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1350 POUND ROAD, CLYDE NORTH

Servicing and Utility Infrastructure Report

September 2013

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1 EXECUTIVE SUMMARY

This report discusses the availability of services to a proposed development at 1350 Pound Road, Clyde North. Our investigation identified the availability of the following services.

1.1 Findings

Roads (Council / VicRoads)	Available External Works required	Pound Road will be realigned and become a Connector type road to be constructed and funded by the Developer. Site access may be unavailable due to the realignment of Pound Road, if the Thompsons Road intersection is not complete.
Sewer (South East Water Ltd)	Not Currently Available External Works Required	The area will be serviced by an interim strategy of gravity sewers, pump stations and rising mains. The system will be designed to cater for future development in the area by the augmentation of extra pumps and storage facilities as required. The Pump station is to form part of permanent works and as such, should be part to fully reimbursable.
Electricity (SP Ausnet)	Available External Works Required	Power supply is available along Pound Road but it is at capacity as it is of a rural standard. There is an electricity line that can supply the development located within the Power line Easement; however it will need to be extended through the road network to service the first stage, which is likely to require the construction of part of those roads.
Gas (Envestra/APA Group)	Available External Works Required	An existing high pressure gas main is located in Pound Road; a secondary main will be required to be constructed along Thompsons Road to the development which may have a shortfall in funding.
Telecommunications (Telstra)	Available	Telstra copper cable assets are available along Thompsons Road but it is not envisaged to be utilised by this development.
(Fibre Optic)	Available when required	There are no fibre optic assets in the area but the subject site is within the NBN Co footprint. NBN fibre optic will be required to be laid from Berwick-Cranbourne Road to the first stage entrance as part of external works.
Potable Water (South East Water Corporation)	Available External Works Required	No SEWC assets are present on either Thompsons Road or Pound Road. A small private main exists in Pound Road but cannot be utilised by this development. The nearest available supply is located at the intersection of Riverstone Boulevard & Springleaf Avenue approx. 1.5km away north.

Re-use Water (South East Water Corporation)	Not Available Works Required	<p>Recycled water assets will need to be constructed for future use. A cross connection will need to be constructed between the potable and recycled water assets until such time as recycled water becomes available.</p> <p>New Customer contributions required for recycled water.</p>
Main Drainage (City of Casey & Melbourne Water)	Not Available Works Required	<p>There is a proposed Sediment Basin / Retarding Basin, to be located in the northern corner of the site, which will provide detention and treatment of sediments for the site and the external catchment. The developer may need to enter into an agreement with the neighbouring property owner to provide treatment of nutrients by constructing a small wetland on their property. This will form part of the overall works and will be reimbursable by Melbourne Water.</p> <p>The site discharges to the Ti-Tree Creek Drainage scheme near the intersection of Pound Road and Thompsons Road.</p>

Internal reticulation of all these services will be required to be undertaken by Parkworth Pty Ltd.

2 INTRODUCTION

2.1 Introduction

Beveridge Williams has been engaged by Parkworth Pty Ltd to provide preliminary advice with respect to the provision of the necessary infrastructure required to service the proposed development of land at 1350 Pound Road, Clyde North. Refer to Figure 1 for site location.

2.2 Site Location and Description

The project area is approximately 50 kilometres south-east of the Melbourne CBD. The land is 41.37 ha in size and is bounded on the north-east side by Pound Road, on the north side by Thompsons Road and on the west and south side by farmland. An Electrical Transmission Power line easement traverses the site from east to west along the southern boundary.

The land is currently used for agricultural/rural purposes and has a farm building located in the southern section of the site. The land is divided up into a number of pastures bounded by post & wire fences and has some tree rows dividing pastures and bordering the property on the southern and western boundary.

It is noted that part of the land is zoned Farming Zone (FZ2), not Urban Growth Zone (UGZ) due to a buffer from the existing quarry located on Hardys Road to the south of the subject site. It has been assumed that this buffer will be removed and all of the land will be zoned UGZ, in conjunction with the decommissioning and rehabilitation of the quarry site.

There is a low point on Pound Road near the Thompsons Road intersection. The outfall from the site is to 1425 Pound Road which then discharges to existing open drains across private property before reaching a Melbourne Water waterway.

The site generally has good falls from south to north-east. There is a high point within the Electrical Transmission Easement towards the western end.



Figure 1 - Site Location Plan

2.3 Assumptions and Limitations

This project has been scoped and undertaken as a desktop study to provide preliminary advice on the servicing requirements for the proposed development of 1350 Pound Road, Clyde North, within the new growth area under PSP 1053. There are limitations to the level of detail provided given the nature of this review. Desktop studies are reliant upon information made available from service authorities, with assumptions of the accuracy and completeness of the information provided. Further assessment and confirmation of details provided will be necessary during the planning and design stages.

Pound Road is proposed to be re-aligned and in some sections the existing road will be closed.

Thompsons Road, being a designated arterial road, will require road reserve widening and this is expected to occur on the southern sides of the existing road reserve boundaries, thereby impacting upon client land. As Thompsons Road only touches the northern corner of the site, the impact is only minimal on 1350 Pound Road.

