - Proposed paths
 - Connections within site
 - Connections to other public open space
 - Existing internal access road
 - Public open spaces
 - Landfill / disturbed land
 - Roads through site
 - Pedestrian facility improvement
 - Landscape buffer
 - Raymond Terrace boat ramp
 - B Bus stop
 - P Parking (Approx no.s)
 - Existing trees
 - 1 Vi Barnett Athletics building
 - 2 Tennis building
 - 3 Netball building
 - 4 Main clubhouse
 - 5 Field 5 building
- ### CONSTRAINTS
- 1 Limited car access points
 - 2 Roads go through the site
 - 3 Flood and drainage issues
 - 4 Existing boat ramp
 - 5 Current existing buildings locations
 - 6 Interface with roads and neighbours
 - 7 Coastal Wetland Area and Buffer
 - 8 Areas with landfill / disturbed terrain



Existing site conditions and constraints

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Opportunities

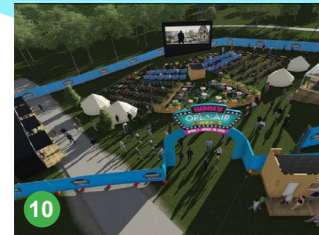
The following master plan opportunities are supported by the recommendations of the Demand Analysis Report (Dec 2019) and other statutory frameworks and policy documents.¹

1. Foreshore Reserve - Boat launch Improved facilities for recreational boat use

2. Foreshore Reserve - Unstructured recreational areas Including: Seating; Shading; Water fountains; Public toilets; Fishing jetty. The foreshore will provide a connection from the main boat launch and the informal family boat mooring area. This linear section of open space will include a variety of destinations/seating areas and links for pedestrians and cyclists

3. Foreshore Reserve - Informal family boat mooring area Secondary temporary mooring area for recreational boating. Additional parking to be considered

4. Walking trail Located at the perimeter of the site to provide continuous connection around the playing fields. To include raised walkway for flood prone areas. Distance markers/ signage suggested.



5. View corridor A strong vista connection is suggested to enhance sense of place and improve orientation. Highlighting river/ activity/ topography.

6. Roundabout to boat ramp Improve vehicle access to boat launch

7. Wetland upgrade To include: elevated walkways for all weather access /egress; educational signage; covered areas with chairs and tables; formalized car park; increase water storage capacity through increased depth; incorporate improved bio-retention outcomes; refurbish wetlands to improve hydraulic functionality and increase attraction for native fauna



8. Children playgrounds Including: Catering for various age groups, district standard; all abilities accessible; soft-fall; shading; seating

9. Screening Planted screen to hide view of adjacent industrial area

10. Event space To support community events of up to 10,000 spectators including: concert zone; spectator mounds & potential grass amphitheater; temporary staging ground level platform to support bump-in staging; power, water and lighting to staging platform; back of house operational space and access

11. Spectator seating Install small seating and shaded areas for spectators around the sports fields. Consider flexibility for expansion

12 Gateways To be clearly defined with appropriate branding. Consider main and secondary gateways; way finding and interpretation to be integrated throughout the site.

13. Footpath network To be connected and including: proposed footpath upgrade; primary footpath; secondary footpath; paths to consider separated pedestrian and cycle infrastructure and supporting facilities (drinking fountains, rest areas, fitness nodes)

14. Pedestrian crossing infrastructure Includes crossings points to be coordinated with internal footpath network; suggested Signalized intersection at Newline Road/ Bailey Street

15. Increased parking Demand study to quantify additional parking requirements and preferred locations

16. Bus drop off area Include provision for buses and taxis

17. Green infrastructure Provide a green connection corridor at ground level and through the canopy to support movement for flora and fauna. Consider safe fauna crossing points.

18. Lighting Provision of lighting for orientation, safety, illumination of sporting fields/courts and car parking. To be energy efficient and support CPTED principles

19. Temporary food & beverage, merchandise points Lighting; Power (including 3-phase); Water; Concrete pads

20. Maintenance access All pathways to accommodate maintenance vehicle movement

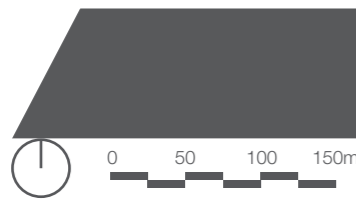
21. Structure trees To be located along road corridor and key internal routes to define circulation, create 'place', screen, enclose, provide edge definition and provided shading and improved air quality

