Department of Planning, Lands and Heritage

GOVERNMENT OF WESTERN AUSTRALIA

Emu Point Precinct Structure Plan Servicing Report

Executive summary

This report provides an overview of the servicing status and infrastructure requirements within the Emu Point Precinct Structure Plan (EPPSP) area in the City of Albany (Figure 1). It covers water supply, wastewater, electricity, communications, stormwater, and geotechnical considerations.

The analysis indicates that while the risk of impact on the servicing network is low, specific upgrades and extensions may be required to support future development. Costs for such works will generally fall on individual proponents unless planned and funded by servicing agencies.

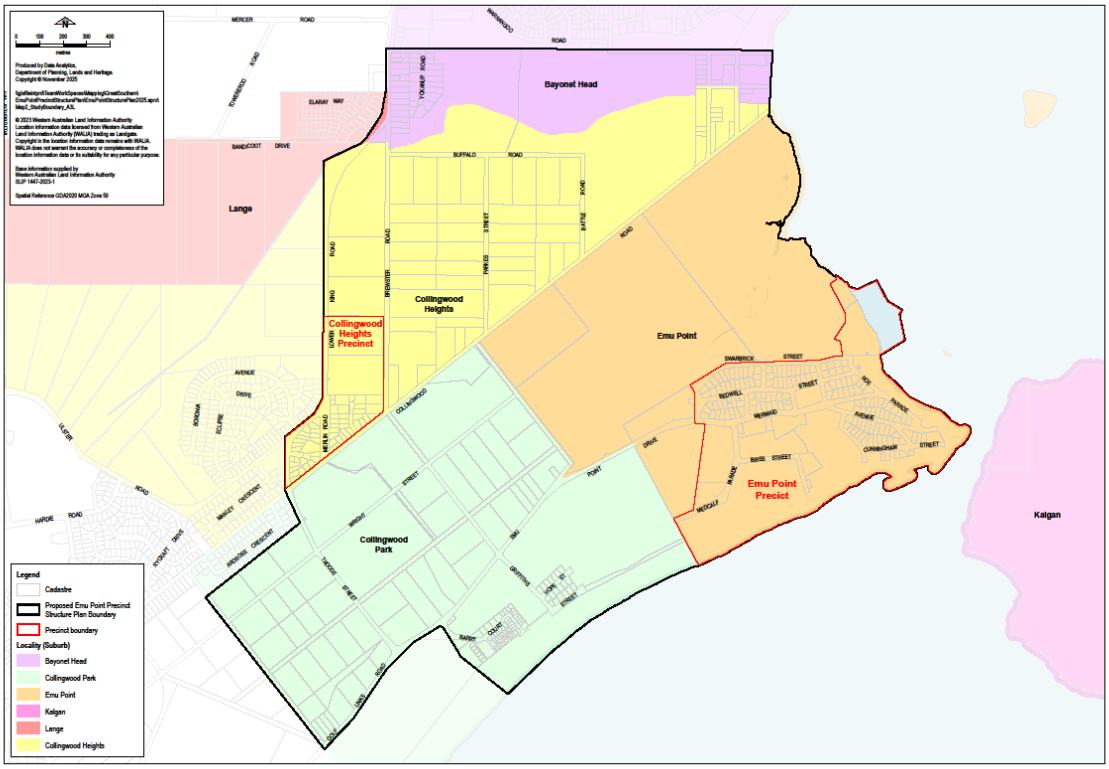


Figure 1: Emu Point Precinct Structure Plan

Current situation

Existing electricity, water supply and wastewater services are identified throughout the project area.

The majority of the EPPSP is serviced by overhead power lines.

There are areas of Rural Zoned land that remain unconnected to potable water and/or reticulated sewer. Such lots provide a self-supply of potable water and onsite sewerage disposal.

Gas services are not available within the precinct.

All the major existing services are located outside the erosion and inundation areas as identified by the CHRMP.