3.3 Site Access

Pound Road is proposed to be closed where it currently meets Thompsons Road, and re-aligned to intersect Thompsons Road approximately 150m to the east. Pound Road will also be closed at the southern end of the site. This will effectively leave the site without access until the relocated Thompsons Road – Pound Road intersection is constructed, unless a staged closure is arranged. Pound Road will need to be upgraded from its current gravel state to residential connector road standard at the cost of the developer.

For the proposed intersection on Thompsons Road a T-intersection incorporating left and right hand turn lanes would be acceptable to City of Casey. However, if development occurs on both sides of Thompsons Road at approximately the same time, a signalised intersection would be required.

There has been discussions concerning DCP reimbursements for the construction of Thompsons Road and associated intersections with City of Casey, and they have indicated that it is likely that these works would be DCP funded. These works may be undertaken by the neighbouring developer depending on the timing of their development.

3.4 Sewer

South East Water Corporation (SEWC) is the responsible authority for sewer servicing in the area. Beveridge Williams has been working with South East Water since mid-2012 to develop a sewer strategy which incorporates PSP areas 1053, 1054 and 1055. Monthly meetings have been held with Beveridge Williams and South East Water to discuss the servicing strategy, and the advice provided in those meetings has been used to formulate the following advice.

The ultimate strategy for servicing the area is not yet finalised but may include the development of a sewerage treatment plant to the south east of the growth area. South East Water is working on an interim strategy for servicing the area in a timely manner. The interim sewer provision strategy is to transfer sewage from the subject area to existing infrastructure to the north and west via the Cranbourne East gravity sewers and pump stations. The existing infrastructure has a limited capacity to utilise before augmentation works are required at significant cost. It is likely that these works or part of these works will be undertaken by neighbouring developers as part of their development works, however, there may be some cost sharing arrangement to assist in bringing the works to the site.

The main discharge point for the subdivision is from a proposed temporary pumping station located next to the Melbourne Water drainage reserve near the Pound Road and Thompsons Road intersection. This pumping station may form part of a permanent network of pumping stations and gravity sewers for the PSP area and as such, may be reimbursable. Depending upon whether South East Water views the construction as short term or mid-term delivery, this will result in a 0-40% contribution rate by the developer. A rising main will need to be constructed to connect the

pumping station to an existing trunk gravity sewer located near Riverstone Boulevard within the Berwick Waters Estate approximately 1.2km north along Pound Road. This would be the most economical and most appropriate discharge point for the site. However, advice from South East Water Corporation has indicated that the rising main should be constructed to the Wild Scotchman's Way Pump Station off Linsell Boulevard located approximately 4.2km away. Refer Figure 3 for the route options for the rising main.