22. Bus stop Opportunity for bus stop on Newline Road

23. Path connection to link with Mount Hall Road via unformed road.



Master plan opportunities



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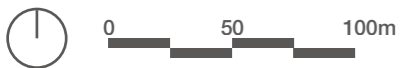
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Photos Location Map

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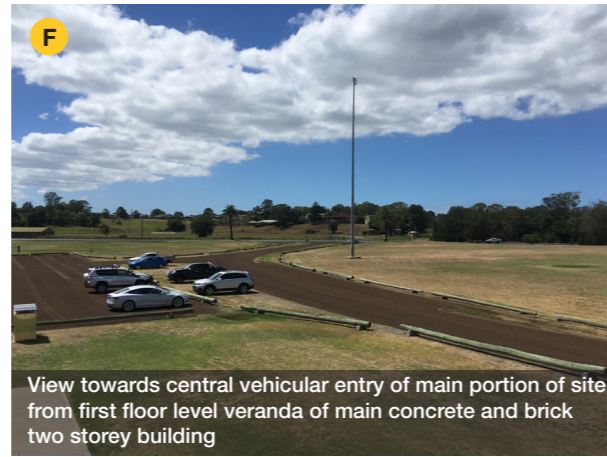
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Site Photos

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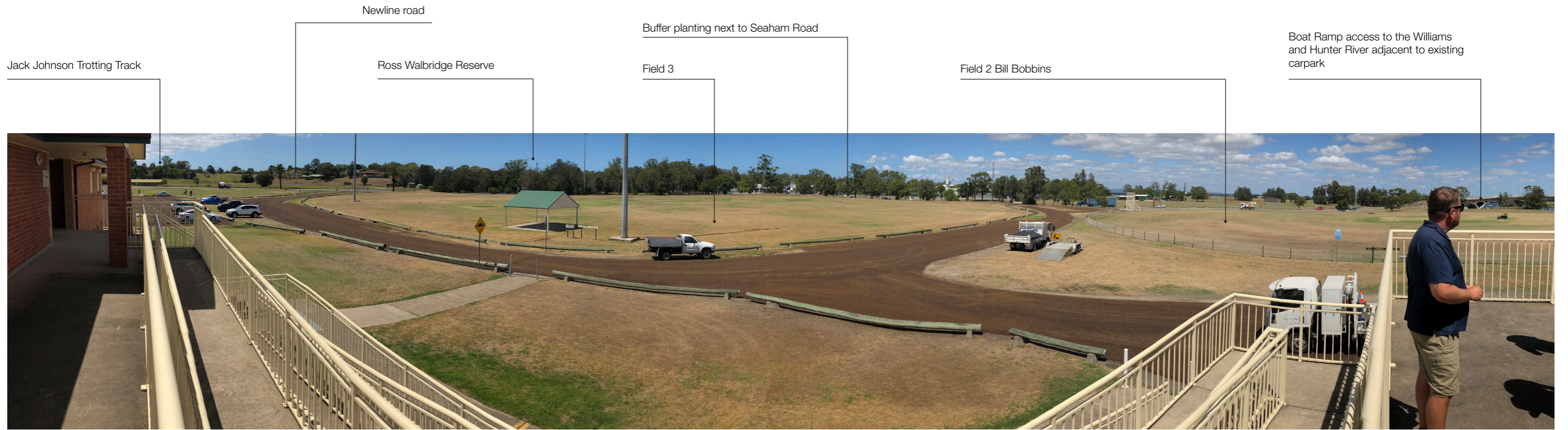
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Jack Johnson Trotting Track