Water and sewerage supply

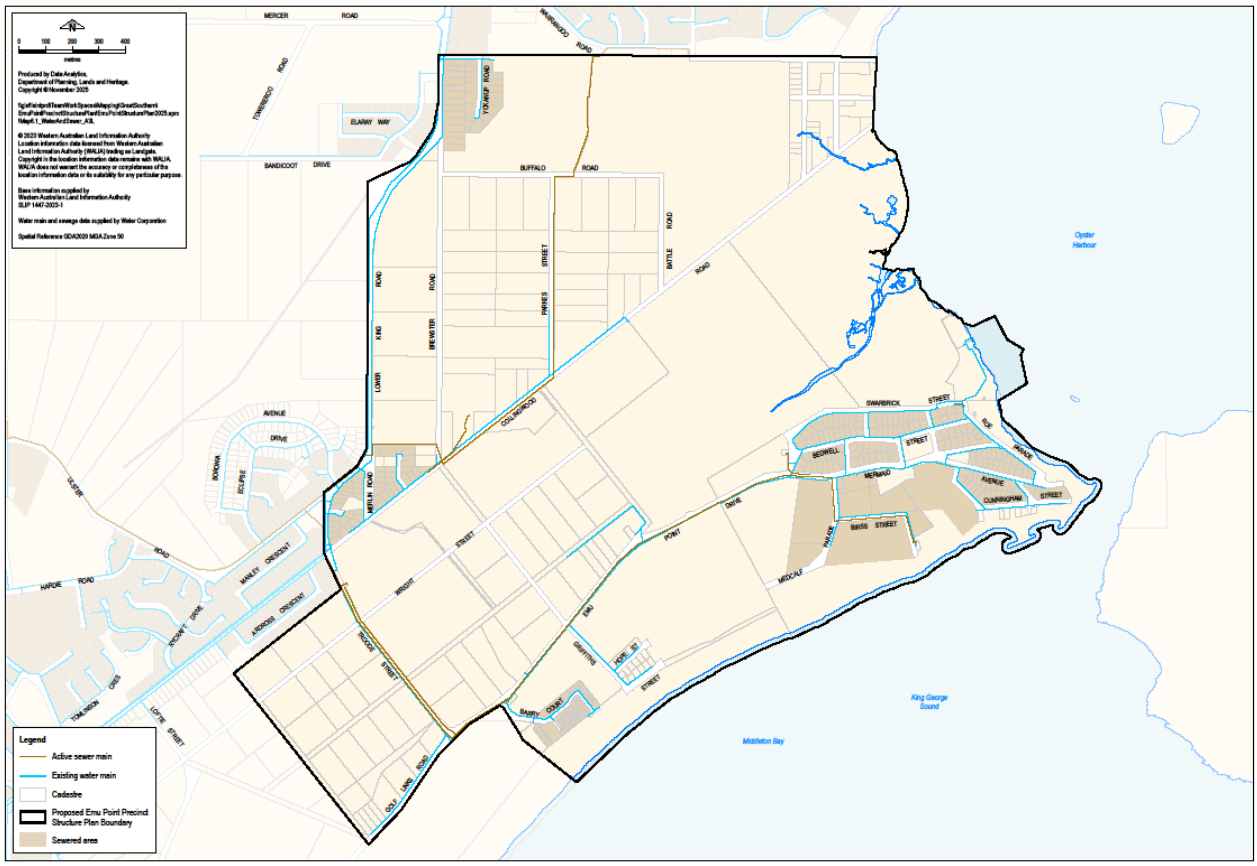


Figure 2 – Water and Sewerage Services

The whole project area is identified as a sewer sensitive area (SSA) under the *Government Sewerage Policy 2019* (GSP). In accordance with the GSP, reticulated sewer must be provided to all residential subdivision proposals with less than a one-hectare minimum lot size. The GSP

notes that smaller lots may be considered for non-residential, commercial and industrial subdivisions, on a case-by-case basis.

Future subdivision of existing residential areas appears to be possible, noting:

- except for lots within Griffith and Hope Streets, reticulated sewer services are available throughout the existing Residential zones; and
- reticulated water supply is available throughout all Residential Zones (Figure 2).

Extension of water

Lot 3000 Emu Point Rd, Collingwood Park: A portion of Lot 3000 Emu Point Rd, Collingwood Park, is identified as Urban Development Zone within City of Albany Local Planning Scheme No.2 (LPS2). The lot is currently undeveloped. There is currently an existing D150 main abutting the lot along Emu Point Road. A private connection from this D150 main can service the lot. Additional development from this transfer main may require upgrading to a larger diameter depending on the scale of development, pressures and velocities to this area.