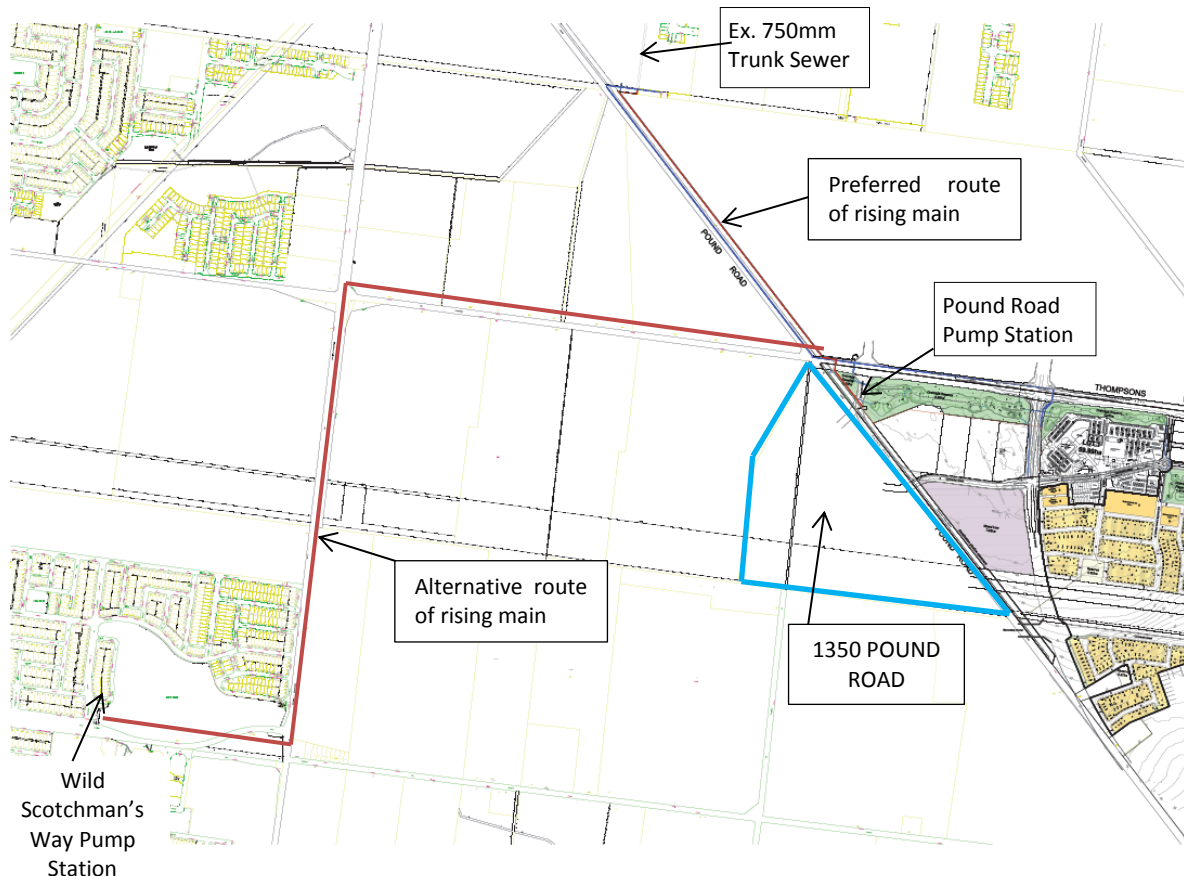


Figure 3 - Route of Sewer Rising Main

A network of internal gravity sewers will be required to convey sewage to the new pump station, allowing waste to be transferred to existing sewers. There may be parts of this network that will service surrounding properties and will therefore attract a reimbursement from South East Water as a shared asset.

Refer to APPENDIX B for SEWC sewer strategy plan

3.5 Water / Recycled Water

SEWC is the responsible authority for water assets in the area. SEWC has advised that as the PSP area is under review, they can't advise whether potable water or recycled water will be available to the site in a timely manner. It is expected that South East Water will be in a position to outline their strategy for PSP 1053 & 1054 later in the year.

We do know that a 225mm dia potable water supply main has been constructed within the Berwick Waters Estate in Riverstone Boulevard approximately 1.2km north of the site. South East Water

plans for this main to be extended, as a 375mm dia main, through the Clyde North PSP along future road reserves to cross Thompsons Road 600m west of the subject site and service properties to the south. A 225mm dia main could be constructed to the site from this location. However, as the area on the north side of Thompsons Road is yet to be developed, the route of the main could be constructed along Pound Road to Thompsons Road as a 375mm dia main. As South East Water has indicated that this main is due to be constructed in 2018, only part reimbursement would be forthcoming. A main extended along Thompsons Road should cater for the entire site. As with the sewer it is likely that neighbouring developers will undertake construction of these works as part of their development works, however, there may be some cost sharing arrangement to assist in bringing the works to the site.

Recycled water assets will also need to be constructed for future use, however recycled water supply will not be available initially for the development and a cross connection will need to be constructed between the potable and recycled water assets at the entrance of the development.

3.6 Stormwater Drainage

City of Casey has indicated that there is no existing local drainage infrastructure available to service the site.

Melbourne Water is the catchment management authority for the subject site with the property contained within the existing Ti-Tree Creek drainage scheme numbered 0619. The catchment areas are shown on Figure 4.

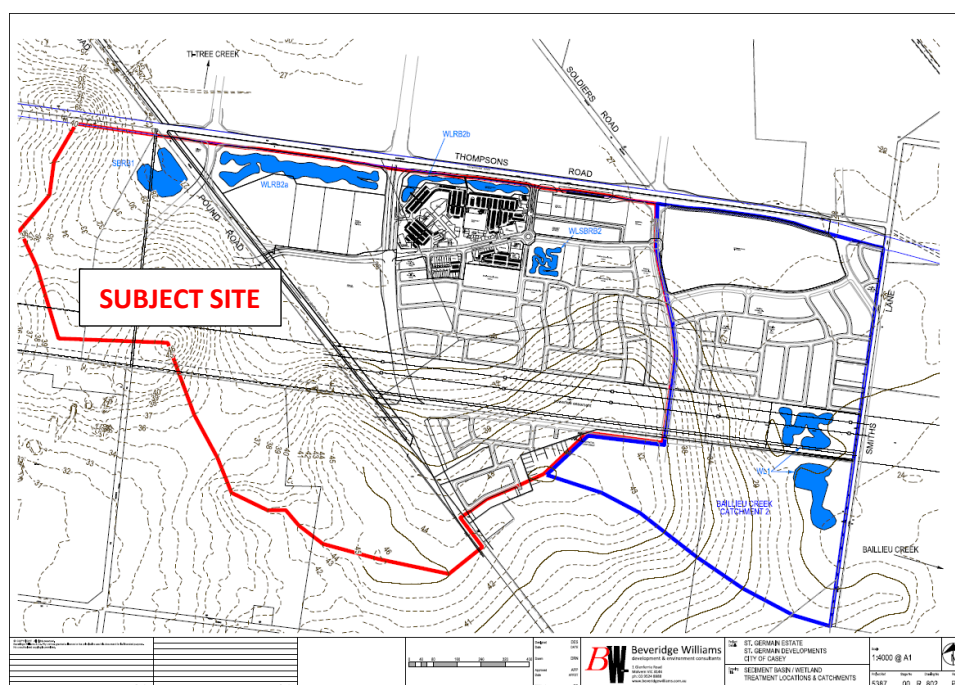


Figure 4 - Drainage Catchment Areas

The Scheme identifies that the expected drainage works for the development requires the construction of a Sediment Basin / Retarding Basin which will provide 100 year ARI retardation for the subject site as well as removal of sediments. To enable the treatment of nutrients an

agreement with the neighbouring developer may be required to allow for the construction of a wetland on their site. The wetland and the aforementioned Sediment Basin / Retarding Basin, will form part of the overall works and would be reimbursable by Melbourne Water. The outfall will require the provision of culverts for the crossing of Thompsons Road near Pound Road, which would also be reimbursable by Melbourne Water. It is likely that the neighbouring developer will construct the culverts as part of their works.

