BELROSE RB1 Pty Ltd

Water and Sewer Servicing Assessment & Strategy: Lot 9 DP 737255, 171 Forest Way, Belrose, NSW



ENVIRONMENTAL





WASTEWATER



GEOTECHNICAL



CIVIL



PROJECT MANAGEMENT



P2108124JR03V02 July 2022

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All enquiries regarding this project are to be directed to the Project Manager.



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1 Introduction

1.1 Overview

Martens and Associates Pty Ltd (MA) have been engaged to develop a preliminary water and sewer servicing strategy to support a development application (DA) for proposed senior living development at 171 Forest Way, Belrose, NSW (the site).

Existing services within and adjacent to the site have been identified that can potentially service the proposed development via direct connection or extension, and is based on information provided in a Sydney Water feasibility letter dated 7th September 2021 (Attachment A).

1.2 Scope

The scope of the report includes:

- 1. Locate existing utility services near to the site.
- 2. Determine likely demand for the service from the proposed development.
- 3. Comment on the likely capacity of the existing infrastructure to service the proposed development.

1.3 Proposed Development

We understand that the proposed senior living development is to consist of the following key elements:

- o 35 x 2,3,4 bedrooms senior living apartments.
- General landscaping and shared recreation area consisting of lawn and picnic area.
- Total Car spaces 72 spaces.
- Site stormwater management system.
- Pump to sewer arrangement.
- Sydney Water 150/200 mm water main extension to site.

Refer to Attachment B for proposed development plans.



1.4 Site Description

Site description is summarised in Table 1.

 Table 1: Site summary.

Element	Detail
Site address	171 Forest Way, Belrose, NSW
Lot/DP	Lot 9 DP 737255
Local Government Area (LGA)	Northern Beaches Council (NBC)
Zoning	Under deliberation, as 'deferred matter'
Current land use	Residential
Proposed land use	Residential
Surrounding land uses	Residential, rural residential, bushland



2 Water Servicing

2.1 Water Servicing Strategy

The existing site is currently serviced by an onsite water supply system and is not currently connected to the Sydney Water mains network.

The attached Sydney Water feasibility letter indicates the following:

- 1. Sydney Water has an existing 200 mm water main in Ralston Avenue and a 150 mm water main in Childs Circuit. Refer to Attachment C for Sydney Water Dial Before You Dig (DBYD) Plans showing these services.
- 2. Either water mains are available for connection.
- 3. A 150 mm main extension is required for either of these connection points.
- 4. Approval for a water connection to service the proposed development is required. This should take place at the detailed design stage.
- 5. Appropriate backflow prevention is required.

Sydney Water network plans generated by a DBYD information request are included in Attachment C.

2.2 Water Demand Rates

Demand for potable water from the development was calculated using the Water Supply Code of Australia, WSA 03-2011-3.1 and is summarised in Table 2.

Sydney Water have analysed these demand rates as part of their feasibility study and determined that the two water mains put forward have enough capacity to meet this peak demand.

A connection will be required to service the proposed development. This will involve applying to Sydney Water via a Water Servicing Coordinator once a hydraulic layout and a list of all fixtures and fittings are known. These details are to be confirmed at the detailed design stage.



Table 2: Water supply demand calculations

Element	Value	Units
Net hectare ¹	1.2473	ha
Number of units ²	35	unit
Units per net ha ³	28.06	units / net ha
Average Day Demand per unit 4	0.7	kL/unit/day
Average Day Demand 5	24.5	kL/day
Max Day Demand per unit 4	1.6	kL/unit/day
Max Day Demand 6	56	kL/day
Max Hour Demand 7	1.42	L/s

<u>Notes</u>

- ^{1.} Based on site area (1.085 ha) plus half of the front road areas (72.3x33/2+42.7x20.12/2=0.1623 ha).
- ² Based on 35 (2,3,4 bedrooms) senior living apartment.
- ^{3.} No of units divided by net hectare.
- ⁴ Based on town house <30 units / net ha (Water Supply Code of Australia, WSA 03-2011-3.1, Table SW2.2).</p>
- 5. Average day demand per unit multiplied by no of units.
- ^{6.} Max day demand per unit multiplied by no of units.
- ⁷ Max day demand multiplied by peak hour factor of 2.2 (based on Water Supply Code of Australia, WSA 03-2011-3.1, Table SW2.2) with unit conversion.

2.3 Fire Services Demand

An internal fire hydrant service will need to be provided to service the proposed development.

In accordance with AS 2419 (2014) Table 2.2 for Class 2 buildings greater than 3 storeys with fire compartments less than 500 m², only 1 fire hydrant is required to flow simultaneously.

Hydrant performance (attack hydrant) specification is 10 L/s at 25 m residual head pressure (i.e. 250 kPa) in accordance with AS 2419 (2014) Table 2.7. Hydrants should be positioned to ensure that all areas may be reached by a 10 m jet of water from a 60 m length of hose attached to a hydrant. Attack fire hydrants shall be above ground, have two outlets, each individually valve controlled.

Sydney Water have considered these flow demands and determined that the two connection points have enough capacity to meet these flows.

Depending on the size of connection to the site, number of external hydrants required, and whether internal hydrants will be used, a booster pump assembly may be required to maintain the minimum required



pressure mentioned above and is to be confirmed at the detailed design phase.

2.4 Preliminary System Design

According to the Sydney Water feasibility letter the two proposed connection points put forward have adequate capacity to service the proposed development in terms of flow. In terms of pressure requirement, a booster pump assembly may be required for fire services demand and is to be confirmed at the detailed design stage.

2.5 Operational Management

- 1. All system manual shut-off and backflow prevention valves and plumbing connections shall be inspected on a six-monthly basis by a qualified plumber.
- 2. All hydrants and other fire protection system components should be tested and certified in accordance with AS 1851-2012 and manufacturers specifications by a suitably qualified person.



3 Sewer Servicing

3.1 Existing Sewer Infrastructure

Currently, the property is serviced by an on-site septic tank in the southwest corner of the site as there is no connection to the Sydney Water sewer network. Sydney Water plans are included in Attachment A showing the local sewer network.

A sewer main located outside 75 Childs Circuit (approximately 350 m south east of the site) services residential lots south of the site. The sewer main is a 150 mm PVC main and has a maintenance hole and vent shaft. There is already a 63 mm rising main connection to this node.

Additionally, there is another 150 mm PVC sewer main on the western portion of Childs Circuit (18 Childs Circuit) with 2 manholes either side of the road way, approximately 200 m south of the site.

3.2 Sewer Servicing Strategy

The scope of this sewer strategy includes:

- 1. Estimate sewage generation rates.
- 2. Propose a preliminary concept system design.
- 3. Document broad operating requirements.

As on-site Wastewater management is not feasible due to shallow soils, steep slopes, and insufficient site area being available for onsite assimilation of the predicted treated wastewater volume, therefore Sydney Water is prepared to accept a pump to sewer service. The provided sewer main connection point is the 150 mm main located outside 75 Childs Circuit, as indicated in the marked-up Sydney Water plan (Attachment D). The following are Sydney Water's connection requirements:

- 1. Pump to Sydney Water's sewer network at a maximum flow rate of 2 L/s.
- 2. Construct a waste water main extension to serve the development, discharging to the manhole outside 75 Childs Circuit.

The connection point proposed by Sydney Water is not as convenient as the sewer manhole on the western portion of Childs Circuit at number 18. Sydney Water would not comment on the suitability of this potential connection point when queried. The use of this connection point is



therefore considered an opportunity to be explored further at the detailed design stage. The proposed rising main routes are shown in Attachment D.

3.3 Sewer Generation Rates

Sewer flows for the development were calculated using the Sewerage Code of Australia, WSA 02-2002-2.2 and are summarised in Table 3. Groundwater infiltration was assumed to be zero as the proposed development will most likely utilise new uPVC pipework.

Table 3: Sewer demand calculations

Element	Value	Units
Number of units ¹	35	Each
Total Equivalent Population ²	105	EP
Average Dry Weather Flow (ADWF) ³	0.22	L/s
Gross hectarage (A) ⁴	1.2473	ha
Peak Dry Weather Flow (PDWF) 5	1.57	L/s
IIF 6	1.52	L/s
GWI 7	0.02	L/s
PWWF Design Sewer Flow ³	3.11	L/s

<u>Notes</u>

^{1.} Based on 35 (2,3,4 bedrooms) senior living apartment.

- ² Number of units multiplied by 3.0 Equivalent Population/dwelling based on 'single occupancy medium density dwelling units' (Sewerage Code of Australia, WSA 02-2002-2.2 Sydney Water Edition Version 3, Table A1).
- ³ Total Equivalent Population multiplied by 0.0021 (based on Sewerage Code of Australia, WSA 02-2002-2.2 Sydney Water Edition Version 3, Appendix B, Section B2) with unit correction.
- ⁴ Based on site area (1.085 ha) plus half of the front road areas (72.3x33/2+42.7x20.12/2=0.1623 ha).
- 5. Based on peaking factor of d = 7.136 calculated for gross hectarage using the 'd' correlation formula (based on Sewerage Code of Australia, WSA 02-2002-2.2 Sydney Water Edition Version 3, Appendix B, Section B2) with unit correction.
- ⁶ Calculated for rainwater dependent inflow and infiltration (IIF) using the formula (Sewerage Code of Australia, WSA 02-2002-2.2 Sydney Water Edition Version 3, Appendix B, Section B4) based on Aeff = 0.96, C = 0.7 (soil aspect of low impact and defect aspect of average) and I = 81.1 (based on 11,2 = 32.5, Factor (size) = 1.516 and Factor (contamination) = 1.646).
- ^{7.} Calculated for Ground water infiltration (GWI) using the formula (Sewerage Code of Australia, WSA 02-2002-2.2 Sydney Water Edition Version 3, Appendix B, Section B3) based on Portion wet = 0.7, GWI = 0.025xAx Portion wet=0.025x1.2473*0.7=0.02 L/s.

3.4 Concept System Design

The proposed pump to sewer system component design is provided in Table 4. Design specifications are as follows:

 Gravity sewer drainage of the proposed development to an onsite pumping station, located to the south east of the site's developed area. Gravity sewer drainage design is to occur at the detailed design stage.



- 2. An onsite sewer pumping station discharging to Sydney Water's sewer network at a maximum flow rate of 2 L/s. The pumping station is to be fitted with a dual (duty and standby) operation transfer pump (pump type to be confirmed at the detailed design stage). Connection to Sydney Water's sewer network is to be designed and approved by Sydney Water at the detailed design stage.
- 3. Intermediate and high-level alarms are to be provided on sewer holding tanks.
- 4. Pump station capacity of 78.05 kL, as detailed in Table 4.
- 5. Final location and the arrangement of sewer and pump station components are to be confirmed during detailed design.
- 6. Control shed or similar area to contain electrical control boards, maintenance register and ancillary items relating to the pump to sewer system.
- 7. The rising main from the sewer pump station is likely to consist of a DN80 PE discharge line connecting to the sewer manhole outside 75 Childs Circuit, as indicated by the marked up DBYD plan (Attachment D).
- 8. Provision of a 3.0m wide access way for a medium rigid vehicle (MRV) for emergency and maintenance access to the sewer pump station and holding tank.

 Table 4: Pump to sewer system component design.

