

**MIDDLETON BEACH – LOT 888**

**PRELIMINARY SERVICING REPORT**



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As requested, Wood & Grieve Engineers have carried out further investigations into the site to establish the servicing and topographical constraints for the site. Attached in Appendix A is the Feature survey showing the service locations in detail.

**The Site**

The site is lot 8888 on the junction of Marine Terrace, Adelaide Crescent and Flinders Parade, Middleton Beach, Albany.

The site is 1.3171 Ha in area and is currently vacant land after the previous owner of the property had demolished the old Esplanade Hotel and associated buildings.

**Geophysical Characteristics**

A feature survey has been carried out by Harley Dykstra and is attached in appendix A.

The site is mostly cleared and relatively flat with reduced levels of between 2.4m and 2.8m AHD. Some embankments exist where the site abuts Barnett Street, lots 660 and 661, and Flinders Parade. To the West is Mount Adelaide which rises abruptly and has contrasting soil types of silty sand over lateritic gravels, weathered granites, and clays. The extent of this interface underground will need to be investigated.

The site surface is predominantly sandy, being in the sand dune zone adjacent to the beach. The material will be finely graded, and hence will have reduced infiltration capacity when compared to Perth sands.

A geotechnical brief has been completed for Landcorp, in order to carry out the investigation and confirm the site characteristics and underlying soils.

**Groundwater Levels**

Groundwater levels are expected to be in the range 0.5m to 1.0m AHD. This site is in an area where higher groundwater may have an effect on services installation, particularly along the southern edge adjacent to the steep slopes of Mount Adelaide. The remainder of the site should be clear of any impact; however this will need confirmation with the geotechnical investigation.

The groundwater is expected to be flowing to the East toward the beach. No wetlands are influenced.

**Earthworks**

As you are aware the site is currently level at around RL 2.60, however set down from the surrounding roads and lots on the North, West and South of the property.

Any road works to be built internally will need to be flood routed to either Adelaide Tce or Flinders Parade. In order to do this, approximately 1.5m of fill needed to be placed for the road. Whilst this would be needed for the road reserves, it could be argued that the future development of the lots may benefit from leaving them lower; in order to accommodate any basement parking that developers may choose to provide. We note however this would need to clear of any groundwater levels; otherwise expensive tanking and pump systems would be required.

As above, the existing site levels are around RL 2.60. As the site is adjacent to Middleton Beach, there may be some requirement for a minimum floor level higher than this to accommodate planning guidelines for any potential sea level rise. This would be subject to a site specific assessment. The Albany Waterfront development used a Finished Lot Level of 2.50m AHD for its commercial development. I believe further updates of the potential sea level rise have been made since.

### **Sewer Reticulation**

This site is currently served by an existing 150 dia gravity sewer system, grading back to a Waste Water Pumping Station on Garden Street. An existing sewer runs internal to the lot in an easement. This sewer could be relocated if required to accommodate future development.

To fully service the site some filling will be required in the eastern part of the site, along the interface with Flinders Parade, which is at the far end of the sewer catchment. Should development extend onto existing Flinders Parade reserve as part of any realignment, the levels in the existing road reserve will require lifting by around 1.5 to 1.8m.

As part of this investigation we have contact the Water Corporation to ascertain any capacity constraints on the current system downstream. They have advised that the system downstream should have capacity for development of this site up to an equivalent density of R80. Development beyond this would require detailed information on the proposed development mix so that the exact demand could be established and checked. It is likely that development beyond R80 may require some offsite infrastructure upgrades.

The current Three Anchors Development is served via a private pumping station adjacent to it. This pumps via a small pressure main and discharges at the corner of Marine Terrance and Adelaide Crescent. This pressure main traverses the site alongside the gas main in the very South East corner of the site. This will require relocation.