Melbourne Water and Council require that overland flow paths for all catchments, have to be contained within the road network or combination of increased underground pipe discharge and overland flows. The overland flows can be split up to utilise the local road network to ensure no road will exceed safety parameters for flooding. All flows are to be directed into the Sediment Basin / Retarding Basin.

Permission / Agreement from property owners, affected by the works, will have to be obtained.

Melbourne Water has provided contribution rates for the Ti-Tree Creek Drainage Scheme and the rates are as follows:

Hydraulic rate -	\$43,383/Ha
Stormwater quality	<u>\$10,398/Ha</u>
Total Residential Rate	\$53,781/Ha

The Neil M Craigie stormwater management strategy for PSP 1054 provides for both Water Quality treatment and Water Quantity requirements for the entire catchment.

A site specific drainage strategy has been prepared for the site, providing a means of drainage and treatment for the ultimate and interim conditions.

Refer **Error! Reference source not found.** for the indicative Sediment Basin/Retarding Basin layout as prepared in Neil M Craigie's report.

3.7 Electricity

SP AusNet has advised that the development site cannot be serviced by the infrastructure that currently exists along Pound Road as it is of a rural standard and is currently at capacity.

There is a good electricity line along the Power line easement, which runs along the southern boundary of the site. It will need to be extended through the site following the road network up to the first stage of the works. Typically, where SP-Ausnet lay underground electricity through a development, where the stages are not yet constructed, they require that a strip of kerb and channel and road pavement of the future roads are constructed along the electricity alignment. This reduces the future risk of a contractor hitting the live electricity cable. It can however limit any future road alignment changes and fixes the road grading. This option is reimbursable through SP-Ausnet's current HV reimbursement policy which is provided for internal HV works (see further details below). This policy may, however, be subject to change in the future.

Depending on timing, electricity may also become available along Thompsons Road as development progresses and other developers are required to extend supply to their developments. If the developer would prefer not to construct the electricity from the South through their site then a cost sharing arrangement may be considered with the other developers.

High Voltage (HV) infrastructure within the estate is reimbursed through SP AusNet based on a schedule of rates. These are determined by the price that SP AusNet pays for materials. Low Voltage infrastructure is rebated at a flat rate of \$980 for every new lot. If SP AusNet was chosen for construction of electricity infrastructure, the HV costs would be credited off the cost of the works, and the Developer would pay the difference.

Further advice indicates that kiosk reserves would be required for every 110 - 125 lots. The standard reserve area is 8m x 4.2m wide, but occasionally a 5m wide reserve is required. Design and construction of URD estates can be undertaken using Accredited Service Providers, rather than having SP AusNet carry out this service.

Refer APPENDIX D for SP AusNet plans and correspondence.

3.8 Gas

APA Group has advised that there is an existing 100mm high pressure gas main running along Pound Road with natural gas.

Envestra will be able to service the development with natural gas but for stage one, a supply main will be required to be constructed along Thompsons Road, a contribution from the developer may be required as Envestra has indicated a shortfall in funding may occur. A detailed cost would be provided once a formal application has been made. It is also likely that neighbouring developers will also be requiring gas be extended to service their developments. As such there is a strong likelihood that gas would be extended up to the subject site by those developments.

An APA Group Gas Services plan is attached in APPENDIX E.

3.9 Telecommunications (Copper)

Telstra has advised that there is existing Telstra infrastructure along Thompsons Road servicing the existing farm build houses. Beveridge Williams has determined that it does not have the capacity for any significant further development, though could possibly be useful for a sales office or some other preliminary use.

Refer APPENDIX F for Telstra asset plan

3.10 Telecommunications (Fibre Optic)

Telecommunications could be provided by NBN Co. The site is within the NBN Co. servicing footprint but no works have been undertaken within this area as yet. It should be noted that the Developer is required to pay for the installation of pit & pipe if NBN is chosen. To service the site,

the Developer will have to provide pit and pipe along Thompsons Road to the site at Developer cost, a distance of 2.7km at an approximate cost of \$160,000

Alternatively, the developer may wish to supply telecommunications via another provider. That is a feasible option for the developer as Opticom has supplied several estates to the west in Berwick-Cranbourne Road. This will require a commercial decision to be made at the time of development.

4 CONCLUSION

The subject land is within proposed PSP area 1053 and is within the Urban Growth boundary. The GAA has advised that the PSP for the area is due for exhibition this year. The service authorities are aware of progress within the area and are planning to address the upcoming demand for services.