Newline road

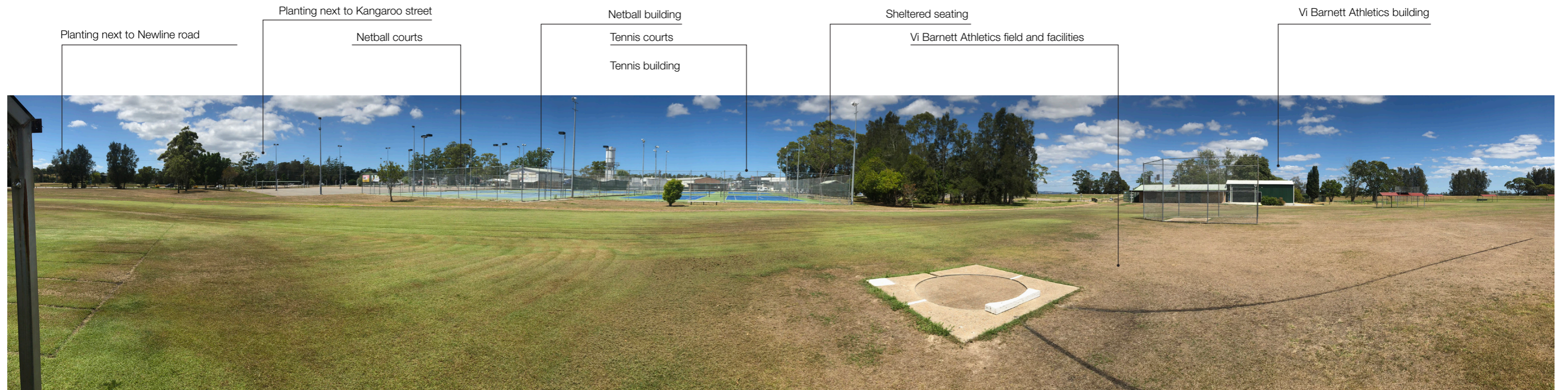
Ross Walbridge Reserve

Buffer planting next to Seaham Road

Field 3

Field 2 Bill Bobbins

Boat Ramp access to the Williams and Hunter River adjacent to existing carpark



Planting next to Newline road

Planting next to Kangaroo street

Netball courts

Netball building

Tennis courts

Tennis building

Sheltered seating

Vi Barnett Athletics field and facilities

Vi Barnett Athletics building

Site Photos

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Contamination and capping (Author: Alison Monkly)

Opportunities

We believe that capping works were undertaken circa 1990s, possibly involving Egis Consulting Australia. No records of the capping material or construction have been obtained.

Intrusive investigations anticipated for geotechnical and contamination assessment for detailed design and construction of structures (including flood lights) and buildings. The investigations may also serve as an indication of the capping condition across the site.

Issues of capping performance during flooding are not known.

Constraints

The King Park landfill was operated by Port Stephens Council from 1978 through to 1989 for the disposal of putrescible refuse such as domestic waste.

Environmental monitoring currently comprises five groundwater monitoring wells, one surface water monitoring location and four gas monitoring locations (including the club house, amenities building, and two light poles).

Groundwater levels are typically 0.5-2 metres below ground level.

The most recent monitoring program review (GHD, 2018) concluded:

- Elevated ammonia and metals were reported in groundwater sampled between December 2013 and March 2018.
- Exceedances at the surface water monitoring location were primarily metals and nitrate.
- Increasing trends of ammonia were reported at three groundwater monitoring locations along with the surface water location, indicating that contaminated groundwater and surface water may be migrating off site.

The design would need to consider potential human health risks (associated with encountering contaminated soils/waste/groundwater) and subsequent waste management (e.g. classification and disposal). Therefore, intrusive investigations are recommended prior to excavation works expected to exceed 0.5 metres below ground level.

Disturbance of capping to be assessed during geotechnical/contamination investigations prior to design and construction. Should the capping be breached (e.g. for light pole footing), ongoing gas monitoring would be required at representative locations (as currently undertaken as part of the environmental monitoring program).

Slab construction may be suitable to minimise capping disturbance, however ground settlement issues would need to be assessed as part of the geotechnical investigations.

Screw piling may also be an option, though may require ongoing maintenance due to settlement, as well as ongoing gas monitoring due to capping breach.

Water (Author: Adam Wyatt)

Opportunities

Design could incorporate features such as elevated walkways for all weather access / egress, pavilion style structures to minimise loss of flood storage and permit flows through.

Civil design should consider incorporating lowered areas into the design to add more flood storage (ie reduce local flooding). These areas could be integrated with constructed wetlands to improve local stormwater quality during smaller storm events, that could harvest irrigation water for the site.

Constraints

Council's mapping indicates that the site is mostly located with high hazard flood storage area – pedestrian risk and risk of significant damage to buildings; removal of flood storage (eg by filling) can increase flood severity in the surrounding area.

This hazard category generally prohibits filling, development, and habitation, and requires additional consideration of emergency management.

Geotech (Author: Joanna Sylvester)

Areas underlain by fill

Design of buildings and infrastructure on a capped landfill cell poses significant challenges due to the compounding effects of uncontrolled compaction, variability of the fill (waste) material, the effects of biodegradation of organic material in the landfill and the effects of increased loads on alluvial sediments underlining the landfill.

Additionally, construction of utility trenches and footings for structures may interfere with the capping, jeopardising its effectiveness with respect to providing a low permeability seal over the waste.

