

Appendix 3

Preliminary Servicing Report



DEVELOPMENT
ENGINEERING
CONSULTANTS

Telephone: (08) 9481 1900

Facsimile: (08) 9481 1700

Ground Floor "The Atrium"

Suite 3/123A Colin Street

West Perth WA 6005

Our Ref: BdvTer

Bdvter80ServRep091220

BALDIVIS HOMES PTY LTD
LOT 1 BALDIVIS & FIFTY ROADS, BALDIVIS
ENGINEERING SERVICES REPORT

1. General:

The subject site is approximately 4 hectares in size and is located on the south west corner of Baldivis Road and Fifty Road, Baldivis.

It is to be ultimately developed into 42 residential lots plus POS and a commercial precinct of some 8,400sqm.

This report covers existing and proposed services, plus proposals for earthworks, retaining walls, roads, drainage, groundwater, water supply, sewerage, power supply, gas, telecommunication as required for current urban development standards.

2. Executive Summary

The land the subject of this report is located on the corner of Fifty Road and Baldivis Road in Baldivis in the City of Rockingham. It can be easily developed immediately by extending all required services from abutting roads.

The land is currently occupied by a private residence and shed, and is partly cleared with residual scrub spread across the site. The existing residence is retained based on the current plan.

Both abutting roads are typical rural road standard, sealed in fair condition, with a recently constructed roundabout at the junction of Fifty Road/Baldivis Road/Arden Ave being fully kerbed and drained. There is an existing footpath/DUP on the northern side of Fifty Road and on the eastern side of Baldivis Road.

The basic land form is Bassendean sand. The Environmental Geology map of the Geological Survey of Western Australia classifies this site as generally "M4" being silt with low clay content. Despite this, geotechnical excavations over the site found no evidence of this soil profile, with only Bassendean sand being encountered. Maximum groundwater levels range from 1.8m to 4.2m below natural ground levels.

No visual or anecdotal evidence of water ponding has occurred in this area.

The land can be connected to all services, either by extension and upgrading from existing infrastructure, or by provision of new infrastructure as set out below. Power, telephone, gas, sewer and water services already pass along the site frontage.

It is proposed that all road stormwater from the development up to and including the 1% AEP (1 in 100yr) event will be retained on site. Houses will discharge roof stormwater into on site soakwells.

Because of the minimal undulation nature of the site, lots will be developed with low to medium height retaining walls in order to provide level building blocks.

3. Site

Lot 1 is located on the south western corner of the junction of Baldivis Road and Fifty Road in Baldivis. The land contains a private residence and shed and is partly cleared, to about 50%. The land is generally at the base of an ancient sand dune, and is almost flat, with a fall across the site west to east of approximately one metre.

The majority of the site is Guildford formation soil, with the southern 25% being Bassendean Sand. The low point of the site is at RL 6mAHD at the north east corner near the roundabout, rising to RL 7mAHD at the south western corner of the site.

Geotechnical investigations across the site indicate that it is underlain by deep free draining Bassendean sand, which should yield an "A" Site Classification for residential construction under AS2870.

The site is adjacent Water Corporation sewer and scheme water, as well as telephone, gas and power. Access is from the existing abutting sealed roads; Baldivis Road and Fifty Road. The site has an existing driveway off Baldivis Road mid-way along its Baldivis Road frontage. Baldivis Road and Fifty Road abutting the site are both constructed to rural standard, and are of fair quality, having been built many years ago. A path is located along the northern verge of Fifty Road and on the western verge of Baldivis Road.

A major fibre optic cable is located along the western verge of Baldivis Road adjacent to the site, as is an ATCO gas main. Another fibre optic cable is located along the southern verge of Fifty Road, as is another ATCO gas main.

Aerial power lines are located along both roads on the opposite side of the roads to the site.

4. Development Proposal

It is proposed to develop the land ultimately as 42 residential lots plus POS and a commercial precinct of some 8,400sqm.

Access to the proposed subdivision will be by way of a new subdivisional road off Fifty Road, located approximately 100 metres from the new roundabout at the junction of Fifty Road and Baldivis Road, plus a full movement right turn lane access into the commercial precinct some 140m south of the existing roundabout.

The development will be provided with all normal services, with links to abutting developments for sewer, water, power, roads, gas and telephone services, with all drainage to be disposed on site via soakage.

Water Corporation reticulated sewer and water services exist in Baldivis Road, water only in Fifty Road, to which the development will be connected. Sewer reticulation will be extended from the east side of Baldivis Road by drilling the sewer under the road. The water main along the southern verge of Fifty Road will be extended into the new subdivision.

Aerial power lines are located along both roads on opposite verges to the development, so following normal protocol, these will remain, with underground connections to be made as approved and extended within the development.

The development will entail earthworks largely via a cut to fill balance to provide level, free draining building blocks with low to medium height retaining walls.

All residential lot storm runoff will be directed to individual site soakage. Internal road stormwater will be directed to a proposed storage basin to be located both the northern and southern POS areas. Based on geotechnical investigations, the site is Bassendean sand capable of infiltration of the stormwater. The GWL at this proposed basin position is a minimum of 0.5m below the base of the basin.

It is expected that some upgrading of the abutting roads will be required as part of the development.