Element	Value	Units
Wet weather overflow storage ¹	55.44	kL
Additional emergency storage ²	22.61	kL
Total onsite storage ³	78.05	kL
Pumping station discharge rate (maximum) 4	2	L/s

<u>Notes</u>

- Volume generated from ground water infiltration and rainfall inflow over 10 hours. Wet weather overflow storage=GWI+IIF (over 10 hours) = (0.02*3600/1000+1.52*3600/1000) x10) =55.44 kL
- ² Volume generated from 24 hours of average dry weather flow (ADWF) = 0.22*3600*24/1000 = 19kL or 4 hours of peak daily dry weather flow (PDWF) = 1.57*3600*4/1000 = 22.61 kL, whichever is greater.
- ^{3.} Sum of wet weather overflow and additional emergency storage excluding operational storage.
- ^{4.} Sydney Water maximum allowable flow rate.

3.5 Operational Management

3.5.1 Visual Impact

All tanks, pumps, and lines will largely be below ground and therefore will have minimal visual impact.



3.5.2 Noise Considerations

All wastewater transfer pumps will be submersible pumps (ie. operate below water level). Impact assessment for the operation of the pump station is as follows:

- 1. Pumps will not generate nuisance noise to any nearby buildings due to pumps being submersed and encased in a sealed tank below ground.
- 2. The pump to sewer system is not expected to generate excessive nuisance noise levels impacting on either proposed units or existing adjacent dwellings along Forest Way.
- 3.5.3 Odour Considerations

A vent with attached scrubber is to be located to the east of the site away from units to reduce likelihood of nuisance odours.

3.5.4 Emergency Response

The proposed system provides holding capacity of generated sewer volumes from the following:

- 1. 24 hours storage of normal sewer flows or 4 hours of peak daily dry weather flows (PDWF).
- 2. Plus 10 hours storage of rainfall dependent inflow and infiltration.

The proposed holding tank provides adequate reserve storage volume and therefore time to respond to possible emergencies. Table 4 outlines storage volumes provided.

In the event of equipment failure, extended power failure or excessive flows to the onsite sewer system, provision is to be made allowing pump out of the holding tank or emergency maintenance. The proposed tank location is to allow for a 3.0 m wide access way accommodating a medium rigid vehicle (MRV) to turn around for emergency and maintenance purposes.



4 References

- Water Services Association of Australia (2011) Sewerage Code of Australia Sydney Water Edition Version 3.
- Water Services Association of Australia (2011) Water Supply Code of Australia – Sydney Water Edition Version 3.1.

Standards Australia (2005) AS 2419.1-2005 Fire Hydrant Installations.



5 Attachment A – Sydney Water Feasibility Letter



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Case Number: 193084

September 7, 2021

Belrose RB1 Pty Ltd c/- QALCHEK PTY LTD

Feasibility Letter

Developer:Belrose RB1 Pty LtdYour reference:PM 28209Development:Lot 9 DP737255 171 FOREST WAY, BelroseDevelopment Description:Proposed Seniors Living Development of 29 Apartments and
6 NDIS UnitsYour application date:July 23, 2021

Dear Applicant

This Feasibility Letter (Letter) is a guide only. It provides general information about what our requirements could be if you applied to us for a Section 73 Certificate (Certificate) for your proposed development. The information is accurate at today's date only.

If you obtain development consent for that development from your consent authority (this is usually your local Council) they will require you to apply to us for a Section 73 Certificate. You will need to submit a new application (and pay another application fee) to us for that Certificate by using your current or another Water Servicing Coordinator (WSC).

We'll then send you either a:

- Notice of Requirements (Notice) and Developer Works Deed (Deed) or
- Certificate.

These documents will be the definitive statement of our requirements.

There may be changes in our requirements between the issue dates of this Letter and the Notice or Certificate. The changes may be:

- if you change your proposed development eg the development description or the plan/site layout, after today, the requirements in this Letter could change when you submit your new application
- if you decide to do your development in stages then you must submit a new application (and pay another application fee) for each stage.

No warranties or assurances can be given about the suitability of this document or any of its provisions for any specific transaction. It does not constitute an approval from us and to the extent that it is able, we limit its liability to the reissue of this Letter or the return of your application fee. You should rely on your own independent professional advice.

What You Must Do To Get A Section 73 Certificate In The Future.

To get a Section 73 Certificate you must do the following things. You can also find out about this process by visiting <u>Plumbing</u>, <u>building & developing</u> page on our website.

- 1. Obtain Development Consent from the consent authority for your development proposal.
- 2. Engage a Water Servicing Coordinator (WSC).

You must engage your current or another authorised WSC to manage the design and construction of works that you must provide, at your cost, to service your development. If you wish to engage another WSC (at any point in this process) you must write and tell us.

You'll find a list of WSC's at <u>Listed providers</u> on our website.

The WSC will be your point of contact with us. They can answer most questions that you might have about the process and developer charges and can give you a quote or information about costs for services/works (including our costs).

3. Developer Works Deed

After the WSC has submitted your new application, they'll receive our Notice and Developer Works Deed. You and your accredited Developer Infrastructure Providers (Providers) will need to sign and lodge both copies of the Deed with your nominated Coordinator. After we've signed the documents, one copy will be returned to the WSC.

The Deed sets out for this project:

- your responsibilities
- our responsibilities
- the Provider's responsibilities.

You must do all the things that we ask you to do in that Deed. This is because your development does not have water and sewer services and you must construct and pay for the following works extensions under this Deed to provide these services.

Note: The Coordinator must be fully authorised by us for the whole time of the agreement.

4. Water and Sewer Works

4.1 Water

Your development must have a frontage to a water main that is the right size and can be used for connection.

We've assessed your application and found that:

- The property does not have frontage to a reticulation size watermain.
- A 150mm water main extension will be required to service the proposed development.
- Two potential connection points for a water main extension are available:
 - 200mm water main in Ralston Avenue
 - 150mm water main in Childs Circuit
- The WSC will need to present the preferred servicing method as part of any future Section 73 application.
- If the development needs a larger size watermain for fire fighting purposes, this should be part of the presentation.
- You must construct a water main extension to serve your development. These works must be constructed by a constructor with the appropriate capability. Your Coordinator will be able to provide further advice about this.

4.2 Sewer

Your development must have a sewer main that is the right size and can be used for connection. That sewer must also have a connection point within your development's boundaries.

We've assessed your application and found that:

- The development site is located within a catchment which is currently not serviced by an existing Sydney Water sewer main.
- The Developer will need to investigate on-site wastewater management as a servicing option.
- If on-site management is not feasible or not permitted by Council, the WSC will need to provide a concept wastewater servicing solution to connect to the Sydney Water network.
- The preferred servicing would involve the creation of a connection point within the boundary of the development.

- An options study, that investigates gravity and low pressure extensions to the Sydney Water network is recommended, each option would have a life-cycle costing as part of the options assessment.
- The options report would recommend a preferred solution.
- Sydney Water would provide comment on the report and may endorse one of the options as the preferred option.
- The following general information is provided to assist the WSC/Developer when considering the possible options. Especially if a private pump to sewer servicing option for the proposed development is to be considered as one of the options. This is not a preferred solution.

General and Route of Private rising main

- Joint private pump to sewer services will not be permitted.
- As part of the design and construction of the private rising main you will need to ensure that sufficient clearances are maintained between water, sewer and other services and structures to allow for proper inspection, maintenance and repair of Sydney Water's assets on the future. Details can be obtained from the relevant Australian codes i.e. Water supply, Wastewater codes of Australia and the Asset adjustment and protection manual.
- The design of the private rising main demonstrating the compliance with the relevant code requirements should be submitted to Sydney Water for review.
- It is also recommended that the developer takes the opportunity to incorporate the private sewer rising main into the Sydney Water Geographic information System 'HYDRA'. This will require a surveyed Work As Constructed drawing, which would ensure the private sewer main can be identified on the Dial Before You Dig (DBYD) free national referral service designed to prevent damage and disruption to the vast pipe and cable networks.
- Sydney Water cannot permit the location of the private sewer rising main within the water main street allocation along the Forest Way. The developer will need contact the other impacted authorities to obtain the appropriate approval for the location and installation of the private sewer rising main along any road i.e. Local Council and or Gas, electricity etc.

System Capacity:

Discharge flow rate limited to a maximum 2 l/s.

Connection point:

- A proposed connection point to the existing 150mm wastewater main located in Childs Circuit in front of 75 Childs Circuit, Belrose, constructed under CN 37261. Records show that the connection point has an existing 63mm sewer pressure main discharging to this sewer main and must be considered when designing any additional connection. It is understood that this private pressure main services the development along William Lord Place.
- A similar situation exists adjacent to 18 Childs Cct, where the development under Case 178099 has constructed an extension and then connected to the wastewater. This infrastructure is not yet in HYDRA.
- Any proposed discharge manhole may require a protective coating installed to prevent internal corrosion from H₂S (Hydrogen Sulphide). Please refer to Section 10.11.2 in the Sewerage Pumping Code of Australia WSA 04-2005-2.1 (Sydney Water 2012).
- Any works on the Sydney Water wastewater infrastructure must be carried out according to the Sewerage Code of Australia WSA 02-2002-2.2 (Sydney Water Edition 1 – Version 3) and or Sewerage Pumping Code of Australia WSA 04-2005-2.1 (Sydney Water 2012).

Wastewater Quality:

- It must be noted that depending on the length of any proposed private rising main it may contribute to both corrosion and odour problems in the our sewage system (refer to Section 2.4 in the Sewerage Code of Australia WSA 02-2002-2.2 (Sydney Water Edition1 Version 3). The proponent will be required to obtain professional advice which will include a report detailing measures required to reduce septicity and odour control, at their cost.
- The owner will need to demonstrate that any private pump and rising main meets septicity and odour control requirements. Please refer to Section 2.8 and 2.9 in the Sewerage Pumping Code of Australia WSA 04-2005-2.1 (Sydney Water 2012)
- The trade waste acceptance limits for domestic and non-domestic substances shall be observed such:

S ml/l= sulphides

- 10 ppm hydrogen sulphide.
- The above information is provided as a <u>guide</u> for the developer to assess their private pump to sewer proposal under this case. The developer must submit a report, including calculations, which will need to be endorsed by Sydney Water network operations under this case.

- If the proposal is endorsed and the developer completes the wastewater requirements <u>under this case</u>, a pump to wastewater connection approval application must be made via a Tap In[™].
- Depending on the complexity of servicing proposal due to local conditions, your Water Service Coordinator may advise that it is necessary to engage a range of service providers to complete the concept documentation.
- If the above conditions cannot be adequately addressed the pump to sewer option will not be endorsed and the developer must adopt a preferred servicing method or contact Council regarding a private onsite wastewater management system to service the proposed development.
- You must construct a wastewater main extension to serve your development. The terms of the Deed define this extension as 'Major Works'. Your Water Servicing Coordinator can provide more information about this.
- Because your development requires adjustment/deviation of a "live" wastewater main you must work with your WSC to ensure that:
 - Your Building Plans are approved prior to temporary pipework and excavation
 - You submit your temporary pipework design (if required) with your permanent wastewater deviation design for approval
 - Accept in writing to bonding conditions that will be provided in the Bond Agreement
 - Submit your Bond and signed Bond Agreement
 - Submit the Construction Commencement Notice for construction of the temporary pipework
 - Have your temporary pipework constructed by a listed provider, and then
 - Complete your permanent deviation works.

Funding of works

Under our 'Funding of infrastructure to service growth' policy we **may** agree to contribute towards a portion of the cost of the works you are required to build. This is done either by our Schedule of Rates or via the Procurement process. Your WSC can advise you in relation to this policy, the likelihood of us sharing a portion of the cost and the process you need to satisfy our probity requirements.