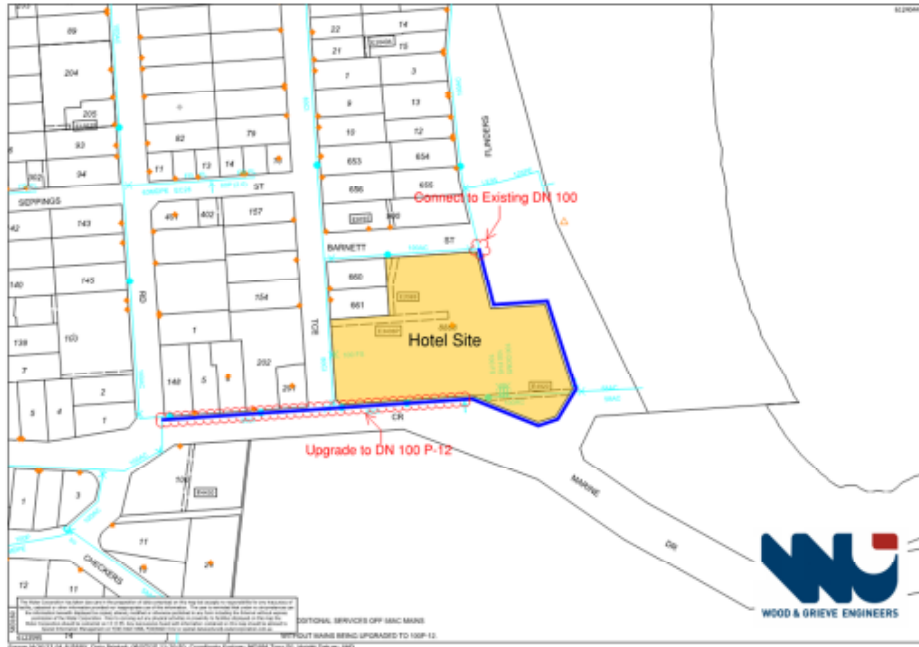
### **Water Reticulation**

The existing water supply system surrounding the site is old and small is diameter. We would anticipate that any development would require the upgrading of the old mains to 100 dia UPVC as a minimum.

In the South East corner of the site the existing water main traverses the site (in an easement) on its way to service the Three Anchors site on the beach front. This water main would need to be relocated into a road reserve as part of development.

As part of this investigation we contacted the Water Corporation to ascertain any capacity constraints on the current system. The response is as follows:

- Additional demands from development of this site will have no significant impact on water distribution mains supplying this area.
- There will be an impact on the local reticulation network surrounding the development, particularly the 80CI in Adelaide Crescent, between Golf Links Road and Marine Terrace.
- Any development of this site will require :-
  - Upgrade of existing 80CI main in Adelaide Crescent, from existing 100AC in Golf Links Drive.
  - 100 P-12 extension in Flinders Dr and Adelaide Crescent.



**Stormwater Drainage**

The site is currently connected to by an existing 225 dia pipe adjacent to Flinders Parade. This system then collects water from the road reserve and pavements, as well as runoff from Marine Drive and Mt Adelaide. Discharge is onto the beach via an existing outlet in the retaining wall. A second system picks up the more Northern part of Flinders Parade and does the same, via another beach outlet.

Both these systems will need to reconfiguration should Flinders Parade be realigned. There is no upstream catchment needing conveyance through the site.

The issue of the drainage outlets onto the beach is dealt with under our separate report dated 12 May 2015 (see Appendix B).

Water sensitive urban design principles will be required. Once the Geotechnical report is completed and proposed planning is settled on, a UWMS should be completed to the approval of DOW and the City of Albany. Due to its proximity to the beach, soakage capacity, and negligible groundwater interaction, it is anticipated only a simplified report should be satisfactory. We have completed many similar strategies and don't anticipate any particular issues.

**Roads and Traffic**

The surrounding road network functions adequately, with the inevitable peak loads at summer holiday times and for community functions at the beach. The roads consist of flexible pavements with most likely laterite bases and asphalt seals. Typical pavements would be 250mm to 300mm deep.

In many respects the realignment of Flinders Parade would be beneficial to eliminate the reverse curve currently occurring near Barnett Street. Realignment would probably be in the form of a divided carriageway with parking bays and restricted access locations. It is anticipated that the round-a-bout at Marine Drive would move along with any realignment.

Any parking removed as part of realignment would need to be replaced.

We would imagine a small traffic study (Traffic Impact Statement) would be required to facilitate this realignment and associated development proposals. We have the local expertise and knowledge to carry this out.