Lots 697 to 699 Wright St, Collingwood Park: Lots 697 to 699 Wright St are identified as Urban Development Zone within LPS2. Lots 697 and 699 remain undeveloped while Lot 698 contains a single house and outbuildings that provide self-supply of water and onsite sewerage disposal. Servicing is available via connection to the water main along Troode St.

Lots 22, 23, 25 & 26 Lower King Road, Collingwood Heights: Currently, there are no planned reticulation upgrades to service Lots 22, 23, 25 and 26 Lower King Road. Large areas of Lots 25 and 26 are subject to inundation during large flow events. Water Corporation advises service connection to these lots should be from Brewster Road (Figure 3). Currently, there is only a 58AC connection that terminates at the southern end of Brewster Rd. Noting Lots 22 and 23 may have potential for high density residential development, the following infrastructure upgrades would be required:

- Connection and new extension of a 2,000m 300S main running along Collingwood Rd starting at the junction of Collingwood St and Lower King Rd.
- A new 1,000m D205 main running along Brewster Rd connected to the extended 300S along Collingwood Rd (Figure 3).

Wastewater

The whole project area is identified as sewer sensitive area (SSA) under the GSP. In accordance with the GSP, reticulated sewer must be provided to all residential subdivision proposals with less than a one-hectare minimum lot size. All residential zones, except along Griffiths and Hope Street, have a reticulated sewerage service. It is technically possible for these streets to be connected to reticulated sewer, however, the new gravity sewer pipes would need construction of deep gravity sewers (~6m) at the Barry Court pump station, becoming shallower as they extend to the upstream extent of the catchment. In addition, navigating existing infrastructure

(water mains, wastewater pressure mains, overhead power lines and possibly telecommunications services) and native vegetation located within the Emu Point Drive road reserve. Given the expected cost to extend services, low number of dwellings, and exposure to erosion hazards, the provision of services has not been recommended.

Water Corporation advise servicing is possible in existing residential areas as per comments within Figure 3.

Collingwood Park – Emu Point Dr including Lot 3000: There is an existing Water Corporation pump station at Barry Court. This pump station was designed to allow the local catchment to extend approximately 1,000m east along Emu Point Dr and 750m west along Golf Links Rd. This would enable the servicing of Lot 3000. The new gravity sewers would need to be constructed at a depth of six metres at Barry Court pump station, becoming shallower as they extended to the upstream extent of the catchment. The gravity sewers would be funded and constructed by the developers. The road reserve along Emu Point Rd is vegetated and already contains water mains, wastewater pressure mains, overhead power lines and possibly telecommunications services, so the new sewers will be challenging and costly to construct.

Collingwood Park – Wright St: Lots 697, 698 and 699 Wright St are currently planned for gravity sewers within the catchment of the existing Water Corporation pump station at Troode St, in the grounds of the Albany Sporting Club. It is conceptually possible for most of the undeveloped land in these lots to be sewered into the Troode St pump station.

Collingwood Heights – Lots 22 to 26 Lower King Rd:

Lots 22 and 23 contain a ridgeline that intersects the lots diagonally (see red line within Figure 3). Preliminary investigations suggest south of the red line could be serviced by 150m extension of the existing gravity sewer from maintenance shaft AF4526 on the corner of Collingwood Rd and Brewster Rd (Figure 3). However, the DN350 Warrangoo Rd pressure main crosses Brewster Rd diagonally, and calculations indicate that the gravity sewer will clash directly with the pressure main. There are also other services of water main, private pressure main and overhead power lines along Collingwood Rd and Brewster Rd to avoid.

The land north of the ridgeline will require a new Water Corporation pump station, shown by the blue dot in Figure 3. If constructed to the correct depth this pump station will also be able to service lots 24, 25 and 26 Lower King Rd. This corner of the site is low lying and may require imported fill to ensure that the top slab of the pump station is 150mm above the 1:100 year flood level to protect the electrical switchboard. The finished ground level of the developed land should also be at least 500 mm above the estimated maximum ground water table, to prevent ongoing flooding of access chamber lids and the pump station site.

A suitable discharge location for the pressure main from the new pump station will be access chamber 2209D on the service road off Ulster Rd, north of 28 Rycraft Drive. The length of the pressure main is approximately 1,000m. There is an existing DN250 pressure main along Lower

King/Ulster Rd that is no longer in use. There could be an opportunity to install the new pressure main within the existing pipe which would significantly limit the excavation required.