Foundations for structures may require excavation through the waste with difficulties associated with waste contamination and obstructions. Opportunities to manage these challenges could include:

- Locating buildings and infrastructure away from areas of landfill
- Bespoke designs to mitigate the impact of settlement
- Acceptance of ongoing maintenance to manage ongoing settlement
- High level footings to avoid breaching the capping.

Further desktop studies on the previous landfill activities as well as geotechnical investigations will be required to assess subsurface conditions, provide data for landfill settlement analysis and recommendations for design.

An understanding of the total and differential settlement likely to be encountered at the site will be necessary to facilitate design. A preliminary assessment could be used to assess the known risks associated with development in this area.

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We anticipate that any buildings (and possibly other infrastructure) may require deep piled footing, extending below the waste into the natural soils and founded in a suitable bearing unit. Obstructions in the waste may preclude certain types of driven piles.

Areas not underlain by fill

In areas of natural subsurface (not covered with fill), the following opportunities exist:

- Limit excavation depth and extent into the natural subsurface to mitigate the volume of acid sulfate soil impacted
- Shallow groundwater conditions should be considered in final design levels, footing options and construction methods.

In areas of alluvium, constraints are associated with the variable nature of alluvium and the potential for soft or loose surficial soils, which may require deeper foundations or ground improvement.

- Further desktop studies on the previous landfill extent as well as geotechnical investigations will be required to assess subsurface conditions and provide recommendations for design.

Transport (Author: Mark Lucas)

Opportunities

Traffic and Transport

Previous analysis undertaken in the region indicates that roundabout at the New Line Road, Seaham Road and William Bailey Street will cease to operate with a good level of service between 2022 and 2027. The current configuration does not provide any priority for pedestrians. Further analysis indicates an upgrade to signalisation would improve intersection operation while facilitating a safer environment for pedestrians.

The proposed development is on either side of Seaham Road. There are opportunities to provide a mid-block pedestrian crossing to improve connectivity between the two sites. This could potentially be a raised 'wombat crossing' which would also serve to reduce vehicle speeds.

Additionally, the pedestrian facilities adjacent to the site are generally of a poor condition and there is an opportunity to provide formal footpaths adjacent to the site on New Line Road and Seaham Road.

Bicycle parking should be provided on site.

It is anticipated that the facility will be accessed by coaches i.e. school groups. Suitable facilities should be provided onsite or on-road i.e. an indented bay to accommodate buses.

A pick-up/drop-off facility should be provided on-site.

The provision of a roundabout at the intersection of the site access and New Line Road to encourage vehicles to slow down near the facility.



Constraints

Port Stephens Development Control Plan (Part B General Provisions) does not provide parking rates for all the proposed components of the master plan. Parking demand would need to be assessed on a "first principles" basis to ensure a suitable supply could be provided on site. The costs associated with the proposed upgrades to the traffic and transport infrastructure to be recognised.

WSUD's (Author: Tom Patterson)

A water balance model was prepared to undertake a preliminary assessment of options. This model has not been calibrated and should only be used as an initial guide, more detailed modelling is required to refine these initial results.

The sports fields require approximately 0.5 ML/day irrigation water, averaged over the year. Two preliminary concepts are suggested to supply this water.

Preliminary Option 1

The upgrade of wetlands adjacent to and south east of the sports fields. This would allow the storage of Stormwater from the upstream catchment for reuse. Examination of the wetland area suggests that between 5 ML and 10 ML of storage could be used if the wetland areas were upgraded. Preliminary analysis suggests this could reduce reliance on potable water between 50-80%.

Opportunities

- Could improve Stormwater quality discharged to Hunter River

Constraints

- Cost of upgrading wetlands
- Water quality in wetlands is reportedly poor, there may be a need to upgrade Stormwater quality treatment devices in the catchment. It also may not be economically feasible to treat water to the required level.
- Potentially other sources of pollution that may be expensive to treat.
- Grey-headed Flying fox colony

Preliminary Option 2

Raymond Terrace Wastewater Treatment Works is located two kilometres away and has a treatment capacity of 7.3 ML/day. Therefore, potentially all of the irrigation demand of the sports fields could be met using this source. Some of the water from the treatment plant is currently used for irrigation, the majority is discharged to Windeyers Creek.

Opportunities

- Constant supply of water
- This recycled water could also supply:
 - Boomerang Park Sports Fields
 - Muree golf course
 - Industrial areas
- Use areas are geographically close to each other, minimising piping requirements.