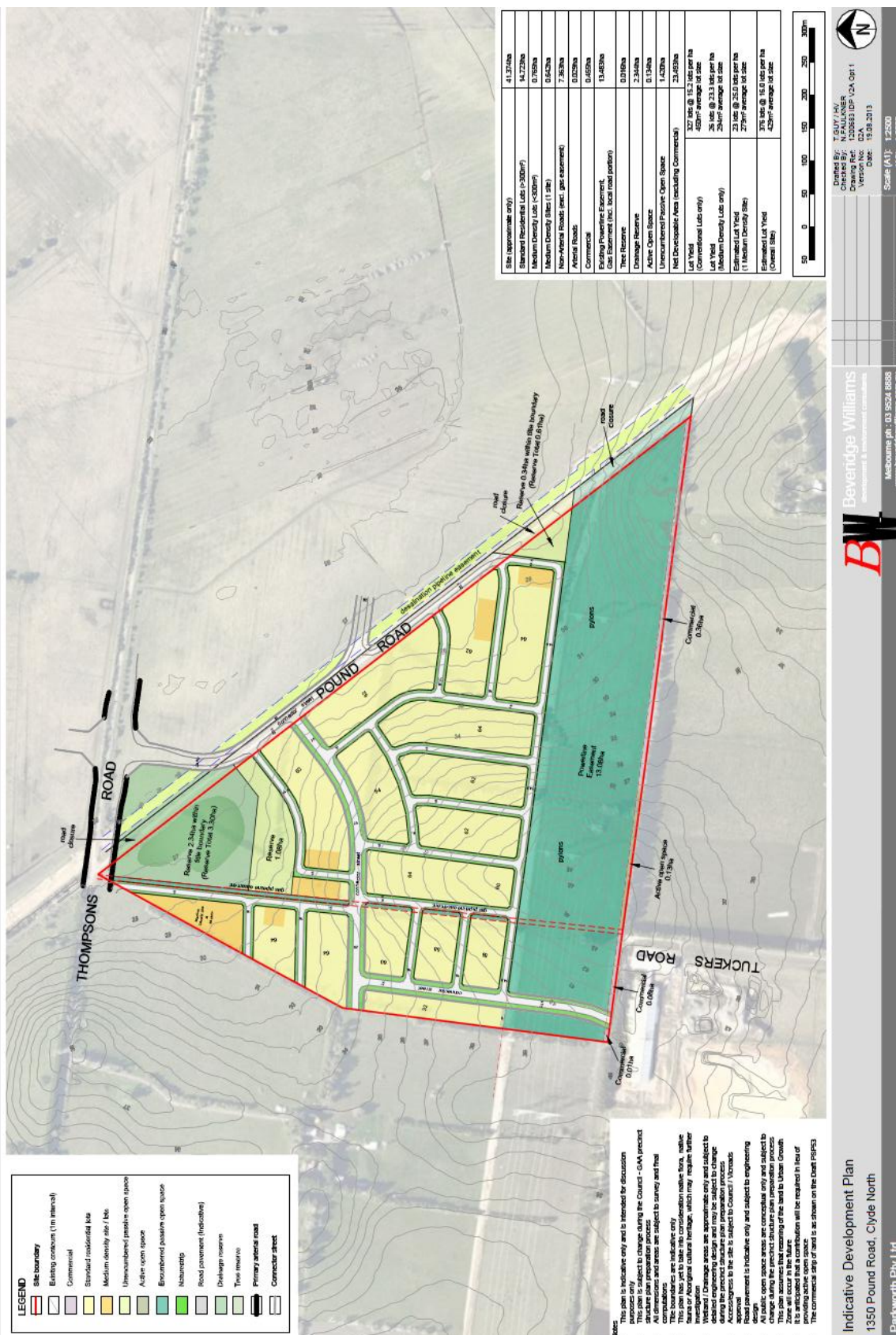
The extension of all services can be achieved through known and proven techniques. The area is suitable for development as proposed and the only concern is the ability of South East Water to provide services in a timely manner. As South East Water is working on their strategies currently, we feel confident that the development will be able to be supplied in the required timeframe.

Through traditional delivery models, developers are required to fund the infrastructure up front and be reimbursed at a later time. Road, drainage, electricity, gas and sewerage infrastructure will require significant investment, and the demand for the services will exist from the outset, while collection of funds from traditional means such as DCP levies and drainage scheme levies will mean funds may not be able to be collected and distributed quickly. Service authorities need to turn their attention to this issue now to avoid blockages to efficient development of the area.