If you do choose to request a quote through the Schedule of Rates for our contribution you will avoid going through the full procurement process. Your WSC can advise you of this option.

The funding assessment will be made at the detailed <u>design stage</u>, prior to any construction works commencing. A firm commitment would not be made by us until we:

- Have reviewed the detailed design
- Have reviewed the detailed construction quotations needed to meet our probity requirements
- Come to an agreement on the amount.

5. Ancillary Matters

5.1 Asset adjustments

After we issue this Notice (and more detailed designs are available), we may require that the water main/sewer main/stormwater located in the footway/your property needs to be adjusted/deviated. If this happens, you'll need to do this work as well as the extension we have detailed above at your cost. The work must meet the conditions of this Notice and you will need to complete it **before we can issue the Certificate**. We'll need to see the completed designs for the work, and we'll require you to lodge a security. The security will be refunded once the work is completed.

5.2 Entry onto neighbouring property

If you need to enter a neighbouring property, you must have the written permission of the relevant property owners and tenants. You must use our **Permission to Enter** form(s) for this. You can get copies of these forms from your WSC or on our website. Your WSC can also negotiate on your behalf. Please make sure that you address all the items on the form(s) including payment of compensation and whether there are other ways of designing and constructing that could avoid or reduce their impacts. You will be responsible for all costs of

mediation involved in resolving any disputes. Please allow enough time for entry issues to be resolved.

5.3 Costs

Construction of these **future** works will require you to pay project management, survey, design, and construction costs **directly to your suppliers**. Additional costs payable to us may include:

- water main shutdown and disinfection
- connection of new water mains to our system(s)
- design and construction audit fees
- contract administration, Operations Area Charge & Customer Redress prior to project finalisation
- creation or alteration of easements etc
- water usage charges where water has been supplied for building activity purposes prior to disinfection of a newly constructed water main.
- Note: Payment for any Goods and Services (including Customer Redress) provided by Sydney Water will be required prior to the issue of the Section 73 Certificate or release of the Bank Guarantee or Cash Bond.

Your WSC can tell you about these costs.

OTHER THINGS YOU MAY NEED TO DO

Shown below are other things you need to do that are NOT a requirement for the Certificate. They may well be a requirement from us in the future because of the impact of your development on our assets. You must read them before you go any further.

Approval of your building plans

Please note that the building plans must be approved when each lot is developed. This can be done at in our Tap in[™] system Sydney Water Tap in [™].

This is not a requirement for the Certificate, but the approval is needed because the construction/building works may affect our assets (e.g. water, sewer, and stormwater mains).

If our stormwater channel, pipe, or culvert is located within ten (10) metres of your development site it must be referred to us for a detailed review.

Your Coordinator can tell you about the approval process including:

- Possible requirements
- Their costs
- Timeframes.

If your building plans need to be referred to us for detailed review you will be required to pay us for the costs associated with the detailed review.

Disused Sewerage Service Sealing

Please do not forget that you must pay to disconnect all disused private sewerage services and seal them at the point of connection to our sewer main. This work must meet our standards in the Plumbing Code of Australia (the Code) and be done by a licensed drainer. The licensed drainer must arrange for an inspection of the work by a NSW Fair Trading Plumbing Inspection Assurance Services (PIAS) officer. After that officer has looked at the work, the drainer can issue the Certificate of Compliance. The Code requires this.

Soffit Requirements

Please be aware that floor levels must be able to meet our soffit requirements for property connection and drainage.

Requirements for Business Customers for Commercial and Industrial Property Developments

If this property is to be developed for Industrial or Commercial operations, it may need to meet the following requirements:

Trade Wastewater Requirements

If this development is going to generate trade wastewater, the property owner must submit an application requesting permission to discharge trade wastewater to Sydney Water's sewerage system. You must wait for approval of this permit before any business activities can commence.

The permit application should be emailed to Sydney Water's <u>Business Customer Services</u> at <u>businesscustomers@sydneywater.com.au</u>

It is illegal to discharge Trade Wastewater into the Sydney Water sewerage system without permission.

A **Boundary Trap** is required for all developments that discharge trade wastewater where arrestors and special units are installed for trade wastewater pre-treatment.

If the property development is for Industrial operations, the wastewater may discharge into a sewerage area that is subject to wastewater reuse. Find out from Business Customer Services if this is applicable to your development.

Backflow Prevention Requirements

Backflow is when there is unintentional flow of water in the wrong direction from a potentially polluted source into the drinking water supply.

All properties connected to Sydney Water's supply must install a testable **Backflow Prevention Containment Device** appropriate to the property's hazard rating. Property with a high or medium hazard rating must have the backflow prevention containment device tested annually. Properties identified as having a low hazard rating must install a non-testable device, as a minimum.

Separate hydrant and sprinkler fire services on non-residential properties, require the installation of a testable double check detector assembly. The device is to be located at the boundary of the property.

Before you install a backflow prevention device:

- 1. Get your hydraulic consultant or plumber to check the available water pressure versus the property's required pressure and flow requirements.
- 2. Conduct a site assessment to confirm the hazard rating of the property and its services. Contact PIAS at NSW Fair Trading on **1300 889 099**.

For installation you will need to engage a licensed plumber with backflow accreditation who can be found on the Sydney Water website:

http://www.sydneywater.com.au/Plumbing/BackflowPrevention/

Water Efficiency Recommendations

Water is our most precious resource and every customer can play a role in its conservation. By working together with Sydney Water, business customers are able to reduce their water consumption. This will help your business save money, improve productivity and protect the environment.

Some water efficiency measures that can be easily implemented in your business are:

- Install water efficiency fixtures to help increase your water efficiency, refer to WELS (Water Efficiency Labelling and Standards (WELS) Scheme, <u>http://www.waterrating.gov.au/</u>
- Consider installing rainwater tanks to capture rainwater runoff, and reusing it, where cost effective. Refer to
 - http://www.sydneywater.com.au/Water4Life/InYourBusiness/RWTCalculator.cfm
- Install water-monitoring devices on your meter to identify water usage patterns and leaks.
- Develop a water efficiency plan for your business.

It is cheaper to install water efficiency appliances while you are developing than retrofitting them later.

Contingency Plan Recommendations

Under Sydney Water's <u>customer contract</u> Sydney Water aims to provide Business Customers with a continuous supply of clean water at a minimum pressure of 15meters head at the main tap. This is equivalent to 146.8kpa or 21.29psi to meet reasonable business usage needs.

Sometimes Sydney Water may need to interrupt, postpone or limit the supply of water services to your property for maintenance or other reasons. These interruptions can be planned or unplanned.

Water supply is critical to some businesses and Sydney Water will treat vulnerable customers, such as hospitals, as a high priority.

Have you thought about a **contingency plan** for your business? Your Business Customer Representative will help you to develop a plan that is tailored to your business and minimises productivity losses in the event of a water service disruption.

For further information please visit the Sydney Water website at: <u>http://www.sydneywater.com.au/OurSystemsandOperations/TradeWaste/</u> or contact Business Customer Services on **1300 985 227** or <u>businesscustomers@sydneywater.com.au</u>

Fire Fighting

Definition of fire fighting systems is the responsibility of the developer and is not part of the Section 73 process. It is recommended that a consultant should advise the developer regarding the fire fighting flow of the development and the ability of our system to provide that flow in an emergency. Sydney Water's Operating Licence directs that our mains are only required to provide domestic supply at a minimum pressure of 15 m head.

A report supplying modelled pressures called the Statement of Available pressure can be purchased through <u>Sydney Water Tap in</u>[™] and may be of some assistance when defining the fire fighting system. The Statement of Available pressure may advise flow limits that relate to system capacity or diameter of the main and pressure limits according to pressure management initiatives. If mains are required for fire fighting purposes, the mains shall be arranged through the water main extension process and not the Section 73 process.

Large Water Service Connection

A water main will be available, once you have completed your drinking water main construction to provide your development with a domestic supply. The size of your development means that you will need a connection larger than the standard domestic 20 mm size.

To get approval for your connection, you will need to lodge an application with <u>Sydney Water Tap</u> in TM. You, or your hydraulic consultant, may need to supply the following:

- a plan of the hydraulic layout
- a list of all the fixtures/fittings within the property
- a copy of the fireflow pressure inquiry issued by us
- a pump application form (if a pump is required)
- all pump details (if a pump is required).

You'll have to pay an application fee.

We don't consider whether a water main is adequate for fire fighting purposes for your development. We can't guarantee that this water supply will meet your Council's fire fighting requirements. The Council and your hydraulic consultant can help.

Disused Water Service Sealing

You must pay to disconnect all disused private water services and seal them at the point of connection to our water main. This work must meet our standards in the Plumbing Code of Australia (the Code) and be done by a licensed plumber. The licensed plumber must arrange for an inspection of the work by a NSW Fair Trading Plumbing Inspection Assurance Services (PIAS) officer. After that officer has looked at the work, the drainer can issue the Certificate of Compliance. The Code requires this.

Other fees and requirements

The requirements in this Notice relate to your Certificate application only. We may be involved with other aspects of your development and there may be other fees or requirements. These include:

- plumbing and drainage inspection costs
- the installation of backflow prevention devices;
- trade waste requirements
- large water connections and
- council fire fighting requirements. (It will help you to know what the fire fighting requirements are for your development as soon as possible. Your hydraulic consultant can help you here.)

No warranties or assurances can be given about the suitability of this document or any of its provisions for any specific transaction. It does not constitute an approval from us and to the extent that it is able, we limit its liability to the reissue of this Letter or the return of your application fee. You should rely on your own independent professional advice.