### **Footpaths**

Some of the footpaths around the site are old and substandard. It is anticipated that they will require some upgrades as part of the development. As this site will be a key development, pedestrian movement will need to be considered carefully.

### **Underground Power**

To provide underground power to the site, assumes that supply to the development will come from the adjoining infrastructure. Unfortunately, this cannot be confirmed until the development formally proceeds and we request a Design Information Package from Western Power.

Based on the proposed concept plan, this development should be deemed to be residential rather than commercial, as the majority of the land is to be used for residential purposes. The power demand of the proposed development will be in the vicinity of 450Kva, and it is our understanding that the current power supply allocated to the site is 240Kva. The difference in demand (future less current) will attract a WP systems charge of approximately \$ 70,000.

The site is currently serviced by means of a district transformer, located within an easement on the Western end of the site. It is possible to relocate this transformer if required. The cost for this would be between \$ 20k and \$ 80k depending on the location desired.

The created lots will be serviced via new lv cabling and uni pillars, supplied from the existing (or relocated) transformer. LV cabling will in all likelihood be installed in Marine Terrace, Adelaide Crescent and Flinders Parade, with only streetlighting cabling being installed in the new road. It is likely that one or both of the Northern lots (Cnr Flinders/Barnett) will be serviced from existing infrastructure on Barnett Street.

### **Communications / National Broadband Network Co.**

Confirmation will be required as to whether this qualifies for the NBN program.

In accordance with the recently legislated National Broadband Network (NBN), Developers are required to fund the design and installation of "pit and pipe" infrastructure suitable for handover to NBN Co, for their installation of an optic fibre network. This will be carried out with the underground power design and installation.

### **Gas**

Existing gas mains surround the site on all roads. Like the water, an existing gas main traverses the site in the very South East corner. This along with any road realignment will require relocation.

Atco gas has confirmed that the existing gas network adjacent to the site has the capacity to service the development of the site.

### **Risks**

As always this investigation is based on the most accurate information obtained at the time of preparation. As such a number of inherent risks may influence this report. Some of these may include the following:

- Proceeding through the design process may entail changes to the nature and scope of elements required from this initial preliminary investigation.

- Land use parameters may change during the planning process.
- Infrastructure requirements or design parameters may change.
- Coastal set back or level provisions may affect the site.
- The geotechnical nature of the site may prove to be different to that assumed.
- Public consultation may drive change.
- Other normal commercial and/or legislative risks exist.

## APPENDIX A





LEGEND

⊙ MH (round)	— Centeline
⊠ Gully	— Change of grade
⊠ MH (square)	— Edge of Gravel
⊕ Pipe Invert	— Fence
⊙ Peppermint	— Brick wall
⊙ Retic Sprinkler	— Edge of Bitumen
⊙ Retic Control Pt	— Bush line
⊙ Palm	— Stone line
⊙ Norfolk Island Palm	— Building
⊙ Water valve	— Stone wall
⊙ Gas valve	— Edge of Rock
⊙ Sewer MH	— Sewer main
⊙ Bollard	— Retic pipe
⊙ Multiple Light Pole	— Water pipe
⊙ Tap	— UG power
⊙ BV	
⊙ Water marker	
⊙ Meter	
⊙ Power dome	
⊙ Toilet box/pit	
⊙ Control panel	
⊙ Hydrant (ground)	
⊙ Earth pit	
⊙ SV	
⊙ Cable marker	
⊙ Distribution board	
⊙ Sewer MH	
⊙ Double transformer	
⊙ Sewer MH (Not Located, from DBVD)	
⊙ Top of pipe	

Contour Interval 0.1m

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rev	details	date
3	COMPILED APR 15	20453-01A.lcd
drawn	MAR 13-04-15	checked CBF 13-04-15
horiz datum	ALB94	level datum AHD
scale at A0	1:500	all distances are in metres

FEATURE AND CONTOUR PLAN

client	LANDCORP
description	'Esplanade' Site Lot 8888 Marine Tce/Adelaide Cr/Flinders Pde Middleton Beach, Albany
drawing no	20453-01A

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