If Lots 24 to 26 are developed as single lot developments prior to the construction of the pump station in lot 23, then a private pump station and pressure main to a suitable discharge location could be considered. This infrastructure would be owned and operated by the private developer.

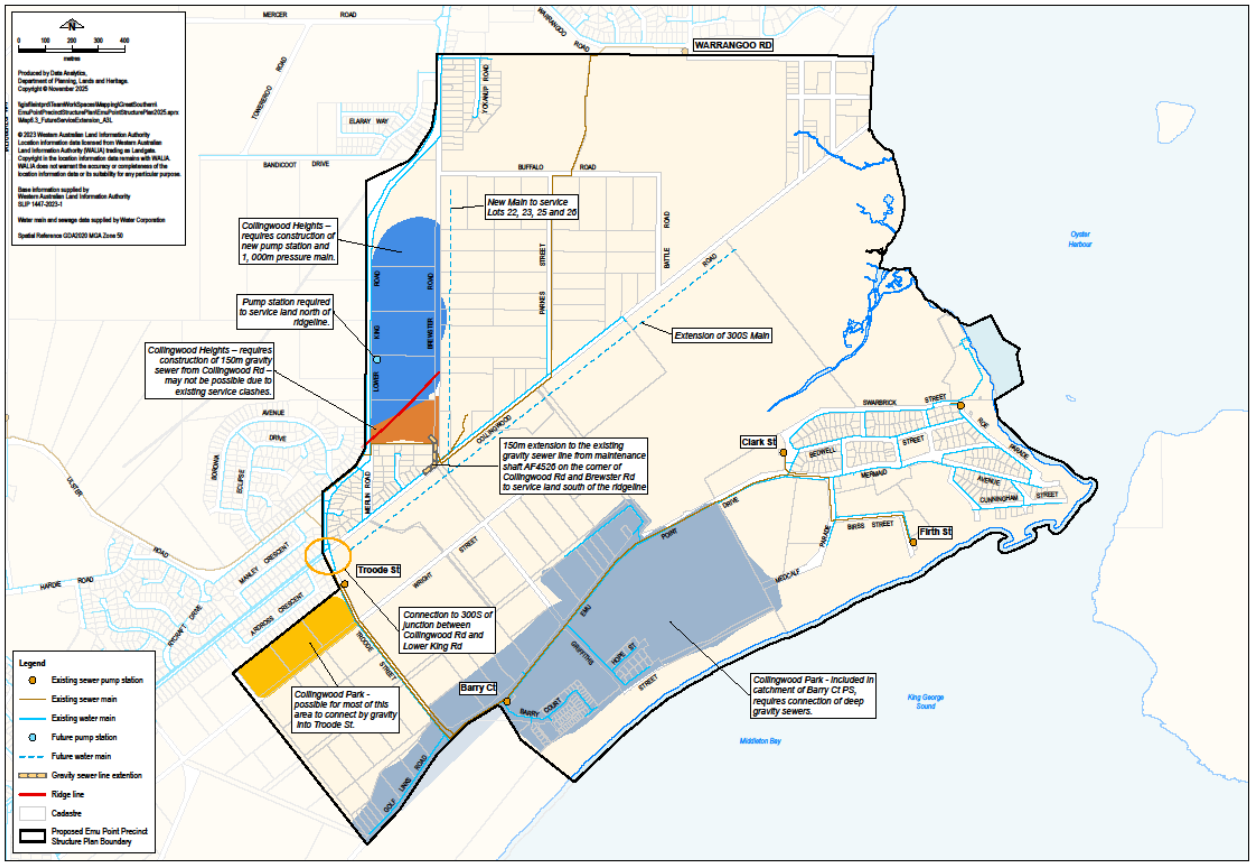


Figure 3 – Future Service Extensions

Water Corporation has advised that most Rural Zoned lots (apart from a portion of Lots 22 and 23 Lower King Road) are in low-lying areas with unfavourable topography for gravity sewer. To extend services to these areas would require several wastewater pumping stations, which will be challenging and costly to construct.

Onsite disposal in Rural Zones: Intensification of development for rural living purposes in low lying rural zoned areas, would need to comply with the requirements of the GSP, including undertaking a site and soil evaluation to determine the disposal method and location.

Electricity

Western Power 132KV high voltage overhead transmission lines and the associated substation that distributes power to the greater Albany area is located off Federal Street in McKail (nine km north-west of the project area).