END

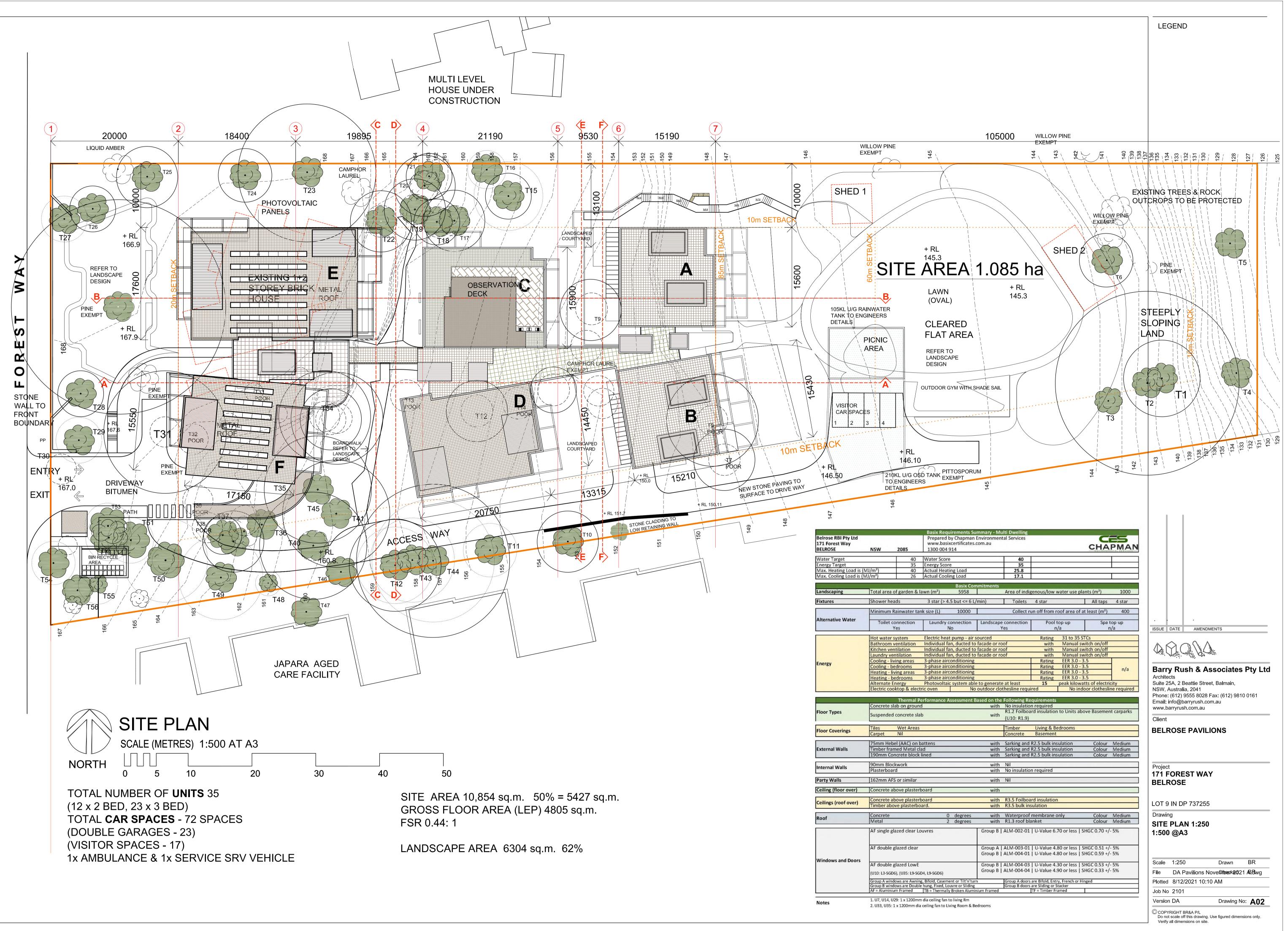
6 Attachment B – Proposed Development Plans





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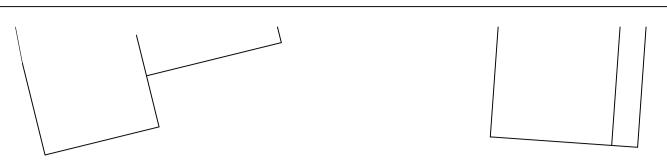
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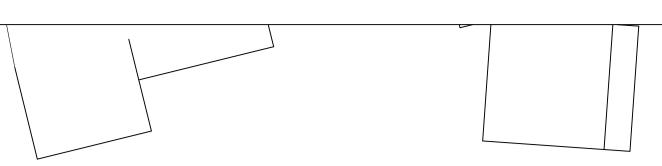