Constraints

- Cost of piping and improved treatment
- Potential community concerns with use of recycled water

Preliminary Option 3

A third option has been discussed with Council that includes Capturing storm water from Carmichael St/CBD and running to Ross Wallbridge Reserve.

Opportunities

- Improves quality of storm water discharge in to the river
- Water supply at minimal cost

Constraints

- Relies on the upgrade of Ross Wallbridge Reserve, and any quality processing
- Cost of upgrade storm water network for conveyance
- Inconsistent supply

Social infrastructure (Author: Claire Edwards)

Opportunities

Engaging with the broader community on the masterplan will create community buy-in to how the complex and foreshore takes shape and its future uses. It will provide the Council and project team with a quick understanding of any current issues at the site related to safety, community values, as well as identifying community needs and aspirations.

This, along with socio-economic and cultural analysis of the existing and projected population of the local and regional community, will identify their existing and future needs that could be incorporated into the design. For example, ensuring there is a range of play facilities, and adequate seating and amenities. Additionally analysis of the sports complex and foreshore reserve events programs will identify current use of the complex and generate ideas for future event opportunities at the complex and reserve.

Together, these approaches will help to maximise use of the site throughout the year by the broader community, activating the spaces and creating a multipurpose, multiuse facility.

By incorporating the community's ideas in the master plan, and engaging them in the design process, they are much more likely to take ownership of, and feel attachment to the space. This can increase community use of the spaces, and with it natural surveillance, higher attendance to events and a sense of belonging to the community. Providing a user-influenced design that appeals to all ages, is inclusive and accessible creates longer term economic and social benefits and better outcomes for the community.

Technical Opportunities and Constraints

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LEGEND

- 3.0m shared path (ped/cycle/maintenance)
- Proposed council cycle path
- Sports turf
- Maintained turf areas
- Habitat restoration areas
- Existing trees
- Structure Trees
- Gateway signage/entry feature
- Parking
- Bus stop
- Temp power supply, food and beverage and concrete pads
- Pedestrian crossing points
- Floodlights
- Shaded rest area and may include fitness, BBQ, public art, drinking fountain cycle maintenance and parking
- End of Trip bike facilities
- Arboreal corridor(Ross Wall Res. to foreshore)
- Riparian corridor
- Solar panels, bioremediation, organic processing facility

- Site boundary
- Fence (1.2m high)
- Flood extent
- Fence (1.8m high)

Notes:

1. Include lighting for orientation and safety for pedestrian/cycle paths, fields/courts & car parking
2. All pathways to accommodate maintenance and operational vehicle movement
3. Integrity of earth mound to mitigate flooding to be retained
4. Flooding and Landfill currently constraining some proposed development elements i.e. flood lights and tree planting
5. Include internal signage and way-finding
6. Include public art elements
7. Design to be DDA compliant

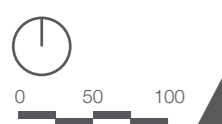
Sporting facilities

- 1** Premier Oval (retain turf wicket, upgrade of existing inc. tiered seats, Class II Cricket Lighting: 500lux square / 300lux outfield, drainage upgrade)
- 2** Senior soccer field (100 x 75m with existing turf wicket block and 3m safety runoff, 100 lux flood lights, drainage upgrade)
- 3** Premier Rectangular Field (105 x 64m, 3m run off, with perimeter fencing, covered tiered seating with media box, 200 lux flood lights). Additional warm-up field (105 x 64m, 3m run off with 100 lux flood lights). Irrigation & drainage upgrade.
- 4** Event Space with cricket oval, synthetic wicket. Drainage to be resolved.
- 5** 2x Existing Formalised soccer fields (105 x 68m with turf cricket pitch, 100 lux flood lights)

- 6** Playing Field or rectangular field on existing location. Drainage to be upgraded.
- 7** Option one: Athletics/Rectangle Pitch; Option two: Cricket / 2 rectangle pitches. Chosen configuration of this site will be subject to demonstrated demand.
- 8** Junior Cricket Oval with synthetic wicket
- 9** Additional 3 netball courts, with 100 lux flood lights. Tennis courts extended to north, with 250 lux flood lights
- 10** Cricket Nets 2-4 (synthetic). 3.6m x 27m per net area

Buildings

- A** Vi Barnett Athletics building
- B** Tennis building
- C** Netball building
- D** Main clubhouse
- E** Field 5 building



Preliminary Masterplan