Current power distribution into the project area is predominantly high voltage overhead three phase power lines, a small number of high voltage overhead single-phase lines and an equally limited number of high voltage underground three phase lines (Figure 4).

Extracts from Western Power's network capacity mapping tool indicated that present and future capacity of the greater Albany area up until 2034 is less than 5MVA (mega-volt-amps). Assuming a range of 2kVA to 5kVA (kilovolt-amps) usage per dwelling in residential developments, capacity for the wider Albany area can be assumed to be between 1000 to 2500 dwellings.

Small food processing and small-scale workshops such as those located at the Emu Point marina may have a typical demand of between 20 to 250kVA.

To service the estimated short to medium term lot yield (based on existing opportunities and proposed upcoding within Collingwood Heights Precinct), Western Power has advised there is sufficient capacity available via an existing feeder from Albany substation.

In the longer term, an additional feeder may be required to support the additional load. There are existing capacity expansion plans in place that will satisfy this requirement in the longer term.

Western Power calculations are based on the following estimations:

- 6.5 kVA/dwelling and +10% for commercial/schools/pumping etc. (395 x 0.0065MVA) + 10% = ~2.8MVA
    - Short Term Lot Yield 0-5 years: 70 lots. Feeder Load Requirement @ 6.5kVA = 0.50MVA
    - Medium Term Lot Yield 5-10 years: 45 lots. Feeder Load Requirement @ 6.5kVA = 0.14MVA
    - Long Term Lot Yield 20 years: 280 lots. Feeder Load Requirement @ 6.5kVA = 3.79MVA

The above calculations are based on the following assumptions:

- 6.5 kVA/dwelling and +10% for commercial/schools/pumping.
- This is a high-level preliminary assessment of potential network infrastructure requirements, conducted based on information provided at the time of the request, and assessed independently of any other queries. Network infrastructure requirements, development projects and timings are subject to change over time.

- If urbanisation of the area progresses and development projects follow, further studies and a detailed technical assessment are required to confirm available capacity and network augmentation options to connect at that time to connect, including project cost and timing. The volume, timing/staging and location of development projects that progress will impact network infrastructure requirements.
- No capacity is reserved. When a developer progresses through the Western Power connection process, they will be allocated capacity on a “first come, first served” basis and on a “user pays” principle.

This analysis and estimates do not include individual development connection requirements (non-headworks).