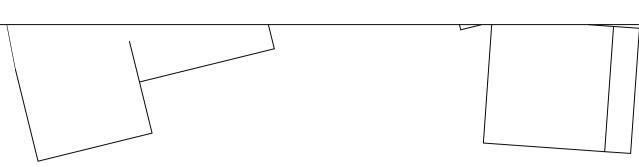




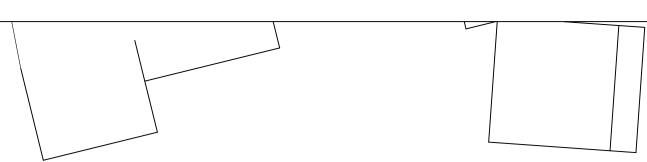


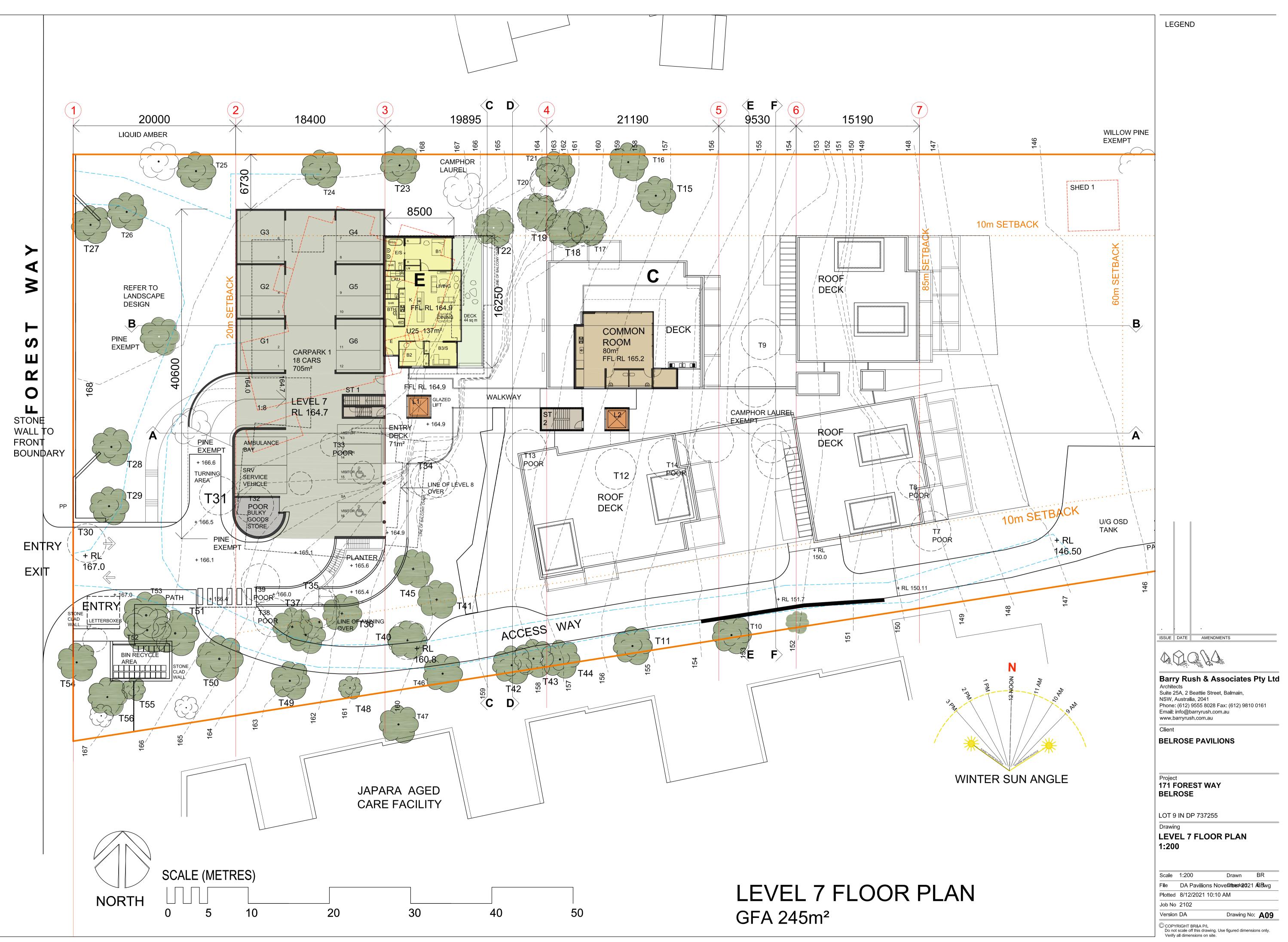


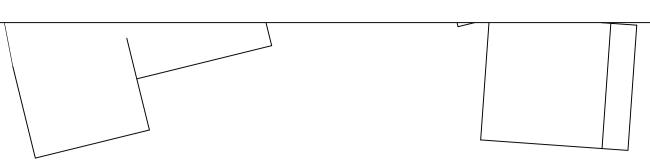






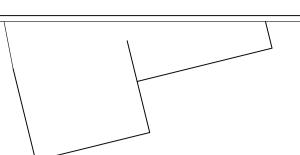


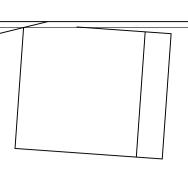












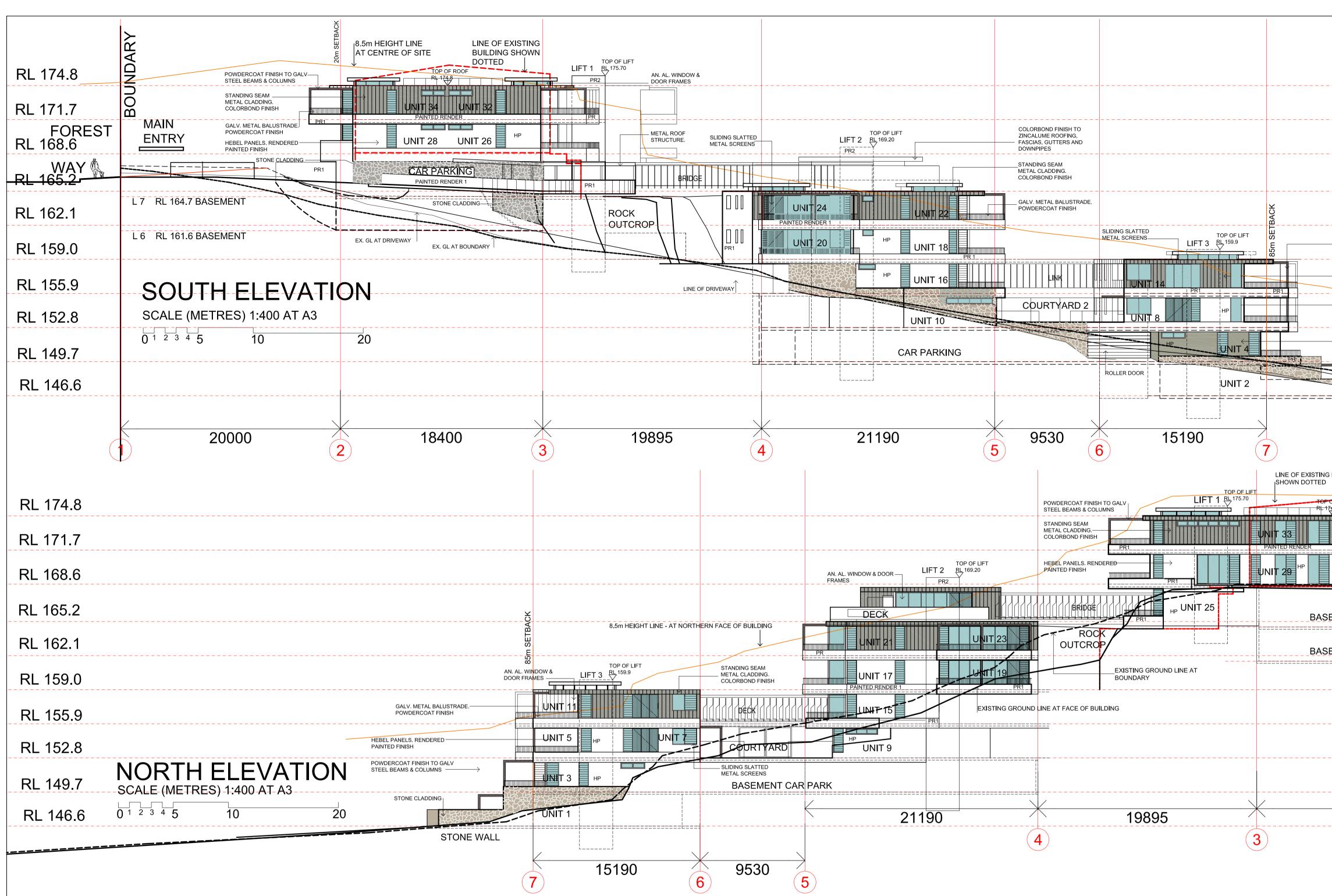




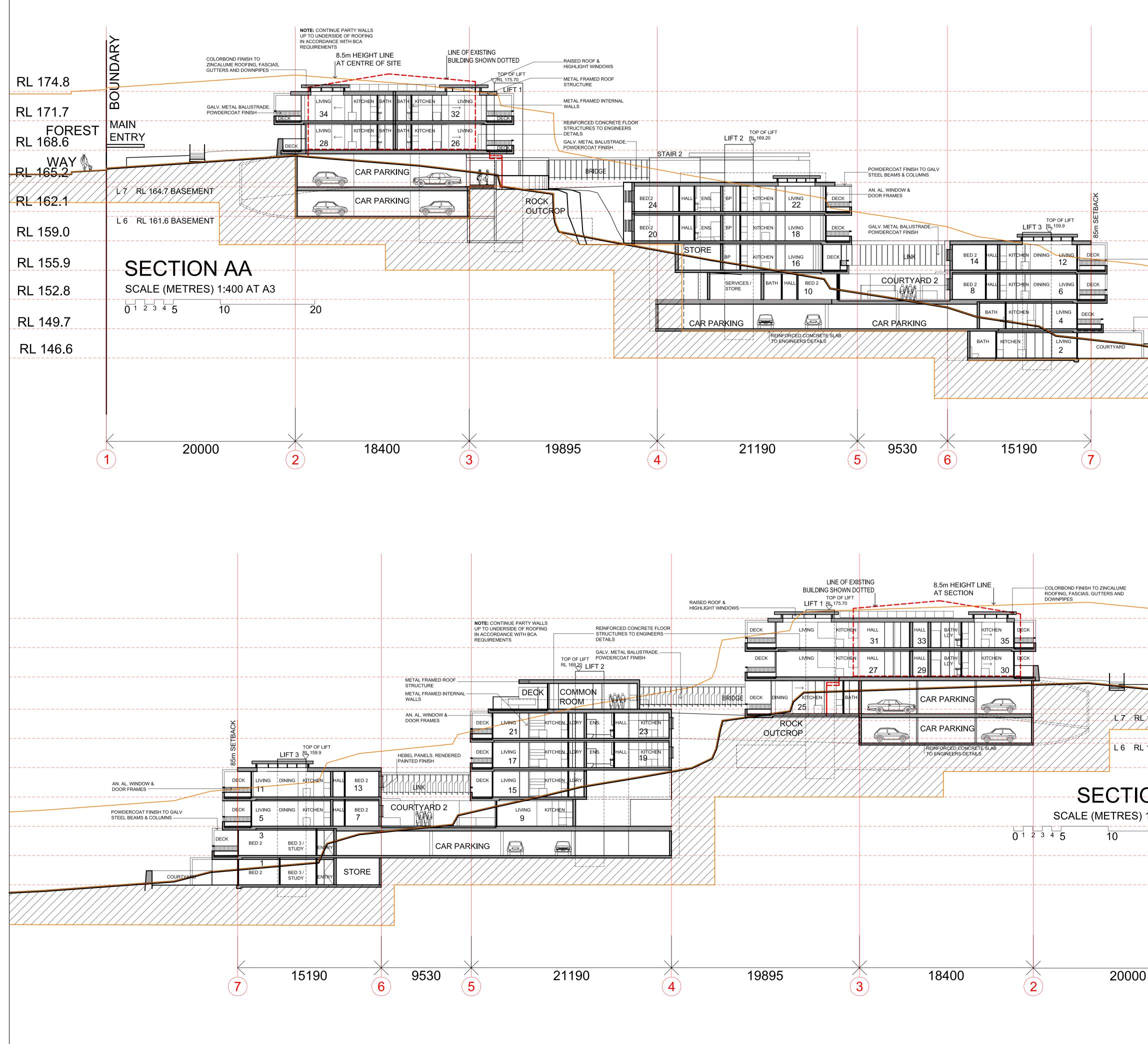
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 Architects Suite 25A, 2 Beattie Street, Balmain,
NSW, Australia, 2041
Phone: (612) 9555 8028 Fax: (612) 9810 0161 Email: info@barryrush.com.au
www.barryrush.com.au
Client
BELROSE PAVILIONS
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171 FOREST WAY
BELROSE
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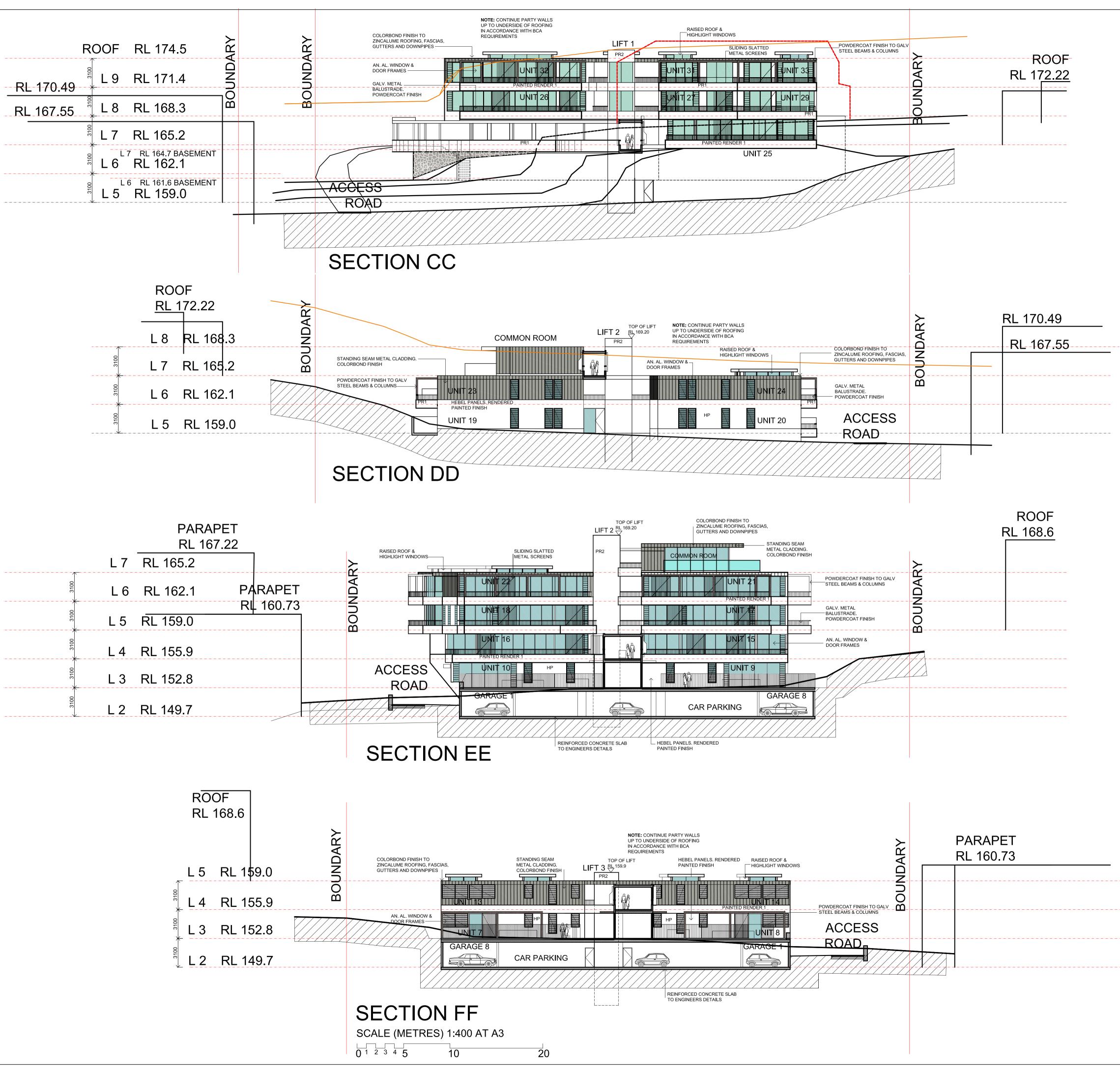
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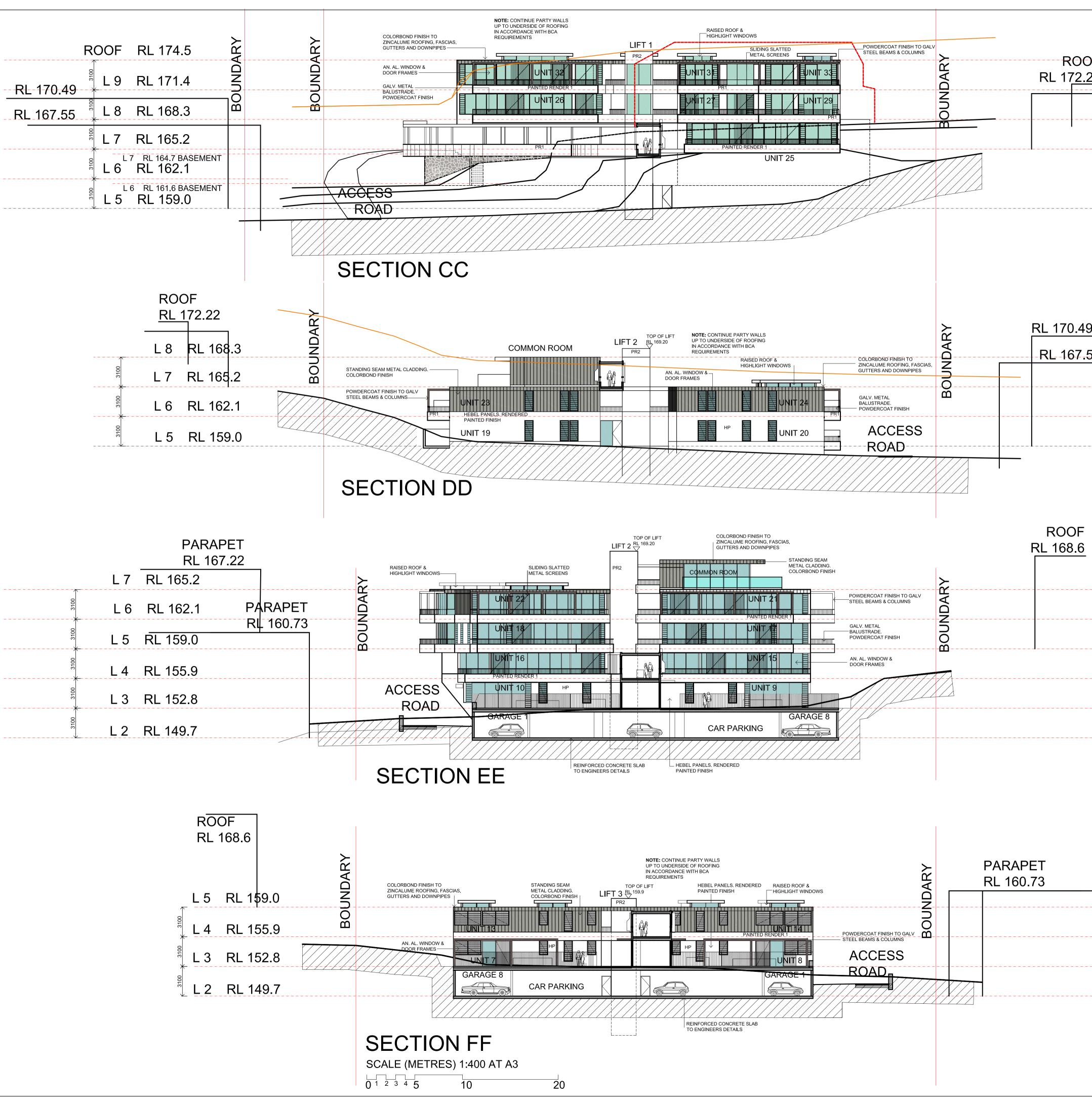