5. Earthworks & Retaining Walls

Earthworks will be carried out over the site to essentially cut from the south western portion of the site and fill the northern site. The lots will be filled to a minimum of around RL 6.1m AHD to enable individual lot soakage and better access to road levels off Fifty Road. No fill is required to provide clearance to the MGL, which is at a maximum of RL 4.2m AHD at the north east corner and 3.0m AHD at the south western corner of the site. Most finished lot levels will be above the minimum of RL 6.1m AHD.

Some low to medium height retaining walls will be required, especially along the Baldivis Road boundary to contain the fill.

All retaining walls will be subject to Council building approval.

Earthworks on site will entail removal of topsoil, cut and fill, and possible importation of sand fill.

6. Roads

All new subdivisional roads will be constructed to City of Rockingham standards and approval, including kerbing and piped drainage plus provision of footpaths as required. Access to the site will be by way of a new subdivisional road off Fifty Road, located approximately 100 metres from the new roundabout at the junction of Fifty Road and Baldivis Road, plus a full movement right turn lane access into the commercial precinct some 140m south of the existing roundabout.

The existing Fifty Road is an 8.0m wide rural standard carriageway in fair condition, kerbed only at the roundabout at the junction with Baldivis Road. There is a 2.0m wide footpath along the northern verge of Fifty Road.

Baldivis Road is a 7m wide rural standard road in fair condition, with no kerbing or formal drainage other than at the location of the roundabout at the intersection of Fifty/Arden/Baldivis Roads. There is a DUP along the eastern verge of Baldivis Road located within the “tramway” area on the eastern side of the roadway.

It is expected that upgrades to both Baldivis Road and Fifty Road will be incorporated into the subdivision approval requirements.

7. Drainage

Drainage from the whole site is wholly contained within the proposed drainage basins in the north western and south eastern corners of the development in both areas of POS.

Lot drainage will be self-contained in soakwells. The soil characteristics of the site in conjunction with the depth to groundwater will allow site soakage.

Stormwater design will be done to the standards of the City of Rockingham, and as detailed in the Local Water Management Strategy (LWMS) submitted with the structure plan documentation, and the Urban Water Management Plan (UWMP) which will be done in conjunction with the detailed subdivision design.

8. Groundwater

The groundwater level at the site is expected to peak at a maximum RL 4.2m AHD, based on peripheral groundwater investigations plus on site measurements. This is not expected to impinge in any way on the development of the site, being some 1.8 metres below the expected finished lot levels at RL 6.1m AHD.

9. Power

Sufficient power supply exists in the area to supply the development. A high and low voltage aerial power line is located along the eastern verge Baldivis Road and the northern verge of Fifty Road. Underground cables are in place at the intersection of Baldivis Road and Fifty Road, servicing the new roundabout lights.

It is expected that these aerial lines will remain, and that connection to the development will be made from the Fifty Road line.

All subdivisional power reticulation lines and transformer installations will be constructed at the cost of the developer. Transformer sites will be determined at the detailed subdivision design stage.

10. Water Supply

Sufficient water supply exists in the area to service this development.

At present there is a 250mm reticulation water main located along the southern verge of Fifty Road, to which the development will be connected.

A 1000mm steel trunk water main is located approximately along and under the middle of Fifty Road, and 900 mm steel main is located along the northern verge of Fifty Road. These mains are known as distribution mains and as such are unavailable for reticulation connection.

11. Sewer

The site is not currently connected to sewer, although a reticulation sewer main is located along the eastern verge of Baldivis Road, to which it is proposed to connect.

A 200mm sewer pressure main is located along the southern verge of Fifty Road abutting the development.

The site sewer connection will be made by drilling a 150mm reticulation sewer under Baldivis Road to Access Chamber AC 2503, which is located on the eastern side of the Baldivis Road reserve. This connection will need to drill under the major Fibre Optic cable, high pressure gas main and 600mm trunk water main, all of which are located along Baldivis Road.

Internal sewers will allow for future extensions to abutting properties as required.

12. Telephone & NBN

Telstra underground infrastructure services exist adjacent to the site along the frontage to the site in both Baldivis Road and Fifty Road. Underground infrastructure is located on both verges of Fifty Road. These are most likely to be able to be extended or upgraded to service this proposed development.

Fibre Optic cables are located in this area. A NEXTGEN cable is located along the south verge of Fifty Road abutting the development, and an NBN major fibre optic cable is located along the western verge of Baldivis Road abutting the development.

Caution will need to be taken with subdivisional services connections and road construction where crossings are required.

In accordance with recent requirements, the developer is required to install NBN “pipe and pit” to allow for future installation of cables for the NBN. The design of the “pipe & pit” is the responsibility of the developer, and will be designed in conjunction with the underground power network, and installed during the construction phase of the development.

13. Gas

Gas mains are installed in this area, with a 160mm high pressure main located along the southern verge of Fifty Road, and another 160mm high pressure main located along the western verge of Baldivis Road adjacent to the development. It is expected that reticulated gas services will be extended into this development by ATCO in the normal way, with trenching done by the developer.

DEVELOPMENT ENGINEERING CONSULTANTS PTY LTD

THIS REPORT IS DATED 9TH DECEMBER 2020.