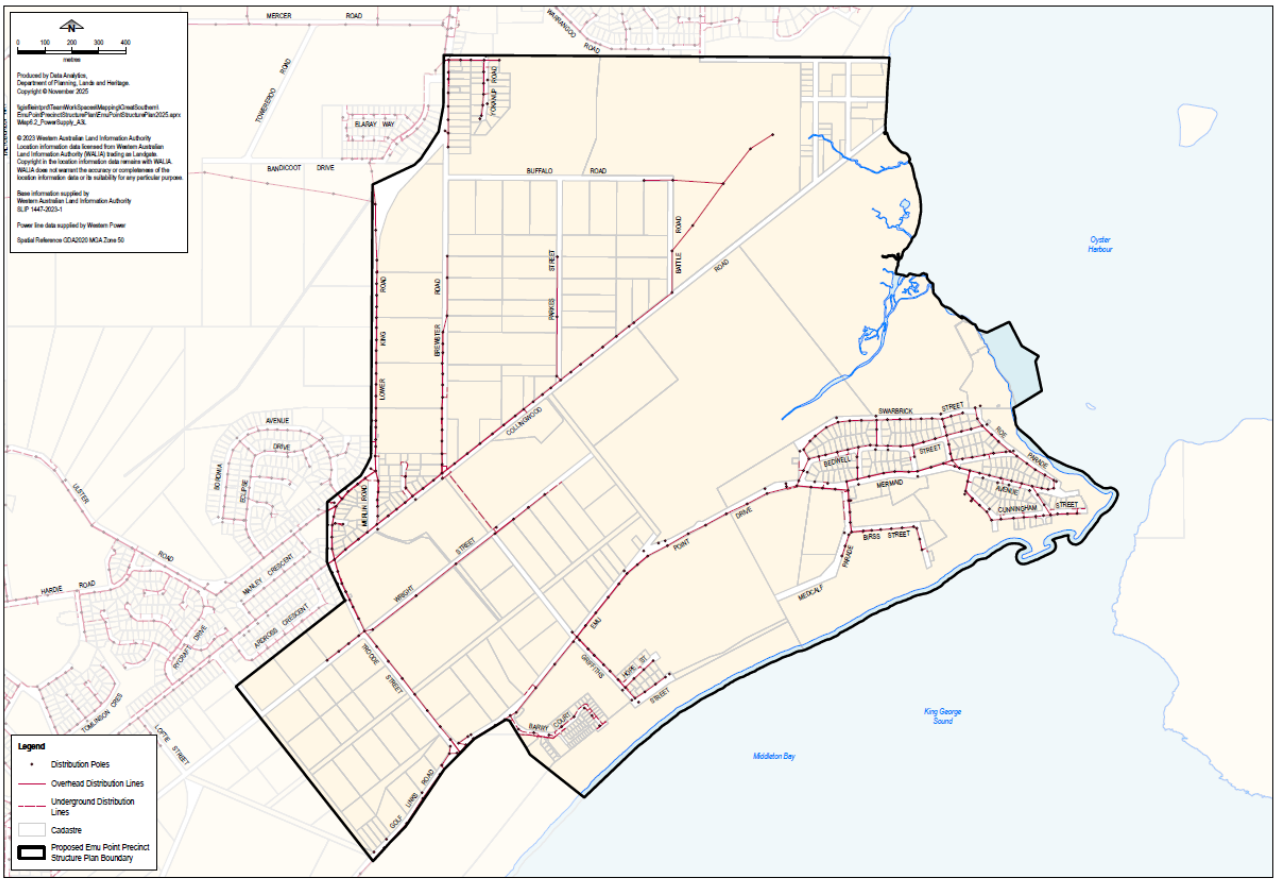


Figure 4 – Power infrastructure

Communications networks

The NBN coverage is shown in Figure 5. Mapping shows fixed line NBN Fibre to Node (FTTN) services are available through the built-up residential areas.

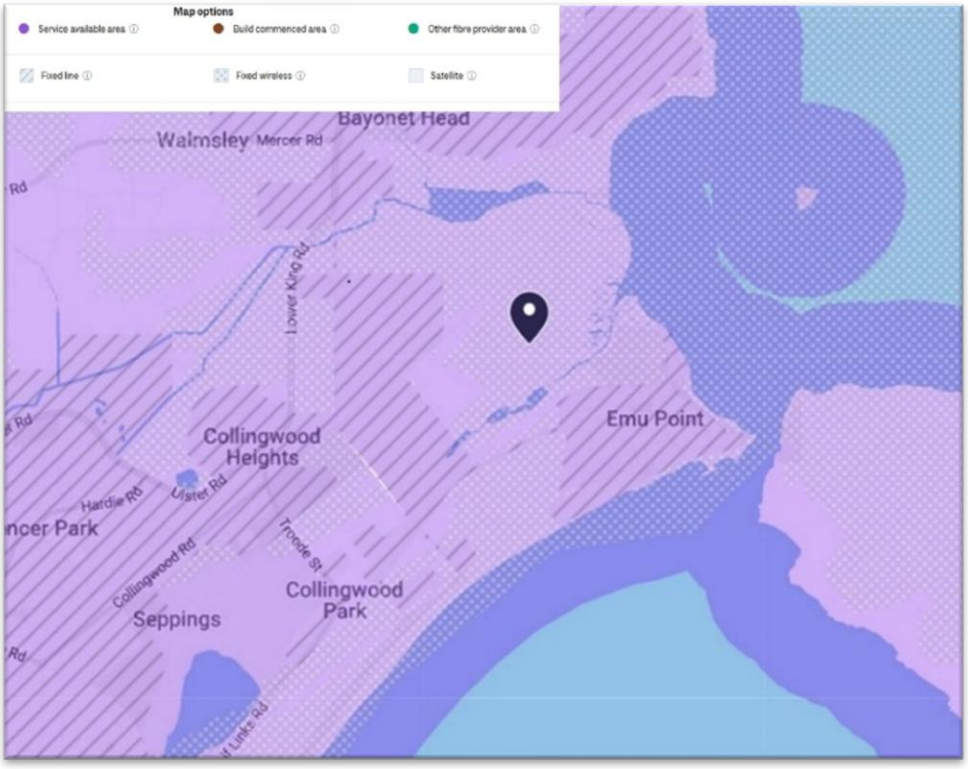


Figure 5 – NBN Service availability (Source nbn® rollout map | nbn)

Stormwater and drainage

The EPPSP area is dunal and undulating, with some low-lying and flat sections, sandy and silty soils, and a shallow groundwater table influenced by coastal and tidal conditions.