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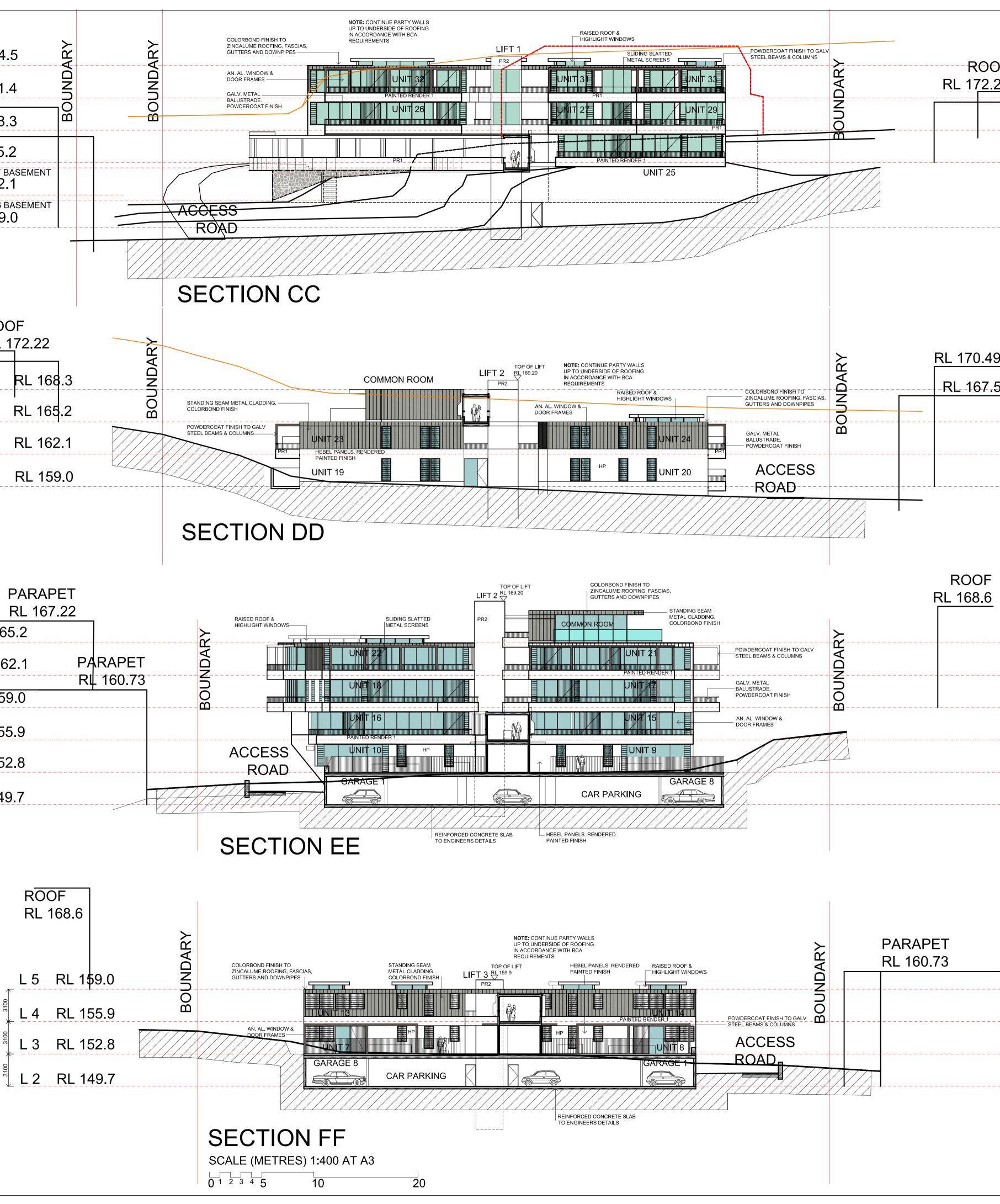


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Client

BELROSE PAVILIONS

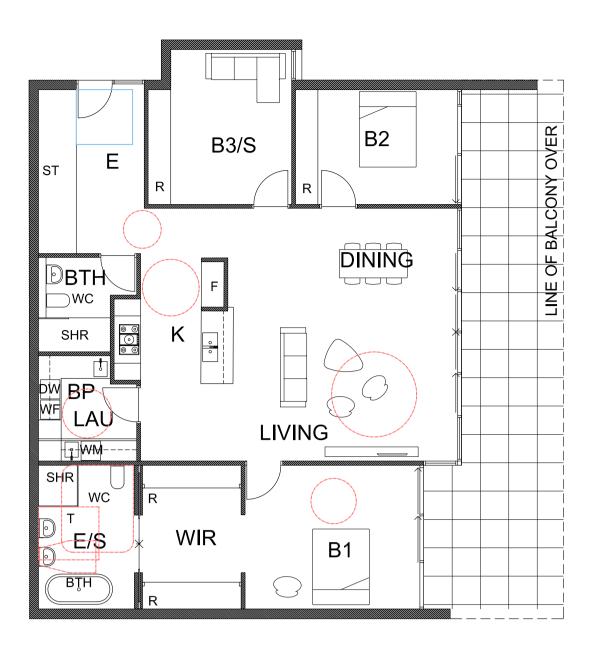
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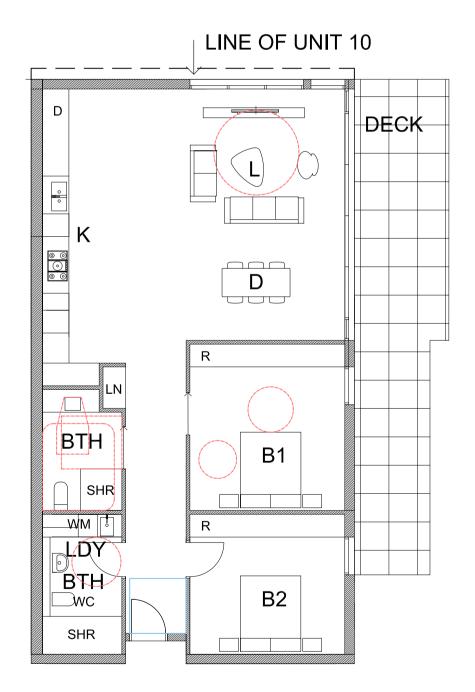




Type A1 Unit -3 Bedroom Unit 1 (170m²).

Type A2 Unit -2 Bedroom + Third Bedroom/Study Unit 2 (152m²)





Typical Type D Unit -

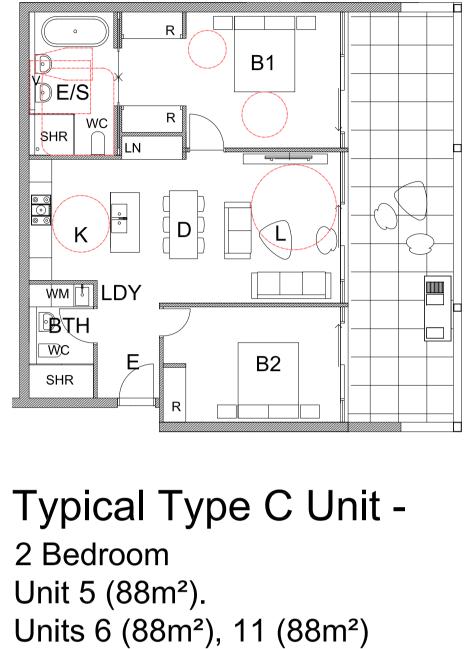
2 Bedroom Unit 7 (95m²). Units 8 (95m²), 13 (95m²) & 14 similar (95m²)

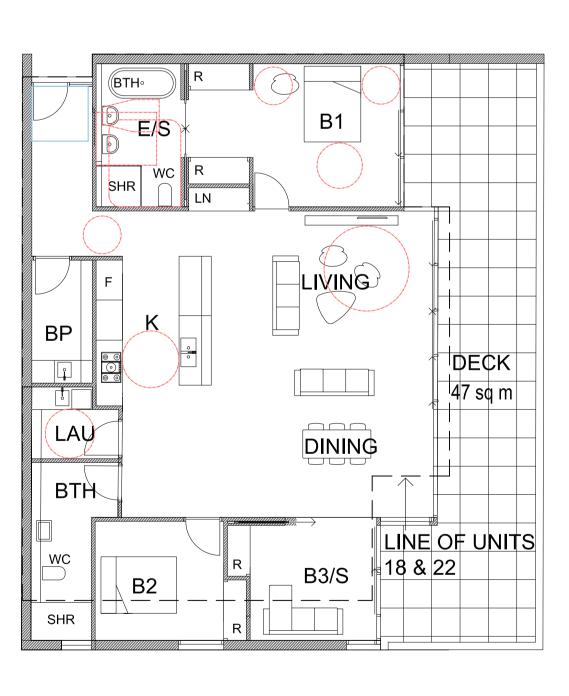
Typical Type E Unit -2 Bedroom Unit 9 (118m²). Unit 10 similar (120m²)



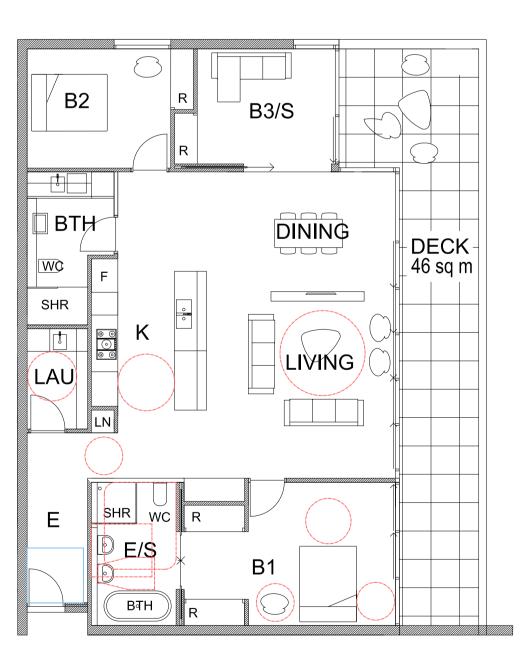


Typical Type B Unit -2 Bedroom + Third Bedroom/Study Unit 3 (138m²). Unit 4 similar (138m²)





Unit 16 (153m²).