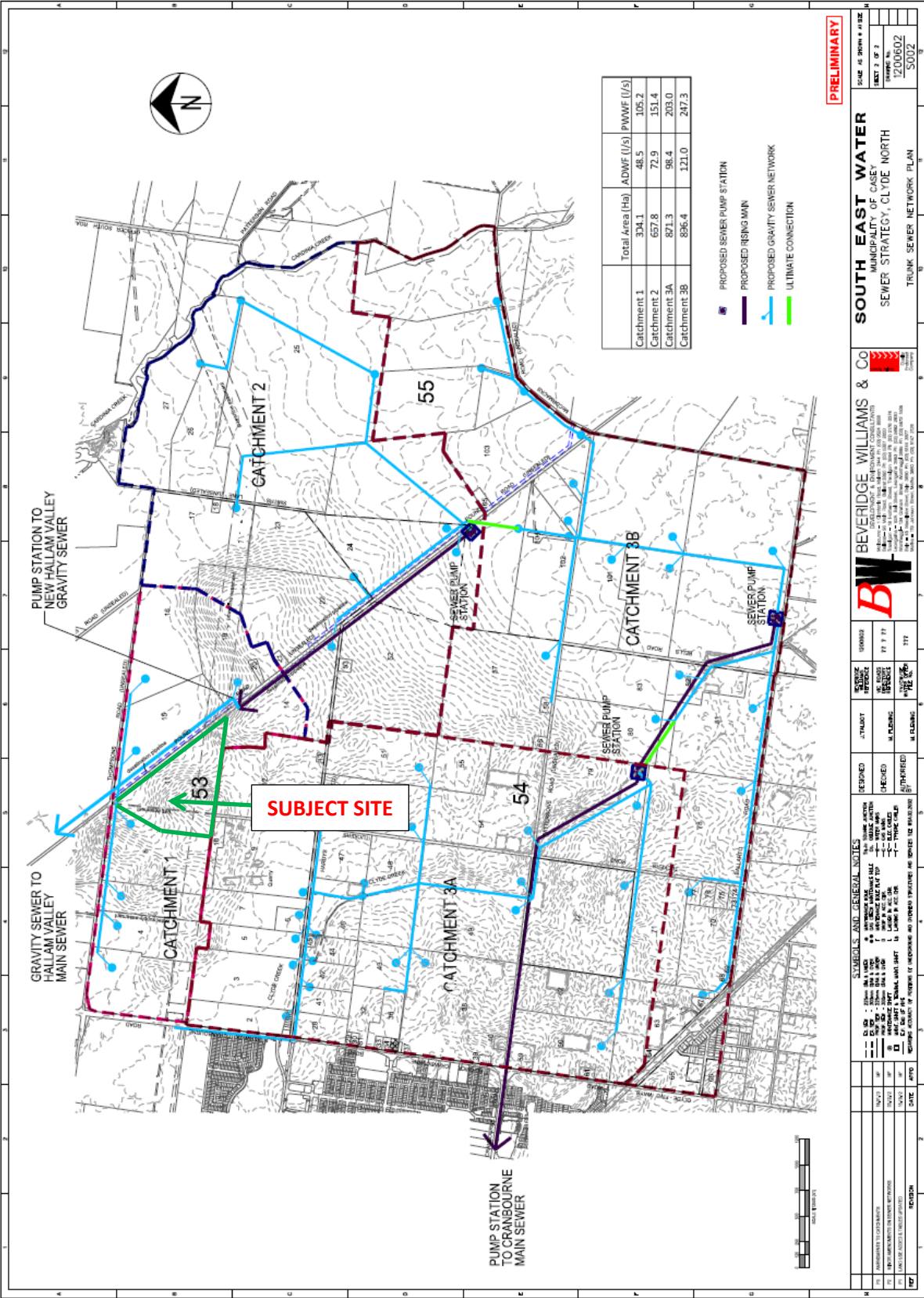
Service Authorities, like Melbourne Water, are open to discussion for alternative methods of financing their infrastructure. The use of off-setting contributions against cost of construction, thereby eliminating or reducing the reimbursements to be paid by Melbourne Water, is one example. These arrangements should be discussed with Melbourne Water at the time applications are made for works.