Emu Point: Within Emu Point itself, the area is identified as generally permeable in the *City of Albany Subdivision & Development Guidelines 2018* and is therefore designated for infiltration. The existing stormwater network consists of piped infrastructure along Mermaid Avenue, which conveys stormwater toward Oyster Harbour, with occasional pits and pipes directing flows to the adjoining marshlands. Limited kerbing along roads allows runoff to infiltrate via the verges. During major storm events however, infiltration infrastructure cannot be fully relied upon, constraining infiltration and gravity drainage and creating potential for flooding and surface ponding during and after storm events.

Broader context – Collingwood Heights and adjoining low-lying rural land: Around Collingwood Heights, the soils are typically less permeable — clayey in the higher areas and marshy in the low-lying areas with high groundwater levels. These conditions necessitate more intensive stormwater infrastructure, with drainage challenges particularly evident in the lower areas. The soil conditions and topography across the EPPSP area present ongoing challenges for effective stormwater management.

Future development will need to incorporate site-responsive drainage solutions and water-sensitive urban design measures. Areas flagged for potential higher-density development will

also require corresponding upgrades to the road network and associated stormwater drainage infrastructure to urban standards, including along roads such as Brewster and Parkes Streets.

The less permeable soils and high groundwater levels in Collingwood Heights and adjoining low-lying rural land create ongoing stormwater management challenges. Areas flagged for future development or increased densities than existing will require site-responsive drainage, water-sensitive urban design, and likely upgrades to the road network and associated stormwater drainage infrastructure to urban standards, including along key roads such as Brewster and Parkes Streets.

Climate change modelling predicts that increased severity of rainfall events has the potential to exceed designed capacity of existing stormwater systems. Until further coastal hazard and inundation assessments are undertaken for the northern and north-western areas of Emu Point and the adjoining catchments, a cautious approach to any increase in lot yield in Rural zone is recommended.

Geotechnical features

The soils of the project area are classified as Albany Sandplain Zone. Over time the narrow promontory of the Emu Point suburban area has been shaped by coastal sediment deposition between Oyster Harbour and King George Sound. Soils are a mix of light leached marine dune sands and gravelly sandy loam on higher dunal system running parallel to the coast (Figure 6).