Typical Type F Unit -2 Bedroom + Third Bedroom/Study Unit 15 (140m²). Units 17 (138m²) & 21 (138m²) similar

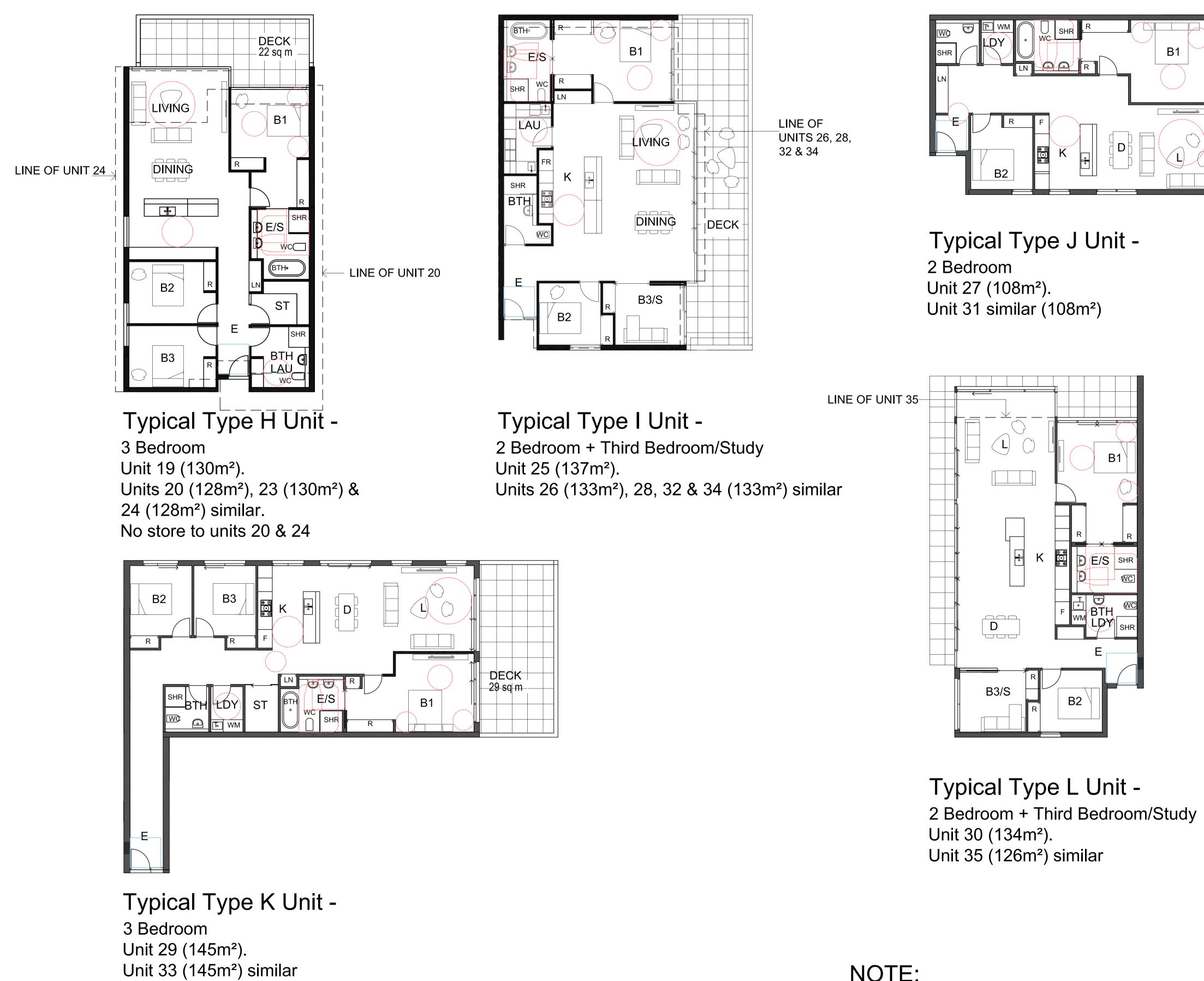
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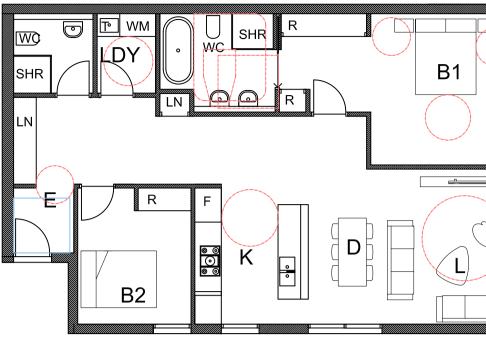
& 12 similar (88m²)

Typical Type G Unit -2 Bedroom + Third Bedroom/Study Units 18 (140m²) & 22 (140m²) similar

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NSW, Australia, 2041	
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Phone: (612) 9555 8028 Fax: (612) 9810 0161 Email: info@barryrush.com.au	
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Phone: (612) 9555 8028 Fax: (612) 9810 0161 Email: info@barryrush.com.au www.barryrush.com.au Client BELROSE PAVILIONS Project 171 FOREST WAY BELROSE LOT 9 IN DP 737255 Drawing TYPICAL UNIT PLANS -	

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NOTE: PRIVATE OPEN SPACE LAYOUT AND SIZE VARIES PER UNIT

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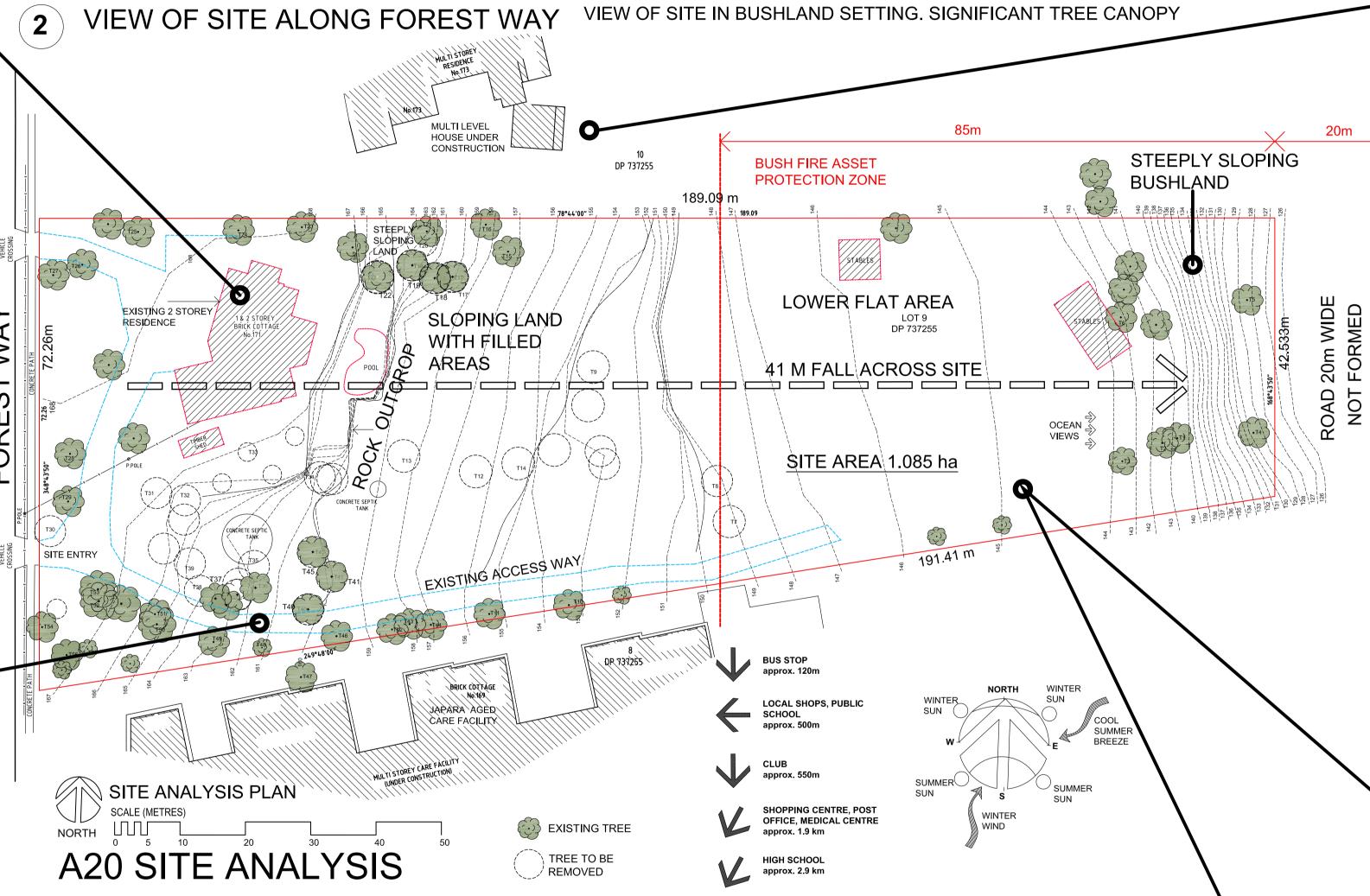
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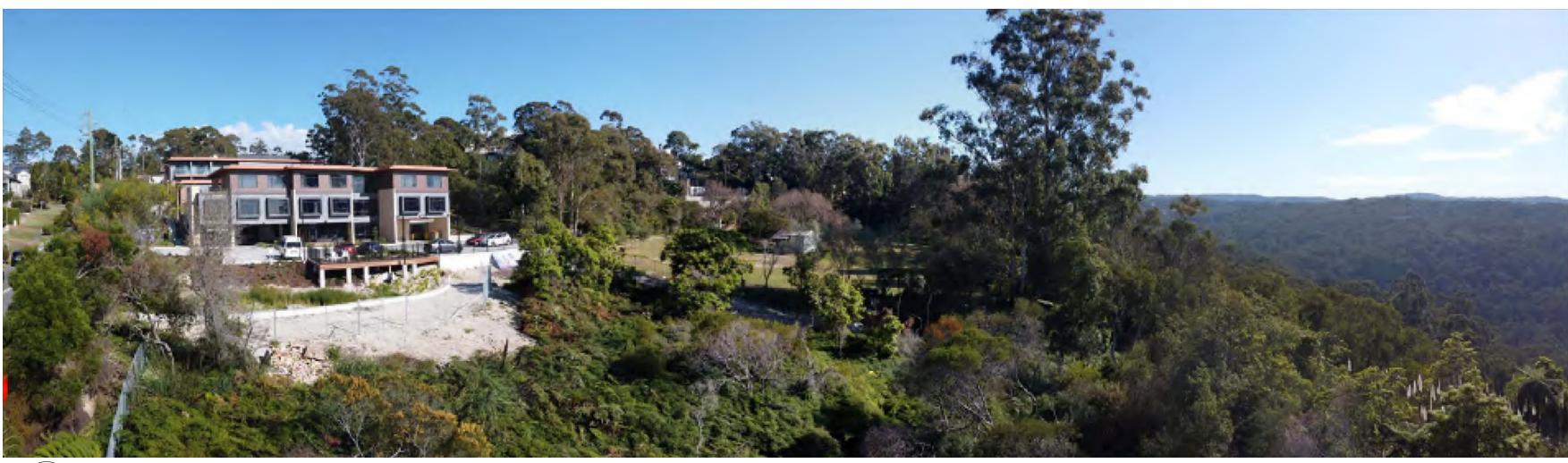
DRIVEWAY

EXISTING RESIDENCE LARGE 2 STOREY BRICK & TILE HOUSE. HIDDEN FROM FOREST WAY BY EXISTING TREES.



TALL NATIVE TREES PROVIDING A HIGH CANOPY.