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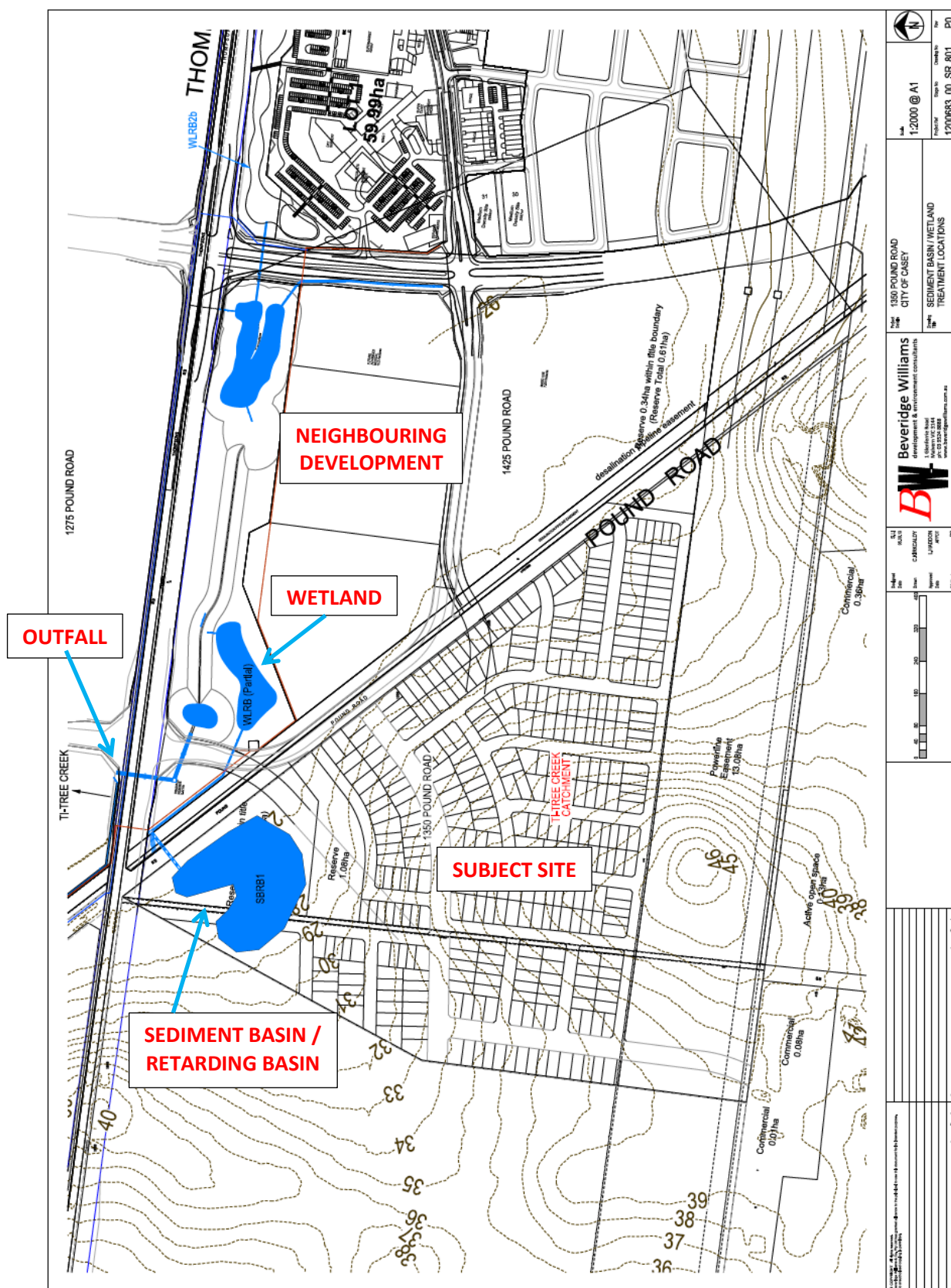
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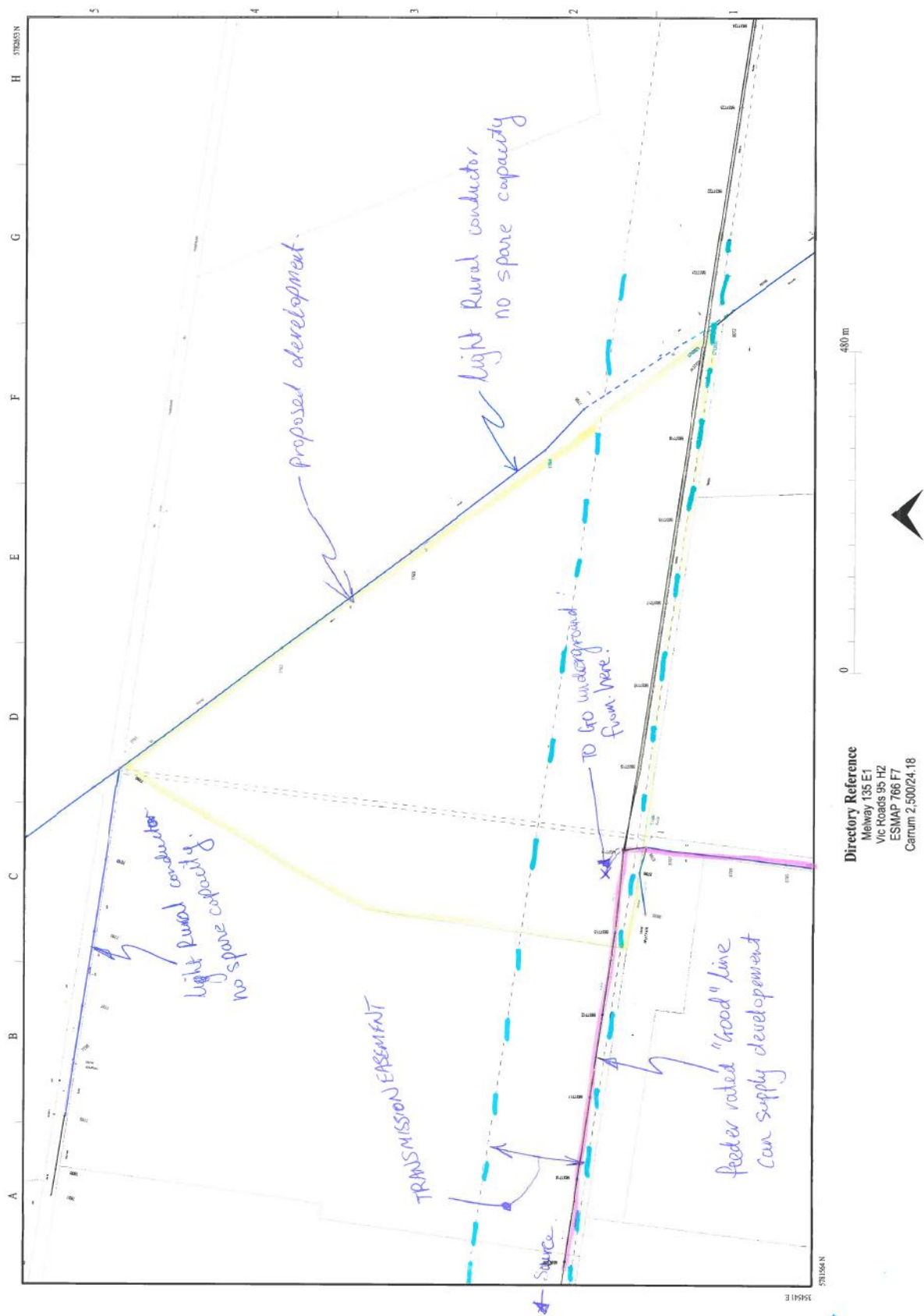
APPENDIX B. Sewer Strategy Plan