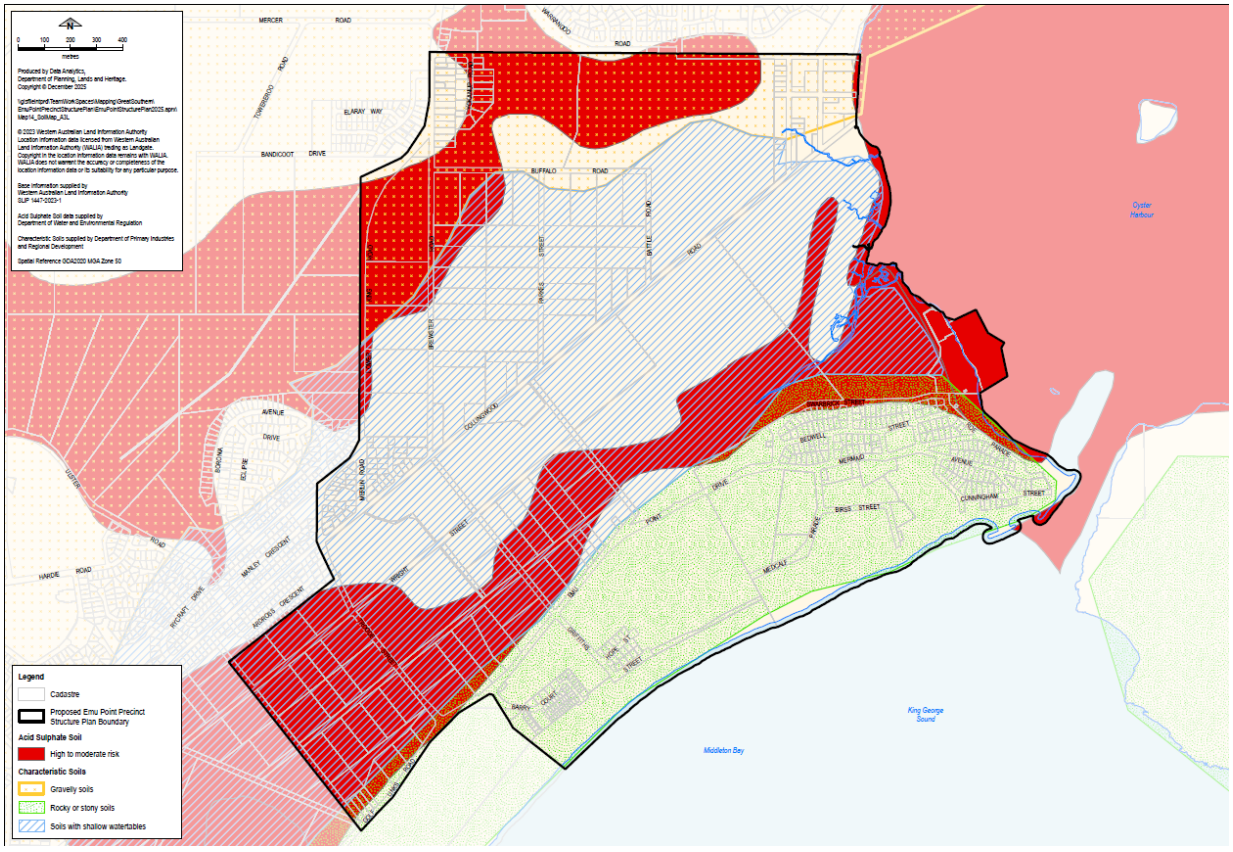


Figure 6 – Soil Characteristics

Clayey sands and swamp soils with shallow water tables occur in low lying wetland and estuarine areas. There is a high to moderate Acid Sulphate Soils (ASS) risk in low-lying and ground water influenced areas (Figure 6).

It has been identified that there is available capacity across all utility networks to service the EPPSP area. However, while the reticulated sewerage network has capacity, not all locations within the precinct are currently capable of direct connection. Where extension of services is feasible, the responsibility for headworks and connection costs will rest with individual proponents. In some instances, these costs may be prohibitive and should be carefully considered as part of development planning.

In accordance with the State Planning Framework including the GSP and *State Planning Policy 2.9 - Water Resources,* subdivision and development proposals, the following may be required:

- Provide site-responsive drainage solutions tailored to local conditions.
- Incorporate water-sensitive urban design (WSUD) measures to manage stormwater sustainably and protect water resources.
- Undertake a site and soil assessment to inform the design and implementation of drainage and water management strategies.

Collingwood Heights – Lots 22 and 23 Lower King Rd:

A geotechnical investigation into the proposed residential development and road access within Lots 22 and 23, Lower King Road, Collingwood Heights identified the following:

- The site is classified as Class P under AS 2870 due to dense vegetation, deep organic layers, and low bearing capacity.
- Test pits (Figure 8) revealed silty sand with roots to ~1200 mm in the residential area, soils ranging from loose to medium dense.
- The water table was encountered at 680–700 mm in several pits (TP1–TP4).
- For road widening and access, soils comprised medium-dense sand/silty sand with CBR values of 12–25% (adequate after compaction).
- Permeability was high (4.2–19.3 m/day), influencing drainage design.
- Laboratory tests confirmed acid sulfate soils with pHF 2.6–8.2 and pHFOX 2.7–6.7. Low pH (<4.5) in the upper 1.5 m indicates moderate risk requiring management during excavation.
- Isolated contamination was noted: textile debris at ~1000 mm (TP3) and rubber fragments in topsoil (TP9). No widespread hazardous contamination detected.

Key risks include low bearing capacity, organic-rich soils, acid sulfate soils, and construction challenges.

Recommended actions:

- Strip organics and roots (300–600 mm) and remove debris.
- Replace loose sand with compacted non-cohesive fill (AS 3798).
- Implement Acid Sulfate Soil Management Plan.
- Conduct confirmatory contamination screening before earthworks.



Figure 8 – Test Pit Locations (Source: Appendix 8 - Geotechnics Site Investigation)

Conclusion

The servicing analysis indicates that while the risk of impact on the servicing network is low, specific upgrades and extensions may be required to support future development. Costs for such works will generally fall on individual proponents unless planned and funded by servicing agencies.