LOWER FLAT AREA WITH HORSES





4 ROCK OUTCROP ACROSS SITE





LOWER FLAT AREA

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Client **BELROSE PAVILIONS**

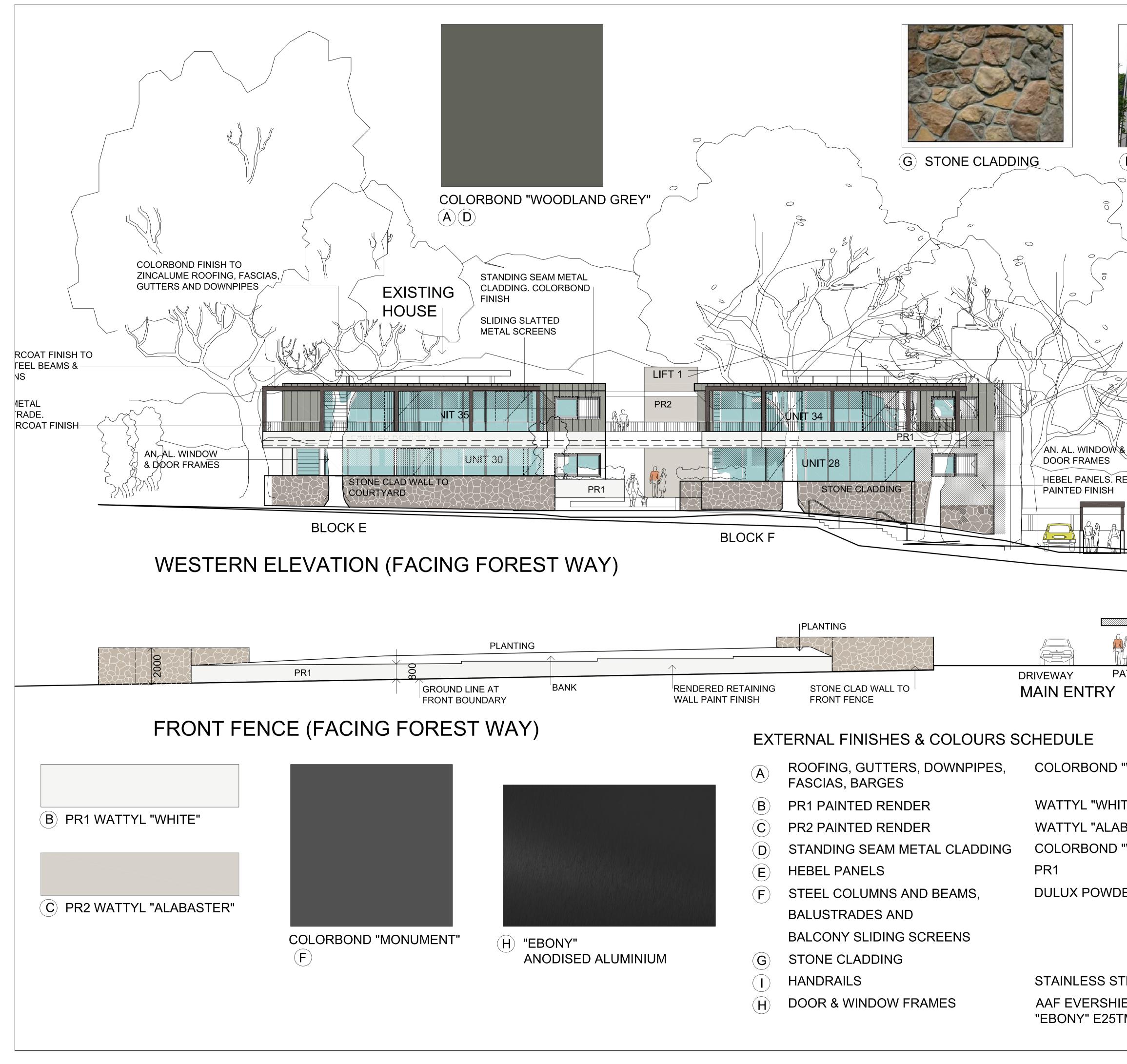
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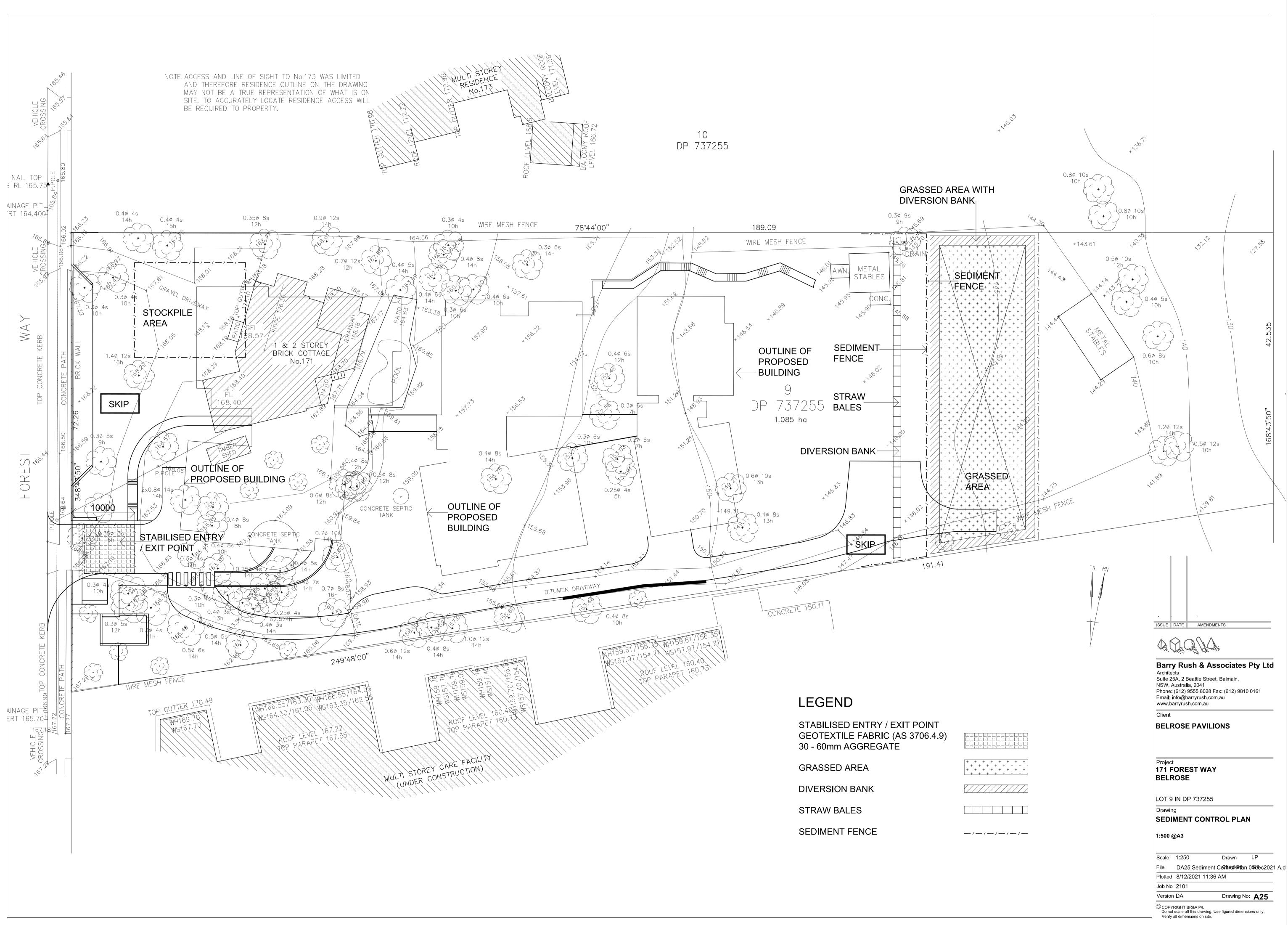


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	Barry Rush & Associates Pty Ltd Architects Suite 25A, 2 Beattie Street, Balmain, NSW, Australia, 2041
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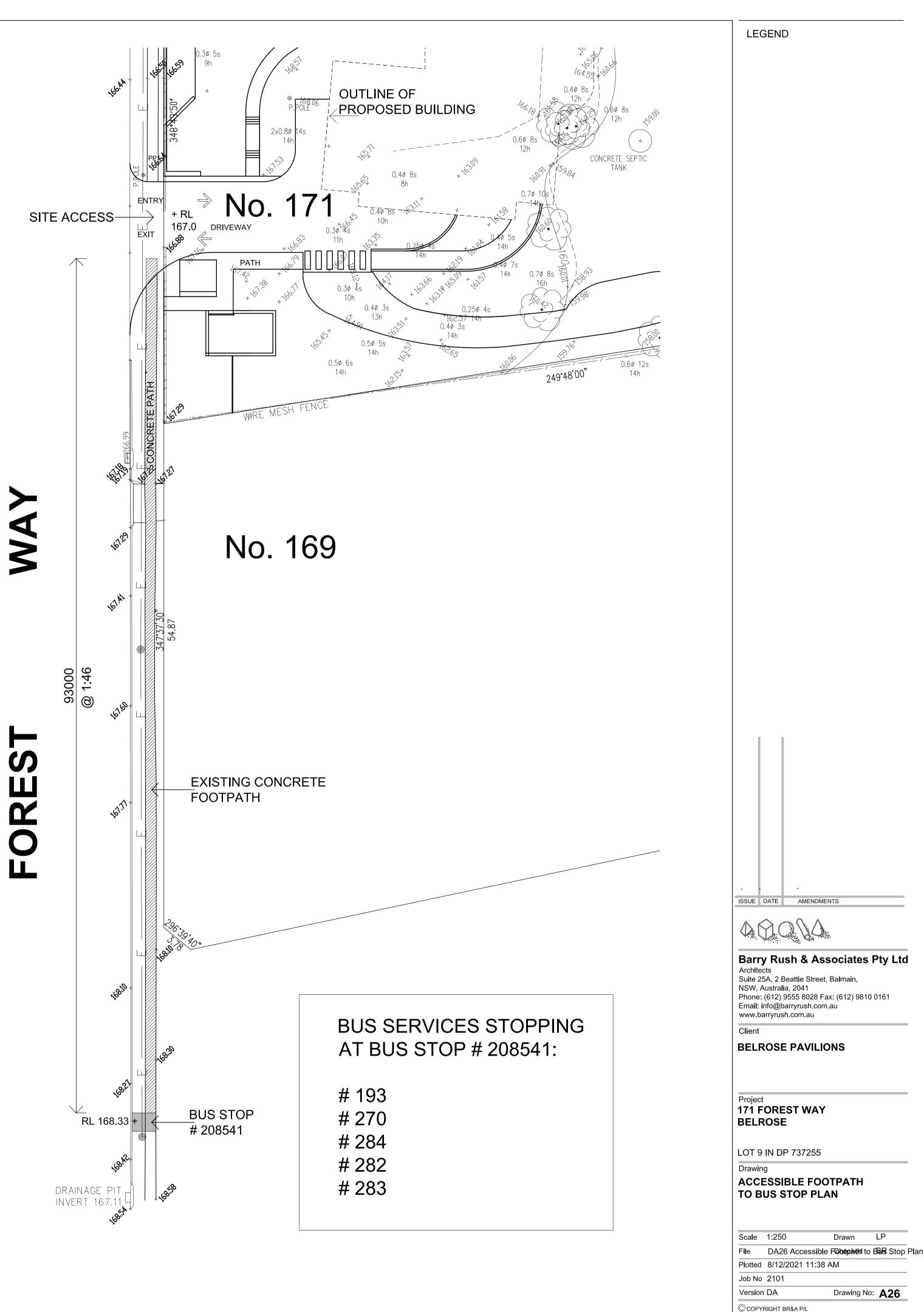
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7 Attachment C – Dial Before You Dig Plan



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8 Attachment D – Marked Up Dial Before You Dig Plan



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