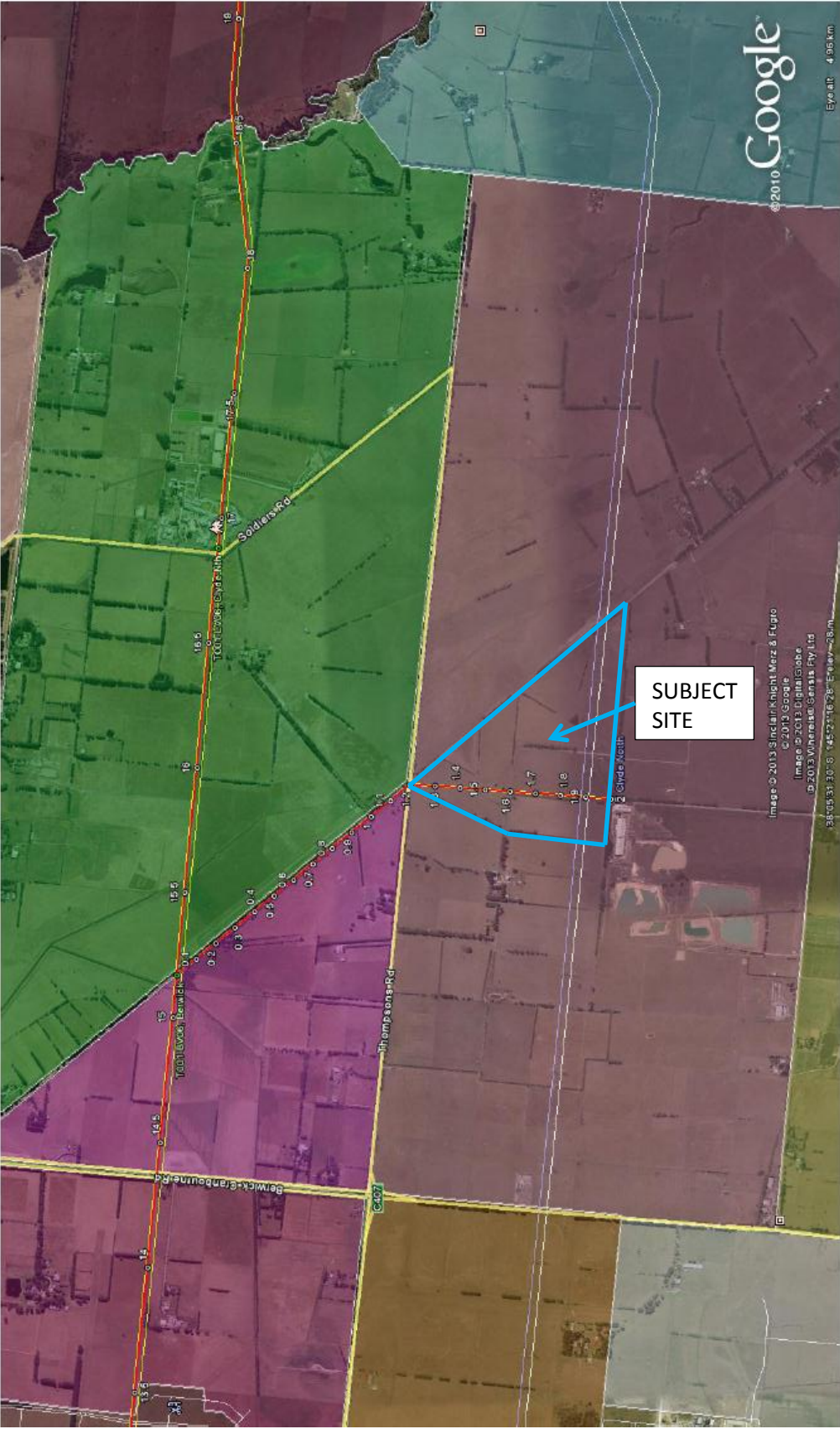
Indicative Sediment Basin / Retarding Basin layout as per Neil M Craigie's report.



APPENDIX D. SP AusNet Plans



APPENDIX E. APA Group Gas Services Plan



APPENDIX F. Telstra Asset Plan

